

SEC Modification Proposal

- **DCC Impact Assessment (IA) - FINAL**
- **Mod Proposal Ref: SECMP0002**
- **Mod Proposal Title: Add New Command to Reset Debt Registers**
- **Mod Path: Path 2 - Authority determination**

Version:

1.0

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Author:

DCC

Classification:

DCC PUBLIC

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1 Introduction

1.1 Document Purpose

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

PLEASE NOTE: This document is an update to the previously submitted DCC Impact Assessment and this version represents the FINAL Impact assessment.

1.2 Previous information provided by DCC

This IA is provided further to a DCC Preliminary Assessment (PA), which was returned to the Working Group on 20 June 2016. This document builds on the information previously provided as part of the PA, clarifying and refining the impact of this SEC Modification on DCC.

1.3 DCC Contact Details

Please raise any queries regarding this DCC Impact Assessment using the contact details provided below.

Name	DCC - SEC Modification queries
Contact email	mods@smartdcc.co.uk

1.4 Modification description

The Proposer of this modification summarises the change as follows:

Proposal for the addition of new commands to allow users to reset any of the debt registers on an electricity or gas meter.

1.5 Requirements

The requirements for this modification have been developed by the Working Group during the Refinement phase. The impact on DCC has been assessed against the Business Requirements and the corresponding draft legal text set out in the Solution Design Document.

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 SECMP 0002 to be **STABLE**. Where the requirements or SEC obligations set out in the Solution Design Document above change, DCC will be required to carry out further impact assessment.

2 Impact on DCC's Systems, Processes and People

This section describes the impact of SECMP0002 on DCC's Services and Interfaces that impact Users and/or Parties.

2.1 Summary

- DCC's solution for SECMP0002 will enable Eligible Users to reset to zero, the three debt registers which are common to both electricity and gas prepayment meters.
- Impacted Systems, Processes and People:
 - Primary impacts on DSP Systems within the DCC ecosystem (multiple components)
 - DCC User Interface
 - 1 new Service Request Variant (2.4 Reset Debt)
 - Message Mapping Catalogue
 - Schema Update
 - Parse and Correlate
 - Uplift to support new commands
 - Anomaly Detection
 - New thresholds to be defined
 - Primary Impacts on CSP North systems within the DCC ecosystem
 - Business Support Systems
 - Updates to message categorisation for billing
 - Primary Impacts to BIMl
 - New or Updated reports
 - Primary Impacts to GFI
 - 6 new use cases
 - Changes to GFI Command Line Tool, GFI GUI, RTDS data set.

2.2 Impacts on DCC Services and Interfaces

The following table describes the detailed impacts of SECMP 0002 on DCC's Systems and processes.

Ref	Impact on DCC	User or Party Impact
001	Service Request processing - SRV 2.4 Reset Debt (New) A new service request variant will be created to reset the following debt registers: - TimeDebtRegister1 - TimeDebtRegister2 - PaymentDebtRegister In addition to DUIS, DUGIDS and MMC, the additional impacts will be: Data Management The new SRV and Use Cases and associated mappings will be created in the DSP database using the same approach introduced in CR194 for other SRVs. Request Management Request Management needs to extend the standard validation checks for the new Service Request. The Responses from devices (Northbound) are not expected to contain any information that triggers changes such as DCC Alerts generation, Data Management changes etc. Anomaly Detection (TADIS) The ability to support volume-based anomaly detection thresholds will be added for the new SRV. As the new SRV is Critical, it will be in the list of SRVs requiring mandatory volume thresholds in TADIS. Attribute limit checks shall be performed for all the ZSE signed pre-commands to ensure that the value of the Debt Amount (the only attribute that is set by the SRV) is 0. GBCS Transformation New libraries for each unique GBCS use case need to be implemented. This involves implementation of six new GBCS use cases; three for ESME and three for GSME. Message Gateway and Motorway Configuration The addition of SRVs requires configuration changes in the motorway.	- New version of DUIS and DUGIDS with new Service Request Variant definition. - New DUIS XML Schema to be created by DCC and implemented within both the DCC Systems and user systems to support the new commands. - New Version of MMC Schema (Returns SUCCESS/FAIL only)

Ref	Impact on DCC	User or Party Impact
002	GFI and RTDS – New Use Cases Updates to the GFI tool and RTDS data set to accommodate the following new use cases: • ECS07a Reset Payment Debt Register on ESME • ECS07b Reset Time Debt Register 1 on ESME • ECS07c Reset Time Debt Register 2 on ESME • GCS04a Reset Payment Debt Register on GSME • GCS04b Reset Time Debt Register 1 on GSME • GCS04c Reset Time Debt Register 2 on GSME GFI Changes • New test and test class. • New use case classes to generate and process GBCS commands and responses. This will include support for processing responses generated when a meter was not able to process the command successfully (error scenarios). • Support the use case in the GFI ESME/GSME emulator. • Support the use case in the GFI GUI. RTDS Changes • Generation of DUIS request and MMC response for success and error scenarios. • Generation of GBCS command, pre-command and response for success and error scenarios.	Updates to:' • Release Notes • Technical Reference Manual
003	Parse and Correlate – New Use Cases Parse & Correlate will be updated to support the following new use cases: • ECS07a Reset Payment Debt Register on ESME • ECS07b Reset Time Debt Register 1 on ESME • ECS07c Reset Time Debt Register 2 on ESME • GCS04a Reset Payment Debt Register on GSME • GCS04b Reset Time Debt Register 1 on GSME • GCS04c Reset Time Debt Register 2 on GSME	None
004	BIMI – Update Reports Changes will be required to the SAT ODS and presentation data loads to extract information regarding the new message types being implemented in this change. It is expected that DCC will require changes to existing reports or new reports to be created.	None

Ref	Impact on DCC	User or Party Impact
005	CSPN BSS Update Changes are required to BSS to ensure correct categorisation of the new messages into their respective pricing bands.	None

3 Impact on Security

This section describes the impact DCC considers SECMP0002 will have on Security of DCC's Total System.

DCC has carried out a security risk assessment for SECMP0002 and determined that **there are no material security risks** associated with the implementation of DCC's proposed solution.

4 Testing Considerations

This section describes the testing phases required to support the implementation of SECMP0002.

4.1 Summary

- DCC will be required to carry out Pre-Integration Testing and System Integration Testing for SECMP0002
- This change will have impact on service users and will require enhancements to Testing Services to ensure that service users can execute the new Service Requests and successfully execute them in production.

4.2 Pre-integration Testing

The scope of Pre-integration Testing should include:

- Automatic unit and link tests
- Scripted system tests that will require data to be generated to enable functionality to be exercised.
- Factory Acceptance Tests will be a subset of system tests witnessed by DCC as per the process in place under CR160.

4.3 System Integration Testing

System Integration testing for this change will be conducted as a part of the release this change is included in.

4.4 Testing Services

There are two distinct reasons for User Testing:

- Proving the Service User / Test Participant can successfully execute the SRs and can use them effectively in Production
- Proving that the code should be uplifted into Production via either:
 - Requiring a specified number of test participants (e.g. 2) can do (a) and that the testing issues are below a specified mask level.
 - Permitting all that are qualified to test within a time boxed window (say 4 weeks) and uplifting thereafter unless there is evidence that the uplift should not be done (e.g. excessive defects).

As User Testing does not mandate timescales for Users to conduct their testing in, use of a time boxed window the change to be expedited and provides certainty of when the change should be implemented in Production. This approach is therefore suggested.

4.4.1 User Testing in Testing Service

A new SRV would be introduced – targeted at GSME and ESME and the three associated debt registers – allowing these independently to be set to zero. On executing the command, the applicable debt register will be set to zero and the zeroing acknowledged to the User. The objective of testing under Testing Services is to ensure that, in response to the Service Request, the User receives the corresponding Service Response from the DCC. Testing Services will not check that the register on the target Smart Metering Device has been reset to zero.

4.4.2 Testing for new participants and existing Service Users

For those Test Participants that have not yet commenced User Entry Process Testing (UEPT) for the IS and GS roles, SECMP0002 will be added to the list of SRs required to be tested in UEPT. These Test Participants will need to pass all the SRs prior using these SRs in either Production or End to End testing (E2E). Following the introduction of R1.3, there are 115 SRs for IS, 78 SRs for GS. Typical Users will test against both roles.

Existing Service Users must demonstrate that they can successfully execute the SECMP0002 SR prior to using it in the Production. This can be done either through E2E or UEPT. By 2018/19, the number of existing Service Users is expected to have grown to ~150.

Testing Services are user driven and thus the pace of testing cannot be directed by the DCC. It is therefore more appropriate to think of this in terms of the incremental effort needed to address an additional 2 SRs (1 for IS and 1 for GS) against 3 registers. Thus an ongoing ~3% increase in SRs available to test in E2E plus an immediate flurry of testing as SECMP0002 becomes available. In E2E it is 3% on a team of four. Thus around 0.1 FTE.

The immediate introduction of an additional SR will lead to increased effort for:

- Communications with Test Participants / Service Users
 - A collective activity focused on the uplift of SECMP0002 into UIT) – 5 days total
- Updating Service Request mappings
 - A one off - single activity for all TPs – 2 days total
- Testing Issues management
 - A per TP activity for duration of their testing – standalone if already UEPT complete) – average of 1 day per Test Participant – average of 1 day per Test Participant

- Liaison with Test Participants - Assessing evidence (for all) and issuing completion certificates (for existing Service Users)
 - A per TP activity – closing of the TPs testing – standalone if already UEPT complete) – average of 1 day per Test Participant

Of the 150 Service Users – assuming 120 will be in IS or GS roles, this equates to ~250 days of effort.

Including SECMP0002 as mandatory means that all Service Users will have to test it. By contrast (2) & (3) above could be made voluntary if accepted that the only SEC party that suffers if a register is wrongly reset to zero, is the applicable IS or GS. However this would create a set of 'secondary' Service Requests, and so this has not been assumed.

4.4.3 Testing in UEPT and E2E

For those testing in UEPT, testing will be conducted in a DCC Lab against allocated DCC Devices. In line with the Solution Design Document, no specific uplift will be required of the Comms Hubs / DCC Devices for SECMP0002 testing. It is additionally assumed the no new spaces Comms Hubs or devices will be needed, as the labs will already be provisioned for ongoing testing

SECMP0002 will be made available to those testing in E2E following its uplift into UIT. For those testing in E2E. They can elect to conduct their testing in:

either a DCC Lab on its own or DCC Devices

or its own Remote Test Lab against its own Devices

It is assumed that the no new / additional DCC devices will be required for SECMP0002 E2E testing.

There is currently only one UIT test environment and whilst the creation of additional environments is currently being pursued, this is not assumed. This avoids the costs of creating a specific environment for SECMP0002. There however remain the question of how the introduction of SECMP0002 will interact with the ongoing change programme.

The overall effect of these assumptions is that no additional devices will be need to be purchased and none of the existing devices will need to be uplifted.

It is also assumed that with no change of devices then Parse and Correlate will not need to be updated for SECMP0002.

4.4.4 Detection Thresholds

The Solution Design Document states that the DCC will apply all applicable ADTs to the Signed Pre-Commands in the test environment, and that Users will be expected to set User volume ADTs and data value ADTs as applicable. These are not incremental activities peculiar to SECMP0002, rather routine activities for those using Testing Services. No additional effort is therefore envisaged.

5 Implementation Timescales and Releases

5.1 Change Lead Times

From the date of approval, (in accordance with Section D9 of the SEC), in order to implement the changes proposed DCC requires a lead time of:
13 months

This includes twelve months as stated in the DCC Release Management Policy plus an additional one month to allow for integrated release planning. Integrated release planning can only begin once all Authority Determinations have been received for all modifications proposed to be included within each Release.

5.2 Consideration against Other Changes

This change will need to be taken into account for SECMP0030 – Demand Management

6 DCC Costs and Charges

Implementation costs							
Implementation Phase:	Design	Build	Pre-Integration Testing	System Integration Testing	User Testing	Implementation to Live	Total
SECMP0002	£24,921	£1,161,514	£1,263,361	-	-	-	£2,449,796
Implementation costs – supplementary information							
Implementation cost assumptions	A. Costs are exclusive of VAT and any applicable finance charges B. Majority of the costs above represent labour costs. 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. D. Service Providers were asked what the costs for System Integration Testing would be. Their initial estimate was provided and is reflected above. DCC considers that further reductions in these costs may be possible as part of final contract negotiations. E. Costs provided for User Testing and Implementation to Live are an initial estimate created by DCC and may differ from the final costs provided by the Service Providers as part of a contracted solution for the approved release. F. A reduction of circa 20% in costs can be assumed for System Integration Testing and User Testing and a reduction of circa 33% in costs can be assumed for Implementation to Live. G. User Testing estimates provided above represent an incremental cost to the existing testing arrangements that are in place and provided for by DCC as part of the existing cost base. The testing environment that the DCC provides as part of Testing Services will be open to all User Roles and multiple Users within each User Role to ensure that any User wishing to test this SEC Modification are able to do so. These cost estimates have been provided on the assumption that the test environment would be						

	made available for a minimum of 15 working days to enable Users to test the changes associated with this SEC modification. The User Testing costs assume there will be 15 days of User Testing with up to 10 Users undertaking testing. H. The split of costs between Design, Build and Pre-Integration testing phases has been derived by DCC from the Service Provider submissions.
Explanation of Implementation Phases	DCC's implementation costs are provided by implementation phases. The following describes the purpose of each phase: • <i>Design: The production of detailed System and Service design to deliver all new requirements.</i> • <i>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.</i> • <i>Pre-integration Testing: Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC.</i> • <i>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.</i> • <i>User Integration Testing: Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.</i> • <i>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.</i>

6.1.1 On-going operational costs

The table below details the additional cost associated with the on-going operation of the new Systems or Services introduced through this Modification Proposal.

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 SECMP0002 does not propose any changes to the charging arrangements set out in SEC Section K. DCC has made the assumption that, in the absence of an agreed alternative arrangement by the Working Group, the costs associated with the implementation of SECMP0002 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 SECMP0002 to commence in the month following the modification's implementation.

6.3 Variation in costs from Preliminary Assessment ROM

DCC notes that the implementation costs (provided in this section) are greater than those presented to the Working Group as part of the Preliminary Assessment (PA). The detailed reasons for the additional costs are still being fully assessed and verified by DCC with our Service Providers. At the point of issue for this Impact Assessment, this detailed verification and challenge activity is still ongoing. However, the high level reasons for the increase are provided below and are expected to be updated with further detail as part of a later submission:

- **General cost refinement**

One purpose of a DCC IA is to provide the cost of implementing this modification – a figure that DCC can contract against. DCC's IA costs are based upon in-depth analysis of the change resulting from increased scrutiny of requirements and refinement of the proposed solution and the associated cost estimates requested to deliver the identified changes

Service Providers have informed DCC that the previous Preliminary Assessments provided assumed that some costs were incorrectly allocated to the general release overhead and not included as direct costs associated with the specific changes required to design, build and test the proposed solution for this modification proposal. This has led to a significant variation with the Preliminary Assessment Rough Order of Magnitude cost. All future Preliminary Assessments will include the charges necessary to deliver the change in isolation.

7 Appendix A: Variation between assessments

This section describes any instances where DCC's solution or impacts (with the exception of variations in costs, which is set out in section 6 of this IA) set out in DCC's PA and IA for this Modification Proposal vary.

There is no variation between supplier impact assessments and DCC's impact assessment