SEC Modification Proposal, SECMP0143, DCC CR4472

Incorporating IRPs into the GBCS Version 3 Series

Preliminary Impact Assessment (PIA)

Version:	**0.3**
Date:	**29th October, 2021**
Author:	**DCC**
Classification:	**DCC PUBLIC**

Data Communications Company

Contents

1 Executive Summary

The Change Board are asked to approve:

- Total cost to complete the Full Impact Assessment of £6,114
- The timescale to complete the Full Impact Assessment of 30 working days
- ROM costs for SECMP0140 up to the end of Pre-Integration Testing (PIT) of up to £150,000

Problem Statement and Solution

During the development of SECMP0098, it was identified there was no material benefit to implement the 18 GBCS impacting IRPs into the GBCS version 3.x series.

During development of SECMP0143 it has become apparent that SEC Parties only require certain IRPs to be included within the GBCS version 3.x series.

Benefits

The main beneficiaries of the change will be Device Manufacturers who believe their Devices will not be compliant with the Commercial Product Assurance (CPA) scheme if some of these IRPs (IRP589, IRP596, IRP623 and IRP631) are not incorporated into the GBCS version 3.x series. Industry discussion, primarily from meter manufacturers, has noted there should be an option to implement these IRPs into the GBCS version 3.x series in a future SEC Release.

Device Manufactures believe their Devices will not be compliant with the CPA if some of these IRPs are not incorporated into the GBCS version 3.x series.

The solution accommodates the changes in GBCS 3.3 to meet device manufacturer needs, but as all the IRPs are Category 3, document-only changes which do not require any Comms Hub firmware changes, there is no impact on the Communications Service Providers (CSPs). This means current and future deployed Comms Hub firmware versions will work successfully with any devices which will support GBCS 3.3. Some relatively minor changes are required in the DSP to support Central Products List and Service Request processing.

2 Document History

2.1 Revision History

Revision Date	Revision	Summary of Changes
04/10/2021	0.1	Initial version, DCC and DSP review
28/10/2021	0.3	Changed scope and solution

2.2 Associated Documents

This document is associated with the following documents:

Ref	Title and Filename	Source	Issue Date
1	MP143-Business Requirements-1.0	SECAS	20/10/2021
2	MP143 Modification Report v0.4.pdf	SECAS	20/10/2021

References are shown in this format, [1].0

2.3 Document Information

The current Proposer for this Modification is Terry Jefferson, Energy and Utilities Alliance (EUA). The original proposal was submitted on 21st August 2020.

An initial Preliminary Impact Assessment was requested of DCC on 14th August 2021. However the requirements were changed slightly and a new PIA request was accepted by the DCC on 27th October, 2021.

3 Context and Requirements

In this section, the context of the Modification and requirements are stated.

The problem statement and requirements have been provided by SECAS and the Proposer.

3.1 Problem Statement

SECMP098 'Incorporation of multiple Issue Resolution Proposals into the SEC - Batch 3' was implemented in the November 2020 SEC Release. It incorporated 20 non-Data Communications Company (DCC) System impacting Issue Resolution Proposals (IRPs) into the GB Companion Specification (GBCS) v4.0 and the Smart Metering Equipment Technical Specifications (SMETS) 2 documents of that release.

During the development of MP098, there was no material benefit to implement the 18 GBCS impacting IRPs into the GBCS version 3.x series. SEC Parties would like to incorporate these 18 IRPs into the GBCS v3 series as and when a material change necessitates an uplift to the next GBCS v3.x.

During development of SECMP0143 it has become apparent that SEC Parties only require certain IRPs to be included within the GBCS version 3.x series.

3.2 Business Requirements

This section contains considerations and assumptions for the business requirement.

Req.	Requirement
1	The following non-DCC System impacting Issue Resolution Proposals (IRPs) shall be included in the GB Companion Specification (GBCS) v3.x series: • IRP589 'CS02b authentication sequence' • IRP596 'TRANSCOS execution counters' • IRP623 'Read ALCS Event Log values v2' • IRP631 'Table 7 3 8 - Correction of Inconsistency' • IRP642 'Reclarifying trigger for Alert Code 8F69'

Table 1: Business Requirements for SECMP0143, CR4472

IRP589 and IRP596 have already been implemented into GBCS v4.0 in the November 2020 SEC Release. However, both IRPs are recognised by Device manufacturers as essential for inclusion in GBCS v3.x as well, to ensure Devices operating on GBCS v3.x are CPA compliant.

IRP623 and IRP631 were previously include in SECMP0158 'Incorporation of multiple Issue Resolution Proposals into the SEC – Batch 5'. However, as the IRP documents for each of these IRPs explicitly stated the changes needed to be applied GBCS v3.x, both IRPs were moved to this MP143.

IRP642 'Reclarifying trigger for Alert Code 8F69' states that it should be included within GBCS v3.x as well as GBCS v4.x. Therefore, IRP642 will be included within MP143 to carry the GBCS v3.x changes. It will also be included within a new Draft Proposal but only for the GBCS v4.x changes. This is to maintain efficiency and to limit the number of new GBCS versions for each series. Industry discussion, primarily from meter manufacturers, has noted there should be an option to implement these IRPs into the GBCS version 3.x

series in a future SEC Release. This was not part of the implementation approach consulted upon in SECMP098.

Device Manufactures believe their Devices will not be compliant with the CPA if some of these IRPs are not incorporated into the GBCS version 3.x series.

3.3 Scope

The IRPs included in this proposal are the same GBCS impacting IRPs included in MP098 (IRP589 and IRP596) and three further IRPs (IRP623, IRP631 and IRP642) that were identified as needing implementation into GBCS version 3.x series. The remaining IRPs from SECMP0158 and SECMP098 are no longer in scope of this modification. The IRPs that remain in scope are listed in the table below. The individual IRP details can be found in Appendix B.

There is no stated requirement for Comms Hub Firmware and Comms Hubs to be GBCS 3.3 compliant. In general, this solution will be applicable to SMETS2 Devices.

4 Description of Solution

This section describes the DCC approach to supporting the included IRPs in GBCS 3.3, and the Service Provider changes to accommodate these changes.

4.1 Implementation Overview

Any changes required for a new GBCS 3.3 version can be accommodated in the DCC Total System by some relatively minor changes at the DSP, but the CSP impact can be significantly limited by making the case for the Comms Hub firmware to not be compliant with GBCS 3.3. The solution can be looked at with a CSP perspective as follows:

- IRP589, IRP596 are already in GBCS 4.0
- IRP623, IRP631 and IRP642 are planned to be included in GBCS 4.1
- All the IRPs are Category 3, document-only changes which do not require any Comms Hub firmware changes.
- The current GBCS 3.2 or GBCS 2.1 Comms Hub firmware are compliant to these IRPs. This means currently deployed Comms Hub firmware versions will work successfully with any devices which will support GBCS 3.3.
- Once the Comms Hub firmware is compliant to GBCS 4.1, this will mean the Comms Hub firmware is compliant in terms of these IRPs.

The upside of this approach is that neither CSP will need to create a new branch of Comms Hub firmware specific they won't need to create or implement GBCS 3.3 compliant Comms Hub firmware. Any CSP-specific document changes are covered in the GBCS 4.1 workstream and would not need to be included in this Modification.

An alternative approach of creating a new Comms Hub firmware code branch requiring full implementation and testing would give little positive benefit, have a very high associated cost, introduce more work in Comms Hub firmware area, and would not be delivered in the short to medium term. Any delivery of Comms Hub firmware compliant to another firmware version would be a significant change to DCC's policy and plans to release future firmware release. In addition, industry, through the GBCS Working Group, were extremely reluctant to take on the extra costs and minimal benefits associated with a GBCS 3.3.

Given the nature of the proposed changes in this Modification, DCC are proposing a different approach to implementing these IRPs and supporting Comms Hubs in the DCC Total System.

1. There will be no requirement for CSP North or CSP South and Central to support GBCS 3.3 compliant Comms Hubs nor GBCS 4.0 compliant Comms Hubs in the Central Products List (CPL).
2. Any Comms Hub upgrade path will be from GBCS 3.2 to GBCS 4.1 directly.
3. There will be testing requirements to ensure GBCS 3.2 and GBCS 4.1 Comms Hubs are interoperable and compatible with GBCS 3.3 and GBCS 4.1 devices, including meters, PPMIDs, SAPCs etc).

4.2 DSP Changes

DSP changes to support the GBCS 3.3 for CPL validation and Command creation are required as follows:

- The Central Products List processing needs to recognize GBCS 3.3 as a valid GBCS version
- Service Request processing requires mappings of GBCS Use Cases for GBCS v3.3 (which will be the same as GBCS v3.2)
- Regression testing in SIT related to device testing ensures GBCS 3.3 compliant devices will be supported by DCC with a different version of DUIS

DSP have to record the full GBCS version from the CPL and also has to create a mapping table for every GBCS version.

4.2.1 Security Impact

No changes are expected to the existing DSP security controls as a result of this change. A more detailed Security impact will be carried out as part of the Full Impact Assessment.

4.2.2 Infrastructure Impact

There will be no change to the infrastructure design as a result of this change. Additional processing and storage will be required; however, these are not sufficiently large to warrant the procurement of additional compute power or storage as part of this Modification. Note that the aggregated impact of many such changes to the DSP solution will ultimately result in a reduction of the available processing headroom assumed as part of the original DSP agreement. As such, DSP may need to raise a Change Request (CR) for the provision of additional infrastructure should the DCC Total System experience performance problems that are the direct result of such changes.

The change does not impact the DSP resilience or Disaster Recovery implementation.

4.2.3 Integration Impact

An initial estimate of the costs for PIT testing of the Modification is included in this PIA.

This change will require additional testing in SIT, but should not require any additional testing in UIT.

Specific tests would need to be executed against the new increment of GBCS. SIT testing would involve execution of approximately 140 tests, following on from some test preparation work. SIT costs are not included in this PIA, and would be included in any FIA.

4.2.4 Application Support

No changes to Application Support are expected.

4.3 CSP Changes

Using the approach detailed above, there is no requirement for CSP North or CSP South and Central and TEF to have GBCS 3.3 compliant Comms Hub nor GBCS 4.0 compliant Comms Hubs declared in the CPL. The Comms Hub upgrade path will be GBCS 3.2 to GBCS 4.1 directly.

In addition the interoperability requirement for GBCS 3.2 Comms Hubs working with GBCS 3.3 and GBCS 4.1 devices and GBCS 4.1 Comms Hubs working with GBCS 3.3 devices is not high impact and the likelihood of issues is relatively low. Provisional testing plans are shown in the following table.

	GBCS 3.3 Devices	**GBCS 4.1 Devices**
GBCS 3.2 Comms Hub	No interoperability problem expected. Potential SIT testing as part of SECMP0143.	No interoperability problem expected. Could use SLS emulator for Testing
GBCS 4.1 Comms Hub	No interoperability problem expected. Covered by SIT testing as part of the GBCS 4.1 Comms Hub firmware release using SLS emulator.	As part of GBCS 4.1 CH FW delivery, a SLS emulator will be used in post-PIT testing, specifically to test CRP613.

Table 2: Device and Comms hub Interoperability

GBCS 4.1 Comms Hub development and test is not in scope of this Modification, and is being handled in other DCC Change Requests.

5 Implementation Timescales and Approach

Notwithstanding in which release this change is implemented, and based on the currently stated requirements, the elapsed time for DSP implementation will be approximately three (3) months following the provision of full commercial cover, as part of the CAN signature process.

The release lifecycle duration will be confirmed as part of the FIA.

6 Costs and Charges

The scope of supply under this PIA includes design, development (build), system testing, and 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. This change has not been subject to the same level of analysis that would be performed as part of a FIA and as such there may be elements missing from the solution or the solution may be subject to a material change. As a result the final offer price may result in a variation.

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, DSP Cost Range
SECMP0143	£0 - £150,000

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.

It should be noted that post-PIT testing costs are not expected to take this Modification outside of this range.

Based on the existing requirements, the fixed price cost for a Full Impact Assessment is **£6,114** and would be expected to be completed in 30 working days.

6.1 Contract and Schedule Changes

Updates to the Design Baseline (Schedule 4.1) and Payment milestones (Schedules 6.1 and 7.1) are anticipated for this Modification.

Appendix A: Glossary

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

Acronym	Definition
CH, Comms Hub	Communications Hub
CPA	Commercial Product Assurance
CPL	Central Products List
CR	DCC Change Request
CSP	Communications Services Provider
DCC	Data Communications Company
DSP	Data Service Provider
EUA	Energy and Utilities Alliance
FIA	Full Impact Assessment
GBCS	GB Companion Specification
IRP	Issue Resolution Proposal
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
PPMID	PrePayment Meter user Interface Device
ROM	Rough Order of Magnitude (cost)
SAPC	Standalone Auxiliary Proportional Controller
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SMETS	Smart Metering Equipment Technical Specification
SRV	Service Request Variant
UIT	User Integration Testing

Appendix B: IRP Information


IRP589 CS02b authentication seque


IRP596 TRANSCOS execution counters.


IRP623 Read ALCS Event Log values v2


IRP631 Table 7 208 - Correction of Incon


IRP642 Reclarifying trigger for Alert Cod

Note that IRP589 and IRP596 have already been implemented into GBCS v4.0 in the November 2020 SEC Release.

IRP #	Issue	Impact
IRP623	Clarification is required regarding whether the 'control HAN connected Auxiliary Load Control Switch (ALCS)' command, issued from the ESME to an ALCS or a HAN Connected Auxiliary Load Control Switches (HCALCS), has an associated entry in the ALCS Event Log for both calendar driven events and remote party commands.	This is causing ambiguities in the scenarios in which the Device is meant to record entries into the ALCS Event Log.
IRP631	The Device Language Message Specification (DLMS) Device Requirements (for ESME) which are contained in GBCS v4.0 are not reflected in GBCS v3.x. This IRP aims to incorporate the changes in DLMS Device Requirements (for ESME) that have been baselined on GBCS v4.0 into GBCS v3.x.	This is causing inconsistency between GBCS v4.x and GBCS v3.x.
IRP642	The Alert with Alert Code 0x8F69 need only be sent when a GSME first establishes full communications with a CHF, so has first completed CBKE and tunnel establishment. The GBCS text does not specify this.	Devices could be designed to send Alerts for every tunnel establishment.