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MP093

‘Implementing IRP511 and CRP535 to support GBCS v3.2 devices’

Modification Report

Version 0.2

About this document

This document is a draft Modification Report. It currently sets out the background, issue, solution, impacts, costs, implementation approach and progression timetable for this modification, along with any relevant discussions, views and conclusions. This document will be updated as this modification progresses.

Contents

1. Summary.....	3
2. Issue.....	4
3. Solution	5
4. Impacts	7
5. Costs	8
6. Implementation approach	9
7. Assessment of the proposal	10
Appendix 1: Progression timetable	11
Appendix 2: Glossary	12

This document also has three annexes:

- **Annex A** contains the business requirements for the solution.
- **Annex B** contains the redlined changes to the SEC required to deliver the Proposed Solution.
- **Annex C** contains the DCC Preliminary Assessment response

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1. Summary

This proposal has been raised by Chun Chen from the Data Communications Company (DCC).

In July 2019, the Department for Business, Energy and Industrial Strategy (BEIS) designated an uplift of Smart Energy Code (SEC) Schedule 8 'Great Britain Companion Specification' (GBCS) to version 3.2 as part of the November 2019 SEC Release.

In order to fully deliver the functionality of two resolution proposals included in GBCS v3.2 (IRP511 'Set Clock Alerts Refs in Alert Tables Incorrect' and CRP535 'Restoring Removed Devices from the HAN'), consequential changes are now required to Appendix AD 'DCC User Interface Specification' (DUIS) and Appendix AF 'Message Mapping Catalogue' (MMC) schemas.

The amendments to the schemas had been intentionally left out of the November 2019 SEC Release in order to reduce any potential impact on testing for the Smart Metering Equipment Technical Specifications 1 (SMETS1) Initial Operating Capacity (IOC).

The estimated cost to deliver this modification in the November 2020 Release is £245,000. It is believed that MP093 should not have a direct impact on SEC Parties, but will enable Parties to use the full functionality of the resolution proposals that are already in GBCS.

2. Issue

Agreed approach to implementing two BEIS resolution proposals

In May 2019 BEIS issued a consultation [“SMIP CR 085 – Uplift of GB Companion Specification \(GBCS\) and SMETS2 to support Emergency Credit changes”](#). The consultation set out a number of amendments that were due to be designated for implementation in November 2019.

Part of the changes consulted upon was an uplift of GBCS to v3.2 and subsequent changes to the Technical Specification Applicability Tables (TSAT) to mandate an Applicability Period Start Date for GBCS v3.2 of 7 November 2019 (November 2019 SEC Release).

The DCC’s response to the consultation set out that two resolution proposals (RPs) would not be fully delivered in November 2019:

- **Issue Resolution Proposal (IRP) 511 ‘Set Clock Alerts Refs in Alert Tables Incorrect’** which introduces the Set Clock Alert 0x81C6 to the Event log to allow Users to identify the need for Home Area Network (HAN) Device fault correction; and
- **Change Resolution Proposal (CRP) 535 ‘Restoring Removed Devices from the HAN’** which allows Users to use Service Request SR8.9 ‘Read Device Log’ to read the Communications Hub Function (CHF) device log. The log contains the active and historical Device which allows Users to know which historical Device has been removed from the HAN so that it could be restored if required.

Both RPs required amendments to the schemas for Appendix AD ‘DCC User Interface Specification’ (DUIS) and Appendix AF ‘Message Mapping Catalogue’ (MMC). It had been previously agreed between the DCC and BEIS (in December 2018) that changes to these schemas would not happen in November 2019 in order to avoid any complexities with the SMETS1 IOC. Therefore, the full functionality of the two resolution proposals would be delivered in November 2020.

As such the scope of the two RPs in the November 2019 SEC Release was as follows:

- **IRP511** - DCC Systems will be amended to support the new Alert code in the response. However, capability for Users to configure the Alert and Parse & Correlate (P&C) to translate this Alert into meaningful English is not in the scope for delivery in November 2019.
- **CRP 535** - Implementing the Communications Hub (CH) removal log is in scope. However, capability for Customers and Users to retrieve the removal log is not in scope for delivery in November 2019.

On 4 July 2019 BEIS designated GBCS v3.2 for implementation in the November 2019 SEC Release. Therefore, to enable the planned changes, this Modification Proposal has been raised to introduce the remaining functionality into DUIS and MMC.

What is the impact this is having?

Without the required changes to Data Service Provider (DSP) systems and P&C needed for IRP511, Users will be unable to configure the Alert, and the response returned by P&C will not be meaningfully translated in English. Equally, without the changes relating to CRP535 the Historic Device Log on the CHF cannot be read for diagnostic purposes during Installation and Configuration (I&C).

The DSP and the P&C part of the IRP511 and CRP535 will allow the full use of functionality in the GBCS3.2 and SMETS2 v4.2 devices.

3. Solution

Proposed Solution

In order to implement the functionality for IRP511 and CRP535 changes are required to the DSP and P&C to provide capability for Users to configure this Alert and use their full functionality. To achieve this, the DUIS and MMC Schemas must be amended.

The business requirement for the solution can be found in Annex A.

IRP511

IRP 511 introduces the Set Clock Alert 0x81C6 to the Event log to allow Users to identify the need for HAN Device fault correction. DUIS changes are required to add support for 0x81C6 in the following Service Request Variants (SRVs):

- 6.22 'Configure Alert Behaviour'
- 6.2.10 'Read Device Configuration (Event and Alert Behaviours)'

If an attempt is made to configure 0x81C6 using SRV 6.22 on a Device running on a version of GBCS prior to v3.2, the Service Request will be rejected using the existing error code E062203. No changes are required to SRVs 6.11 'Synchronise Clock' or 6.13 'Read Event Or Security Log'.

CRP535

This CRP is primarily a change to CHF processing for adding and removing devices to/from the CHF device log. However, the CHF processing change involves creation of a history of previous device log entries and a new GBCS Use Case CCS07 is introduced to allow the current and historic device log entries to be read by the User.

DUIS changes will be modified to add support for the new Use Case CCS07 in the following SRV:

- 8.9 'Read Device Log'

If the SR contains the optional input parameter 'ReadHistoric' and is targeted at a CH running on a version of GBCS v3.2 or later then the new GBCS Use Case CCS07 will be used. If the SR does not include the optional input parameter 'ReadHistoric', then the existing GBCS Use Case CCS06 will be used.

If the SR contains the input parameter 'ReadHistoric' and the target device does not support CCS07 yet (i.e. the device runs on an earlier GBCS version than v3.2), then the Service Request will be rejected using a new error code.

The SRVs 8.11 (Add) and 8.11 (Remove) are not expected to undergo any changes due to CRP535.

Parse & Correlate

Changes to the P&C application will include:

- Add new GBCS Use Case 'CCS07 Read CHF Device Logs'
- Update the existing GBCS Use Cases related with SR6.22 and SR6.2.10

- New DUIS / MMC schema deployment
- Add test cases to exercise the changes
- Documentation updates and release tasks

4. Impacts

This section summarises the impacts that would arise from the implementation of this modification.

SEC Parties

SEC Party Categories impacted			
✓	Large Suppliers	✓	Small Suppliers
✓	Electricity Network Operators	✓	Gas Network Operators
✓	Other SEC Parties	✓	DCC

MP093 should not have a direct impact on SEC Parties, but will enable Parties to use the full functionality of the resolution proposals that are already in GBCS.

DCC System

Changes will be required to DUIS, MMC, DCC User Gateway Interface Design Specification (DUGIDS) and GBCS. The full impacts on DCC Systems and DCC's proposed testing approach can be found in the DCC Preliminary Assessment response in Annex C.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Schedule 8 'GB Companion Specification'
- Appendix AD 'DCC User Interface Specification'
- Appendix AF 'Message Mapping Catalogue'

The changes to the SEC required to deliver the proposed solution can be found in Annex B.

Other industry Codes

There are no identified impacts on other industry Codes.

Greenhouse gas emissions

There are no identified impacts on greenhouse gas emissions.

5. Costs

DCC costs

The estimated DCC implementation costs to implement this modification is £245,000. This cost covers delivery up to the end of Pre-Integration Testing (PIT); the full costs for Systems Integration Testing (SIT), User Implementation Testing (UIT) and go-live will be provided in the Impact Assessment response. There is no breakdown of costs at this stage as only the Preliminary Assessment has been complete.

SECAS costs

The estimated Smart Energy Code Administrator and Secretariat (SECAS) implementation costs to implement this modification is two days of effort, amounting to approximately £1,200. The activities needed to be undertaken for this are:

- Updating the SEC and releasing the new version to the industry.

SEC Party costs

Information on costs for Parties will be gathered in the Refinement Consultation.

6. Implementation approach

Recommended implementation approach

SECAS is recommending an implementation date of:

- **26 November 2020** (November 2020 SEC Release) if a decision to approve is received on or before 27 May 2020.

This date aligns with the next major update to DUIS and therefore is recommended as the most efficient date to implement the changes. It also aligns with previous discussions between BEIS and the DCC, and the DCC's estimated lead time of 6-8 months to implement the changes. Therefore, no fall back date is being recommended. This may change depending on when the Impact Assessment is returned and the lead time required by Parties and the DCC to deliver the changes.

7. Assessment of the proposal

Observations on the issue

The Change Sub Committee understand the clear rationale for the change. It also noted that as part of the modification progression consideration needs to be given to what if any impacts there will be of Parties as part of the update and when it will be scheduled. These will be sought during the Refinement Consultation.

Appendix 1: Progression timetable

This modification will be issued for consultation on 17 February 2020. A full DCC Impact Assessment will be requested at the Change Board meeting on 26 February 2020, in order to facilitate a decision on MP093 in time for inclusion in the November 2020 SEC Release. If this timetable is not met the implementation dates may have to be revisited.

Progression timetable	
Activity	Date
Draft Proposal raised	28 Oct 19
Presented to Change Sub-Committee	28 Oct 19
Preliminary Assessment	18 Nov 19 – 21 Jan 20
Refinement Consultation	17 Feb – 6 Mar 20
Request Impact Assessment approval	26 Feb 20

Appendix 2: Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

Glossary	
Acronym	Full term
BEIS	Department for Business, Energy and Industrial Strategy
CH	Communications Hub
CHF	Communications Hub Function
CRP	Change Request Proposal
DCC	Data Communications Company
DSP	Data Service Provider
DUGIDS	DUIS Gateway Interface Design Specification
DUIS	DCC User Interface Specifications
GBCS	Great Britain Companion Specification
HAN	Home Area Network
I&C	Installation and Configuration
IOC	Initial Operating Capability
IRP	Issue Resolution Proposal
MMC	Message Mapping Catalogue
P&C	Parse and Correlate
PIT	Pre-Integration Testing
SIT	Systems Integration Testing
SMETS	Smart Metering Equipment Technical Specification
TSAT	Technical Specification Applicability Tables
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
UIT	User System Integration

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MP093 ‘Implementing IRP511 and CRP535 to support GBCS v3.2 devices’

Annex A

Business requirements – version 0.1

About this document

This document contains the business requirements for this Modification Proposal. It provides detailed information on the business requirements for the Proposed Solution agreed by the Proposer with input from the Data Communications Company (DCC) and Sub-Committees. It also provides the considerations and assumptions for each business requirement with respect to this Modification Proposal.

1. Business requirements

This section contains the functional business requirements needed for the Issue Resolution Proposal (IRP) and Change Resolution Proposal (CRP) contained within MP093 that the DCC have indicated could be DCC System impacting. Based on these requirements a full solution will be developed.

Business Requirements	
Ref	Requirement
1	DCC system changes for IRP 511 'Set Clock Alerts Refs in Alert Tables Incorrect'
2	DCC system changes for CRP 535 'Restoring Removed Devices from the HAN'

Changes to the DCC User Interface Specification' (DUIS) and Message Mapping Catalogue (MMC) schemas are required in order to implement IRP511 and CRP535 as described below.

1.1 Requirement 1: DCC system changes for IRP 511 'Set Clock Alerts Refs in Alert Tables Incorrect'

IRP 511 introduces the Set Clock Alert 0x81C6 to the Event log to allow Users to identify the need for Home Area Network (HAN) Device fault correction.

The DCC systems are required to

- support the new alert code in the response. (Parse & Correlate)
- Support the configuration required for 0x81C6 (DSP)

1.2 Requirement 2: DCC system changes for CRP 535 'Restoring Removed Devices from the HAN'

CRP 535 allows Users to use Service Request SR8.9 'Read Device Log' to read the Communications Hub Function (CHF) device log. The log contains the active and historical Device which allows Users to know which historical Device has been removed from the HAN so that it could be restored if required.

DUIS Changes Based on DUIS 3.1

Changes to Service Request 8.9

Section 3.8.108.1 Service Description

Service Request Name	ReadDeviceLog	
Service Reference	8.9	
Service Reference Variant	8.9	
Eligible Users	Import Supplier (IS) Gas Supplier (GS) Other User (OU)	
Security Classification	Non Critical	
BusinessTargetID 1. Device Type applicable to this request	Electricity Smart Meter (ESME) Gas Smart Meter (GSME) Gas Proxy Function (GPF) Communications Hub Function (CHF) HAN Connected Auxiliary Load Control Switch (HCALCS) PrePayment Interface Device (PPMID)	
Can be future dated?	DSP	
On Demand?	Yes	
Capable of being DCC Scheduled?	No	
Command Variants applicable to this Request (Only one populated)	1 – Send (Non-Critical) 2 – Return for local delivery (Non-Critical) 3 – Send and Return for local delivery (Non-Critical)	
Common Header Data Items	See clause Error! Reference source not found.3.4.1.1	
Data Items Specific to this Service Request	See Specific Data Items Below	
Possible responses from this Service Request	These are the possible responses applicable to this Service Request. Please see clause Error! Reference source not found.3.5 for more details on processing patterns 1. Acknowledgement 2. Service Response (from Device) – GBCSPayload 3. Response to a Command for Local Delivery Request – LocalCommand Format Also see Response Section below for details specific to this request	
Response Codes possible from this Service Request	See clause Error! Reference source not found.3.5.10 for Common Response Codes	
GBCS Cross Reference	Communications Hub Function	All Other Devices
GBCS v1.0 MessageCode	0x0004	0x0013
GBCS v1.0 Use Case	CCS05/CCS04	CS07
GBCS v2.0 MessageCode	0x010F	0x0013
GBCS v2.0 Use Case	CCS06	CS07
GBCS Commands - Versioning Details		

DCC System creates the following GBCS Commands or Response Codes based on the following combinations,

Device Type	CHF		
GBCS version that pertains to the Device Model recorded in the SMI for the Business Target Device ID specified in the Service Request	GBCS v1.0	GBCS v2.0	GBCS v3.2
DEFAULT - No specific XML criteria	CCS05/CCS04	CCS06	CCS06
XML Criteria - XML data item ReadHistoric included	E080902	E080902	CCS07
Device Type	ESME		
GBCS version that pertains to the Device Model recorded in the SMI for the Business Target Device ID specified in the Service Request	GBCS v1.0	GBCS v2.0	
DEFAULT - No specific XML criteria	CS07	CS07	
Device Type	GSME		
GBCS version that pertains to the Device Model recorded in the SMI for the Business Target Device ID specified in the Service Request	GBCS v1.0	GBCS v2.0	
DEFAULT - No specific XML criteria	CS07	CS07	
Device Type	GPF		
GBCS version that pertains to the Device Model recorded in the SMI for the Business Target Device ID specified in the Service Request	GBCS v1.0	GBCS v2.0	
DEFAULT - No specific XML criteria	CS07	CS07	
Device Type	HCALCS		
GBCS version that pertains to the Device Model recorded in the SMI for the Business Target Device ID specified in the Service Request	GBCS v1.0	GBCS v2.0	
DEFAULT - No specific XML criteria	CS07	CS07	
Device Type	PPMID		
GBCS version that pertains to the Device Model recorded in the SMI for the Business Target Device ID specified in the Service Request	GBCS v1.0	GBCS v2.0	
DEFAULT - No specific XML criteria	CS07	CS07	

Section 3.8.108.2 Specific Data Items for this Request

ReadDeviceLog Definition

Data Item	Description / Values	Type	Mandatory	Default	Units
ExecutionDateTime	A User shall only add this Data Item to the Service Request where they require the Service Request to be executed at a future date and time. The UTC date and time the User requires the command to be executed on the Device <ul style="list-style-type: none">Date-time in the future that is either <= current date + 30 days or the date = '3000-12-31T00:00:00Z'	xs:dateTime	No	None	UTC Date-Time
<u>ReadHistoric</u>	<u>This parameter is supplied if the User wishes to receive the current and historic device log available in the CHF.</u>	<u>sr:ReadHistoric</u>	<u>No</u>	<u>None</u>	<u>None</u>

Table **1243** : ReadDeviceLog (sr:ReadDeviceLog) data items

Adding a new Section 3.8.108.3 Specific Validation for this Request

3.8.108.3 Specific Validation for this Request

See clause 3.2.5 for general validation applied to all Requests.

<u>Response Code</u>	<u>Response Code Description</u>
<u>E080902</u>	<u>Check that if 'ReadHistoric' is specified in the Service Request then the Firmware Version recorded in the SMI for the Device must be at GBCS version 3.2 or later.</u>
<u>E080903</u>	<u>Check that if 'ReadHistoric' is specified in the Service Request then the Device Type must be a CHF</u>

MMC Changes Based on MMC 3.1

Changes to Service Request 8.9

Section 5.101.2.1 Specific Header Data Items

Add a new table for GBCSv3.2

GBCS v3.2:

<u>Data Item</u>	<u>CHF Response</u>	<u>Non-CHF Response</u> (N/A to SMETS1)
<u>GBCSHexadecimalMessageCode</u>	<u>010F, 00FE</u>	<u>0013</u>
<u>GBCS Use Case Number</u> (for information only – not in header)	<u>CCS06, CCS07</u>	<u>CS07</u>
<u>SupplementaryRemotePartyID</u>	<u>ra:EUI</u> (see clause Error! <u>Reference source not found.2.4.1</u>)	<u>ra:EUI</u> (see clause Error! Reference source not found.2.4.1) Where originator is Unknown Remote Party or the target Device Type is <u>HCALCS</u>
<u>SupplementaryRemotePartyCounter</u>	<u>xs:nonNegativeInteger</u>	<u>xs:nonNegativeInteger</u> Where originator is Unknown Remote or the target Device Type is <u>HCALCS Party</u>

Table 233-1 – Read Device Log MMC Output Format Header Data Items – GBCS v3.2

Section 5.101.2.2 Specific Body Data Items

Adding a new optional data item

<u>Data Item</u>	<u>Description / Valid Set</u>	<u>Type</u>	<u>Unit s</u>	<u>Sensitivity</u>
<u>DeviceLogEntries</u>	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	<u>ra:DeviceLog</u> List of DeviceLogEntry (maxOccurs = unbounded), as set out in Section Error! Reference source not found.5.101.2.2.1 of this document	<u>N/A</u>	<u>Unencrypted</u>
<u>CHFDeviceLog</u>	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.	<u>ra:CHFDeviceLogType</u> List of CHFDeviceLogEntry (maxOccurs = 16), as set out in Section Error! Reference source not found.5.101.2.2.2 of this document	<u>N/A</u>	<u>Unencrypted</u>
<u>CHFConnectedDeviceLog</u>	If reading the CHF's current and historic device log, this group is returned. This holds the current and historic devices that are/were in the ZIGBEE PAN.	<u>ra:CHFConnectedDeviceLogType</u>	<u>N/A</u>	<u>Non-Sensitive</u>

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

Adding a new Section 5.101.2.2.3

5.101.2.2.3 CHFConnectedDeviceLogType Data Items

GBCS3.2

<u>Data Item</u>	<u>Description / Valid Set</u>	<u>Type</u>	<u>Units</u>	<u>Sensitivity</u>
<u>CHFCurrentConnectedDeviceLogEntry</u>	<u>List of Devices and their Security Details that are currently in the CHF Device Log.</u>	<u>List of CHFConnectedDeviceLogEntry (maxOccurs = 16), as set out in Section 5.101.2.2.4 of this document</u>	<u>N/A</u>	<u>Non-Sensitive</u>
<u>CHFHistoricConnectedDeviceLogEntry</u>	<u>List of Devices and their Security Details that are in the CHF Historic Device Log.</u>	<u>List of CHFConnectedDeviceLogEntry (maxOccurs = 16), as set out in Section 5.101.2.2.4 of this document</u>	<u>N/A</u>	<u>Non-Sensitive</u>

Table 3236-1 - CHFConnectedDeviceLogType Data Items

Adding a new Section 5.101.2.2.4

5.101.2.2.4 CHFConnectedDeviceLogEntry Data Items

GBCS3.2

<u>Data Item</u>	<u>Description / Valid Set</u>	<u>Type</u>	<u>Units</u>	<u>Sensitivity</u>
<u>DeviceID</u>	<u>The device identifier.</u>	<u>ra:EUI</u>	<u>N/A</u>	<u>Non-Sensitive</u>
<u>DeviceSecurityDetails</u>	<u>Where a TC Link Key between the CHF and the Device with this Device ID had been established previously, this field shall contain a Hash of that TC Link Key. Otherwise this field shall contain an empty string.</u>	<u>Restriction of xs:string</u>	<u>N/A</u>	<u>Non-Sensitive</u>

Table 4236-2- CHFConnectedDeviceLogEntry Data Items

SEC Modification Proposal, SECMP0093, DCC CR1118

**Implementing IRP511 and CRP535 to Support
GBCS v3.2 Devices**

Preliminary Impact Assessment (PIA)

Version:	0.3
Date:	21st January, 2020
Author:	DCC
Classification:	DCC PUBLIC

Contents

1	Document History	4
1.1	Revision History	4
1.2	Associated Documents	4
1.3	Document Information.....	4
2	Context and Requirements.....	5
2.1	Problem Statement	5
2.2	Issue	6
2.3	Business Requirements	6
2.3.1	Requirement 1: IRP511 'Set Clock Alerts Refs in Alert Tables Incorrect'	6
2.3.2	Requirement 2: CRP 535 'Restoring Removed Devices from the HAN'	6
3	Description of Solution	7
3.1	DSP Solution	7
3.1.1	IRP511, Set Clock alert references in alerts table incorrect	7
3.1.2	CRP535, Restoring removed devices from the HAN	7
3.2	Critical Software Solution	7
3.2.1	Parse and Correlate	8
3.2.2	GFI Core	8
3.2.3	SMITEn Lite	8
3.3	Communication Service Provider (CSP) Changes	8
4	Impact on DCC Systems, Processes and People	10
4.1	Security Impact	10
4.2	Request Management.....	10
4.3	Data Management	10
4.4	Transform.....	10
4.5	DUGIDS, DUIS, MMC.....	10
4.6	Service User Simulator.....	11
4.7	Service Impact	11
4.8	Contract Schedules	11
5	Implementation Timescales and Approach.....	12
5.1	Implementation Approach.....	12
5.2	Testing and Acceptance.....	12
5.2.1	System Integration Testing.....	12
5.2.2	User Integration Testing (UIT)	13
6	Costs and Charges.....	14
6.1	Design, Build, and Testing Cost Impact.....	14

Appendix A: Glossary	16
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1 Document History

1.1 Revision History

Revision Date	Revision	Summary of Changes
03/01/2020	0.1	Initial version
21/01/2020	0.3	Updated after review with Service Providers

1.2 Associated Documents

This document is associated with the following documents:

Ref	Title and Originator's Reference	Source	Issue Date
1	MP093 Business-Requirements	SECAS	29/11/2019
2	DP093-Problem-Statement-v0.1.pdf	SECAS	29/11/2019

References are shown in this format, [1].

1.3 Document Information

The Proposer for this Modification is Chun Chen of SmartDCC. The original proposal was submitted on the 28th October 2019.

The Preliminary Impact Assessment was requested of DCC on 21st November 2019.

2 Context and Requirements

In this section, the context of the Modification, and the requirements are stated. These have been provided by SECAS and the Proposer.

2.1 Problem Statement

In May 2019 BEIS issued a consultation “SMIP_CR_085 – Uplift of GBCS and SMETS2 to support Emergency Credit changes”. The consultation set out a number of amendments that were due to be designated for implementation in November 2019.

Part of the changes consulted upon was an uplift of the GB Companion Specification (GBCS) to version 3.2 and subsequent changes to the Technical Specification Applicability Tables (TSAT) to mandate an Applicability Period Start Date for GBCS v3.2 of the November 2019 SEC Release.

The DCC’s response to the consultation set out that two Resolution Proposals (RPs) would not be fully delivered in November 2019. The following RPs were excluded from the earlier release:

- Issue Resolution Proposal (IRP) 511 ‘Set Clock Alerts Refs in Alert Tables Incorrect’ which introduces the Set Clock Alert 0x81C6 to the Event log to allow Users to identify the need for Home Area Network (HAN) Device fault correction.
- Change Resolution Proposal (CRP) 535 ‘Restoring Removed Devices from the HAN’ which allows Users to use Service Request SR8.9 ‘Read Device Log’ to read the Communications Hub Function (CHF) device log. The log contains the active and historical Device which allows Users to know which historical Device has been removed from the HAN so that it could be restored if required.

Both RPs required amendments to the schemas for Appendix AD ‘DCC User Interface Specification’ (DUIS) and Appendix AF ‘Message Mapping Catalogue’ (MMC). It had been previously agreed between the DCC and BEIS (in December 2018) that changes to these schemas would not happen in November 2019 in order to avoid any complexities with the SMETS1 Initial Operating Capacity (IOC). Therefore, the full functionality of the two resolution proposals would be delivered in November 2020.

Note that DCC Change Request (CR) 1047 covers the non-DUIS/transform elements of the GBCS v3.2 changes, including the Central Product List (CPL) with updates necessary to support the new version of GBCS v3.2. The work for CR1047 is being carried out by the Communications Service Providers (CSPs). As such the scope of the two RPs in the release is as follows:

- IRP511: DCC Systems will be amended to support the new Alert code in the response. However, capability for Users to configure the Alert and Parse & Correlate to translate this Alert into meaningful English is not in the scope for delivery in November 2019.
- CRP535: Communications Hub implementing the removal log is in the scope. However, capability for Customers and Users to retrieve the removal log is not in scope for delivery.

On 4 July 2019 BEIS and SECAS designated GBCS v3.2 for implementation in the November 2019 SEC Release. Therefore, to enable the planned changes a new Modification Proposal needs to be raised to introduce the remaining functionality into DUIS and MMC.

2.2 Issue

Without the required changes to DSP and the Parse and Correlate application defined in IRP511, Users will be unable to configure the Alert, and the response returned by Parse and Correlate will not be meaningfully translated in English.

In addition, the changes relating to the Historic Device Log on the CHF defined in CRP535 cannot be read for diagnostic purposes during Installation and Configuration (I&C).

Implementing IRP511 and CRP535 will allow the full use of functionality in the GBCS 3.2 and subsequent GBCS versions, and SMETS2 v4.2 and subsequent compliant versions .

2.3 Business Requirements

This section contains the considerations and assumptions for each business requirement. These are excerpts from each of the IRPs and it is expected that the DCC will develop solution(s) to the consequential changes these IRPs will have on the DCC Systems. The document text changes are contained within each of the IRPs.

Req.	Requirement
1	DCC system changes for IRP 511 'Set Clock Alerts Refs in Alert Tables Incorrect'
2	DCC system changes for CRP 535 'Restoring Removed Devices from the HAN'

Table 1: Business Requirements for SECMP0093, CR1118

2.3.1 Requirement 1: IRP511 'Set Clock Alerts Refs in Alert Tables Incorrect'

IRP 511 introduces the Set Clock Alert 0x81C6 to the Event log to allow Users to identify the need for HAN Device fault correction.

The DCC systems are required to

- support the new alert code in the response (Parse and Correlate)
- Support the configuration required for 0x81C6 (DSP)

2.3.2 Requirement 2: CRP 535 'Restoring Removed Devices from the HAN'

CRP 535 allows Users to use Service Request SR8.9 'Read Device Log' to read the CHF device log. The log contains the active and historical Device which allows Users to know which historical Device has been removed from the HAN so that it could be restored if required.

3 Description of Solution

In order to implement the functionality for IRP511 and CRP535 changes are required to the Data Service Provider (DSP) and Parse and Correlate application to provide capability for Users to configure this Alert and use their full functionality. To achieve this, the DUIS and MMC Schemas must be amended.

3.1 DSP Solution

3.1.1 IRP511, Set Clock alert references in alerts table incorrect

This IRP involves introduction of the Set Clock Alert 0x81C6 to the Event log and allows users to identify the need for HAN device fault correction.

DUIS changes are required to add support for 0x81C6 in the following Service Request Variants (SRVs):

- 6.22 Configure Alert Behaviour
- 6.2.10 Read Device Configuration (Event and Alert Behaviours)

If an attempt is made to configure 0x81C6 using SRV 6.22 on a Device running on a version of GBCS prior to v3.2, the Service Request will be rejected using the existing error code E062203.

No changes are required to SRVs 6.11 Synchronise Clock, 6.13 Read Event Or Security Log.

3.1.2 CRP535, Restoring removed devices from the HAN

This CRP is primarily an internal change to CHF processing for adding and removing devices to/from the CHF device log. However, the CHF processing change involves creation of a history of previous device log entries and a new GBCS Use Case CCS07 is introduced to allow the current and historic device log entries to be read by the user.

DUIS changes will be modified to add support for the new Use Case CCS07 in the following SRV:

- 8.9 Read Device Log

If the SR contains the optional input parameter 'ReadHistoric' and is targeted at a Comms Hub running on a version of GBCS v3.2 or later then the new GBCS Use Case CCS07 will be used. If the SR does not include the optional input parameter 'ReadHistoric', then the existing GBCS Use Case CCS06 will be used.

If the SR contains the input parameter 'ReadHistoric' and the target device does not support CCS07 yet (i.e. the device runs on an earlier GBCS version than v3.2), then the Service Request will be rejected using a new error code.

The SRVs 8.11 (Add) and 8.11 (Remove) are not expected to undergo any changes due to CRP535.

3.2 Critical Software Solution

Changes will be required to implement this Modification by Critical Software. The assumption is that the change is to be applied to Parse and Correlate D3-G3-x branches.

3.2.1 Parse and Correlate

Changes to the Parse and Correlate application will include:

- Add new GBCS Use Case 'CCS07 Read CHF Device Logs
- Update the existing GBCS Use Cases related with SR6.22 and SR6.2.10
- New DUIS / MMC schema deployment
- Add test cases to exercise the changes
- Documentation updates and release tasks

3.2.2 GFI Core

To meet the requirements specified above, the GBCS Integration Testing For Industry (GFI) tool will need to implement as follows:

- Implement support for the use case CCS07 on the Reference Test Data Set (RTDS)
- Update the use cases referent to Service Requests 6.22 and 6.2.10 on RTDS
- Update the use cases referent to Service Requests 6.22 and 6.2.10 on GFI Testing Tool
- • Enhance Triage Tool to support CCS07
- • Update Business Scenarios

3.2.3 SMITEn Lite

The changes required to implement this Modification will affect the SMITEn parse service and require the following changes.

- Create a new mapper for CCS07
- Create new Unit tests
- Update the integration test

3.3 Communication Service Provider (CSP) Changes

Design, build and test activities to support the following will be required for CSP South and Central (Telefonica):

- Uplifts to the existing Access Control Broker (ACB) emulator in the Telefónica PIT Testing environment and update configuration in Access Gateway based on GBCS changes
- One full cycle of automated regression test on one firmware variant in the PIT testing environment to ensure that ACB emulator version is in line with the uplifts in this Modification

- Additional PIT test cases to be created related to “IRP511 – Set Clock alert reference in alerts table incorrect” and “IRP535 – Restoring removed devices from HAN” to be included as part of this Modification

Note that if this SEC modification was grouped into a release including other changes to the Telefonica ACB, it is likely the work mentioned above would be covered in the Release CR rather than as a cost for this Modification. At this time, these costs are included in this Modification.

4 Impact on DCC Systems, Processes and People

This section describes the impact of SECMP0093 on DCC Services and Interfaces that impact Users and/or Parties.

4.1 Security Impact

The implementation will be security assured during the implementation phase. This includes reviewing designs, test artefacts and providing consultancy to the implementation and test teams.

No impact on the Protective Monitoring Solution is forecast as a result of this change; nor is any specific penetration testing expected. A more detailed Security impact will be carried out as part of the Full Impact Assessment.

4.2 Request Management

Introduction of the new GBCS Use Case as part of CRP535 will require changes to the implementation of SRV 8.9 to determine the correct GBCS Use Case based on the SRV contents and the GBCS version of the target device. The Response to CCS07 will need to be delivered via a new Response structure.

Request Management will need to implement the two new validation checks introduced within SRV 8.9 Read Device Log.

Request Management will need to perform configuration updates to support the DUIS version increment.

4.3 Data Management

Data Management will require configuration updates to support the new version of DUIS and GBCS.

4.4 Transform

The Transform component will require updating to create the new GBCS Use Case CCS07 when this variant is requested for SRV 8.9 Read Device Log.

4.5 DUGIDS, DUIS, MMC

DUGIDS will be updated to incorporate the changes to Service Request definitions, Response definitions, MMC schema and the DUIS XML schema.

The existing SRV 8.9 Read Device Logs shall be updated to support the GBCS 3.2 Use Case CCS07 for the Comms Hubs. The general attributes of 8.9 Read Device Logs will remain unchanged.

The general attributes of 8.9 Read Device Logs will remain unchanged as shown below.

Service Reference	Service Reference Variant	Name	Critical	Sensitive Response	Protection Against Replay	On Demand	Future Dated	DSP Scheduled	DCC Only	Eligible User Role
6.2	6.2.10	Read Device Configuration (Event and Alert Behaviours)	No	No	No	Yes	No	No	No	EIS GIS ENO
6.22	6.22	Configure Alert Behaviour	No	No	No	Yes	No	No	No	EIS GIS ENO
8.9	8.9	Read Device Log	No	No	No	Yes	DSP	No	No	EIS GIS OU

Table 2: Service Request Matrix extract for the impacted SRVs

The parse response and the MMC XML schema will also be updated for SRV 8.9.

A new error code (E080902) will be introduced to notify the Service Users if the Service Request contains the input parameter 'ReadHistoric' but the targeted device is running on an earlier version of GBCS than v3.2.

As noted above, the CPL is being updated as part of separate work on DCC CR1047.

4.6 Service User Simulator

The new version of MMC schema will introduce a version uplift of Parse and Correlate (P&C) software. The Service User Simulator will be updated to incorporate the latest P&C software.

4.7 Service Impact

This change increases the functionality of the DSP solution through the modification of SRV 8.9. The DSP service team will be required to undergo knowledge transfer from the development, build and test teams to support the functionality and update support documentation.

4.8 Contract Schedules

No impact to any DSP contracts are expected.

5 Implementation Timescales and Approach

Notwithstanding in which release this change is implemented, based on the currently stated requirements, the elapsed time for DSP implementation will be between 6 and 8 months following the provision of full commercial cover.

The release lifecycle duration will be confirmed as part of the Full Impact Assessment (FIA). This work would be part of the next major release to include a DUIS upgrade. As currently planned, the standard ongoing major release model will provide drops to the production environment in November 2020.

5.1 Implementation Approach

Implementation of this change is assumed to follow a waterfall methodology. The release lifecycle duration will be confirmed as part of the FIA.

5.2 Testing and Acceptance

It is assumed that the change will be implemented and tested as part of a major release, and will include release based regression testing in SIT and UIT.

5.2.1 System Integration Testing

The System Integration Testing (SIT) to be performed for this Modification will be based on the following high-level scenario descriptions:

IRP511	Update existing SRV6.22 scenario Comments section with a Set Clock Alert 0x81C6 added to the Event Log.	New negative scenario where the Set Clock Alert is configured on a device running and earlier version of GBCEv3.2 error E062203 is displayed.
CRP535	Existing SRV8.9 scenario to be updated to add in new Use Case CCS07 applicable to CHF only.	New negative scenario where the SR contains "ReadHistoric" and is sent to a CHF that does not support GBCEv3.2 an error message is displayed.

It is expected that SIT testing will take place in the SIT-B environment only.

Note: A full regression test covering different versions of GBCE and DUIS is not included; testing within SIT-B covers the functional change only.

Testing will be carried out across all three SMETS2 Comms Hubs – EDML, Toshiba and WNC. The testing will require two sets of each CH.

In addition to creating and/or updating test scenarios and scripts, the DSP SIT team preparation will include setting up on each Comms Hub the create history of the device logs; each will need a history of previous device entries of removing and adding devices from the CHF.

The following tests will be executed:

1. Execute SRV8.9 against CHF, which is configured to GBCEv3.2 or higher and includes input parameter "ReadHistoric". This will exercise new use case CCS07 and verify the response has additional information in it.
2. Execute SRV8.9 against CHF configured lower than GBCEv3.2 and do not include input parameter "ReadHistoric". This will exercise the CCS06 use case.

3. Execute negative scenario SRV8.9 against CHF configured lower than GBCEv3.2 where the SR contains "ReadHistoric" input parameter; error message E080902 is displayed.
4. Execute SRV6.22 to configure Set Clock Alert on device that is configured to GBCEv3.2 and higher.
5. Execute negative scenario SRV6.22 where the Set Clock Alert is configured on a device running on an earlier version of GBCEv3.2; error message E062203 is displayed.
6. Execute SRV 6.2.10 to read the Device Configurations

The uplifted Service User Simulator (SUS) will be employed during SIT testing.

5.2.2 User Integration Testing (UIT)

The User Integration Test (UIT) projects team will plan, prepare and develop a series of tests against two types of Comms Hubs from three different meter manufacturers (EDMI, WNC and Toshiba) with real meters and devices.

The test scope will be defined in the associated UIT Test Plan for this Modification. The agreed tests will utilise meter sets located in the DCC Manchester Test Lab with Comms Hubs at R2.0 and for single band Comms Hubs.

The Install and Commission business process will be run with each Comms Hub / meter combination (as required and confirmed by the DCC) to test CRP535.

Tests will be executed only on the UIT-B environment.

6 Costs and Charges

The table below details the cost of delivering the changes and Services required to implement this Modification Proposal.

The scope of supply under this PIA includes design, development (build), system testing, and performance testing within the PIT environments.

The Rough Order of Magnitude cost (ROM) shown below describes indicative costs to implement the functional requirements as assumed now. The price is not an offer open to acceptance. It should be noted that the change has not been subject to the same level of analysis that would be performed as part of a Full Impact Assessment and as such there may be elements missing from the solution or the solution may be subject to a material change during discussions with the DCC. As a result the final offer price may result in a variation.

6.1 Design, Build, and Testing Cost Impact

The table below details the cost of delivering the changes and Services required to implement this Modification. For a PIA, only the Design, Build and PIT indicative costs are supplied.

£	Design, Build and PIT	SIT	UIT	TTO	App. Support	Total
Phase ROM	£245,000	n/a	n/a	n/a	n/a	£245,000

Design	The production of detailed System and Service designs to deliver all new requirements.
Build	The development of the designed Systems and Services to create a solution (e.g., code, systems, or products) that can be tested and implemented. It includes Unit Testing (also referred to as System Testing), Performance Testing and Factory Acceptance Testing by the Service Provider or supplier.
Pre-Integration Testing (PIT)	Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC. The phase also includes regression testing across Comms Hubs.
Systems Integration Testing (SIT)	All the Service Providers' PIT-complete solutions are brought together and tested as an integrated solution, ensuring all SP solutions align and operate as an end-to-end solution. The System Integrator is responsible for leading this phase with the Service Providers offering testing support services.
User Integration Testing (UIT)	Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change. The DCC is responsible for leading this phase with the Service Providers offering testing support services.

Implementation to Live (TTO)	The solution is implemented into production environments and ready for use by Users as part of a live service. The Transition to Operations (TTO) service is subject to implementation costs.
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Application Support	Any costs associated with supporting the new functionality.
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Based on the existing requirements, the fixed price cost for a Full Impact Assessment is **£22,681** and would be expected to be completed in 30 days.

Appendix A: Glossary

The table below provides definitions of the terms used in this document.

.Acronym	Definition
ACB	Access Control Broker
BEIS	Department for Business, Energy & Industrial Strategy
CH, Comms Hub	Communications Hub
CHF	Communications Hub Function
CPL	Central Product List
CR	(DCC) Change Request
CRP	Change Request Proposal
CSP	Communication Service Provider
DCC	Data Communications Company
DSP	Data Service Provider
DUIS	DCC User Interface Specification
FIA	Full Impact Assessment
GBCS	Great Britain Companion Specification
GFI	GBCS Integration Testing For Industry
GSME	Gas Smart Metering Equipment
HAN	Home Area Network
I&C	Installation and Configuration
IRP	Issue Resolution Proposal
MMC	Message Mapping Catalogue
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
ROM	Rough Order of Magnitude (cost)
RP	Resolution Proposal
RTDS	Reference Test Data Set
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SMETS	Smart Metering Equipment Technical Specification
SMITEn Lite	Smart Metering Integrated Test Environment Lite
SP	Service Provider
SR	Service Request
SRV	Service Request Variant
TSAT	Technical Specification Applicability Tables
TTO	Transition to Operations
UIT	User Integration Testing