Data Communications Company

SEC Modification Proposal, SECMP0205, DCC CR5479

Updating Terminology to Align with the National Cyber Security Centre (NCSC)

Preliminary Impact Assessment (PIA)

Version:	**0.25**
Date:	**21st October 2024**
Author:	**DCC**
Classification:	**DCC PUBLIC**

Contents

1 Executive Summary

The Change Board are asked to approve the following:

- Cost to complete the Full Impact Assessment of £**255,963**.
- The timescales to complete the Full Impact Assessment of 40 Working Days.
- ROM costs for SECMP0205, up to the end of Pre-Integration Testing (PIT) of £5.7million to £7.7million.
- All the DCC Service Providers are impacted by this Modification.

Problem Statement

An article published by NCSC highlighted an issue with computing terminology which is deemed not inclusive, specifically the use of the terms “black-list” and “white-list” that should be replaced with “deny list” and “allow list”.

The Proposed Solution to this modification is to change these terms in the SEC to the suggested terms and add definitions of “allow list and deny list” into SEC Section A – ‘Definitions and Interpretations’, with consequential changes to all documentation and code used in the DCC Total System.

Modification Benefits

The NCSC blog states that their change to these preferable terms is “helping to stamp out racism in cyber security”. As a side benefit, the change of terminology is seen as “clearer and less ambiguous”.

There are no functional changes associated with this Modification.

2 Document History

2.1 Revision History

Revision Date	Revision	Summary of Changes
01/10/2024	0.1	Initial version, for DCC internal review
04/10/2024	0.2	Reviewed and submitted
21/10/2024	0.25	Updated costs

2.2 Associated Documents

This document is associated with the following documents:

Ref	Title and Originator's Reference	Source	Issue Date
1	MP205 Modification Report v0.6	SECAS	05/09/2024
2.	MP205 - Business Requirements v0.7	SECAS	05/09/2024

References are shown in this format, [1].

2.3 Document Information

SECAS requested the Data Communications Company (DCC) to act as the Proposer for this Modification, with Joe Hehir as the nominal lead for DCC.

The Preliminary Impact Assessment (PIA) was requested of DCC on 12th September 2024.

3 Context and Requirements

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

The requirements have been provided by SECAS, the Proposer and the Working Group, and have been validated by SSC and TABASC.

This solution will be applied to all Service Providers and Smart Metering Equipment Technical Specifications (SMETS) Devices.

3.1 Current Arrangements

SECAS has highlighted an article published by National Cyber Security Centre (NCSC)[1] highlighting an issue with terminology which is deemed not inclusive and suggested other organisations consider aligning with the NCSC. The suggestion is that the SEC consider aligning with the NCSC suggestion, whereby the terms “black-list” and “white-list”, should be replaced with “deny list” and “allow list”.

This issue was initially raised at the Technical Specification Issue Resolution Subgroup (TSIRS), however the TSIRS believed that it was a wider issue, and was passed to SECAS to progress as a modification.

The Proposed Solution to this modification is to change these terms in the SEC to the suggested terms and add definitions of “allow list and deny list” into SEC Section A – ‘Definitions and Interpretations’.

The SEC currently uses the terms “blacklist/black-list” and “whitelist/white-list” to mean “deny list” and “allow list”. These terms are subsequently used throughout the SEC and its documents, most notably in the DCC User Interface Specification (DUIS) but also in the Message Mapping Catalogue (MMC), the Great Britain Companion Specification (GBCS) and other documents. There are also many instances of these terms used in DCC Systems and in the Central Products List (CPL).

3.2 Extent of the Issue

SECAS has identified two instances of ‘blacklist/black-list’ and 96 instances of ‘whitelist/white-list’ within the SEC. SECAS identified the following SEC documents as impacted:

- Section A ‘Definitions and Interpretation’, Section H ‘DCC Services’
- Schedule 8 ‘Great Britain Companion Specification’
- Appendix R ‘Common Test Scenarios Document’, Appendix AB ‘Service Request Processing Document’, Appendix AC ‘Inventory, Enrolment and Withdrawal Procedures’, Appendix AD ‘DCC User Interface Specification’, Appendix AL ‘SMETS1 Transition and Migration Approach Document’, Appendix AM ‘SMETS1 Supporting Requirements’, Appendix AP ‘Secure S1SP Certificate Policy’

[1] Terminology: it's not black and white - NCSC.GOV.UK, https://www.ncsc.gov.uk/blog-post/terminology-its-not-black-and-white

3.3 Business Requirements

The business requirement is as follows.

Ref	Requirement
1	Remove instances of 'black-list'/'black list' from SEC and replace with 'deny list' and remove instances of 'white-list' and 'white list' and replace with 'allow list'

This solution will be applied to all SMETS Devices.

In support of these requirements, SECAS have clarified that the scope should include:

- Documentation and application functions that could be seen externally (e.g. screens, Automated Programming Interfaces (API)s, Schemas, designs, provided guidance, support, and security)

- Documentation and application functions that are not shared externally, i.e., DCC and Service Provider documentation and code, as well as training and support materials, including comments inside system code

3.4 Out of Scope

The following items were identified by DCC and the Service Providers during the Modification development and hence have not been included in the development of this PIA. Consequently, these are not factored in the time and effort estimates for this Modification:

- Other terms, such as "Slave" and "Master", which might prove noteworthy. For most Service Providers, this would be a minor cost.

- Smart Meter supporting documentation outside of the SEC. These include device manufacturer guidance, manuals, and specifications.

- Any third party products or services whereby use of the terms to be replaced is not within the control of the Service Provider. For example, defined terms within products or services provided and maintained by the Gamma network or defined terms within network equipment. In addition, changes to Comms Hub firmware would require Commercial Product Assurance (CPA) testing.

- DCC Reporting. This could be included in a subsequent Full Impact Assessment (FIA).

- Updates to historic artefacts that are a record of previous project or programme delivery and are no longer being maintained. For example, historic test scripts, test plans, test results, defect reports, project plans or project reports.

- Future (or New) DSP. This could be included in a FIA.

- Any updates to the DCC Service Management System (DSMS), on the basis that this is due to be replaced by the DCC's Future Service Management (FSM) System in October 2025 and it is likely that the earliest this Change could be delivered would be November 2025. This could be included in a subsequent FIA.

- DCC User support and training materials.

- DCC support and training materials, including guidance.

In terms of the support materials category, one Service Provider identified the following documentation containing the terms:

- Communications Hub Maintenance Support Materials (CHMSM)
- Communications Hub Installation Process Support Materials (CHIPSM)
- Communications Hub Design Specification (CHDS)

No estimates for any of the above are included in the following sections for this Modification or anticipated work in this area.

4 Description of Solution

The modification impacts all the Service Providers. An initial analysis of the Modification indicated these potential impacts (but not limited to):

Documentation: Designs, Specifications, Security, Programme administration/processes, Support documentation (including Wiki and Knowledge Base articles), Contracts, Test processes, Test scripts and test data

Code: XML interfaces, Web Services, Uploadable files, Configurations, APIs, including both applications and devices

Note that the review and changes from this Modification permitting solutions to change just one of the two types of change were considered, but rejected due to potential inconsistencies, plus the potential confusion of contradictory statements. Changing future changes and potential changes of the terms cited would leave both old and new terms alongside each other with similar unintended consequences. It should be noted that several Service Providers have quoted effort and costs for changing documentation and externally facing usage, but not their core code; this suggests that if the full scope were applied to the Modification these quotes would increase sharply.

An alternative solution would involve changing the presentation to Users and the terminology in reports, rather than a System Code change which would be more complex. This would leave the Service Provider perspective unchanged with “internal facing” code and documentation unchanged, but Users would not see the terminology. This solution was deemed insufficient, and the requirements remained unchanged.

Whilst a Service Provider might not be directly impacted, changes to files such as DUIS would require not only a specification change but also the schema. In this case the Service Provider’s code will need a schema uplift even though the “Whitelist” device status is not directly applicable to SMETS1 Service Providers.

4.1 Impacts on DSP and System Integrator

In general, the DSP and CGI System Integrator does not reference terms such as “blacklist” but instead uses terms such as “exclusion list.” It is proposed that such terms remain.

The term “whitelist” forms of part of terminology within GBCS and is used to describe the CHF device log of joined devices. This means that a device status of “whitelisted” is one of the formal device status values defined within the SEC, and within DUIS.

Changing use of “whitelist” and variants to an “allowed list” would change a number of externally facing documentation sets, for example, DCC User Gateway Interface Design Specification (DUGIDS), Self-Service Interface (SSI), and Enterprise Systems Interface (ESI) to reflect the new device status value. DSP would also need to make the necessary software changes so that a new “allowed” status is presented within external interfaces such as DUIS responses, SSI screens and ESI reports. Further changes would be required for database table and attribute names. To enable transition to the use of new names and removal of old names is expected to require two releases of software.

DSP and CGI SI have obligations to support two versions of the DUIS in line with the Agreement. As such, DUIS and DUIS schemas will continue to reference the term ‘whitelisted’ beyond completion of this Modification.

Across all code sources in the DSP there are approximately 6,400 instances of the terms in scope, across 600 impacted files. Changes to the application code-base will require a delivery plan and prescribed methodology to ensure the changes are non-breaking to application users.

4.2 Impacts on Other Service Providers

The change will require DUIS (XML) schema uplift, even for SMETS1 Service Providers who are directly impacted by such changes, with many citing changes to either the DSP or DCO solutions impacting their solutions and requiring a co-ordinated release across all Service Providers.

For the Communications Service Providers (CSPs), both SMETS1 and SMETS2, the Modification is likely to impact all components and associated resources throughout the solution, including any back end systems used for recording, billing, and tracking inventory.

In several cases, Service Providers identified internal code which will require an internal schema uplift, for example impacting the Service Requests (SR) relating to 'Validate CHF Whitelist'. SR 8.11 (UpdateHANDeviceLog), specifically the AddDeviceToCHFWhitelist element within the request body XML structure will require a change, with other changes to Alerts.

In some cases, the Service Providers have quoted effort and costs for changing documentation and externally facing usage, but have indicated that changing their core code would not be straightforward and somewhat risky.

Changes will be required for the source code and configuration files for GFI and DCC Boxed, as well as updating the associated documentation and regression testing in PIT.

5 Impact on DCC Systems, Processes and People

This section describes the impact of SECMP0268 solution on DCC Services and Interfaces that impact Users and/or Parties.

5.1 Infrastructure Impact

Throughout the DCC Total System there are dozens of externally authored documents that reference 'whitelist' or variants of that term. Service Providers are unable to change instances of whitelist, blacklist and variants of these terms where these are defined by third party products or services and, as such, no costs have been included for such changes or to investigate with vendors whether this is possible. In general, third party products and services used by the Service Providers are used by large numbers of other end-users and implementation of bespoke versions of such products and services are very unlikely to be economically viable.

5.2 Service Impact

DCC and each Service Provider will be required to review all Operational and Service documentation to identify and replace instances of the terms. The expected scope of documentation will include documentation from the following service areas:

- service process
- service design
- training
- access management
- application management support
- Availability and Capacity Management
- Incident Management
- Problem Management
- Change Management
- service reporting
- service level management
- knowledge management
- continual service improvement and
- Business Continuation and Disaster Recovery testing.

5.3 Data Science and Analytics Team

The DCC Data Science and Analytics (DS&A) team will provide the updated reporting required for this modification. Details will be established as part of the FIA.

6 Implementation Timescales and Approach

This Modification is expected to be implemented in a future SEC Release. Design, Build, and PIT is expected to take between three and six months to complete after the CAN is signed.

6.1 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.

6.2 Testing and Acceptance

Any application Code and system configuration changes that do have a system impact will need to be tested. Although there is no functionality change envisaged, it will be necessary to perform PIT Phase regression testing as well as regression tests within the SIT and UIT environments to validate the impact on other DCC Service Providers and DCC Service Users.

An appropriate level of Systems Integration and User Integration Testing (SIT and UIT) would be carried out prior to progressing the release of this Modification to the Production environment, but this is not included in the PIA. A more detailed integration impact will be carried out as part of the Full Impact Assessment.

6.2.1 Pre-Integration Testing

All Service Providers would carry out PIT to ensure all instances of the terms in the code have been caught, and that the functionality is not changed.

6.2.2 System Integration Testing

There are two areas of focus under this Modification which will be carried out in SIT:

1) targeted regression testing of the functionality impacted by the change of terminology; and

2) updating of SIT artefacts such as test scripts, scenarios, and any other active SIT test documentation.

Artefacts that are no longer active (i.e. are specific to previous releases or tests that are no longer in use) will not require updates and are, therefore, out of the scope of this Change.

The scope of SIT targeted regression testing comprises:

- Install & Commission of a SMETS2 device set with an ESME, GSME and PPMID, verifying that devices successfully join the HAN and move from ‘allowed’ to ‘commissioned’ status;
- during Install & Commission, verifying that SRV 8.2 is successful, and the response contains an entry for a device that is currently in ‘allowed’ status;
- verifying that when SRV 8.4 is sent to a device in ‘pre-notified’ status, the device successfully updates to ‘allowed’ in the inventory;
- carrying out a PPMID exchange on a SMETS1 device set; and
- verifying impacted SSI/SSMI and ESI reporting functionality behaves as expected.

It is estimated that approximately 170 tests will be executed to verify the changes in this Modification. SIT testing will include all Service Providers.

Note that SIT costs are not included in the PIA costs and effort calculations.

6.2.3 User Integration Testing

Documentation changes will cover documents actively maintained and used by the UIT Projects teams. This will exclude historical artefacts such as UIT Test Plans and Completion Reports for test activities that have completed.

A full suite of regression testing will be undertaken in each UIT environment to verify that there is no impact from the DUIS, application code, database and interface changes made as part of this Modification and to give confidence that DSP functionality and communication with remote systems in the UIT environments is unaffected for Test Participants. This will cover SMETS1 and SMETS2 device sets with Service Requests sent by users in different user roles. Different customer journeys will be exercised, including the Change of Supplier scenario to validate changes affecting the Enduring Change of Supplier (ECoS) system interface.

Note that UIT costs are not included in the PIA costs and effort calculations.

7 Costs and Charges

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 (ROM) cost shown below describes indicative costs to implement the functional and non-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. As a result, the final offer price may result in a variation.

7.1 Design, Build and Testing Cost Impact

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

£	Design, Build, and PIT
SECMP0205	£5,700,000 to £7,700,000

Based on the requirement and noting the out of scope items, the total fixed price cost for a Full Impact Assessment by all impacted Service Providers, and the DCC DS&A team, is £255,963 and would be expected to be completed in 40 Working Days.

7.2 Schedule Changes

No changes to Schedule 2.2 (Performance Measures and Reporting) are expected as a result of this change.

The following Schedules may require changes:

- Schedule 2.1 - DCC Requirements
- Schedule 4.1 - Contractor Solution
- Schedule 7.1 – Charges and Payments
- Schedule 6.2 – Testing and Acceptance

Appendix A: Glossary

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

Acronym	Definition
BaU, BAU	Business As Usual
CAN	Contract Amendment Note
CPA	Commercial Product Assurance
CPL	Central Products List
CR	DCC Change Request
CSP	Communications Services Provider
DCC	Data Communications Company
DS&A	Data Science and Analytics
DSP	Data Service Provider
DUGIDS	DCC User Gateway Interface Design Specification
DSMS	DCC Service Management System
DUIS	DCC User Interface Specification
ECoS	Enduring Change of Supplier
ESME	Electricity Smart Metering Equipment
FIA	Full Impact Assessment
FSM	Future Service Management
HAN	Home Area Network
GBCS	Great Britain Companion Specification
GSME	Gas Smart Metering Equipment
MMC	Message Mapping Catalogue
NCSC	National Cyber Security Centre
PIA	Preliminary Impact Assessment
PIT	Pre-Integration Testing
PPMID	PrePayment Meter user Interface Device
ROM	Rough Order of Magnitude (cost)
S1SP	SMETS1 Service Provider
SEC	Smart Energy Code
SECAS	Smart Energy Code Administrator and Secretariat
SIT	Systems Integration Testing
SLA	Service Level Agreement
SMETS	Smart Metering Equipment Technical Specification
SMI	Smart Metering Inventory
SR	Service Request
SRV	Service Reference Variant
SSI	Self-Service Interface
SSC	Security Sub-Committee
SSMI	Self Service Management Interface
TABASC	Technical Architecture and Business Architecture Sub-Committee
TSIRS	Technical Specification Issue Resolution Subgroup
UIT	User Integration Testing
WAN	Wide Area Network