Version 3.0 draft 1

Message Mapping Catalogue

1 INTRODUCTION

1.1 Document Purpose

This document shall be known as the "Message Mapping Catalogue" document and is provided pursuant to Section H11.2.

This Message Mapping Catalogue sets out the mapping of content of Service Responses and Device Alerts issued in GBCS Payload Format to the MMC Output Format.

Additionally requirements in the MMC shall apply to Countersigned SMETS1 Responses and Countersigned SMETS1 Alerts as defined in the DCC User Interface Specification, subject to the variations to such requirements set out in section 1.4.

1.2 Document Structure

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1.3 Definitions

Alert Code	has the meaning set out in GBCS or, in relation to SMETS1 Alerts and SMETS1 Responses, the meaning set out in the SMETS1 Supporting Requirements.
GBCS Payload Format	means a base64 encoded format of a GBCS Payload.
GBZ	has the meaning set out in GBCS.
Message Code	has the meaning set out in GBCS or, in relation to SMETS1 Alerts and SMETS1 Responses, the meaning set out in the SMETS1 Supporting Requirements.
MMC	means the Message Mapping Catalogue.
MMC Output Format	means the XML data format that is defined in this document.
MMC XML Schema	means the XML schema which delivers the MMC Output Format consistent with the MMC and which is embedded in Annex A.
Zigbee	means the set of standards as published by the Zigbee Alliance.
Zigbee Smart Energy	means the subset of the Zigbee standards covering the "Smart Energy" sector.

Other defined terms in this document shall have the meanings in Section A of the Smart Energy Code.

1.4 Variation of requirements in relation to SMETS1 Responses and SMETS1 Alerts

In relation to Countersigned SMETS1 Responses and Countersigned SMETS1 Alerts, the requirements in sections 2, 3, 4, 5 and 6 shall be varied as follows:

i) Section 2.2.1 shall not apply.

ii) In section 3, section 4.2, section 5.60 and section 6.1.2,

a. references to GBCS shall be references to the SMETS1 Supporting Requirements

b. Timestamp shall be populated as set out in the SMETS1 Supporting Requirements, and

c. DeviceAlertContent elements in SMETS1 Alerts shall be populated according to Table 9

iii) Section 4.1 shall not apply.

The element named *ResponseMessage* shall always contain a SMETSData element and may also contain a *DebugInfo* element.

The SMETSData group shall always contain a boolean attribute named *MessageSuccess* which shall have the value *true* where DebugInfo is not present and the value *false* otherwise.

The *DebugInfo* group shall contain an element named SMETS1Debug which shall contain an Error element (see Table 1). The Error element shall detail status information related to the SMETS1 Response in question. The DebugInfo group shall only be present where the S1SP is reporting error information.

Data Item	Description	Type	Mandatory	Valid Values
Error	A string detailing an error	xs:string	Yes	N/A

Table 1 : SMETS1Response (ra:StatusSMETS1) MMC Output Format data items

Sections 4.2.1 and 4.2.2 shall not apply for SMETS1 Alerts. SMETS1 Alerts' Message Codes and payloads shall comply with the requirements of the SMETS1 Supporting Requirements.

Explanatory text in section 5 related to the application of scalars, mulitpliers and divisors from GBCS data shall not apply. For clarity, values in SMETS1 Alerts and SMETS1 Responses shall have the units and format specified in section 5.

Data described as encrypted in sections 4, 5 and 6 shall not be encrypted in SMETS1 Responses.

2 OVERVIEW OF MMC OUTPUT FORMAT

2.1 Introduction

This Message Mapping Catalogue contains a description of the MMC Output Format of data after it has been converted from GBCS Payload Format. The scope of data covered by the Message Mapping Catalogue includes any meaningful and relevant data that is contained within Service Responses and Device Alerts which is in GBCS Payload Format.

DCC Alerts are not included within the scope of the MMC Output Format, nor are Service Responses to Non-Device Service Requests.

The DCC shall ensure that the Parse functionality of the Parse and Correlate software converts all meaningful and relevant GBCS Payload Format data contained within a Service Response or Device Alert into MMC Output Format.

2.2 MMC XML Schema

An XML definition is provided within the MMC XML Schema for each Service Response, where the XML element name shall correspond to the name of the Service Request in the DUIS XML schema, with the addition of the suffix "Rsp" at the end of the name. The MMC XML Schema shall also include an XML definition for all Device Alerts.

Where the content referred to within this document is defined in the DUIS XML Schema the namespace shall be known as "sr", the full definitions appear in the DUIS document and are not reproduced within the MMC. All XML definitions that appear in the MMC Output Format schema have the namespace "ra".

The MMC XML Schema delivers an MMC Output Format which is consistent with the further descriptions in Sections [3, 4, 5 and 6] below. For the avoidance of doubt, the MMC XML Schema (and DUIS XML Schema) are provided as the authoritative source for data item definitions. Where any inconsistencies may exist between the definitions contained within the main text within this document and the MMC/DUIS XML Schema data item definitions then the DUIS/MMC XML Schema shall take precedence.

The default within the MMC XML Schema is for items to be optional (minOccurs = 0). Therefore this MMC document does not explicitly show items as 'optional' and does not define minOccurs unless it is not set to "minOccurs = 0". It is recognised that whilst some items are optional within the schema, the item may be mandatory within the business process.

2.2.1 XML High-Level Service Response Structure

The MMC Output Format complies with the following structures:

1. The top level element shall always be of XML type *GBCSResponse* and shall contain elements as set out immediately below:
   a) an XML attribute defining the MMC XML Schema version used;
   b) a header element, with element name *Header*, which shall have a format that is common between Service Responses and Device Alerts, as set out in Section 3 of this document; and
   c) a body element, which:

i. for Service Responses, shall have a body element name *ResponseMessage* and shall have the format as set out in Section 4.1 of this document; and
ii. for Device Alerts, shall have a body element name *DeviceAlertMessage* and shall have the format as set out in Section 4.2 of this document.

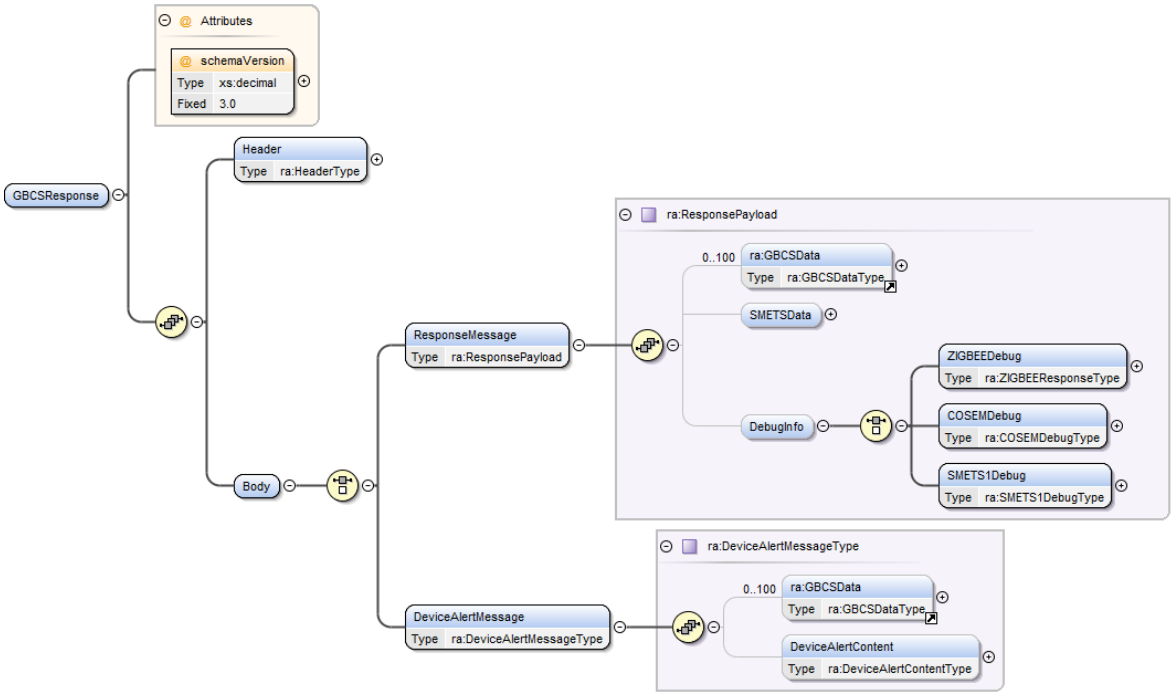


Figure 1 : Overall structure of the MMC Output Format (for information)

2.3 Standard notation and data definitions

Within the MMC Output Format definitions the following notation and data format definitions are used:

1. Wherever the notation "0x" is used as a prefix to a numeric value, this indicates that the numeric value is hexadecimal (base 16), the "0x" does not form part of the value. For example the value denoted as 0x91 equates to a decimal value of 145. This notation is used within GBCS and the SEC.

2. The DCC Systems use UTC (Coordinated Universal Time) for all Requests and Responses. All references to date and/or time in this MMC are references to UTC.

3. All date time items will be returned in the formatted to include the reference to the times zone (UTC) as follows:

   xs:date data types shall be formatted as <Date>2015-12-25Z</Date>

   xs:time data types shall be formatted as <Time>09:30:10.00Z</Time>

   xs:dateTime data types shall be formatted as
   <DateTime>2015-12-25T09:30:10.00Z</DateTime>

   Where date time values are returned, the 100th of a second precision of time values shall be populated where that precision is available otherwise it shall be populated with a value of 00.

2.4 Data Types Shared Across Service Responses

This section defines those Data Types that are included in a number of Header Elements within clause 3 and Body Elements within clause below.

2.4.1 EUI

Data Type	Description / Allowable values	Type	Mandatory	Default	Units
EUI	One EUI-64 value (type ra:EUI)	Restriction of xs:token (base type xs:normalisedString)	No	None	N/A

2.4.2 NoType

A type definition to indicate that the specific data item does not have a type associated with it, and is simply an empty tag.

3 HEADER ELEMENT OF THE MMC OUTPUT FORMAT

The MMC XML Schema delivers an MMC Output Format for each Service Response and Device Alert that includes a header element consisting of data items as set out in Table 2 immediately below, where the mandatory data items are in all cases included. Each data item that is not indicated as mandatory in Table 2 shall only be included where relevant to the corresponding Service Response or Device Alert, as set out in Sections 5.1 to 5.108 and 6.1 to 6.4 of this document.

Data Item	Reference or description	Type	Mandatory	Valid Values
BusinessOriginatorID	As set out in GBCS, 'Business Originator ID'	ra:EUI (see clause 2.4.1)	Yes	EUI-64 value
BusinessTargetID	As set out in GBCS, 'Business Target ID'	ra:EUI (see clause 2.4.1)	Yes	EUI-64 value
OriginatorCounter	As set out in GBCS, 'Originator Counter'	xs:nonNegativeInteger	Yes	minInclusive = 0, maxInclusive = 18,446,744,073,709,551,615
SupplementaryRemotePartyID	As set out in GBCS, 'Supplementary Remote Party ID'	ra:EUI (see clause 2.4.1)	No	EUI-64 value
SupplementaryRemotePartyCounter	As set out in GBCS, 'Supplementary Remote Party Counter'	xs:nonNegativeInteger	No	minInclusive = 0, maxInclusive = 18,446,744,073,709,551,615
SupplementaryOriginatorCounter	As set out in GBCS, 'Supplementary Originator Counter'	xs:nonNegativeInteger	No	minInclusive = 0, maxInclusive = 18,446,744,073,709,551,615
GBCSHexadecimalMessageCode	As set out in GBCS, 'Message Code'	xs:hexBinary	Yes	See GBCS Section 20 mapping table.
ServiceReference	As set out in DUIS, 'Service Reference' Derived from Service Request	ra:ServiceReference	Yes for Service Responses; No for Device Alerts	See DUIS Service Request Matrix
ServiceReference Variant	As set out in DUIS, 'Service Reference Variant' Derived from Service Request	ra:ServiceReferenceVariant	Yes for Service Responses; No for Device Alerts	See DUIS Service Request Matrix
Timestamp	The time as sent by the Device, (UTC)	xs:dateTime	No	UTC Date-Time, taken from the GBCS Grouping Header

Table 2 : MMC Output Format header data items

4 BODY ELEMENT OF THE MMC OUTPUT FORMAT

4.1 Service Response

The body element of the MMC Output Format in respect of a Service Response shall contain an element name *ResponseMessage* containing one or more of the XML element groups as set out immediately below:

a) SMETSData element group, containing the data extracted from the GBCS Payload as set out in Section 4.1.1 of this document;
b) GBCSData element group, containing data only where there is encrypted data within the Service Response or Device Alert, as set out in Section 4.1.2 of this document; and
c) DebugInfo element group, containing status information generated by an unsuccessful GBCS command as set out in Section 4.1.3 of this document.

4.1.1 Element group - SMETSData

The *SMETSData* element group shall always be present, except in cases where the GBCS Payload contains encrypted data, and where present, the SMETSData group shall contain:

a) the overall status of the message; a boolean attribute named *MessageSuccess*, contained within the top level element for the Service Response (see 5.1 to 5.108), where the Boolean attribute shall be *true* where the Service Response was returned with no errors, and shall be *false* where the Service Response was not compliant with the GBCS specification or where any errors were returned; and

b) the data extracted from Service Responses in all cases other than where the Service Response only includes the *MessageSuccess* status information; a set of elements which vary according to the corresponding Service Request. The elements to be included in each Service Response are as set out in Sections 5.1 to 5.108 of this document.

4.1.2 Element group - GBCSData

One or more *GBCSData* element groups will only be present where the Service Response or Device Alert (see 4.2 for Device Alerts) contains some encrypted GBCS Payload Format data. The *GBCSData* element groups contain unencrypted exposed data and/or encrypted unconverted GBCS data, which can be translated to MMC Output Format. Where there is encrypted data in the GBCS Payload, the data may be decrypted as set out in Section 4.3 of this document. Where such encrypted data is contained within the GBCS Payload, the *SMETSData* element group shall not be included within the MMC Output Format.

4.1.3 Element group - DebugInfo

The *DebugInfo* group will contain any status information returned as part of an unsuccessful DLMS/COSEM or GBZ message as further detailed below, but not in cases where the message is coded in ASN.1 format, the ASN.1 response codes are described under 4.1.3.3. In a few specific cases where a successful response may contain status information indicating a failure, the status is shown in the Service Response definition.

Where there has been a failure in the execution of the Command to a Device, the error statuses shall be handled in a way that is specific to the underlying protocol as defined for the relevant GBCS Use Case within the GBCS. In order to be able to return GBCS protocol-

specific status responses, the MMC Output Format includes different status types according to the underlying protocol used by the Command. These relevant underlying protocols are:

a) for GBCS Commands based upon the ZigBee protocol, the Device response status codes shall be in a ZIGBEEDebug structure within the DebugInfo group, as set out in Section 4.1.3.1 of this document;

b) for GBCS Commands based upon the DLMS/COSEM protocol, the Device response status codes shall be in a COSEMDebug structure within the DebugInfo group, as set out in Section 4.1.3.2 of this document; and

c) for security-related Device commands that are implemented in a binary format represented in ASN.1 format, the status codes shall be embedded within the response structure as set out in Section 4.1.3.3 of this document, and the DebugInfo element group shall not be present.

4.1.3.1 Element group - ZIGBEEDebug Status Responses

The *ZIGBEEDebug* element comprises one or more *ZIGBEEClusterResponse* XML elements, the number of which shall depend on the GBCS Use Case.

A Command based on the ZigBee protocol returns information within one or more responses as defined in GBCS (GBZ), each of which may be a *ZIGBEEDataResponse* structure (for attribute related responses) or a *ZIGBEECommandResponse* structure (for command related responses), elements are structured in the order they appear in the Response.

Table 3, as set out immediately below, sets out the debug information associated with a ZigBee message.

A Zigbee failure response requires a level of expert interpretation. For some Zigbee failure responses the debug information will need to be augmented with the contextual detail in the Service Request in order to complete the analysis.

Data Item	Description / Valid Set	Type	Mandatory	Valid Values
ClusterName	The name of the ZSE (ZigBee Smart Energy) cluster from which the response was received.	ra:StringIDType	Yes	See GBCS
Id (attribute of ClusterName)	The XML type also carries the ZigBee Cluster identifier of the cluster	xs:string	Yes	See GBCS
ZIGBEECommandResponse XML group for each Command which has an error status response (at least one ZIGBEECommandResponse or ZIGBEEDataResponse will be present)				
CommandID	ZigBee Smart Energy Protocol command identifier of an operation within the ZSE cluster that is used to update or read from a Device.	xs:string	Yes	See GBCS
Status	XML group for each status within the response (normally one)			
ResponseCode (attribute of Status)	This contains the numerical code returned by the Device, which corresponds to the text string. One of those defined in Table 4 immediately below.	xs:hexBinary	Yes	As defined in GBCS
ZCLStatus	ZIGBEE status value, one of those defined in Table 4 immediately below.	xs:string	Yes	As defined in Zigbee

Data Item	Description / Valid Set	Type	Mandatory	Valid Values
ZIGBEEDataResponse (at least one ZIGBEECommandResponse or ZIGBEEDataResponse will be present)	XML group for each read attribute operation which has an error status response			
AttributeID	ZSE "read attribute" operations where there has been a status returned for an individual attribute. Note that in some cases data is read by a ZSE Command in which case status will be returned using ZIGBEECommandResponse.	xs:string	Yes	See GBCS
Status	XML group containing the status within the response			
ResponseCode (attribute of Status)	This contains the numerical code returned by the Device, which corresponds to the text string. One of those defined in Table 4 immediately below.	xs:hexBinary	Yes	As defined in GBCS
ZCLStatus	ZIGBEE status value, one of those defined in Table 4 immediately below.	xs:string	Yes	As defined in Zigbee

Table 3 : ZigBee Responses

For each GBCS response code including the Zigbee Smart Energy response codes as set out in Table 4 immediately below, the MMC Output Format shall include the corresponding response code name within the debug information added within the DebugInfo element group. All Zigbee response codes are listed; an error will be identified by one of the failure codes.

Response Code	Response Code Name (Zigbee status value)
0x00	SUCCESS
0x01	FAILURE
0x7e	NOT_AUTHORIZED
0x7f	RESERVED_FIELD_NOT_ZERO
0x80	MALFORMED_COMMAND
0x81	UNSUP_CLUSTER_COMMAND
0x82	UNSUP_GENERAL_COMMAND
0x83	UNSUP_MANUF_CLUSTER_COMMAND
0x84	UNSUP_MANUF_GENERAL_COMMAND
0x85	INVALID_FIELD
0x86	UNSUPPORTED_ATTRIBUTE
0x87	INVALID_VALUE
0x88	READ_ONLY
0x89	INSUFFICIENT_SPACE
0x8a	DUPLICATE_EXISTS
0x8b	NOT_FOUND
0x8c	UNREPORTABLE_ATTRIBUTE
0x8d	INVALID_DATA_TYPE
0x8e	INVALID_SELECTOR
0x8f	WRITE_ONLY
0x90	INCONSISTENT_STARTUP_STATE
0x91	DEFINED_OUT_OF_BAND
0x92	INCONSISTENT
0x93	ACTION_DENIED
0x94	TIMEOUT
0x95	ABORT
0x96	INVALID_IMAGE

Response Code	Response Code Name (Zigbee status value)
0x97	WAIT_FOR_DATA
0x98	NO_IMAGE_AVAILABLE
0x99	REQUIRE_MORE_IMAGE
0xc0	HARDWARE_FAILURE
0xc1	SOFTWARE_FAILURE
0xc2	CALIBRATION_ERROR
Any other number	RESPONSE_CODE_NOT_KNOWN

Table 4 : ZigBee Smart Energy Response Codes

4.1.3.2 Element group - COSEMDebug Status Structure

The *COSEMDebug* element shall comprise one or more *COSEMResponse* XML elements, which in turn contain either a *DataAccessResult* element or an *ActionResult* element. The number of *COSEMResponse* structures depends on the GBCS Use Case and the flow taken through the GBCS Use Case determined by the Service Request data items.

For a GBCS response based on DLMS/COSEM, the MMC Output Format shall include either a data access result *DataAccessResult* or a data action result *ActionResult*. The relevant debug information XML output based on DLMS/COSEM messages is set out in Table 5 immediately below.

Data Item	Description	Type	Mandatory	Valid Values
ResponseCode (attribute of COSEMResponse)	This contains the numerical code returned by the Device, which corresponds to the text string.	xs:integer	Yes	As defined in GBCS and summarised in Table 6 and Table 7 below
Position (attribute of COSEMResponse)	Provides a position within the Command response. A sequence.	xs:positive Integer	Yes	
DataAccessResult	A status string denoting the result of an operation.	xs:string	Yes, only where ActionResult data item is not present	As defined in GBCS and summarised in Table 7 below
ActionResult	A status string denoting the result of an operation.	xs:string	Yes, only where DataAccessResult data item is not present	As defined in GBCS and in Table 6 below

Table 5 : DLMS/COSEM (ra:StatusCOSEM) MMC Output Format data items

Response Code	Response Code Name	Response Code Type
0	success	Data action
1	hardware-fault	Data action
2	temporary-failure	Data action
3	read-write-denied	Data action
4	object-undefined	Data action
9	object-class-inconsistent	Data action
11	object-unavailable	Data action
12	type-unmatched	Data action
13	scope-of-access-violated	Data action
14	data-block-unavailable	Data action
15	long-action-aborted	Data action
16	no-long-action-in-progress	Data action
250	other-reason	Data action
Any other number	response-code-not-known	Data action

Table 6 : DLMS/COSEM Action Response Codes

Response Code	Response Code Name	Response Code Type
0	success	Data access
1	hardware-fault	Data access
2	temporary-failure	Data access
3	read-write-denied	Data access
4	object-undefined	Data access
9	object-class-inconsistent	Data access
11	object-unavailable	Data access
12	type-unmatched	Data access
13	scope-of-access-violated	Data access
14	data-block-unavailable	Data access
15	long-get-aborted	Data access
16	no-long-get-in-progress	Data access
17	long-set-aborted	Data access
18	no-long-set-in-progress	Data access
19	data-block-number-invalid	Data access
250	other-reason	Data access
Any other number	response-code-not-known	Data access

Table 7 : DLMS/COSEM Data Access Response Codes

4.1.3.3 Status Response Codes

For the GBCS Use Cases that are encoded in the ASN.1 format, the error statuses shall be embedded in the SMETSData element group, rather than using a separate DebugInfo element. In such structures, the MMC Output Format shall include the response code and response code name as set out in Table 8 immediately below.

Service Request	Response Code Name	Response Code
All ASN.1 SRs except 6.11, 8.1.1	success	0
6.11 (gas only), 8.1.1 (gas only)	reliable	0
6.11 (gas only), 8.1.1 (gas only)	invalid	1
6.11 (gas only), 8.1.1 (gas only)	unreliable	2
6.15.1, 6.21, 6.23, 8.5	badCertificate	5
6.15.1, 6.21, 6.23, 8.5	noTrustAnchor	10
6.15.1, 6.21, 6.23, 8.5	insufficientMemory	17
6.24.1	trustAnchorNotFound	25
6.15.1, 6.21, 6.23, 8.5	resourcesBusy	30
6.15.1, 6.21, 6.23, 6.24.1, 8.5	other	127
6.15.2	invalidCertificate	1
6.15.2	wrongDeviceIdentity	2
6.15.2	invalidKeyUsage	3
6.15.2	noCorrespondingKeyPair	4
6.15.2	wrongPublicKey	5
6.15.2	certificateStorageFailed	6
6.15.2	privateKeyChangeFailed	7
6.17	invalidKeyUsage	1
6.17	keyPairGenerationFailed	2
6.17	cRProductionFailed	3
6.24.2	invalidKeyUsage	1
6.24.2	noCertificateHeld	2
6.24.2	certificateRetrievalFailure	3
8.7.1, 8.7.2	invalidMessageCodeForJoinMethodAndRole	1
8.7.1, 8.7.2	invalidJoinMethodAndRole	2

Service Request	Response Code Name		Response Code
8.7.1, 8.7.2	incompatibleWithExistingEntry		3
8.7.1, 8.7.2	deviceLogFull		4
8.7.1, 8.7.2	writeFailure		5
8.7.1, 8.7.2	keyAgreementNoResources		6
8.7.1, 8.7.2	keyAgreementUnknownIssuer		7
8.7.1, 8.7.2	keyAgreementUnsupportedSuite		8
8.7.1, 8.7.2	keyAgreementBadMessage		9
8.7.1, 8.7.2	keyAgreementBadKeyConfirm		10
8.7.1, 8.7.2	invalidOrMissingCertificate		11
8.7.1, 8.7.2	noPartnerLinkKeyReceived		12
8.7.1, 8.7.2	noCBKEResponse		13
8.8.1, 8.8.2	otherDeviceNotInDeviceLog		1
8.8.1, 8.8.2	otherFailure		2
8.12.2	incompatibleWithExistingEntry		3
8.12.2	deviceLogFull		4
8.12.2	writeFailure		5
11.3	noImageHeld		1
11.3	hashMismatch		2
11.3	activationFailure		3
All ASN.1 Service Response	notKnown	*Any Response Code where the Response Code/Service Request combination is not listed above*	

Table 8 : ASN.1 Response Codes

4.2 Device Alerts

The *Body* element of the MMC Output Format in respect of a successful Device Alert shall contain an element named *DeviceAlertMessage* with an underlying element *DeviceAlertContent* containing the XML elements and element groups as set out in Table 9.

Device Alerts containing encrypted data shall be initially processed using the *GBCSData* element of the *DeviceAlertMessage* element, once decrypted (as set out in section 4.3 of this document) the *DeviceAlertContent* structure is used.

The execution of a future dated Service Request may generate one or more Device Alerts to the User in response where the same Service Request executed on demand would generate a Service Response to the User.

All Device Alerts as set out in Sections 6.1 to 6.4 shall contain a Payload XML element with underlying elements specific to the Device Alert.

Data Item	Description	Type	Mandatory	Valid Values
GBCSHexAlertCode	The Alert Code corresponding to the Alert defined in GBCS	xs:hexBinary	Yes	Values in 16 bit hexadecimal, as set out in GBCS
AlertDescription	Description of the Alert as defined in GBCS	xs:string (maxLength = 250)	Yes	As set out in GBCS
Timestamp	The Device Alert timestamp as sent by the Device, (UTC)	xs:dateTime	Yes	UTC Date-Time
Payload	This is additional data specific to the GBCS Use Case, where there is data additional to the Alert Code, as set out in Sections 6.1 to 6.4 of this document	ra:DeviceAlertMessagePayload	No	As set out in Section 4.2.2 of this document

Table 9 : Data Items within the DeviceAlertContent element

Where encrypted data is contained within a Device Alert message, such encrypted data shall be contained within the GBCS Payload data item. Where such encrypted data is contained within the GBCS Payload, the *DeviceAlertContent* element group shall not be included within the MMC Output Format. In order to decrypt such data, a User may conduct the steps as set out in Section 4.3 of this document.

4.2.1 Message codes for Device Alerts

All Device Alerts include both a Message Code within the Header element (see section 3) and an Alert Code within DeviceAlertContent.

Many Device Alerts will share the same common message codes, being either 0x1000 (denoting Critical) or 0x1001 (denoting Non Critical). The Device Alerts that use a specific Message Code instead of such generic codes shall be as defined in GBCS and as listed in Table 10 as set out immediately below.

Device Alerts which use the generic message codes are defined in GBCS and are not listed below.

The MMC Output Format for all Device Alerts which have specific Message Codes shall include additional information within the Payload data item, as set out in Section 4.2.2 of this

document. Message Codes shall conform to the "xs:hexBinary" XML type and shall omit any leading "0x" value that would ordinarily appear in the corresponding GBCS code as shown in the table below.

GBCS Version	Message Code	Purpose	Alert Codes
>= 1.0	0x0061	GBCS Use Case ECS68 ESME Critical Sensitive Alert (Billing Data Log)	0x8F0A
>= 1.0	0x0067	GBCS Use Case ECS80 Supply Outage Restore Alert from ESME	0x8F35, 0x8F36, 0x8F37, 0x8F38, 0x8F39, 0x8F3A, 0x8F3B, 0x8F3C
>= 1.0	0x008B	GBCS Use Case GCS53, GSME Push Billing Data Log as an Alert	0x8F0A
>= 1.0	0x00CA	Future Dated Firmware Activation Alert	0x8F66, 0x8F67
>= 1.0	0x00CB	Future Dated Updated Security Credentials Alert	0x8F66, 0x8F67
>= 1.0	0x00CC	Future Dated Execution Of Instruction Alert (DLMS COSEM)	0x8F66, 0x8F67
>= 1.0	0x00CD	Future Dated Execution Of Instruction Alert (GBZ)	0x8F66, 0x8F67
>= 1.0	0x00CE	Firmware Distribution Receipt Alert (ESME)	0x8F72, 0x8F1C
>= 1.0	0x00CF	Firmware Distribution Receipt Alert (GSME)	0x8F72, 0x8F1C
>= 2.0	0x00F0	Meter Integrity Issue Warning Alert - ESME	0x81A0
>= 2.0	0x00F2	Meter Integrity Issue Warning Alert – GSME	0x81A0
>= 1.0	0x1000	Generic Critical Alert	As set out in GBCS
>= 1.0	0x1001	Generic Non Critical Alert	As set out in GBCS

Table 10 : Device Alert GBCS Message Codes

4.2.2 Payload in Device Alerts

The MMC Message Format for all Device Alerts which contain additional Payload data are as listed in Table 11 as set out immediately below. Where a Device Alert is associated with a specific GBCS Use Case, this is indicated in Table 11.

GBCS Version	Alert Code(s)	Description	GBCS Use Case (where applicable)	Message Code	Section detailing XML contents	Applicable to SMETS1 Alerts?
>= 1.0	0x8F0A	Billing Data Log Updated (Electricity)	ECS68 ESME Critical Sensitive Alert (Billing Data Log)	0x0061	6.2	No
>= 1.0	0x8F0A	Billing Data Log Updated (Gas)	GCS53, GSME Push Billing Data Log as an Alert	0x008B	6.2	No
>= 1.0	0x8F1C	Firmware Verification Status (Firmware Distribution Receipt) - Failed	CS05b	0x00CE (Firmware Distribution Receipt Alert (ESME)), 00CF (Firmware Distribution Receipt Alert (GSME))	6.1	Yes

GBCS Version	Alert Code(s)	Description	GBCS Use Case (where applicable)	Message Code	Section detailing XML contents	Applicable to SMETS1 Alerts?
>= 1.0	0x8F35 0x8F36, 0x8F37, 0x8F38, 0x8F39, 0x8F3A, 0x8F3B, 0x8F3C	Supply Outage Restored Alert	ECS80 Supply Outage Restore Alert from ESME	0x0067	6.3	No
>= 1.0	0x8F66	Future-Dated Command Outcome Action Successful	Any GBCS Use Case that supports Future Dated Services.	0x00CA (Future Dated Firmware Activation Alert), 0x00CB (Future Dated Updated Security Credentials Alert), 0x00CC (Future Dated Execution Of Instruction Alert - DLMS COSEM) or 0x00CD (Future Dated Execution Of Instruction Alert - GBZ)	6.4	No
>= 1.0	0x8F67	Future-Dated Command Outcome Action Failed	Any GBCS Use Case that supports Future Dated Services.	As for Alert Code 0x8F66	6.4	No
>= 1.0	0x8F72	Firmware Verification Status (Firmware Distribution Receipt) - Successful	CS05b	0x00CE (Firmware Distribution Receipt Alert (ESME)), 00CF (Firmware Distribution Receipt Alert (GSME))	6.1	Yes
>= 2.0	0x81A0	Smart Meter Integrity Issue – Warning	Smart Meter Integrity Issue – Warning from ESME or GSME	0x00F0 (Meter Integrity Issue Warning Alert – ESME) 0x00F2 (Meter Integrity Issue Warning Alert – GSME)	6.5	No

Table 11 : Device Alerts with Additional Payload

4.3 Decryption of encrypted GBCS Payload

Service Responses and Device Alerts that contain encrypted data may be decrypted by a User in order to view the corresponding data. The Service Responses and Device Alerts containing encrypted (Sensitive) data are as set out in Sections 5.1 to 5.108 and Sections 6.1 to 6.4 of this document.

Where a Service Response or Device Alert contains encrypted data, in order to display the unencrypted data in MMC Output Format the User will need to first decrypt the data.

Where a User is utilising the DCC Parse and Correlate Software the steps as set out immediately below shall be performed if the User wishes to decrypt such data and convert to the MMC Output Format:

a) the User shall invoke the Parse component of the Parse and Correlate software with the GBCS Payload as input;
b) the DCC shall ensure that the Parse software breaks the GBCS Payload into fragments of GBCS data, some plain and some encrypted, returning the fragments as a set of XML elements each called GBCSData, each of which has the "format" attribute set to "plain" or "encrypted";
c) the User shall decrypt each encrypted data element, so that data is in plain text GBCS format, and shall write the decrypted data back into the XML GBCSData element(s), changing the "format" attribute to "plain".
d) the User shall again invoke the Parse component of the Parse and Correlate software with the amended GBCSData XML elements as input; and
e) the DCC shall ensure that the Parse component of the Parse and Correlate Software shall convert the GBCS data as provided in step d) into MMC Output Format and shall populate the XML message, returning the fully decrypted and converted XML message back to the User.

5 SERVICE RESPONSE MMC OUTPUT FORMAT DEFINITIONS

5.1 Update Import Tariff (Primary Element)

5.1.1 Service Description

Service Request Name	UpdateImportTariff(PrimaryElement)
Service Reference	1.1
Service Reference Variant	1.1.1

5.1.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateImportTariffPrimaryElementRsp. The header data items appear as set out immediately below.

5.1.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0019	0x006B
GBCS Use Case (for reference - not in header)	ECS01a	GCS01a
Timestamp	xs:dateTime	

Table 12 : Update Import Tariff (Primary Element) MMC Output Format Header data items

5.2 Update Import Tariff (Secondary Element)

5.2.1 Service Description

Service Request Name	UpdateImportTariff(SecondaryElement)
Service Reference	1.1
Service Reference Variant	1.1.2

5.2.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateImportTariffSecondaryElementRsp. The header data items appear as set out immediately below.

5.2.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x00B7
GBCS Use Case (for reference - not in header)	ECS01c
Timestamp	xs:dateTime

Table 13 : Update Import Tariff (Secondary Element) MMC Output Format Header data items

5.3 Update Price (Primary Element)

5.3.1 Service Description

Service Request Name	UpdatePrice(PrimaryElement)
Service Reference	1.2
Service Reference Variant	1.2.1

5.3.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdatePricePrimaryElementRsp. The header data items appear as set out immediately below.

5.3.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x00A2	0x00A3
GBCS Use Case (for reference - not in header)	ECS01b	GCS01b
Timestamp	xs:dateTime	

Table 14 : Update Price (Primary Element) MMC Output Format Header data items

5.4 Update Price (Secondary Element)

5.4.1 Service Description

Service Request Name	UpdatePrice(SecondaryElement)
Service Reference	1.2
Service Reference Variant	1.2.2

5.4.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdatePriceSecondaryElementRsp. The header data items appear as set out immediately below.

5.4.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x00C7
GBCS Use Case (for reference - not in header)	ECS01d
Timestamp	xs:dateTime

Table 15 : Update Price (Secondary Element) MMC Output Format Header data items

5.5 Update Meter Balance

5.5.1 Service Description

Service Request Name	UpdateMeterBalance
Service Reference	1.5
Service Reference Variant	1.5

5.5.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateMeterBalanceRsp. The header data items appear as set out immediately below.

5.5.2.1 Specific Header Data Items

Service Request 1.5 relates to six different GBCS Commands, depending on the input parameters associated with the Service Request issued by the User, each of which will have a different Service Response. The header elements appear as set out immediately below.

Input circumstances	GBCSHexadecimal MessageCode	GBCS Use Case
AdjustMeterBalance for ESME (both PrepaymentMode and CreditMode)	0x001C	ECS04a
ResetMeterBalance for ESME (both PrepaymentMode and CreditMode)	0x00B3	ECS04b
PrepaymentMode and AdjustMeterBalance for GSME	0x0086	GCS40a
PrepaymentMode and ResetMeterBalance for GSME	0x00B4	GCS40b
CreditMode and AdjustMeterBalance for GSME	0x00C0	GCS40c
CreditMode and ResetMeterBalance for GSME	0x00C2	GCS40d

Table 16 : Update Meter Balance MMC Output Format Header data items

5.6 Update Payment Mode

5.6.1 Service Description

Service Request Name	UpdatePaymentMode
Service Reference	1.6
Service Reference Variant	1.6

5.6.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdatePaymentModeRsp. The header data items appear as set out immediately below.

5.6.2.1 Specific Header Data Items

This Service Request 1.6 will be implemented by a meter command in one of 4 different GBCS Use Cases, depending on the input parameters sent by the User in the Service Request, so there are 4 different Message Codes which may be returned in the Service Response.

Input circumstances	GBCSHexadecimalMessage Code	GBCS Use Case
PaymentMode Credit for ESME	0x001A	ECS02
PaymentMode Prepayment for ESME	0x001B	ECS03
PaymentMode Credit for GSME	0x006C	GCS02
PaymentMode Prepayment for GSME	0x006D	GCS03

Table 17 : Update Payment Mode MMC Output Format Header data items

5.7 Reset Tariff Block Counter Matrix

5.7.1 Service Description

Service Request Name	ResetTariffBlockCounterMatrix
Service Reference	1.7
Service Reference Variant	1.7

5.7.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ResetTariffBlockCounterMatrixRsp. The header data items appear as set out immediately below.

5.7.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x001D
GBCS Use Case (for reference - not in header)	ECS05

Table 18 : Reset Tariff Block Counter Matrix MMC Output Format Header data items

5.8 Update Prepay Configuration

5.8.1 Service Description

Service Request Name	Update Prepay Configuration
Service Reference	2.1
Service Reference Variant	2.1

5.8.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdatePrepayConfigurationRsp. The header data items appear as set out immediately below.

5.8.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x001F	0x006F
GBCS Use Case (for reference - not in header)	ECS08	GCS05

Timestamp	xs:dateTime

Table 19 : Update Prepay Configuration MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x00DE	0x006F
GBCS Use Case (for reference - not in header)	ECS08a	GCS05
Timestamp	xs:dateTime	

Table 20 : Update Prepay Configuration MMC Output Format Header data items – GBCS v2.0

5.9 Top Up Device

5.9.1 Service Description

Service Request Name	TopUpDevice
Service Reference	2.2
Service Reference Variant	2.2

5.9.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is TopUpDeviceRsp. The header data items appear as set out immediately below.

5.9.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0007	0x0097
GBCS Use Case (for reference - not in header)	CS01a	CS01b
Timestamp	xs:dateTime	

Table 21 : Top Up Device MMC Output Format Header data items

5.10 Update Debt

5.10.1 Service Description

Service Request Name	UpdateDebt
Service Reference	2.3
Service Reference Variant	2.3

5.10.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDebtRsp. The header data items appear as set out immediately below.

5.10.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x001E	0x006E
GBCS Use Case	ECS07	GCS04

(for reference - not in header)		

Table 22 : Update Debt MMC Output Format Header data items

5.11 Activate Emergency Credit

5.11.1 Service Description

Service Request Name	ActivateEmergencyCredit
Service Reference	2.5
Service Reference Variant	2.5

5.11.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ActivateEmergencyCreditRsp. The header data items appear as set out immediately below.

5.11.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0020	0x0070
GBCS Use Case (for reference - not in header)	ECS09	GCS06

Table 23 : Activate Emergency Credit MMC Output Format Header data items

5.12 Display Message

5.12.1 Service Description

Service Request Name	DisplayMessage
Service Reference	3.1
Service Reference Variant	3.1

5.12.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is DisplayMessageRsp. The header data items appear as set out immediately below.

5.12.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0021	0x0071
GBCS Use Case (for reference - not in header)	ECS10	GCS07

Table 24 : Display Message MMC Output Format Header data items

5.13 Restrict Access for Change of Tenancy

5.13.1 Service Description

Service Request Name	RestrictAccessForChangeOfTenancy
Service Reference	3.2
Service Reference Variant	3.2

5.13.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is RestrictAccessForChangeOfTenancyRsp. The header data items appear as set out immediately below.

5.13.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0022	0x0072
GBCS Use Case (for reference - not in header)	ECS12	GCS09

Table 25 : Restrict Access for Change of Tenancy MMC Output Format Header data items

5.14 Clear Event Log

5.14.1 Service Description

Service Request Name	ClearEventLog
Service Reference	3.3
Service Reference Variant	3.3

5.14.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ClearEventLogRsp. The header data items appear as set out immediately below.

5.14.2.1 Specific Header Data Items

Data Item	Electricity Response (ESME)	Electricity Response (ALCS)	Gas Response
GBCSHexadecimalMessageCode	0x0024	0x00C1	0x0015
GBCS Use Case (for reference - not in header)	ECS15a	ECS15c	CS11

Table 26 : Clear Event Log MMC Output Format Header data items

5.15 Update Supplier Name

5.15.1 Service Description

Service Request Name	UpdateSupplierName
Service Reference	3.4
Service Reference Variant	3.4

5.15.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateSupplierNameRsp. The header data items appear as set out immediately below.

5.15.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0025	0x0088
GBCS Use Case (for reference - not in header)	ECS16	GCS44

Table 27 : Update Supplier Name MMC Output Format Header data items

5.16 Disable Privacy PIN

5.16.1 Service Description

Service Request Name	DisablePrivacyPIN
Service Reference	3.5
Service Reference Variant	3.5

5.16.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is DisablePrivacyPINRsp. The header data items appear as set out immediately below.

5.16.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0023	0x0073
GBCS Use Case (for reference - not in header)	ECS14	GCS11

Table 28 : Disable Privacy Pin MMC Output Format Header data items

5.17 Read Instantaneous Import Registers

5.17.1 Service Description

Service Request Name	ReadInstantaneousImportRegisters
Service Reference	4.1
Service Reference Variant	4.1.1

5.17.2 MMC Output Format

The xml type within the SMETSData element is ReadInstantaneousImportRegistersRsp. The header and body data items appear as set out immediately below.

5.17.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0027	0x0074
GBCS Use Case (for reference - not in header)	ECS17b	GCS13a
Timestamp	xs:dateTime	

Table 29 : Read Instantaneous Import Registers MMC Output Format Header data items

5.17.2.2 Specific Body Data Items

The XML response structure within ReadInstantaneousImportRegistersRsp differs between Gas and Electricity, the XML groups named *Gas* and *Electricity* are as set out in Table 30 and Table 31 immediately below.

5.17.2.2.1 Gas Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ConsumptionRegister	Relevant for Gas only Optional	ra:ConsumptionRegisterDatatype as set out in Section 5.17.2.2.3 of this document	N/A	Encrypted

Table 30 : ReadInstantaneousImportRegistersRsp - Gas MMC Output Format Body data items

5.17.2.2.2 Electricity Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActiveImportRegister	Relevant for Electricity only Optional	ra:ActivePowerRegisterDatatype as set out in Section 5.17.2.2.4 of this document	N/A	Encrypted
ReactiveImportRegister	Relevant for Electricity only Optional	ra:ReactivePowerRegisterDatatype as set out in Section 5.17.2.2.5 of this document	N/A	Encrypted
SecondaryActiveImport Register	Relevant for Electricity only Optional	ra:ActivePowerRegisterDatatype as set out in Section 5.17.2.2.4 of this document	N/A	Encrypted

Table 31 : ReadInstantaneousImportRegistersRsp - Electricity MMC Output Format Body data items

5.17.2.2.3 ConsumptionRegisterDatatype Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The total energy imported Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	xs:decimal	m^3	Encrypted
Unit	Unit of measure, valid value is m3	ra:GasConsumptionUnit (xs:string enumeration)	N/A	Encrypted

Table 32 : ConsumptionRegisterDatatype MMC Output Format Body data items

5.17.2.2.4 ActivePowerRegisterDatatype Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The active energy imported, as measured by the measuring element(s) No scaler applied	xs:integer	Wh	Encrypted
ActiveEnergyUnit	Unit of measure, valid value is Wh	ra:ActiveEnergyUnit (xs:string enumeration)	N/A	Encrypted

Table 33 : ActivePowerRegisterDatatype MMC Output Format Body data items

5.17.2.2.5 ReactivePowerRegisterDatatype Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The reactive energy imported, as measured by the measuring element No scaler applied	xs:integer	varh	Encrypted
ReactiveEnergyUnit	Unit of measure, valid value is varh	ra:ReactiveEnergyUnit (xs:string enumeration)	N/A	Encrypted

Table 34 : ReactivePowerRegisterDatatype MMC Output Format Body data items

5.18 Read Instantaneous Import TOU Matrices

5.18.1 Service Description

Service Request Name	ReadInstantaneousImportTOUMatrices
Service Reference	4.1
Service Reference Variant	4.1.2

5.18.2 MMC Output Format

The xml type within the SMETSData element is ReadInstantaneousImportTOUMatricesRsp. The header and body data items appear as set out immediately below.

5.18.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0029	0x00B6
GBCS Use Case (for reference - not in header)	ECS17d	GCS13c
Timestamp	xs:dateTime	

Table 35 : Read Instantaneous Import TOU Matrices MMC Output Format Header data items

5.18.2.2 Specific Body Data Items

The XML response structure within ReadInstantaneousImportTOUMatricesRsp differs between Gas and Electricity, the XML groups named *Gas* and *Electricity* are as set out in Table 36 and Table 37 immediately below.

5.18.2.2.1 Gas Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Gas	XML Group element for gas items			
TariffTOURegisterMatrix	Relevant for Gas only	ra:TariffTOURegisterMatrix Type as set out in Section 5.18.2.2.3 of this document		

Table 36 : Gas MMC Output Format Body data items

5.18.2.2.2 Electricity Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Electricity	XML Group element for electricity items			
TariffTOURegisterCollection	Relevant for Electricity only	ra:TariffTOURegisterCollectionType as set out in Section 5.18.2.2.4 of this document		

Table 37 : Electricity MMC Output Format Body data items

5.18.2.2.3 TariffTOURegisterMatrixType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
TOURegisterMatrixValue	Accumulated consumption for each TOU rate register. (max 4) Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS Index value maps to register matrix	ra:DecimalWithIndex maxOccurs = 4 (value type is xs:decimal with attribute Index also xs:decimal)	m^3	Encrypted

Table 38 : TariffTOURegisterMatrixType MMC Output Format Body data items

5.18.2.2.4 TariffTOURegisterCollectionType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
TOUPrimaryRegisterValue	Tariff Registers for Time-of-use Pricing for the primary element (max 48) No scaler applied	ra:IntegerWithIndex maxOccurs = 48 (value type is xs:decimal with attribute Index also xs:decimal)	Wh	Encrypted

TOUSecondRegisterValue	Tariff Registers for Time-of-use Pricing for the secondary element, (max 4) No scaler applied	ra:IntegerWithIndex maxOccurs = 4 (value type is xs:decimal with attribute Index also xs:decimal)	Wh	Encrypted

Table 39 : TariffTOURegisterCollectionType MMC Output Format Body data items

5.19 Read Instantaneous Import TOU with Blocks Matrices

5.19.1 Service Description

Service Request Name	ReadInstantaneousImportTOUWithBlocksMatrices
Service Reference	4.1
Service Reference Variant	4.1.3

5.19.2 MMC Output Format

The xml type within the SMETSData element is ReadInstantaneousImportTOUWithBlocksMatricesRsp. The header and body data items appear as set out immediately below.

5.19.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x002A
GBCS Use Case (for reference - not in header)	ECS17e
Timestamp	xs:dateTime

Table 40 : Read Instantaneous Import TOU with Blocks Matrices MMC Output Format Header data items

5.19.2.2 Specific Body Data Items

The data items are organised as two sets of 8 values, one set for the block primary registers and one set for the block counter registers, within a repeating group of up to 4 Tariff Blocks, as set out immediately below, where the numeric values shown would correspond to index values.

Block 1
Register Matrix 1
Register Matrix 2
:
Register Matrix 8
Counter Matrix 1
Counter Matrix 2
:
Counter Matrix 8
Block 2
Register Matrix 1
etc.

5.19.2.2.1 ReadInstantaneousImportTOUWithBlocksMatricesRsp Specific Data Items

Data Item	Description / Valid Set	Type	Sensitivity
TariffBlockTOURegisterCollection	Relevant for Electricity only	ra:TariffBlockTOUType as set out in Section 5.19.2.2.2 of this document	Encrypted

Table 41 : ReadInstantaneousImportTOUWithBlocksMatricesRsp MMC Output Format Body data items

5.19.2.2.2 TariffBlockTOUType Specific Data Items

Data Item	Description / Valid Set	Type	Sensitivity
TariffBlock	Tariff Register matrices for Time-of-use with Block Pricing. Max 4	As set out in Section 5.19.2.2.3 of this document maxOccurs = 4	Encrypted

Table 42 : TariffBlockTOUType MMC Output Format Body data items

5.19.2.2.3 TariffBlock Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RegisterMatrixTOUValue	Tariff Registers for Time-of-use with Block Pricing. Max 8	ra:IntegerWithIndex maxOccurs = 8 (value type is xs:decimal with attribute Index also xs:decimal)	Wh	Encrypted
CounterMatrixTOUValue	Tariff Registers for Time-of-use with Block Pricing. Max 8	ra:IntegerWithIndex maxOccurs = 8 (value type is xs:decimal with attribute Index also xs:decimal)	Wh	Encrypted
Index (attribute of TariffBlock)	Value 1-4	xs:positiveInteger		

Table 43 : TariffBlock MMC Output Format Body data items

5.20 Read Instantaneous Import Block Counters

5.20.1 Service Description

Service Request Name	ReadInstantaneousImportBlockCounters
Service Reference	4.1
Service Reference Variant	4.1.4

5.20.2 MMC Output Format

The xml type within the SMETSData element is ReadInstantaneousImportBlockCountersRsp. The header and body data items appear as set out immediately below.

5.20.2.1 Specific Header Data Items

Data Item	Gas Response
GBCSHexadecimalMessageCode	0x00B8
GBCS Use Case (for reference - not in header)	GCS13b
Timestamp	xs:dateTime

Table 44 : Read Instantaneous Import Block Counters MMC Output Format Header data items

5.20.2.2 Specific Body Data Items

5.20.2.2.1 ReadInstantaneousImportBlockCountersRsp Specific Data Items

Data Item	Description / Valid Set	Type	Sensitivity
ImportBlockCounters	Relevant for Gas only	ra:ImportBlockCounters As set out in Section 5.20.2.2.2 of this document	Encrypted

Table 45 : Read Instantaneous Import Block Counters MMC Output Format Body data items

5.20.2.2.2 ImportBlockCounters Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
TariffBlockCounterValue	Accumulated consumption within each block (max 4). Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS Index value maps to tariff	ra:DecimalWithIndex maxOccurs = 4 (value type is xs:decimal with attribute Index also xs:decimal)	m^3	Encrypted

Table 46 : ImportBlockCounters MMC Output Format Body data items

5.21 Read Instantaneous Export Registers

5.21.1 Service Description

Service Request Name	ReadInstantaneousExportRegisters
Service Reference	4.2
Service Reference Variant	4.2

5.21.2 MMC Output Format

The xml type within the SMETSData element is ReadInstantaneousExportRegistersRsp. The header and body data items appear as set out immediately below.

5.21.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0026
GBCS Use Case (for reference - not in header)	ECS17a
Timestamp	xs:dateTime
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party

Table 47 : Read Instantaneous Export Registers MMC Output Format Header data items

5.21.2.2 Specific Body Data Items

5.21.2.2.1 ReadInstantaneousExportRegistersRsp Specific Data Items

Data Item	Description / Valid Set	Type	Sensitivity
ActiveExportRegister	Relevant for Electricity only - an optional element	ra:ActivePowerRegisterDataType	Unencrypted

ReactiveExportRegister	Relevant for Electricity only - an optional element	ra:ReactivePowerRegisterDataType	Unencrypted

Table 48 : ReadInstantaneousExportRegistersRsp MMC Output Format Body data items

5.21.2.2.2 ActivePowerRegisterDataType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The register recording the active energy exported, as measured by the measuring element. No scaler applied	xs:integer	Wh	Unencrypted
ActiveEnergyUnit	Unit of measure, valid value is Wh	xs:string	N/A	Unencrypted

Table 49 : ActivePowerRegisterDataType MMC Output Format Body data items

5.21.2.2.3 ReactivePowerRegisterDataType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The register recording the cumulative Reactive Energy Exported. No scaler applied	xs:integer	varh	Unencrypted
ReactiveEnergyUnit	Unit of measure, valid value is varh	xs:string	N/A	Unencrypted

Table 50 : ReactivePowerRegisterDataType MMC Output Format Body data items

5.22 Read Instantaneous Prepay Values

5.22.1 Service Description

Service Request Name	ReadInstantaneousPrepayValues
Service Reference	4.3
Service Reference Variant	4.3

5.22.2 MMC Output Format

The xml type within the SMETSData element is ReadInstantaneousPrepayValuesRsp. The header and body data items appear as set out immediately below.

5.22.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x002D	0x0075
GBCS Use Case (for reference - not in header)	ECS19	GCS14
Timestamp	xs:dateTime	

Table 51 : Read Instantaneous Prepay Values MMC Output Format Header data items

5.22.2.2 Specific Body Data Items

The XML elements within the ReadInstantaneousPrepayValuesRsp block are the same for Gas and Electricity.

Data Item	Description / Valid Set	Type	Units	Sensitivity
EmergencyCreditBalance	The amount of emergency credit remaining No scaler applied	xs:integer	1000^{th} pence/ cent	ESME – Encrypted GSME – Encrypted
AccumulatedDebtRegister	The debt accumulated on the meter for time based charges (standing charge and time based debt recovery) but only used whilst EmergencyCredit is in use, and where SuspendDebtEmergency value is equal to true No scaler applied	xs:integer	1000^{th} pence/ cent	ESME – Encrypted GSME – Encrypted
PaymentDebtRegister	Debt to be recovered as a percentage of payment when using Payment-based Debt Recovery in Prepayment Mode. No scaler applied	xs:integer	1000^{th} pence/ cent	ESME – Encrypted GSME – Encrypted
TimeDebtRegister1	First of two registers recording independent debts to be recovered over time when operating Time-based Debt Recovery in Prepayment Mode. No scaler applied	xs:integer	1000^{th} pence/ cent	ESME - Encrypted GSME – Encrypted
TimeDebtRegister2	Second of two registers recording independent debts to be recovered over time when operating Time-based Debt Recovery in Prepayment Mode. No scaler applied	xs:integer	1000^{th} pence/ cent	ESME – Encrypted GSME – Encrypted
MeterBalance	The credit available to the consumer No scaler applied	xs:integer	1000^{th} pence/ cent	ESME – Encrypted GSME – Encrypted

Table 52 : Read Instantaneous Pre-Pay Values MMC Output Format Body data items

5.23 Retrieve Change Of Mode / Tariff Triggered Billing Data Log

5.23.1 Service Description

Service Request Name	RetrieveCoMOrTariffTriggeredBillingDataLog
Service Reference	4.4
Service Reference Variant	4.4.2

5.23.2 MMC Output Format

The xml type within the SMETSData element is RetrieveCoMOrTariffTriggeredBillingDataLogRsp. The header and body data items appear as set out immediately below.

5.23.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x002F	0x00C3
GBCS Use Case (for reference - not in header)	ECS20b	GCS15b
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	
SupplementaryOriginatorCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 53 : Retrieve Change of Mode or Tariff Triggered Billing Data Log MMC Output Format Header data items

5.23.2.2 Specific Body Data Items

The XML response structure within RetrieveCoMOrTariffTriggeredBillingDataLogRsp differs between Gas and Electricity, the XML groups named *Gas* and *Electricity* are as set out in Table 55 : immediately below.

5.23.2.2.1 Electricity Specific Data Items

Data Item	Description / Valid Set	Type	Sensitivity
LogEntryConsumptionAndTariffRegistersData *(maximum of 12)*	Arrays of tariff triggered service data Relevant to Electricity only	ra:ConsumptionAndTariffRegistersType, as set out in Section 5.23.2.2.3 of this document maxOccurs = 12	Encrypted
LogEntryPrepaymentData *(maximum of 12)*	Arrays of Prepayment Data	ra:PrepaymentOperationalDataType, as set out in Section 5.38.2.2.1 of this document maxOccurs = 12	Encrypted

Table 54 : Electricity MMC Output Format Body data items

5.23.2.2.2 Gas Specific Data Items

Data Item	Description / Valid Set	Type	Sensitivity
LogEntryConsumption Register (maximum of 12)	Arrays of Consumption register data. Relevant to Gas only	ra:ConsumptionRegisterGasType, as set out in Section 5.23.2.2.4 of this document maxOccurs = 12	Encrypted
LogEntryPrepaymentData *(maximum of 12)*	Arrays of Prepayment Data	ra:PrepaymentOperationalDataType, as set out in Section 5.38.2.2.1 of this document maxOccurs = 12	Encrypted

Table 55 : Gas MMC Output Format Body data items

5.23.2.2.3 ConsumptionAndTariffRegistersType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActiveImportRegisterConsumption	The register recording the cumulative Active Energy Imported.	xs:integer	Wh	Encrypted
TariffTOURegisterMatrixValue (maximum of 48)	Tariff Registers for Time-of-use Pricing.	ra:IntegerWithIndex maxOccurs = 48 (value type is xs:integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock1RegisterMatrixValue (maximum of 8)	Tariff Registers for Time-of-use with Block Pricing.	ra:IntegerWithIndex maxOccurs = 8 (value type is xs:integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock2RegisterMatrixValue (maximum of 8)	Tariff Registers for Time-of-use with Block Pricing.	ra:IntegerWithIndex maxOccurs = 8 (value type is xs:integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock3RegisterMatrixValue (maximum of 8)	Tariff Registers for Time-of-use with Block Pricing.	ra:IntegerWithIndex maxOccurs = 8 (value type is xs:integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock4RegisterMatrixValue (maximum of 8)	Tariff Registers for Time-of-use with Block Pricing.	ra:IntegerWithIndex maxOccurs = 8 (value type is xs:integer with attribute Index xs:positiveInteger)	Wh	Encrypted
SecondaryActiveImportRegisterConsumption	The register recording the cumulative Active Energy Imported via the secondary measuring element of the Electricity Meter, only present if ESME variant is equal to "B" twin element.	xs:integer	Wh	Encrypted
SecondaryTariffTOURegisterMatrixValue (maximum of 4)	Secondary measurement element Tariff Registers for Time-of-use Pricing, only present if ESME variant is equal to "B" twin element.	ra:IntegerWithIndex maxOccurs = 4 (value type is xs:integer with attribute Index xs:positiveInteger)	Wh	Encrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	Time when the snapshot was taken.	xs:dateTime	N/A	Encrypted

Table 56 : Retrieve Change of Mode or Tariff Triggered Billing Data Log – ConsumptionAndTariffRegistersType Specific Data Items

5.23.2.2.4 ConsumptionRegisterGasType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ConsumptionRegister	Consumption Register data Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	xs:decimal	m^3	Encrypted
Timestamp	Time when the snapshot was taken.	xs:dateTime	N/A	Encrypted
TariffTOURegisterMatrixValue	A 1 x 4 matrix for storing Tariff Registers for Time-of-use Pricing. Index value maps to register matrix Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	ra:DecimalWithIndex maxOccurs = 4 (value type is xs:decimal with attribute Index also xs:decimal)	m^3	Encrypted
BlockRegisterMatrixValue	A 1 x 4 matrix for storing Block Counters for Block Pricing Index value maps to register matrix Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	ra:DecimalWithIndex maxOccurs = 4 (value type is xs:decimal with attribute Index also xs:decimal)	m^3	Encrypted

Table 57 : Retrieve Change of Mode or Tariff Triggered Billing Data Log – ConsumptionRegisterGasType Specific Data Items

5.24 Retrieve Billing Calendar Triggered Billing Data Log

5.24.1 Service Description

Service Request Name	RetrieveBillingCalendarTriggeredBillingDataLog
Service Reference	4.4
Service Reference Variant	4.4.3

5.24.2 MMC Output Format

The xml type within the SMETSData element is RetrieveBillingCalendarTriggeredBillingDataLogRsp. The header and body data items appear as set out immediately below.

5.24.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0030	0x0076
GBCS Use Case (for reference - not in header)	ECS20c	GCS15c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	
SupplementaryOriginatorCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 58 : Retrieve Billing Calendar Triggered Billing Data Log MMC Output Format Header data items

5.24.2.2 Specific Body Data Items

The XML response structure within RetrieveBillingCalendarTriggeredBillingDataLogRsp differs between Gas and Electricity, the XML groups named *Gas* and *Electricity* are as set out in Table 72 immediately below.

5.24.2.2.1 Electricity Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ESMEBillingDataLogEntry (maximum of 12)	Electricity Smart Meter Billing Data Log Entry	ra:ESMEBillingDataLogType, as set out in Section 6.2.2.3 of this document maxOccurs = 12	N/A	Encrypted
ESMEBillingPrepaymentDataLogEntry	Electricity Smart Meter Billing Prepayment Data Log Entry	ra:PrepaymentOperationalDataType, as set out in Section 5.38.2.2.1 of this document maxOccurs = 12	N/A	Encrypted

Table 59 : Electricity MMC Output Format Body data items

5.24.2.2.2 Gas Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
GSMEBillingDataLogEntry (maximum of 12)	Gas Smart Meter Billing Data Log Entry	ra:GSMEBillingDataLogType, as set out in Section 6.2.2.4 of this document maxOccurs = 12	N/A	Encrypted
GSMEBillingPrepaymentDataLogEntry	Gas Smart Meter Billing Prepayment Data Log Entry	ra:PrepaymentOperationalDataType, as set out in Section 5.38.2.2.1 of this document maxOccurs = 12	N/A	Encrypted

Table 60 : Retrieve Billing Calendar Triggered Billing Data Log MMC Output Format Body data items

5.25 Retrieve Billing Data Log (Payment Based Debt Payments)

5.25.1 Service Description

Service Request Name	RetrieveBillingDataLog(PaymentBasedDebtPayments)
Service Reference	4.4
Service Reference Variant	4.4.4

5.25.2 MMC Output Format

The xml type within the SMETSData element is RetrieveBillingDataLogDebtPaymentsRsp. The header and body data items appear as set out immediately below.

5.25.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x002E	0x00C4
GBCS Use Case (for reference - not in header)	ECS20a	GCS15d
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 61 : Retrieve Billing Data Log (Payment Based Debt Payments) MMC Output Format Header data items

5.25.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
PaymentBasedDebtRepayment	Array of amount of debt recovered as part of the Credit Added	ra:PaymentBasedDebtRepaymentType, as set out in Section 5.25.2.2.1 of this document	N/A	Unencrypted

Table 62 : Retrieve Billing Data Log (Payment Based Debt Payments) MMC Output Format Body data items

5.25.2.2.1 PaymentBasedDebtRepaymentType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LogEntry (maximum of 10)	Amount of debt recovered as part of the credit added and the time stamp of recovery	ra:BillingDataLogAmountTimestamp maxOccurs = 10 as set out in Section 5.25.2.2.2 of this document	N/A	Unencrypted

Table 63 : PaymentBasedDebtRepaymentType MMC Output Format data items

5.25.2.2.2 BillingDataLogAmountTimestamp Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Amount	For PaymentBasedDebtRepayment, is the amount of debt recovered as part of the credit added. For Prepayment Credits, is the amount of Prepayment Credit Added	xs:integer	1000th pence /cent	Unencrypted
Timestamp	For PaymentBasedDebtRepayment, the timestamp of recovery. For Prepayment Credits, the timestamp of application.	xs:dateTime	UTC Date-Time	Unencrypted

Table 64 : Log Entry (ra:BillingDataLogAmountTimestamp) Specific MMC Output Format data items

5.26 Retrieve Billing Data Log (Prepayment Credits)

5.26.1 Service Description

Service Request Name	RetrieveBillingDataLog(PrepaymentCredits)
Service Reference	4.4
Service Reference Variant	4.4.5

5.26.2 MMC Output Format

The xml type within the SMETSData element is RetrieveBillingDataLogPrepaymentCreditsRsp. The header and body data items appear as set out immediately below.

5.26.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x00C9	0x00C5
GBCS Use Case (for reference - not in header)	ECS20d	GCS15e
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 65 : Retrieve Billing Data Log (Prepayment Credits) MMC Output Format Header data items

5.26.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
PrepaymentCredits	Array of 0-5 Prepayment Credits and timestamps	ra:PrepaymentCreditsType, as set out in Section 5.26.2.2.1 of this document	N/A	Unencrypted

Table 66 : Retrieve Billing Data Log (Prepayment Credits) MMC Output Format Body data items

5.26.2.2.1 PrepaymentCreditsType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LogEntry (maximum of 5)	Amount of Prepayment Credit Added and timestamp of application	ra:BillingDataLogAmountTimestamp, maxOccurs = 5 as set out in Section 5.25.2.2.2 of this document	N/A	Unencrypted

Table 67 : PrepaymentCreditsType MMC Output Format data Items

5.27 Retrieve Import Daily Read Log

5.27.1 Service Description

Service Request Name	RetrieveImportDailyReadLog
Service Reference	4.6
Service Reference Variant	4.6.1

5.27.2 MMC Output Format

The xml type within the SMETSData element is RetrieveImportDailyReadLogRsp. The header and body data items appear as set out immediately below.

5.27.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0033	0x0077
GBCS Use Case (for reference - not in header)	ECS21a	GCS16a
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	
SupplementaryOriginatorCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 68 : Retrieve Import Daily Read Log MMC Output Format Header data items

5.27.2.2 Specific Body Data Items

The data items, as set out in Table 69 immediately below, appear within the "LogEntry" group, which may repeat up to thirty-one times. The specific Electricity and Gas elements appear within a "Gas" or "Electricity" XML block as defined in Table 69 immediately below.

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	The time at which the corresponding log entry was taken, (UTC)	xs:dateTime	UTC Date-Time	Encrypted
Gas	XML Block for Gas			
GasActiveImportRegisterConsumption	The register recording the cumulative Active Energy Imported. Relevant to Gas only Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	xs:decimal	m^3	Encrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
TariffBlockCounterMatrix	Block Counters for Block Pricing. Max 4 Index value maps to register matrix Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	ra:DecimalWithIndex maxOccurs = 4 (xs:decimal with attribute Index xs: decimal)	m^3	Encrypted
TariffTOURegisterMatrix	Tariff Registers for Time-of-use Pricing. Max 4 Index value maps to register matrix Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	ra:DecimalWithIndex maxOccurs = 4 (xs:decimal with attribute Index xs: decimal)	m^3	Encrypted
Electricity	XML Block for Electricity			
ElecActiveImportRegisterConsumption	The register recording the cumulative Active Energy Imported. Relevant to Electricity only	xs:integer	Wh	Encrypted
SecondaryActiveImportRegisterConsumption	The register recording the cumulative Active Energy Imported via the secondary measuring element of the Electricity Meter. Twin element ESME only.	xs:integer	Wh	Encrypted
SecondaryTariffTOURegisterMatrixValue	Tariff Registers for Time-of-use Pricing (max 4). Twin element ESME only.	ra:IntegerWithIndex maxOccurs = 4 (xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOURegisterMatrixValue	Tariff Registers for Time-of-use Pricing. (max 48)	ra:IntegerWithIndex maxOccurs = 48 (xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock1RegisterMatrixValue	Block Counters for Block Pricing (max 8).	ra:IntegerWithIndex maxOccurs = 8 (xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock2RegisterMatrixValue	Block Counters for Block Pricing (max 8).	ra:IntegerWithIndex maxOccurs = 8 (xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
TariffTOUBlock3Register MatrixValue	Block Counters for Block Pricing (max 8).	ra:IntegerWithIndex maxOccurs = 8 (xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock4Register MatrixValue	Block Counters for Block Pricing (max 8).	ra:IntegerWithIndex maxOccurs = 8 (xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted

Table 69 : Retrieve Import Daily Read Log (ra:ImportDailyReadLogType) MMC Output Format Body data items

5.28 Retrieve Export Daily Read Log

5.28.1 Service Description

Service Request Name	RetrieveExportDailyReadLog
Service Reference	4.6
Service Reference Variant	4.6.2

5.28.2 MMC Output Format

The xml type within the SMETSData element is RetrieveExportDailyReadLogRsp. The header and body data items appear as set out immediately below.

5.28.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0035
GBCS Use Case (for reference - not in header)	ECS21c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 70 : Retrieve Export Daily Read Log MMC Output Format Header data items

5.28.2.2 Specific Body Data Items

The data items as shown in Table 70 immediately below appear as pairs within the "LogEntry" group, which may repeat up to thirty-one times.

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActiveExportRegisterValue	The log value recording the cumulative Active Energy Exported	xs:integer	Wh	Unencrypted
Timestamp	The time at which the corresponding log entry was taken, (UTC)	xs:dateTime	UTC Date-Time	Unencrypted

Table 71 : Retrieve Export Daily Read Log MMC Output Format Body data items

5.29 Read Active Import Profile Data

5.29.1 Service Description

Service Request Name	ReadActiveImportProfileData
Service Reference	4.8
Service Reference Variant	4.8.1

5.29.2 MMC Output Format

The xml type within the SMETSData element is ReadActiveImportProfileDataRsp. The header and body data items appear as set out immediately below.

5.29.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0037	0x0078
GBCS Use Case (for reference - not in header)	ECS22b	GCS17
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled or originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party	
SupplementaryOriginatorCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 72 : Read Active Import Profile Data MMC Output Format Header data items

5.29.2.2 Specific Body Data Items

The data items, as set out in Table 73 immediately below, appear within the "LogEntry" group which repeats as necessary (max 19056).

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	The date-time stamp at the end of the 30 minute period to which the value relates	xs:dateTime	UTC	Encrypted
Electricity	XML Block for Electricity only items			
PrimaryValue	The total active energy imported in this 30 minute period (if a twin element meter, this is for the primary element; if on a polyphase meter, it is cumulative across the phases). An invalid half-hourly sample may result in a null value	xs:integer	Wh	Encrypted
SecondaryValue	The total active energy imported in this 30 minute period on the secondary element Relevant to Electricity only Optional	xs:integer	Wh	Encrypted
Gas	XML Block for Gas only items			

Data Item	Description / Valid Set	Type	Units	Sensitivity
PrimaryValue	The total gas imported in this 30 minute period. Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS An invalid half-hourly sample may result in a 'high value' of 16,777,215 (0xFFFFFF)	xs:decimal	m3	Encrypted

Table 73 : Read Active Import Profile Data LogEntry (ra:ProfileDataLogActiveImportType) MMC Output Format Body data items

5.30 Read Reactive Import Profile Data

5.30.1 Service Description

Service Request Name	ReadReactiveImportProfileData
Service Reference	4.8
Service Reference Variant	4.8.2

5.30.2 MMC Output Format

The xml type within the SMETSData element is ReadReactiveImportProfileDataRsp. The header and body data items appear as set out immediately below.

5.30.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0038
GBCS Use Case (for reference - not in header)	ECS22c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled or originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party

Table 74 : Read Reactive Import Profile Data MMC Output Format Header data items

5.30.2.2 Specific Body Data Items

The data items, as set out in Table 75 immediately below, appear as pairs within the "LogEntry" group and repeats as necessary (max 4464).

Data Item	Description / Valid Set	Type	Units	Sensitivity
ReactiveEnergyImportedValue	The total reactive import energy imported in this 30 minute period (if a twin element meter, this is across the primary and secondary element; if on a polyphase meter, it is cumulative across the phases) An invalid half-hourly sample may result in a null value.	xs:integer	varh	Unencrypted
Timestamp	The date-time stamp at the end of the 30 minute period to which the value relates	xs:dateTime	UTC	Unencrypted

Table 75 : Read Reactive Import Profile Data MMC Output Format Body data items

5.31 Read Export Profile Data

5.31.1 Service Description

Service Request Name	ReadExportProfileData
Service Reference	4.8
Service Reference Variant	4.8.3

5.31.2 MMC Output Format

The xml type within the SMETSData element is ReadExportProfileDataRsp. The header and body data items appear as set out immediately below.

5.31.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0036
GBCS Use Case (for reference - not in header)	ECS22a
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled or originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party

Table 76 : Read Export Profile Data MMC Output Format Header data items

5.31.2.2 Specific Body Data Items

The data items, as set out in Table 77 immediately below, appear within the "LogEntry" group and repeats as necessary.

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActiveEnergyExported Value	The total active energy exported in this 30 minute period (if a twin element meter, this is for the primary element; if on a polyphase meter, it is cumulative across the phases) An invalid half-hourly sample may result in a null value.	xs:integer	Wh	Unencrypted
ReactiveEnergyExportedValue	The total reactive energy exported in this 30 minute period (if a twin element meter, this is for the primary element; if on a polyphase meter, it is cumulative across the phases) An invalid half-hourly sample may result in a null value.	xs:integer	varh	Unencrypted
Timestamp	The date-time stamp at the end of the 30 minute period to which the value relates	xs:dateTime	UTC	Unencrypted

Table 77 : Read Export Profile Data MMC Output Format Body data items

5.32 Read Network Data

5.32.1 Service Description

Service Request Name	ReadNetworkData
Service Reference	4.10
Service Reference Variant	4.10

5.32.2 MMC Output Format

The xml type within the SMETSData element is ReadNetworkDataRsp. The header and body data items appear as set out immediately below.

5.32.2.1 Specific Header Data Items

Data Item	Electricity Response (Single Phase)	Electricity Response (Poly Phase)	Gas Response
GBCSHexadecimalMessageCode	0x0039	0x00BC	0x0079
GBCS Use Case (for reference - not in header)	ECS23	ECS23b	GCS18
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled or originator is Unknown Remote Party	ra:EUI (see clause 2.4.1) Where DSP Scheduled or originator is Unknown Remote Party	ra:EUI (see clause 2.4.1) Where DSP Scheduled or originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party
SupplementaryOriginatorCounter	N/A	N/A	xs:nonNegativeInteger Where DSP Scheduled or originator is Unknown Remote Party
Timestamp	xs:dateTime		

Table 78 : Read Network Data MMC Output Format Header data items

5.32.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Electricity	XML Block for Electricity only items			
SinglePhaseESME	Voltage operational data for the single phase of an Electricity Single Phase Meter	ra:VoltageOperationalData, as set out in Section 5.32.2.2.1 of this document	N/A	Unencrypted
PolyPhaseESME	Voltage operational data for each of the 3 phases of an Electricity Poly Phase Meter	ra:VoltagePolyPhaseESME, as set out in Section 5.32.2.2.4 of this document	N/A	Unencrypted
Gas	XML Block for Gas only items			

Data Item	Description / Valid Set	Type	Units	Sensitivity
NetworkDataLog	Network Data Log Relevant to Gas only	ra:GasNetworkDataLog, as set out in Section 5.32.2.2.7 of this document	N/A	Encrypted

Table 79 : Read Network Data MMC Output Format Body data items

5.32.2.2.1 VoltageOperationalData Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
AvgRMSOverVoltageCounter	The Average RMS Over Voltage Counter since last reset	ra:AvgRMSVoltageCounterType	N/A	Unencrypted
AvgRMSUnderVoltageCounter	The Average RMS Under Voltage Counter since last reset	ra:AvgRMSVoltageCounterType	N/A	Unencrypted
AvgRMSVoltageProfileDataLog	A log arranged as a circular buffer such that when full, further writes cause the oldest entry to be overwritten	ra:AvgRMSVoltageProfileDataType, as set out in Section 5.32.2.2.2 of this document	N/A	Unencrypted

Table 80 : Read Network Data – VoltageOperationalData Specific Data Items

5.32.2.2.2 AvgRMSVoltageCounterType Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The Average RMS Over/Under Voltage Counter since last reset No scaler applied	xs:integer	N/A	Unencrypted
Unit	The Average RMS Over/Under Voltage Counter Unit Valid values are: "255" (where 255 defines - No units)	xs:string	N/A	Unencrypted

Table 81 : Read Network Data – AvgRMSVoltageCounterType Specific Data Items

5.32.2.2.3 AvgRMSVoltageProfileDataType Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LogEntry *(maximum of 4320 log)*	The Average RMS Value measured and timestamp for end of the period	ra:AvgRMSVoltageProfileLogEntryType as set out in Section 5.32.2.2.4 of this document maxOccurs = 4320	N/A	Unencrypted
MeasurementPeriod	The period in seconds over which the average RMS is averaged	xs:nonNegativeInteger	Seconds	Unencrypted

Table 82 : Read Network Data – AvgRMSVoltageProfileDataType Specific Data Items

5.32.2.2.4 AvgRMSVoltageProfileLogEntryType Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The Average RMS Value measured to the nearest 10^{th} of a volt. No scaler applied	xs:decimal	Volts	Unencrypted
Timestamp	The date-time at the end of the corresponding measurement period, (UTC)	xs:dateTime	UTC Date-Time	Unencrypted

Table 83 : Read Network Data – AvgRMSVoltageProfileLogEntryType Specific Data Items

5.32.2.2.5 VoltagePolyPhaseESME Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
PhaseVoltageOperationalData *(maximum of three entries, one per phase)*	The Voltage Operational Data for each of the 3 phases	ra:PhaseVoltageOperationalData, as set out in Section 5.32.2.2.6 of this document maxOccurs = 3	N/A	Unencrypted

Table 84 : Read Network Data - VoltagePolyPhaseESME Specific Data Items

5.32.2.2.6 PhaseVoltageOperationalData Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
VoltageOperationalData	The Voltage Operational Data for each of the 3 phases	ra:VoltageOperationalData, as set out in Section 5.32.2.2.1 of this document	N/A	Unencrypted
Phase	Each of the 3 phases in the Meter Value is between 1 and 3 inclusive	Restriction of xs:positiveInteger (minInclusive = 1, maxInclusive = 3)	N/A	Unencrypted

Table 85 : Read Network Data – PhaseVoltageOperationalData Specific Data Items

5.32.2.2.7 GasNetworkDataLog Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LogEntry *(maximum of 41 entries)*	Log of consumption data	ra:GasNetworkDataLogEntryType, as set out in Section 5.32.2.2.8 of this document maxOccurs = 41	N/A	Encrypted

Table 86 : Read Network Data – GasNetworkDataLog Specific Data Items

5.32.2.2.8 GasNetworkDataLogEntryType Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	Consumption value within log data taken at 6-minute intervals over a 4-hour period No scaler applied Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	xs:decimal	m^3	Encrypted
Timestamp	The date-time at the end of the corresponding measurement period, (UTC)	xs:dateTime	UTC Date-Time	Encrypted

Table 87 : Read Network Data – GasNetworkDataLogEntryTypeSpecific Data Items

5.33 Read Tariff (Primary Element)

5.33.1 Service Description

Service Request Name	ReadTariff(PrimaryElement)
Service Reference	4.11
Service Reference Variant	4.11.1

5.33.2 MMC Output Format

The xml type within the SMETSData element is ReadTariffPrimaryElementRsp. The header and body data items appear as set out immediately below.

5.33.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x003A	0x009F
GBCS Use Case (for reference - not in header)	ECS24	GCS21f
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where the originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party	

Table 88 : Read Tariff Primary Element MMC Output Format Header data items

5.33.2.2 Specific Body Data Items

The XML response structure within ReadTariffPrimaryElementRsp differs between Gas and Electricity, the XML groups named *Gas* and *Electricity* are as set out in Table 89 and Table 90 immediately below.

5.33.2.2.1 Electricity Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
PrimaryActiveTariffPrice	Number representing the price	xs:unsignedInt	1000th pence/cent per kWh	Unencrypted
CurrencyUnitsLabel	Valid currency values are: • GBP • ECB denoting GB Pounds and Euros	Restriction of xs:string (Enumeration)	N/A	Unencrypted
CurrencyUnitsName	Valid values are: • Millipence • Millicent A value denoting denomination and currency. Either 1000th GBP pence or 1000th Euro cent.	Restriction of xs:string (Enumeration)	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
StandingCharge	Value with scalar applied is in GBP/Euro per day. Scaler supplied as separate item	ra:PriceType (xs:short)	GBP /Euro per day (after scalar applied)	Unencrypted
StandingCharge Scale	Multiplier applied to StandingCharge where scalar value is n in 10^n (10 to the power n)	ra:PriceScale (xs:integer min -128, max 128)	N/A	Unencrypted
PriceScale	Multiplier applied to TOU/Block price values where scalar value is n in 10^n (10 to the power n)	ra:PriceScale (xs:integer min -128, max 128)	N/A	Unencrypted
TariffBlockPrice Matrix	Electricity Smart Meter: A 4 by 8 matrix containing prices for Block Pricing Optional Scaler applied as defined in GBCS	ra:ElecTariffBlockPriceMatrix *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr: ElecBlockTariff Service Reference Variant 1.2.1)	N/A	Unencrypted
TariffTOUPrice Matrix	Electricity Smart Meter: A 1 by 48 matrix containing prices for Time-of-use Pricing Optional Scaler applied as defined in GBCS	ra:ElecTariffTOUPriceMatrix *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecPrimaryTOUPrice Service Reference Variant 1.2.1)	N/A	Unencrypted
TariffSwitching Table	A calendar defining times, days and dates for switching the Primary Element tariff, (UTC)	ra:ElecTariffSwitchingTablePrimaryElement *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecSwitchingTablePrimary Service Reference Variant 1.1.1)	N/A	Unencrypted
TariffSwitchingTableSpecialDays	A calendar defining special dates for switching the Primary Element tariff	ra:ElecTariffSwitchingTableSpecialDaysPrimaryElement *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecSpecialDaysPrimary Service Reference Variant 1.1.1)	N/A	Unencrypted
TariffThreshold Matrix	A 3 (thresholds) by 8 (rows) matrix capable of holding thresholds for controlling Block Tariffs.	ra:ElecTariffThresholdMatrix *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecThresholdMatrix Service Reference Variant 1.1.1)	N/A	Unencrypted

Table 89 : Read Tariff Primary Element - Electricity MMC Output Format Header data items

5.33.2.2.2 Gas Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
PrimaryActiveTariffPrice	Number representing the price per unit consumed. Related to tariff values through calorific conversion. Scaler supplied as separate item	xs:unsignedInt	GBP/ Euro per m^3 (after scalar applied)	Unencrypted
PrimaryActiveTariffPriceScale	A multiplier applied to the PrimaryActiveTariffPrice value. Note this is the value of n in 10^n (10 to the power of n).	ra:PriceScale (xs:integer min -128, max 128)	N/A	Unencrypted
CurrencyUnitsLabel	Valid currency values are: • GBP • ECB denoting GB Pounds and Euros	Restriction of xs:string (Enumeration)	N/A	Unencrypted
StandingCharge	Valid values are greater than or equal to zero Scaler applied as defined in GBCS	xs:unsignedInt	1000^{th} pence /cent per day	Unencrypted
TariffSwitchingTable	A calendar defining times, days and dates for switching the tariff, (UTC)	ra:GasTariffSwitchingTable *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:GasSwitchingTable Service Reference Variant 1.1.1)	N/A	Unencrypted
TariffSwitchingTableSpecialDays	A calendar defining special dates for switching the Primary Element tariff	ra:GasTariffSwitchingTableSpecialDays *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:GasSpecialDays Service Reference Variant 1.1.1)	N/A	Unencrypted
TariffThresholds	A 3 by 1 matrix capable of holding thresholds for controlling Block Tariffs Multiplier and divisor have been applied	ra:GasTariffThresholds *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:GasThresholdMatrix Service Reference Variant 1.1.1)	N/A	Unencrypted
TOUTariff	A 4 by 1 matrix containing Prices for Time-of-use Pricing Optional, these values are applicable only where a Gas Smart Meter is operating a TOU tariff	ra:GasTariffTOUPriceMatrix *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:GasTOUPriceMatrix Service Reference Variant 1.2.1)	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
BlockTariff	Gas Smart Meter: A 4 x 1 matrix containing Prices for Block Pricing Optional, these values are applicable only where a Gas Smart Meter is operating a Block tariff	ra:GasTariffBlockPrices *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:GasBlockPriceMatrix Service Reference Variant 1.2.1)	N/A	Unencrypted

Table 90 : Read Tariff Primary Element - Gas MMC Output Format Body data items

5.34 Read Tariff (Secondary Element)

5.34.1 Service Description

Service Request Name	ReadTariff(SecondaryElement)
Service Reference	4.11
Service Reference Variant	4.11.2

5.34.2 MMC Output Format

The xml type within the SMETSData element is ReadTariffSecondaryElementRsp. The header and body data items appear as set out immediately below.

5.34.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x00BD
GBCS Use Case (for reference - not in header)	ECS24b
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where the originator is an Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party

Table 91 : Read Tariff Secondary Element MMC Output Format Header data items

5.34.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
SecondaryActiveTariff Price	Price in 1000^{th} pence/cent per kWh	xs:unsignedInt	1000^{th} pence /cent per kWh	Unencrypted
PriceScale	Multiplier applied to TOU price values where scalar value is n in 10^n (10 to the power n)	ra:PriceScale (xs:integer min -128, max 128)	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
TariffTOUPriceMatrix *(maximum of 4 entries)*	Twin Element Electricity Smart Meter: A 1 by 4 matrix containing prices for Time-of-use Pricing Tariffs relating to Supply via the secondary measuring element of the Electricity Meter Scaler applied as defined in GBCS	ra:ElecTariffTOUPriceMatrixSecondaryElement *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecSecondaryTOUPrice Service Request 1.2.2)	N/A	Unencrypted
TariffSwitchingTable	A calendar defining times, days and dates for switching the Secondary Element tariff, (UTC)	ra:ElecTariffSwitchingTableSecondaryElement *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecSwitchingTableSecondary under Service Request 1.1.2)	N/A	Unencrypted
TariffSwitchingTableSpecialDays	A calendar defining special dates for switching the Secondary Element tariff	ra:ElecTariffSwitchingTableSpecialDaysSecondaryElement *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElecSpecialDaysSecondary under Service Request 1.1.2)	N/A	Unencrypted

Table 92 : Read Tariff Secondary Element MMC Output Format Body data items

5.35 Read Maximum Demand Import Registers

5.35.1 Service Description

Service Request Name	ReadMaximumDemandImportRegisters
Service Reference	4.12
Service Reference Variant	4.12.1

5.35.2 MMC Output Format

The xml type within the SMETSData element is ReadMaximumDemandImportRegistersRsp. The header and body data items appear as set out immediately below.

5.35.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x002C
GBCS Use Case (for reference - not in header)	ECS18b
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled
Timestamp	xs:dateTime

Table 93 : Read Maximum Demand Import Registers MMC Output Format Header data items

5.35.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
MaxDemandConfigurableTimeActivePowerImport	See Section 5.35.2.2.1	ra:MaxDemandConfigurableTimeActivePowerImportDataType, as set out in Section 5.35.2.2.1 of this document	N/A	Unencrypted
MaxDemandActiveEnergyImport	See Section 5.35.2.2.2	ra:MaxDemandActiveEnergyImportDataType, as set out in Section 5.35.2.2.2 of this document	N/A	Unencrypted
MaxDemandConfigurableTimePeriod	A data structure to identify 2 switch times (at the start of minutes 00 and 30 in each hour) at which recording of the Maximum Demand (Configurable Time) Active Energy Import Value is enabled or disabled in each 24 hour period, to be applied on a daily basis	ra:MaximumDemandTimePeriodSchedule	N/A	Unencrypted

Table 94 : Read Maximum Demand Import Registers MMC Output Format Body data items

5.35.2.2.1 MaxDemandConfigurableTimeActivePowerImportDataType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The largest average value of active power since last reset No scaler applied.	xs:integer	W	Unencrypted
CaptureTime	The date and time, (UTC), at the end of the 30 minute period to which the value relates	xs:dateTime	UTC Date-Time	Unencrypted
LastResetDateTime	UTC date time at which the “Maximum Demand Configurable Time Active Power Import Value” was last used/reset.	xs:dateTime	UTC Date-Time	Unencrypted

Table 95 : Read Maximum Demand Import Registers – MaxDemandConfigurableTimeActivePowerImportDataType Specific Data Items

5.35.2.2.2 MaxDemandActiveEnergyImportDataType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The largest average value of active power imported since last reset No scaler applied.	xs:integer	W	Unencrypted

CaptureTime	The date and time, (UTC), at the end of the 30 minute period to which the value relates	xs:dateTime	UTC Date-Time	Unencrypted
LastResetDateTime	UTC date time at which the "Maximum Demand Active Energy Import Value" was last used/reset.	xs:dateTime	UTC Date-Time	Unencrypted

Table 96 : Read Maximum Demand Import Registers – MaxDemandActiveEnergyImportDataType Specific Data Items

5.35.2.2.3 MaximumDemandTimePeriodSchedule Specific Definition

Data Item	Description / Valid Set	Type	Units	Sensitivity
StartTime	The Start time from which the Maximum Demand period begins.	xs:time	N/A	Unencrypted
EndTime	The End Time at which the Maximum Demand period ends.	xs:time	N/A	Unencrypted

Table 97 : MaximumDemandTimePeriodSchedule (ra:MaximumDemandTimePeriodSchedule) data items

5.36 Read Maximum Demand Export Registers

5.36.1 Service Description

Service Request Name	ReadMaximumDemandExportRegisters
Service Reference	4.12
Service Reference Variant	4.12.2

5.36.2 MMC Output Format

The xml type within the SMETSData element is ReadMaximumDemandExportRegistersRsp. The header and body data items appear as set out immediately below.

5.36.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x002B
GBCS Use Case (for reference - not in header)	ECS18a
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled or the originator is an Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or the originator is an Unknown Remote Party
Timestamp	xs:dateTime

Table 98 : Read Maximum Demand Export Registers MMC Output Format Header data items

5.36.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
MaxDemandActiveEnergyExport	See 5.36.2.2.1	ra:MaxDemandRegisterDataType, as set out in Section 5.36.2.2.1 of this document	N/A	Unencrypted

Table 99 : Read Maximum Demand Export Registers MMC Output Format Body data items

5.36.2.2.1 MaxDemandRegisterDataType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The largest average value of active power exported since last reset No scaler applied.	xs:integer	W	Unencrypted
CaptureTime	The date and time, (UTC), at the end of the 30 minute period to which the value relates	xs:dateTime	UTC Date-Time	Unencrypted
LastResetDateTime	UTC date time at which the "Maximum Demand Active Energy Export Value" was last used/reset.	xs:dateTime	UTC Date-Time	Unencrypted

Table 100 : Read Maximum Demand Export Registers – MaxDemandRegisterDataType Specific Data Items

5.37 Read Prepayment Configuration

5.37.1 Service Description

Service Request Name	ReadPrepaymentConfiguration
Service Reference	4.13
Service Reference Variant	4.13

5.37.2 MMC Output Format

The xml type within the SMETSData element is ReadPrepaymentConfigurationRsp. The header and body data items appear as set out immediately below.

5.37.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x003B	0x00B5
GBCS Use Case (for reference - not in header)	ECS26a	GCS21b

Table 101 : Read Prepayment Configuration MMC Output Format Header data items

5.37.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DebtRecoveryPerPayment	The percentage of a payment to be recovered against debt when the Meter is operating Payment-based Debt Recovery in Prepayment Mode. Valid set: >= 0 and <= 10000 (100.00%)	xs:Integer	0.01%	Unencrypted
DebtRecoveryRateCap	The maximum amount per week that can be recovered through Payment-based Debt Recovery when the Meter is operating in Prepayment Mode.	xs:integer	Electricity: GBP / ECB per week Gas: 1000^{th} pence / cent / week	Unencrypted
DisablementThreshold	The threshold for controlling when to Disable the Supply.	xs:integer	1000^{th} pence / cent	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
EmergencyCreditLimit	The amount of Emergency Credit to be made available to a Consumer when Emergency Credit is activated by the Consumer.	xs:integer	1000th pence / cent	Unencrypted
EmergencyCreditThreshold	The threshold below which Emergency Credit may be activated by the Consumer, if so configured, when the Meter is operating in Prepayment Mode.	xs:integer	1000th pence / cent	Unencrypted
LowCreditThreshold	The threshold below which a low credit Alert is signalled.	xs:integer	1000th pence / cent	Unencrypted
CreditMaxCreditThreshold	Maximum amount of credit permitted per top up.	xs:integer	1000th pence / cent	Unencrypted
MaxCreditMaxMeterBalance	Maximum amount of credit permitted on the meter.	xs:integer	1000th pence / cent	Unencrypted
SuspendDebtDisabled	A setting controlling whether debt should be collected when the Meter is operating in Prepayment Mode and Supply is Disabled. See SMETS for details. Valid values are: • true (if the supply is disabled due to lack of credit as per GBCS definition, then the Meter shall not collect the Time Debts however the Standing Charge is still collected from the Meter Balance); or • false (if the supply is disabled due to lack of credit as per GBCS definition, then the Meter shall collect the Time Debts and the Standing Charge from the Meter Balance). Relevant for Electricity only.	xs:boolean	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
SuspendDebtEmergency	A setting controlling whether debt should be collected when the Meter is operating in Prepayment Mode and Emergency Credit has been activated. See SMETS for details. Valid values are: • true (if Emergency Credit is in use as per GBCS definition, then the Meter shall not collect the Standing Charge or Time Debts from the Emergency Credit Balance and will instead increment the Accumulated Debt Register); or • false (if Emergency Credit is in use as per GBCS definition, then the Meter shall collect the Standing Charge and Time Debts from the Emergency Credit Balance). Relevant for Electricity only.	xs:boolean	N/A	Unencrypted
Electricity	XML Block for Electricity			
PaymentMode	The payment mode in which the meter is operating. Valid set: • Prepayment • Credit	ra:PaymentMode (xs:string enumeration)	N/A	Unencrypted
NonDisablementCalendar	Structure defining the Non Disablement schedules	ra:ElectricityNonDisablementCalendar *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:ElectricityNonDisablementCalendar)	N/A	Unencrypted
DebtRecovery1	Debt recovery group item	ra:ElecDebtRecovery as set out in Section 5.37.2.3 of this document	N/A	Unencrypted
DebtRecovery2	Debt recovery group item	ra:ElecDebtRecovery as set out in Section 5.37.2.3 of this document	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
Gas	XML Block for Gas			
NonDisablement Calendar	Calendar defining the time periods when Non-Disablement shall apply or not apply.	ra:GasNonDisablementCalendar *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for sr:GasNonDisablementCalendar)	N/A	Unencrypted
DebtRecovery1	Debt recovery item group	ra:GasDebtRecovery as set out in Section 5.37.2.4 of this document	N/A	Unencrypted
DebtRecovery2	Debt recovery item group	ra:GasDebtRecovery as set out in Section 5.37.2.4 of this document	N/A	Unencrypted

Table 102 : Read Prepayment Configuration MMC Output Format Body data items

5.37.2.3 ElecDebtRecovery Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DebtRecovery Rate	Debt recovery rate when the Meter is using Time-based Debt Recovery in Prepayment Mode. Scaler supplied as a separate data item	xs:integer	BGP/Euro per time period (after scalar applied)	Unencrypted
DebtRecovery RatePriceScale	A multiplier applied to the DebtRecoveryRate value. Note this is the value of n in 10^n (10 to the power n).	ra:PriceScale (xs:integer min -128, max 128)	N/A	Unencrypted
DebtRecovery RatePeriod	The unit time in which DebtRecoveryRate will apply. • HOURLY • DAILY • WEEKLY • MONTHLY • QUARTERLY	xs:string enumeration	N/A	Unencrypted

Table 103 : ElecDebtRecovery MMC Output Format Body data items

5.37.2.4 GasDebtRecovery Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DebtRecoveryRate	Debt recovery rate when the Meter is using Time-based Debt Recovery in Prepayment Mode. No scaler applied	xs:integer	1000^{th} pence/cent per time period	Unencrypted
DebtRecoveryPeriod	The unit time in which DebtRecoveryRate will apply. • HOURLY • DAILY	xs:string enumeration	N/A	Unencrypted

Table 104 : GasDebtRecovery MMC Output Format Body data items

5.38 Read Prepayment Daily Read Log

5.38.1 Service Description

Service Request Name	ReadPrepaymentDailyReadLog
Service Reference	4.14
Service Reference Variant	4.14

5.38.2 MMC Output Format

The xml type within the SMETSData element is ReadPrepaymentDailyReadLogRsp. The header and body data items appear as set out immediately below.

5.38.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0034	0x0096
GBCS Use Case (for reference - not in header)	ECS21b	GCS16b
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled or the originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or the originator is an Unknown Remote Party	
SupplementaryOriginatorCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party	

Table 105 : Read Prepayment Daily Read Log MMC Output Format Header data items

5.38.2.2 Specific Body Data Items

The "LogEntry" XML group will appear within either a "Gas" or "Electricity" XML group.

Data Item	Description / Valid Set	Type	Units	Sensitivity
LogEntry *(maximum 31 entries)*	Up to 31 entries of the Prepayment Daily Read Log. This log is capable of storing thirty one date and time stamped entries (UTC) arranged as a circular buffer such that when full, further writes shall cause the oldest entry to be overwritten. Only log entries within the date range specified in the Service Request will be returned. See 5.38.2.2.1	ra:PrepaymentOperationalDataType, as set out in Section 5.38.2.2.1 of this document maxOccurs = 31	N/A	Encrypted

Table 106 : Read Prepayment Daily Read Log MMC Output Format Body data items

5.38.2.2.1 PrepaymentOperationalDataType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
AccumulatedDebtRegister	The debt resulting from the collection of Standing Charge and/or time-based debt when Emergency Credit is in Use as configured by Suspend Debt Emergency, when operating in Prepayment Mode	xs:integer	1000th pence/cent	Encrypted
EmergencyCreditBalance	The amount of Emergency Credit available to the Consumer after it has been activated.	xs:integer	1000th pence/cent	Encrypted
MeterBalance	When operating in Prepayment Mode, the Meter Balance represents the Smart Meter's determination of the amount of credit available to the Consumer (excluding any Emergency Credit Balance)	xs:integer	1000th pence/cent	Encrypted
PaymentDebtRegister	Amount of debt. (Debt to be recovered as a percentage of payment when using Payment-based Debt Recovery in Prepayment Mode)	xs:integer	1000th pence/cent	Encrypted
TimeDebtRegisters1	One of two registers recording independent debts to be recovered over time when operating Time-based Debt Recovery in Prepayment Mode	xs:integer	1000th pence/cent	Encrypted
TimeDebtRegisters2	One of two registers recording independent debts to be recovered over time when operating Time-based Debt Recovery in Prepayment Mode	xs:integer	1000th pence/cent	Encrypted
Timestamp	The date-time at which the corresponding log entry was taken (UTC).	xs:dateTime	UTC Date-Time	Encrypted

Table 107 : Read Prepayment Daily Read Log – PrepaymentOperatonalDataTypeSpecific Data Items

5.39 Read Load Limit Data

5.39.1 Service Description

Service Request Name	ReadLoadLimitData
Service Reference	4.15
Service Reference Variant	4.15

5.39.2 MMC Output Format

The xml type within the SMETSData element is ReadLoadLimitDataRsp. The header and body data items appear as set out immediately below.

5.39.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0042
GBCS Use Case (for reference - not in header)	ECS27
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled

Table 108 : Read Load Limit Data MMC Output Format Header data items

5.39.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LoadLimitCounterValue	The count of load limit events since last reset	xs:integer	N/A	Unencrypted
LoadLimitPowerThreshold	The Active Power threshold above which the measurement of a Load Limit Period is commenced	xs:integer	W	Unencrypted
LoadLimitPeriod	The length of time which the Active Power Import needs to continuously exceed the Load Limit Power Threshold before a load limiting event is deemed to have occurred	xs:nonNegativeInteger	Seconds	Unencrypted
LoadLimitRestorationPeriod	The length of time after the Supply has been Armed following a Load Limiting Event before the Supply is Enabled by the Electricity Smart Meter	xs:nonNegativeInteger	Seconds	Unencrypted
LoadLimitSupplyState	A setting to control the state of the Supply in the case of a load limiting occurring, with valid values of: • Disable; or • Unchanged.	Restriction of xs:string (Enumeration)	N/A	Unencrypted

Table 109 : Read Load Limit Data MMC Output Format Body data items

5.40 Read Active Power Import

5.40.1 Service Description

Service Request Name	ReadActivePowerImport
Service Reference	4.16
Service Reference Variant	4.16

5.40.2 MMC Output Format

The xml type within the SMETSData element is ReadActivePowerImportRsp. The header and body data items appear as set out immediately below.

5.40.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0028
GBCS Use Case (for reference - not in header)	ECS17c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where DSP Scheduled
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled
Timestamp	xs:dateTime

Table 110 : Read Active Power Import MMC Output Format Header data items

5.40.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActivePowerImport	The total Active Power from all elements on the Meter	ra:ActivePowerImportType	W	Unencrypted
PrimaryActivePowerImportValue	The total Active Power from the first element on the Meter	xs:Integer	W	Unencrypted

Table 111 : Read Active Power Import MMC Output Format Body data items

5.40.2.2.1 ActivePowerImportType Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	The total Active Power from all elements on the Meter No scaler applied	xs:Integer	W	Unencrypted
Unit	The Unit corresponding to the Value – "W".	xs:string	N/A	Unencrypted

Table 112 : ActivePowerImportType MMC Output Format Body data items

5.41 Retrieve Daily Consumption Log

5.41.1 Service Description

Service Request Name	RetrieveDailyConsumptionLog
Service Reference	4.17
Service Reference Variant	4.17

5.41.2 MMC Output Format

The xml type within the SMETSData element is RetrieveDailyConsumptionLogRsp. The header and body data items appear as set out immediately below.

5.41.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0060	0x00A0
GBCS Use Case (for reference - not in header)	ECS66	GCS61
SupplementaryRemotePartyID	ra:EUI Where DSP Scheduled or the originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where DSP Scheduled or the originator is an Unknown Remote Party	
SupplementaryOriginatorCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party	

Table 113 : Retrieve Daily Consumption Log MMC Output Format Header data items

5.41.2.2 Specific Body Data Items

The "LogEntry" XML group will appear within either a "Gas" or "Electricity" XML group.

Data Item	Description / Valid Set	Type	Units	Sensitivity
Electricity	XML Block for Electricity			

LogEntry *(Maximum 731 log entries, where a value of 731 is considered as 'Unbounded' by the XSD validation)*	Each of up to 731 date stamped entries of Consumption arranged as a circular buffer such that when full, further writes shall cause the oldest entry to be overwritten. Only log entries within the date range specified in the Service Request will be returned.	ra:ElecDailyConsumptionLogEntryType, as set out in Section 5.41.2.2.1 of this document maxOccurs = 731	N/A	Encrypted
Gas	XML Block for Gas			
LogEntry *(Maximum 731 log entries, where a value of 731 is considered as 'Unbounded' by the XSD validation)*	Each of up to 731 date stamped entries of Consumption arranged as a circular buffer such that when full, further writes shall cause the oldest entry to be overwritten. Only log entries within the date range specified in the Service Request will be returned.	ra:GasDailyConsumptionLogEntryType, as set out in Section 5.41.2.2.2 of this document maxOccurs = 731	N/A	Encrypted

Table 114 : Retrieve Daily Consumption Log MMC Output Format Body data items

5.41.2.2.1 ElecDailyConsumptionLogEntryType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	Consumption for the relevant day	xs:Integer	Wh	Encrypted
Timestamp	The date-time at which the corresponding log entry was taken, (UTC)	xs:dateTime	UTC Date-Time	Encrypted

Table 115 : Retrieve Daily Consumption Log – ElecDailyConsumptionLogEntryType Specific Data Items

5.41.2.2.2 GasDailyConsumptionLogEntryType Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Value	Consumption for the relevant day Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	xs:Decimal	m^3	Encrypted
Timestamp	The date-time at which the corresponding log entry was taken, (UTC)	xs:dateTime	UTC Date-Time	Encrypted

Table 116 : Retrieve Daily Consumption Log – GasDailyConsumptionLogEntryType Specific Data Items

5.42 Read Meter Balance

5.42.1 Service Description

Service Request Name	ReadMeterBalance
Service Reference	4.18
Service Reference Variant	4.18

5.42.2 MMC Output Format

The xml type within the SMETSData element is ReadMeterBalanceRsp. The header and body data items appear as set out immediately below.

5.42.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0069	0x008D
GBCS Use Case (for reference - not in header)	ECS82	GCS60

Table 117 : Read Meter Balance MMC Output Format Header data items

5.42.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
MeterBalance	For Electricity, a positive value represents the amount of credit available and a negative value is the amount of money due. For Gas, a positive value represents the amount of money due and a negative value is not permitted.	xs:integer	1000^{th} pence/cent	Unencrypted
Gas	XML Group item			
MeterBalancePrepaymentMode	A positive value represents the amount of credit available and a negative value is the amount of money due. Gas Only	xs:integer	1000^{th} pence/cent	Unencrypted

Table 118 : Read Meter Balance MMC Output Format Body data items

5.43 Read Device Configuration (Voltage)

5.43.1 Service Description

Service Request Name	ReadDeviceConfiguration(Voltage)
Service Reference	6.2
Service Reference Variant	6.2.1

5.43.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationVoltageRsp. The header and body data items appear as set out immediately below.

5.43.2.1 Specific Header Data Items

Data Item	Electricity Response (single phase)	Electricity Response (3 phase)
GBCSHexadecimalMessageCode	0x003C	0x00C6
GBCS Use Case (for reference - not in header)	ECS26b	ECS26k
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where the originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party	

Table 119 : Read Device Configuration (Voltage) MMC Output Format Header data items

5.43.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Sensitivity
SinglePhaseVoltageSettings	Single phase settings	ra:AverageRMSVoltageSettings, as set out in Section 5.43.2.2.1.2 of this document	Unencrypted
PolyPhaseVoltageSettings	3 occurrences	ra:PolyPhaseVoltageSettings maxOccurs = 3 as set out in Section 5.43.2.2.1.1 of this document	Unencrypted
RMSVoltageSettings	The non-average RMS Voltage settings applicable to a Single Phase (Single or Twin Element) Electricity Smart Meter or to a Polyphase Electricity Smart Meter phase.	ra:RMSVoltageSettings *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS under Service Request 6.5)	Unencrypted

Table 120 : Read Device Configuration (Voltage) MMC Output Format Body data items

5.43.2.2.1.1 PolyPhaseVoltageSettings Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Phase	The number (1, 2, 3) of the phase to which the Phase Voltage Settings apply.	xs:positiveinteger minInclusive = 1 maxInclusive = 3	None	Unencrypted
PhaseVoltageSettings	Phase Voltage Settings corresponding to Phase number	ra:AverageRMSVoltageSettings, as set out in Section 5.43.2.2.1.2 of this document	n/a	Unencrypted

Table 121 : PolyPhaseVoltageSettings MMC Output Format Body data items

5.43.2.2.1.2 AverageRMSVoltageSettings Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
AverageRMSOverVoltageThreshold	The average RMS voltage above which an over voltage condition is reported.	xs:unsignedint	10^{th} Volts	Unencrypted
AverageRMSUnderVoltageThreshold	The average RMS voltage below which an under voltage condition is reported.	xs:unsignedint	10^{th} Volts	Unencrypted

Table 122 : AverageRMSVoltageSettings MMC Output Format Body data items

5.44 Read Device Configuration (Randomisation)

5.44.1 Service Description

Service Request Name	ReadDeviceConfiguration(Randomisation)
Service Reference	6.2
Service Reference Variant	6.2.2

5.44.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationRandomisationRsp. The header and body data items appear as set out immediately below.

5.44.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x003D
GBCS Use Case (for reference - not in header)	ECS26c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where the originator is an Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party

Table 123 : Read Device Configuration (Randomisation) MMC Output Format Header data items

5.44.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RandomisedOffset	RandomisedOffsetNumber * RandomisedOffsetLimit * (10 to the power -4) rounded to the nearest integer number of seconds. This value is used to delay the Tariff Switching Table times and the Auxiliary Load Control Switch switching times.	xs:integer	Seconds	Unencrypted
RandomisedOffsetNumber	Integer between 1 and 10,000, which is set randomly set at manufacture	xs:integer	N/A	Unencrypted
RandomisedOffsetLimit	A value in seconds in the range 0 to 1799.	xs:integer	Seconds	Unencrypted

Table 124 : Read Device Configuration Randomisation Specific Body Data Items

5.45 Read Device Configuration (Billing Calendar)

5.45.1 Service Description

Service Request Name	ReadDeviceConfiguration(BillingCalendar)
Service Reference	6.2
Service Reference Variant	6.2.3

5.45.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationDataBillingCalendarRsp. The header and body data items appear as set out immediately below.

5.45.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x003E	0x009D
GBCS Use Case (for reference - not in header)	ECS26d	GCS21d
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where the originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party	

Table 125 : Read Device Configuration (Billing Calendar) MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x00D9	0x00DA
GBCS Use Case (for reference - not in header)	ECS26l	GCS21k
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where the originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where the originator is an Unknown Remote Party	

Table 126 : Read Device Configuration (Billing Calendar) MMC Output Format Header data items – GBCS v2.0

5.45.2.2 Specific Body Data Items

The XML response structure within ReadDeviceConfigurationDataBillingCalendarRsp differs between Gas and Electricity, the XML groups named *GasBillingCalendar* and *ElectricityBillingCalendar*. These groups appear within the *BillingCalendar* group item.

Data Item	Description / Valid Set	Type	Units	Sensitivity
BillingCalendar	The Gas and/or Electricity Billing Calendars	ra:BillingCalendar *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.8)	None	Unencrypted

Table 127 : Read Device Configuration (Billing Calendar) MMC Output Format Specific Body data items

5.46 Read Device Configuration (Identity Exc MPxN)

5.46.1 Service Description

Service Request Name	ReadDeviceConfiguration(IdentityExcMPxN)
Service Reference	6.2
Service Reference Variant	6.2.4

5.46.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationIdentityExcMPxNRsp. The header and body data items appear as set out immediately below.

5.46.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	Electricity Response	Gas Response	CHF Response
GBCSHexadecimalMessageCode	0x003F	0x009E	0x0092
GBCS Use Case (for reference - not in header)	ECS26e	GCS21e	ECS26i
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party		ra:EUI
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party		xs:nonNegativeInteger

Table 128 : Read Device Configuration (Device Identity Excluding MPxN) MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	Electricity Response	Gas Response	CHF Response
GBCSHexadecimalMessageCode	0x00F9	0x00FB	0x00FA
GBCS Use Case (for reference - not in header)	ECS26m	GCS21m	ECS26n
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party		ra:EUI
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party		xs:nonNegativeInteger

Table 129 : Read Device Configuration (Device Identity Excluding MPxN) MMC Output Format Header data items – GBCS v2.0

5.46.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DeviceIdentifier	A globally unique identifier used to identify the Device based on the EUI-64 Institute of Electrical and Electronic Engineers standard Relevant to Electricity, Gas and CHF DeviceIdentifier is only supported (and hence returned within the response) on Devices with a Device Model recorded in the Smart Metering Inventory that pertains to GBCS version 1.0 according to the entry for that Device Model in the Certified Products List	ra:EUI	N/A	Unencrypted
ModelType	An identifier used to identify the model of the Device. Relevant to Electricity, Gas and CHF	xs:string (maxLength = 8)	N/A	Unencrypted
ManufacturerIdentifier	An identifier used to identify the manufacturer of the Device. Relevant to Electricity, Gas and CHF	xs:string (maxLength = 32)	N/A	Unencrypted
Electricity	XML Block for Electricity			
SupplyTamperState	A setting which determines the action of the ESME to control the state of the Supply in the case of a Tamper Event being detected, being: • Unchanged • Locked	xs:string (enumeration)	N/A	Unencrypted
MeterVariant	A data item to indicate if ESME is: 'Single Element Electricity Metering Equipment' (value = 'A'), 'Twin Element Electricity Metering Equipment' (value = 'B'); or 'Polyphase Electricity Metering Equipment' (value = 'C') As defined in SMETS.	xs:string (maxLength = 1)	N/A	Unencrypted
Gas	XML Block for Gas			
SupplyTamperState	A setting which determines the action of the GSME to control the state of the Supply in the case of a Tamper Event being detected, being: • Unchanged • Locked	xs:string (enumeration)	N/A	Unencrypted
SupplyDepletionState	A setting which determines the action of the GSME to control the state of the Supply in the case of loss of power to GSME, being: • Unchanged • Locked	xs:string (enumeration)	N/A	Unencrypted

Table 130 : Read Device Configuration (Device Identity Excluding MPxN) MMC Output Format Specific Body data items

5.47 Read Device Configuration (Instantaneous Power Thresholds)

5.47.1 Service Description

Service Request Name	ReadDeviceConfiguration(InstantaneousPowerThresholds)
Service Reference	6.2
Service Reference Variant	6.2.5

5.47.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationInstantaneousPowerThresholdsRsp. The header and body data items appear as set out immediately below.

5.47.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0040
GBCS Use Case (for reference - not in header)	ECS26f
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party

Table 131 : Read Device Configuration (Instantaneous Power Thresholds) MMC Output Format Header data items

5.47.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LowMediumPower Threshold	A value in W defining the threshold between an indicative low and medium Active Power Import level.	xs:integer	W	Unencrypted
MediumHighPower Threshold	A value in W defining the threshold between an indicative medium and high Active Power Import level	xs:integer	W	Unencrypted

Table 132 : Read Device Configuration (Instantaneous Power Thresholds) MMC Output Format Body data items

5.48 Read Device Configuration (MPxN)

5.48.1 Service Description

Service Request Name	ReadDeviceConfiguration(MPxN)
Service Reference	6.2
Service Reference Variant	6.2.7

5.48.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationMPxNRsp. The header and body data items appear as set out immediately below.

5.48.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x004E	0x0089
GBCS Use Case (for reference - not in header)	ECS40	GCS46
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party	

Table 133 : Read Device Configuration (MPxN) MMC Output Format Header data items

5.48.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ImportMPAN	Primary MPAN Relevant to Electricity only	xs:string (maxLength = 13)	N/A	Unencrypted
SecondaryImportMPAN	Secondary MPAN Relevant to Electricity only Twin Element Only	xs:string (maxLength = 13)	N/A	Unencrypted
ExportMPAN	The MPAN associated with Export Consumption Relevant to Electricity only	xs:string (maxLength = 13)	N/A	Unencrypted
MPRN	The MPRN associated with Gas Consumption Relevant to Gas only	xs:string (maxLength = 10)	N/A	Unencrypted

Table 134 : Read Device Configuration (MPxN) MMC Output Format Body data items

5.49 Read Device Configuration (Gas)

5.49.1 Service Description

Service Request Name	ReadDeviceConfiguration(Gas)
Service Reference	6.2
Service Reference Variant	6.2.8

5.49.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationGasRsp. The header and body data items appear as set out immediately below.

5.49.2.1 Specific Header Data Items

Data Item	Gas Response
GBCSHexadecimalMessageCode	0x007B
GBCS Use Case (for reference - not in header)	GCS21a
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party

Table 135 : Read Device Configuration (Gas) Response Header Data Items

5.49.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
CalorificValue	The value used in conjunction with the conversion factor in the conversion of gas volume to kWh usage, based on the energy stored in one cubic metre of gas released when burnt at a standard temperature and pressure. Multiplier and divisor applied as defined in GBCS	xs:decimal	MJ/m^3	Unencrypted
ConversionFactor	The value used in conjunction with the calorific value in the conversion of gas volume to kWh usage, based on the pressure, temperature and compressibility of the gas. Multiplier and divisor applied as defined in GBCS	xs:decimal	N/A	Unencrypted
UncontrolledGasFlowRate	The flow rate in units of volume per unit time used in the detection of uncontrolled flow of gas on Enablement of Supply Multiplier and divisor applied as defined in GBCS	xs:decimal	m^3/h	Unencrypted
FlowStabilisationPeriod	The time given to allow the flow to stabilize. Defined in units of tenths of a second	xs:integer	10^{th} second	Unencrypted
FlowMeasurement Period	The period over which the flow is measured and compared against the Uncontrolled Flow Threshold attribute. Defined in units of seconds.	xs:integer	seconds	Unencrypted

Table 136 : Read Device Configuration (Gas) Response Body Data Items

5.50 Read Device Configuration (Payment Mode)

5.50.1 Service Description

Service Request Name	ReadDeviceConfiguration(PaymentMode)
Service Reference	6.2
Service Reference Variant	6.2.9

5.50.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationPaymentModeRsp. The header and body data items appear as set out immediately below.

5.50.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x00BE	0x00BF
GBCS Use Case (for reference - not in header)	ECS26j	GCS21j
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party	

Table 137 : Read Device Configuration (Payment Mode) MMC Output Format Header data items

5.50.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
PaymentMode	The current mode of operation. Valid values: • Prepayment • Credit	xs:string (maxLength= 10) (Enumeration)	N/A	Unencrypted
SuspendDebtEmergency	If Payment Mode is Prepayment, it indicates whether Suspend Debt Emergency is true (if Emergency Credit is in use, then the Meter shall not collect the Standing Charge or Time Debts from the Emergency Credit Balance and will instead increment the Accumulated Debt Register) or false (if Emergency Credit is in use, then the Meter shall collect the Standing Charge and Time Debts from the Emergency Credit Balance). See SMETS for details. Relevant for Gas only.	xs:boolean	N/A	Unencrypted

SuspendDebtDisabled	If Payment Mode is Prepayment, it indicates whether Suspend Debt Disabled is true (if the supply is disabled due to lack of credit, then the Meter shall not collect the Time Debts however the Standing Charge is still collected from the Meter Balance) or false (if the supply is disabled due to lack of credit, then the Meter shall collect the Time Debts and the Standing Charge from the Meter Balance). See SMETS for details. Relevant for Gas only.	xs:boolean	N/A	Unencrypted

Table 138 : Read Device Configuration (Payment Mode) MMC Output Format Body data items

5.51 Read Device Configuration (Event And Alert Behaviours)

5.51.1 Service Description

Service Request Name	ReadDeviceConfiguration(EventAndAlertBehaviours)
Service Reference	6.2
Service Reference Variant	6.2.10

5.51.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceConfigurationEventAndAlertBehavioursRsp. The header and body data items appear as set out immediately below.

5.51.2.1 Specific Header Data Items

Data Item	Electricity Response (Supplier)	Electricity Response (Network Operator)	Gas Response (Supplier)
GBCSHexadecimalMessageCode	0x00EE	0x00EF	0x00F1
GBCS Use Case (for reference - not in header)	ECS25r1	ECS25r2	GCS20r

Table 139 : Read Device Configuration (Event And Alert Behaviours) MMC Output Format Header data items

5.51.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ElectricitySupplierAlertEventSettings	The currently configured, non critical alert and event behaviours that are relevant to Suppliers on the ESME Includes the WAN Alerts, HAN Alerts, logging of Events recorded in the Event Logs and audible Alarms.	ra:ElectricitySupplierAlertsEvents (as set out in Section 5.51.2.2.1.1 of this document)	N/A	Unencrypted

ElectricityNetworkOperatorAlertEventSettings	The currently configured, non critical alert and event behaviours that are relevant to Network Operators on the ESME Includes the WAN Alerts and logging of Events recorded in the Power Event Log configured by the ED on the ESME.	ra:ElectricityNetworkOperatorAlertsEvents (as set out in Section 5.51.2.2.1.2 of this document)	N/A	Unencrypted
GasSupplierAlertEventSettings	The currently configured, non critical alert and event behaviours that are relevant to Suppliers on the GSME Includes the WAN Alerts, HAN Alerts, logging of Events recorded in the Event Log and audible Alarms.	ra: SupplierGSMEAlertsEvents *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22)	N/A	Unencrypted

Table 140 : Read Device Configuration (Event And Alert Behaviours) MMC Output Format Body data items

5.51.2.2.1.1ElectricitySupplierAlertsEvents Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ElectricitySupplierWANAlertSettings	The current configuration of the settings for WAN Alerting configured on the ESME.	ra:ElectricitySupplierAlerts *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22)	N/A	Unencrypted
ElectricitySupplierHANAlertSettings	The current configuration of the settings for HAN Alerting configured on the ESME.	ra:ElectricitySupplierAlerts *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22)	N/A	Unencrypted
ElectricitySupplierAlarmSettings	The current configuration of the audible Alarm settings (associated to WAN Alerts, HAN Alerts and / or events recorded in the Event Log) configured on the ESME.	ra:ElectricitySupplierAlerts *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22)	N/A	Unencrypted
ElectricitySupplierLoggingSettings	The current configuration of the settings for logging Events in the Event Logs configured on the ESME.	ra:ElectricitySupplierAlerts *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22)	N/A	Unencrypted

Table 141 : ElectricitySupplierAlertsEvents MMC Output Format Body data items

5.51.2.2.1.2 ElectricityNetworkOperatorAlertsEvents Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ElectricityNetworkOperatorWANAlertSettings	The current configuration of the settings for WAN Alerting configured on the ESME.	ra:ElectricityNetworkOperatorAlerts *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22)	N/A	Unencrypted
ElectricityNetworkOperatorLoggingSettings	The current configuration of the settings for logging Events in the Power Event Log configured on the ESME.	ra:ElectricityNetworkOperatorAlerts *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.22	N/A	Unencrypted

Table 142 : ElectricityNetworkOperatorAlertsEvents MMC Output Format Body data items

5.52 Update Device Configuration (Load Limiting General Settings)

5.52.1 Service Description

Service Request Name	UpdateDeviceConfiguration(LoadLimitingGeneralSettings)
Service Reference	6.4
Service Reference Variant	6.4.1

5.52.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationLoadLimitingGeneralSettingsRsp. The header data items appear as set out immediately below.

5.52.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0043
GBCS Use Case (for reference - not in header)	ECS28a
Timestamp	xs:dateTime

Table 143 : Update Device Configuration (Load Limiting General Settings) MMC Output Format Header data items

5.53 Update Device Configuration (Load Limiting Counter Reset)

5.53.1 Service Description

Service Request Name	UpdateDeviceConfiguration(LoadLimitingCounterReset)
Service Reference	6.4
Service Reference Variant	6.4.2

5.53.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationLoadLimitingCounterResetRsp. The header data items appear as set out immediately below.

5.53.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0044
GBCS Use Case (for reference - not in header)	ECS28b

Table 144 : Update Device Configuration (Load Limiting Counter Reset) MMC Output Format Header data items

5.54 Update Device Configuration (Voltage)

5.54.1 Service Description

Service Request Name	UpdateDeviceConfiguration(Voltage)
Service Reference	6.5
Service Reference Variant	6.5

5.54.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationVoltageRsp. The header data items appear as set out immediately below.

5.54.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	Electricity Response (single phase)	Electricity Response (poly phase)
GBCSHexadecimalMessageCode	0x0045	0x00AE
GBCS Use Case (for reference - not in header)	ECS29a	ECS29b

Table 145 : Update Device Configuration (Voltage) MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	Electricity Response (single phase)		Electricity Response (poly phase)	
GBCSHexadecimalMessageCode	0x0045	0x00D1	0x00AE	0x00D2
GBCS Use Case (for reference - not in header)	ECS29a (counters reset)	ECS29c (counters not reset)	ECS29b (counters reset)	ECS29d (counters not reset)

Table 146 : Update Device Configuration (Voltage) MMC Output Format Header data items – GBCS v2.0

5.55 Update Device Configuration (Gas Conversion)

5.55.1 Service Description

Service Request Name	UpdateDeviceConfiguration(GasConversion)
Service Reference	6.6
Service Reference Variant	6.6

5.55.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationGasConversionRsp. The header data items appear as set out immediately below.

5.55.2.1 Specific Header Data Items

Data Item	Gas Response
GBCSHexadecimalMessageCode	0x007C
GBCS Use Case (for reference - not in header)	GCS23

Table 147 : Update Device Configuration (Gas Conversion) MMC Output Format Header data items

5.56 Update Device Configuration (Gas Flow)

5.56.1 Service Description

Service Request Name	UpdateDeviceConfiguration(GasFlow)
Service Reference	6.7
Service Reference Variant	6.7

5.56.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationGasFlowRsp. The header data items appear as set out immediately below.

5.56.2.1 Specific Header Data Items

Data Item	Gas Response
GBCSHexadecimalMessageCode	0x007D
GBCS Use Case (for reference - not in header)	GCS24

Table 148 : Update Device Configuration (Gas Flow) MMC Output Format Header data items

5.57 Update Device Configuration (Billing Calendar)

5.57.1 Service Description

Service Request Name	UpdateDeviceConfiguration(BillingCalendar)
Service Reference	6.8
Service Reference Variant	6.8

5.57.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationBillingCalendarRsp. The header data items appear as set out immediately below.

5.57.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0046	0x007E
GBCS Use Case (for reference - not in header)	ECS30	GCS25

Table 149 : Update Device Configuration (Billing Calendar) MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x00D7	0x00D8
GBCS Use Case (for reference - not in header)	ECS30a	GCS25a

Table 150 : Update Device Configuration (Billing Calendar) MMC Output Format Header data items – GBCS v2.0

5.58 Synchronise Clock

5.58.1 Service Description

Service Request Name	SynchroniseClock
Service Reference	6.11
Service Reference Variant	6.11

5.58.2 MMC Output Format

The xml type within the SMETSData element is SynchroniseClockRsp. The header and body data items appear as set out immediately below.

5.58.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0062	0x007F
GBCS Use Case (for reference - not in header)	ECS70	GCS28

Table 151 : Synchronise Clock MMC Output Format Header data items

5.58.2.2 Specific Body Data Items

The XML response structure within SynchroniseClockRsp differs between Gas and Electricity, the XML groups named *Gas* and *Electricity* are as set out in Table 152 and Table 153 immediately below.

5.58.2.2.1 SynchroniseClockRsp Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DeviceTime	The resulting time on the metering Device.	xs:dateTime	N/A	Unencrypted
ElecClockTimeStatus	The resulting time status, which shall have valid values: • reliable (TimeStatusCode 0); • invalid (TimeStatusCode 1); or • unreliable (TimeStatusCode 2). Electricity only	ra:ElecTimeStatus Type (xs:string enumeration with attribute TimeStatusCode xs:integer)	N/A	Unencrypted
GasClockTimeStatus	The resulting time status, which shall have valid values: • reliable; • invalid; or • unreliable. Gas only	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted

Table 152 : Synchronise Clock MMC Output Format Body data items

5.58.2.2.2 StatusASN1 Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ResponseCode (attribute of StatusASN1)	The code corresponding to the ASN1Status enumeration value	xs:integer	N/A	Unencrypted
ASN1Status	Note that the valid set for each response is shown within the relevant response data table. The valid enumeration values: • success • notKnown • badCertificate • noTrustAnchor • insufficientMemory • trustAnchorNotFound • resourcesBusy • other • invalidCertificate • wrongDeviceIdentity • invalidKeyUsage • noCorrespondingKeyPairGenerated • wrongPublicKey • certificateStorageFailed • privateKeyChangeFailed • keyPairGenerationFailed • cRProductionFailed • noCertificateHeld • certificateRetrievalFailure • invalidMessageCodeForJoinMethodAndRole • invalidJoinMethodAndRole • incompatibleWithExistingEntry • deviceLogFull • writeFailure • keyAgreementNoResources • keyAgreementUnknownIssuer • keyAgreementUnsupportedSuite • keyAgreementBadMessage • keyAgreementBadKeyConfirm • invalidOrMissingCertificate • noPartnerLinkKeyReceived • noCBKEResponse • otherDeviceNotInDeviceLog • otherFailure • readFailure • noImageHeld • hashMismatch • activationFailure • reliable • invalid • unreliable	xs:string	N/A	Unencrypted

Table 153 : StatusASN1 MMC Output Format Body data items

5.59 Update Device Configuration (Instantaneous Power Threshold)

5.59.1 Service Description

Service Request Name	UpdateDeviceConfiguration(InstantaneousPowerThreshold)
Service Reference	6.12
Service Reference Variant	6.12

5.59.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationInstantaneousPowerThresholdRsp. The header data items appear as set out immediately below.

5.59.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0047
GBCS Use Case (for reference - not in header)	ECS34

Table 154 : Update Device Configuration (Instantaneous Power Threshold) MMC Output Format Header data items

5.60 Read Event or Security Log

5.60.1 Service Description

Service Request Name	ReadEventOrSecurityLog
Service Reference	6.13
Service Reference Variant	6.13

5.60.2 MMC Output Format

The xml type within the SMETSData element is ReadEventOrSecurityLogRsp. The header and body data items appear as set out immediately below.

5.60.2.1 Specific Header Data Items

The header items shall vary depending on the log type being read, as set out immediately below.

5.60.2.1.1 Device Event Log

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0048	0x0014
GBCS Use Case (for reference - not in header)	ECS35a	CS10a
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is an Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is an Unknown Remote Party	

Table 155 : Read Event or Security Log (Device Event Log) MMC Output Format Header data items

5.60.2.1.2 Device Security Log

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0049	0x00A1
GBCS Use Case (for reference - not in header)	ECS35b	CS10b
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is previous IS or current RSA	ra:EUI Where originator is previous GS or current GT for GSME or current RSA
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is previous IS or current RSA	xs:nonNegativeInteger Where originator is previous GS or current GT for GSME or current RSA

Table 156 : Read Event or Security Log (Device Security Log) MMC Output Format Header data items

5.60.2.1.3 CHF Event Log

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0093	0x0093
GBCS Use Case (for reference - not in header)	ECS35c	ECS35c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	

Table 157 : Read Event or Security Log (CHF Event Log) MMC Output Format Header data items

5.60.2.1.4 CHF Security Log

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0094	0x0094
GBCS Use Case (for reference - not in header)	ECS35d	ECS35d
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	

Table 158 : Read Event or Security Log (CHF Security Log) MMC Output Format Header data items

5.60.2.1.5 Power Event Log

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x00B9
GBCS Use Case (for reference - not in header)	ECS35e
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is previous IS or current RSA
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is previous IS or current RSA

Table 159 : Read Event or Security Log (Power Event Log) MMC Output Format Header data items

5.60.2.1.6 HCALCS Event Log

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x00BA
GBCS Use Case (for reference - not in header)	ECS35f

Table 160 : Read Event or Security Log (HCALCS Event Log) MMC Output Format Header data items

5.60.2.2 Specific Body Data Items

The log shall accommodate one hundred date and time stamped entries (UTC), of information for diagnosis and auditing arranged as a circular buffer such that, when full, further writes shall cause the oldest entry to be overwritten.

As set out immediately below, a common structure is used for all the log types read under this Service Request, across all Device types, with the exception of ALCS/HCALCS for which there is an alternative format as set out in Table 162. GBCS section 16.2 provides a definition of event codes.

5.60.2.2.1 Event or Security Logs Specific Data Items
The XML group *Log* contains up to 100 *LogEntry (ra:LogEntryType)* groups with items as set out immediately below.

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	The date- time stamp of this entry (UTC)	xs:dateTime	N/A	Unencrypted
LogCode	The Event/Alert Code corresponding to this event, as defined in GBCS	xs:hexBinary	N/A	Unencrypted
LogMeaning	Descriptive explanation of the event represented by the Event/Alert Code, as defined in GBCS section 16.2, which is an optional element	ra:EventCodeDescription	N/A	Unencrypted
OtherInformation	Where required by the Event/Alert Code: other information relating to this alert, as set out in Event/Alert Codes section of the GBCS section 16.4. In the cases of Event Codes 0x8161 and 0x8162 this data item contains the User Interface Command Code logged by the device. In the cases of Event Codes 0x8154 and 0x8155 this field will contain a Network Interface Command Code. Optional element	xs:hexBinary	N/A	Unencrypted
OtherInformation LogMeaning	Descriptive explanation of the occurrence represented by the Event/Alert Code in the OtherInformation relating to this alert (as defined in GBCS section 16.4) In the cases of Event Codes 0x8161 and 0x8162 this data item contains a textual reference to the User Interface Command Code logged by the device (as defined in GBCS section 16.4) Optional	ra:EventCodeDescription	N/A	Unencrypted

Table 161 : Read Event or Security Log Body Data Items

5.60.2.2.2 ALCS Logs Specific Data Items
The XML group *ALCSEvent* contains up to 100 *ALCSEventLogEntry (ra:ALCSEventLogType)* groups with items as set out immediately below.

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	The date- time stamp of this entry (UTC)	xs:dateTime	N/A	Unencrypted
SwitchNumber	The number between 1 and 5, of the ALCS / HC ALCS	xs:integer (minInclusive 1 maxInclusive 5)	N/A	Unencrypted
SwitchAction	The type of switch action recorded, which shall be one of the following values: (1) "On" (2) "Off" (3) "Revert to calendar control" (4) "Entry relates to a Message from an HC ALCS"	xs:string (Enumeration)	N/A	Unencrypted
Outcome	The result of the switch action, being one of: (1) "Outcome not known" (2) "Success" (3) "Failure" 'Outcome not known' shall only be used where this entry relates to a Command being sent to an HCALCS	xs:string (Enumeration)	N/A	Unencrypted
HANCommandID	0x00000000, if this entry relates to an ALCS. For entries related to an HCALCS, an identifier generated by the ESME.	xs:integer	N/A	Unencrypted

Table 162 : ALCS Log Body Data Items

5.61 Update Device Configuration (Auxiliary Load Control Description)

5.61.1 Service Description

Service Request Name	UpdateDeviceConfiguration(AuxiliaryLoadControlDescription)
Service Reference	6.14
Service Reference Variant	6.14.1

5.61.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationALCDescriptionsRsp. The header data items appear as set out immediately below.

5.61.2.1 Specific Header Data Items

Data Item	Electricity Response	
GBCSHexadecimalMessageCode	0x0053	
GBCS Use Case (for reference - not in header)	ECS46a	

Table 163 : Update Device Configuration (Auxiliary Load Control Description) MMC Output Format Header data items

5.62 Update Device Configuration (Auxiliary Load Control Scheduler)

5.62.1 Service Description

Service Request Name	UpdateDeviceConfiguration(AuxiliaryLoadControlScheduler)
Service Reference	6.14
Service Reference Variant	6.14.2

5.62.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationALCSchedulerRsp. The header data items appear as set out immediately below.

5.62.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0054
GBCS Use Case (for reference - not in header)	ECS46c
Timestamp	xs:dateTime

Table 164 : Update Device Configuration (Auxiliary Load Control Scheduler) MMC Output Format Header data items

5.63 Update Security Credentials (KRP)

5.63.1 Service Description

Service Request Name	UpdateSecurityCredentials(KRP)
Service Reference	6.15
Service Reference Variant	6.15.1

5.63.2 MMC Output Format

The xml type within the SMETSData element is UpdateSecurityCredentialsKRPRsp. The header and body data items appear as set out immediately below.

5.63.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	Dependent on credentials replacement mode; rootBySupplier supplierBySupplier networkOperatorByNetworkOperator	 0x0100 0x0102 0x0103
GBCS Use Case (for reference - not in header)	CS02b	CS02b
Timestamp	xs:dateTime	xs:dateTime

Table 165 : Update Security Credentials (KRP) MMC Output Format Header data items

5.63.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ExecutionOutcome	The execution outcome is only provided when the command was for immediate execution. Optional	ra:ExecutionOutcome, as set out in Section 5.63.2.2.1 of this document	N/A	Unencrypted

Table 166 : Update Security Credentials (KRP) MMC Output Format Body data items

5.63.2.2.1 ExecutionOutcome Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
AuthorisingRemotePartyOriginatorCounter	Originating counter passed in the Service Request, allows Device Alerts to be matched to the Service Request	xs:nonNegativeInteger	N/A	Unencrypted
CredentialsReplacementMode	Define the valid combinations as to which Remote Party Roles can replace which kinds of credentials. Valid values are: SR 6.15.1 "SupplierBySupplier" "NetworkOperatorByNetworkOperator" "RootBySupplier" SR 6.21 "SupplierBySupplier" "NetworkOperatorByNetworkOperator" SR 6.23 "SupplierByTransCoS" SR 8.5 "ACBByACB"	Restriction base xs:string (Enumeration)	N/A	Unencrypted
RemotePartySeqNumberChange	The resulting changes to any anti-replay counters held on the Device	ra:RemotePartySeqNumberChange, as set out in Section 5.63.2.2.2 of this document	N/A	Unencrypted
ReplacementOutcome	For each replacement in the Service Request, detail the outcome and impacted parties	ra:ReplacementOutcome, maxOccurs = 3 as set out in Section 5.63.2.2.3 of this document	N/A	Unencrypted

Table 167 : ExecutionOutcome Specific Body Data Items

5.63.2.2.2 RemotePartySeqNumberChange Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RemotePartyRole	Remote Party Role for which the Credentials have been updated Valid values are: • Supplier • NetworkOperator • Root	ra:RemotePartyRole *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* Restriction base xs:token (Enumeration) (as set out in DUIS under Service Reference Variant 6.24.1)	N/A	Unencrypted
RemotePartyFloorSeqNumber	The corresponding counter value	xs:nonNegativeInteger	N/A	Unencrypted
RemotePartyTopUpFloorSeqNumber	Only present where Remote Party Role is Supplier and a top up Certificate was provided in the Service Request, which is the prepayment top up counter value.	xs:nonNegativeInteger	N/A	Unencrypted

Table 168 : RemotePartySeqNumberChange Specific Body Data Items

5.63.2.2.3 ReplacementOutcome Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
StatusCode	Outcome of the Service Request for each replacement. As set out in section 4.1.3.3 of this document	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted
CertificateType	To what use can the public key in this replacement be put Valid values are: • DigitalSigning; • KeyAgreement • KeyAgreementTopUp; or • KeyCertSign.	Restriction base xs:string (Enumeration)	N/A	Unencrypted
RemotePartyRole	Remote Party Role for which the Credentials are being updated Valid values are: • Supplier • NetworkOperator • Root	ra:RemotePartyRole *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* Restriction base xs:token (Enumeration) (as set out in DUIS under Service Reference Variant 6.24.1)	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
ExistingRemotePartyId	Identifies the existing subject unique identifier equating to Entity Identifier (64 bit value)	ra:EUI (see clause 2.4.1)	N/A	Unencrypted
NewRemotePartyId	Identifies the replacement subject unique identifier equating to Entity Identifier (64 bit value)	ra:EUI (see clause 2.4.1)	N/A	Unencrypted
ExistingCertificateHash	Identifies the existing subject key identifier, a SHA-1 hash, i.e. of the Certificate	ra:SHA1 xs:base64binary	N/A	Unencrypted
NewCertificateHash	Identifies the replacement subject key identifier, a SHA-1 hash, i.e. of the Certificate	ra:SHA1 xs:base64binary	N/A	Unencrypted

Table 169 : ReplacementOutcome Specific Body Data Items

5.64 Update Security Credentials (Device)

5.64.1 Service Description

Service Request Name	UpdateSecurityCredentials(Device)
Service Reference	6.15
Service Reference Variant	6.15.2

5.64.2 MMC Output Format

The xml type within the SMETSData element is UpdateSecurityCredentialsDeviceRsp. The header and body data items appear as set out immediately below.

5.64.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x000B	0x000B
GBCS Use Case (for reference - not in header)	CS02d	CS02d

Table 170 : Update Security Credentials (Device) MMC Output Format Header data items

5.64.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
UpdateSecurityCredentialsResponseCode	Either a success code is returned, or the reason for the failure. Valid values are: • success; • invalidCertificate; • wrongDeviceIdentity; • invalidKeyUsage; • noCorrespondingKeyPairGenerated; • wrongPublicKey; • certificateStorageFailed; or • privateKeyChangeFailed.	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted

Table 171 : Update Security Credentials (Device) Specific Body Data Items

5.65 Issue Security Credentials

5.65.1 Service Description

Service Request Name	IssueSecurityCredentials
Service Reference	6.17
Service Reference Variant	6.17

5.65.2 MMC Output Format

The xml type within the SMETSData element is IssueSecurityCredentialsRsp. The header and body data items appear as set out immediately below.

5.65.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x000A	0x000A
GBCS Use Case (for reference - not in header)	CS02c	CS02c

Table 172 : Issue Security Credentials MMC Output Format Header data items

5.65.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
IssueCredentialsResponseCode	If the Service Request fails, the reason for the failure is returned Valid values are: • success • invalidKeyUsage; • keyPairGenerationFailed; or • cRProductionFailed.	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted
CertificationRequest	CertificationRequest is as defined in ASN.1 by IETF RFC 5912. For reference, it is in the section headed 'ASN.1 Module for RFC 2986'. This is returned DER (Distinguished Encoding Rules) encoded by the device and presented in the XML as a base 64 encoded string Note: CertificationRequest is only included in the response if IssueCredentialsResponseCode = success	xs:base64Binary	N/A	Unencrypted

Table 173 : Issue Security Credentials Specific Body Data Items

5.66 Set Maximum Demand Configurable Time Period

5.66.1 Service Description

Service Request Name	SetMaximumDemandConfigurableTimePeriod
Service Reference	6.18
Service Reference Variant	6.18.1

5.66.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is SetMaximumDemandConfigurableTimePeriodRsp. The header data items appear as set out immediately below.

5.66.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x004A
GBCS Use Case (for reference - not in header)	ECS37

Table 174 : Set Maximum Demand Configurable Time Period MMC Output Format Header data items

5.67 Reset Maximum Demand Registers

5.67.1 Service Description

Service Request Name	ResetMaximumDemandRegisters
Service Reference	6.18
Service Reference Variant	6.18.2

5.67.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ResetMaximumDemandRegistersRsp. The header data items appear as set out immediately below.

5.67.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x005A
GBCS Use Case (for reference - not in header)	ECS57

Table 175 : Reset Maximum Demand Registers MMC Output Format Header data items

5.68 Set Device Configuration (Import MPxN)

5.68.1 Service Description

Service Request Name	SetDeviceConfiguration(ImportMPxN)
Service Reference	6.20
Service Reference Variant	6.20.1

5.68.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is SetDeviceConfigurationImportMPxNRsp. The header data items appear as set out immediately below.

5.68.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x004C	0x0087
GBCS Use Case (for reference - not in header)	ECS39a	GCS41

Table 176 : Set Device Configuration (Import MPxN) Response Header Data Items

5.69 Set Device Configuration (Export MPAN)

5.69.1 Service Description

Service Request Name	SetDeviceConfiguration(ExportMPAN)
Service Reference	6.20
Service Reference Variant	6.20.2

5.69.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is SetDeviceConfigurationExportMPANRsp. The header data items appear as set out immediately below.

5.69.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x004D
GBCS Use Case (for reference - not in header)	ECS39b
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party

Table 177 : Set Device Configuration (Export MPAN) MMC Output Format Header data items

5.70 Request Handover of DCC Controlled Device

5.70.1 Service Description

Service Request Name	RequestHandoverOfDCCControlledDevice
Service Reference	6.21
Service Reference Variant	6.21

5.70.2 MMC Output Format

The xml type within the SMETSData element is RequestHandoverOfDCCControlledDeviceRsp. The header and body data items appear as set out immediately below.

5.70.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	Dependent on credentials replacement mode; supplierBySupplier 0x0102 networkOperatorByNetworkOperator 0x0103	
GBCS Use Case (for reference - not in header)	CS02b	CS02b
Timestamp	xs:dateTime	xs:dateTime

Table 178 : Request Handover Of DCC Controlled Device MMC Output Format Header data items

5.70.2.1 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ExecutionOutcome	The execution outcome is only provided when the command was for immediate execution. Optional	ra:ExecutionOutcome, as set out in Section 5.63.2.2.1 of this document	N/A	Unencrypted

Table 179 : Request Handover Of DCC Controlled Device MMC Output Format Body data items

5.71 Configure Alert Behaviour

5.71.1 Service Description

Service Request Name	ConfigureAlertBehaviour
Service Reference	6.22
Service Reference Variant	6.22

5.71.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ConfigureAlertBehaviourRsp. The header data items appear as set out immediately below.

5.71.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	Electricity Response (Supplier)	Electricity Response (Network Operator)	Gas Response (Supplier)
GBCSHexadecimalMessageCode	0x00AC	0x00B0	0x00AD
GBCS Use Case (for reference - not in header)	ECS25a	ECS25b	GCS20

Table 180 : Configure Alert Behaviour MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	Electricity Response (Supplier – WAN Alerts)	Electricity Response (Supplier – HAN Alerts)	Electricity Response (Supplier – Alarms)	Electricity Response (Supplier – Event Logging)
GBCSHexadecimalMessageCode	0x00AC	0x00EA	0x00EB	0x00EC
GBCS Use Case (for reference - not in header)	ECS25a	ECS25a1	ECS25a2	ECS25a3

Table 181 : Configure Alert Behaviour MMC Output Format Header data items – GBCS v2.0 (Electricity Supplier)

Data Item	Electricity Response (Network Operator – WAN Alerts)	Electricity Response (Network Operator – Event Logging)	Gas Response (Supplier)
GBCSHexadecimalMessageCode	0x00B0	0x00ED	0x00AD
GBCS Use Case (for reference - not in header)	ECS25b	ECS25b3	GCS20

Table 182 : Configure Alert Behaviour MMC Output Format Header data items – GBCS v2.0 (Electricity Network Operator and Gas Supplier)

5.72 Update Security Credentials (CoS)

5.72.1 Service Description

Service Request Name	UpdateSecurityCredentials(CoS)
Service Reference	6.23
Service Reference Variant	6.23
Timestamp	xs:dateTime

5.72.2 MMC Output Format

The xml type within the SMETSData element is UpdateSecurityCredentialsCoSRsp. The header and body data items appear as set out immediately below.

5.72.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0107	0x0107
GBCS Use Case (for reference - not in header)	CS02b	CS02b

Table 183 : Update Security Credentials (CoS) MMC Output Format Header data items

5.72.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ExecutionOutcome	The execution outcome is only provided when the command was for immediate execution. Optional	ra:ExecutionOutcome, as set out in Section 5.63.2.2.1 of this document	N/A	Unencrypted

Table 184 : Update Security Credentials (CoS) MMC Output Format Body data items

5.73 Retrieve Device Security Credentials (KRP)

5.73.1 Service Description

Service Request Name	RetrieveDeviceSecurityCredentials(KRP)
Service Reference	6.24
Service Reference Variant	6.24.1

5.73.2 MMC Output Format

The xml type within the SMETSData element is RetrieveDeviceSecurityCredentialsKRPRsp. The header and body data items appear as set out immediately below.

5.73.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0008	0x0008
GBCS Use Case (for reference - not in header)	CS02a	CS02a

Table 185 : Retrieve Device Security Credentials (KRP) MMC Output Format Header data items

5.73.2.1 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RemotePartyDetails	Response structure recurs for each role for which the credentials were requested	ra:remotepartydetails maxOccurs = unbounded	N/A	Unencrypted

Table 186 : Retrieve Device Security Credentials (KRP) MMC Output Format Body data items

5.73.2.1.1.1RemotePartyDetails Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RemotePartyRole	The Remote Party Role for which the Credentials are being retrieved from the Device.	ra:RemotePartyRole *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* Restriction base xs:token (Enumeration) (as set out in DUIS under Service Reference Variant 6.24.1)	N/A	Unencrypted
StatusCode	The outcome of the Service Request for the relevant Certificate, with valid values of: • success; • trustAnchorNotFound; or • other.	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted
RemotePartyFloorSeqNumber	The corresponding counter value	xs: nonNegativeInteger	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
CertificateUsage	Indicating the applicable use relating to the Public Key, with valid values of: • DigitalSigning; • KeyAgreement • KeyAgreementTopUp; or • KeyCertSign.	Restriction base xs:string (Enumeration)	N/A	Unencrypted
ExistingRemotePartyId	Identifies the existing subject unique identifier equating to Entity Identifier (64 bit value)	ra:EUI (see clause 2.4.1)	N/A	Unencrypted
ExistingCertificateHash	Identifies the existing subject key identifier, a SHA-1 hash, i.e. of the corresponding Certificate	ra:SHA1 xs:base64binary	N/A	Unencrypted

Table 187 : RemotePartyDetails MMC Output Format Body data items

5.74 Retrieve Device Security Credentials (Device)

5.74.1 Service Description

Service Request Name	RetrieveDeviceSecurityCredentials(Device)
Service Reference	6.24
Service Reference Variant	6.24.2

5.74.2 MMC Output Format

The xml type within the SMETSData element is RetrieveDeviceSecurityCredentialsDeviceRsp. The header and body data items appear as set out immediately below.

5.74.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x000C	0x000C
GBCS Use Case (for reference - not in header)	CS02e	CS02e

Table 188 : Retrieve Device Security Credentials (Device) MMC Output Format Header data items

5.74.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RetrieveDeviceSecurityCredentialsStatusCode	Included when the Service Request is unsuccessful, with valid values of: • invalidKeyUsage; • noCertificateHeld; or • certificateRetrievalFailure. Either the Status Code or the Certificate will be present.	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted
Certificate	The Certificate requested from the Device, if successful Either the Status Code or the Certificate will be present.	ra:Certificate (xs:base64Binary)	N/A	Unencrypted

Table 189 : Retrieve Device Security Credentials (Device) MMC Output Format Body data items

5.75 Set Electricity Supply Tamper State

5.75.1 Service Description

Service Request Name	SetElectricitySupplyTamperState
Service Reference	6.25
Service Reference Variant	6.25

5.75.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is SetElectricitySupplyTamperStateRsp. The header data items appear as set out immediately below.

5.75.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x0068
GBCS Use Case (for reference - not in header)	ECS81

Table 190 : Set Electricity Supply Tamper State MMC Output Format Header data items

5.76 Update Device Configuration (daily resetting of Tariff Block Counter Matrix)

5.76.1 Service Description

Service Request Name	UpdateDeviceConfiguration(daily resetting of Tariff Block Counter Matrix)
Service Reference	6.26
Service Reference Variant	6.26

5.76.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationDailyResettingOfTariffBlockCounterMatrixRsp. The header data items appear as set out immediately below.

5.76.2.1 Specific Header Data Items

GBCS v2.0:

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x00DB
GBCS Use Case (for reference - not in header)	ECS48

Table 191 : Update Device Configuration (daily resetting of Tariff Block Counter Matrix) MMC Output Format Header data items – GBCS v2.0

5.77 Update Device Configuration (RMS Voltage Counter Reset)

5.77.1 Service Description

Service Request Name	UpdateDeviceConfiguration(RMS Voltage Counter Reset)
Service Reference	6.27
Service Reference Variant	6.27

5.77.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateDeviceConfigurationRMSVoltageCounterResetRsp. The header data items appear as set out immediately below.

5.77.2.1 Specific Header Data Items

GBCS v2.0:

Data Item	Electricity Response (Single Phase)	Electricity Response (Poly Phase)
GBCSHexadecimalMessageCode	0x00D3	0x00D4
GBCS Use Case (for reference - not in header)	ECS29e	ECS29f

Table 192 : Update Device Configuration (RMS Voltage Counter Reset) MMC Output Format Header data items – GBCS v2.0

5.78 Set CHF Sub GHz Configuration

5.78.1 Service Description

Service Request Name	SetCHFSubGHzConfiguration
Service Reference	6.28
Service Reference Variant	6.28

5.78.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is SetCHFSubGHzConfigurationRsp. The header data items appear as set out immediately below.

5.78.2.1 Specific Header Data Items

Data Item	Dual Band CHF Response
GBCSHexadecimalMessageCode	0x010D
GBCS Use Case (for reference - not in header)	DBCH04
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 193 : Set CHF Sub GHz Configuration MMC Output Format Header data items

5.79 Request CHF Sub GHz Channel Scan

5.79.1 Service Description

Service Request Name	RequestCHFSubGHzChannelScan
Service Reference	6.29
Service Reference Variant	6.29

5.79.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is RequestCHFSubGHzChannelScanRsp. The header data items appear as set out immediately below.

5.79.2.1 Specific Header Data Items

Data Item	Dual Band CHF Response
GBCSHexadecimalMessageCode	0x010E
GBCS Use Case (for reference - not in header)	DBCH05
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 194 : Request CHF Sub GHz Channel Scan MMC Output Format Header data items

5.80 Read CHF Sub GHz Configuration

5.80.1 Service Description

Service Request Name	ReadCHFSubGHzConfiguration
Service Reference	6.30
Service Reference Variant	6.30

5.80.2 MMC Output Format

The xml type within the SMETSData element is ReadCHFSubGHzConfigurationRsp. The header and body data items appear as set out immediately below.

5.80.2.1 Specific Header Data Items

Data Item	Dual Band CHF Response
GBCSHexadecimalMessageCode	0x010C
GBCS Use Case (for reference - not in header)	DBCH03
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 195 : Read CHF Sub GHz Configuration MMC Output Format Header data items

5.80.2.1 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LowerBandSubGHzChannels0To26	As set out in DUIS for Service Reference Variant 6.28	ra:Channels0To26 *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.28)	N/A	Unencrypted
LowerBandSubGHzChannels27To34	As set out in DUIS for Service Reference Variant 6.28	ra:Channels27To34 *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.28)	N/A	Unencrypted
LowerBandSubGHzChannels35To61	As set out in DUIS for Service Reference Variant 6.28	ra:Channels35To61 *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.28)	N/A	Unencrypted
UpperBandSubGHzChannels0To26	As set out in DUIS for Service Reference Variant 6.28	ra:Channels0To26 *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS for Service Reference Variant 6.28)	N/A	Unencrypted
NormalLimitedDutyCycleThreshold	As set out in DUIS for Service Reference Variant 6.28	xs:decimal	%	Unencrypted
LimitedCriticalDutyCycleThreshold	As set out in DUIS for Service Reference Variant 6.28	xs:decimal	%	Unencrypted
MaximumSubGHzChannelChangesPerWeek	As set out in DUIS for Service Reference Variant 6.28	xs:unsignedShort	N/A	Unencrypted
GSMECurfew	As set out in DUIS for Service Reference Variant 6.28	xs:unsignedShort	Hours	Unencrypted
ChannelQuieterThreshold	As set out in DUIS for Service Reference Variant 6.28	xs:unsignedShort	dB	Unencrypted
ChannelNoisierThreshold	As set out in DUIS for Service Reference Variant 6.28	xs:unsignedShort	dB	Unencrypted
NonGSMEPoorCommsPercentageThreshold	As set out in DUIS for Service Reference Variant 6.28	xs:decimal	%	Unencrypted
NonGSMEPoorCommsMeasurementPeriods	As set out in DUIS for Service Reference Variant 6.28	xs:unsignedShort	N/A	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
LocalCHNoiseMeasurementPeriod	As set out in DUIS for Service Reference Variant 6.28	xs:unsignedShort	Minutes	Unencrypted
LocalCHFailurePercentage	As set out in DUIS for Service Reference Variant 6.28	xs:decimal	%	Unencrypted
LocalCHRetryPercentage	As set out in DUIS for Service Reference Variant 6.28	xs:decimal	%	Unencrypted

Table 196 : Read CHF Sub GHz Configuration MMC Output Format Specific Body data items

5.81 Read CHF Sub GHz Channel

5.81.1 Service Description

Service Request Name	ReadCHFSubGHzChannel
Service Reference	6.31
Service Reference Variant	6.31

5.81.2 MMC Output Format

The xml type within the SMETSData element is ReadCHFSubGHzChannelRsp. The header and body data items appear as set out immediately below.

5.81.2.1 Specific Header Data Items

Data Item	Dual Band CHF Response
GBCSHexadecimalMessageCode	0x010A
GBCS Use Case (for reference - not in header)	DBCH01
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 197 : Read CHF Sub GHz Channel MMC Output Format Header data items

5.81.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
OperatingSubGHzChannel	As set out in DUIS Section 3.9 DCC Alert Messages	ra: OperatingSubGHzChannel *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS Section 3.9 DCC Alert Messages)	N/A	Unencrypted

Table 198 : Read CHF Sub GHz Channel MMC Output Format Specific Body data items

5.82 Read CHF Sub GHz Channel Log

5.82.1 Service Description

Service Request Name	ReadCHFSubGHzChannelLog
Service Reference	6.32
Service Reference Variant	6.32

5.82.2 MMC Output Format

The xml type within the SMETSData element is ReadCHFSubGHzChannelLogRsp. The header and body data items appear as set out immediately below.

5.82.2.1 Specific Header Data Items

Data Item	Dual Band CHF Response
GBCSHexadecimalMessageCode	0x010B
GBCS Use Case (for reference - not in header)	DBCH02
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 199 : Read CHF Sub GHz Channel Log MMC Output Format Header data items

5.82.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
LogEntry	The 'Sub GHz Channel Log' is a circular log containing date-time stamped entries of the last 100 Operating Sub GHz Channel values used, where each entry in the Log specifies a timestamp indicating when operation began on the channel, the Event Code and Description, the Operating Channel and the trigger for the channel change	ra:CHFSubGHzChannelLogEntry (as set out in Section 5.82.2.2.1.1 of this document)	N/A	Unencrypted

Table 200 : Read CHF Sub GHz Channel Log MMC Output Format Specific Body data items

5.82.2.2.1.1 CHFSubGHzChannelLogEntry Specific Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	Date and time indicating when operation began on the Sub GHz Channel	xs:dateTime	N/A	Unencrypted
EventCode	Code indicating the channel changed Valid Set: • 8F26	xs:hexBinary	N/A	Unencrypted
EventDescription	Description indicating the channel changed Valid Set: • Sub GHz Channel Changed	xs:string (maxLength=200)	N/A	Unencrypted
OperatingSubGHzChannel	As set out in DUIS Section 3.9 DCC Alert Messages	ra:OperatingSubGHzChannel *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS Section 3.9 DCC Alert Messages)	N/A	Unencrypted
ScanTrigger	As set out in DUIS Section 3.9 DCC Alert Messages	ra:ScanTrigger *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS Section 3.9 DCC Alert Messages)	N/A	Unencrypted

Table 201 : CHFSubGHzChannelLogEntry MMC Output Format Body data items

5.83 Enable Supply

5.83.1 Service Description

Service Request Name	EnableSupply
Service Reference	7.1
Service Reference Variant	7.1

5.83.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is EnableSupplyRsp. The header data items appear as set out immediately below.

5.83.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x004F
GBCS Use Case (for reference - not in header)	ECS42

Table 202 : Enable Supply MMC Output Format Header data items

5.84 Disable Supply

5.84.1 Service Description

Service Request Name	DisableSupply
Service Reference	7.2
Service Reference Variant	7.2

5.84.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is DisableSupplyRsp. The header data items appear as set out immediately below.

5.84.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessage Code	0x0050	0x0081
GBCS Use Case (for reference - not in header)	ECS43	GCS32

Table 203 : Disable Supply MMC Output Format Header data items

5.85 Arm Supply

5.85.1 Service Description

Service Request Name	ArmSupply
Service Reference	7.3
Service Reference Variant	7.3

5.85.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ArmSupplyRsp. The header data items appear as set out immediately below.

5.85.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessage Code	0x0051	0x0085
GBCS Use Case (for reference - not in header)	ECS44	GCS39

Table 204 : Arm Supply MMC Output Format Header data items

5.86 Read Supply Status

5.86.1 Service Description

Service Request Name	ReadSupplyStatus
Service Reference	7.4
Service Reference Variant	7.4

5.86.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ReadSupplyStatusRsp. The header and body data items appear as set out immediately below.

5.86.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0052	0x0082
GBCS Use Case (for reference - not in header)	ECS45	GCS33
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 205 : Read Supply MMC Output Format Header data items

5.86.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
SupplyState	The state of the Supply, with valid values: • Enabled; • Disabled; or • Armed.	ra:SupplyStateType (xs:string enumeration)	N/A	Unencrypted
Gas	XML Block for Gas			
RemainingBattery Capacity	Remaining battery life. Optional - Gas only.	xs:unsignedint	Days	Unencrypted

Table 206 : Read Supply MMC Output Format Body data items

5.87 Activate Auxiliary Load

5.87.1 Service Description

Service Request Name	ActivateAuxiliaryLoad
Service Reference	7.5
Service Reference Variant	7.5

5.87.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ActivateAuxiliaryLoadRsp. The header data items appear as set out immediately below.

5.87.2.1 Specific Header Data Items

Data Item	Electricity Response (HCALCS or ALCS)	
GBCSHexadecimalMessage Code	0x0055	
GBCS Use Case (for reference - not in header)	ECS47	

Table 207 : Activate Auxiliary Load MMC Output Format Header data items

5.88 Deactivate Auxiliary Load

5.88.1 Service Description

Service Request Name	DeactivateAuxiliaryLoad
Service Reference	7.6
Service Reference Variant	7.6

5.88.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is DeactivateAuxiliaryLoadRsp. The header data items appear as set out immediately below.

5.88.2.1 Specific Header Data Items

Data Item	Electricity Response (HCALCS or ALCS)
GBCSHexadecimalMessageCode	0x0055
GBCS Use Case (for reference - not in header)	ECS47

Table 208 : Deactivate Auxiliary Load MMC Output Format Header data items

5.89 Read Auxiliary Load Switch Data

5.89.1 Service Description

Service Request Name	ReadAuxiliaryLoadSwitchData
Service Reference	7.7
Service Reference Variant	7.7

5.89.2 MMC Output Format

The xml type within the SMETSData element is ReadALCSDataRsp. The header and body data items appear as set out immediately below.

5.89.2.1 Specific Header Data Items Definition

Data Item	Electricity Response (HCALCS or ALCS)
GBCSHexadecimalMessageCode	0x00BB
GBCS Use Case (for reference - not in header)	ECS61a
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party

Table 209 : Read ALCS Data MMC Output Format Header data items

5.89.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
AuxiliaryLoadControlSwitch	Details for each ALCS Max 5	ra:ALCSType As set out in 5.89.2.2.1 of this document maxOccurs = 5	N/A	Unencrypted
ALCSHCALCSSpecialDays	A calendar defining special days for the activation or deactivation of ALC / HCALC Switches	ra:ALCSHCALCSSpecialDays *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS under Service Reference Variant 6.14.2)	N/A	Unencrypted
ALCSScheduler	Structure that defines the schedule when individual switches are to be open or closed. Max 48	ra:ALCSHCALCSConnectionSchedule *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (as set out in DUIS under Service Reference Variant 6.14.2) maxOccurs = 48	N/A	Unencrypted

Table 210 : Read ALCS Data MMC Output Format Body data items

5.89.2.2.1 ALCSType MMC Output Format

Data Item	Description / Valid Set	Type	Units	Sensitivity
Description	For each Auxiliary Load Control Switch or HAN Connected Auxiliary Load Control Switch, a description of the type of controlled load connected and the switch type.	xs:string (maxLength=127)	N/A	Unencrypted
TypeAndIdentifier	The Switch Type (ALCS or HC ALCS) and, for HCALCS, the Device ID	ra:SwitchTypeAndID as set out in Section 5.89.2.2.2 of this document	N/A	Unencrypted
State	The current status, which is either false (denoting “open”) or true (denoting “closed”) of Auxiliary Load Control Switch [n] as commanded by ESME.	xs:boolean	N/A	Unencrypted

Table 211 : ALCSType MMC Output Format Body data items

5.89.2.2.2 SwitchTypeAndID MMC Output Format

Data Item	Description / Valid Set	Type	Units	Sensitivity
ALCS	Identifies Switch Type as ALCS ALCS only.	ra: noType (see clause 2.4.2)	N/A	Unencrypted
HCALCS	The Device ID of the HCALCS. HCALCS only.	ra:EUI (see clause 2.4.1)	N/A	Unencrypted

Table 212 : SwitchTypeAndID MMC Output Format Body data items

5.90 Reset Auxiliary Load

5.90.1 Service Description

Service Request Name	ResetAuxiliaryLoad
Service Reference	7.8
Service Reference Variant	7.8

5.90.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is ResetAuxiliaryLoadRsp. The header data items appear as set out immediately below.

5.90.2.1 Specific Header Data Items

Data Item	Electricity Response (HCALCS or ALCS)
GBCSHexadecimalMessageCode	0x0055
GBCS Use Case (for reference - not in header)	ECS47

Table 213 : Reset Auxiliary Load Configuration MMC Output Format Header data items

5.91 Add Auxiliary Load to Boost Button

5.91.1 Service Description

Service Request Name	AddAuxiliaryLoadToBoostButton
Service Reference	7.9
Service Reference Variant	7.9

5.91.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is AddAuxiliaryLoadToBoostButtonRsp. The header data items appear as set out immediately below.

5.91.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x005F
GBCS Use Case (for reference - not in header)	ECS62

Table 214 : Add Auxiliary Load To Boost Button MMC Output Format Header data items

5.92 Remove Auxiliary Load from Boost Button

5.92.1 Service Description

Service Request Name	RemoveAuxiliaryLoadFromBoostButton
Service Reference	7.10
Service Reference Variant	7.10

5.92.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is RemoveAuxiliaryLoadFromBoostButtonRsp. The header data items appear as set out immediately below.

5.92.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x005F
GBCS Use Case (for reference - not in header)	ECS62

Table 215 : Remove Auxiliary Load From Boost Button MMC Output Format Header data items

5.93 Read Boost Button Details

5.93.1 Service Description

Service Request Name	ReadBoostButtonDetails
Service Reference	7.11
Service Reference Variant	7.11

5.93.2 MMC Output Format

The xml type within the SMETSData element is ReadBoostButtonDetailsRsp. The header and body data items appear as set out immediately below.

5.93.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x005E
GBCS Use Case (for reference - not in header)	ECS61c
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party

Table 216 : Read Boost Button Details MMC Output Format Header data items

5.93.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
EventLogEntry	Between 0 and 25 occurrences	ra:ReadBoostButtonEventLogType maxOccurs = 25 As set out in section 5.93.2.2.1 of this document		
BoostFunctionAvailability	Identifies if ESME has a configured boost function. Is fixed at manufacture to represent presence (true) or absence (false) of the Boost Function.	xs:boolean	N/A	Unencrypted
BoostFunctionControl1Value	true if the Auxiliary Load Control Switch [1] is to be controlled by the Boost Function and shall be false otherwise	xs:boolean	N/A	Unencrypted
BoostFunctionControl2Value	true if the Auxiliary Load Control Switch [2] is to be controlled by the Boost Function and shall be false otherwise.	xs:boolean	N/A	Unencrypted
BoostFunctionControl3Value	true if the Auxiliary Load Control Switch [3] is to be controlled by the Boost Function and shall be false otherwise.	xs:boolean	N/A	Unencrypted
BoostFunctionControl4Value	true if the Auxiliary Load Control Switch [4] is to be controlled by the Boost Function and shall be false otherwise.	xs:boolean	N/A	Unencrypted
BoostFunctionControl5Value	true if the Auxiliary Load Control Switch [5] is to be controlled by the Boost Function and shall be false otherwise.	xs:boolean	N/A	Unencrypted

Table 217 : Read Boost Button Details MMC Output Format Body data items

5.93.2.2.1 ReadBoostButtonEventLogType

Data Item	Description / Valid Set	Type	Units	Sensitivity
BoostEnd	Time of end of boost period.	xs:dateTime	N/A	Unencrypted
BoostStart	Time of start of boost period.	xs:dateTime	N/A	Unencrypted

Table 218 : ReadBoostButtonEventLogType MMC Output Format Body data items

5.94 Set Randomised Offset Limit

5.94.1 Service Description

Service Request Name	SetRandomisedOffsetLimit
Service Reference	7.12
Service Reference Variant	7.12

5.94.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is SetRandomisedOffsetLimitRsp. The header data items appear as set out immediately below.

5.94.2.1 Specific Header Data Items

Data Item	Electricity Response
GBCSHexadecimalMessageCode	0x004B
GBCS Use Case (for reference - not in header)	ECS38

Table 219 : Set Randomised Offset Limit MMC Output Format Header data items

5.95 Commission Device

5.95.1 Service Description

Service Request Name	CommissionDeviceSynchroniseClock
Service Reference	8.1
Service Reference Variant	8.1.1

5.95.2 MMC Output Format

The xml type within the SMETSData element is CommissionDeviceSynchroniseClockRsp. The header and body data items appear as set out immediately below.

5.95.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0062	0x007F
GBCS Use Case (for reference - not in header)	ECS70	GCS28

Table 220 : Commission Device Synchronise Clock MMC Output Format Header data items

5.95.2.2 Specific Body Data Items

As set out in 5.58.2.2.1

5.96 Service Opt Out

5.96.1 Service Description

Service Request Name	ServiceOptOut
Service Reference	8.5
Service Reference Variant	8.5

5.96.2 MMC Output Format

The xml type within the SMETSData element is ServiceOptOutRsp. The header and body data items appear as set out immediately below.

5.96.2.1 Specific Header Data Items

Data Item	Response
GBCSHexadecimalMessageCode	0x0104
GBCS Use Case (for reference - not in header)	CS02b
Timestamp	xs:dateTime

Table 221 : Service Opt Out MMC Output Format Header data items

5.96.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ExecutionOutcome	The execution outcome details	ra:ExecutionOutcome, as set out in Section 5.63.2.2.1 of this document	N/A	Unencrypted

Table 222 : Service Opt Out MMC Output Format Body data items

5.97 Join Service (Critical)

5.97.1 Service Description

Service Request Name	JoinService(Critical)
Service Reference	8.7
Service Reference Variant	8.7.1

5.97.2 MMC Output Format

The xml type within the SMETSData element is JoinServiceCriticalRsp. The header and body data items appear as set out immediately below.

5.97.2.1 Specific Header Data Items

Data Item	ESME join to HCALCS or PPMID Response	HCALCS join to ESME Response	GSME join to PPMID Response
GBCSHexadecimalMessageCode	0x000D	0x00AB	0x00AF
GBCS Use Case (for reference - not in header)	CS03A1	CS03A2	CS03C

Table 223 : Join Service (Critical) MMC Output Format Header data items

5.97.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
JoinResponseCode	Outcome of the request, with valid values: • success • invalidMessageCodeForJoinMethodAndRole • invalidJoinMethodAndRole • incompatibleWithExistingEntry • deviceLogFull • writeFailure • keyAgreementNoResources • keyAgreementUnknownIssuer • keyAgreementUnsupportedSuite • keyAgreementBadMessage • keyAgreementBadKeyConfirm • invalidOrMissingCertificate • noPartnerLinkKeyReceived • noCBKEResponse	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted

Table 224 : Join Service (Critical) MMC Output Format Body data items

5.98 Join Service (Non-Critical)

5.98.1 Service Description

Service Request Name	JoinService (Non Critical)
Service Reference	8.7
Service Reference Variant	8.7.2

5.98.2 MMC Output Format

The xml type within the SMETSData element is JoinServiceNonCriticalRsp. The header and body data items appear as set out immediately below.

5.98.2.1 Specific Header Data Items

Data Item	ESME join to Type 2 Device Response	GSME join to GPF Response	PPMID join to ESME Response
GBCSHexadecimalMessageCode	0x000E	0x000E	0x00AB
GBCS Use Case (for reference - not in header)	CS03B	CS03B	CS03A2
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party		ra:EUI
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party		xs:nonNegativeInteger

Table 225 : Join Service (Non-Critical) MMC Output Format Header data items

Data Item	PPMID join to GSME Response	GPF join to PPMID or Type 2 Device Response
GBCSHexadecimalMessageCode	0x00AF	0x000E
GBCS Use Case (for reference - not in header)	CS03C	CS03B
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	ra:EUI Where originator is Unknown Remote Party
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	xs:nonNegativeInteger Where originator is Unknown Remote Party

Table 226 : Join Service (Non-Critical) MMC Output Format Header data items (continued)

5.98.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
JoinResponseCode	Outcome of the request, with valid values: • success; • invalidMessageCodeForJoinMethodAndRole; • invalidJoinMethodAndRole; • incompatibleWithExistingEntry; • deviceLogFull; • writeFailure; • keyAgreementNoResources; • keyAgreementUnknownIssuer; • keyAgreementUnsupportedSuite; • keyAgreementBadMessage; • keyAgreementBadKeyConfirm; • invalidOrMissingCertificate; • noPartnerLinkKeyReceived; or • noCBKEResponse.	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted

Table 227 : Join Service (Non-Critical) MMC Output Format Body data items

5.99 Unjoin Service (Critical)

5.99.1 Service Description

Service Request Name	UnjoinService(Critical)
Service Reference	8.8
Service Reference Variant	8.8.1

5.99.2 MMC Output Format

The xml type within the SMETSData element is UnjoinServiceCriticalRsp. The header and body data items appear as set out immediately below.

5.99.2.1 Specific Header Data Items

Data Item	ESME unjoin from HCALCS or PPMID	HCALCS unjoin from ESME	GSME unjoin from PPMID
GBCSHexadecimalMessageCode	0x000F	0x000F	0x000F
GBCS Use Case (for reference - not in header)	CS04AC	CS04AC	CS04AC

Table 228 : Unjoin Service (Critical) MMC Output Format Header data items

5.99.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
UnjoinResponseCode	Outcome of the request, with valid values: • success; • otherDeviceNotInDeviceLog; or • otherFailure.	Restriction base xs:string (Enumeration)	N/A	Unencrypted

Table 229 : Unjoin Service (Critical) MMC Output Format Body data items

5.100 Unjoin Service (Non-Critical)

5.100.1 Service Description

Service Request Name	UnjoinService (Non Critical)
Service Reference	8.8
Service Reference Variant	8.8.2

5.100.2 MMC Output Format

The xml type within the SMETSData element is UnjoinServiceNonCriticalRsp. The header and body data items appear as set out immediately below.

5.100.2.1 Specific Header Data Items

Data Item	ESME Unjoin from Type 2 Device	GSME Unjoin from GPF	GPF Unjoin from PPMID or Type 2 Device	PPMID Unjoin from GSME	PPMID Unjoin from ESME
GBCSHexadecimal MessageCode	0x0010	0x0010	0x0010	0x000F	0x000F
GBCS Use Case (for reference - not in header)	CS04B	CS04B	CS04B	CS04AC	CS04AC
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party			ra:EUI	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party			xs:nonNegativeInteger	

Table 230 : Unjoin Service (Non-Critical) MMC Output Format Header data items

5.100.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
UnjoinResponseCode	Outcome of the request, with valid values: • success; • otherDeviceNotInDeviceLog; or • otherFailure.	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted

Table 231 : Unjoin Service (Non-Critical) MMC Output Format Body data items

5.101 Read Device Log

5.101.1 Service Description

Service Request Name	ReadDeviceLog
Service Reference	8.9
Service Reference Variant	8.9

5.101.2 MMC Output Format

The xml type within the SMETSData element is ReadDeviceLogRsp. The header and body data items appear as set out immediately below.

5.101.2.1 Specific Header Data Items

GBCS v1.0:

Data Item	CHF Response	Non-CHF Response
GBCSHexadecimalMessageCode	0x0004	0x0013
GBCS Use Case (for reference - not in header)	CCS05/CCS04	CS07
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party or the target Device Type is HCALCS
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	xs:nonNegativeInteger Where originator is Unknown Remote or the target Device Type is HCALCS Party

Table 232 : Read Device Log MMC Output Format Header data items – GBCS v1.0

GBCS v2.0:

Data Item	CHF Response	Non-CHF Response
GBCSHexadecimalMessageCode	0x010F	0x0013
GBCS Use Case (for reference - not in header)	CCS06	CS07
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party or the target Device Type is HCALCS
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	xs:nonNegativeInteger Where originator is Unknown Remote Party or the target Device Type is HCALCS

Table 233 : Read Device Log MMC Output Format Header data items – GBCS v2.0

5.101.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DeviceLogEntries	This is only present if the response code indicates a successful response. The element returns a list of DeviceLogEntry items from the Device, which may be empty	ra:DeviceLog List of DeviceLogEntry (maxOccurs = unbounded), as set out in Section 5.101.2.2.1 of this document	N/A	Unencrypted
CHFDeviceLog	If reading the comms hub Device log, this group is returned rather than DeviceLogEntries, which shall include all currently authorised Devices on the ZIGBEE PAN.	ra:CHFDeviceLogType List of CHFDeviceLogEntry (maxOccurs = 16), as set out in Section 5.101.2.2.2 of this document	N/A	Unencrypted

Table 234 : Read Device Log MMC Output Format Body data items

5.101.2.2.1 DeviceLogEntry Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DeviceID	Device identifier of a Device	ra:EUI (see clause 2.4.1)	N/A	Unencrypted
DeviceType	The Type of Device Valid values are: • ESME; • GSME; • GPF; • CHF; • HCALCS; • PPMID; or • Type2	ra:DeviceType Restriction of xs:string	N/A	Unencrypted

Table 235 : DeviceLogEntry Specific Body Data Items

5.101.2.2.2 CHFDeviceLogEntry Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DeviceID	The Device identifier.	ra:EUI (see clause 2.4.1)	N/A	Unencrypted
LastCommunicationsDateTime	Date-time when a ZigBee packet was sent/received	xs:dateTime	N/A	Unencrypted
SubGHzLinkQuality	For each Device in the *CHF Device Log*, an indication of its quality of communication for Communication Links in Sub GHz Bands As set out in GBCS section 10.6.2	Restriction of xs:short (minInclusive = -128 maxInclusive = 127)	dBm	Unencrypted

Table 236 : CHFDeviceLogEntry Specific Body Data Items

5.102 Update HAN Device Log

5.102.1 Service Description

Service Request Name	UpdateHANDeviceLog
Service Reference	8.11
Service Reference Variant	8.11

5.102.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is UpdateHANDeviceLogRsp. The header data items appear as set out immediately below.

5.102.2.1 Specific Header Data Items

Data Item	Add Device Response	Remove Device Response
GBCSHexadecimalMessageCode	0x0001	0x0002
GBCS Use Case	CCS01	CCS02
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	

Table 237 : Update HAN Device Log MMC Output Format Header data items

5.103 Restore HAN Device Log

5.103.1 Service Description

Service Request Name	RestoreHANDeviceLog
Service Reference	8.12
Service Reference Variant	8.12.1

5.103.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is RestoreHANDeviceLogRsp. The header data items appear as set out immediately below.

5.103.2.1 Specific Header Data Items

Data Item	Response
GBCSHexadecimalMessageCode	0x0003
GBCS Use Case	CCS03
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 238 : Restore HAN Device Log MMC Output Format Header data items

5.104 Restore Gas Proxy Function Device Log

5.104.1 Service Description

Service Request Name	RestoreGPFDeviceLog
Service Reference	8.12
Service Reference Variant	8.12.2

5.104.2 MMC Output Format

The xml type within the SMETSData element is RestoreGPFDeviceLogRsp. The header and body data items appear as set out immediately below.

5.104.2.1 Specific Header Data Items

Data Item	Gas Response
GBCSHexadecimalMessageCode	0x008C
GBCS Use Case	GCS59

Table 239 : Restore GPF Device Log MMC Output Format Header data items

5.104.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
RestoreDeviceLog Outcome	There will be one present corresponding to each Device.	ra:RestoreDeviceLogOutcome see 5.104.2.2.1 maxOccurs = unbounded	N/A	Unencrypted

Table 240 : Restore GPF Device Log MMC Output Format Body data items

5.104.2.2.1 RestoreDeviceLogOutcome Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
DeviceLogEntry	A Device ID and Type for which there is a join response code.	ra:DeviceLogEntry See 5.101.2.2.1	N/A	Unencrypted
joinResponseCode	Outcome of the request, with valid values: • success; • incompatibleWithExistingEntry; • deviceLogFull; and • writeFailure	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted

Table 241 : RestoreDeviceLogOutcome MMC Output Format Body data items

5.105 Request Customer Identification Number

5.105.1 Service Description

Service Request Name	RequestCustomerIdentificationNumber
Service Reference	9.1
Service Reference Variant	9.1

5.105.2 MMC Output Format

The Service Response contains only status information, as set out in Section 4.1.1 of this document. The xml type within the SMETSData element is

RequestCustomerIdentificationNumberRsp. The header data items appear as set out immediately below.

Note that the Customer Identification Number is returned within the CINMessage response format as defined in DUIS.

5.105.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0058	0x0083
GBCS Use Case	ECS50	GCS36
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger	

Table 242 : Request Customer Identification Number MMC Output Format Header data items

5.106 Read Firmware Version

5.106.1 Service Description

Service Request Name	ReadFirmwareVersion
Service Reference	11.2
Service Reference Variant	11.2

5.106.2 MMC Output Format

The xml type within the SMETSData element is ReadFirmwareVersionRsp. The header and body data items appear as set out immediately below.

5.106.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0059	0x0084
GBCS Use Case	ECS52	GCS38
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1) Where originator is Unknown Remote Party	
SupplementaryRemotePartyCounter	xs:nonNegativeInteger Where originator is Unknown Remote Party	

Table 243 : Read Firmware Version MMC Output Format Header data items

5.106.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
FirmwareVersion	Current version number in manufacturer format. The Firmware version as held in the Certified Products List and presented in the format XXXXXXXX where each X is one of the characters 0 to 9 or A to F. This data item matches the value on the Certified Products List (excluding the colon separator between octet values)	xs:string	N/A	Unencrypted

Table 244 : Read Firmware Version MMC Output Format Body data items

5.107 Activate Firmware

5.107.1 Service Description

Service Request Name	ActivateFirmware
Service Reference	11.3
Service Reference Variant	11.3

5.107.2 MMC Output Format

The xml type within the SMETSData element is ActivateFirmwareRsp. The header and body data items appear as set out immediately below.

5.107.2.1 Specific Header Data Items

Data Item	Electricity Response	Gas Response
GBCSHexadecimalMessageCode	0x0012	0x0012
GBCS Use Case	CS06	CS06
Timestamp	xs:dateTime	

Table 245 : Activate Firmware Version MMC Output Format Header data items

5.107.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActivateImageResponseCode	Outcome of the request for each replacement, with valid values: • success; • noImageHeld; • hashMismatch; or • activationFailure Optional – will not be present in responses to future dated Service Requests	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted
FirmwareVersion	A unique identifier representing a firmware image that has been approved by the User for release. The Firmware version as held in the Certified Products List and presented in the format XXXXXXXX where each X is one of the characters 0 to 9 or A to F. This data item matches the value on the Certified Products List (excluding the colon separator between octet values). Optional – will not be present in responses to future dated Service Requests	ra:FirmwareVersion *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (xs:string,where maxLength = 8)	N/A	Unencrypted

Table 246 : Activate Firmware MMC Output Format Body data items

5.108 Record Network Data (GAS)

5.108.1 Service Description

Service Request Name	RecordNetworkData (GAS)
Service Reference	14.1
Service Reference Variant	14.1

5.108.2 MMC Output Format

The xml type within the SMETSData element is RecordNetworkDataGASRsp. The header and body data items appear as set out immediately below.

5.108.2.1 Specific Header Data Items

Data Item	Gas Response
GBCSHexadecimalMessageCode	0x0080
GBCS Use Case	GCS31
SupplementaryRemotePartyID	ra:EUI (see clause 2.4.1)
SupplementaryRemotePartyCounter	xs:nonNegativeInteger

Table 247 : Record Network Data (GAS) MMC Output Format Header data items

5.108.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
SampleID	The ID of the sampling session requested on the device. Defined by GBCS to be either, • a value of 2 if a Network Data Log is returned as expected in the normal response • a value of 65535 (0xFFFF) if a sampling session could not be started	xs:integer	N/A	Unencrypted

Table 248 : Record Network Data (GAS) MMC Output Format Body data items

6 DEVICE ALERT MMC OUTPUT FORMAT DEFINITIONS

6.1 Firmware Verification Status (Alert Codes 0x8F1C and 0x8F72)

Upon completion of a Firmware verification performed as part of the distribution of Firmware upgrades, the associated Device Alert shall be one of the following:

a) Device Alert with Alert Code 0x8F1C, indicating that the image verification failed; or
b) Device Alert with Alert Code 0x8F72, indicating that the image verification was successful.

The same Payload element is included in the case of Firmware image verification success or failure.

The xml type within the DeviceAlertMessagePayload element is FirmwareVerificationDeviceAlertType. The header and body data items appear as set out immediately below.

6.1.1 Specific Header Data Items

Data Item	Electricity Alert	Gas Alert
GBCSHexadecimalMessageCode	0x00CE	0x00CF
GBCS Use Case	CS05b	CS05b

Table 249 : Firmware Verification Device Alerts MMC Output Format Header data items

6.1.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
GBCSHexAlertCode	Code indicating the Alert or reason for the Alert to be generated. Valid values are 0x8F1C or 0x8F72.	xs:hexBinary	N/A	Unencrypted
AlertDescription	Valid value are: • Firmware verification failed; or • Firmware verification succeeded	xs:string, where maxLength = 250	N/A	Unencrypted
Timestamp	The Device Alert timestamp as sent by the Device (UTC).	xs:dateTime	UTC Date-Time	Unencrypted
Payload	As set out in Section 6.1.2.1 of this document	ra:DeviceAlertMessagePayload	N/A	Unencrypted

Table 250 : Device Alert Firmware Verification Failure and Success MMC Output Format Body data items

6.1.2.1 Payload Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
FirmwareVerificationDeviceAlert	Payload group item for this Device Alert	ra:FirmwareVerificationDeviceAlertType	N/A	Unencrypted

Table 251 : Alert Payload MMC Output Format Body data items

6.1.2.2 FirmwareVerificationDeviceAlert Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ManufacturerImage Hash	Information associated with the firmware update. The Firmware hash as held in the Certified Products List and presented in the format XX...XX (64 characters) where each X is one of the characters 0 to 9 or A to F. This data item matches the value on the Certified Products List (excluding the colon separator between octet values) Note that a hexBinary value of length 32 is defined as 32 octets, an octet is represented by 2 characters.	xs:hexBinary	N/A	Unencrypted

Table 252 : Firmware Verification Device Alerts MMC Output Format Body data items

6.2 Billing Data Log Updated (Alert Code 0x8F0A)

The Device Alert shall include the billing data log from a meter for one billing period only, which shall be triggered at the end of each billing period. Alert Code 0x8F0A shall be utilised in respect of two different GBCS Use Cases, but shall be distinguished by having different Message Codes, as set out in Table 253 immediately below.

GBCS Use Case	Message Code	Alert Code
ECS68 ESME Critical Sensitive Alert (Billing Data Log)	0x0061	0x8F0A
GCS53, GSME Push Billing Data Log as an Alert	0x008B	0x8F0A

Table 253 : Device Alert 0x8F0A Message Codes

As billing data log is sensitive, the data will be encrypted by the Device.

The xml type within the DeviceAlertMessagePayload element is BillingDataLogDeviceAlertType. The header and body data items appear as set out immediately below.

6.2.1 Specific Header Data Items

Data Item	Electricity Alert	Gas Alert
GBCSHexadecimalMessageCode	0x0061	0x008B
GBCS Use Case (for reference - not in header)	ECS68	GCS53
Timestamp	xs:dateTime	

Table 254 : Device Alert 0x8F0A Billing Data Log Updated MMC Output Format Header data items

6.2.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
GBCSHexAlertCode	Code indicating the Alert or reason for the Alert to be generated. Valid value is 0x8F0A	xs:hexBinary	N/A	Unencrypted
AlertDescription	Valid values: • ESME Push Billing Data Log as a Device Alert; or • GSME Push Billing Data Log as a Device Alert.	xs:string, where maxLength = 250	N/A	Unencrypted
Timestamp	The Device Alert timestamp as sent by the Device (UTC)	xs:dateTime	UTC Date-Time	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
Payload	As set out in Section 6.2.2.1 of this document	ra:DeviceAlertMessage Payload	N/A	Unencrypted

Table 255 : Device Alert 0x8F0A Billing Data Log Device Alert MMC Output Format Body data items

6.2.2.1 Payload Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
BillingDataLogDeviceAlert	Payload group item for this Alert	ra:BillingDataLog DeviceAlert Type	N/A	Unencrypted

Table 256 : Alert Payload MMC Output Format Body data items

6.2.2.2 BillingDataLogDeviceAlert Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ESMEBillingDataLogEntry	Electricity Smart Meter Billing Data Log Entry	ra:ESMEBillingDataLogType, as set out in Section 6.2.2.3 of this document	N/A	Encrypted
GSMEBillingDataLogEntry	Gas Smart Meter Billing Data Log Entry	ra:GSMEBillingDataLogType, as set out in Section 6.2.2.4 of this document	N/A	Encrypted

Table 257 : Device Alert 0x8F0A Billing Data Log Updated MMC Output Format Body data items

6.2.2.3 ESMEBillingDataLogType Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	Date and time when the end of billing period snapshot was taken	xs:dateTime	UTC Date-Time	Encrypted
ActiveImportRegisterValueConsumption	Value taken from the register that records the Primary Element cumulative Active Energy Imported at the time (timestamp) in the Alert	xs:Integer	Wh	Encrypted
SecondaryActiveImportRegisterValueConsumption	Value taken from the register that records the Secondary Element cumulative Active Energy Imported at the time (timestamp) in the Alert. Optional, as only applicable to Electricity Smart Meters with a Secondary Element	xs:Integer	Wh	Encrypted
TariffTOURegisterMatrixValue *(minimum 0 and maximum 48 entries)*	Each of the values in the 1 by 48 matrix for storing Primary Element Tariff Registers for Time-of-use Pricing	ra:IntegerWithIndex (value type is xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
SecondaryTariffTOURegisterMatrixValue *(minimum 0 and maximum 4 entries)*	Each of the values in the 1 by 4 matrix for storing Secondary Element Tariff Registers for Time-of-use Pricing. Optional, as only applicable to Electricity Smart Meters with a Secondary Element.	ra:IntegerWithIndex (value type is xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
TariffTOUBlock1RegisterMatrixValue *(minimum 0 and maximum 8 entries)*	Each of the values in the first row of the 4 by 8 matrix for storing Tariff Registers for Time-of-use with Block Pricing	ra:IntegerWithIndex (value type is xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock2RegisterMatrixValue *(minimum 0 and maximum 8 entries)*	Each of the values in the second row of the 4 by 8 matrix for storing Tariff Registers for Time-of-use with Block Pricing	ra:IntegerWithIndex (value type is xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock3RegisterMatrixValue *(minimum 0 and maximum 8 entries)*	Each of the values in the third row of the 4 by 8 matrix for storing Tariff Registers for Time-of-use with Block Pricing	ra:IntegerWithIndex (value type is xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted
TariffTOUBlock4RegisterMatrixValue *(minimum 0 and maximum 8 entries)*	Each of the values in the fourth row of the 4 by 8 matrix for storing Tariff Registers for Time-of-use with Block Pricing	ra:IntegerWithIndex (value type is xs:Integer with attribute Index xs:positiveInteger)	Wh	Encrypted

Table 258 : Device Alert 0x8F0A Billing Data Log Updated - ESMEBillingDataLogEntry Specific Body Data Items

6.2.2.4 GSMEBillingDataLogType Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ActiveImportRegisterValueConsumption	Value taken from the register that records the cumulative consumption at the time (timestamp) in the Alert Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	xs:decimal	m^3	Encrypted
BlockRegisterMatrixValue *(minimum 0 and maximum 4 entries)*	Each of the values in the 1 by 4 matrix for storing Tariff Registers for Time-of-use with Block Pricing Index value maps to register matrix Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	ra:DecimalWithIndex (value type is xs:decimal with attribute Index also xs:decimal)	m^3	Encrypted
TariffTOURegisterMatrixValue *(minimum 0 and maximum 4 entries)*	Each of the values in the 1 by 4 matrix for storing Tariff Registers for Time-of-use Pricing Index value maps to register matrix Multiplier (value of 1) and divisor (value of 1000) applied as defined in GBCS	ra:DecimalWithIndex (value type is xs:decimal with attribute Index also xs:decimal)	m^3	Encrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
Timestamp	Date and time when the end of billing period snapshot was taken	xs:dateTime	UTC Date-Time	Encrypted

Table 259 : Device Alert 0x8F0A Billing Data Log Updated - GSMEBillingDataLogEntry Specific Body Data Items

6.3 Supply Outage Restored Device Alerts

The Device Alerts, as set out in Table 260 immediately below, are issued by Devices after the restoration of supply to an Electricity Smart Meter, depending on the nature of the supply outage.

Alert Code	Purpose
0x8F35	Supply Outage Restored
0x8F36	Supply Outage Restored - Outage >= 3 minutes
0x8F37	Supply Outage Restored on Phase 1
0x8F38	Supply Outage Restored on Phase 1 Restored - Outage >= 3 minutes
0x8F39	Supply Outage Restored on Phase 2
0x8F3A	Supply Outage Restored on Phase 2 Restored - Outage >= 3 minutes
0x8F3B	Supply Outage Restored on Phase 3
0x8F3C	Supply Outage Restored on Phase 3 Restored - Outage >= 3 minutes

Table 260 : Supply Outage Restored Alert Purposes

The xml type within the DeviceAlertMessagePayload element is SupplyOutageRestoreAlertType. The header and body data items appear as set out immediately below.

6.3.1 Specific Header Data Items

Data Item	Electricity Alert
GBCSHexadecimalMessageCode	0x0067
GBCS Use Case (for reference - not in header)	ECS80

Table 261 : Supply Outage Restored Alert MMC Output Format Header data items

6.3.2 Specific Body Data Items

Each of the Device Alerts as set out in Table 260 shall contain the same type of Payload data, as shown in Table 264 immediately below.

Data Item	Description / Valid Set	Type	Units	Sensitivity
GBCSHexAlertCode	Code indicating the Alert or reason for the Alert to be generated. Valid values shall be: 0x8F35 to 0x8F3C	xs:hexBinary	N/A	Unencrypted
AlertDescription	Valid values: • Supply Outage Restored; • Supply Outage Restored >=3 minutes; • Supply Outage Restored on Phase 1; • Supply Outage Restored Phase 1 >=3 minutes; • Supply Outage Restored on Phase 2; • Supply Outage Restored Phase 2 >=3 minutes; • Supply Outage Restored on Phase 3; or • Supply Outage Restored Phase 3 >=3 minutes.	xs:string, maxLength = 250	N/A	Unencrypted
Timestamp	The Device Alert timestamp as sent by the Device (UTC).	xs:dateTime	UTC Date-Time	Unencrypted

Data Item	Description / Valid Set	Type	Units	Sensitivity
Payload	As set out in Section 6.3.2.1 of this document	ra:DeviceAlertMessagePayload	N/A	Unencrypted

Table 262 : Supply Outage Restored Alert MMC Output Format Body data items

6.3.2.1 DeviceAlertMessagePayload Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
SupplyOutageRestoreAlert	Payload group item for this Device Alert	ra:SupplyOutageRestoreAlertType	N/A	Unencrypted

Table 263 : Alert Payload (DeviceAlertMessagePayload) MMC Output Format Body data items

6.3.2.2 SupplyOutageRestoreAlertType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
interruptionValue	The date-time at which power was interrupted (UTC)	xs:dateTime	UTC Date-Time	Unencrypted
restorationValue	The date-time at which power was restored (UTC)	xs:dateTime	UTC Date-Time	Unencrypted

Table 264 : Supply Outage Restored Alert MMC Output Format Body data items

6.4 Future-Dated Command Outcome (Device Alerts 0x8F66 and 0x8F67)

The Service Requests that can be scheduled to run at a future date or that can be set to generate future dated Commands are specified within DUIS Service Request Matrix.

A single GBCS command can contain multiple individual DLMS/COSEM or ZigBee protocol instructions, and for each instruction there will be a separate Device Alert generated. There will therefore be multiple Device Alerts generated following the execution of Future Dated Commands that result in multiple instructions. Each Device Alert will be sent to the Service User separately. The Device Alert shall be one of the following:

a) Device Alert 0x8F66, indicating that the Command was successful; or
b) Device Alert 0x8F67, indicating that the Command failed.

The Payload XML element for both Device Alerts 0x8F66 and 0x8F67 will have the same underlying XML element FutureDatedCommandOutcomeDeviceAlert, further defined below.

For ASN.1 Device Alerts there will be only one per Command.

As described in DUIS, the DCC shall, when receiving a Future-Dated Command Outcome Device Alert, return a FutureDatedDeviceAlertMessage format response to the User. This will include the Request ID, Service Reference and Service Reference Variant of the original request (which generated the Device Alert) in the XML Response. The DCC shall add the following data items to the XML Response:

- The FutureDatedAlertCode (see DUIS 3.5.9) of the Device Alert.
- An InstructionNumber (see DUIS 3.5.9) to indicate which sequential instruction number the FutureDatedDeviceAlertMessage relates to.
- TotalCommandInstructions (see DUIS 3.5.9) to indicate how many Device Alerts are expected to be received by the DCC Systems relating to the future dated Command.

It is possible for an instruction to fail after earlier instructions have completed successfully, so there may be a mixture of 0x8F66 Device Alerts (success) and 0x8F67 Device Alerts (failure) corresponding to different instructions.

Where a Device instruction fails no more instructions will be processed. Following a failed instruction the Device will send a 0x8F67 Device Alert (failure) for each non-executed instruction within the Command.

For each command a Device will generate one or more 0x8F66 Device Alerts (success) followed optionally by one or more 0x8F67 Device Alerts (failure), however it is possible that the Service User will receive Device Alerts in a non-chronological order dependent on individual Device Alert communication network transport times.

6.4.1 Specific Header Data Items

Data Item	Electricity Alert	Gas Alert
GBCSHexadecimalMessageCode	0x00CA (Future Dated Firmware Activation Alert), 0x00CB (Future Dated Updated Security Credentials Alert), 0x00CC (Future Dated Execution Of Instruction Alert (DLMS COSEM))	0x00CA (Future Dated Firmware Activation Alert), 0x00CB (Future Dated Updated Security Credentials Alert), 0x00CD (Future Dated Execution Of Instruction Alert (GBZ))
GBCS Use Case (for reference - not in header)	N/A	N/A

Table 265 : Device Alert Future-Dated Command Outcome MMC Output Format Header data items

6.4.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
GBCSHexAlertCode	Code indicating the Alert or reason for the Alert to be generated. Set to 0x8F66 or 0x8F67	xs:hexBinary	N/A	Unencrypted
AlertDescription	Valid values are: • Future-Dated Command Action Successful; or • Future-Dated Command Action Failed.	xs:string, where maxLength = 250	N/A	Unencrypted
Timestamp	The Device Alert timestamp as sent by the Device (UTC)	xs:dateTime	UTC Date-Time	Unencrypted
Payload	As set out in Section 6.4.2.1 of this document	ra:DeviceAlertMessagePayload	N/A	Unencrypted

Table 266 : Device Alert Future-Dated Command Outcome MMC Output Format Body data items

6.4.2.1 DeviceAlertMessagePayload Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
FutureDatedCommandOutcomeDeviceAlert	Payload group item for this Alert	ra:FutureDatedCommandOutcomeDeviceAlertType	N/A	Unencrypted

Table 267 : Alert Payload (DeviceAlertMessagePayload) MMC Output Format Body data items

6.4.2.2 FutureDatedCommandOutcomeDeviceAlert Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
COSEMFutureDatedAlert	The payload for a Device Alert where underlying GBCS protocol is DLMS/COSEM.	ra:COSEMFutureDatedAlertType	N/A	Unencrypted
GBZFutureDatedAlert	The payload for a Device Alert where underlying GBCS protocol is GBZ.	ra:GBZFutureDatedAlertType	N/A	Unencrypted
UpdateSecurityCredentialsDeviceAlert	Device Alert payload for the outcome of a Future Dated Update Security Credentials request.	ra:UpdateSecurityCredentialsDeviceAlertType	N/A	Unencrypted
FirmwareActivationDeviceAlert	Device Alert payload for the outcome of a Future Dated Firmware Activation request	ra:FirmwareActivationDeviceAlertType	N/A	Unencrypted

Table 268 : Device Alert Future-Dated Command Outcome MMC Output Format Body data items

6.4.2.3 COSEMFutureDatedAlertType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
FutureDatedCommandMessageCode	The message code of the future-dated command for which this is the Device Alert conveying the outcome.	xs:hexBinary	N/A	Unencrypted
FutureDatedCommandOriginatorCounter	The originator counter from the future-dated command for which this is the Device Alert conveying the outcome.	xs:nonNegativeInteger	N/A	Unencrypted
ClassId	DLMS/COSEM class ID	xs:hexBinary	N/A	Unencrypted
InstanceId	DLMS/COSEM instance ID (OBIS code)	xs:hexBinary	N/A	Unencrypted
AttributeId	DLMS/COSEM attribute ID	xs:hexBinary	N/A	Unencrypted

Table 269 : COSEMFutureDatedAlertType MMC Output Format Body data items

6.4.2.4 GBZFutureDatedAlertType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
FutureDatedCommandMessageCode	The message code of the future-dated command for which this is the Device Alert conveying the outcome.	xs:hexBinary	N/A	Unencrypted
FutureDatedCommandOriginatorCounter	The originator counter from the future-dated command for which this is the Device Alert conveying the outcome.	xs:nonNegativeInteger	N/A	Unencrypted
ExtendedHeaderClusterID	ZigBee Smart Energy Cluster ID	xs:hexBinary	N/A	Unencrypted
FrameControl	ZigBee Smart Energy Frame Control identifier	xs:hexBinary	N/A	Unencrypted
CommandIdentifier	ZigBee Smart Energy Command ID	xs:hexBinary	N/A	Unencrypted

Table 270 : GBZFutureDatedAlertType MMC Output Format Body data items

6.4.2.5 UpdateSecurityCredentialsDeviceAlertType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
UpdateSecurityCredentials ExecutionOutcome	Type defined for response to update security credentials use case.	ra:ExecutionOutcome as set out in Section 5.63.2.2.1 of this document	N/A	Unencrypted

Table 271 : UpdateSecurityCredentialsDeviceAlertType MMC Output Format Body data items

6.4.2.6 FirmwareActivationDeviceAlertType Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
ExecutionDateTime	The date & time of the execution of the command to activate firmware on the Device, in UTC time.	xs:dateTime	UTC	Unencrypted
OriginatorCounterFromCommand	Originator counter in the command which requested activation of firmware.	xs:nonNegativeInteger	N/A	Unencrypted
ActivateImageResponseCode	Outcome of the request for each replacement. Valid Set: • success • noImageHeld • hashMismatch • activationFailure	ra:StatusASN1 As set out in section 5.58.2.2.2 of this document	N/A	Unencrypted
FirmwareVersion	A unique identifier representing a firmware image that has been approved for release by the User concerned. The Firmware version as held in the Certified Products List and presented in the format XXXXXXXX where each X is one of the characters 0 to 9 or A to F. This data item matchesshould match the value on the Certified Products List (excluding the colon separator between octet values)	ra:FirmwareVersion *(ra: data type is identical to the corresponding sr: data type, except that in ra: all the components are optional within the schema, although items may be mandatory within the business process)* (restriction of xs:string, maxLength = 8)	N/A	Unencrypted

Table 272 : FirmwareActivationDeviceAlertType MMC Output Format Body data items

6.5 Smart Meter Integrity Issue - Warning (Alert Code 0x81A0)

This Alert (new in GBCS v2.0) returns a warning indicating potential integrity issue reason.

See GBCS section 16.4 for more details.

The xml type within the DeviceAlertMessagePayload element is SmartMeterIntegrityIssueWarningDeviceAlertType. The header and body data items appear as set out immediately below.

6.5.1 Specific Header Data Items

Data Item	Electricity Alert	Gas Alert
GBCSHexadecimalMessageCode	0x00F0	0x00F2
GBCS Use Case	N/A	N/A

Table 273 : Smart Meter Integrity Issue - Warning Device Alerts MMC Output Format Header data items

6.5.2 Specific Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
GBCSHexAlertCode	Code indicating the Alert or reason for the Alert to be generated. Valid values are 0x81A0.	xs:hexBinary	N/A	Unencrypted
AlertDescription	Valid values are: • Smart Meter Integrity Issue - Warning	xs:string, where maxLength = 250	N/A	Unencrypted
Timestamp	The Device Alert timestamp as sent by the Device (UTC).	xs:dateTime	UTC Date-Time	Unencrypted
Payload	As set out in Section 6.5.2.1 of this document	ra:DeviceAlertMessagePayload	N/A	Unencrypted

Table 274 : Device Alert Smart Meter Integrity Issue - Warning MMC Output Format Body data items

6.5.2.1 Payload Body Data Items

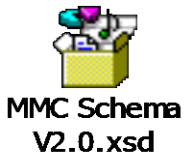
Data Item	Description / Valid Set	Type	Units	Sensitivity
SmartMeterIntegrityIssueWarningDeviceAlert	Payload group item for this Device Alert	ra: SmartMeterIntegrityIssueWarningDeviceAlertType	N/A	Unencrypted

Table 275 : Alert Payload MMC Output Format Body data items

6.5.2.2 SmartMeterIntegrityIssueWarningDeviceAlert Body Data Items

Data Item	Description / Valid Set	Type	Units	Sensitivity
Warning	Information associated with the reason for the warning. Valid Set: • Other • Error Non Volatile Memory • Error Program Execution • Error Program Storage • Error RAM • Error Unexpected Hardware Reset • Error Watchdog • Error Metrology Firmware Verification Failure • Error Measurement Fault • Unspecified Smart Meter Operational Integrity Error	Restriction of xs:string (enumeration)	N/A	Unencrypted

Table 276 : Smart Meter Integrity Issue - Warning Device Alerts MMC Output Format Body data items

7 ANNEX A – MMC XML SCHEMA

The MMC XML Schema is enclosed in the embedded document below.