Data Communications Company

SEC Modification Proposal, SECMP0105, DCC CR1338

Sending SR11.2 to Devices in Suspended State

Preliminary Impact Assessment (PIA)

Version:	1.0
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Author:	DCC
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Contents

1 Document History

1.1 Revision History

Revision Date	Revision	Summary of Changes
04/05/2020	0.1	Initial version
05/05/2020	0.25	Internal DCC review
11/05/2020	1.0	Minor changes from SECAS including DUIS document change

1.2 Associated Documents

This document is associated with the following documents:

Ref	Title and Originator's Reference	Source	Issue Date
1	MP105-Business Requirements v1.0-1	SECAS	03/04/2020
	MP105-Modification Report v0.2	SECAS	03/04/2020

References are shown in this format, [1].

1.3 Document Information

The Proposer for this Modification is Chun Chen of DCC. The original proposal was submitted in December 2019.

The Preliminary Impact Assessment was requested of DCC on 14th April 2020.

2 Context and Requirements

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

2.1 Current State

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 Data Services 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 (CoS)'

• 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 the DSP E5 validation causes an issue is if the SR11.3 'Activate Firmware' response for successful firmware activation is not received by the DSP. In this case the Device remains in the 'Suspended' state even though the new firmware is now activated on the Device. There is no other recovery method unless another new firmware update takes place.

To get around this, SR11.2 would need to be added to the exception list. This would allow the SMI status to be updated based on the SR11.2 response while the Device is in the 'Suspended' state.

Any changes to how SR11.2 is handled would necessitate a change to the DCC User Interface Specification (DUIS) and to the DCC/DSP Systems, and this requires a SEC Modification to do so.

2.3 Solution Drivers

Without the required addition of SR11.2 into the exception list, there will be a small percentage of Devices that cannot be recovered from the 'Suspended' state if the SR11.3 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, which is a waste of time and effort.

SECAS notes that Electricity Smart Metering Equipment (ESME), Gas Smart Metering Equipment (GSME), Prepayment Meter Interface Device (PPMIDs) and Home Area Network (HAN) Connected Auxiliary Load Control Switches (HCALCS) could all be suspended on the CPL. However, SR11.2 is only applicable to ESME and GSME.

Should SR11.2 support be required for PPMIDs and HCALCSs, a separate change is needed. This added functionality is proposed to be provided via SECMP0007 'Firmware

updates to PPMIDs and HCALCS'. However, this Modification is not dependant on SR11.2 being expanded to include PPMIDs and HCALCS.

This proposal will not apply to In-Home Displays (IHDs) as they are not listed on the CPL.

2.4   Business Requirement for this Modification

This section contains the considerations and assumptions for each business requirement as provided by the Proposer and SECAS.

Req.	Requirement
1	The DCC shall process Service Request (SR) 11.2 'Read Firmware Version' where a Device has a Smart Metering Inventory (SMI) Status of 'Suspended'.

Table 1: Business Requirement for SECMP0105, CR1338

3　Description of Solution

The solution requested is for the DCC is to design a solution to facilitate the DCC processing Service Request (SR) 11.2 'Read Firmware Version' where a Device has a Smart Metering Inventory (SMI) Status of 'Suspended'.

SR11.2 needs to be added to the exception list for the E5 authorisation check. This would allow the DCC Service User to read the new firmware version on the Device and subsequently update this information in the SMI. The SMI status would then be updated based on the SR11.2 response while the Device is in the 'Suspended' state.

Without the required addition of SR11.2 into the exception list, there will be a small percentage of Devices that cannot be recovered from the 'Suspended' state if the SR11.3 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, which is a waste of time and effort.

3.1　DSP Solution

DSP will accept SR11.2 "Read Firmware Version" for any Devices that are 'Suspended'. This will require modifying the E5 validation check so that an SR11.2, targeted at a 'Suspended' Device, is not rejected by DCC Data Systems.

If the Response to SR11.2 from a 'Suspended' Device indicates that a new firmware has been activated, then the Device needs to be "unsuspended" – this is done 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.

Note the response to SR11.2 received from a GPF will 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.

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 Technical Specifications

No changes are needed to the DUIS or MMC schema are required. DUIS and DUGIDS documentation will need to be updated to describe the change in behaviour to SR11.2 processing. In particular, a change will be needed to the table in section 3.2.4 of the DUIS, under the Authorisation Check titled 'Verify that the Service Request or Signed Pre-Command is applicable to the Device status' corresponding to Authorisation Code E5; SR11.2 will be added to the list of excepted SRs.

The changed text is show in red following:

The DCC shall, where the Device has a Smart Metering Inventory (SMI) Status of 'Suspended' prevent any Non-Critical Service Requests from being processed with the exception of, Service Requests 11.1 (Update Firmware), 11.2 (Read Firmware Version) and 6.23 (Update Security Credentials (CoS)).

4.2 Security Impact

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.

This Modification is expected to require a degree of security assurance as part of the design phase. A more detailed Security Risk Assessment will be carried out as part of the Full Impact Assessment to validate the level of assurance required.

4.3 Integration Impact

It is assumed that the change will be implemented and tested in DSP's SIT-B environment. A more detailed assessment of System Integration Testing effort will be part of the Full Impact Assessment.

The revised behaviour of SR11.2 is expected to require amendments to associated User Integrated Testing (UIT) scenarios. A more detailed assessment of effort required will be completed as part of the Full Impact Assessment.

4.4 Infrastructure Impact

It is not expected that there will be any material impact on infrastructure as a result of this change.

4.5 Application Support

No changes to Application Support are expected.

4.6 Service Impact

No material impact is expected for the DSP Operations team and no changes to SLAs are expected.

4.7   Request Management

Request Management requires a modification to both Southbound and Northbound processing of the Service Request 11.2.

4.8   Data Management

Data Management requires changes for DCC Alert N29 (Device Restored from Suspension), and to handle the special case involving GPF (DCC Alert N52).

4.9   Safety Impact

No impact is expected, but a full Safety Impact Assessment will be carried out as part of the production of the Full Impact Assessment (FIA).

4.10   Contract Schedules

Schedule 6.1, 7.1 and possibly schedule 2.1 will be impacted by this change. These changes will be evaluated for the FIA.

5   Implementation Timescales and Approach

Notwithstanding in which release this change is implemented, based on the currently stated requirements, the elapsed time for DSP implementation will be approximately 3 months from project initiation through to PIT complete.

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 waterfall methodology. The release lifecycle duration will be confirmed as part of the FIA. The timing of this Modification release will be tied to an appropriate SEC release.

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.

£	Design, Build and PIT	SIT	UIT	TTO	App. Support	Total
Phase ROM	75,000	n/a	n/a	n/a	n/a	75,000

Design	The production of detailed System and Service designs to deliver all new requirements.
Build	The development of the designed Systems and Services to create a solution (e.g. code, systems, or products) that can be tested and implemented. It includes Unit Testing (also referred to as System Testing), Performance Testing and Factory Acceptance Testing by the Service Provider or supplier.
Pre-Integration Testing (PIT)	Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC. This phase also includes regression testing across all Comms Hub products
Systems Integration Testing (SIT)	All the Service Providers' PIT-complete solutions are brought together and tested as an integrated solution, ensuring all solutions align and operate as an end-to-end solution. The System Integrator is responsible for leading this phase with the Service Providers offering testing support services.
User Integration Testing (UIT)	Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change. The DCC is responsible for leading this phase with the Service Providers offering testing support services.

Implementation to Live (TTO)	The solution is implemented into production environments and ready for use by Users as part of a live service. The Transition to Operations (TTO) service is subject to implementation costs.
Application Support	Any costs associated with supporting the new functionality.

Note that System Integrator costs are not included in the above costing and duration, but will be assessed as part of the FIA.

Based on the existing requirements, the fixed price cost for a Full Impact Assessment is **£7,693** and would be expected to be completed in 30 days.

Appendix A: Glossary

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

.Acronym	Definition
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
ESME	Electricity Smart Metering Equipment
FIA	Full Impact Assessment
MMC	Message Mapping Catalogue
GSME	Gas Smart Metering Equipment
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
SP	Service Provider
SR	Service Request
TTO	Transition to Operations
UIT	User Integration Testing