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MP099

‘Incorporation of multiple Issue Resolution Proposals into the SEC – Batch 4’

Modification Report

Version 1.0

19 April 2021

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About this document

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

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This document also has four annexes:

- **Annex A** contains the business requirements for the solution.
- **Annex B** contains the redlined changes to the Smart Energy Code (SEC) required to deliver the Proposed Solution.
- **Annex C** contains the full Data Communications Company (DCC) Impact Assessment response.
- **Annex D** contains the full responses received to the Refinement Consultation.

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1. Summary

This proposal has been raised by Chun Chen from the DCC.

Issue Resolution Proposals (IRPs) identify and resolve issues in the Technical Specifications documents of the SEC. The IRPs contained in this document have been identified as DCC System impacting and have been requested to be progressed as a Modification Proposal for implementation into the SEC. Implementation of these IRPs ensures that Devices will operate as intended.

There are two IRPs included in this modification. The first (IRP571) is aimed at ensuring the Gas Proxy Function (GPF) does not share historical data with other Home Area Network (HAN) Devices, where the Device has no meaningful time and where there has been at least one Change of Tenancy (CoT) recorded on the Device since installation. The second (IRP586) is to ensure the GPF will align to the Great British Companion Specification (GBCS) requirements when providing snapshots to HAN Devices. It is also to ensure the Gas Smart Metering Equipment (GSME) will align to Zigbee standards.

The Proposed Solution is to incorporate these IRPs into the SEC.

The total cost to implement this modification will approximately be £307,683 and require a timescale of eight months to complete. It will impact Large Suppliers, Small Suppliers, Other SEC Parties and the DCC. This modification will be targeted for the November 2022 SEC Release, if approved as a Self-Governance Modification.

2. Issue

What are the current arrangements?

IRP571

Currently, the GPF and the Electricity Smart Metering Equipment (ESME) pick up data consumption information so long as those Devices have a Greenwich Mean Time (GMT) timestamp attached to them. This data information is then stored and shared across other HAN Devices.

IRP586

Currently, the GBCS explicitly requires that, when reading logs, log entries returned are inclusive of any with a time stamp equal to the 'toDateTime' command. However, in the Zigbee Specification there are several cases which are open to interpretation regarding the inclusivity and exclusivity of time stamp which is causing inconsistency. As a result, the ESME, the GSME and the GPF are not behaving in the same way when returning time stamp values.

What is the issue?

IRP571

The issue is where there are edge cases, such as briefly after a power restoration at a premise, the Devices might not have a GMT timestamp attached to the data consumption. This issue is being applied to historical data on Devices.

IRP586

There is an inconsistency on the 'EndDateTime' value in the GBCS command. There is a second missing on the time value stamp.

The IRPs included in this proposal, listed below, require changes to the GBCS with initial key impacts identified by Smart Energy Code Administrator and Secretariat (SECAS) in the table below.

What is the impact this is having?

IRP571



The impact is there is a risk of historical information, such as data consumption by a previous tenant of the premise, being shared across HAN Devices. This causes a General Data Protection Regulation (GDPR) issue. Furthermore, there is a chance that In Home Devices (IHD) could display data consumption associated with an incorrect time. This would impact the consumer as it would be providing misleading data information thus preventing them from changing tariffs to benefit them.

IRP586

The impact is the GSME log entries, with an invalid time, will not be captured and read accordingly. It will also continue to be different to the way the ESME and GPF log entries are read. This will cause inconsistency on the data consumption reading for GSME, which will reflect inaccurate data. Currently, the lack of clarification in the command which is open to interpretation is causing inconsistency.

Impact on consumers

This change will benefit consumers as they will have the most up to date Devices according to the Technical Specification.

Proposed IRPs							
IRP number	IRP title	Impacted Technical Specification	IRP document	Impacted Users	Devices Impacted	Complexity	Notes
IRP571	Historic Data when Device does not know the time	GBCS	 IRP571 Historic Data when Device does not	<ul style="list-style-type: none"> Gas Suppliers Electricity Suppliers 	<ul style="list-style-type: none"> GSME ESME 	Low	Limited / no impact on GS.
IRP586	Modify use cases so ESME GSME & GPF behave in the same way (exclusion options)	GBCS	 IRP586 Modify use cases so ESME GSME	<ul style="list-style-type: none"> Gas Suppliers 	<ul style="list-style-type: none"> GPF 	Middle	impact on Users. impact on GPF.

3. Solution

Proposed Solution

IRP571

The proposed solution is to ensure the GBCS specifies that the GPF and ESME should not share historical data with other HAN Devices. This rule will be applied in the instances where the Device has no meaningful time and where there has been at least one change of tenancy recorded on the Device since installation.

IRP586

The proposed solution is to ensure the GBCS is explicit that the GPF will align to GBCS and ESME requirements for remote Party commands and when providing snapshots to HAN Devices. The proposed solution will also ensure the GSMEs will align to Zigbee standards.

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

Breakdown of Other SEC Party types impacted			
	Shared Resource Providers		Meter Installers
✓	Device Manufacturers		Flexibility Providers

Suppliers and Other SEC Parties are impacted as they would potentially require additional firmware for Devices. This would then require further testing from a User perspective. A new firmware version, which would require testing, would incur costs around testing, piloting, and deployment.

A Large Supplier responded to the Refinement Consultation supporting the content of the solution put forward and agreed that it should be implemented. However, the Large Supplier highlighted the creation of new sub-versions of GBCS would require all Devices installed compliant with the previous sub versions to be upgraded.

The concern raised by the Large Supplier applied to Devices that could not be upgraded, which would mean that it would no longer be compliant with Supplier obligations to maintain Devices to a valid version of the Technical Specifications.

DCC System

The implementation of these IRPs will impact both Communication Service Providers (CSPs) and the Data Service Provider (DSP). The DCC has highlighted the following anticipated areas of impact:

- GBCS Integration Testing For Industry (GFI) tool
- The Communications Hub Detailed Specification (CH02)

The full impacts on DCC Systems and the DCC's proposed testing approach can be found in the DCC Impact Assessment response in Annex C.

SEC and subsidiary documents

The following parts of the SEC will be impacted:

- Schedule 8 'Great Britain Companion Specifications' (GBCS)
- Schedule 11 'Technical Specifications Applicability Tables' (TSAT)

The changes to the SEC required to deliver the Proposed Solution can be found in Annex C.

Technical specification versions

These changes will be applied to the next Sub-Version of the following Technical Specification series at the time the modification is implemented:

- GBCS v4.x

These changes will also be applied to any new Principal Versions of this document that subsequently become effective on or before the MP099 implementation date.

Consumers

Without these corrections being implemented, Manufacturers are impacted as their Devices are unable to provide an accurate service to consumers.

Other industry Codes

No impacts on other industry Codes have been identified.

Greenhouse gas emissions

No impacts on Greenhouse gas emissions have been identified.

5. Costs

DCC costs

The total DCC implementation cost to implement this modification is £307,683. The breakdown of these cost are as follows:

Breakdown of DCC implementation costs	
Activity	Jun 22 Release cost
Design, Build and Pre-Integration Testing (PIT)	£188,446
Systems Integration Testing (SIT)	£89,238
User Integration Testing (UIT)	NIL
Implement to Live	NIL

More information can be found in the DCC Impact Assessment response in Annex C.

SECAS costs

The estimated 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

One respondent to the Refinement Consultation advised they would incur cost through testing of new firmware Devices. They highlighted the cost will be higher if they were required to upgrade Devices which they already installed to be compliant with the new version of the GBCS.

6. Implementation approach

Agreed implementation approach

Panel has agreed an implementation date of:

- **3 November 2022** (November 2022 SEC Release) if a decision to approve is received on or before 3 March 2022.

As the change impacts Technical Specifications, the modification should be implemented in a SEC Release that included an uplift to those documents. The next SEC Release that is targeted to include new versions of the GBCS is the November 2022 SEC Release.

If, following a decision and allowing enough lead time, an earlier Release is approved to make updates to the relevant Technical Specifications, the Panel may request that this modification be moved to that Release. The DCC's total lead time to implement this change, including the post-PIT stages, is eight months.

7. Assessment of the proposal

Observations on the issue

Views of the TSIRS

The issues and the solutions have been discussed and agreed upon by the TSIRS. Although the TSIRS is a Department of Business, Energy, and Industrial Strategy (BEIS) led group, various SEC Parties are represented. The TSIRS agreed the solutions and agreed they should be implemented into the SEC.

Views of the Change Sub-Committee

The Change Sub-Committee (CSC) agreed that this Draft Proposal clearly outlines an issue.

The CSC believed that this should be able to catch up and be combined with [MP078 'Incorporation of multiple Issue Resolution Proposals into the SEC - Part 2'](#), if the DCC could deliver the DCC System changes required in time. However, the progress of MP078 has fallen behind that of MP099 but both are still targeted for the November 2022 SEC Release.

Solution Development

The issues and the solutions have been discussed and agreed upon by the TSIRS. Although the TSIRS is a BEIS led group, various SEC Parties are represented. The TSIRS agreed the solutions and agreed they should be implemented into the SEC.

SECAS presented MP099 to the Working Group who noted the costs and lead time outlined in the DCC Impact Assessment. A Working Group member advised the business benefit case for IRPs is correcting defects that have been identified. It was suggested at the Working Group that IRPs should take a different approach whereby a justification is not required as they have been approved and

passed through the TSIRS. However, SECAS advised members the modification process requires a business case to justify the changes it is proposing to make. Members of the Working Group commented that business cases are not discussed at TSIRS. SECAS acknowledged the comments received from the Working Group regarding the business case and followed up with the BEIS TSIRS representative why the TSIRS believed these IRPs need to be implemented via a modification. This information can be found under the 'business case' section below.

Views of Sub-Committees

SECAS presented MP099 and the Impact Assessment findings to the Technical Architecture and Business Architecture Sub-Committee (TABASC) for feedback. The TABASC highlighted that given MP099 includes changes to the GPF, this modification would be best implemented along with all other Communication Hub changes, which at the time was expected to be the June 2022 SEC Release.

The TABASC members queried whether the Network Evolution Communications Hub will have this modification built into it. The DCC advised that the Network Evolution Communications Hub will have the functionality built in and will not require any additional changes.

SECAS also presented MP099 to the Security Sub Committee (SSC) regarding IRP571 which demonstrated a security and privacy concern. The SSC agreed the IRP was an edge case and Suppliers were accepting of the issue. The DCC SSC representative confirmed the level of risk associated with IRP571 is very low. The SSC agreed it did not require any further risk assessment on this IRP.

Support for Change

Working Group

The Working Group agreed that these IRPs need to be implemented to resolve the identified issues.

Business case

These IRPs add clarity and corrections to the Technical Specifications documents. Device manufacturers are required to follow these Specifications when developing or maintaining their Devices. Therefore, any errors or miscommunication of these Specifications will mean the Device will not work as intended. Implementing MP099 will benefit the industry as Devices will be performing accurately. It will also add clarity and consistency across the Specification.

Views against the General SEC Objectives

Proposer's views

The Proposer believes that MP099 would better facilitate SEC Objective (a)¹, as these IRPs resolve issues with the Technical Specifications which are the minimum requirements for Device manufacturers.

¹ Facilitate the efficient provision, installation, operation and interoperability of smart metering systems at energy consumers' premises within Great Britain

Industry views

One response was received to the Refinement Consultation. A Large Supplier believed the modification should be approved as these IRPs resolve issues within the Technical Specification and will ensure Devices operate correctly. However, the Large Supplier did state it would be impacted if MP099 was implemented. It advised it would need to ensure Devices it procures and is responsible for are compliant with the new version of the GBCS. The Large Supplier did remain supportive of the MP099 and agreed the modification effectively facilitates the SEC Objective.

Views against the consumer areas

Improved safety and reliability

The change is neutral against this area.

Lower bills than would otherwise be the case

The change is neutral against this area.

Reduced environmental damage

The change is neutral against this area.

Improved quality of service

This implementation will have a positive impact as manufacturers will have access to the most up to date Technical Specification which are accurate and consistent. This will enable manufacturers to develop or enhance their Devices using the guidance provided from these specifications. The quality of service their Device provides will benefit their customers as the Devices will operate as they should per the Technical Specification.

Benefits for society as a whole

The change is neutral against this area.

Appendix 1: Progression timetable

This Modification Report will be presented to the Panel on 16 April 2021. A Modification Report Consultation (MRC) will then be issued before the Modification is presented to Change Board for vote.

Timetable	
Action	Date
Draft Proposal raised	12 Dec 2019
Presented to CSC for comment and recommendations	2 Jan 2020
Panel converts Draft Proposal to Modification Proposal	17 Jan 2020
Preliminary Assessment requested	3 Feb 2020
Preliminary Assessment returned	17 Mar 2020
Modification discussed with Working Group	1 Apr 2020
Refinement Consultation	17 Apr – 11 May 2020
Impact Assessment requested	29 Apr 2020
Impact Assessment returned	21 Dec 2020
Modification discussed with TABASC	4 Feb 2021
Modification discussed with Working Group	3 Mar 2021
Modification discussed with SSC	10 Mar 2021
Modification Report approved by Panel	16 Apr 2021
Modification Report Consultation	19 Apr – 10 May 2021
Change Board Vote	26 May 2021

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 of Business, Energy, and Industrial Strategy
CoT	Change of Tenancy
CH02	Communications Hub Detailed Specification
CSC	Change Sub-Committee
CSP	Communication Service Provider
DCC	Data Communications Company
DSP	Data Service Provider
ESME	Electricity Smart Metering Equipment
GBCS	Great Britain Companion Specification
GDPR	General Data Protection Regulation
GFI	GBCS Integration Testing For Industry

Glossary	
Acronym	Full term
GMT	Greenwich Mean Time
GSME	Gas Smart Metering Equipment
GPF	Gas Proxy Function
HAN	Home Area Network
IHD	In Home Devices
IRP	Issue Resolution Proposal
PIT	Pre-Integration Testing
MRC	Modification Report Consultation
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SSC	Security Sub Committee
TABASC	Technical Architecture and Business Architecture Sub-Committee
TSIRS	Technical Specifications Issue Resolution Sub-Group
TSAT	Technical Specifications Applicability Tables
UIT	User Integration Testing

MP099 ‘Incorporation of multiple Issue Resolution Proposals into the SEC - Batch 4’

Annex A

Business requirements – version 1.0

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 each Issue Resolution Proposal (IRP) contained within MP099 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 IRP571 'Historic Data when Device does not know the time'
2	DCC System changes for IRP586 'Modify use cases so ESME GSME & GPF behave in the same way (exclusion options)'

2. Considerations and assumptions

2.1 General

This section contains the considerations and assumptions for each business requirement. These are excerpts from each of the Issue Resolution Proposals (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.

2.2 Requirement 1: DCC System changes for IRP571 'Historic Data when Device does not know the time'

To avoid the risk of sharing historic data with other Home Area Network (HAN) Devices, that may relate to a prior tenant, the proposed drafting is that the Gas Proxy Function (GPF) and Electricity Smart Metering Equipment (ESME) should not share historic data from this store with other HAN Devices where:

- The Device has no meaningful time; and
- There has been at least one change of tenancy recorded on the Device since its installation.

2.3 Requirement 2: DCC System changes for IRP586 'Modify use cases so ESME GSME & GPF behave in the same way (exclusion options)'

SEC Schedule 8 'GB Companion Specifications' (GBCS) explicitly requires that, when reading logs, the log entries returned are inclusive of any with a timestamp equal to the 'toDateTime' in the Command. And ZigBee is, in a number of cases, explicit on inclusivity, open to interpretation as to such inclusivity or exclusivity and, in one case, at odds with it.

This IRP is to add drafting in GBCS to make explicit that:

- For GPF the behaviour is to align to the GBCS requirements and so to ESME, in relation both to Remote Party Commands to read logs and in supporting GetSnapshot and GetPrepaySnapshot as a server (so when providing snapshots to HAN Devices);
- For Gas Smart Metering Equipment (GSME) the behaviour is to align to ZigBee, and so be different than GPF and ESME. This affect Use Cases GCS15b, GCS15c, GCS16a, GCS16b, CS10a and CS10b which would explicitly state that GSME return entries exclusive of the 'toDateTime', unlike other Devices.

Note that, with this resolution, it would not be possible to retrieve, from the GSME Billing Data Log (consumption registers), GSME Security Log, GSME Event Log, GSME Daily Read Log or GSME Prepayment Daily Read Log entries with a timestamp value meaning 'unknown' (so 0xFFFFFFFF in ZigBee).

Please refer to the IRP586 document for full details and what the GBCS Work Group expects of the Data Service Provider (DSP).

3. Glossary

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

Glossary	
Acronym	Full term
DCC	Data Communication Company
DSP	Data Service Provider
ESME	Electricity Smart Metering Equipment
GBCS	GB Companion Specifications
GPF	Gas Proxy Function
GSME	Gas Smart Metering Equipment
HAN	Home Area Network
IRP	Issue Resolution Proposal

SEC Modification Proposal, SECMP0099

DCC Change Request 1297

**Incorporation of Multiple Issue Resolution
Proposals (IRPs) into the SEC – Batch 4
Full Impact Assessment (FIA)**

Version:

0.3

Date:

9th December, 2020

Author:

DCC

Classification:

DCC Public

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1 Executive Summary

The Change Board are asked to approve the following:

- Total cost to implement SECMP0099 of £307,683 (see section 6.2 for a breakdown) as a standalone release
- The timescales to complete the implementation of eight (8) months
- Include SECMP0099 as part of the November 2021 SEC Systems Release

Benefit Summary

IRPs 571 and 586 add clarity and corrections to the Technical Specifications documents. Device manufacturers are required to follow these documents for the specifications of their Devices.

The solution for IRP571 will ensure the proposed drafting for the GPF and ESME should not share historic data from this store with other HAN Devices where:

- The Device has no meaningful time
- There has been at least one change of tenancy recorded on the Device since installation

The solution for IRP586, using drafting in GBCS will make it explicit that:

- The GPF will align to GBCS requirements and an ESME for Remote Party Commands and when providing snapshots to HAN devices
- GSMEs will align to Zigbee standards and are different from GPF and ESMEs

It should be noted that these issues have already been addressed by defect fixes in CSP North devices, and as part of this Modification, CSP North will make no cost changes to their documentation.

2 Revision History

Revision Date	Revision	Summary of Changes
15/07/2020	0.1	Initial compilation from Service Provider
20/11/2020	0.2	Challenge by DCC, Service Providers publish new version.
9/12/2020	0.3	DCC internal review completed

2.1 Associated Documents

This document is associated with the following documents:

#	Title and Originator's Reference	Source	Issue Date
1	MP099 Business-Requirements	SECAS	19/02/2020
2	DP099 Problem-Statement	SECAS	12/12/2019
3	SECMP0099 CR1297 – PIA – IRPs into SEC Part 4 v0.5	DCC	16/04/2020

2.2 Document Information

The Proposer for this Modification is Chun Chen of SmartDCC. The original proposal was submitted on the 12th December 2019.

The Preliminary Impact Assessment (PIA) was requested of DCC on 4th February 2020, and submitted on 16th April, 2020.

The Full Impact Assessment was requested on the 11th May 2020. Initial responses from the Service Providers were challenged on the basis of costs and content and resulted in the further releases of the FIA responses by both CSP North as well as CSP South and Central.

This document should be treated as a Confidential document and must be treated as a RED basis for SECAS distribution.

3 Solution Requirements and Overview

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

The SEC Definitions, issue statement, and requirements following have been provided by SECAS, TSIRS and the Proposer.

3.1 Context

Issue Resolution Proposals (IRPs) identify issues within the SEC Technical Specification documents and put forward a solution to the identified problem. In the early stages of the Smart Metering Implementation Program, BEIS took the lead in developing the Technical Specifications that sit under the SEC. As part of this, BEIS also took responsibility for receiving and responding to issues raised internally, by the DCC, and by other interested industry parties. Since its inception, several hundred issues have been raised in relation to technical specifications under the SEC through the Technical Specification Issue Resolution Sub-Group (TSIRS). In some cases, these queries have been resolved by providing an explanation of the specifications, whilst others have resulted in proposed amendments to the specifications in the form of IRPs.

BEIS has previously implemented the required IRPs via BEIS-led designations; however, this process has now been handed over to SECAS for changes to be implemented through the Modifications Process. To improve efficiency, it was agreed these changes should be progressed under a single proposal at regular intervals. This will be the fourth batch of these changes.

3.2 Issue

In general, IRPs add clarity and corrections to the Technical Specification documents. Device manufacturers are required to follow these documents for the specifications of their Devices. Therefore, any errors or miscommunication of these specifications will mean the Device will not work as intended. TSIRS have agreed that these are issues and have agreed upon the solutions. Not implementing these solutions would mean that these problems would not be resolved.

3.3 Business Requirements

This section contains the considerations and assumptions for each business requirement. 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.

The following table contains supporting information about each IRP as well as the IRP title.

#	Requirement	Impacted Users	Impacted Devices	Complexity
1	IRP571, 'Historic Data when Device does not know the time'	Gas Supplier, Electricity Suppliers	GSME, ESME	Low
2	IRP586, 'Modify use cases so ESME, GSME, and GPF behave in the same way'	Gas Supplier	GPF	Medium

Table 1: Business Requirements for SECMP0099, CR1297

3.3.1 Req. 1: IRP571 ‘Historic Data when Device does not know the time’

To avoid the risk of sharing historic data with other Home Area Network (HAN) Devices that may relate to a prior tenant, the proposed drafting is that the Gas Proxy Function (GPF) and Electricity Smart Metering Equipment (ESME) should not share historic data from this store with other HAN Devices where:

- The Device has no meaningful time
- There has been at least one change of tenancy recorded on the Device since installation



IRP571 Historic Data
when Device does not

Further details on IRP571 are included in the attached file:

Note this file is as provided by BEIS and has not been edited or updated in any way.

3.3.2 Req. 2: IRP586 ‘Modify use cases so ESME, GSME, and GPF behave in the same way’

SEC Schedule 8 ‘GB Companion Specifications’ (GBCS) explicitly requires that, when reading logs, the log entries returned are inclusive of any with a timestamp equal to the ‘toDateTime’ in the Command.

ZigBee is, in a number of cases, explicit on inclusivity, open to interpretation as to such inclusivity or exclusivity and, in one case, at odds with it.



IRP586 Modify use
cases so ESME GSME

Further details on IRP586 are included in the attached file:

This file is as provided by BEIS and has not been edited or updated in any way.

Note: there are two versions of this IRP. CSP North’s response is the same although the system behaviour will be slightly different.

3.4 Business Benefits

The solution for IRP571 will ensure the proposed drafting for the GPF and ESME should not share historic data from this store with other HAN Devices where:

- The Device has no meaningful time
- There has been at least one change of tenancy recorded on the Device since installation

In IRP586, the drafting in GBCS will make it explicit that

- The GPF will align to GBCS requirements and an ESME for Remote Party Commands and when providing snapshots to HAN devices
- GSMEs will align to Zigbee standards and are different from GPF and ESMEs

4 Solution Overview

IRPs 571 and 586 add clarity and corrections to the Technical Specifications documents. Device manufacturers are required to follow these documents for the specifications of their Devices.

4.1 DSP Solution

To support the GBCS changes introduced by IRP571 and IRP586, no changes to the DSP technical solution are required.

Integration testing as defined following will require work from the System Integrator and is detailed in section 5 below.

4.2 CSP North Solution

For IRP571, The current behaviour of the Communications Hub is that when a Change of Tenancy (CoT) restriction is set which covers historical data the GPF maintains (i.e. the last 13 months) the data is not shared when the Communications Hub does not have meaningful time (set by the SM WAN at least once post boot). This was changed in the Maintenance Release 2.1 (Single Band Communications Hub firmware 2.03.x/Dual Band Comms Hub firmware 2.13.x releases) while fixing defect IP-8600. An EDM I technical requirement and test case shall be added to ensure Communications Hub firmware continues to align to this requirement. The internal EDM I requirement shall become 'a shall' rather than 'should' as required by GBCS.

For IRP586, the change seeks to clarify if the 'Latest End Time' when specified to read log entries over a time range is inclusive or not. DLMS defines it as inclusive and ZigBee mostly defines this as exclusive. This has the effect of making it impossible to read items in a log with a timestamp of 0xFFFFFFFF (unreliable time) from ZigBee end devices (including the GPF). The EDM I Communications Hub is currently aligned to this IRP (see table below).

GBCS Use Case	Comms Hub behaviour in 2.03.x/2.13.x firmware Inclusive of 'Latest End Time'	Notes
GCS15b Read GSME Billing Data Log (change of mode/tariff triggered)	Yes (ZigBee)	Already aligned to expected IRP586 by fixing defect (CIP186/SMJTT-1726/ IP-6278)
GCS15c Read GSME Billing Data Log (billing calendar triggered)	Yes (ZigBee)	Already aligned to expected IRP586 by fixing defect (CIP186/SMJTT-1726/ IP-6278)
GCS16a Read GSME Daily Read log(s)	Yes (ZigBee)	Already aligned to expected IRP586 by fixing defect (CIP186/SMJTT-1726/ IP-6278)
GCS16b Read GSME Daily Read log(s) (prepayment)	Yes (ZigBee) Already aligned to expected IRP586 by fixing defect (CIP186/SMJTT-1726/ IP-6278)	

CS10a Read Zigbee Device Event Log	Yes (ZigBee)	Changed functionality while fixing CIP926
CS10b Read Zigbee Device Security Log	Yes (ZigBee)	Changed functionality while fixing CIP926

4.3 CSP South and Central

To deliver this Modification, CSP South and Central's suppliers will uplift the Communications Hub software to address the business requirements listed above as follows.

- Implement event logs changes to allow remote parties to retrieve the event logs which include timestamp value 0xFFFFFFFF
- Ensure the CH can add new events to logs irrespective of the status of the time synchronisation.

In their first FIA response, CSP South and Central provided estimates and a plan to provide these changes as a standalone release. However after discussion with the DCC, CSP South and Central revised their implementation method to use a standard Firmware Management Policy (FMP) release, leading to significantly reduced regression testing and project support costs. The FMP is more appropriate in cases where there is a relatively small functional change to Comms Hub firmware, taking advantage of existing programmes who provide services such as testing and CPA, rather than up separate projects or programmes to accommodate small changes.

The Communications Hub Detailed Specification (CH02) will be updated to match the changes.

5 Testing Considerations

This Full Impact Assessment includes the cost to develop, fully test and deliver this SEC Modification.

5.1 DSP Testing

From a DSP SIT perspective, this impacts SMETS2 only and involves the following:

1. SMETS 2 devices to be used for testing and the GBCS and SMETS2 versions to be tested against will be defined by the CSPs at the time of execution of this testing.
2. Creation of two new test scenarios and test scripts.
 - a. One new scenario and test script to execute the GSME use cases and associated SRVs to verify that the response contains entries between “FromDateTime” to “ToDate Time”
 - b. One new scenario and script to execute the ESME and GPF use cases and associated SRVs to verify that the response contains entries between “FromDateTime” to “ToDate Time” inclusive.
3. Execution of the scenarios for each defined device set;

It is assumed that regression testing will be covered by the wider release within which this change is implemented.

The change is assumed to require triage support.

5.2 CSP North Testing

CSP North will ensure their technical requirements and test case continue alignment to IRP571 and IRP586.

At the point of writing this Impact Assessment, the changes required for IRP571 and IRP586 have already been delivered in existing Maintenance Release 2.1 Single Band Communications Hub 2.03.x firmware and Maintenance Release 2.1 Dual Band Communications Hub 2.13.x firmware. Consequently, there is no requirement for CSP North to conduct any testing.

5.3 System Integrator Effort

There will be a requirement for SI Release Management to coordinate deployment of the CSP functionality to B-Stream environments (SIT-B and UIT-B), A-Stream environments (SIT-A and UIT-A) and finally into Production.

5.4 CSP South and Central Testing

CSP South and Central will uplift the SLS Device Emulator test stub capability to align Meter and PPMID behaviour with IRP571 and 586, allowing the assurance of the Communication Hub software uplift.

CSP South and Central will add new test scripts as part of the set of test scripting tools used for regression testing in order to automate some of the testing involved for this Modification. The delivery plan for CSP South and Central is shown following.

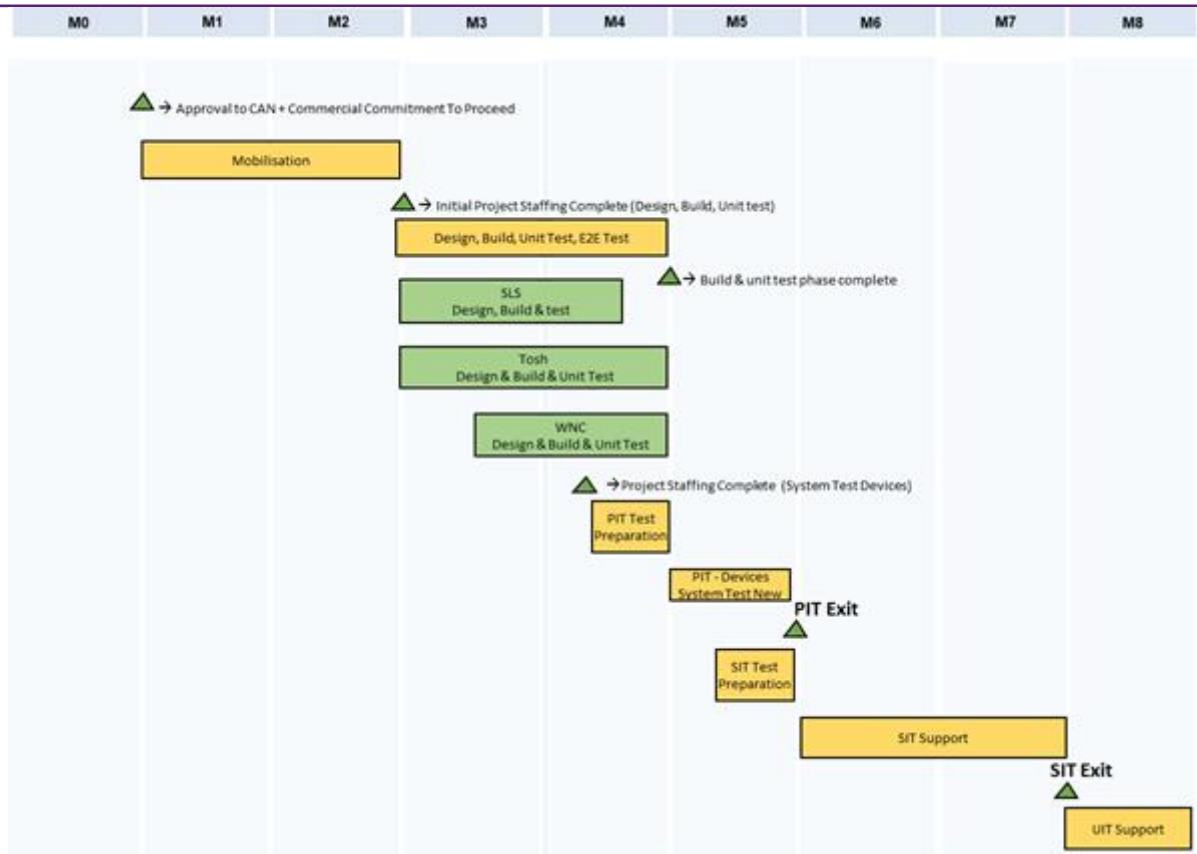


Figure 1: CSP South and Central Plan

Updates to the SLS Emulator and CSP South and Central ACB Emulator will be included as part of the Release CR, and those costs and efforts will be part of that CR.

5.5 Pre-Integration Testing

Pre-Integration Testing (PIT) will be required to align DSP functionality and the functionality described above. The development team will carry out unit testing and the build will be subject to continuous build and automated testing to identify build issues at the earliest opportunity. The implementation team will carry out system testing consisting of positive and negative path testing.

In this stage CSP South and Central will design, build and system test modifications to test tooling required to assure the CSP solution in the PIT environment. By using the FMP approach, no additional PIT CH, test hardware or software needs to be procured.

5.6 System Integration Testing and User Integration Testing

The SIT phase of testing will be aligned with other Modifications and Change Requests in a SEC Release, which is currently set as the November 2021 release.

This Modification impacts both SMETS1 and SMETS2. However the new functionality does not need to be tested against each Device Meter Combination (DMC) or repeated for each CSP.

SMETS1 testing will include:

- Any DMCs from CGI IE and Secure and FOC to be used as Device Sets
- Brand new device sets not migrated as yet
- Two dual fuel Active Sets and One Single Fuel Active Device Set for FO

For SMETS2 testing, the test execution is to be spread across the different CHF types and will require at least four new dual device sets which are Not Installed and Not Commissioned.

The scope of this testing will be detailed in a heatmap and Solution Test Plan associated to the release that this will be delivered against, as SIT completes Solution Test Plans for a SEC Release, and not for individual CRs. This will be included as part of the November 2021 SEC Release.

Following each of the SMETS1 and SMETS2 tests, the ESI reports listed at the end of Section 4 will be executed, to check that the DCC Service Status is reflected correctly in these reports for the Device Sets under test.

There is no requirement to test this Modification in the UIT environments.

CSP South and Central testing requirements specify a 2-week window for Device Set Up which gives reasonable contingency for onsite working restrictions which may be in place at the time of set up due to Covid-19.

The CSP South and Central testing requires 5 SIT test sets and will be executed over 4 weeks - this is based on an average calculation based against previous test activity. DCC have challenged the level of testing proposed for a relatively simple change.

6 Implementation Timescales and Releases

This Modification was expected to be included in a SEC release in November 2021. Implementation timescales will be finalised as part of the relevant SEC Release Change Request.

6.1 Change Lead Times and Timelines

From the date of approval (in accordance with Section D9 of the SEC), to implement the changes proposed DCC requires a lead time of approximately **8 months**.

The broad breakdown of the testing regime is shown in the following table in months after an approval decision date (D).

Phase	Duration
SECAS agreement on scope of release	
CAN signature, CSP South and Central Mobilisation starts	D + 1 Month
Design, Build and PIT Phase	D + 5 Months
SIT and UIT Phases Complete	D +8 Months
Transition to Operations and Go Live	D + 8 Months

6.2 Costs and Charges

This section indicates the quote per application phase for this Modification.

£	Design	Build	PIT	SIT	UIT	TTO	SP Total
Phase Total	14011	85197	89238	89238			307,683

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.
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.
Systems Integration Testing (SIT)	All the Service Provider's 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.
User Integration Testing (UIT)	Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.

Implementation to
Live (TTO)

The solution is implemented into production environments and made ready for use by Users as part of a live service.

It should be noted that no savings would be generated by grouping these into a Release. The nature of the Firmware Management Policy has already resulted in savings to the charges above.

6.3 Application Support

It is assumed that this change will not result in a material increase in support required however an allowance has been included in the System Integrator charges to allow knowledge transfer to the DSP Application Support team to ensure any issues can be supported.

6.4 Impact on Contracts and Schedules

At a minimum, the following schedules will be updated as a result of the changes introduced by this Modification:

- Schedule 6.1 - to reflect delivery milestones
- Schedule 7.1 - to reflect payment milestones under this Modification
- Schedule 11 - to reflect an uplift to the CH specifications
- Schedule 12 - to reflect the uplifted technical specification versions

Appendix A: Risks, Assumptions, Issues, and Dependencies

The tables below provide a summary of the Risks, Assumptions, Issues, and Dependencies (RAID) observed during the production of the Full Impact Assessment. DCC requests that the Working Group considers this section and considers any material matters that have been identified. Changes may impact the proposed solution, implementation costs and/or implementation timescales.

Risks

Ref	Description	Status/Mitigation
CSC-R3	Risk that this Change Request is seen to be poor value for money given the expectation that all Test Comms Hub variants have been included in scope. The Test Comms Hub variants in operation today have significant overlapping scope and use cases. CSP South and Central recommend considering reducing the scope and complexity of this Modification by simplifying the Test Comms Hub product line.	Open, there are no plans to reduce Comms Hub product line
CSC-R8	As additional CRs are included in FMP scheduled releases, there may be a priority call on which defects can be fixed within the available slots in FMP. There is a risk that defect fixes may be delayed to accommodate CRs to be in scope for FMP release candidates. Prioritising and scheduling of CR and defects within the FMP will be agreed within the Firmware Management Forum.	Open, but management will also involve DCC In Life Change Delivery team

Assumptions

These assumptions have been used in the creation of this Full Impact Assessment. Any changes to the assumptions may require DCC to undertake further assessment, prior to the contracting and implementation of this change.

Ref	Description	Status/Mitigation
CSC-A3	Assume that when the associated GBCS/SMETS/CHTS specifications to support the changes for this Modification are defined, there will be no material changes from the documentation beyond those specified in this document.	Accepted, but noted that there are no changes in SMETS or CHTS, and that CSP South and Central will update CH02
CSC-A7	Assume that DCC-L have an agreed Change Request to implement CH firmware version to align to GBCS version 3.x prior to the approval of this Impact Assessment	Rejected, there is no requirement for this assumption.
CSC-A8	Assume that a single Impact Assessment will be created to support this Modification and all other changes for the proposed June 2022 release.	Accepted
CSC-A9	Assume that as per the current discussions in GBCS Working Group, the GPF should execute all commands upon receipt and ignore information relating to execution at a future date	Accepted
CSC-A10	Assume that there are no more than four firmware maintenance releases per annum.	Accepted
CSC-A11	Assumes the following:	Accepted, although DCC challenges the requirement for

	<ul style="list-style-type: none"> No additional PIT CH or other test hardware/software needs to be procured to support this testing; Test Approach is broadly in line with previous and current 'Production Support Testing PST' approach in SIT This testing only on the SIT A environment Requires 5 SIT test sets and will be executed over 4 weeks - this is based on an average calculation based against previous PST activity Requires 2-week window for Device Set Up which gives reasonable contingency for onsite working restrictions which may be in place at the time of set up due to Covid-19 Meters for SIT are provided by DCC to support this testing No downtimes or maintenance activities takes place during this period in SIT A environment. Any planned outages are agreed with SI/DCC 	this duration and quantity of SIT testing as well as 2 weeks to set up a test lab
CSC-A12	<p>Assumes that the functional changes to CH firmware can be delivered with the application layer and do not require stack developments from the ZigBee chip provider, or the WAN modem providers.</p> <p>Should a new stack be needed, besides additional development time, experience has shown a lengthy CPA accreditation is also needed.</p>	Accepted

Issues

None at this time.

Dependencies

Ref.	Dependency	Implication if dependency not met	Status
CSC-D1	Dependency on DCC to provide and confirm the GBCS/SMETS/CHTS specifications to support the changes in this Modification	Work cannot start and a further FIA may be required	Accepted but noted that there are no changes in SMETS or CHTS, and that CSP South and Central will update CH02
CSC-D2	Dependency on updating the Parse and Correlate application		Rejected; no changes in Parse and Correlate are required.

Appendix B: 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
CoT	Change of Tenancy
CHF	Communications Hub Function
CPA	Commercial Product Assurance
CR	(DCC) Change Request
CSP	Communication Service Provider
DCC	Data Communications Company
DSP	Data Service Provider
DUIS	DCC User Interface Specification
ESI	Enterprise Systems Interface
ESME	Electricity Smart Metering Equipment
FIA	Full Impact Assessment
FMP	Firmware Management Policy
FOC	Final Operating Capability
GBCS	Great Britain Companion Specification
GFI	GBCS Integration Testing For Industry
GPF	Gas Proxy Function
GSME	Gas Smart Metering Equipment
HAN	Home Area Network
IRP	Issue Resolution Proposal
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SMETS	Smart Metering Equipment Technical Specification
SM WAN	Wide Area Network
SP	Service Provider
SRV	Service Request Variant
TSIRS	Technical Specification Issue Resolution Sub-Group
TTO	Transition to Operations
UIT	User Integration Testing

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MP099 ‘Incorporation of multiple Issue Resolution Proposals into the SEC – Batch 4’

Annex D

Refinement Consultation responses

About this document

This document contains the full collated responses received to the MP099 Refinement Consultation.

Question 1: Do you agree with the solution put forward?

Question 1			
Respondent	Category	Response	Rationale
EDF	Large Supplier	No	<p>While we agree with the content of these IRPs and that they should be implemented, as agreed at TSIRS, we do not agree that new sub-versions of the Technical Specifications should be created. This is not the approach proposed for other changes (namely MP099 'Incorporation of multiple Issue Resolution Proposals into the SEC - Batch 4).</p> <p>Creation of new sub-versions of GBCS would require all devices installed compliant with the previous sub-version to be upgraded, and any devices that could not be upgraded would no longer be compliant with supplier obligations to maintain devices to a valid version the Technical Specifications. This is mainly a concern for GBCSv3.3 as devices are already being developed to be compliant with version 3.2 and would therefore need to be upgraded as a result of this change.</p> <p>We believe that these changes could be included in GBCSv4.0; it is not clear why any new sub-versions would be required.</p>

Question 2: Will there be any impact on your organisation to implement MP099?

Question 2			
Respondent	Category	Response	Rationale
EDF	Large Supplier	Yes	We will need to ensure devices that we procure and are responsible for are compliant with the new version of GBCS.

Question 3: Will your organisation incur any costs in implementing MP099?

Question 3			
Respondent	Category	Response	Rationale
EDF	Large Supplier	Yes	It is difficult to accurately identify the costs associated with any single change to the device specifications. The cost of this change will be higher if we are required to upgrade devices we have already installed to be compliant with the new version of GBCS.

Question 4: Do you believe that MP099 would better facilitate the General SEC Objectives?

Question 4			
Respondent	Category	Response	Rationale
EDF	Large Supplier	Yes	We agree that implementing this change will better facilitate SEC Objective (a), as these IRPs resolve issues with the Technical Specifications and will ensure devices operate correctly.

Question 5: Noting the costs and benefits of this modification, do you believe MP099 should be approved?

Question 5			
Respondent	Category	Response	Rationale
EDF	Large Supplier	Yes	We agree that these changes should be made, as noted above the question is how they should be implemented in a new version of GBCS.

Question 6: Do you agree with the proposed implementation approach?

Question 6			
Respondent	Category	Response	Rationale
EDF	Large Supplier	No	See answer to question 1.

Question 7: Do you agree that the legal text will deliver MP099?

Question 7			
Respondent	Category	Response	Rationale
EDF	Large Supplier	Yes	We have not identified any issues with the legal text

Question 8: Please provide any further comments you may have

Question 8		
Respondent	Category	Response and Rationale
EDF	Large Supplier	We are concerned that there is a lack of clarity in regards to the overall strategy for implementing device related changes and how changes should be included in new versions of the Technical Specifications. This is one of a number of changes in progress which require changes to be made to the Technical Specifications, while these changes are separate the way that they are implemented needs to be more coordinated, and the impact on parties resulting from creating new sub-versions of devices (which impacts devices that are installed and in the supply chain) needs to be considered.