Data Communications Company

SEC Modification Proposal, SECMP0105, DCC CR1397

Sending SR11.2 to Devices in Suspended State

Preliminary Impact Assessment (PIA)

Version:	**0.25**
Date:	**27th August 2020**
August	**DCC**
Classification:	**DCC PUBLIC**

Data Communications Company

Contents

1 Document History

1.1 Revision History

Revision Date	Revision	Summary of Changes
26/08/2020	0.1	Initial version, for DCC internal review
27/08/2020	0.2	Updated following an internal review
27/08/2020	0.25	Updated cost, created Annex

1.2 Associated Documents

This document is associated with the following documents:

Ref	Title and Originator's Reference	Source	Version
1	MP105-Modification-Report	SECAS	0.3
2	MP105 June 2020 Working Group summary	SECAS	
3	MP105 Business Requirements	SECAS	1.1

References are shown in this format, [1].

1.3 Document Information

The Proposer for this Modification is Chun Chen of Data Communications Company (DCC). The original proposal was submitted in December 2010 and the Preliminary Impact Assessment (PIA) was requested of DCC on 14th April 2020 and submitted on 4th May 2020. This was issued as DCC CR 1338.

Following a review of the solution suggested in the PIA in June 2020 Working Group Meeting, a second additional requirement is included in this Modification Proposal. The revised PIA for the solution with the additional requirement was requested of DCC on 17th July 2020, and is now denoted by the DCC CR 1397.

2 Context and Requirements

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

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

2.1 Current Arrangements

Once a firmware entry is removed from the Central Products List (CPL), the Smart Metering Inventory (SMI) status for the impacted Devices is set to a 'Suspended' state. While the Device is in a 'Suspended' state, only a Critical Service Request (SR) can be sent to those Devices, and any Non-Critical SRs will be rejected by the Data Service Provider (DSP) with an E5 error, "Failed Authorisation – Invalid Device Status".

As an exception, the following Non-Critical SRs will be allowed if the Device is 'Suspended':

- SR11.1 'Update Firmware';
- SR6.23 'Update Security Credentials ( )';
- SR2.2 'Top Up Device' with a Command Variant value of 2 (only for Smart Metering Equipment Technical Specifications (SMETS) 1 Devices).

This means SR11.2 'Read Firmware Version' will be rejected by the DSP E5 validation when the Device is in a 'Suspended' state.

2.2 What is the issue?

The scenario in which this causes an issue is if the SR11.3 'Activate Firmware' response for successful firmware activation is not received by the DSP from a Device in Suspended' state. In this scenario, the Device will remain in the 'Suspended' state even though the new firmware is now activated on the Device.

Also, SR11.2 'Read Firmware Version' will be rejected by the DSP E5 validation, when the Device is in a 'Suspended' state.

There is no other recoverable method unless another new firmware update takes place and successful firmware activation response is received by the DSP.

2.3 Impact of the issue

There will be a percentage of Devices that cannot be recovered from the 'Suspended' state if the SR11.3 successful response is not received by the DSP.

Currently, the only way to resolve this is for a Service User to carry out another firmware update for a successful response, which is a waste of time and effort.

3 Description of Solution

The objective of this SEC Modification is to provide DCC Users with the ability to update the SMI Device Status for one or multiple Suspended device with valid firmware, without having to send repeated firmware updates.

Requirement 1:

The DCC Data Systems shall process SR 11.2 ‘Read Firmware Version’ where a Device has a Smart Metering Inventory (SMI) Status of ‘Suspended’.

The SMI status would then be updated based on the SR11.2 response while the Device is in the ‘Suspended’ state. This would allow the DCC Service User to read the new firmware version on the Device and subsequently update this information in the SMI.

Requirement 2:

Upon a Service User's automated second attempt of SR 11.3 ‘Activate Firmware’, the response shall update the SMI with the new firmware version and subsequently the status of the Device.

3.1 SEC Changes

The DCC and Service Providers have reviewed the requirements, solution and expect changes will be required in SEC Appendix AD - DCC User Interface Specification (DUIS).

Section 3.8.119.4 and section 3.8.120.4 of SEC Appendix AD shall be updated to include the change in DCC processing for ‘Suspended’ Device based on the response of SR 11.2 and SR11.3 respectively.

There will not be any changes in DUIS XML schema or MMC XML schema. The actual change to the “Additional DCC System Processing” sections will be provided during the Full Impact Assessment (FIA).

3.2 DSP Solution Overview

Solution for Requirement 1:

DCC Data Systems will modify the E5 validation check so that an SR11.2, targeted at a ‘Suspended’ Device, is not rejected by the DCC Data Systems.

If the Response to SR11.2 from a ‘Suspended’ Device indicates that new firmware has been activated, then the Device will be unsuspended by updating the status in SMI to the status it held immediately prior to its suspension. DCC Alert N29 (Device Restored from Suspension) will also be sent to the Responsible Import Supplier and to the Responsible Network Operator. This behaviour is the same as that of processing the Response to SR11.3 (Activate Firmware) from a ‘Suspended’ Device.

It should be noted that the Response to SR11.2 received from a GPF would not be treated as a valid input for restoring the associated GSME from the ‘Suspended’ state. The existing functionality is to send the DCC Alert N52 (GSME Firmware Version Mismatch) to the Service Users if the received GSME firmware version, returned by the GPF, is different from

the corresponding GSME's firmware version available in SMI. This behaviour will remain unchanged.

Solution for Requirement 2:

DCC Data Systems will modify the processing of Service Request 11.3 Activate Firmware such that the value of ActivateImageResponseCode in the Response will no longer be considered as criteria for determining whether to update the SMI. If the Device Response contains a valid version (CPL status "Current") of the firmware, DSP will update the DeviceFirmwareVersion and Device Status (that it held immediately prior to its Suspension) in the SMI, irrespective of the value held by 'ActivateImageResponseCode'.

This approach is particularly helpful for SMETS1 Device which does not follow the 2 step firmware upgrade process - download and activate. A retry of SR 11.3 is handled differently by SMETS1 Service Providers (S1SP) and a failed activation response may not contain firmware version.

3.3 Other Solution Impacts

Apart from the DSP, no other DCC Components are impacted by this change.

4 Impact on DCC Systems, Processes and People

This section describes the impact of SECMP0105 on DCC Services and Interfaces that impact Users and/or Parties.

4.1 System Components

Change in Response processing of SR 11.2 and 11.3 require a change in Request Management and Data Management components at DSP.

4.2 Security Impact

There is no material impact on the DSP security solution as a result of this change. The implementation will be security assured during the implementation phase. This includes reviewing designs, test artefacts and providing consultancy to the implementation and test teams.

A more detailed security impact will be carried out as part of the Full Impact Assessment.

At this stage, a penetration test and updates to protective monitoring are not thought to be required.

4.3 Technical Specifications

There will be changes in DUIS (no change in the XML schema) and corresponding changes in DUGIDS for the changes in DUIS. No other changes in any Technical Specification are expected.

4.4 Integration Impact

The revised behaviour of SR11.2 and 11.3 is expected to require amendments to associated Systems Integration and User Integration Testing scenarios. An appropriate level of SIT and UIT will be carried out prior to progressing the release of this change to the Production environment, but this is not included in the PIA.

4.5 Infrastructure Impact

There will be no change to the infrastructure design as a result of this change.

The Modification does not impact the DSP's resilience or Disaster Recovery implementation.

4.6 Application Support

No changes to Application Support are expected.

4.7 Service Impact

No material impact is expected for the Operations team and no changes to SLAs are expected. The impact will be validated further as part of the FIA.

4.8 Safety Impact

The following areas will not be impacted:

- Systems Safety Impact
- Occupational Health, Safety and Environment Impact

- Systems Safety Deliverables

Negligible impact to DSP safety programme in terms of timescales and resourcing, any necessary updates to the DSP safety analysis due to this CR will be accounted for in the planned annual update of the Safety Case deliverables.

A full Safety Impact Assessment will be carried out as part of the production of the FIA.

4.9 Contract Schedules

No changes to contracts are expected, but this will be re-evaluated for the FIA.

5 Implementation Timescales and Approach

As this change affects the DUIS document, it will need to be implemented as part of a scheduled release. Notwithstanding in which release this change is implemented, based on the current response from the Service Provider, the elapsed time for implementation from project initiation through to PIT completion will be up to 3 months.

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

5.1 Implementation Approach

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

5.2 Testing and Acceptance

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

6 Costs and Charges

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

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

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

6.1 Design, Build and Testing Cost Impact

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

Price Range	Design, Build and PIT
Sending 11.2 to Devices in Suspended State	£0 - 150,000

Based on the existing requirements, the total fixed price cost for a Full Impact Assessment by the Service Provider **is £11621.10** and would be expected to be completed in 30 working days.

7 Risk, Assumptions, Issues, and Dependencies

In the following sections, Risks, Assumptions, Issues, and Dependencies have been identified. Two clarifications are also requested.

Further RAID may be established as part of the Working Group reviews and the FIA.

7.1 Risks

None at this time.

7.2 Assumptions

None at this time.

7.3 Issues

None at this time.

7.4 Dependencies

None at this time.

7.5 Clarification

None at this time.

Appendix A: Glossary

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

.Acronym	Definition
CH	Communications Hub
COS	Change of Supplier
CPL	Central Products List
CR	DCC Change Request
DCC	Data Communications Company
DSP	Data Service Provider
DUGIDS	DCC User Gateway Interface Design Specification
DUIS	DCC User Interface Specification
FIA	Full Impact Assessment
GPF	Gas Proxy Function
GSME	Gas Smart Metering Equipment
MMC	Message Mapping Catalogue
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
ROM	Rough Order of Magnitude (cost)
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SMI	Smart Metering Inventory
SMETS	Smart Metering Equipment Technical Specification
SP	Service Provider
SR	Service Request
SRV	Service Request Variant
UIT	User Integration Testing
XML	eXtensible Markup Language