

SEC Modification Proposal, SECMP0125, DCC CR4425

Correcting Device Information for the ESME Variant

Full Impact Assessment (FIA)

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0.23

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DCC

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1 Executive Summary

The Change Board are asked to approve:

- Total cost to implement SECMP0125 of £80,995, which comprises:
 - £51,593 in Design, Build and PIT costs
 - £29,402 in release costs (SIT, UIT and TTO)
- A timescale to complete the implementation of six months
- Include SECMP0125 in the June 2023 SEC Release

Problem Statement

When an installing Supplier pre-notifies a Device to the Data Communications Company (DCC) using Service Request 12.2 it provides Device details, including the Electricity Smart Metering Equipment (ESME) Variant to be stored in the Smart Meter Inventory (SMI). Once the Device leaves the Pending state then it is not possible to update these details in the SMI. Following a Change of Supplier (CoS), the gaining Supplier would be unable to correct any errors made by the previous installing Supplier and any Device firmware upgrades would not work.

DCC supplied estimates indicate there are over 719,000 Devices with an incorrect ESME Variant in the SMI.

Benefit Summary

The modification will allow the Responsible Supplier to be able to correct the ESME Variant in the SMI for the devices with an incorrect Variant after the Device has been commissioned.

Not resolving the issue means errors identified in the SMI will not be corrected and the volume of incorrect Devices will continue to increase. Operationally, the implementation of firmware upgrades could mean a Device's functionality may change. A change of functionality would mean there would be a discrepancy with the Device variant as listed at the very outset. This could result in a gaining Supplier sending a firmware update to a Device, but the upgrade not completing.

2 Document History

2.1 Revision History

Revision Date	Revision	Summary of Changes
10/03/2022	0.1	Initial compilation
01/04/2022	0.3	Updated response code table

2.2 Associated Documents

This document is associated with the following documents:

#	Title and Originator's Reference	Source	Issue Date
1	MP125 Modification Report v0.4	SECAS	23/12/2020
2	MP125 Business Requirements v0.3	SECAS	12/07/2021
3	SECMP0125 CR4255 - PIA - Correcting Device Information v0.31	DCC	1/08/2021

2.3 Document Information

The Proposer for this Modification is Leon Wright from Utility Warehouse. The problem statement was submitted to SECAS on the 12th May 2020.

The Preliminary Impact Assessment was requested of DCC on 9th August 2021, and accepted on the 16th August 2021.

The Modification was originally titled "Correcting Device Information ESME Variant, Device Model and Device Manufacturer", but on advice from the DCC and TABASC, the scope was reduced by SECAS and the Business Proposer, and the shorter, more accurate title introduced. A manual process has been introduced by the DCC to meet the Business Proposer's request for functionality to update incorrect SMI entries for the Device Model and Device Manufacturer.

This FIA was requested by SECAS on 6th January, 2022.

3 Solution Requirements and Overview

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

The problem statement and requirements have been provided by SECAS, the Proposer, and the Working Group.

3.1 Context

DCC Users must ensure that all Devices connected to the Home Area Network (HAN) are recorded on the SMI. This is achieved by sending a Device Pre-notification Service Request (SR) 12.2 to the DCC. The SR12.2 contains information regarding the ESME Variant field as shown in the table below. This specifies details about the Device such as if it includes a HAN Connected Auxiliary Load Control Switch (HCALCS).

Upon receiving the SR12.2, the Data Service Provider (DSP) updates the SMI and sets the SMI Status of the Device to 'Pending'.

ESME Variant Code	Device Type
A, AD or ADE	Single Element Electricity Metering Equipment
B, BD or BDE	Twin Element Electricity Metering Equipment
C, CD or CDE	Polyphase Element Electricity Metering Equipment

Table 1: ESME Variant Types

3.2 Problem Statement

A gaining Supplier is unable to update the ESME Variant field of a commissioned Electricity Smart Metering Equipment (ESME) after SR 12.2 has been executed incorrectly by the previous installing Supplier.

If a Device has a status of 'Pending', only the DCC User who added the Device to the SMI may update details of that Device or delete it. Devices with SMI statuses other than Pending can only have their SMI status amended by the Responsible Supplier. SR8.4 Update Inventory can only be used to update the Device details provided via SR12.2 while the meter is still in Pending status

Once the Installation and Commissioning process has started and the Device leaves the Pending state then it is no longer possible to update these details in the SMI. Following a Change of Supplier (CoS), the gaining responsible Supplier would be unable to correct any errors made by the previous installing Supplier. While it is possible for the installing Supplier to amend the ESME Variant field, the Supplier would not know when a CoS occurs. In July 2020, the DCC estimated there were over 719,000 ESME Devices listed under an incorrect ESME Variant in the SMI.

Note there are two checkpoints in place to stop this issue becoming a problem; the Device Manufacturer and the installing Supplier. This issue only becomes problematic if both the Device Manufacturer and installing Supplier overlook the incorrectly identified Device details.

Not resolving the issue means errors identified in the SMI will not be corrected and the volume of incorrect Devices will continue to increase. Operationally, the implementation of firmware upgrades could mean a Device's functionality may change. A change of functionality would mean there would be a discrepancy with the Device variant as listed at the very outset. This could result in a gaining Supplier sending a firmware update to a Device, but the upgrade not completing.

3.3 Business Requirements

There is one Requirement for this Modification.

Requirement 1: The Responsible Supplier shall be able to update the Electricity Smart Metering Equipment (ESME) Variant held in the Smart Metering Inventory (SMI) after a Device has been commissioned.

3.4 Proposed Solution

The solution will allow the Responsible Supplier to correct the ESME Variant field in the SMI after a Device has been commissioned. The Responsible Supplier shall be able to send SR8.4 Update Inventory to correct the ESME Variant if the Device Status is 'Whitelisted', 'Installed Not Commissioned' or 'Commissioned'.

This solution shall be applied to Smart Metering Equipment Technical Specification (SMETS) 2+ Devices only.

4 Solution Overview

DSP will modify the validation rules associated with SRV 8.4 Update Inventory as follows to meet the business requirements.

Currently only the DCC Service User who pre-notified the Device details is allowed to update the Device details. This behaviour will be changed to allow the Registered Supplier to submit SRV8.4 for the purpose of updating the ESME Variant of a Device.

Also currently, the Device Details can only be updated if the Device has the status of 'Pending'. This rule will be amended such that it will also be possible to update the ESME Variant of a Device with the status of Whitelisted, Installed Not Commissioned or Commissioned.

Please note that the existing rules will remain applicable for updating all other Device Details.

4.1 Technical Specification Changes

The table below provides the proposed updates to the validation rules in the DCC User Interface Specification (DUIS) and DCC User Gateway Interface Design Specification (DUGIDS) for SRV8.4. There are no changes to the DUIS schema. No new Response Codes are added, but there are changes to the existing checks on Device Status and Service User.

Response Code	Validation Check	Old Validation	New Validation
E080407	Does the Device exist in the Smart Metering Inventory and does it have a valid status?	Check that if the Request is for Device to be updated or deleted, the Device ID does exist in the Smart Metering Inventory and its status is 'Pending'	Check that if the Request is for Device to be <i>deleted</i>, the Device ID does exist in the Smart Metering Inventory and its status is 'Pending'. Check that if the Request is for <u>an ESME Device</u> to be <i>updated</i>, the Device ID does exist in the Smart Metering Inventory and its status is 'Pending', 'Whitelisted', 'Installed Not Commissioned' or 'Commissioned' Check that if the Request is for <u>an ESME Device</u> to be updated, and its status is 'Whitelisted', 'Installed Not Commissioned' or 'Commissioned', only the ESME Variant is being updated. <u>For all other Device Types, check that if the Request is for Device to be updated, the Device ID does exist in the Smart Metering Inventory and its status is 'Pending'.</u>
E080410	Is the DCC Service User authorised to execute the Service Request?	If the Request is to Update Details / Delete the Device, check that the DCC Service User ID is the same that had added it to the DCC Data Systems	If the Request is to Delete the Device, check that the DCC Service User ID is the same that added it to the DCC Data Systems If the Request is to Update Details and the Device status is 'Pending', check that the DCC Service User ID is the same that added it to the DCC Data Systems. If the Request is to Update Details <u>for the ESME Variant of an ESME Device</u> and the Device status is 'Whitelisted', 'Installed Not Commissioned' or 'Commissioned', check that the DCC Service User ID is the Responsible Supplier.

Notes:

- the Pre-Notifying Party will continue to be able to make updates for devices that are at Pending status where there is no other Responsible Supplier.
- should a Responsible Supplier revert the Device Status to 'Pending', they will no longer be able to make updates to the ESME Variant while it is in this state.
- the Responsible Supplier, if wishing to make an update to ESME Variant for devices at 'Whitelisted', 'Installed Not Commissioned' or 'Commissioned', must include *only* this field in the Update Device Details element of the SRV.
- changes apply to ESME devices only.
- all existing rules and validations for updates to SRV 8.4 data items other than ESME Variant are unchanged.
- the new permissions for Responsible Supplier apply to all current DUIS versions of SRV 8.4.

Sample legal text for this Modification is attached below.



SEC MOD 125 DUIS
legal text changes v

4.2 Impacted Components

For Data Management and Request Management, the validation rules of SRV8.4 will be modified to match the new DUIS rules described above.

No other changes are anticipated. No non-functional impacts are expected.

The DSP Security Assurance team has reviewed this change. There is no material impact on the DSP security implementation.

5 Testing Considerations

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

5.1 Pre-Integration Testing (PIT)

The DSP PIT team will design and implement the functional updates required to the DSP for the change, and will test to ensure DSP functionality aligns with the solution described in this FIA

PIT testing will include testing both existing updated DSP Use Cases, and new Use Cases development for the CR4425 project. A series of regression tests will also be run. Once PIT Complete status is achieved, the PIT team will support post PIT activities in the form of technical support and defect fixes to allow DSP to achieve its test exit obligations.

The updates to the DSP system and the timing of the PIT exit will be agreed with the DCC through updates, submission and review of the Solution Design documents.

5.2 System Integration Testing (SIT)

The expected integration activities are documented below. All testing is expected to be carried out as part of June 2023 SEC Release testing on the DSP “B Stream” environments, in accordance with existing practices for SEC releases.

The DSP SIT team will plan, prepare and execute tests that demonstrate the key changes in behaviour across the DCC Total System, comprising:

- Install and Commission with SR8.4 to update ESME Variant in each of Pending, Installed not Commissioned and Commissioned statuses
- Change of Supplier
- New Supplier sending SR8.4 to update ESME Variant
- Only SMETS2 devices
- Multiple DUIS versions

Testing is expected to cover about 70 functional tests.

5.3 User Integration Testing (UIT)

The DSP UIT Test execution activities will comprise running the following tests on one SMETS2 meter set in the appropriate status:

- checking that the Responsible Supplier can send the SR8.4 ‘Update Inventory’ to correct the ESME Variant if the Device Status is Whitelisted, Installed Not Commissioned or Commissioned

6 Implementation Timescales and Releases

This Modification is expected to be included in a SEC Release in June. Implementation timescales will be finalised as part of the relevant SEC Release Change Request.

6.1 Change Lead Times and Timelines

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

The broad breakdown of the testing regime is shown in the following table in months after an approval decision date (D). This Modification would be scheduled alongside other Modifications and CR; there might be a period of no activity for this Modification.

Phase	Duration
SECAS agreement on scope of release	
CAN signature	D + 1 Month
Design, Build and PIT Phase	2 Months
SIT and UIT Phase, aligned with Release Dates	3 Months
Transition to Operations and Go Live	D + 6 Months

6.2 SEC Release Allocation and Other Code Impacts

This Modification is expected to be implemented as part of the June 2023 SEC Release, however the allocation to a release may be dependent on other Modification timings and the suitability of a release. No functionality overlap with other Modifications has been identified at the time of undertaking this Impact Assessment.

6.3 Costs and Charges

This section indicates the quote for all phases of application development stage for this Modification. Note these costs assume a release of just this SEC Modification without any other Modifications or Change Requests in the release, which is not truly reflective of what the post-PIT test costs or programme duration will look like. A calculation of those costs will be carried out when the contents of the future Release are finalised, and the post-PIT costs determined through a "Release CR" also referred to as a "Post-PIT CR".

£	Design, Build, and PIT	Integration Testing, SIT and UIT	TTO	Total
SECMP0125	£51,593	£24,938	£4,464	£80,995

Design	The production of detailed System and Service designs to deliver all new requirements.
Build	The development of the designed Systems and Services to create a solution (e.g. code, systems, or products) that can be tested and implemented.
Pre-Integration Testing (PIT)	Each Service Provider tests its own solution to agreed standards in isolation of other Service Providers. This is assured by DCC.
Systems Integration Testing (SIT)	All the Service Provider's PIT-complete solutions are brought together and tested as an integrated solution, ensuring all SP solutions align and operate as an end-to-end solution.
User Integration Testing (UIT)	Users are provided with an opportunity to run a range of pre-specified tests in relation to the relevant change.
Implementation to Live (TTO)	The solution is implemented into production environments and made ready for use by Users as part of a live service.

6.4 Changes to the DSP Contract

The contract updates will be detailed within the CAN and will impact the following schedules:

- Schedule 2.1 (DCC Requirements): update to reflect the addition of new requirements
- Schedule 3 (DCC Responsibilities): update to reflect the addition of new responsibilities
- Schedule 4.1 (Contractor Solution): Solution Design documents will need to be updated
- Schedule 6.1 (Implementation Planning): addition of new milestones
- Schedule 7.1 (Charges and Payment): revisions to incorporate the charges and payment applicable for this Modification.

Appendix A: Glossary

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

Acronym	Definition
CoS	Change of Supplier
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
HAN	Home Area Network
HCALCS	HAN Connected Auxiliary Load Control Switch
I&C	Installation and Commissioning
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 Meter Inventory
SMETS	Smart Metering Equipment Technical Specification
SR	Service Request
SRV	Service Request Variant
SSI	Self Service Interface
TABASC	Technical Architecture and Business Architecture Sub-Committee
TTO	Implementation to Live, Transition to Operations
UIT	User Integration Testing