Traffic Management Mechanism Document

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# 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 |
| 05/11/2024 | Added SECMP0028 ‘Southbound Prioritisation’ information  | 4.0 |
| 26/06/2025 | Added Northbound Prioritisation information | 5.0 |

# Purpose of this document

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.

# 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.

## 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 |

# 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 S1SP Gateways respectively. 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 Northbound Prioritisation and Southbound Prioritisation are maintained separate and independent from each other.

## 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 |

## Southbound Prioritisation Mechanism Mode of Operation Priority Levels

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

# 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 a variety of reasons, 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.

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.

## Northbound Prioritisation Mechanism Priority Levels

The priorities of message responses and Alerts are as follows:

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

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

|  |  |
| --- | --- |
| Alert Code | Alert Description |
| AD1  | Power Outage Event received from CSP |
| N24  | Successful Communications Hub Function Whitelist Update  |
| N25  | Potentially Unsuccessful Communications Hub Function Whitelist Update  |
| N42  | Security Credentials updated on the device |
| N56 | SMETS1 Service Provider Provision of prepayment top-up UTRN |

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

|  |  |
| --- | --- |
| Alert | Code Alert Description |
| 0x8F36 | Supply Outage Restored - Outage >= 3 minutes |
| 0x8F38 | Supply Outage Restored on Phase 1 Restored - Outage >= 3 minutes |
| 0x8095 | RMS Voltage below Extreme Under Voltage Threshold (voltage returns above for longer than the configurable period) |
| 0x8096, 0x8097, 0x8098 | RMS Voltage below Extreme Under Voltage on Phase 1/2/3 (voltage return above for longer than the configurable period) |
| 0x8020 | RMS Voltage above Extreme Over Voltage Threshold (voltage rises above for longer than the configurable period) |
| 0x8021 | RMS Voltage above Extreme Over Voltage Threshold on Phase 1 (voltage rises above for longer than the configurable period) |
| 0x8028 | RMS Voltage below Extreme Under Voltage Threshold (voltage falls below for longer than the configurable period) |
| 0x8029, 0x802A, 0x802B | RMS Voltage below Extreme Threshold on Phase 1/2/3 (voltage falls below for longer than the configurable period) |
| 0x808E, 0x808F, 0x8090 | RMS Voltage above Extreme Over Voltage Threshold on Phase 1/2/3 (voltage returns below for longer than the configurable period) |
| 808F | RMS Voltage above Extreme Over Voltage Threshold on Phase 2 (voltage returns below for longer than the configurable period) |
| 8090 | RMS Voltage above Extreme Over Voltage Threshold on Phase 3 (voltage returns below for longer than the configurable |