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# SECMP0024 ‘Enduring Approach to Communication Hub Firmware Management’

## Business requirements & solution design specification – version 0.13

### About this document

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This document contains the business requirements and solution design specification for this Modification Proposal. It provides detailed information on the business requirements for the proposed solution agreed by the Proposer with input from the DCC, Sub-Committees and the Working Group, and the considerations and assumptions for each business requirement with respect to this Modification Proposal.

## 1. Business requirements

This section contains the functional business requirements. Based on these requirements a full solution will be developed.

| Business Requirements |   |
|-----------------------|---|
| Ref.                  | Requirement   |
| 1                     | The DCC will notify all relevant Users of a Communications Hub firmware update being available                                |
| 2                     | The DCC shall trigger the firmware update to a 'pilot group' of Communications Hub prior to mass deployment                   |
| 3                     | The Supplier(s) can choose to trigger the firmware update at an earlier date than the DCC's specified deployment date         |
| 4                     | The DCC will update Suppliers regularly at different stages of firmware processing  |
| 5                     | If issues are identified with deployed firmware, the DCC shall investigate and determine whether to proceed with the roll-out |

There are two solution design variants for this modification, one introducing new Service Request(s) on the DUIS interface and the other using a DCC operated Web Portal. The solution design specifications can be found in Solution design specification.

The processes around testing firmware prior to the deployment of Communications Hub firmware updates are out of scope of SECMP0024.

## 2. Considerations and assumptions

This section contains the considerations and assumptions for each business requirement.

### 2.1 General

This mechanism for rolling out Communications Hub firmware updates will be applied to any firmware deployed as part of a SEC Release or a Planned or Unplanned DCC Maintenance Release.

The processes around testing firmware prior to deployment is out of scope of SECMP0024.

A 'pilot group' is defined as a subset of Communications Hubs targeted for firmware deployment, to prove the firmware image is functional and deployable in the production environment before a mass deployment of firmware to devices.

- The maximum size of that subset is to be agreed but assumed for the time being to be 200-300 Communications Hubs.

A 'safe launch group' is defined as the full set of Communications Hub Globally Unique Identifiers (GUIDs) identified to which a firmware image may be applied, less the set of Communications Hub GUIDs associated with the 'pilot group'.

### 2.2 Requirement 1: The DCC will notify all relevant Users of a Communications Hub firmware update being available

The DCC shall notify relevant Service Users and Communications Service Providers (CSPs) of their intention to deploy replacement Manufacturer Images in relation to Communications Hubs.

The notification shall include:

- The Communications Hub Device Model and firmware version in accordance with the Central Product List (CPL) entry;
- A link or reference to the applicable firmware Release Note;
- Severity of the upgrade;
- Priority of the upgrade; and
- The date on which the firmware version will be automatically deployed by the DCC (no longer than six months from the date of notification of availability).
- Where necessary the DCC can set the date on which the firmware version will be automatically deployed earlier

The DCC shall create and send a report to all Supplier Users associated with the targeted Communications Hub Device Model and firmware version, to:

- Inform that Supplier User of the Communications Hub GUIDs they are responsible for, that the Communications Hubs are eligible for the firmware update; and
- Advise whether that Supplier User is the Import and/or Gas Supplier.

The DCC have advised that Users will receive information on Communications Hub firmware updates via firmware Release Notes published on the DCC's operational SharePoint.

- In the case of SEC Releases, firmware Release Notes shall be published and updated throughout the testing cycle.
- For Maintenance Releases, firmware Release Notes shall be published at the earliest convenience.

The DCC shall have the capability to revoke notification of a new Communications Hub firmware image if circumstances require.

### **2.3 Requirement 2: The DCC shall trigger the firmware update to a 'pilot group' of Communications Hubs prior to mass deployment**

The Import Supplier and/or the Gas Supplier (as applicable) shall be able to have a view or extract a list of Communications Hub GUIDs published by the DCC to which the new firmware image may be applied. From this list the Supplier shall be able to select which Communications Hub GUIDs should make up a 'pilot group' for this firmware update.

- The solution shall provide the Supplier User with a facility to select a 'pilot group' of Communications Hub GUIDs via configurable business rules.

The Supplier User shall submit the 'pilot group' list of Communications Hub GUIDs.

The DCC shall notify all relevant parties of the start of a 'pilot group' deployment and provide progress updates to all relevant parties during a 'pilot group' deployment. Progress updates should include:

- Success/fail status of deployment at the individual device level
- In the event of a failure, the failure reason and any other commentary should be provided

The DCC shall notify all relevant parties of the end of a 'pilot group' deployment including commentary on the success or failure of the deployment.

### **2.4 Requirement 3: The Supplier(s) can choose to trigger the firmware update at an earlier date than the DCC's specified deployment date**

The Import Supplier and/or the Gas Supplier (as applicable) for a Communications Hub shall be required to instruct the 'pilot group' or 'safe launch' activation of the firmware updates for a time no later than the time specified by the DCC in Requirement 1: The DCC will notify all relevant Users of a Communications Hub firmware update being available.

Where there is only one Supplier or where the Import Supplier and the Gas Supplier are the same Party, instruction needs only to be given by that Supplier.

Where the Import Supplier and the Gas Supplier are separate Parties, the DCC must receive instruction from both Suppliers before the firmware update is deployed. The DCC shall inform each Supplier that there is a second Supplier (but not who that Supplier is) and whether that Supplier has provided instruction to update the Communications Hub.

Where there are two Suppliers, and each specifies a different activation time, the later activation time is to be used. If only one Supplier provides instructions, the date contained in these instructions shall be used.

Any instructions must be received by the DCC no later than one month before the DCC's automatic activation time and must specify an earlier time than the DCC automatic activation time.

Upon receipt of the instruction, the DCC shall distribute the Communications Hub firmware update to the specified Communications Hub GUIDs. The firmware activation will take place at the specified date and time.

If no instruction is received, the activation of the firmware update will take place at the time specified by the DCC in Requirement 1: The DCC will notify all relevant Users of a Communications Hub firmware update being available.

The DCC and Suppliers shall be able to instruct the 'safe launch group' of firmware updates to Communications Hub GUIDs in batches, should they choose to do so. See also 2.3 for the 'pilot group'.

It shall be possible to allow bulk processing of instructions for at least 50,000 Communications Hubs,

## **2.5 Requirement 4: The DCC will update Suppliers regularly at different stages of firmware processing**

Upon the receipt of the instruction to deploy, the DCC shall inform the requesting Supplier User(s).

If any of the Communications Hub GUIDs failed the DCC's message validation checks, the DCC shall inform the requesting Supplier(s), listing all the Communications Hub GUIDs that failed and the reason for the failure in each case.

Supplier Users shall be able to query or extract a report detailing the Communications Hub firmware status for their entire deployed estate.

The solution shall be capable of showing each actor in the process how long they have to complete tasks.

The solution shall be capable of presenting to each actor in the process a dashboard showing:

- Status of each firmware upgrade 'in flight';
- Outstanding actions; and
- Next action date for other actors in the process.

Upon the DCC receiving the confirmation of successful firmware activation in the Communications Hub, the DCC shall update the Smart Metering Inventory (SMI) if the firmware version has changed and notify the Supplier(s) of that Communications Hub GUID.

## **2.6 Requirement 5: If issues are identified with deployed firmware, the DCC shall investigate and determine whether to proceed with the roll-out**

The instruction mechanisms under Requirement 3: The Supplier(s) can choose to trigger the firmware update at an earlier date than the DCC's specified deployment date will need to allow the DCC and Suppliers to roll out firmware updates in batches, should they choose to do so.

Following deployment of firmware updates to Communications Hubs, the Supplier(s) can assess the impact this is having on devices connected to the Home Area Network (HAN). If any issues are identified, the Supplier can raise an incident via the DCC Service Desk. The DCC shall establish a mechanism to identify and mark such incidents as a high priority.

The DCC will carry out a triage of any issues raised by Suppliers<sup>1</sup>. The DCC shall establish a process for reviewing the incidents raised and, based on the type and severity of the issue encountered which will produce one of the following outcomes:

- Proceed with the roll-out as planned;
- Pause the roll-out;
- Delay the end-date of the roll-out; or
- Stop the roll-out completely.

The confirmation of this decision will rest with the Panel or a nominated Sub-Committee. Where the DCC believes it is critical to halt the roll-out immediately, they may suspend the roll-out pending the outcome of the discussions with the Panel or the nominated Sub-Committee.

The DCC will inform all relevant Suppliers of the decision made as a result of any such review, including what this means for any pending update requests.

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<sup>1</sup> The extent of this capability needs to be defined by the DCC.

## 3. Solution design specification

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### 3.1 General

This section outlines the solution design specifications for this Modification Proposal. It provides detailed information on the two variants of the proposed solution for the business requirements contained in Business requirements of this document. These have been reviewed by the Proposer with input from the DCC, Sub-Committees and the Working Group.

There are two solution variants for this modification: one introducing new Service Request(s) on the DCC User Interface Specification (DUIS); and the other using a DCC operated Web Portal. The solution design specifications to each of these solution variants are outlined in this section. The solutions must be capable of machine-to-machine interfacing allowing Supplier systems to be connected.

For the avoidance of doubt, both solution variants will be assessed against all of the business requirements specified in section 1.

### 3.2 Instructing Firmware updates via Service Request on the DUIS Interface

#### 3.2.1 Informing Suppliers

The DCC shall notify all relevant Users of its intention to activate replacement Manufacturer Images in relation to Communications Hubs no longer than 6 months before the DCC's automatic deployment date.

#### 3.2.2 New Service Request

The DCC shall create a new Service Request in order for the Supplier(s) to specify:

- The Communications Hub Device Model and firmware version in accordance with the CPL;
- The list of Communications Hub GUIDs to be updated, with the Service Request to be able to accommodate at least 50,000 Communications Hub GUIDs; and
- The date and time of activation (this field can be left blank to denote the Supplier has no preferred activation time).

The Supplier(s) will need to send the Service Request at least one month before the DCC's automatic activation time (as informed through the notification under Requirement 3: The Supplier(s) can choose to trigger the firmware update at an earlier date than the DCC's specified deployment date).

The Service Request shall be voluntary, and the Supplier User may therefore elect not to send the Service Request.

Upon receipt of the Service Request, the DCC shall distribute the Communications Hub firmware update to the Communications Hub GUIDs in the 'List of CH IDs' specified in the Service Request.

The DCC shall send a Service Response to the requesting Supplier User. If any of the Communications Hub GUIDs failed the DCC's Message Validation checks, the DCC shall send a Service Response to the requesting Supplier User, listing all the Communications Hub GUIDs that failed and the reason for the failure in each case.

The DCC will activate the distributed firmware by the time stated in the Service Request. Upon the DCC receiving the CS06 'Activate Firmware' Alert, the DCC shall update the SMI if the firmware version has changed and forward the Alert to all Responsible Supplier Users of that Communications Hub GUID.

If the DCC does not receive the CS06 'Activate Firmware' Alert, the Supplier may send Service Request 11.2 'Read Firmware Version'. The DCC shall update the SMI and forward the Response to the Supplier User.

### 3.2.3 Dual Supplier scenarios – Service Request from all Responsible Suppliers

In a dual Supplier scenario, both the Import and Gas Suppliers will be required to send Service Requests in order to manage firmware deployment.

This option allows the Import and Gas Supplier to send the proposed new Service Request to the DCC for the distribution and activation of the Communications Hub firmware update.

*The DCC shall record or store the first Service Request received for a Communications Hub GUID from either of the Suppliers. The distribution and activation of the firmware update can then only be started once the other Supplier has either submitted a Service Request specifying the deployment date or agreed with the deployment date. The process is shown in*

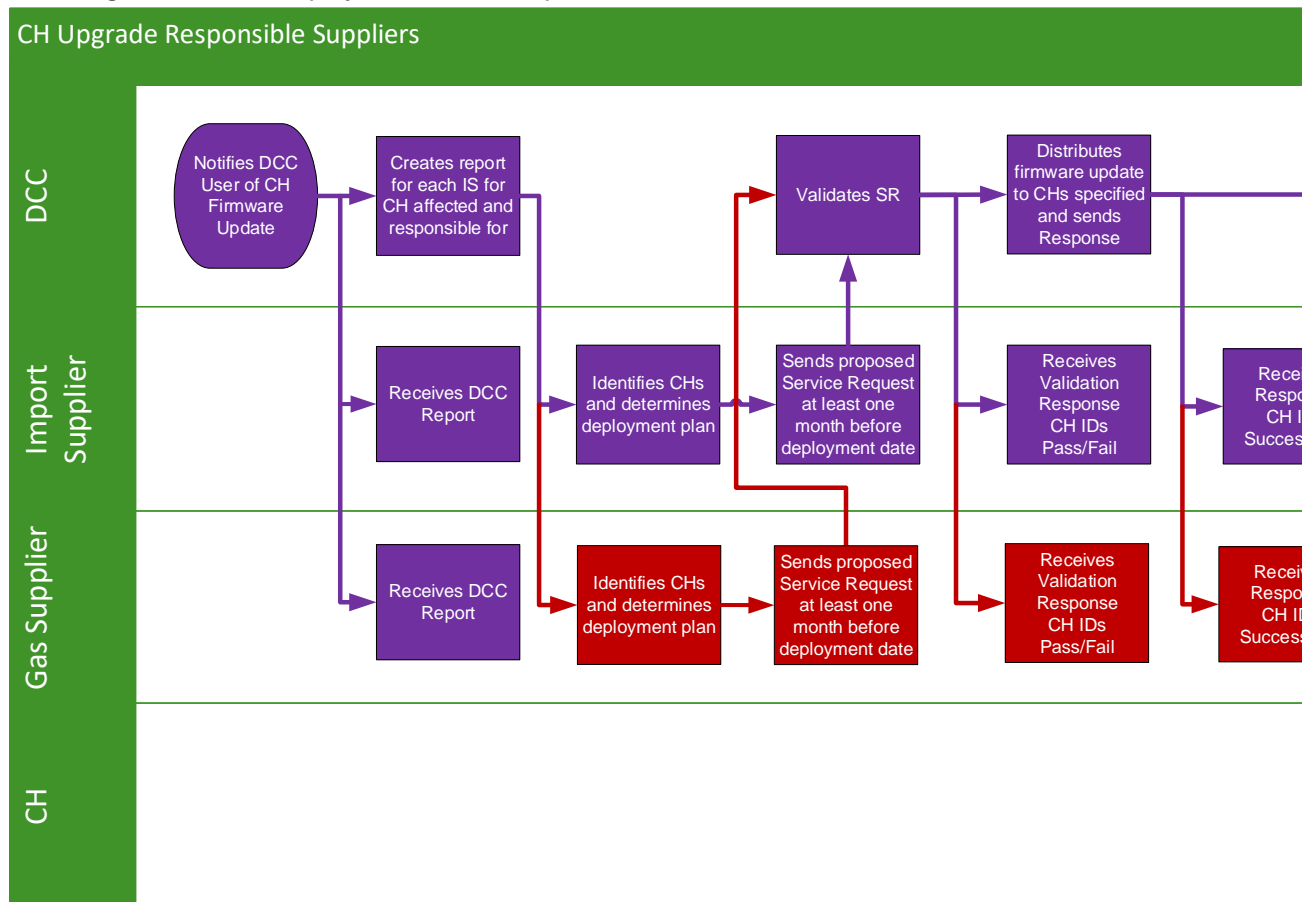


Figure 1: Communications Hub upgrade Responsible Suppliers.

It may be advisable to make the Service Request mandatory; the possible set of rules for a mandatory and voluntary Service Request are given below.



Mandatory Service Request:

- Both Suppliers must submit the Service Request and specify the deployment dates
- The later of the dates defines the actual deployment start date
- The latest possible date is the DCC proposed deployment date

Voluntary Service Request:

- Both Suppliers may submit the Service Request and specify the deployment dates
- If both Suppliers send the Service Request the later of the dates defines the actual deployment start date
- The latest possible date is the DCC proposed deployment date
- If one Supplier elects not to send a Service Request then the deployment date of the other Supplier is selected
- If no Supplier sends a Service Request then the DCC proposed deployment date will be used

## CH Upgrade Responsible Suppliers

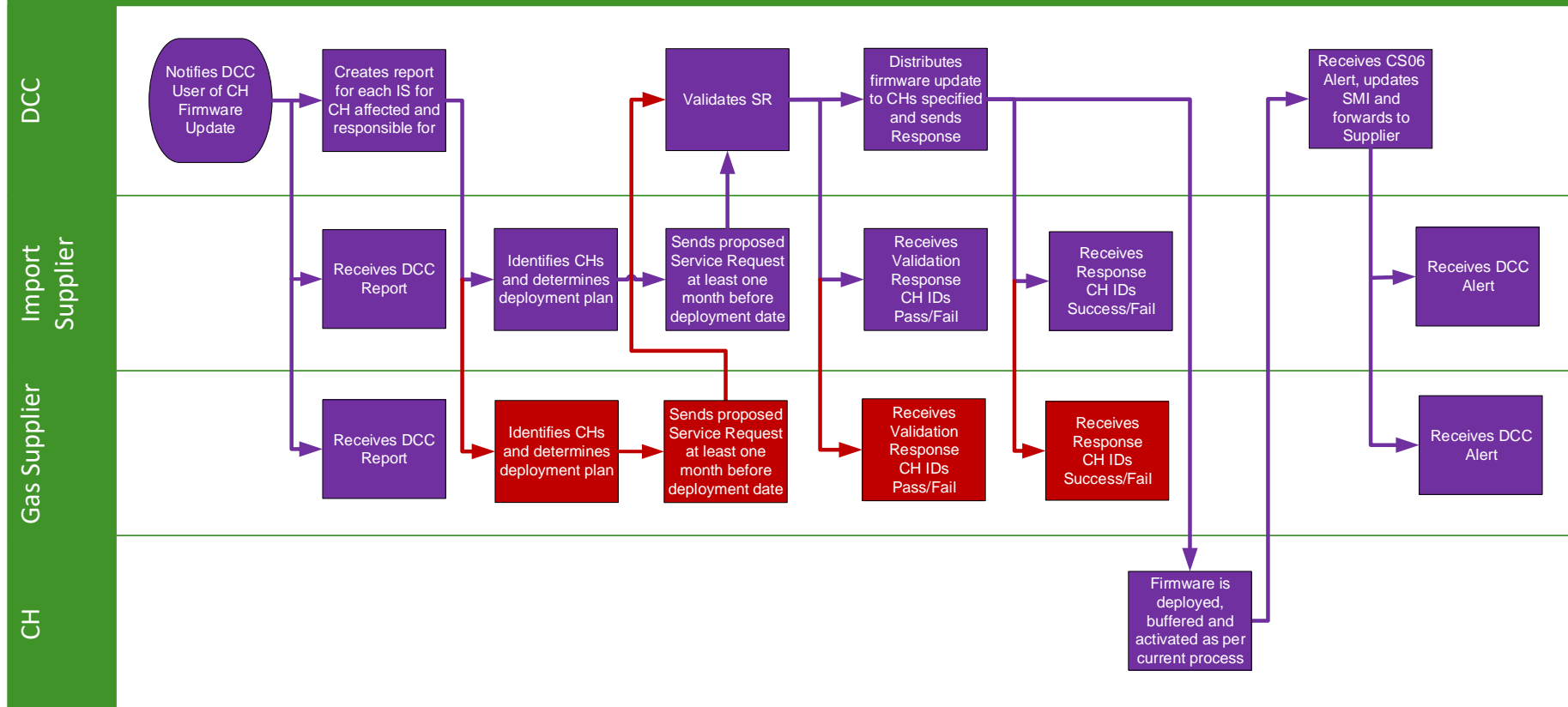


Figure 1: Communications Hub upgrade Responsible Suppliers

### 3.2.4 Phased Communications Hub Firmware Roll Out

The solution allows implementation of a phased roll-out of the Communications Hub firmware by either the DCC and/or the Supplier:

- The DCC may select splitting the affected Communications Hubs into several groups and deploy the firmware upgrade in consecutive phases to each group e.g. the 'pilot group' and the 'safe launch group';
- The Supplier(s) can control the phased the roll-out by submitting different dates for the Communications Hubs firmware upgrade in the Service Request, e.g. by breaking up the 'safe launch group' into several subgroups.

### 3.3 Use of a DCC operated Web Portal

The DCC shall create a web portal where Suppliers can log in to see the list of available updates as notified under Requirement 1: The DCC will notify all relevant Users of a Communications Hub firmware update being available, and confirm which Communications Hubs are to be updated and when these are to take place.

Where the Import Supplier and the Gas Supplier are separate Parties, the web portal will be able to inform each Supplier that there is a second Supplier (but not who that Supplier is) and whether that Supplier has provided instruction to update the Communications Hub.

Where there are two Suppliers, and each specifies a different activation time, the later activation time is to be used. If only one Supplier provides instructions, the date contained in these instructions shall be used.

The web portal will allow a Supplier to provide bulk approval of updates using pre-defined criteria. This mechanism should allow the Supplier to set automatic approval of any updates when the defined criteria is met.

The web portal will allow Suppliers to receive any other notifications in relation to the roll-out of firmware under other requirements.

Any web portal must be capable of machine-to-machine interfacing allowing Supplier systems to be connected to the web portal, to allow for real-time updates from the portal to be incorporated into any Customer Relationship Management (CRM) systems.

The requirements for the web portal will be contained in a document that will be referenced within the SEC. Any changes to this document will need to be consulted upon before approval is then given by the Panel or a nominated Sub-Committee.

## 4. Glossary

This table lists all the acronyms used in this document and the full term they are an abbreviation for.

| Glossary |                                  |
|----------|----------------------------------|
| Acronym  | Full term                        |
| CH       | Communications Hub               |
| CPL      | Central Products List            |
| CRM      | Customer Relationship Management |
| CSP      | Communications Service Provider  |
| DCC      | Data Communications Company      |
| DUIS     | DCC User Interface Specification |
| GUID     | Globally Unique Identifier       |
| HAN      | Home Area Network                |
| SMI      | Smart Metering Inventory         |