Traffic Management Mechanism Document

Version: 4.25.0
Date: ~~17/02/2025~~01/05/2025

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1. Document Control

Revision history

Revision date	Summary of changes	Version number
06/05/2020	First version published following the implementation of SECMP0062	1.0
05/03/2024	Alert 0x8F75 removed from the Alert Storm Protection Exclusion List	3.0
17/06/2024	Added SECMP0028, Southbound Prioritisation information	4.1
14/02/2025	Added Northbound Prioritisation information for consultation	4.2
01/05/2025	Added Northbound Prioritisation information, updates based on consultation responses	5.0

2. Purpose of this ~~document~~ Document and General Notes

This document has been prepared in accordance with SEC Appendix AB 'Service Request Processing Document' Section 17.10 where the Alert Management Mechanism implemented by the DCC has its mechanism parameters and exempted Alert Codes clearly defined, and sections 6.6 and 6.7 where the DCC Southbound Prioritisation Mechanism implemented by the DCC has its mechanism parameters clearly defined, while the Northbound prioritisation mechanism is defined in SEC Appendix AB 'Service Request Processing Document' Sections 17.11 and 17.12.

It should be noted that the parameters, priority bands, and contents for the Alert Management Mechanism, Southbound Prioritisation, and Northbound Prioritisation are maintained separate and independent from each other. Functionality associated with each component is strictly limited to that component, and does not impact any other parts of the DCC Total System.

SEC Parties wishing to make changes to this Traffic Management Mechanism Document may refer to Section 6.

In addition, DCC shall carry out annual reviews of the functionality and reporting which shall be shared with the SECAS-led Operations Group.

3.   Parameter Values for the Alert Management Mechanism

There are eleven parameters that control the Alert Management Mechanism. Each parameter can be configured.

All the parameters are used in accordance with SEC Appendix AB Sections 17.8 and 17.9. These are global settings and will apply equally to all Devices and Alerts, unless that Alert Code is on the Exempted Alert Code list below.

Parameter	Description	Value
T	Rolling Window (Time Period) for Alert Anomaly Detection	1440 minutes
M	Amber Threshold for Alert Anomaly Detection	15
A	Red Threshold for Alert Anomaly Detection	20

These are the Existing Alert counting parameters. With these settings, a Device generating more than 20 Alerts in 1440 minutes (1 day) will invoke Alert Code specific counting.

Parameter	Description	Value
R	Alert Code Specific Rolling Window (Time Period)	1440 minutes
B	Alert Code Specific Threshold	20

These parameters are Alert Code specific. A Device generating more than 20 Alerts with a specific Alert Code in 1440 minutes (1 day) will invoke Alert Storm Protection for that Alert Code on that Device.

Parameter	Description	Value
N	Alert Storm Protection Discarded Alert Limit	500
D	Alert Storm Protection Maximum Time Limit	1440 minutes
P	Alert Storm Protection Incident Deadband Period	1440 minutes

With the above parameters and configuration, under Alert Storm Protection only 1 in 500 Alerts will be delivered to the User. If the 500 limit is not reached within the 1440 minutes (24 hour) time period, then one Alert will be delivered to the User at this point. A new Incident will not be created unless the Alert count has been below the threshold for a continuous 24 hour period.

Parameter	Description	Value
MIC	Amber Threshold Incident Creation	Off
AIC	Red Threshold Incident Creation	Off
PIC	Alert Storm Protection Incident Creation	Off

The above parameters control incident creation and can be turned either on or off.

3.1. Alert Storm Protection Exclusion List

The following Alert Codes are to be exempt from the global settings applied to all Alerts by the Alert Management Mechanism.

Exempted Alert Codes and Description
0x8F78 Unauthorised Physical Access – Other
0x8F77 Unauthorised Physical Access - Second Terminal Cover Remove
0x8F76 Unauthorised Physical Access - Terminal Cover Removed
0x8F74 Unauthorised Physical Access - Meter Cover Removed
0x8F73 Unauthorised Physical Access - Battery Cover Removed
0x8F3F Unauthorised Physical Access - Tamper Detect
0x8F1F Low Battery Capacity
0x8F1D GSME Power Supply Loss
0x81C0 Supply Disconnect Failure
AD1 Power Outage
0x8F36 Power Restore
0x8F35 Power Restore

4. Southbound Prioritisation Mechanism

When a DCC User submits a new SRV to the DCC (Southbound traffic), the SRV will enter a 'motorway' which will act as a queue for requests. Whilst in this queue, all On Demand SRVs will be processed ahead of Scheduled SRVs, and specific SRVs will be assigned to a priority Level for processing in a particular order. SRVs in Priority Band1 will be processed ahead of other On Demand SRVs. Southbound messages will be prioritised for onward transmission to both SMETS2 and SMETS1 Communications Service Providers (CSPs) through the CSP WAN, and the S1SP Gateways, and the 4G Gateways only. This will also include the Communications Hubs and Networks 4G Service Provider.

The list following shows the configurable priority levels assigned to Southbound messages, with the Mode of Operation rule as defined in the following section.

It should be noted that the Priority bands and contents for Alert Mechanism Management, Northbound Prioritisation, and Southbound Prioritisation are maintained separate and independent from each other.

4.1. Southbound Prioritisation Mechanism Priority Levels

The following priority level is used in accordance with SEC Appendix AB Sections 6.6 and 6.7: Service Request Priorities.

The below table outlines Service Requests and their assigned priorities within the Southbound Prioritisation Mechanism.

Service Request Name	Service Reference	Service Reference Variant	Priority Level
Top Up Device	2.2	2.2	1

4.2. Southbound Prioritisation Mechanism Mode of Operation Priority Levels

All On Demand SRVs will be processed ahead of Scheduled SRVs.

5.   Northbound Prioritisation Mechanism

Prior to this functionality being implemented, all alerts and responses had the same priority for first time delivery to Service Users.

For those moments when, for whatever reason, the network is particularly busy, the receipt of large volumes of DCC Scheduled Responses at the DSP could slow down the delivery of High Priority Alerts. As part of the Northbound Prioritisation solution, 'High Priority' alerts as defined below are placed at the front of the queue for Alerts, to be returned to Service Users before DCC Scheduled Responses. Prioritisation is applied from the DSP to Service User inbound interface only.

For the purposes of Northbound Prioritisation, 'High Priority' relates to those alerts associated with processing patterns where the Customer requires a rapid response to complete a business process within seconds. DSP Northbound processing shall be changed to prioritise selected High Priority messages over Low Priority messages. The configuration shall be such that Northbound Prioritisation is always applied.

5.1.   Northbound Prioritisation Mechanism Priority Levels

The general priorities of message responses and alerts are as follows:

Priority, Response and Alert Type
1.   High Priority – all On Demand Service Request Responses
2.   High priority alerts (includes N56)
3.   Other alerts – Device Alerts and DCC Alerts
4.   Scheduled Service Request responses

High Priority DCC Alerts included as (Priority 2) are as follows:

Alert Code	Alert Description	User Group (User Role)
AD1	Power Outage Event received from CSP	(IS,GS,ED,GT)
N24	Successful Communications Hub Function Whitelist Update	Sender of SR8.11 (IS, GS, OU)
N25	Potentially Unsuccessful Communications Hub Function Whitelist Update	Sender of SR8.11 (IS, GS, OU)
N42	Security Credentials updated on the device	Remote Party whose certificate has been placed on the Device (ED, GT)
N56	SMETS1 Service Provider Provision of prepayment top-up UTRN	Sender of SR2.2 (IS, GS)

High Priority Device Alerts included as (Priority 2) are as follows:

Alert	Code Alert Description	(Role)
8020	RMS Voltage above Extreme Over Voltage Threshold (voltage rises above for longer than the configurable period)	(ED)
8021	RMS Voltage above Extreme Over Voltage Threshold on Phase 1 (voltage rises above for longer than the configurable period)	(ED)
8022	RMS Voltage above Extreme Over Voltage Threshold on Phase 2 (voltage rises above for longer than the configurable period)	(ED)
8023	RMS Voltage above Extreme Over Voltage Threshold on Phase 2 (voltage rises above for longer than the configurable period)	(ED)
8028	RMS Voltage below Extreme Under Voltage Threshold (voltage falls below for longer than the configurable period)	(ED)
8029	RMS Voltage below Extreme Threshold on Phase 1 (voltage falls below for longer than the configurable period)	(ED)
802A	RMS Voltage below Extreme Threshold on Phase 2 (voltage falls below for longer than the configurable period)	(ED)
802B	RMS Voltage below Extreme Threshold on Phase 3 (voltage falls below for longer than the configurable period)	(ED)
8F36	Supply Outage Restored - Outage >= 3 minutes	(ED)
8F38	Supply Outage Restored on Phase 1 Restored - Outage >= 3 minutes	(ED)
8F3A	Supply Outage Restored on Phase 2 Restored - Outage >= 3 minutes	(ED)
8F3C	Supply Outage Restored on Phase 3 Restored - Outage >= 3 minutes	(ED)
808D	RMS Voltage above Extreme Over Voltage Threshold (voltage returns below for longer than the configurable period)	(ED)
808E	RMS Voltage above Extreme Over Voltage Threshold on Phase 1 (voltage returns below for longer than the configurable period)	(ED)
808F	RMS Voltage above Extreme Over Voltage Threshold on Phase 2 (voltage returns below for longer than the configurable period)	(ED)
8090	RMS Voltage above Extreme Over Voltage Threshold on Phase 3 (voltage returns below for longer than the configurable period)	(ED)
8095	RMS Voltage below Extreme Under Voltage Threshold (voltage returns above for longer than the configurable period)	(ED)
8096	RMS Voltage below Extreme Under Voltage on Phase 1 (voltage return above for longer than the configurable period)	(ED)
8097	RMS Voltage below Extreme Under Voltage on Phase 2 (voltage return above for longer than the configurable period)	(ED)
8098	RMS Voltage below Extreme Under Voltage on Phase 3 (voltage return above for longer than the configurable period)	(ED)

6.   Updating the Traffic Management Mechanism Document

SEC Parties wishing to make changes to any of the parameters and settings described in this document should initially seek approval from Operations Group and TABASC, and then inform DCC of the required change by requesting a change through this mailbox: consultations@smartdcc.co.uk. DCC will raise a consultation which can be reviewed by all SEC Parties and DCC, gather feedback, and share the responses. If a change is agreed by consultation respondents and relevant SEC Sub-Committees, SEC Panel will have the final review.