Data Communications Company

Consultation

DCC User Interface Specification (DUIS) and Message Mapping Catalogue (MMC)

Date issued:	**1st April 2016**
Deadline for response comments:	**29th April 2016**
Classification:	**DCC Public**

Data Communications Company

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1 Executive Summary

The Data and Communications Company (DCC) is committed to a safe and secure smart metering environment to allow all electricity and gas consumers in Great Britain to enjoy the benefits of being in control of their energy usage.

A critical element of smart metering is the management of communications to and from smart metering devices (via the DCC User Interface). Two SEC Subsidiary Documents set out the technical requirements for this:

- The **DCC User Interface Specification (DUIS)** sets out the technical details of the DCC User Interface, which is the means by which Users interact with Devices. Communications from Devices are received by the User via the DCC User Interface, in a format as set out in the Great Britain Companion Specification (GBCS).

- The **Message Mapping Catalogue (MMC)** specifies the translation of data created by Devices in GBCS format, into a format that is standardised and interpretable (the "MMC Output Format").

Following their baselining under the Smart Meter Implementation Programme Transitional Governance Framework, draft versions of both the DUIS and MMC are set to be designated into the Smart Energy Code in time for DCC Live. In order to finalise the DCC solution design to support the DCC 1.3 Release, DCC has made updates to the draft baselined versions of the documents and their supporting schema.

DCC is consulting only on the updates made to these documents, which appear as tracked changes in each document and are covered by change-summaries, provided as annexes of this consultation. DCC is not seeking comments on the un-amended sections of the documents, which are already part of the baselined technical specification documents under SMIP Transitional Governance.

Following the consultation, and any updating of the documents in light of feedback received from consultation comments, the documents will be submitted to the Secretary of State for consideration for designation in the Smart Energy Code (SEC). On their approval, these documents will become SEC Subsidiary Documents, forming part of the legal framework for enabling the roll-out of smart meters.

It is proposed that the new, uplifted versions of DUIS and MMC are referenced as v0.8.2.1 to represent a minor-change increment on the previously baselined v0.8.2 versions. Please note that the DUIS and MMC documents are dated as of the 29 March 2016, but the associated XML schemas are dated as of the 26 February 2016 but these both relate to the same referenced v0.8.2.1 document set which is being consulted upon.

2 Background

Versions of the DUIS and MMC which align to GBCS v0.8.2 were submitted to the Technical Business Design Group (TBDG) and subsequently accepted into the Transitional Governance baseline of technical specifications on 26 August 2015. Versions were re-baselined on 16 December 2015 following some minor comments and uplifts as a result of additional User comments received. The “baselined” status of documents within the Transitional Governance framework means that the documents in question are approved as suitable for Users and DCC to build against for DCC Live.

These most recently baselined documents can be viewed on the DCC website using the following links; DUIS and MMC.

3 Scope of the DUIS and the MMC

The DUIS defines the DCC User Interface, covering communications from Users via DCC to Devices (using Service Requests), and from Devices via DCC to Users (using Service Responses, Device Alerts and DCC Alerts). The DUIS details the format of all Service Requests, Service Responses, Device Alerts and DCC Alerts.

The MMC provides information to enable prospective DCC Users to integrate their IT infrastructure with DCC Systems, in respect of the translation of the message information that is produced by Devices and received by a User, into a defined MMC Output Format. Message information produced by Devices comprises Responses and Alerts, received by the User via the DCC User Interface as Service Responses and Device Alerts. Translation of messages from GBCS format to MMC Output Format can be performed by the Parse and Correlate Software (provided by DCC) or by alternative systems.

The DUIS and the MMC each include an XML schema, defining the XML elements that are relevant to either the DCC User Interface (for the DUIS) or the MMC Output Format (for the MMC).

4 Scope of this consultation

This consultation has been issued by DCC to seek views on *only* the proposed amendments to the DUIS and MMC v0.8.2 documents and their associated XML schemas that are required to support the designation of the updated DUIS and MMC v0.8.2.1 documents. DCC is not consulting on content within the DUIS and MMC which has not changed since the documents' most recent incorporation into the Transitional Governance baseline.

The DUIS and MMC documents and associated XML schemas on which DCC is consulting have been updated from the baselined versions in response to the following activity:

1. DECC's legal review of the DUIS and MMC documents and their suitability for inclusion within the SEC as SEC Subsidiary Documents. This review has focused on wording and use of correct terms rather than technical review of the specifications.

2. The identification of updates required to support the design of the DCC Systems for the DCC 1.3 Release. Previous v0.8.2 specifications were aligned to support the design of the DCC Systems for up to and including the DCC 1.2 Release.

3. Review comments received by DCC from Parties and feedback received from Design forums on the baselined v0.8.2 documents, identifying where ambiguities existed or additional clarification was required. Updates of this type have only been included where they have not had a material impact on the technical specifications and would not result in a material change to either the design of the DCC Systems or User Systems.

4. Issues identified by DCC where ambiguities existed or additional clarification was required within the specifications. Updates of this type have only been included where they have not had a material impact on the technical specifications and would not result in a material change to either the design of the DCC Systems or User Systems.

The consultation is split into four parts:

- Part A of the consultation (section 5 of this document) covers the DUIS;

- Part B of the consultation (section 6 of this document) covers the MMC;

- Part C of the consultation (section 7 of this document) covers Versioning of DUIS and MMC XML Schemas; and

- Part D of the consultation (section 8 of this document) covers proposed changes to DUIS and MMC to reflect recent proposals to amend GBCS to support industry practices.

Please note that the DUIS and MMC documents and associated XML schemas presented as part of this consultation are in line with the contents and recommendations of all DCC-issued guidance notes via the Issue Resolution Board (IRB) and in particular those guidance notes covering:

- Use of EUI-64 Identifiers, dated 11 December 2015; and
- Length of the Authentication tag within the SMKI Root certificate, dated 26 February 2016

5 Consultation Part A: DCC User Interface Specification (DUIS)

5.1 DUIS Overview

DUIS places rights and obligations on DCC and Users regarding access to, and the use of, the DCC User Interface.

DUIS provides information to enable prospective DCC Users to integrate their IT infrastructure with DCC Systems, request services from DCC, and operate their Smart Metering Devices via Service Requests and Signed Pre-Commands. It further sets out the manner in which Users will receive Service Responses, Device Alerts and DCC Alerts.

5.2 Overview of DUIS changes

DCC has worked closely with Parties and DECC to develop the DUIS through regular monthly DCC Design Forum meetings. With respect to this consultation, DCC's latest Design Release Forum held on 15 March 2016, presented and discussed the scope of the planned changes to the DUIS.

Changes have been made to the DUIS in relation to each of the four change categories identified in section 4 of this consultation.

Most of the changes proposed as part of this consultation are changes within the DUIS document itself and not within the associated DUIS XML schema and should therefore not have a material impact on Users designs for interfacing with the DCC. There are two changes that have been proposed to the DUIS XML schema (described in section 5.2.1).

Of the changes made to the DUIS itself, the vast majority relate to either review comments received from DECC following their legal review of both the DUIS and MMC, or where ambiguities existed or additional clarification was required. Consequently, the resultant updates have not caused a material impact on the technical specifications and should not result in changes to either the design of the DCC Systems or User Systems.

A table summarising the DUIS changes proposed as part of this consultation is included at ***Appendix A***, with a summary of DUIS XML Schema amendments at ***Appendix B***.

Changes included within the DUIS v0.8.2.1	
Q1	Do you agree with the updates that the DCC has made to the DUIS and its associated XML schema to support its designation within the SEC as a Subsidiary Document? If not, please provide any specific issues and the rationale to support your response.

5.2.1 Proposed changes resulting from design work for the DCC 1.3 Release

As previously discussed with Parties at the DCC Design Release forums, DCC did not expect the design changes as part of the DCC 1.3 release to have a material impact on the DUIS or its associated XML schema. Whilst this expectation has been largely met, the changes forecast to support the SMKI Recovery Procedure have had an impact on the DUIS and its schema as noted below.

The inclusion of new functionality to support the SMKI Recovery Procedure has introduced the following changes into the DCC solution:

a) Two new Smart Metering Inventory (SMI) DeviceStatus attribute enumeration values, “Recovery” and “Recovered” within the DUIS XML Schema. These values will also be stored within the Smart Meter Inventory:

- New SMI Device Status - “**Recovery**”
  - Used to identify when a User (Supplier Only) has requested the initiation of the recovery process of a certificate on the Device;
  - As per the SMKI Recovery Procedure SEC Subsidiary Document, DCC disables communications so that only DCC communications are issued to Devices (achieved by setting the Device’s Smart Metering Inventory status to “Recovery”);
  - When a Device has an SMI Status of “Recovery” DCC will block any Service Requests or Signed Pre-Commands initiated by Users that are targeted at that Device.
- New SMI Device Status - “**Recovered**”
  - Used to identify that ACB (Access Control Broker) certificates have been successfully applied to a Device ready for transfer back to the User specifics using Service Reference Variant 6.21 – “Request Handover Of DCC Controlled Device”;
  - As per the SMKI Recovery Procedure SEC Subsidiary Document, DCC restores communications to Devices (achieved by setting the Device’s Smart Metering Inventory status to “Recovered”;
  - Once the requesting User’s Service Reference Variant 6.21 – “Request Handover of DCC Controlled Device” has been successfully processed DCC shall update the Devices SMI Device Status to the device status it held prior to the start of the SMKI Recovery Procedure.

b) Two new additional DCC Alerts have also been created as part of the DCC solution for the SMKI Recovery Procedure that impact DUIS.

- DCC Alert Code N44 - Recovery Complete (ACB Credentials)
- DCC Alert Code N45 - Recovery Complete

The DeviceStatus attribute is only referenced by DUIS in the Response for Service Reference Variant 8.2 – “Read Inventory”, but its inclusion does introduce a change to the DUIS XML schema in order to support the SMKI Recovery Procedure functionality.

DCC has always made the design assumption that we would maintain the same DUIS XML Schema version between DCC 1.2 Release and DCC 1.3 Release in order to reduce implementation impacts between DCC Releases and minimise system changes for both DCC and its Users. To preserve that assumption DCC is therefore proposing to include the required amendments within this designation version of the DUIS XML schema, as a forward-compatibility change relating to the addition of these two new DeviceStatus enumeration values and two new DCCAlertCodes.

Although these two new DeviceStatus enumeration values of “Recovery” and "Recovered" and two new DCCAlertCodes “N44” and “N45” exist in the DUIS XML schema for the DCC 1.2 Release, the associated functionality to use these two new DeviceStatus and DCCAlertCodes values will not be active within the wider DCC solution. Users should not expect to see these values within a Service Response received to the Read Inventory Service Request or from DCC Alerts sent in the DCC 1.2 Release. These values will only become active and used by the DCC Systems once the DCC 1.3 Release is implemented.

Changes resulting from design work for the DCC 1.3 Release	
Q2	Do you agree with DCC’s recommended approach for changing the DUIS XML schema to support the SMKI Recovery Procedure functionality in time for the DCC 1.2 release as a forward compatibility change to prevent the need to change XML schema versions between the DCC 1.2 and 1.3 Release? If not, please provide rationale to support your response and your preferred implementation option.

6 Consultation Part B: Message Mapping Catalogue (MMC)

6.1 MMC Overview

The MMC provides information to enable prospective DCC Users to integrate their IT infrastructure with DCC Systems, in respect of the translation of the message information that is produced by Devices and received by a User, into a defined MMC Output Format. Message information produced by Devices comprises Service Responses and Device Alerts, received by the User via the DCC User Interface.

The MMC includes the MMC XML Schema which details all of the XML elements that are relevant to the translation of GBCS-formatted data into the MMC Output Format.

6.2 Overview of MMC amendments

DCC has worked closely with parties and DECC to develop the MMC through regular monthly DCC Design Forum meetings. With respect to this consultation, DCCs latest Design Release Forum held on 15th March 2016, presented and discussed the scope of the planned changes to the MMC.

Changes have been made to the MMC in relation to three of the four change categories identified in section 4 of this consultation. DCC can confirm that no changes have been made to the MMC or its associated XML Schema as a result of design work for the DCC 1.3 Release.

Although a large number of the changes proposed as part of this consultation are changes within the MMC document itself, it should be noted that there are twelve changes proposed for the MMC XML schema, which will have a knock-on impact to the Parse and Correlate software provided by DCC to Users.

All of the changes that have been made to MMC relate to either review comments received from DECC following their legal review of both the DUIS and MMC or where ambiguities existed or additional clarification was required. Consequently, the resultant updates have not caused a material impact on the technical specifications and should not result in changes to either the design of the DCC Systems or User Systems.

A table summarising the MMC changes proposed as part of this consultation is included at ***Appendix C***, with a summary of MMC XML Schema amendments at ***Appendix D***.

Changes included within the MMC v0.8.2.1	
Q3	Do you agree with the updates that the DCC has made to the MMC and its associated XML schema to support its designation within the SEC as a Subsidiary Document? If not, please provide any specific issues and the rationale to support your response.

7 Consultation Part C: Versioning of DUIS and MMC XML Schemas

7.1 Issue

DCC has received feedback from stakeholders suggesting that the DUIS and MMC XML schemas should have more precise definitions with respect to version numbers to improve their understanding of how changes to XML Schema versions are made over time. It has been DCC's intention to provide clarity to all stakeholders on a revised approach for the updating and versioning convention of both the DUIS and MMC XML Schemas moving forwards and this section of the consultation sets out our proposals.

7.2 Principles

DCC needs to have a managed, transparent, easily identifiable and efficient way of making changes to the existing DUIS and MMC XML Schema versions over time. This will be especially important in the run up to DCC Releases as we receive and manage changes which arise from comments received from our stakeholders, or which result from testing.

For further changes made to the current SMIP Transitional Governance baseline XML schema versions, DCC proposes that each DUIS and MMC Schema Version will have its own change release notes to be shared with Users alongside the revised schemas themselves.

It is proposed that DCC amends the versioning notation for all future XML schema versions (including DUIS and MMC XML schemas) to allow easier identification of the XML schema version. This would start with the newly produced v0.8.2.1 versions of the DUIS and MMC XML schemas included as part of this consultation.

7.3 Revised Approach

All existing development versions of the DUIS and MMC XML schemas have contained the main "schemaVersion" element with the XML schema with a fixed value set to 1.0. This means that it is difficult to differentiate between XML schema versions over time. To resolve this, DCC propose to add a separate DUIS/MMC development schema version to be notified within the schema comments.

DCC proposes to use a combination of the main "schemaVersion" element *(SV)* within the XSD and a new "DUIS/MMC Development Schema Version" *(DSV)* within the XSD comments section to manage these changes and allow easy identification of XML schema versions.

The main "schemaVersion" element *(SV)* within the XSD shall always be fixed to target the next intended Release of the schema to the Live System.

- For example, all development schema versions to date would be schemaVersion 1.0.

To manage changes to XML Schemas within this, the new "DUIS/MMC Development Schema Version" *(DSV)* value will be used to identify uplifted development versions of the XML schemas that reflect the latest position of the XML schema on their way to being released to the live system, As follows:

- For the next set of schemas, DCC will track the existing 0.8.2 nomenclature to become "DUIS/MMC Development Schema Version" schema versions 0.8.2.1

- For all new XML schemas from this point forwards, DCC shall include a comments section below the main XML schema headings and prior to the first set of definitions to enable all Parties to quickly determine the version information for the XML schema including this new DUIS/MMC Development Schema Version" *(DSV)* value.

This approach means that the main "schemaVersion" element *(SV)* within the XSD does not need to be updated at the end of all testing phases prior to its release to the DCC Live environment (which would potentially trigger retesting). The final XML schema that is tested can be released to live with confidence of no further changes being made. Instead, from now until DCC Live, the "DUIS/MMC development schema version" element can be used to identify the difference between development versions of the DUIS / MMC XML schemas.

Following DCC live, DCC intends to switch to and operate a more conventional versioning approach to XML schemas and implement the full use of the "schemaVersion" element for any subsequent DCC Release where a DUIS or MMC XML schema change is required.

7.4 Proposed Outcome

Each DUIS Development Schema Version will have its own change release notes and new schema made available to Parties.

Each XML Schema will have within it:

- Reference to the overall XML Schema standard XML version 1.0 – FIXED
  - For example....
  - <?xml version="1.0" encoding="UTF-8"?>
  - <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"

- Reference to specific DUIS XML Schema versions, separate for Request and Response
  - For example....
  - <xs:complexType name="Request">
  - <xs:attribute name="schemaVersion" type="xs:decimal" use="required" fixed="1.0"/>
  - <xs:complexType name="Response">
  - <xs:attribute name="schemaVersion" type="xs:decimal" use="required" fixed="1.0"/>
    - This is the official versioning attribute for live production release and enforced by Schema validation
    - This will always be the value that the XML Schema is targeted to go Live with
    - DCC provides support for 2 "schemaVersion" values at any point in time, Current and Previous versions

- Version Comments - to be included as comments within the top section of the XML schema and shall include the following items,

Extract form the DUIS XML Schema v0.8.2.1

```
<!--
    XML Filename                          - DUIS Schema Draft 0.8.2.1.xsd
    DUIS XML Schema Version - Request     - 1.0
    DUIS XML Schema Version - Response    - 1.0
    DUIS Development Schema Version       - 0.8.2.1
                                            Incremented to align with any schema
                                            changes made between versions
    Aligned with GBCS version             - 0.8.2
    Date                                  - 26th February 2016
-->
```

Extract form the MMC XML Schema v0.8.2.1

```
<!--
     XML Filename                                    - MMC Schema Draft 0.8.2.1.xsd
     MMC XML Schema Version - GBCSResponse           - 1.0
     MMC Development Schema Version                  - 0.8.2.1
                                                   Incremented to align with
                                                   any schema changes made between
                                                   versions
     Aligned with GBCS version                         - 0.8.2
     Aligned with DUIS Development Schema Version      - 0.8.2.1
     Date                                              - 26th February 2016
-->
```

7.5 New versions of Parse and Correlate software

The proposed MMC XML Schema v0.8.2.1 would require an updated Parse and Correlate software version aligned to this new MMC XML Schema. As part of issuing this consultation to parties, DCC has commissioned the creation of the required Parse and Correlate software version. This is expected to be available to Users for testing by the end of May 2016 at the latest. Although DCC will endeavour to make this available as soon as possible to maximise the time that Users have to utilise this new Parse and Correlate software version. DCC expects to confirm the final date of availability for the updated Parse and Correlate software version following its initial analysis of responses to this consultation (which we expect to be complete in early May 2016).

Any further decisions to make changes to the MMC XML Schema versions will also require updated Parse and Correlate software versions and these will be made available to Users as soon as possible once the scope of any necessary changes is known.

Versioning of DUIS and MMC XML Schemas	
Q4	Do you agree with the proposed versioning approach and support its implementation in all future versions of the DUIS and MMC XML Schemas? If not, please provide the rationale to support your response.

8 Consultation Part D: Proposed changes to support potential amendments to GBCS

The DCC has been asked by DECC if the DUIS and MMC documents could be changed as part of this round of changes to support GBCS CRP449 (Change Resolution Proposal) which is to change the Units value for the "*UncontrolledGasFlowRate*" data item defined in DUIS under Service Reference Variant 6.7 - UpdateDeviceConfiguration(GasFlow) and in MMC under Service Reference Variant 6.2.8 - ReadDeviceConfiguration(Gas).

The resolution is to change the measurement units from ***cubic metres per hour*** to ***litres per hour*** to support Industry's requirement for granular control of this function. No further changes would be made to the associated Service Requests or Service Responses (including any associated data types), resulting GBCS Commands or associated GBCS Responses.

For clarity, the consultation versions of DUIS and MMC **DO NOT** currently include this change and the documents are aligned to the existing contents of GBCS v0.8.2 (the Transitional Governance baseline version).

If this change was to be made to support this request within the consultation response versions, then it would have the following impacts on the DUIS and MMC documents. There would be no impacts on the associated XML schemas or any changes to the Commands that are sent to Devices.

8.1 DUIS

The "*UncontrolledGasFlowRate"* data item is defined in DUIS under SR6.7 - UpdateDeviceConfiguration(GasFlow).

Current drafting

UpdateDeviceConfigurationGasFlow Definition

Data Item	Description / Valid Set	Type	Mandatory	Default	Units
UncontrolledGasFlowRate	The flow rate in units of volume per unit time used in the detection of uncontrolled flow of gas on Enablement of Supply	xs:unsignedShort	Yes	None	m^3/hour

Table 1 : UpdateDeviceConfigurationGasFlow (sr:UpdateDeviceConfigurationGasFlow) data items

Proposed drafting with update if the change is accepted

UpdateDeviceConfigurationGasFlow Definition

Data Item	Description / Valid Set	Type	Mandatory	Default	Units
UncontrolledGasFlowRate	The flow rate in units of volume per unit time used in the detection of uncontrolled flow of gas on Enablement of Supply	xs:unsignedShort	Yes	None	Litres per hour (l/h)

Table 2 : UpdateDeviceConfigurationGasFlow (sr:UpdateDeviceConfigurationGasFlow) data items

8.2 MMC

The "*UncontrolledGasFlowRate"* data item is defined in MMC under the Response to Service Reference Variant 6.2.8 - ReadDeviceConfiguration(Gas).

Current drafting

MMC Section 5.49.2.2

Data Item	Description / Valid Set	Type	Units	Sensitivity
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

Table 3 : Read Device Configuration (Gas) Response Body Data Items

Proposed drafting with update if the change is accepted

Section 5.49.2.2

Data Item	Description / Valid Set	Type	Units	Sensitivity
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	Litres per hour (l/h)	Unencrypted

Table 4 : Read Device Configuration (Gas) Response Body Data Items

Units value for the “UncontrolledGasFlowRate” data item in DUIS and MMC	
Q5	Do you agree that DCC should update the Units value for the “UncontrolledGasFlowRate” data item in both DUIS and MMC within the consultation response versions as requested by DECC to support the GBCS CRP449? If not, please provide the rationale to support your response.

9 DUIS and MMC Updates - Approach to any potential further updates required prior to DCC Live

DCC has previously published draft versions of the DUIS and MMC aligned to GBCS v0.8.2, which was re-baselined by the Technical Business Design Group (TBDG) on 16 December 2015.

The changes proposed as part of this consultation, subject to consultation comments, would also require re-baselining under Transitional governance before designation and it would be DCC's intent to start this process as soon after consultation as practicably possible.

However, DCC recognises that these DUIS and MMC versions 0.8.2.1 may not be the final versions that are required for designation into the Smart Energy Code (SEC) by the Secretary of State in time for DCC Live. This is because DCC and Users still have to complete multiple testing cycles which may identify issues which impact the DUIS and MMC documentation sets.

DCC therefore believes it is prudent to plan for any potential changes now and this consultation outlines a suggested approach of how DCC will seek to manage any changes identified between now and DCC Live which must be included within the designated versions of DUIS and MMC.

Please note that that this is the process DCC will try to follow wherever possible but processes may need to be expedited or modified depending upon actual events as and when they arise, but DCC will keep all parties informed of any changes and how they will be managed.

Proposed Approach

- That these v0.8.2.1 DUIS and MMC versions and their associated XML schemas, subject to any consultation feedback comments received, are submitted to the Technical Business Design Group (TBDG) for inclusion as updates to the previous versions held within baseline Technical Specifications under SMIP Transitional Governance arrangements.
- If further changes are identified as being required for DCC Live, then the DCC will:
    - Identify, document and discuss the issues with Users via the DCC Design Release Forum;
    - Attempt to minimise the changes to DUIS and MMC by restricting any changes to those which do not impact functionality and do not prevent the DCC solution operating successfully for Users.
    - Create new versions of DUIS and MMC as appropriate with the relevant changes required to address the identified issue(s) and update the version to v0.8.2.x
        - Where x starts from 2 and continues to increment sequentially
    - The XML schema will also increment its Development schema Version in line with the DUIS and MMC document versioning as above e.g. v0.8.2.x
        - Where x starts from 2 and continues to increment sequentially
        - DCC plan to issue a new schema in alignment with any new document version and the Main document and associated XML Development schema version numbers will always remain aligned

- notify users of any new draft versions of DUIS and MMC and their associated XML schemas
- Notify and discuss with Users the required changes prior to any submission of updated DUIS and MMC documents to TBDG for recommended inclusion into the SMIP Transitional Governance arrangements.
- Ensure that any new versions of DUIS and MMC and their associated XML schemas discussed with Users are formally submitted for recommended inclusion into the SMIP Transitional Governance baseline with their own change release notes.

- At the required point in time, as determined by the Secretary of State, the latest DUIS and MMC version held within the Transitional Governance baseline will be designated into the Smart Energy Code (SEC) to become version 1.0 of DUIS and MMC to be used for DCC Live.

Please note that DCC 1.2 release testing will commence on the current baseline Technical Specifications 0.8.2 versions of DUIS and MMC. It is expected that at an appropriate point following the start of testing and once this consultation has concluded that the DUIS and MMC schemas will be updated to these new versions for re-test.

DUIS and MMC updates - Approach to DCC Live	
Q6	Do you agree with the DCCs recommended approach for the re-baselining of DUIS and MMC and the submitting of any required updates post v0.8.2.1 in order to get to a designated version of DUIS and MMC in time for DCC Live? If not, please provide rationale to support your response.

10 How to respond

Please provide responses in the accompanying template by noon on Friday 29 April 2016 to DCC at contact@smartdcc.co.uk.

The DCC requests that, for the avoidance of ambiguity, all consultation responses should reference clearly against which document any comment is made.

Consultation responses may be published on our website www.smartdcc.co.uk. Please state whether all or any part, of your consultation is confidential. Please note that responses in their entirety (including any text marked confidential) may be made available to the Department of Energy and Climate Change (DECC) and the Gas and Electricity Markets Authority (the Authority).

If you have any questions about the consultation documents, please contact contact@smartdcc.co.uk.

If you have questions about our approach to consultations, please contact our Regulation Manager at tom.rothery@smartdcc.co.uk.

Appendix A – Summary of DUIS Amendments

DUIS Section	Summary of Changes
1.3	• 1.3 – Definitions - New definitions added for clarity (e.g. Body, Code of Connection, CPL, Service Audit Trail, Service Response, Transport Layer Security, Unsigned GBCS Payload and XMLDSIG) • 1.3 – Definitions –Some definitions updated as a result of legal review and SEC alignment of terms (e.g. Responsible Supplier replaced Registered Supplier) • 1.3 – Definitions - Some definitions removed where not used or have been replaced
Throughout	The definitions and language used within the DUIS have been revised where more precision was required as part of the legal review for inclusion of the DUIS into the SEC
2	Changes Made (see text below)
2.1	No changes
2.2	No changes
2.3	• General drafting updates throughout • 2.3 – Time - Clarification provided that dates-times not validated unless explicitly stated within the Service Request definitions
2.4	General drafting updates only
2.5	General drafting updates only
2.6	• General drafting updates throughout • Scheduling Services - The mechanism for implementing the schedule is removed to guidance • 2.6.3 Future Dated Services - Updated to clarify the functionality
2.7	General drafting updates only
2.8	General drafting updates only
2.9	No changes
2.10	General drafting updates only
3	Changes Made (see text below)
3.1	No changes

DUIS Section	Summary of Changes
3.2	• General drafting updates • 3.2.4 Authorisation - Response Code E5/E17 updated for exceptions and/or change to support SMKI Recovery Procedure implementation • Other general clarifying updates applied throughout
3.3	General drafting updates only
3.4	• General drafting updates • Multiple places - Ds:Signature data item – Clarification cross reference added to XMLDSIG definition update and update of type definition to match XML schema • Multiple places – Clarification provided to description of GBCSPayload to confirm it's a binary object which has been Base64 encoded • General – Clarification provided on valid set for ExecutionDateTime to include time element as '3000-12-31T00:00:00Z'
3.5	• General drafting updates • General – Common data item term changes to Common Objects • Multiple places – Clarification provided to description of GBCSPayload to confirm it's a binary object which has been Base64 encoded • 3.5.3 Response to a Non -Device Service Request - Clarification / Exceptions added as SR8.13 does not use this format
3.6	• General drafting updates • 3.6.3 DCC Alerts - DCCAlertMessage Format - N44 and N45 added to support SMKI Recovery Procedure implementation • 3.6.3 DCC Alerts - DCC Alert recipient clarification for N42, removal of incorrect and misleading text.
3.7	General drafting updates only
3.8	Changes Made (see text below)

DUIS Section	Summary of Changes
3.8 Service Request Definitions	• New XML data type ranges added confirming min and max vales for XML data types • General drafting updates to data item descriptions • General – Index values described (e.g. Unique, consecutive or not, starting at 1 or not) • General – Date format detailed • General – true and false Boolean values changed from capitals • General – Scheduled time description removes unnecessary implementation detail • General – Added explanation where values aligned to CPL • General – Clarification provided on valid set for ExecutionDateTime to include time element as '3000-12-31T00:00:00Z' • General – AddressIdentifier description confirmed to be "This search criteria is case insensitive."
3.8 Service Request Definitions (continued)	Service Reference Variants specifics • BlockThresholds for electricity, Units updated from kWh to Wh • SR6.5 - UpdateDeviceConfiguration(Voltage) – RMSExtremeOverVoltageThreshold data item description updated to remove unqualified statement • SR6.15.1 - UpdateSecurityCredentials(KRP) – Additional DCC System Processing - addition of new text to support Recovery procedure – SMI status changes • SR6.21 RequestHandoverOfDCCControlledDevice – Additional DCC System Processing - addition of new text to support Recovery procedure – SMI status changes • SR6.15.2 - UpdateSecurityCredentials(Device)Additional DCC System Processing addition of new DCC requirements to record device certificates currently in use on the device • SR6.25 - SetElectricitySupplyTamperState – Confirmation of valid set value from Disable to Locked as per SMETS definition and GBCS IRP • SR8.2 Read Inventory – Addition of two new deviceStatus values to support SMKI Recovery procedure

DUIS Section	Summary of Changes
	• SR8.2 Read Inventory – inclusion of new DUIS device type values to CPL values mapping • SR8.3 – Decommission Devices – Clarifications provided for SMKI recovery procedure • SR8.4 – CPL alignment clarification details added for various data items (e.g. DeviceManufacturer, DeviceModel and FirmwareVersion) • SR8.12 – Clarification note added for HHT will receive Alerts whilst connected not just for local command delivery so guidance provided for Response Codes received • SR11.1 – UpdateFirmware – description updates for firmware and aligned terms to GBCS terms and Response code definitions for increased clarity. Updated explanation of Hash calculation • SR11.3 – ActivateFirmware – description updates for firmware and aligned terms to GBCS terms and Response code definitions for increased clarity. Updated explanation of Hash calculation
3.9	Changes Made (see text below)
3.9.1	General drafting updates 3.9.1 – DCC Alert Message – inclusion of new DCC Alerts N44 and N45 for SMKI Recovery Procedure functionality
3.9.3	3.9.3 - Device Status Change Event - Added items: RecoveryCompleteACBCredentials RecoveryComplete Added group: RecoveryCompleteACBCredentials
3.10.1	3.10.1.23 Data Type Definitions – GasDateWithWildcards – clarification note that illogical dates beyond schema validation not validated
3.10.2	3.10.2 – validation – Response Code E1007 updated to clarify that check to SMKI validity is made
3.10.3	No Changes
Appendix 1	General drafting updates only

Appendix B – Summary of DUIS XML Schema Amendments

The table below provides a summary of the two DUIS XML schema amendments that are proposed as part of the uplift of MMC from v0.8.2 to v0.8.2.1.

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
1	Two additional enumeration values of “Recovery” and "Recovered" have been added to the DeviceStatus attribute. Although these new values are proposed to exist in the DUIS XML scheme for the DCC 1.2 release the associated functionality to use these two new DeviceStatus values will not be active within this release so Users should not expect to see these values. These values will only become active and used by the DCC Systems once the DC 1.3 release is implemented.	This change is to support DCC solution design work for the DCC 1.3 release. Supports changes required for the inclusion of the SMKI Recovery procedure into the DCC solution.	Modify DUIS XML schema “DeviceStatus” attribute definition to read; <xs:simpleType name="DeviceStatus"> <xs:restriction base="xs:string"> <xs:enumeration value="Pending"/> <xs:enumeration value="Whitelisted"/> <xs:enumeration value="InstalledNotCommissioned"/> <xs:enumeration value="Commissioned"/> <xs:enumeration value="Decommissioned"/> <xs:enumeration value="Withdrawn"/> <xs:enumeration value="Suspended"/> <xs:enumeration value="Recovery"/> <xs:enumeration value="Recovered"/> </xs:restriction> </xs:simpleType>	0.8.2.1
2	Two additional enumeration values of “N44” and "N45" have been added to the DCCAlertCode element	This change is to support DCC solution design work for the DCC 1.3 release. Supports changes required for the inclusion of the SMKI Recovery procedure into the DCC solution.	<xs:element name="DCCAlertCode"> <xs:simpleType> <xs:restriction base="xs:string"> ... <xs:enumeration value="N44"/> <xs:enumeration value="N45"/> </xs:restriction> </xs:simpleType> </xs:element>	0.8.2.1

Appendix C – Summary of MMC Amendments

MMC Section	Summary of Changes
Definitions	New definitions added for clarity (GBZ, Message Code, Zigbee *and* Zigbee Smart Energy)
Throughout	The definitions and language used within the MMC have been revised where more precision was required
4.2.1 Message codes for Device Alerts	Revised Message Codes and Alert Codes
MMC XML schema	Updated to clarify the schema provision
Standard notation and data definitions	Section added to explain notation used
4.1.3 Element group - DebugInfo	Some additional clarification text
5 Service Responses (*throughout*)	• Descriptive values changed to clarify use and definition of items • true and false values changed from capitals
5.33 Read Tariff (Primary Element)	Added PrimaryActiveTariffPriceScale
5.36 Read Maximum Demand Export Registers	Added table for MaxDemandRegisterDataType (not a new group – previously missing from MMC)
6.4 Future-Dated Command Outcome	Revised Message Codes and Alert Codes

Appendix D – Summary of MMC XML Schema Amendments

The table below provides a summary of the twelve (12) MMC XML schema amendments that are proposed as part of the uplift of MMC from v0.8.2 to v0.8.2.1.

The updated MMC XML schema

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
1	The MMC schema links to the wrong level when describing tariff thresholds for Electricity. The "ElecTariffThresholds" element contains "ra:BlockThreshold" which in turn contains "sr: BlockThreshold" which gives us a three dimensions matrix of up to 8x3x3 thresholds instead of the correct two dimensions matrix of 8x3.	*The change is to provide the correct matrix for threshold.*	Modify MMC XML schema “ElecTariffThresholds” type definition (line 623) to read; <xs:complexType name="ElecTariffThresholds"> <xs:sequence> <xs:element name="BlockThreshold" minOccurs="0" maxOccurs="3"> <xs:complexType> <xs:simpleContent> <xs:extension base="xs:unsignedInt"> <xs:attribute name="index" type="sr:range_1_3" use="required"/> </xs:extension> </xs:simpleContent> </xs:complexType> </xs:element> </xs:sequence> <xs:attribute name="index" type="sr:range_1_8" use="required"/> </xs:complexType>	0.8.2.1

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
2	The MMC schema will be changed to add a new item to hold the scale value which is applied to the Gas.PrimaryActiveTariffPrice within ReadTariffPrimaryElementRsp (4.11.1 GCS21f). Note there is no change to the Block or TOU Tariff groups and no scale will be applied to these prices.	*The reason for this change is to align correctly to the SMETS and GBCS definitions and provide the User with scaler values where they are potentially variable.*	A new line will be added before 582 immediately following the Gas.PrimaryActiveTariffPrice definition... <xs:element name="PrimaryActiveTariffPriceScale" type="sr:PriceScale" minOccurs="0"/>	0.8.2.1
3	The MMC schema will change to match the DUIS v0.8.2 schema where the restriction xs:totalDigits value="2" has been removed from "TOUTariffAction" and "BlockTariffAction" within Electricity XML groups affecting ECS01a and ECS01c. The restriction remained in ECS24 and ECS24b (the corresponding read use cases) and is now being removed.	*The change removes an inconsistency between the DUIS Schema and the MMC schema*	Remove the totalDigits restriction (3 occurrences as shown below) from TOUTariffAction and BlockTariffAction within Electricity XML group at lines 673, 682 and 697 <xs:totalDigits value="2"/>	0.8.2.1
4	The MMC schema is being changed to correct an enumeration for the ZCLStatus where the value CALIBRATION_FAILURE should be CALIBRATION_ERROR	*The reason for the change is to correct an inconsistency.*	Line 225 will be amended from: <xs:enumeration value="CALIBRATION_FAILURE"/> the revised value is: <xs:enumeration value="CALIBRATION_ERROR"/>	0.8.2.1

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
5	The MMC schema will be updated to change the data types of the following items within AverageRMSVoltageSettings: AverageRMSOverVoltageThreshold and AverageRMSUnderVoltageThreshold from xs:integer to xs:unsignedint.	*To align with the GBCS definitions of these items.*	The alert codes appear in four separate lines 2479, 2527, 2533 and 2547, as follows: <!-- Returned by device alerts 0x801C & 0x8072 --> <!--Returned by device alert 0x8066 (success) or 0x8067 (failure), indicating outcome of a future-dated command. So there will not be ASN1 alerts using alert codes 0x8066 or 0x8067. <!-- Returned by device alerts 0x8036, 0x8038, 0x803A & 0x803C -->	0.8.2.1
6	The MMC schema comment for FutureDatedCommandOutcomeDeviceAlertType needs to be updated to correct that statement regarding ASN1 commands.	*The reason for this change is to align correctly to GBCS.*	*FD Command Outcome Device Alert Type comment starting at line 2526 will be amended as follows:* <xs:complexType name="FutureDatedCommandOutcomeDeviceAlertType"> <!--Returned by device alert 0x8F66 (success) or 0x8F67 (failure), indicating outcome of a future-dated command. For DLMS/COSEM or GBZ, one alert is generated for each activation date-time protocol-level instruction within the command, and a GBCS command can contain multiple individual activation date-time instructions within the same GBCS command, so there may be multiple alerts of one of these two alert types following the execution of a Future Dated Command.	0.8.2.1

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
			For ASN1 each Future Dated command only includes one activation date-time, so there will only be one alert of one of these two alert types following the execution of a Future Dated Command. See GBCS 9.2.2.6 for more information. -->	
7	The MMC schema comment within the enumeration for CredentialsReplacementMode is incorrect in that 6.21 should include NetworkOperatorByNetworkOperator (as correctly defined in MMC).	*The reason for the change is to correct the comment in the MMC schema and align it with the MMC document.*	The schema change will be to move the comment at line 2664 to follow the enumeration value NetworkOperatorByNetworkOperator. The before and after sections are shown below... BEFORE <!-- SR 6.15.1, 6.21 --> <xs:enumeration value="SupplierBySupplier"/> <!-- SR 6.15.1 --> <xs:enumeration value="NetworkOperatorByNetworkOperator"/> <xs:enumeration value="RootBySupplier"/> AFTER <!-- SR 6.15.1, 6.21 --> <xs:enumeration value="SupplierBySupplier"/> <xs:enumeration value="NetworkOperatorByNetworkOperator"/> <!-- SR 6.15.1 --> <xs:enumeration value="RootBySupplier"/>	0.8.2.1

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
8	The MMC Schema will be updated to add maximum value limits to the following items within the header element of the MMC Output Format: OriginatorCounter SupplementaryRemotePartyCounter SupplementaryOriginatorCounter	*An upper limit for these values will be added to the schema.*	The OriginatorCounter (line 2242), SupplementaryRemotePartyCounter (2244) and SupplementaryOriginatorCounter (2245) definitions will all include the following: maxInclusive="18446744073709551615"	0.8.2.1
9	The MMC schema contains two comments and one <documentation> element which have been highlighted by DECC as inaccurate / not appropriate for publication under SEC.	*The reason for the change is to remove the unnecessary comments and inaccurate <documentation> element in the MMC schema and align it with the MMC document.*	The following comment appears twice at lines 2699 and 2702, both lines will be removed: <!-- I think this should be Optional, in case the command fails --> The following <documentation> element and enclosing <annotation> element at lines 2707-2709 will be removed: <xs:annotation> <xs:documentation>SHA-1 hash is 8 byte OCTET</xs:documentation> </xs:annotation>	0.8.2.1
10	The MMC schema contains an XML group MaxDemandConfigTimeRegisterDataType that is no longer referenced from any other XML within the schema and could therefore be removed.	*The change is not essential but aids clarity.*	The following lines (269-274) should be removed <xs:complexType name="MaxDemandConfigTimeRegisterDataType"> <xs:sequence> <xs:element name="LastResetDateTime" type="xs:dateTime" minOccurs="0"/>	0.8.2.1

Change Ref #	Change Description	Reason for Change	XML schema lines to be changed	Included in XML schema version
			<xs:element name="MaxDemandRegisterData" type="ra:MaxDemandRegisterDataType" minOccurs="0"/> </xs:sequence> </xs:complexType>	
11	Alert references have been changed everywhere except in the XML comments within MMC which still refer to alerts using 0x80.. Instead of 0x8F.. 0x801C and 0x8072 0x8066 and 0x8067 0x8036, 0x8038, 0x803A & 0x803C	*The reason for the change is to correct the comment in the MMC schema and align it with the MMC document.*	The alert codes appear in four separate lines 2479, 2527, 2533 and 2547, as follows: <!-- Returned by device alerts 0x801C & 0x8072 --> <!--Returned by device alert 0x8066 (success) or 0x8067 (failure), indicating outcome of a future-dated command. So there will not be ASN1 alerts using alert codes 0x8066 or 0x8067. <!-- Returned by device alerts 0x8036, 0x8038, 0x803A & 0x803C -->	0.8.2.1
12	The definition of the GBCSData element within ResponsePayload and DeviceAlertMessageType is defined as have 'unbounded' occurrences. It has been requested that we set a maximum limit to this to aid user systems development.	*The reason for this change is in response to User request.*	The two definitions of GBCSData will change to being maxOccurs 100 2360. <xs:element ref="ra:GBCSData" maxOccurs="100" minOccurs="0"/> 2579. <xs:element ref="ra:GBCSData" maxOccurs="100" minOccurs="0"/>	0.8.2.1

Appendix E – Summary of Consultation Questions

Changes included within the DUIS v0.8.2.1	
Q1	Do you agree with the updates that the DCC has made to the DUIS and its associated XML schema to support its designation within the SEC as a Subsidiary Document? If not, please provide any specific issues and the rationale to support your response.
Changes resulting from design work for the DCC 1.3 Release	
Q2	Do you agree with DCC's recommended approach for changing the DUIS XML schema to support the SMKI Recovery Procedure functionality in time for the DCC 1.2 release as a forward compatibility change to prevent the need to change XML schema versions between the DCC 1.2 and 1.3 Release? If not, please provide rationale to support your response and your preferred implementation option.
Changes included within the MMC v0.8.2.1	
Q3	Do you agree with the updates that the DCC has made to the MMC and its associated XML schema to support its designation within the SEC as a Subsidiary Document? If not, please provide any specific issues and the rationale to support your response.
Versioning of DUIS and MMC XML schemas	
Q4	Do you agree with the proposed versioning approach and support its implementation in all future versions of the DUIS and MMC XML schemas? If not, please provide the rationale to support your response.
Units value for the "UncontrolledGasFlowRate" data item in DUIS and MMC	
Q5	Do you agree that DCC should update the Units value for the "UncontrolledGasFlowRate" data item in both DUIS and MMC within the consultation response versions as requested by DECC to support the GBCS CRP449 ? If not, please provide the rationale to support your response.
DUIS and MMC updates - Approach to DCC Live	
Q6	Do you agree with DCC's recommended approach for the re-baselining of DUIS and MMC and the submitting of any required updates post v0.8.2.1 in order to get to a designated version of DUIS and MMC in time for DCC Live? If not, please provide rationale to support your response.