

SEC Modification Proposal, SECMP0010, DCC CR212

**Introduction of Triage Arrangements for
Communication Hubs**

Mod Path: Path 2 - Authority Determination

Preliminary Impact Assessment (PIA) – Review of Requirements, Solution, and Costs

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1.6

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DCC

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Table of Contents

1	Document History	4
1.1	Revision History.....	4
1.2	Associated Documents	4
2	Introduction	4
2.1	Document Information.....	4
2.2	Modification Description.....	4
2.3	Requirements	5
2.4	High Level DCC Assessment.....	5
3	Solution Overview	6
3.1	Impact on DCC's Systems, Processes and People	6
3.2	DSP Solution	8
3.3	CSP Impact and Solution.....	9
3.3.1	CSP Impacts.....	9
3.3.2	CSP Solution	12
3.3.3	Overall CSP Impacts	12
3.3.4	Third Party (Meter Supplier) Impacts	13
3.4	Infrastructure Impact.....	13
3.5	Other Impacts	13
3.6	Impact on Security	13
3.7	Technical Specifications	14
3.8	Service Management.....	14
3.8.1	Reporting.....	14
3.9	Overall Assessment.....	14
4	Testing Considerations.....	15
4.1	Testing Approach.....	15
4.2	Pre-Integration Testing	15
4.3	Systems Integration Testing.....	15
4.4	User Integration Testing.....	16
5	Implementation Timescales.....	16
6	DCC Costs and Charges	16
6.1	Cost impact.....	16
6.1.1	Implementation costs.....	16
6.2	Impact on Charges	18
6.2.1	Changes Not Included	18

7	Risks, Assumptions, Issues, and Dependencies (RAID)	19
7.1	Risks	19
7.2	Assumptions	20
7.3	Issues	26
7.4	Dependencies	26
7.5	Clarifications	28
	Appendix: Glossary	30

1 Document History

1.1 Revision History

Revision Date	Revision	Summary of Changes
17/07/2017	1.0	Original presentation of PIA to Working Group
08/03/2019	1.4	Added detail to requirements and clarifications, reissued to Service Providers for PIA2
17/05/2019	1.6	Updated PIA costs plus RAID and Clarifications from Service Providers

1.2 Associated Documents

This document is associated with the following documents:

#	Title and Originator's Reference	Source	Issue Date
1	SECMPO010, Initial Modification Report	SECAS	14/04/2016
2	Working Group 4 - 01 Business Requirements	SECAS	22/06/2016

References are shown in this format, [1]

2 Introduction

The purpose of this DCC Preliminary Impact Assessment (PIA) is to provide the relevant Working Group with the information requested in accordance with SEC Section D6.9 and D6.10.

2.1 Document Information

The original Proposer for this Modification was Graham Wood of British Gas.

This original DCC Preliminary Assessment was requested of DCC on 07/10/2016. However a full review of the PIA has been carried out based on the expiry of the original PIA. This version of the PIA includes a full listing of the requirements and an outline for a solution approach. The document was used by the Service Providers as the basis for a high-level solution decision with associated, revised costings.

Note that the Risks, Assumptions, Issues, and Dependencies section has been completely reviewed in this document and contains many entries that we request should be considered by the Working Group and Proposer. There is an additional section for Clarifications that require review and feedback as well.

2.2 Modification Description

SEC Supplier Parties should be permitted to carry out basic checks or 'triage' on Comms Hubs following their return from a consumer's property. Currently, the SEC arrangements do not allow SEC Supplier Parties to undertake such activity. This would result in all removed Comms Hubs being assumed to be no longer fit for purpose or re-use.

The proposed modification is for the introduction of a 'triage' and recycling solution for Communications Hubs (Comms Hubs or CH). It seeks to reduce the Supplier costs associated with the return of high volumes of Comms Hubs to the DCC (for investigation by

the CSPs). It is thought that a percentage of Comms Hubs could reasonably be reused at other premises by an installing Supplier (after successfully passing the triage and recycling solution that this change is seeking to implement). The implementation of a solution of this type would reduce the overall cost for both Suppliers and DCC (via CSPs), thus delivering benefits for the overall GB smart meter rollout and, ultimately, energy consumers.

2.3 Requirements

The requirements for this modification have been developed by the Working Group during the Refinement phase. The impact on the DCC Total System has been assessed against the Business Requirements and the corresponding draft legal text set out in the Solution Design included as part of document [1].

Based on the discussions at the Working Group and the Business Requirements as set out in the Solution Design Document, DCC consider the requirements for SECMP0010 to be **STABLE**. Where the requirements or SEC obligations set out in the Solution Design above change, DCC will be required to carry out further impact assessment.

2.4 High Level DCC Assessment

Although the high-level intent of this modification is clear, this modification proposal is providing a limited solution to the problem of:

- Triaging to ensure that devices are faulty in a variety of scenarios, potentially not limited to ad-hoc secure dedicated facilities
- Resetting/restoring devices when possible to a given level of functionality; this includes upgrading them to a known working firmware version

Whilst this modification will deliver value to the proposer (although such benefit has not been quantified) it is unclear whether how this would benefit others.

There is also serious concern that the solution is not technically feasible in particular due to the approach of re-using the existing GBCS defined CS02 credential replacement commands detailed in the following sections.

DCC is providing this PIA having done extra work with the Service Providers outside the standard SEC Modification process to harmonise the responses and align the SPs to a reasonably common understanding and to provide the Working Group with a valid high-level cost for implementing the modification. If the PIA is approved, then the DCC would engage the Service Providers to work through some of the significant concerns before starting any Full Impact Assessment (FIA) work.

3 Solution Overview

The main element of this is the concept of a local solution supported by the DCC Total System to try to reduce and minimise the number of returns of CHs to CSPs. The reduction in the number of CH returns and consequent charging would provide the main basis of the business case for this.

The development work is centred on enabling a Hand-Held Terminal (HHT), often referred to as a "Triage Tool", and local command-based solution to allow triage at an appropriate location at the Service User's warehouse. The key elements to the proposed solution are commands injected into the HAN via an HHT¹, one to run high level diagnostics and a second to reset. Changes to GBCS use cases will allow a Service User to send a GBCS command to a Comms Hub to perform diagnostics, and be able to send a GBCS command to a Comms Hub to perform a limited reset of the Comms Hub. This requires amendments to DUIS SRVs.

While DCC can provide many of the enabling elements of this process, the HHT (also referred to as the triage tool) element requires integration into a Service User's DCC adaptor.

3.1 Impact on DCC's Systems, Processes and People

This section describes the impact of SECMP0010 on DCC's Services and Interfaces that impact Users and/or Parties.

Proposed Triage Process

In situations where the Service User wishes to perform triage of the fault reported by their installation engineer, the following procedure is proposed to be followed:

1. The Comms Hubs under investigation shall be taken off the wall and brought into a secure triage facility managed by the Service User or their authorised representatives.
2. The device will be tested in a screened room to prevent connection to the SMWAN. This is both to protect the network from unexpected traffic loading, and also to prevent the Comms Hub from attempting to execute the installation process.
3. The commands required for the device diagnostics and the reset operations must be delivered only using local delivery, using an HHT rather than via the SM WAN.

To receive diagnostic information

1. DCC Service Users shall submit the Service Requests via the DCC User Gateway to obtain commands to read diagnostic status information.
2. The HAN-ready commands received from DCC Data Systems shall be stored on the Triage Tool, injected into the Comms Hub via the Inter-PAN connection, and processed by the Comms Hub in accordance with GBCS requirements on local command delivery processing.²

¹ Note this was originally shown as "*a series of Over the Air (OTA) updates.*" We have updated the document to the current state, but this change should be verified.

² If the Triage Tool fails to connect to the CH, the CH shall be returned to the CSP.

3. The Comms Hub shall respond with the diagnostic information, which is then displayed on the HHT.
4. If the Comms Hub responds with diagnostic information indicating a fault then the Comms Hub shall be returned to the CSP. If the Comms Hub responds with diagnostic information indicating no fault is present, then the Comms Hub may be reset and installed in a consumer premises.

To reset the Comms Hub

1. To reset the Comms Hub, the Service User shall raise a Service Request via the User Gateway to obtain the command to do so.
2. The HAN-ready command received from DCC Data Systems shall be injected into the Comms Hub using the Triage Tool.
3. The Comms Hub shall respond with confirmation of the reset, which is then displayed on the Triage Tool.
4. If the Comms Hub responds with a confirmation that the reset was successful, then the Comms Hub may be installed in a consumer premises.
5. If the Comms Hub fails to respond with a confirmation that the reset was successful, then the Comms Hub shall be returned to the CSP.

The following diagram is provided to clarify the high-level process/flow.

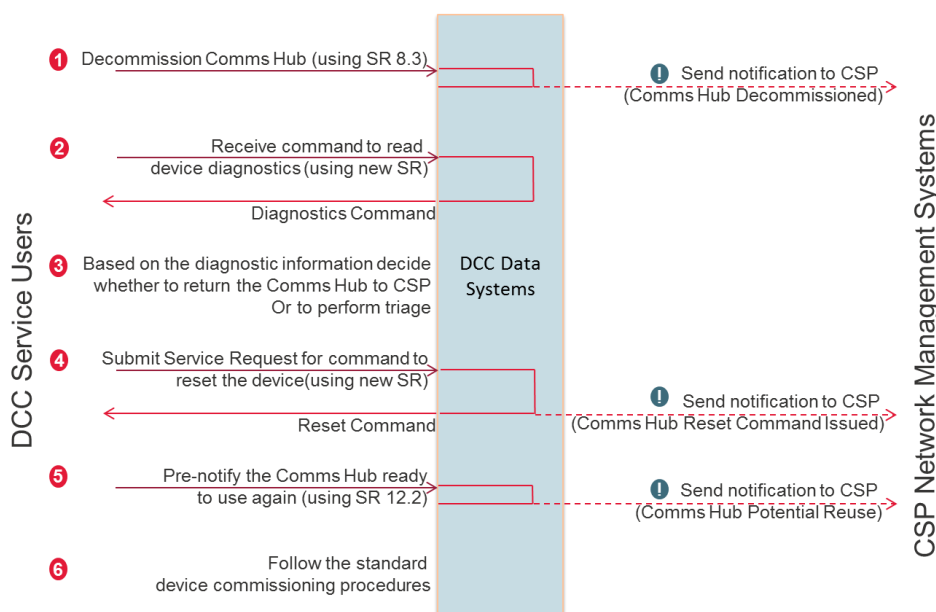


Figure 1 Overview of Comms Hubs Triage Workflow

! - indicates notifications that are sent to the CSP Network Management Systems to inform the change in Comms Hub status.

Note that a Comms Hub under triage will be powered by a SMETS2 approved Meter or Hot Shoe compliant with ICHIS connections. Any damages as a result of powering through a non-standard power supply will be considered a “DCC Fault”.

3.2 DSP Solution

The DSP solution to support the triage activities involves the following changes.

- a. A new Service Request using which the Service Users can receive a command that can be locally delivered to a Comms Hub to read the diagnostic information.
- b. A new Service Request using which the Service Users can receive a command that can be locally delivered to a Comms Hub to reset it.
- c. Changes to Request Management and CSP Management Gateway to notify the following events to CSPs.

Event	Trigger	Notes
Comms Hub Decommissioned	After successfully processing the SR 8.3 Decommission Device.	
Comms Hub Reset Command Issued	After returning the response to the (newly introduced) SR 8.16 Reset to the Service Users.	This will allow the CSPs to be informed about the Service User's intent to reset and reuse the device. DCC Data Systems shall not wait for a confirmation from the Service Providers which confirms a device is reset before sending this notification.
Comms Hub Potential Reuse	After processing SR 12.2 Device Pre-notification for a device which had been in use before and re-introduced following the triage activities.	

Table 2 Comms Hub status events

Affected DSP Components

DUIS, MMC & DUGIDS

The impact on DUIS is to add two new Service Requests (SRV numbers to be confirmed as part of the Full Impact Assessment).

8.15 Read Communication Hub Diagnostics Data

8.16 Reset Communication Hub

Both newly introduced SRVs are expected to be non-critical and shall support only local delivery (CV=2).

This involves new Service Request definition, Response definition and updating the DUIS XML schema and MMC XML schema.

In addition, there is a need to send SRV 8.14.3 to the appropriate CSP.

Request Management

Request Management needs to implement the necessary validation checks needed for the new SRVs, which includes a check to verify whether the target device has already been decommissioned.

It shall also make changes to the processing of the following SRVs to implement the CSP notifications mentioned in *Table 2 Comms Hub status events* above.

8.3 Decommission Device

12.2 Device Pre-notification

Transform Libraries

New libraries for each unique GBCS use case needs to be implemented. Two new GBCS Use Cases are expected to be involved in this.

CSP Management Gateway

CSP Management Gateway shall add support for forwarding the notifications listed in *Table 2 Comms Hub status events* to the CSPs. This is not supported by the existing message processing mechanisms within the CSP Management Gateway.

It also requires new interfaces to both CSP Management systems and Request Management. The CSP/DSP SD4.4.4 interface will include a two new APIs to provide notification from the DSP regarding:

- Notification of a Communication Hub function decommission
- Notification of a Communication Hub reset attempt by the Service User

3.3 CSP Impact and Solution

3.3.1 CSP Impacts

The introduction of Service User managed triage of a Communication Hub would impact the existing Communications Hub removal and returns process.

At a high level, the current process has the following key activities (note, activities performed by the Service User are shaded in blue, whereas activities performed by the CSP are shaded in brown and activities related to DSP are in green).

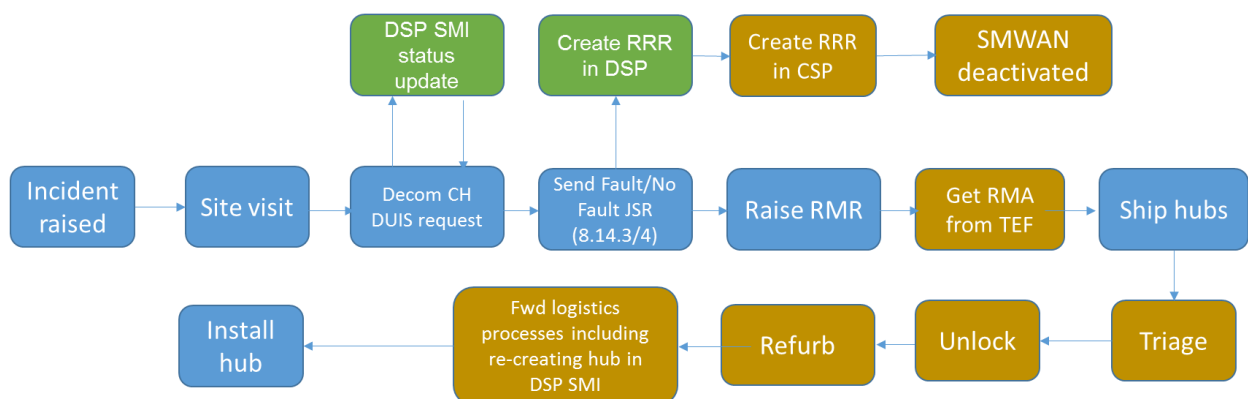


Figure 2: Overview of current un-installation process

In this process, the Service User will have to raise a Return Material Request (RMR) before getting a Return Material Authorisation (RMA) from the CSP.

Once SECMP0010 is implemented, several steps in this process that are required by the CSP are likely to be capable of being removed as the Service User will have the capability to run a process that does not involve the CSP. This has the following implications:

- The CSP does not receive a notification in all cases and therefore cannot determine that a Communication Hub has been removed from a property, this would also have a negative effect on the CSP's service performance measures as we would not be able to exclude the CH from these. This is typically done to disable the SMWAN, suspend the asset charge and to exclude the Comms Hub from connectivity related service measure calculations.
- The CSP does not ship a refurbished Comms Hub to the Service User and therefore does not provision the DSP SMI.

There are therefore several considerations that will be required to be impacted cross-DCC as a result of this Modification:

1. The Comms Hub Firmware (CHF) decommissioning request will still occur in all scenarios, regardless of whether the SU intend to triage the hub or not. This is required to trigger the processes that are currently linked to the Job Status Request (JSR), which would not be received when the SU performs triage.
2. The CSP will require a notification from the DSP when a CHF decommissioning Service Request has been processed to permit the CSP to exclude the Comms Hub from connectivity service measures prior to the next installation.
3. The SM WAN disable trigger will be generally changed from RRR creation to decommissioning CHF notification, in order provide a notification to the CSP in all removal scenarios.
4. A mechanism outside of CSP control is required to re-set the DSP SMI database to whatever it would normally be set to in forward logistics.
5. SEC obligation on Supplier Party to return the Communications Hub to the DCC-L within 90 days after the date of its removal remains unchanged even if the Service Users decide to perform triage.

Given the above considerations, the proposed high level process would be as follows:

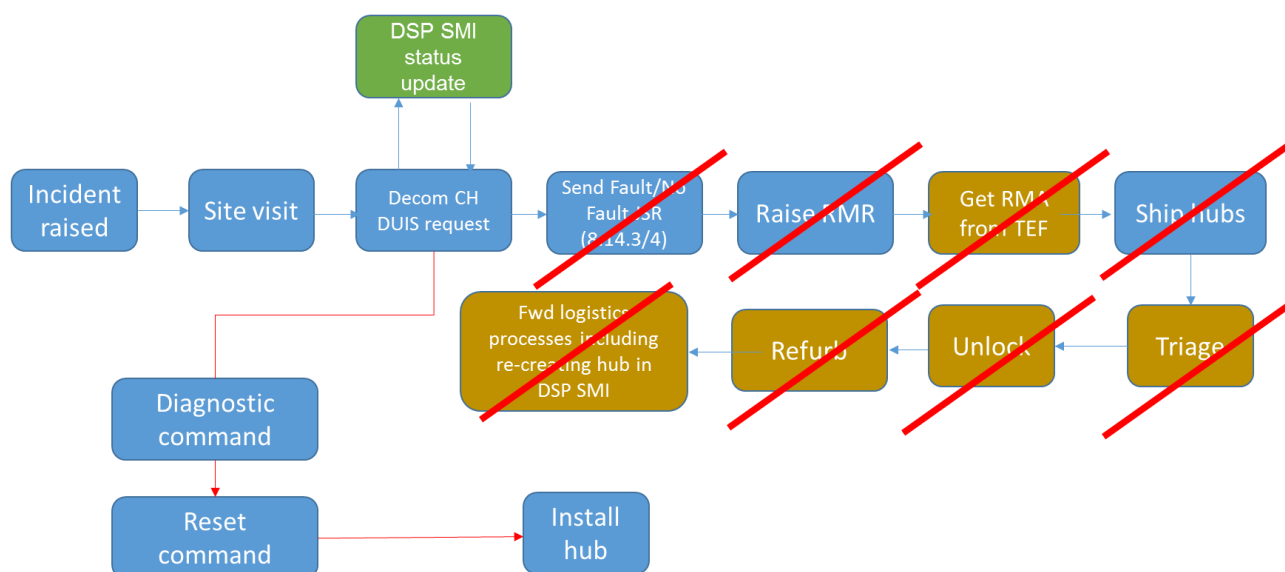


Figure 3: Overview of the proposed process once the Service Users can perform triage

The process depicted above in figure 3 would be an alternative process to the one presented in figure 2, aiming to achieve the benefits for Service Users expressed in this PIA. However, the existing process will remain available in parallel for the Service Users, so they will be able to return the Communications Hubs so that the CSP can perform the triage, following the process in figure 1.

This process has the following key changes from the current removal and returns process:

- Uplift of Comms Hub Firmware to support the introduction of new GBCS commands to support the diagnostics and reset of Communication Hubs by Service Users to be delivered via a Service User supplied HHT. This is a significant Security Risk and needs to be assessed as part of the FIA; we do not believe that SUs will have the competency available to manage such uplifts.
- The DUIS CHF decommissioning Service Request will trigger the notification to the CSP and subsequent exclusion of the Communications Hub from the service measures (SRV 8.14.3 gets propagated to CSPs to stop billing, deactivate SM WAN, and start the 90 day timer).
- The deactivation of the SM WAN will occur when the service user raises a fault JSR and create the RRR.
- Should the removed Comms Hub be successfully triaged and reset to a pre-installation state, the Service User may re-install it without firstly returning it to the CSP.

- Following the Comms Hub installation in a new premise, connectivity related service measure inclusion is processed as per a standard Comms Hub installation.

There is an expectation that the Service Users will train their Technician(s) sufficiently in order to carry out the diagnostics and follow the process defined by the supplying CSP.

We recommend that a Project Request (internal DCC PR) is used to agree the process and detail processes the FIA will be developed on that basis. The FIA will identify how the Command is generated and how the firmware is securely provided by the HHT.

3.3.2 CSP Solution

The solution could be implemented by defining two new use cases in GBCS issued by the Access Control Broker and targeted at the CHF. The first use case will be required to read predefined diagnostic status information data and the second to reset the CH to factory default. All other requirements of SECMP00010 can be satisfied through existing GBCS use cases.

It is recommended that the use cases be restricted and not processed by the CH if received via the WAN. For clarity, if received via the WAN the CH will reject the command with a status of NOT_AUTHORISED.

The use cases will be transmitted to the CH via the inter-PAN connection by a Triage Tool supporting an HHT function³. The required sequence of use cases (including a CCS01 command to support the HHT connection process) can be requested and stored on the Triage Tool, and once connected may be processed by the CH in the same way as any other GBCS command.

The CH will permanently log when either of the use cases defined above is received, and will also log the outcome. If the Comms Hub is subsequently returned to the CSP Diagnostics and Triage Centre, this information will be read to ascertain if the unit has been reset by the supplier.

The Organisational certificates can be updated via the CS02b use case and the 3hrottle3ingency replacement mode.

Further investigation is required to assess the impact on, and required testing for the Comms Hub Manager (CHM).

3.3.3 Overall CSP Impacts

CSP North have noted that any service that will be provided because of the Modification will be subject to formal audit by Arqiva Smart Metering Limited (ASML). Any Service User (SU) found to be non-compliant at Audit will invalidate all Comms Hubs that have been Triaged, including but not limited to warranty and service measures. SU will have to replace all such CHs as ASML will be unable to determine the quality status of those CHs. This is not costed in this PIA, where the

³ The triage tool and HHT are not in scope of this Modification.

implementation of the solution has been considered only, but must be considered as part of the FIA.

There will be impact on the CSP Supporting Systems to account for additional notifications from DSP as noted above via the CSP/DSP interfaces, account for status updates, report usage of Comms Hub reset attempts by the Service User, and other support processes.

Modifications to supporting IT systems to support the accidental "birthing" of Communication Hubs within Service User facilities as part of Service User Comms Hub Reset' processing are likely. Service Users are required to operate this capability within RF shielded locations however we recognise that this is a challenging operational requirement and therefore expect to see accidental SMWAN connections when Service Users operate this process.

3.3.4 Third Party (Meter Supplier) Impacts

Third Party Suppliers providing meters will need to make changes to accommodate this Modification. These impacts have been included in the PIA costings, and will be expanded on in the FIA.

3.4 Infrastructure Impact

New Service Requests will result in increased volume at the User Gateway endpoint, but have not been included in the cost estimates following. This needs further assessment during the FIA stage.

The new CSP Management Gateway interfaces will require firewall changes on each environment.

3.5 Other Impacts

It should be noted that the use of a Hand Held Terminal (HHT) as part of the triage arrangements would be functionality that the DCC Total System will enable and allow, but the Service User will be responsible for providing, implementing and supporting the local solution.

3.6 Impact on Security

This section describes the impact DCC considers SECMP0010 will have on Security of DCC's Total System.

The solution presented in this PIA, especially the new CSP Management Gateway interfaces and particularly device reset functionality will require a security review, as well as the requirement for the decommission of the Comms Hub first. The Reset mechanism will require National Cyber Security Centre (NCSC) approval and usage agreement with BEIS.

The Rough Order of Magnitude (ROM) costs within this PIA assume that the functionality does not require a specific security solution such as physical or logical separation from other parts of DCC Data System (in the same way as SMKI Recovery and Change of Supplier is separated) and does not require any separation of duty for the purposes of operational support.

Further discussion of the above are required in respect of the security solution as part of the Full Impact Assessment.

3.7 Technical Specifications

The following SEC Subsidiary Documents are identified as being potentially impacted:

- GBCS
- Appendix AD – DCC User Interface Specification (DUIS)
- Appendix AF – Message Mapping Catalogue (MMC)

Solution Design documentation will be updated by the Service Providers as part of the Design, Build, and Test activities.

3.8 Service Management

Functions of the Service Management provided by each Service Provider will be impacted by this Modification. This will be expanded upon in the FIA.

3.8.1 Reporting

There may need to be a review of whether new service reporting exemptions are required to support scenarios when a Service User might have been unable to suppress SMWAN connectivity and the Communication Hub has therefore transmitted a "birth" event. The lack of a further CHSU (SR8.14.1/2) following birthing will satisfy this requirement

3.9 Overall Assessment

The DCC and CSPs particularly, see this as a risky and high-cost, high impact Modification which would be very difficult to justify with a business case.

To re-iterate some of the points raised above, that are probably not reflected in the cost of implementing this Modification, but are more part of the risk profile:

- The Comms Hub is effectively owned by the CSP, not the Service User, and as such maintenance and repair of the CH should be under CSP control
- The CSP's support systems would need updating to allow tracking, for the remainder of its working life, of a CH that has been through a Service User triage in case triage leads to issues downstream
- There is an unknown impact on CH reliability and performance as the CH triage is not under the CSP's control and as a result the performance measures will need to be re-assessed
- Triage may result in the loss of warranty on the CH

There would have to be a wholesale rewrite of SEC documents to capture the change of responsibility. This may have to be variable as presumably only some Service Users will want to do their own triage. We would anticipate a very significant effort required to cover this off effectively.

If Service Users can do their own triage and avoid returning a unit that would be classified as No Fault Found, it is unclear whether the SU can recycle units back into their warehouse for installation because of the security issues, particularly the SU have done an attempted install.

4 Testing Considerations

This section describes the testing phases required to support the implementation of SECMP0010.

DCC will be required to carry out Pre-Integration Testing and System Integration Testing for SECMP0010, and anticipates that Users will require User Integration Testing to support their implementation of SECMP0010. DCC asks that the Working Group considers and compiles the User testing requirements with DCC support, to ensure an optimal approach is taken for User Integration Testing for the relevant release.

4.1 Testing Approach

For all Service Providers, there will be a wide variety of testing that will need to be considered. This includes assessing impact on the network, CH, Comms Hub Management (CHM); and support systems.

Building and configuration of Test environments, availability and governance of the Test environments and support of Service Provider IT and Networks will need to be considered.

4.2 Pre-Integration Testing

Pre-Integration Testing (PIT) comprises the tests that each Service Provider performs on its respective System changes, prior to the integration of all Service Provider Systems. DCC has factored the cost of PIT (including DCC assurance) into this Impact Assessment.

Suggested PIT scope would include:

- Production, review and agreement of a design to enable development
- Low level design production, development, unit test and any rework to achieve PIT complete status
- Data generation and loading into the Test environment
- Execution of System Tests through sufficient iterations to enable PIT complete
- Design, implementation and execution of FAT scripts in accordance with assurance procedures used for Release 1.2
- There will be a requirement to update test stubs within the PIT environments.
- Achieving PIT complete status and subsequent reporting

4.3 Systems Integration Testing

Systems Integration Testing (SIT) is the testing of DCC's Total System, which brings together the component parts of DCC's System (e.g. DSP and CSP Systems) to allow testing of the end-to-end solution by DCC. The SIT activity is done for every DCC System release and incorporates the test and integration of multiple changes.

Additional SIT is recommended by DCC for a modification of this type. It should however be noted that the scope of SIT is likely to be more focused on regression testing to confirm that the changes applied as part of this modification have not had an impact on the wider DCC Total Systems.

Suggested SIT scope would at a high level typically include:

- System Test script and data design
- Data generation and loading into a co-ordinated System Test environment
- Execution of System Tests through sufficient iterations to enable SIT complete

4.4 User Integration Testing

User Integration Testing (UIT) enables Users to run specific tests to support their implementation of a change.

DCC expects that User Integration Testing will be required in order to support User implementation of this modification. Individual changes are collected into a DCC release. To achieve more efficient UIT for all parties, the DCC will coordinate specific testing requirements for all changes that comprise a release and issue a testing release approach document.

For this Modification, a key element of UIT to be considered will be the need to test end to end with the service users bespoke HHT/Triage Tool integrated into DCC's test environment. UIT testing will prove that the interfaces work and that the APIs are fully functional.

5 Implementation Timescales

Implementation of this change is assumed to follow a waterfall methodology. It is assumed that this change will be implemented as part of the June 2020 release alongside other change requests. This change will take of the order of six months to achieve PIT Complete status, which includes design, development and system testing. The need for some more complex SIT and UIT means that the release will take 12 months to implement. However this duration will be confirmed as part of the FIA.

6 DCC Costs and Charges

6.1 Cost impact

6.1.1 Implementation costs

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

Implementation costs							
Implement ation Phase:	Design	Build	Pre- Integration Testing	System Integration Testing	User Testing	Impleme ntation to Live	Total
SECMP001 0	Total for DBT is £14,500,000				TBD in full IA	TBD in full IA	£14.5m
Implementation costs – supplementary information							
Implementati on cost assumptions	<p>A. Costs are exclusive of VAT and any applicable finance charges</p> <p>B. Majority of the costs above represent labour costs.</p> <p>C. Costs provided for Design, Build and Pre-Integration Testing are quotes provided by the Service Providers and assuming there is no scope change can be considered the final costs. DCC have reviewed and challenged the costs from the Service Providers to ensure this reflects best price to date.</p>						
Explanation of Implementati on Phases	<p>DCC’s implementation costs are provided by implementation phases. The following describes the purpose of each phase:</p> <ul style="list-style-type: none">Design: The production of detailed System and Service design 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: Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC.System Integration Testing: All Service Providers’ PIT-complete solutions are brought together and tested as an integrated solution, ensuring all Service Provider solutions align and operate as an end to end solution.User Integration Testing: Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.Implementation to Live Costs: The solution is implemented into production environments and ready for use by Users as part of a live service. This service is subject to implementation costs.						

The fixed price cost for a Full Impact Assessment is **£202,981**, and is expected to take 40 days.

6.2 Impact on Charges

The following section describes the potential impact on Charges levied by DCC in accordance with the SEC.

DCC notes that SECMP0010 does not propose any changes to the charging arrangements set out in SEC Section K. DCC has assumed that, in the absence of an agreed alternative arrangement by the Working Group, the costs associated with the implementation of SECMP0010 will be allocated to DCC's fixed cost based and passed through to Parties via Fixed Charges.

Subject to the commercial arrangements put in place to support the relevant Release, DCC expects the increase in Charges associated with the implementation of SECMP0010 to commence in the month following the modification's implementation.

6.2.1 Changes Not Included

There will be some changes to contracts, performance measures, service reporting and end to end impact on processes, and work instructions.

Contract schedules are likely to include:

- Schedule 2.1 – to reflect additional requirements;
- Schedule 7.1 – to reflect any payments under this Modification and to reflect any additional service requests to be billed;
- Schedule 11 – to reflect an uplift to the CH specifications and any changes to the returns process;
- Schedule 12 – to reflect the uplifted technical specification versions (such as GBCS and CHTS).

These have not been included in the PIA costings, but will be fully assessed as part of the FIA.

7 Risks, Assumptions, Issues, and Dependencies (RAID)

In the following sections, Risks, Assumptions, Issues, and Dependencies have been identified, as well as requests for Clarifications from DCC and the Service providers. It is likely that further RAID will be established as part of the FIA.

7.1 Risks

Ref.	Risk Description	Mitigation	Risk Impact
MD10-TR01	This PIA expects that triage activities are performed in a dedicated facility and hence both diagnostics and Reset commands are allowed to be applied to the device via local delivery.	Facility complies with requirements	High
MD10-TR02	There is a risk that any additional Over The Air (OTA) command introduced as part of this Modification could be used as a “Denial Of Service attack” (DDOS) by changing the credential in use on Communication Hubs. To mitigate this risk, we recommend that: <ul style="list-style-type: none"> the command is defined to have the same cryptographic protections as a GBCS Critical Command; the reset can only occur after a CHF decommissioning service request. 	Inject commands by HHT only	Closed
MD10-TR03	Due to provision of the CH Reset command, SU's may have access to secure CH information, resulting in a potential security breach.	CSP Security to assess the mitigation as part of the IA.	High
MD10-AR04	Service Users are required to operate the Reset capability within RF shielded locations however we recognise that this is a challenging operational requirement and therefore expect to see accidental SMWAN connections when Service Users operate this process.	None	Medium

7.2 Assumptions

Ref.	Description	Impact	Accept
MD10-DA01	If there is a requirement to perform diagnosis of devices that are still on the consumer's premises the diagnosis command may be delivered via the SMWAN as well. Current assumption is no such requirement.	Introduce more scenarios in testing.	
MD10-DA02	Costs assume that there will be no additional security required within the DSP solution as a result of this change. For example, there is no requirement for functionality to be hosted as part of an isolated network or on separate hardware and there will be no separation of duties for service personnel. This assumption needs to be validated by security authorities and during the FIA.	High Impact on cost if proven to be untrue.	
MD10-DA03	The proposed solution assumes that the service user providing their own HHT/Triage tool is acceptable. From the DCC's point of view it would be extremely difficult to provide a one size fits all solution, given the need to integrate with a DCC adaptor and accommodate a large diversity of local delivery command transport mechanisms to the HHT.	Solution Complexity	Accepted
MD10-DA04	Assume triage activities are performed in a dedicated facility and hence both diagnostics and Reset commands are allowed to be applied to the device only via local delivery	Change would make solution unviable	Accepted
MD10-DA05	Assume there is no requirement to perform diagnosis of devices that are still on the consumer's premises using a diagnosis command that may be delivered via the SMWAN as well. This PIA assumes that this requirement is no longer valid.	Significant security impact.	Accepted
MD10-DA06	The standard retry strategy will be applicable for the newly introduced event notification mechanism to CSP's network management systems.		Accepted
MD10-DD10	Assumes that the Security and Protocol Certifications, SIT, UIT and any other test phase will be covered by a DCC release CR.		Accepted

MD10-AA11	BEIS will update relevant documents including agreeing with NCSC to include the new commands especially agreement around the CH Reset Command	Documentation	
MD10-AA12	NCSC will approve the Reset mechanism within the CPA process	Security	
MD10-AA13	The triage tool and HHT are not in scope of this Modification. In addition, DCC and the Service Providers will not provide support to the triage arrangements, use of the HHT, testing by an HHT, or any processes internal to the Service Users carrying out triage.	HHT	
MD10-AA14	Service Users will use a secure and screened lab type environment for the triage process	Facilities	
MD10-AA15	No functionality will be provided which interferes with or allows any interference with the SM WAN.	SM Wan Functionality	
MD10-AA16	Comms Hub variants (DBCH and SBCH) will be handled in the same manner regarding this modification.	Comms Hub Frequency	
MD10-AA17	PIT and SIT testing will focus on testing the command. The injection of the command will be down to best available method i.e. command line or through a test sequence over a wired interface.	Testing Approach	
MD10-AA18	PIT testing will require a minimum of 3 cycles of testing per sub-system, with the requirement for further cycles to be investigated at IA Stage.	Testing Approach	
MD10-AA19	Existing test CH's will be re-used for testing; no new CH's hardware will be necessary	Testing Approach	

MP10-TA20	Modification to the existing returns, triage and fault analysis reporting process for any Communication Hubs that have been returned to the CSPs. Whilst Telefónica understands and is supportive of the intent behind this Modification, it is not possible for a Comms Hub to perform a detailed triage of its own functions and therefore Telefónica does not expect to take account of any activities executed by the Comms Hub in response to a Service User managed 'diagnostics' and / or 'Reset' process when performing triage within the CSP facilities	Solution Feasibility	
MP10-TA21	Assume no liability related to any data that is retained on a Communication Hub following execution of the 'Reset' process	GDPR, Data	
MP10-TA22	Assume no implementation of a Service User managed capability to upgrade Communication Hub firmware for Communication Hubs located in Service User facilities. Telefónica's firmware upgrade process is highly dependent on an SMWAN connection for connectivity to Telefónica's device management platform and, as per GBCS, access to Telefónica hosted cryptographic material to authenticate firmware on a per Communication Hub basis		
MP10-TA23	<p>No updated software will be deployed to any Communication Hubs currently available in Telefónica's SIT Test Labs as required by the System Integrator to support SIT execution:</p> <ul style="list-style-type: none"> - Any Communication Hubs currently available in Telefónica's UIT Test Labs as required by Service Users and in accordance with existing processes. - Any Comms Hubs currently available in Telefónica UIT Test Labs used for UIT reference set testing. Standard regression testing will occur on these sets. - Any Comms Hubs used in Service User Remote Test Labs as required by Service Users and in accordance with existing processes 		

	<ul style="list-style-type: none"> - Deployment of the firmware to any connected Production Communication Hubs that have been installed in consumer premises. Delivery of firmware will be on a reasonable endeavours basis - Deployment of the firmware into manufacturing for newly manufactured Communication Hubs on approval of firmware by DCC OAB - Any trigger to systems, processes or interfaces to support a state change of Communication Hub CHF or GPF parameters within the DSP SMI upon Service User managed triage and reset activities. 		
MP10-TA24	<p>Assume regarding the new GBCS commands introduced as part of this Modification:</p> <ul style="list-style-type: none"> - DCC and GBCS working group will define the command and response structure and payload - CSPs will be responsible for defining the processing activities performed by the Communication Hub in response to the individual commands - The processing activities that each CSP determines is appropriate will not be fixed by the technical specifications such that CSPs are able to iterate the functionality without further technical specification modifications being required. 	Documentation and Specifications	Open
MP10-TA25	<p>Telefónica understand that the new DUIS commands that are being introduced as part of this Modification are to be executed when the DSP SMI status for the CHF and/or GPF is either 'pending' or 'commissioned'. Assume that the DSP will permit the Service User to receive GBCS commands in either of these SMI states.</p>		
MP10-TA27	<p>Assumed in developing the ROM price that the required modifications to the Smart m2m solution relate to improving the state change triggers for accidental birth event receipt and that no additional modification is required within the Smart m2m solution.</p> <p>This will be confirmed as part of the FIA.</p>	Support System	

MP10-TA28	<p>Assume that the DSP will modify its behaviour in relation to the triggering of automated commissioning activities in scenarios where the Communication Hub is accidentally birthed by a Service User due to inadequate RF shielding.</p> <p>Telefónica are concerned that where the DSP attempts to and fails to communicate with a Communication Hub as part of their PCO obligations that this would result in additional tickets raised on the CSP. This may be mitigated by the DSP using information on Reset attempts to limit any PCO activities</p>		
MP10-TA29	Assume that there is no requirement for the CSP to take part in any pre-notification or delivery status updates where a Communication Hub is re-used by the Service User as part of the process introduced within this Modification.		
MP10-TA30	<p>Assume that Service Users will re-use any reset Communication Hubs within 90 days of removal from a consumer premise. Telefónica has made this assumption in order to not materially:</p> <ul style="list-style-type: none"> - Affect any remaining warranty on the Communication Hub - Increase the effort required to upgrade the Comms Hub firmware 		
MP10-TA31	Assume that the existing Service User obligation to return Communication Hubs within 90 days of remove continues to apply irrespective of any activities by the Service User to reset the Communication Hub.		
MP10-TA32	There is no change on Service User obligations regarding the transmission of a DUIS CHF decommission service request upon removal of a Comms Hub.		
MP10-TA33	Any equipment used by a Service User to power or provide commands will be assured in accordance with specifications that DCC-L manage and Telefónica agree to.		
MP10-TA34	<p>Assume that DCC will manage the process to define any equipment specifications related to hardware that Service Users are required to use to power the Communication Hub when using the functionality introduced in this Modification.</p> <p>Assume that this will include any requirements that Telefónica identify.</p>		

MP10-TA35	<p>Modifications will be drafted to the SEC to support this Modification including at a minimum:</p> <ul style="list-style-type: none"> - Modification to CHIMSM to make return to the CSP optional (noting that all CSP returns are still required to have a SR8.14.3/4 submission); - Obligations on Service Users to purchase equipment that is compliant with a DCC-L provided specification; - Obligation on Service Users to deploy and regularly test RF shielding to execute the process in to prevent SMWAN connectivity; - Obligations to use the new DUIS requests to execute the capability introduced as part of this Modification; - Any obligations on Service Users regarding credential replacement within the process; <p>Clarity on liability resting with the Service User regarding the data erasure on the Communication Hub where the Communication Hub is re-used by the Service User;</p> <ul style="list-style-type: none"> - Obligation for Service Users to submit the CHF decommissioning SR within 5 days of the removal of the Communication Hub, to match the current SR8.14.3/4 obligation 		
MP10-TA36	<p>Assume that any capabilities introduced as part of this Modification will be exclusively by Service Users to reset Communication Hubs for the purpose of re-use and not for any activities that are typically performed during the Installation and Commissioning process.</p>		
MP10-TA37	<p>Assume that when the associated TSG specifications and / or CRPs / IRPs to support specification change for this Modification are defined that there will be no material changes from the documentation referenced.</p>	Documentation	Accepted
MP10-TA38	<p>Assume that the DUIS schema version used for the CSP management interface will not be required to increment because of this Modification.</p> <p>If not the case, then there will be additional effort to load the updated DUIS schema into Telefónica systems and to regression test this functionality in PIT.</p>		

MP10-TA39	Telefónica assume that the firmware changes to support the delivery of this Modification will be managed as part of a DCC release operating in parallel with the maintenance release process.		
MP10-TA40	Assume that Service Users will be liable for executing the process of resetting the Communication Hub and erasing any stored data. Service Providers will not be liable should this process not be executed.		

7.3 Issues

Ref.	Description	Impact
MD10-DI01	Non-functional requirements in terms of volumes of devices, and the number of Service Users would help shape the Full Impact Assessment.	Medium
MD10-TI02	Telefónica does not believe that it is feasible to implement a firmware upgrade process within Service User facilities and has therefore not included it in the scope of this response. As noted above, Telefónica's firmware upgrade process is highly dependent on an SMWAN connection for connectivity to Telefónica's device management platform and, as defined in GBCS, access to Telefónica hosted cryptographic material to authenticate firmware on a per Comms Hub basis.	High, Assumed not feasible

7.4 Dependencies

Ref.	Description	Impact
MP10-DT01	There is a dependency on the provisioning of two new GBCS use cases.	High on timescales.
MP10-DA02	Delivery will be based on a stated GBCS version, most likely 3.3.	Medium
MP10-DA03	A Triage Tool HHT is to be provided by CSP North and a separate CR is to be raised by the DCC for the design and development of this device	Medium

MP10-DT04	<p>Telefónica have a dependency on the DCC-L:</p> <ul style="list-style-type: none"> - uplifting the GFI HHT emulator capability and free issuing it to Telefónica (this cost is not included in the PIA) - Providing training on GFI <p>Both activities to occur prior to PIT commencement such that Telefónica can assure the delivery of the newly defined GBCS commands via interPAN as part of PIT testing.</p>	Telefónica will be unable to assure the transmission of the newly defined GBCS commands via an HHT within PIT.
MP10-DA05	Confirmation that the solution has security approval by whichever bodies or organisations are necessary to operate the solution in the Production environment	High

7.5 Clarifications

ID	Area	Request	Detail	Status
T_4	PIT	DCC to confirm expectations regarding the PIT Test approach for this Modification in relation to the scenarios and variants to be used in PIT testing	Telefónica assume that the current PIT test approach as used for the testing of maintenance releases of Firmware will be sufficient for the testing of this Modification subject to the assumed modifications noted in this Modification.	Open
T_5	Firmware approach	DCC to confirm expectations regarding how Communication Hub firmware is to be developed and tested for this Modification in relation to firmware developed as part of the firmware maintenance policy.		Accepted

T_6	Firmware approach	DCC to confirm expectations for how any firmware developed as part of this Modification and delivered as part of a programme release will incorporate any modifications that have been delivered via maintenance releases	<p>Telefónica assume that:</p> <ul style="list-style-type: none"> - Code deployed into PIT for this Modification will be branched off a version of firmware that is delivered via the Firmware Management Process; - Defects identified in Prod during PIT will not prevent PIT exit or SIT entry if the fixes are not in the codebase used in PIT. Telefónica expect a SIT test cycle will be used to assure this (outside of the scope of this Modification); - The Communication Hub firmware used to exit PIT will be a merge with whatever version of FMP code production candidate if Telefónica unilaterally view this to be reasonable and possible to merge in the timeframes for testing within the PIT window; - PIT exit and SIT entry criteria will not use FMP / OAB criteria and in particular defect masks will relate only to the functional change in the scope of the CR; - PIT exit and SIT entry is driven only by the production codebase maturity and does not consider not RTL / ITCH variants; - Regression test will include all test products. 	Accepted
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Appendix: Glossary

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

ASML	Arqiva Smart Metering Limited	HHT	Hand Held Terminal
BEIS	Department for Business, Energy & Industrial Strategy	JSR	Job Status Request
CAN	Contract Amendment Note	MMC	Message Mapping Catalogue
CH, Comms Hub	Communications Hub	OAB	Operational Acceptance Board
CHF	Comms Hub Function	OTA	Over The Air
CHM	Comms Hub Management	PIA	Preliminary Impact Assessment
CHTS	Communication Hubs Technical Specification	PIT	Pre-Integration Testing
CPL	Change of Supplier	RMA	Return Material Authorisation
CPA	Commercial Product Assurance	RMR	Return Material Request
CPL	Certified Products List	ROM	Rough Order of Magnitude
CR, CRP	Modification, BEIS Modification	SEC	Smart Energy Code
CSP	Communication Service Provider	SIT	Systems Integration Testing
DCC	Data Communications Company	SMETS2	Smart Metering Equipment Technical Specification
DDOS	Denial Of Service attack	SMI	Smart Metering Inventory
DSP	Data Service Provider	SMIP	Smart Meter Implementation Programme
DUGIDS	DCC User Gateway Interface Design Specification	SM WAN, SMWAN	Smart Meter Wide Area Network
DUIS	DCC User Interface Specification	SP	Service Provider
DSMS	DCC Service Management System	SR	Service Request
ESME	Electricity Smart Metering Equipment	SRV	Service Request Variant
FIA	Full Impact Assessment	SSC	Security Sub-Committee
GBCS	Great Britain Companion Specification	SSI	Self Service Inventory
GFI	GBCS Integration Test for Industry	SU	Service User
GPF	Gas Proxy Function	UIT	User Integration Testing
HAN	Home Area Network	WAN	Wide Area Network