

DCC Business Process Document

DCC User Business Scenarios

Version 5.2

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Version History

Date	Version Number	Comment
11/11/2020	4.0	First Draft Presented to DRF
10/03/2020	4.1	Uplifted version with the other Business Scenarios bar Change of Firmware
19/04/2020	4.2	Added the Change Of Firmware Business Scenario.
13/07/2020	4.3	Added Firmware Road Map from SS.

1. Install And Commission Business Scenarios

This section will give the DCC view on the service requests to send in the Install and Commission sequence. The aim is to standardise the service requests as much as possible. DCC user backend system integration or third parties integration; for example mobile integration; is out of scope.

For further explanation on why certain service request is recommended, please refer to “Industry Install Commission Best Practice” document published at [Design Notes and Interim Approaches » \(smartenergycodecompany.co.uk\)](https://www.smartenergycodecompany.co.uk).

1.1. Business Scenarios

Description	User Role
Install & Commission - ESME Credit (Incl. Post Commissioning Activities)	IS
Install & Commission - GSME Credit (Incl. Post Commissioning Activities)	GS
Install & Commission - ESME Prepayment (Incl. Post Commissioning Activities)	IS
Install & Commission - GSME Prepayment (Incl. Post Commissioning Activities)	GS
Install & Commission - ESME Credit with HCALCS (Incl. Post Commissioning Activities)	IS
Network Operator: Post Install and Commission Activities	ED

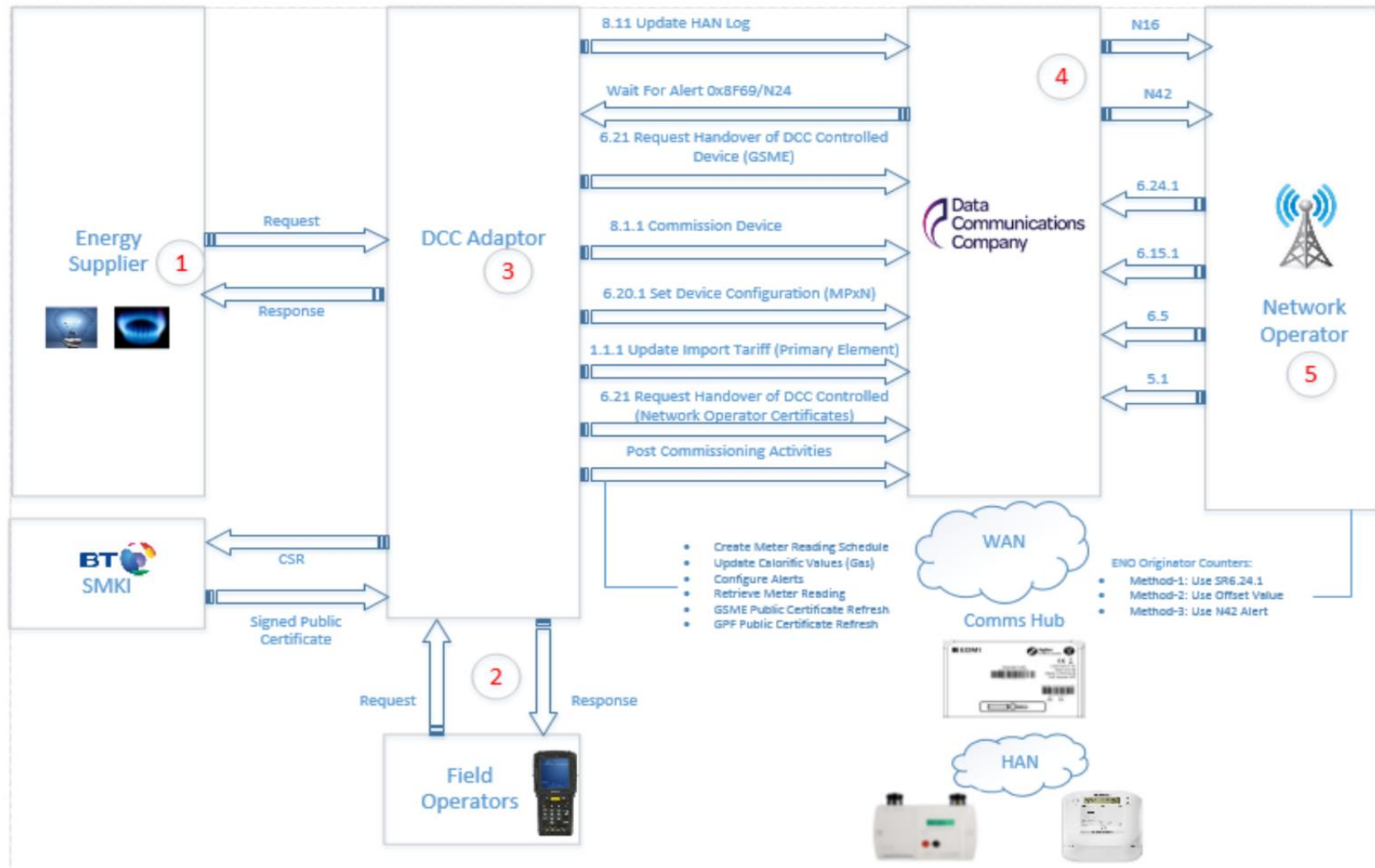
1.2. Alerts

Business Scenario	Type	Alert	Trigger
Install & Commission	DCC	N24	Update HAN Device Log - Success
Install & Commission	DCC	N25	Update HAN Device Log - Failure
Install & Commission	DCC	N42	Remote Party (e.g. Network Operator) whose certificate has been placed on Device
Install & Commission	Device	0x8F69	Device Alert HAN Log
Install & Commission	Device	0x8F12	CHF Device Log Changed
Install & Commission	Device	N16	Device Identity Confirmation
Install & Commission	Device	N58	ALCS/HCALCS/APC configuration change – New Alert

1.3. Prerequisites

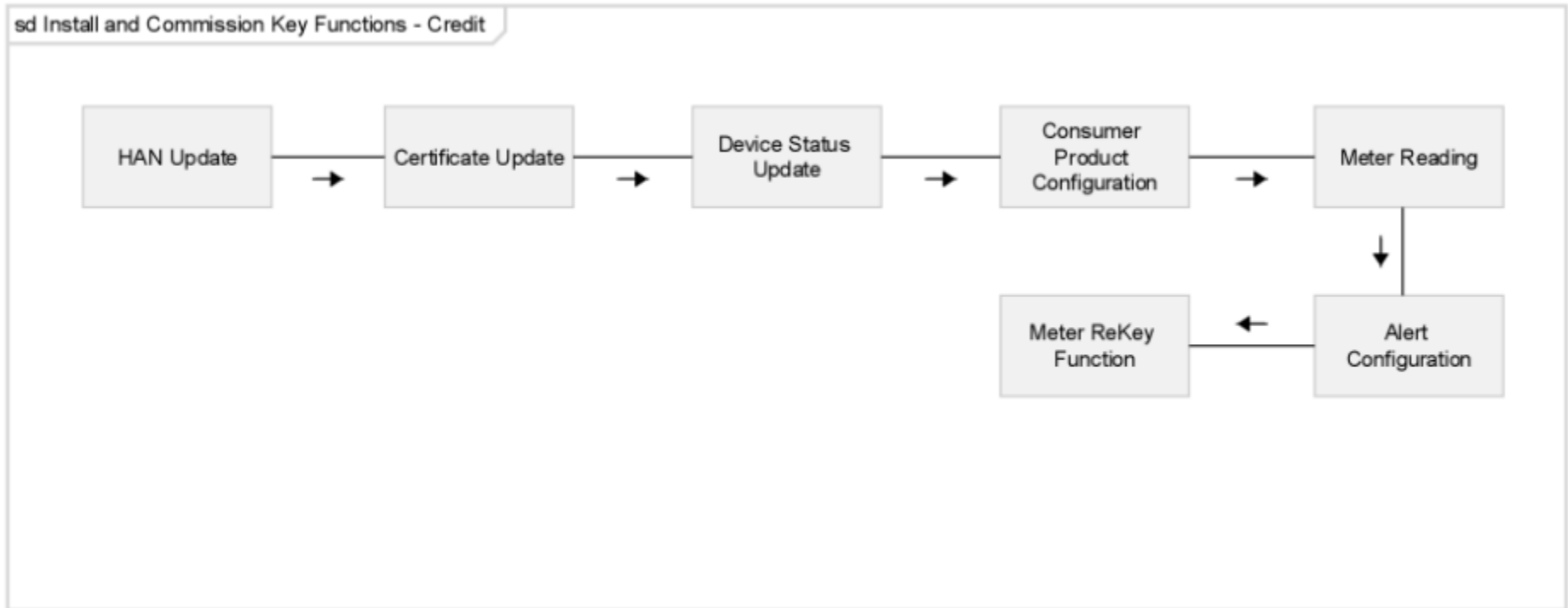
- Device pre-notification to DCC is completed
- WAN matrix checks are completed
- ACB certificates are pre-populated on supplier/network operator trust anchors
- PPMID/IHD Join is separate process/sequence
- DCC can't recommend about onsite activities related SRV because it is dependent upon the individual customer business requirement and design
- Number of SRVs executed during the onsite activities will determine the 'Total Install Time' hence it is very important to execute only the business critical SRs during onsite activities

1.4. System Flow Diagram



1.5. Install And Commission Business Scenarios – Credit

Install And Commission Key Functions Credit.



1.5.1. Install And Commission (ESME Credit)

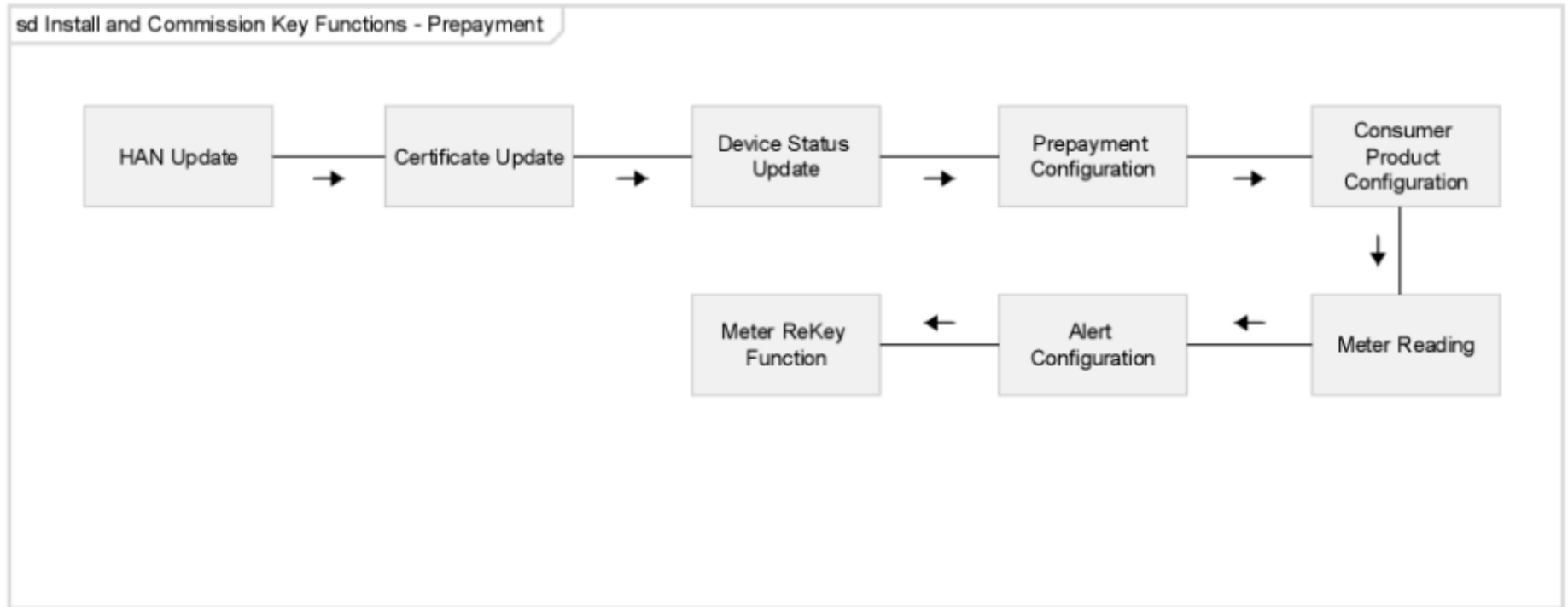
SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS3.0 onwards
	Wait For Device Alert 0x8F69/N24	Energy supplier will not receive alert 0x8F69 if ACB certificates are in Device trust anchor slot.
8.9	Read Device Log	Optional. In the case of N25, this will help verify that SR8.11 was successful.
8.14.1	Communications Hub Status Update- Install Success	If this is not sent, the CSP will not be able to establish the address of the CH efficiently this will cause challenges in the incident investigation process
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificates (ESME)
8.1.1	Commission Device	
6.20.1	Set Device Configuration (Import MPxN)	
1.1.1	Update Import Tariff (Primary Element)	
1.6	Update Payment Mode	
6.8	Update Device Configuration (Billing Calendar)	R2.0 introduced additional frequencies i.e. Quarterly, every six months and yearly.
5.1	Create Schedule	
6.22	Configure Alert Behaviour	
	Retrieve Change of Mode/Tariff Triggered Billing Data	
4.4.2	Log	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.4.1	Update Device Configuration (Load Limiting)	
	Update Device Configuration (Instantaneous Power	
6.12	Threshold)	
6.25	Set Electricity Supply Tamper State	
6.21	Request Handover Of DCC Controlled Device	ENO Certificates
6.17	Issue Security Credential	Digital Signature - ESME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature - ESME
6.17	Issue Security Credential	Key Agreement Key- ESME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Key Agreement Key-ESME

1.5.2. Install And Commission (GSME Credit)

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS 3.0 onwards.
	Wait For Device Alert 0x8F69/N24	Energy supplier will not receive alert 0x8F69 if ACB certificates are in Device Trust Anchor Slot
8.9	Read Device Log	Optional. In the case of N25, this will help verify that SR8.11 was successful.
8.14.1	Communications Hub Status Update- Install Success	If this is not sent, the CSP will not be able to establish the address of the CH efficiently this will cause challenges in the incident investigation process
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificate (GSME)
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificate (GPF)
8.1.1	Commission Device	
8.7.2	Join Service (Non-Critical)	Join GPF with GSME
6.20.1	Set Device Configuration (Import MPxN)	
1.1.1	Update Import Tariff (Primary Element)	
1.6	Update Payment Mode	
6.8	Update Device Configuration (Billing Calendar)	R2.0 introduced additional frequencies i.e. Quarterly, Every six months and yearly.
5.1	Create Schedule	
6.22	Configure Alert Behaviour	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	
3.4	Update Supplier Name	
6.6	Update Device Configuration (Gas Conversion)	Update Calorific Values
6.7	Update Device Configuration (Gas Flow)	For SMETS2 V4 onward
1.5	Update Meter Balance	
6.21	Request Handover Of DCC Controlled Device	GT Certificates
6.17	Issue Security Credential	Digital Signature – GSME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature – GSME
6.17	Issue Security Credential	Key Agreement Key – GSME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Key Agreement Key – GSME
6.17	Issue Security Credential	Digital Signature - GPF
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature - GPF
6.17	Issue Security Credential	Key Agreement Key – GPF
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Key Agreement Key - GPF

1.6. Install And Commission Business Scenarios – Prepayment

Install And Commission Key Functions Prepayment



1.6.1. Install And Commission – ESME Credit with HCALCS

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS3.0 Onwards
	Wait For Device Alert 0x8F69/N24	Energy supplier will not receive alert 0x8F69 if ACB certificates are in Device Trust Anchor Slot
8.9	Read Device Log	Optional. In the case of N25, this will help verify that SR8.11 was successful.
8.14.1	Communications Hub Status Update- Install Success	
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificates on ESME
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificates on HCALCS
8.7.1	Join Service (Critical)	Join ESME with HCALCS
8.7.1	Join Service (Critical)	Join HCALCS with ESME
8.1.1	Commission Device	
6.20.1	Set Device Configuration (Import MPxN)	
1.1.1	Update Import Tariff (Primary Element)	
1.6	Update Payment Mode	
6.8	Update Device Configuration (Billing Calendar)	
5.1	Create Schedule	
6.22	Configure Alert Behaviour	
6.14.1	Update Device Configuration (Auxiliary Load Control Description)	New N58 alert to DNO
6.14.2	Update Device Configuration (Auxiliary Load Control Scheduler)	New N58 alert to DNO
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.4.1	Update Device Configuration (Load Limiting)	
6.12	Update Device Configuration (Instantaneous Power Threshold)	
6.25	Set Electricity Supply Tamper State	
6.21	Request Handover Of DCC Controlled Device	Network Operator Certificate
6.17	Issue Security Credential	Digital Signature
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature
6.17	Issue Security Credential	Key Agreement Key
	Retrieve Certificate From SMKI	

1.6.2. Install And Commission – ESME Prepayment

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS 3.0 onwards
	Wait For Device Alert 0x8F69/N24	Energy supplier will not receive alert 0x8F69 if ACB certificates are there on Device trust anchor slot.
8.9	Read Device Log	Optional. In the case of N25, this will help verify that SR8.11 was successful.
8.14.1	Communications Hub Status Update- Install Success	
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificates
8.11	Commission Device	
6.20.1	Set Device Configuration (Import MPxN)	
1.1.1	Update Import Tariff (Primary Element)	
2.1	Update Prepay Configuration	
1.6	Update Payment Mode	
6.8	Update Device Configuration (Billing Calendar)	R2.0 introduced additional frequencies i.e. Quarterly, Six Monthly and Yearly
6.22	Configure Alert Behaviour	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	
2.3	Billing Data Log	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.4.1	Update Device Configuration (Load Limiting)	
6.12	Update Device Configuration (Instantaneous Power Threshold)	
6.25	Set Electricity Supply Tamper State	
6.21	Request Handover Of DCC Controlled Device	ENO Certificates
6.17	Issue Security Credential	Digital Signature - ESME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature - ESME
6.17	Issue Security Credential	Key Agreement Key - ESME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Key Agreement Key - ESME

1.6.3. Install And Commission – GSME Prepayment

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS 3.0 onwards
	Wait For Device Alert 0x8F69/N24	Energy supplier will not receive alert 0x8F69 if ACB certificates are in Device Trust Anchor Slot
8.9	Read Device Log	Optional. In the case of N25, this will help verify that SR8.11 was successful.
8.14.1	Communications Hub Status Update- Install Success	
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificate (GSME)
6.21	Request Handover Of DCC Controlled Device	Update Supplier Certificate (GPF)
8.1.1	Commission Device	
8.7.2	Join Service (Non-Critical)	
6.20.1	Set Device Configuration (Import MPxN)	
1.1.1	Update Import Tariff (Primary Element)	
2.1	Update Prepayment Configuration	
1.6	Update Payment Mode	
6.8	Update Device Configuration (Billing Calendar)	R2.0 introduced additional frequencies i.e. Quarterly, every six months and yearly.
5.1	Create Schedule	
6.22	Configure Alert Behaviour	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.6	Update Device Configuration (Gas Conversion)	Update Calorific Values
6.7	Update Device Configuration (Gas Flow)	For SMETS2V4 onward
2.3	Update Debt	
6.21	Request Handover Of DCC Controlled Device	GT Certificates
6.17	Issue Security Credential	Digital Signature - GSME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature - GSME
6.17	Issue Security Credential	Key Agreement Key - GSME
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Key Agreement Key - GSME
6.17	Issue Security Credential	Digital Signature – GPF
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Digital Signature – GPF
6.17	Issue Security Credential	Key Agreement Key – GPF
	Retrieve Certificate From SMKI	
6.15.2	Update Security Credential (Device)	Key Agreement Key – GPF

1.7. Post Install And Commission Activities

1.7.1. Post Install And Commission Activities – Network Operator.

SR	Description	Comment
6.24.1	Retrieve Device Security Credentials (KRP)	Not applicable for Method-2 and Method-3
6.15.1	Update Security Credentials (KRP)	Update Network Operator Certificates. Wait for N42 alert before triggering 6.15.1. The N42 alert will contain the relevant counter values used by the supplier. Since 6.15.1 has anti-replay protection, the Network Operator must use a counter larger than that used by the supplier/.
6.5	Update Device Configuration (Voltage)	
6.2.10	Read Device Configuration (Event And Alert Behaviours)	New R2.0 Service Request
6.22	Configure Alert Behaviour	Update ENO Alert Configuration
5.1	Create Schedule	Create DSP Schedules for export data

ENO Originator Counters:

- Method-1: Use SR 6.24.1
- Method-2: Use Offset Value
- Method-3: Use N42 Alert

1.7.2. Post Install And Commission Activities – Correcting Network Operator Certificates.

In the case that the wrong Network Operator Certificates were added to the anchor slot. In this case instead of adding certificates for Network Operator A; certificates for Network Operator B were added. This needs to be corrected so that the certificates in the slot belong to Network Operator A instead of B

SR	Description	Comment
6.15.1	Update Security Credentials (KRP)	Network Operator B should update the current Network Operator Certs with ACB certificates.
6.21	Request Handover Of DCC Controlled Device	Supplier should add the correct Network Operator Certs
6.15.1	Update Security Credentials (KRP)	Network Operator A should update the Network Operator Certificates.

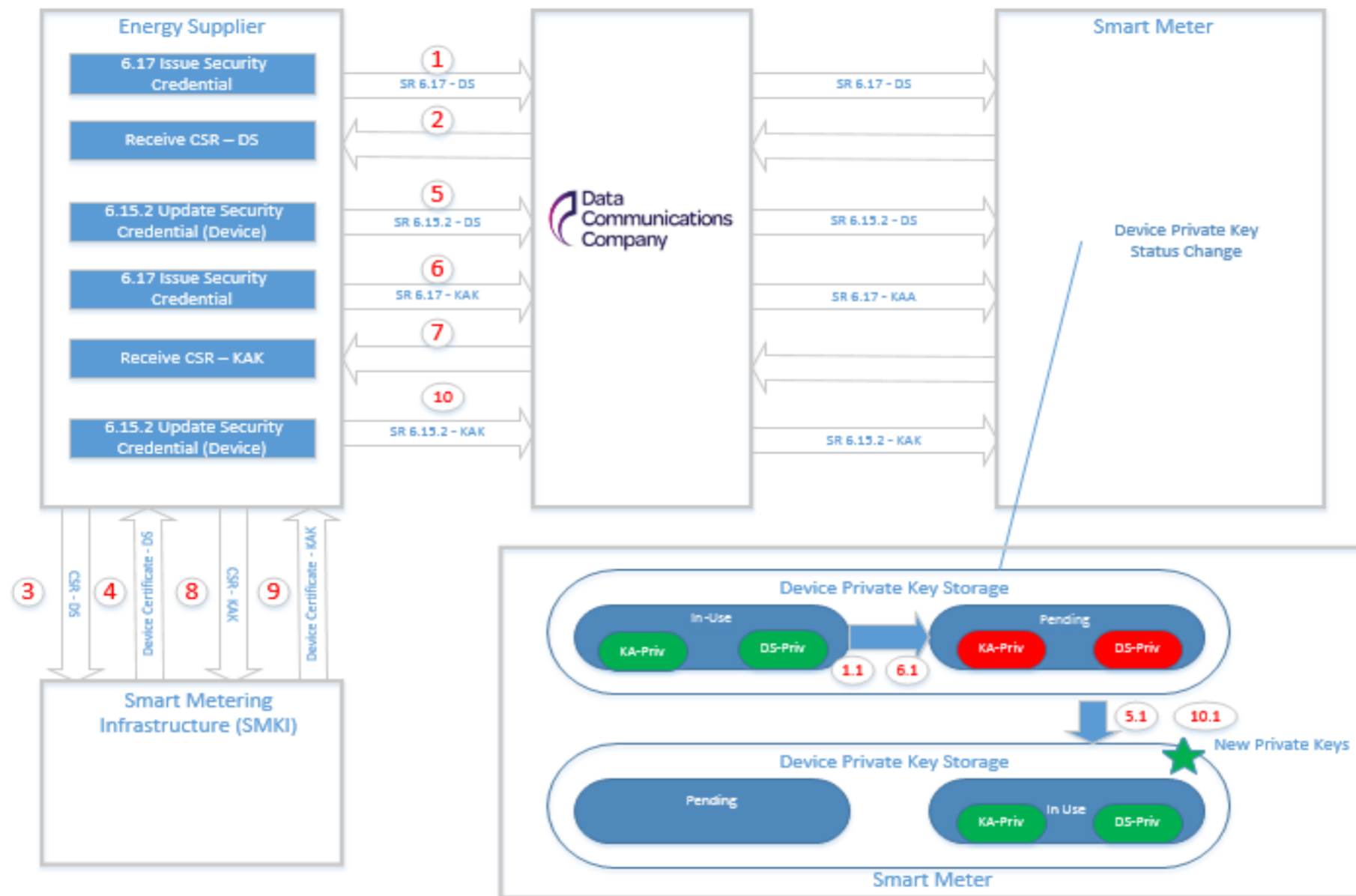
1.7.3. Post Install And Commission Activities – Suppliers (APC Functionality Present via ESME or APC)

Any ESME or SAPC Device that is aligned to GBCS v4.0 or later supports Two (2) additional Trust Anchor Cells for a new **LoadController** RemotePartyRole, which need to have their associated Security Credentials managed by the Energy Supplier.

Supplier is the only current party currently able to update these Security credentials on these Devices **AFTER** the Supplier Security Credentials have been updated successfully on the relevant Device as part of the Install and Commission process.

SR	Description	Comment
6.24.1	Retrieve Device Security Credentials (KRP)	To determine which Security Credential is present in the relevant Trust Anchor Cells
6.15.1	Update Security Credentials (KRP)	Update Load Controller Certificates (DS / KA)

1.8. Meter Rekey Functionality



1.9. Alerts

Alert	Alert Type	Trigger
0x8F12	Device	CHF Device Log Changed
0x8071	Device	GPF Device Log Changed
N24	DCC	Update HAN Device Log -Success
N25	DCC	Update HAN Device Log -Failure
N42	DCC	Remote Party (e.g. Network Operator) whose certificate has been placed on Device
N58	DCC	ALCS/HCALCS/APC configuration change – New Alert

1.10. Prerequisites

- Device id specified within Service Request must have been pre notified to DCC
- Discussion focus here is ‘no WAN’ installation using local command delivery. We will not discuss about different ‘Install and Leave’ options
- ‘HHT’ solution and integration is Energy Supplier responsibilities
- ‘HHT’ must be pre-notified to SMI as ‘IHD’ before installation
- ‘HHT’ must be added to Comms Hub whitelist prior to installation
- ‘HHT’ and DCC adaptor integration is Energy Supplier responsibilities
- Included key service requests in SR’s sequence. Example: device rekey function is not included in sequence due to time required to complete the SR’s.
- Assumption: DCC adaptor will send local commands to ‘HHT’ one by one.
- HHT Interaction is not required for scenario-5.

CV Value	Description
2	Non Critical Service Request to be returned to the DCC Service User for local delivery to a Device
3	Non Critical Service Request to be sent to a Device via the CSP Communications network as well as a copy to be returned to the DCC Service User for local delivery
6	Critical Signed pre command to be returned to the DCC Service User for local delivery to a Device
7	Critical Service Request to be sent to a Device via the CSP Communications network as well as a copy to be returned to the DCC Service User for local delivery.

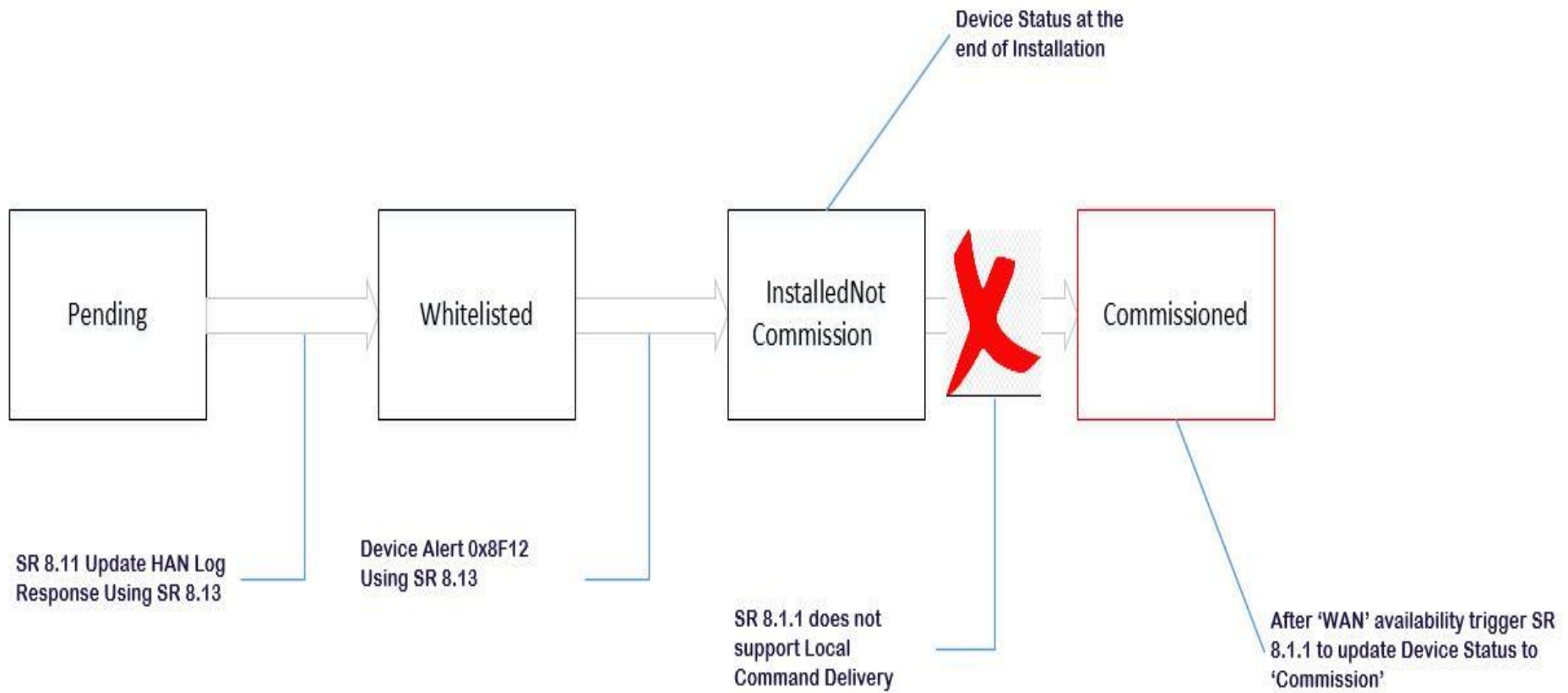
```

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    <sr:FirstInSequence> xs:boolean </sr:FirstInSequence> [0..1]
    <sr:PrecedingServiceRequestID> sr:RequestIDType </sr:PrecedingServiceRequestID> [0..1]
    <sr:CommandVariant> sr:CommandVariant </sr:CommandVariant> [1]
    <sr:ServiceReferenceVariant> sr:ServiceReferenceVariant </sr:ServiceReferenceVariant> [1]
  </sr:Header>
  <sr:Body> [1]
    Start Choice [1]
      <sr:UpdateImportTariffPrimaryElement> sr:TariffPrimaryElement </sr:UpdateImportTariffPrimaryElement> [1]
      <sr:UpdateImportTariffSecondaryElement> sr:TariffSecondaryElement </sr:UpdateImportTariffSecondaryElement> [1]

```

Command Variant is the only method by which a DCC service user can notify DCC about Local Command Delivery.

1.11. Device Status Flow



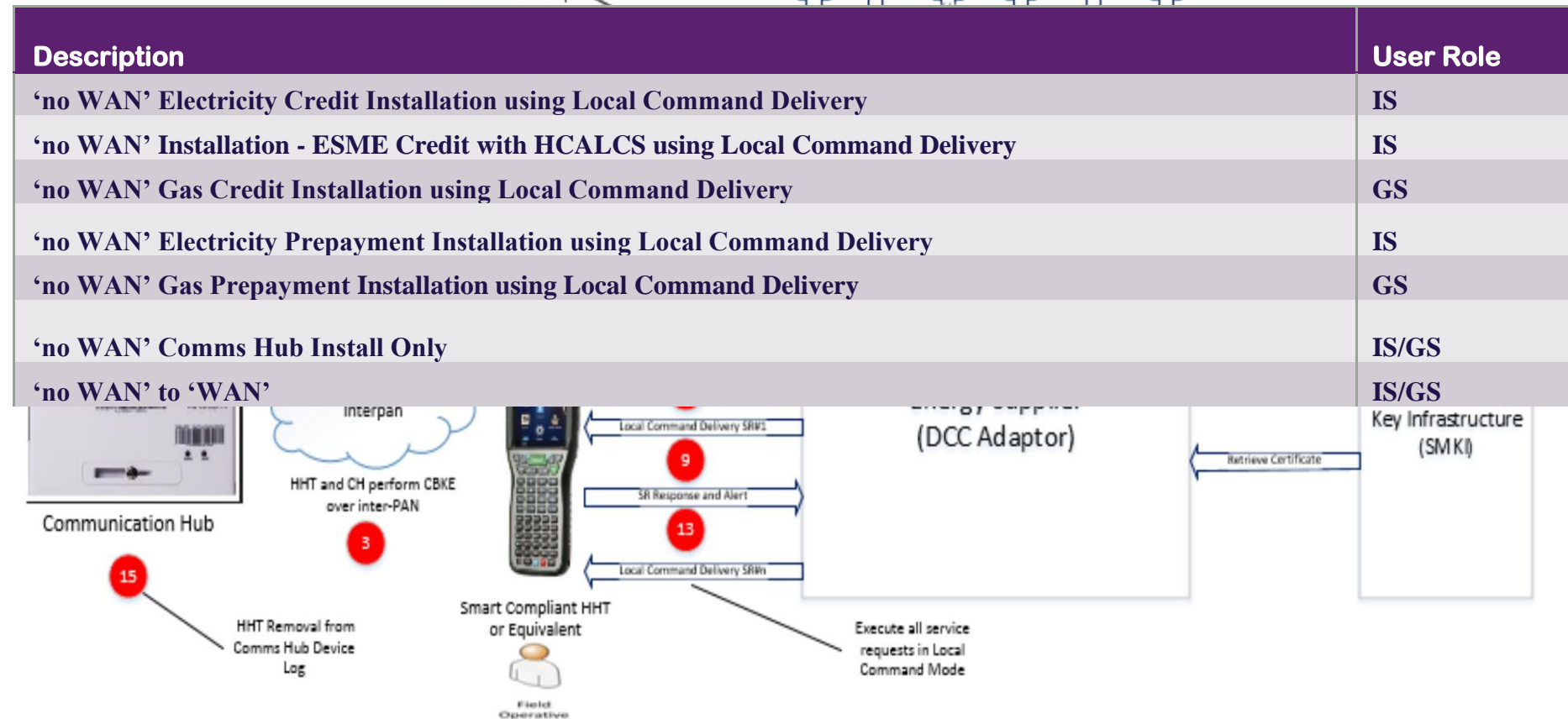
1.12. Considerations For Local Command Delivery

1. The HHT will identify Comms Hub to establish the inter-pan connectivity.
2. The CHF will identify the HHT as per GBCS Section 10.5.3.3
3. Inter-pan is available for 60 minutes from power on of the Comms Hub.
4. SR 8.11 has to be sent by the DCC service user to update the HHT details to the device log of the CH before installation as per GBCS section 10.5.2.1
5. The CHF should remove the HHT from the device log after 65335 seconds of SR 8.11 response (HHT addition to whitelist)
6. There are three methods with which the HHT can be removed from the Comms Hub device log:-
 - a. By power cycling the Comms Hub
 - b. HHT sends the 'CloseTunnel' command.
 - c. Comms Hub removes the HHT(after 65335 seconds of SR 8.11 response).
7. ST 8.14.2 must be triggered to notify CSP for 90 days' SLA.

2. No WAN Installation Using Local Delivery – Business Scenarios

This is the DCC standardised view of the Service Requests that should be sent in a no WAN installation scenario. DCC user backend system integration or third parties' integration; for example Hand Held Terminal; is out of scope.

2.1. Business Scenarios



2.2. No WAN Installation Business Scenarios – Credit

2.2.1. No WAN Installation ESME – Credit

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS3.0 onwards.
8.13	Return Local Command Response	Update SR 8.11 response to DCC
8.13	Return Local Command Response	Device Alert 0X8F12
	Wait For DCC Alert N24/N25	If N24 received then go to next step
6.21	Request Handover Of DCC Controlled Device	Supplier Certificate
1.1.1	Update Import Tariff (Primary Element)	
6.8	Update Device Configuration (Billing Calendar)	
8.13	Return Local Command Response	Update SR 6.8 response to DCC
1.5	Update Meter Balance	‘Adjust’
6.21	Request Handover Of DCC Controlled Device	Network Operator Certificate on ESME
6.15.1	Update Security Credentials	Update load controller certs on ESME if APC is present.

2.2.2. No WAN Installation – ESME Credit with HCALCS

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS 3.0 onwards.
8.13	Return Local Command Response	Update SR 8.11 response to DCC
8.13	Return Local Command Response	Device Alert 0X8F12
	Wait For DCC Alert N24/N25	If N24 received then go to next step.
6.21	Request Handover Of DCC Controlled Device	Supplier Certificate
1.1.1	Update Import Tariff (Primary Element)	
6.8	Update Device Configuration (Billing Calendar)	
8.13	Return Local Command Response	Update SR 6.8 response to DCC
1.5	Update Meter Balance	‘Adjust’
6.14.1	Update Device Configuration (Auxiliary Load Control Description)	New N58 alert to DNO
8.13	Return Local Command Response	Update SR 6.14.1 response to DCC
6.14.2	Update Device Configuration (Auxiliary Load Control Scheduler)	New N58 alert to DNO
8.13	Return Local Command Response	Update SR 6.14.2 response to DCC
6.21	Request Handover Of DCC Controlled Device	Network Operator Certificate on ESME
6.15.1	Update Security Credentials	Update load controller certs on ESME if APC is present.

2.2.3. No WAN Installation – GSME Credit

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS3.0 onwards.
8.13	Return Local Command Response	Update SR 8.11 response to DCC
8.13	Return Local Command Response	Device Alert 0X8F12
	Wait For DCC Alert N24/N25	If N24 received then go to next step
6.21	Request Handover Of DCC Controlled Device	GSME - Supplier Certificate
6.21	Request Handover Of DCC Controlled Device	GPF - Supplier Certificate
1.1.1	Update Import Tariff (Primary Element)	
6.8	Update Device Configuration (Billing Calendar)	
8.13	Return Local Command Response	Update SR 6.8 response to DCC
8.7.2	Join Service (Non-Critical)	Join GPF with GSME
8.13	Return Local Command Response	Update SR 8.7.2 response to DCC
8.13	Return Local Command Response	Device Alert 0x8071
1.5	Update Meter Balance	‘Adjust’
6.21	Request Handover Of DCC Controlled Device	Network Operator Certificate on GPF
6.15.1	Update Security Credentials	Update load controller certs on ESME if APC is present.

2.3. No WAN Installation Business Scenarios – Prepayment

2.3.1. No WAN Installation ESME – Prepayment

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS3.0 onwards
8.13	Return Local Command Response	Update SR 8.11 response to DCC
8.13	Return Local Command Response	Device Alert 0X8F12
	Wait For DCC Alert N24/N25	If N24 received then go to next step
6.21	Request Handover Of DCC Controlled Device	Supplier Certificate
1.1.1	Update Import Tariff (Primary Element)	
2.1	Update Prepay Configuration	
1.6	Update Payment Mode	Payment Mode = 'Prepayment'
6.8	Update Device Configuration (Billing Calendar)	
8.13	Return Local Command Response	Update SR 6.8 response to DCC
2.3	Update Debt	
1.5	Update Meter Balance	'Adjust'
6.21	Request Handover Of DCC Controlled Device	Network Operator Certificate
6.15.1	Update Security Credentials	Update load controller certs on ESME if APC is present.

2.3.2. No Wan Installation GSME – Prepayment

SR	Description	Comment
8.11	Update HAN Device Log	Change in InstallCode field attribute – DUIS3.0 onwards
8.13	Return Local Command Response	Update SR 8.11 response to DCC
8.13	Return Local Command Response	Device Alert 0X8F12
	Wait For DCC Alert N24/N25	If received N24 then go to next step
6.21	Request Handover Of DCC Controlled Device	GSME - Supplier Certificate
6.21	Request Handover Of DCC Controlled Device	GPF - Supplier Certificate
1.1.1	Update Import Tariff (Primary Element)	
2.1	Update Prepayment Configuration	
1.6	Update Payment Mode	Payment Mode = 'Prepayment'
6.8	Update Device Configuration (Billing Calendar)	
8.13	Return Local Command Response	Update SR 6.8 response to DCC
8.7.2	Join Service (Non-Critical)	
8.13	Return Local Command Response	Update SR 8.7.2 response to DCC
8.13	Return Local Command Response	Device Alert 0x8071
1.5	Update Meter Balance	'Adjust'
2.3	Update Debt	
6.21	Request Handover Of DCC Controlled Device	Network Operator Certificate on GPF

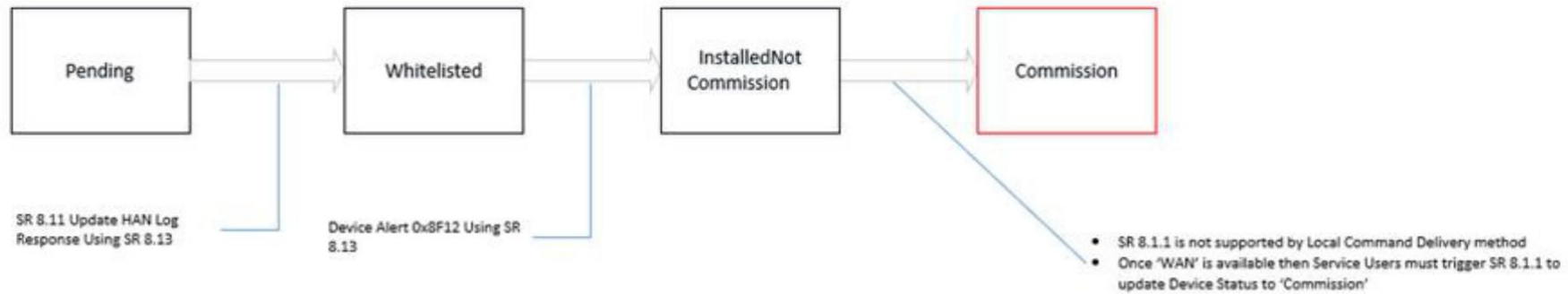
2.4. No WAN Comms Hub Install Only

SR	Description	Comment
8.4	Update Inventory	Change SMI Status to InstalledNotCommission
8.14.2	Communications Hub Status Update - Install No SM WAN	Update CSP to Initiate 90 days SLA

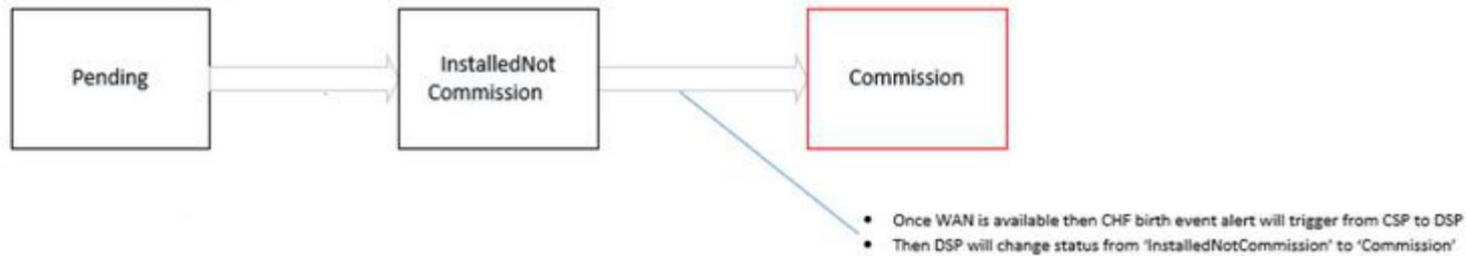
Service Users should trigger SR 8.14.2 to initiate the CSP SLA for WAN Recovery.

2.5. No WAN to WAN - SMI Status Change

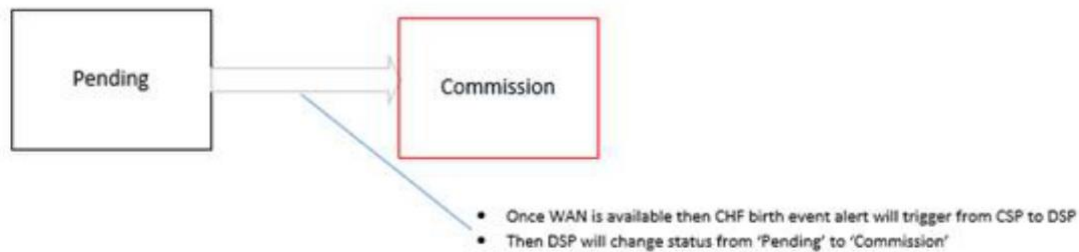
ESME/GSME:



Comms Hub: 'INC' to 'C'



Comms Hub: 'P' to 'C'



3. Organisation Certificates and Device Certificates Update Business Scenarios

This section will give the DCC view on the service requests to send when updating the organisation and device certificates. The aim is to standardise the service requests as much as possible. DCC user backend system integration or third parties integration; for example Energy Supplier Certificate Management Process; is out of scope.

3.1. Prerequisites

- Device id specified within Service Request must have been pre notified to DCC
- Supplier Trust anchors are populated with Organisation certificates
- Energy Supplier will not manage Network Operator Certificates replacement process post Installation
- Payment service provider certificates must be populated in PP KAK trust anchor cell
- Device certificate update required only for 7 days post commissioning SEC obligation or if device certificate is compromised
- Same SR's sequence can be utilised by multiple business scenario's

Devices			ESME / SAPC electricity meter	GSME gas meter	CHF control hub	GPF gas proxy	PPMID pre-payment meter	HCALC HMAN auxiliary load control
DCC	Root OCA	A						
DCC	Recovery Digital Signature	A						
Supplier	Supplier Digital Signature	A						
Supplier	Supplier Key Agreement	A						
Supplier	Supplier Key Agreement (Pre-Payment)	A						
Network Operator	Network Operator Digital Signature	A						
Network Operator	Network Operator Key Agreement	A						
DCC	AccessControlBroker Digital Signature	A						
DCC	AccessControlBroker Key Agreement	A						
DCC	transitionalCoS Digital Signature	A						
DCC	wanProvider Digital Signature	A						
DCC	Load Controller Digital Signature	A						
DCC	Load Controller Key Agreement	A						

DCC Keys/Certificates

DCC	Contingency Symmetric	S
-----	-----------------------	---





DCC	Contingency Private Key	A
-----	-------------------------	---

DCC	Issuing OCA	A
-----	-------------	---

DCC	Issuing DCA	A
-----	-------------	---

DCC	Root DCA	A
-----	----------	---

Key:

-  Key Custodian
-  Key type (asymmetric/symmetric)
-  SMKI Certificate in Device Slot
-  No Certificate in Device Slot

3.2. Organisation Certificate Update Business Scenarios

3.2.1. Organisation Certificate Update – ESME

SR	Description	Comment
6.15.1	Update Security Credential (KRP)	ESME (DS , KAK and PP KAK)

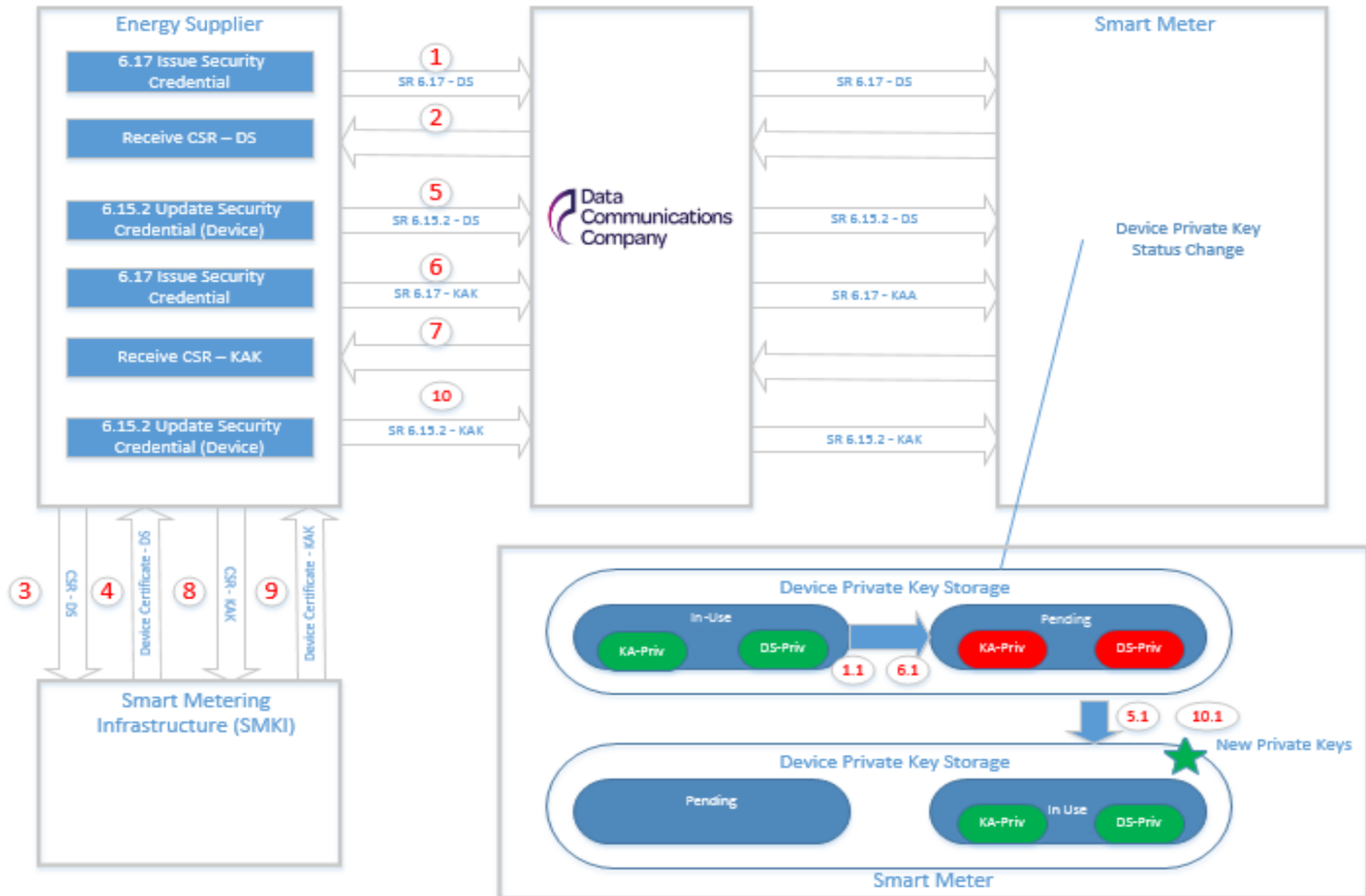
- TheRemote Party Role in SR 6.15.1 must be equal to ‘Supplier.’
- Populate Payment Providers certificates in Prepayment Key Agreement Key trust anchor slot
- Update Digital Signature in HCALCS using SR 6.15.1

3.2.2. Organisation Certificate Update – GSME

SR	Description	Comment
6.15.1	Update Security Credential (KRP)	GSME (DS, KAK and PP KAK)
6.15.1	Update Security Credential (KRP)	GPF (DS, KAK)

- The Remote Party Role in SR 6.15.1 must be equal to ‘Supplier’
- Populate Payment Providers certificates in Prepayment Key Agreement Key trust anchor slot
- Prepayment KAK certificate is not required for Gas Proxy Function

3.3. Device Certificate Update Business Scenarios



SR	Description	Comment
6.17	Issue Security Credential	Credential Type = Digital Signature
	Energy Supplier-SMKI Integration	Pass DS CSR and Receive Signed Public Certificate
6.15.2	Update Security Credential (Device)	Credential Type = Digital Signature
6.17	Issue Security Credential	Credential Type = Key Agreement Key
	Energy Supplier-SMKI Integration	Pass KAK CSR and Receive Signed Public Certificate
6.15.2	Update Security Credential (Device)	Credential Type = Key Agreement Key

- Above steps are required for ESME, GSME and GPF
- Device Status will not change to 'Suspended' if device rekey function is not performed within 7 days of post commission. These Devices will be included in DCC report to Energy Supplier.
- Device certificates never expire.

4. PPMID Business Scenarios

This section will give the DCC view on joining the PPMID Business Scenarios.

4.1. Business Scenarios

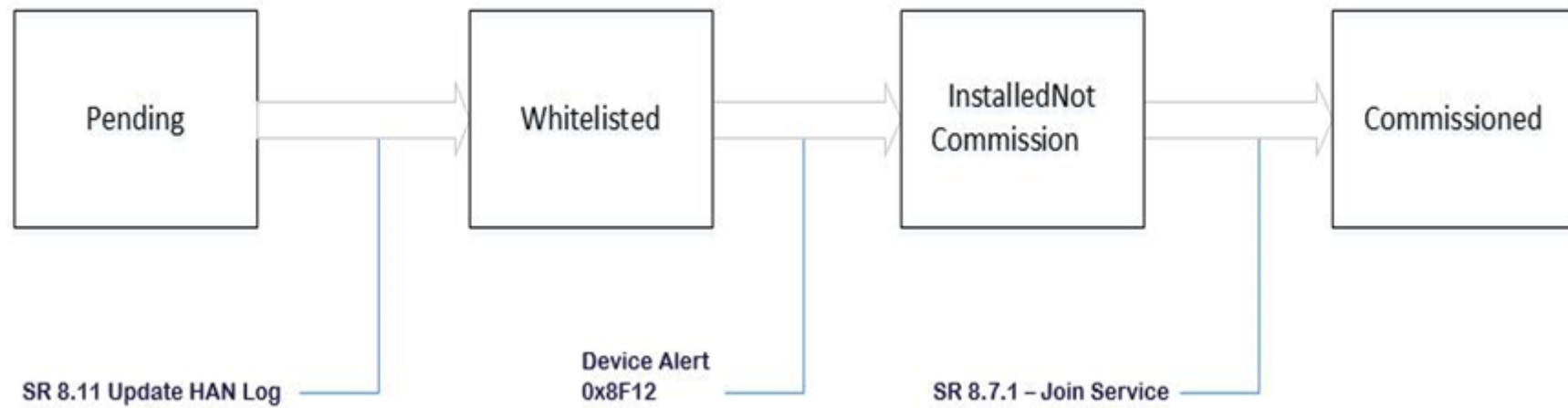
Description	User Role
PPMID exchange – Electricity Site	IS
PPMID exchange – Gas Site	GS
PPMID re-join after device rekey process	GS
ESME exchange -re-pairing with PPMID	IS
GSME exchange – re-pairing with PPMID	GS

4.2. Alerts

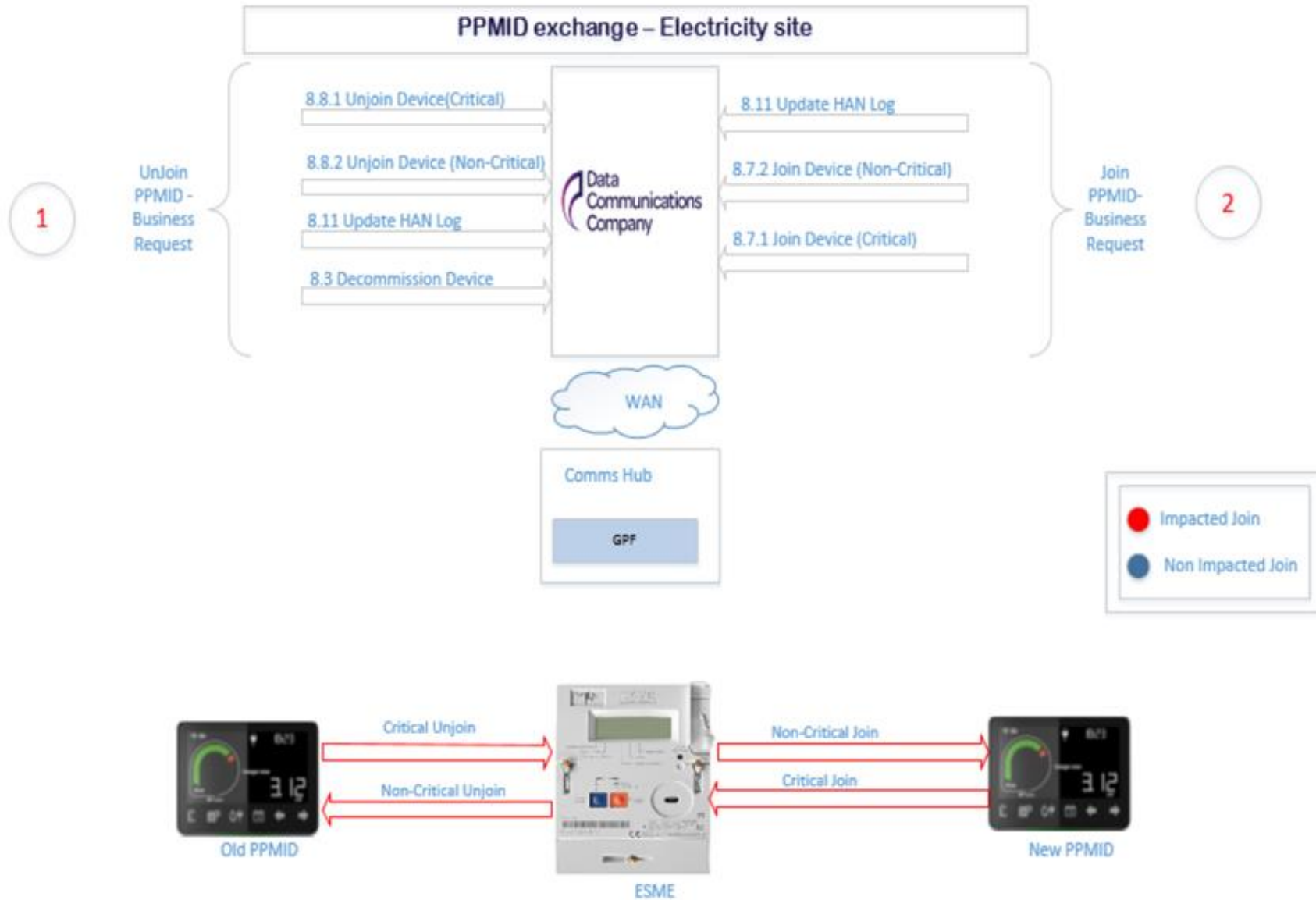
Alert	Alert Type	Description
N24	DCC	Update HAN Device Log - Success
N25	DCC	Update HAN Device Log – Failure
N43	DCC	PPMID Removal – When PPMID is joined to both GSME and ESME

4.3. Pre-requisites

- Device id specified within Service Request must have been pre notified to the DCC
- WAN matrix checks are completed
- Supplier Trust anchors are populated with Digital Signature, Key Agreement Key and Prepayment Key Agreement Key certificates on ESME and GSME
- UTRN generation is align to latest GBCS
- Latest meter public certificates (KAK) are considered in UTRN generation
- ESME, GSME, GPF and CHF are in 'commissioned' status for Join service
- In meter exchange scenario, focus here is PPMID Join/Unjoin function. Device commission/decommission is separate process
- Two separate business requests: one to remove PPMID (old) and other to add PPMID (new)
- Installer is onsite to perform job with correct job type (for meter exchange scenario only)

PPMID Device Status Flow

4.4. PPMID Exchange – Electricity Site



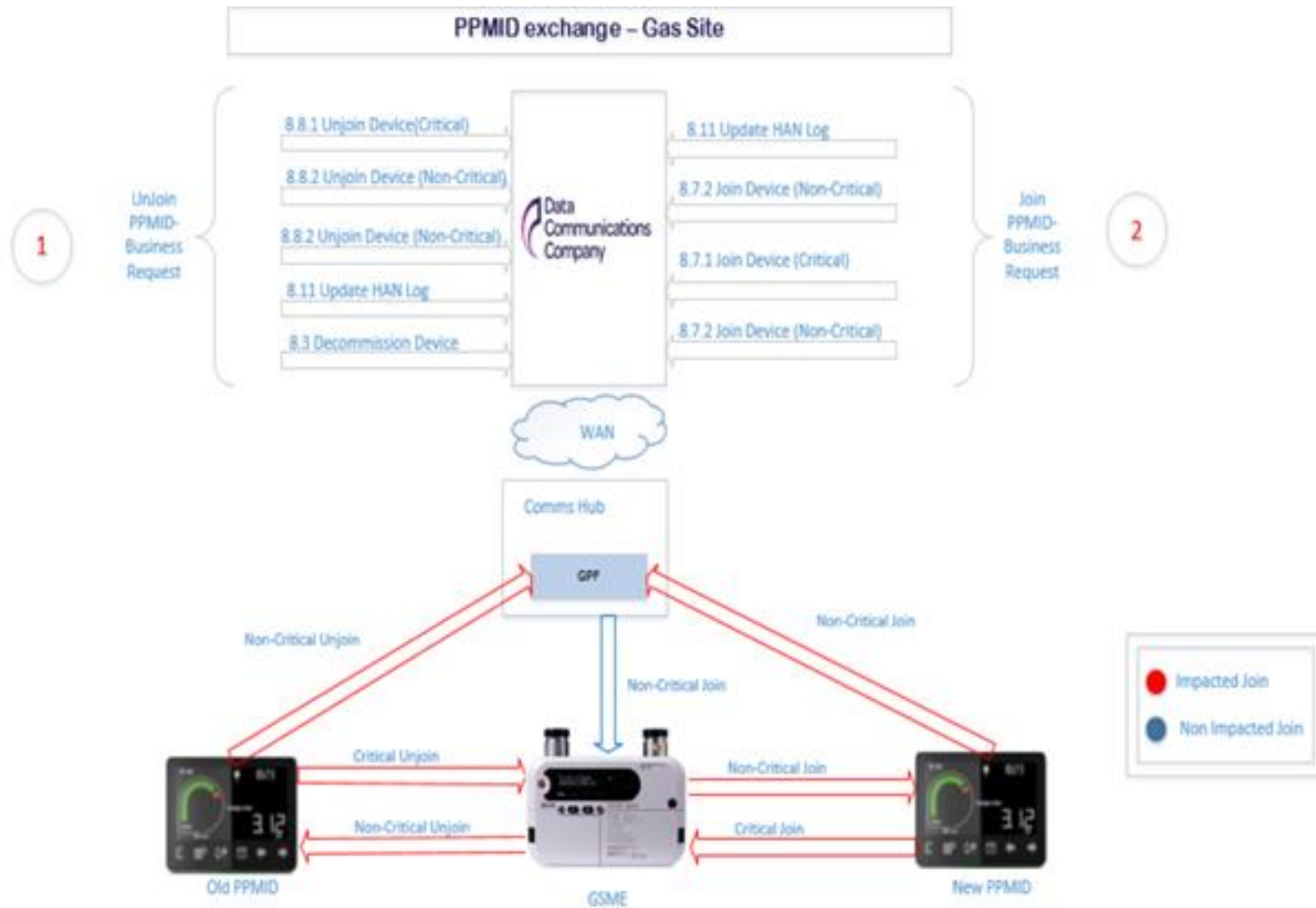
4.4.1. Unjoin - Function

SR	Description	Comment
8.8.1	Unjoin Device(Critical)	PPMID (Other Device) ->ESME(Target Device)
8.8.2	Unjoin Device(Non-Critical)	ESME(Other Device) ->PPMID(Target Device)
8.11	Update HAN Log	Remove Old PPMID from HAN Log
8.3	Decommission Device	Old PPMID

4.4.2. Join - Function

SR	Description	Comment
8.11	Update HAN Log	Add PPMID to HAN Log
	Wait for Alert N24/N25	
8.7.2	Join Device (Non- Critical)	ESME(Other Device) ->PPMID(Target Device)
8.7.1	Join Device(Critical)	PPMID (Other Device) ->ESME(Target Device)

4.5. PPMID Exchange – Gas Site



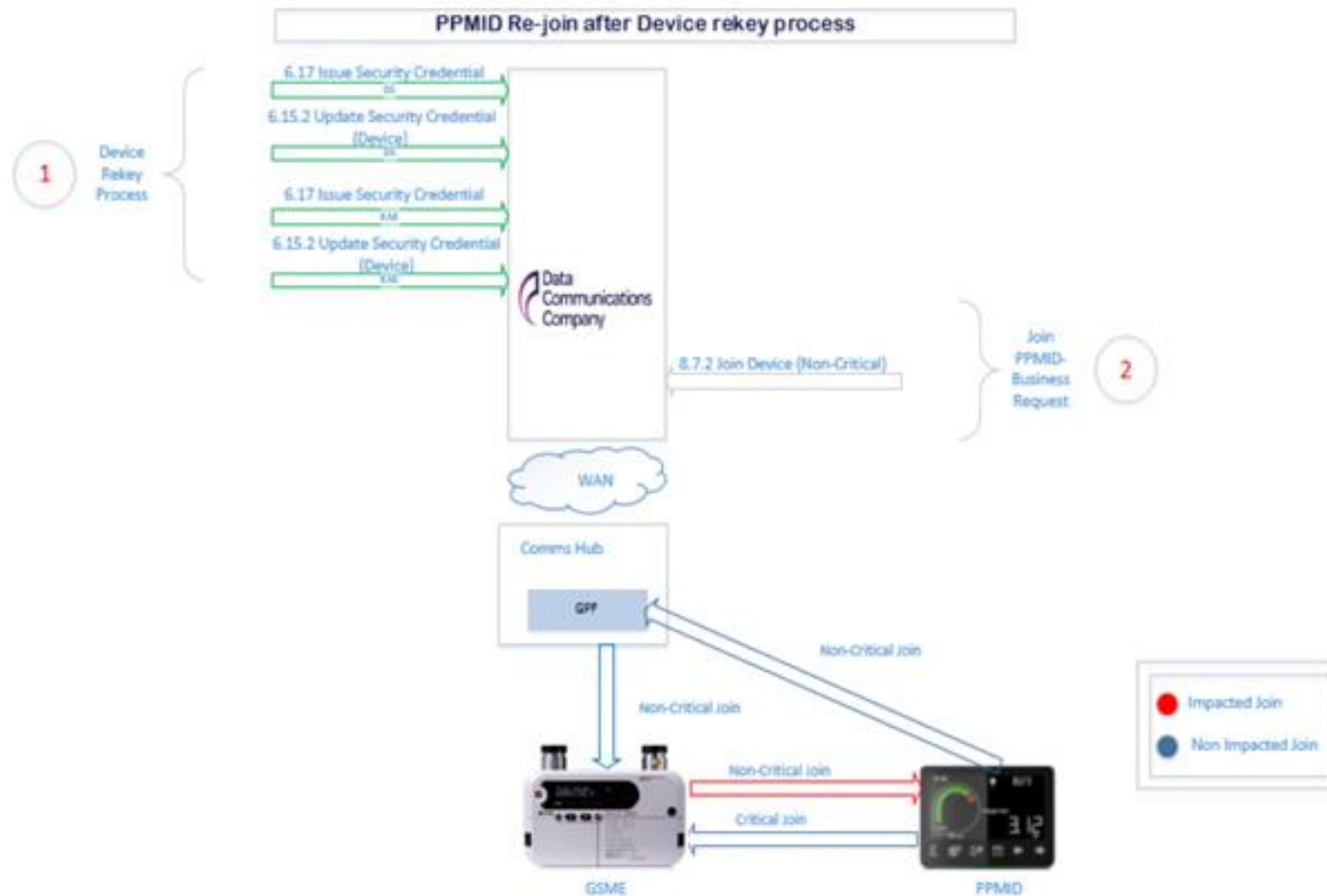
4.5.1. Unjoin - Function

SR	Description	Comment
8.8.1	Unjoin Device(Critical)	PPMID (Other Device) ->GSME(Target Device)
8.8.2	Unjoin Device(Non-Critical)	GSME(Other Device) ->PPMID(Target Device)
8.8.2	Unjoin Device(Non-Critical)	PPMID(Other Device) ->GPF(Target Device)
8.11	Update HAN Log	Remove Old PPMID from HAN Log
8.3	Decommission Device	Old PPMID

4.5.2. Join - Function

SR	Description	Comment
8.11	Update HAN Log	Add PPMID to HAN Log
	Wait for Alert N24/N25	
8.7.2	Join Device (Non- Critical)	GSME(Other Device) ->PPMID(Target Device)
8.7.1	Join Device(Critical)	PPMID (Other Device) ->GSME(Target Device)
8.7.2	Join Device (Non- Critical)	PPMID(Other Device) ->GPF(Target Device)

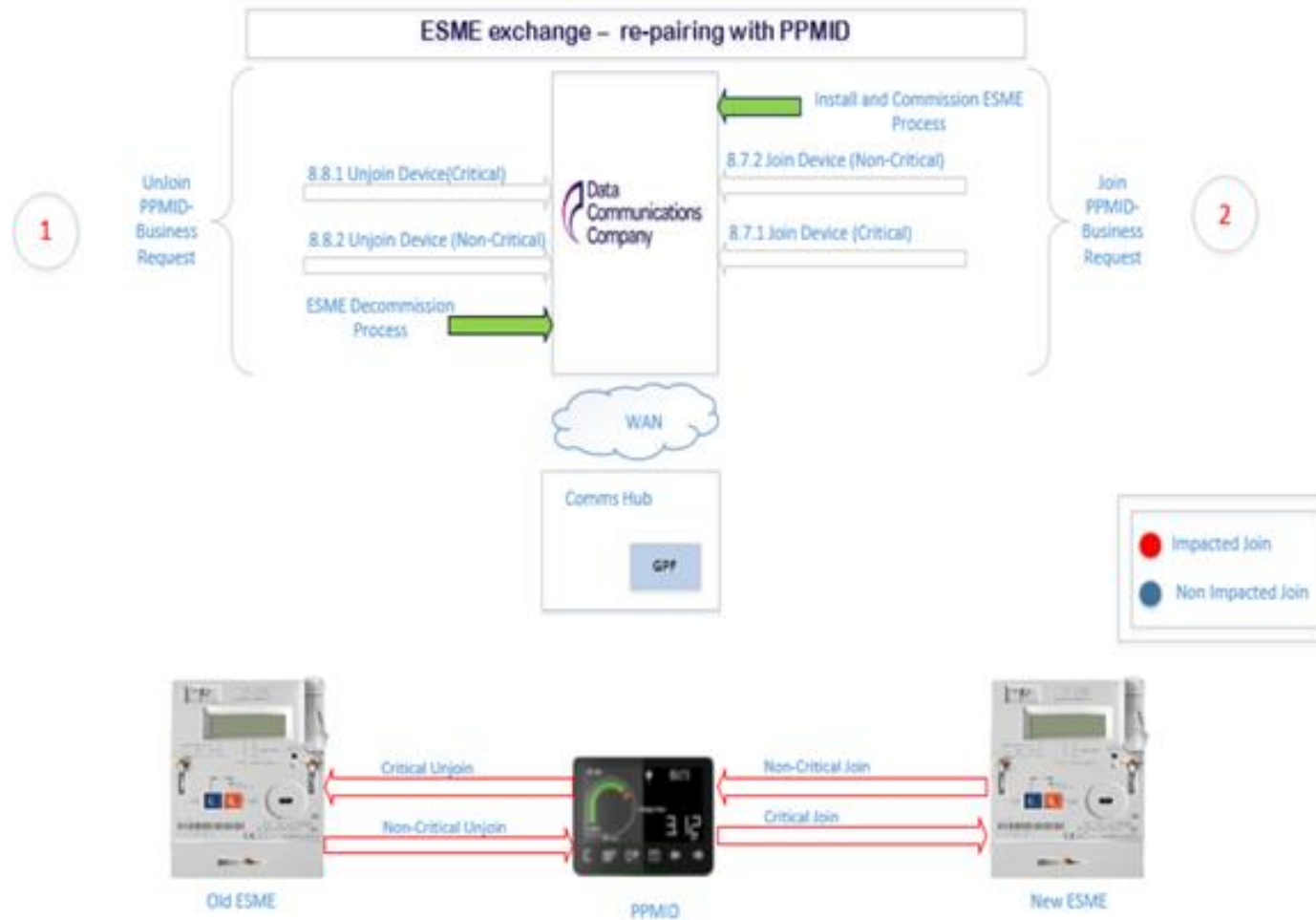
4.6. PPMID re-join after Device rekey process



4.6.1. Join – Function

SR	Description	Comment
8.7.2	Join Device (Non-Critical)	GSME (Other Device) -> PPMID (Target Device)

4.7. ESME exchange – re-pairing with PPMID



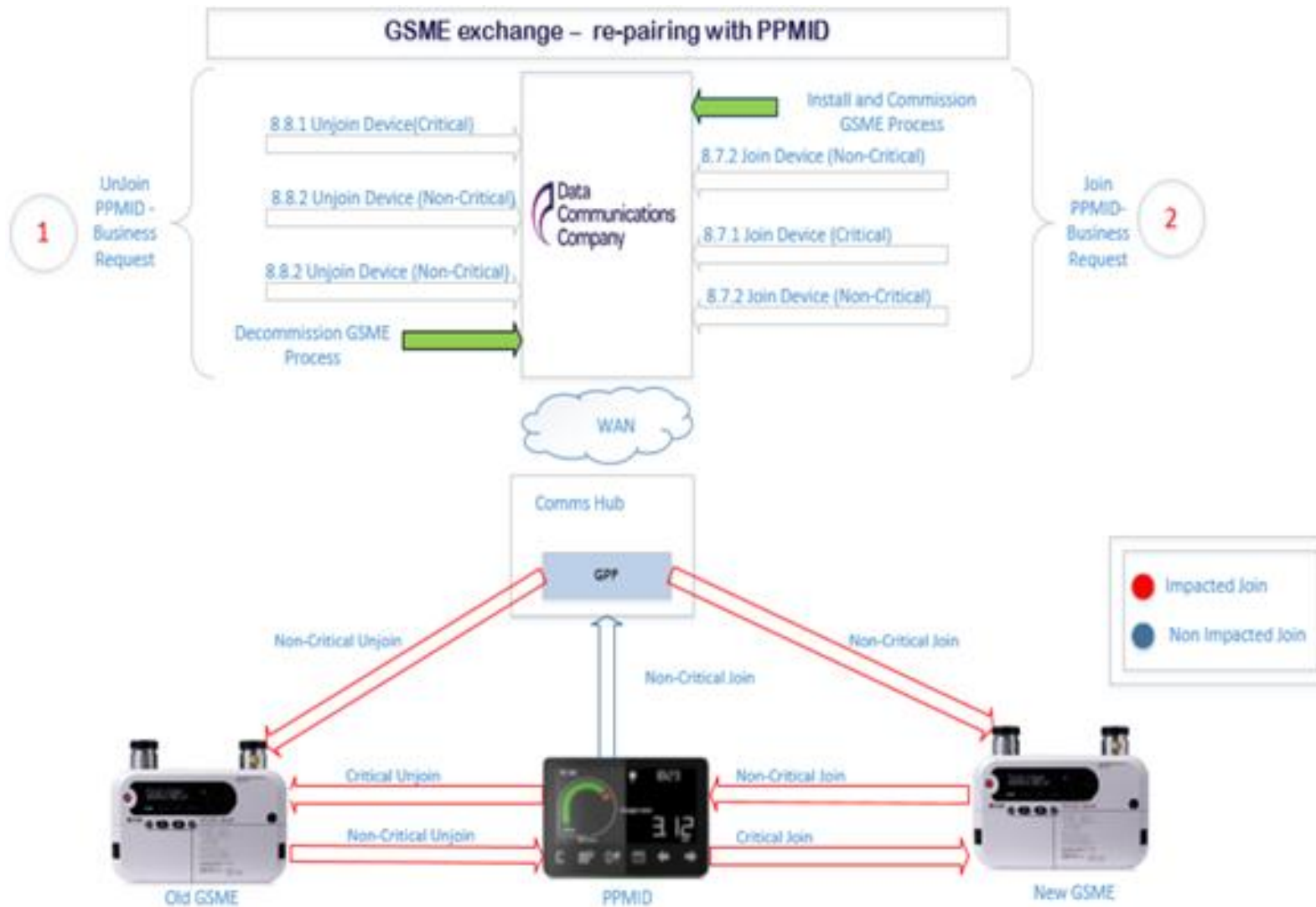
4.7.1. Unjoin - Function

SR	Description	Comment
8.8.1	Unjoin Device(Critical)	PPMID (Other Device) ->ESME
8.8.2	Unjoin Device(Non-Critical)	ESME(Other Device) ->PPMID

4.7.2. Join - Function

SR	Description	Comment
8.7.2	Join Device (Non- Critical)	ESME(Other Device) ->PPMID
8.7.1	Join Device(Critical)	PPMID (Other Device) ->ESME

4.8. GSME exchange – re-pairing with PPMID



4.8.1. Unjoin - Function

SR	Description	Comment
8.8.1	Unjoin Device(Critical)	PPMID (Other Device) ->GSME(Target Device)
8.8.2	Unjoin Device(Non-Critical)	GSME(Other Device) ->PPMID(Target Device)
8.8.2	Unjoin Device(Non-Critical)	PPMID(Other Device) ->GPF(Target Device)

4.8.2. Join - Function

SR	Description	Comment
8.7.2	Join Device (Non- Critical)	GSME(Other Device) ->PPMID(Target Device)
8.7.1	Join Device(Critical)	PPMID (Other Device) ->GSME(Target Device)
8.7.2	Join Device (Non- Critical)	PPMID(Other Device) ->GPF(Target Device)

5. Firmware Update Business Scenarios

This section will give the DCC view on the service requests required to be sent to update the Firmware to be operated on one of the following devices:-

- ESME
- GSME
- HCLACS
- PPMID

5.1. Business Scenarios

Description	User Role
Firmware Update ESME	IS
Firmware Update GSME	GS
Firmware Update HCLACS	IS
Firmware Update PPMID	IS/GS
DCC Alerts After PPMID Firmware Activation	N/A
Firmware Activation ESME/GSME/HCLACS	IS/GS
Read FW Version ESME/GSME/HCLACS/PPMID	IS/GS/ ES/RSA/ED/GT/OU

5.2. Alerts

Please note the alerts in Red will not be available until after Nov' 21 release. There are also some alerts that are already available to DCC users which will have some extensions, and these are noted in red as well. More details on this available in the Firmware Update Road Map.

Alert	Alert Type	Trigger
N18-N23	DCC	Firmware Distribution Failure
N39	DCC	PPMID Alert (Updated for additional PPMID alerts to confirm success/failure of FW activation of PPMID)
N49	DCC	Firmware Version Updated in the Smart Inventory
N50	DCC	Firmware Version no longer valid on the CPL
N51	DCC	Invalid FW
N52	DCC	GSME Firmware Version Mismatch
N59	DCC	Notify 'Other' parties that a Firmware Distribution has been initiated by a shared Device (PPMID)
N60	DCC	Failure to distribute Firmware to the Comms Hub
N61	DCC	Successful Distribution of Firmware to the Comms Hub
N62	DCC	Notification by the Comms Hub of success/failure of distribution of firmware over the HAN.
0x8F1C	GSME/ESME/HCALCS	Firmware Verification Status – Failure
0x8F72	GSME/ESME/HCALCS	Firmware Verification Status – Success
0x8F66	GSME/ESME/HCALCS	Future Dated Command Outcome -Success
0x8F67	GSME/ESME/HCALCS	Future Dated Command Outcome – Failure
0x8F43	GSME/ESME/HCALCS	Change in the executing Firmware Version (*This is only available in the event log and not sent out as an alert.)
0x8F89	CH	This will be sent if the GSME/HCALCS or PPMID image is discarded after 14 days.
0x8F8A	CH	Successful Transfer of FW Image
0x8F8B	Device	Firmware Activation (PPMID)

5.3. Firmware Update Scenarios

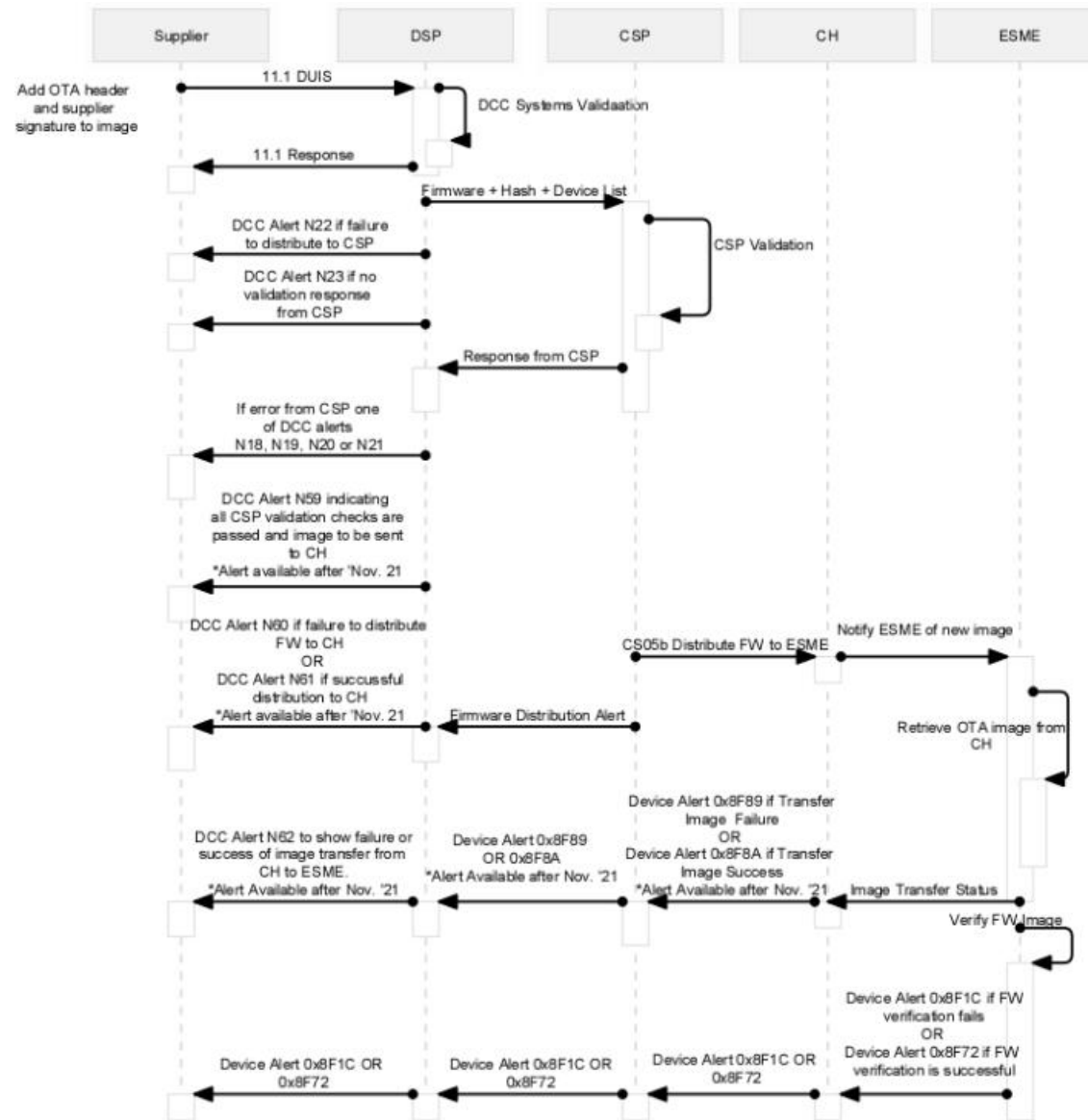
SR11.1 covers update of firmware to the ESME, GSME and HCALCS. Once the firmware is distributed to the ESME, GSME or HCALCS, that firmware will not be the operating firmware on that device until a further SR; 11.3; is sent to activate the firmware. In other words, sending SR 11.1 to the ESME, GSME or HCALCS is not enough to change the firmware, SR 11.3 has to be sent as well to activate it. This is a two-step process.

SR11.4, which covers the update of firmware to the PPMID is different, in that once the PPMID fully downloads the firmware from the CH, the CH will send a command to activate the firmware on the PPMID. This is a one step process.

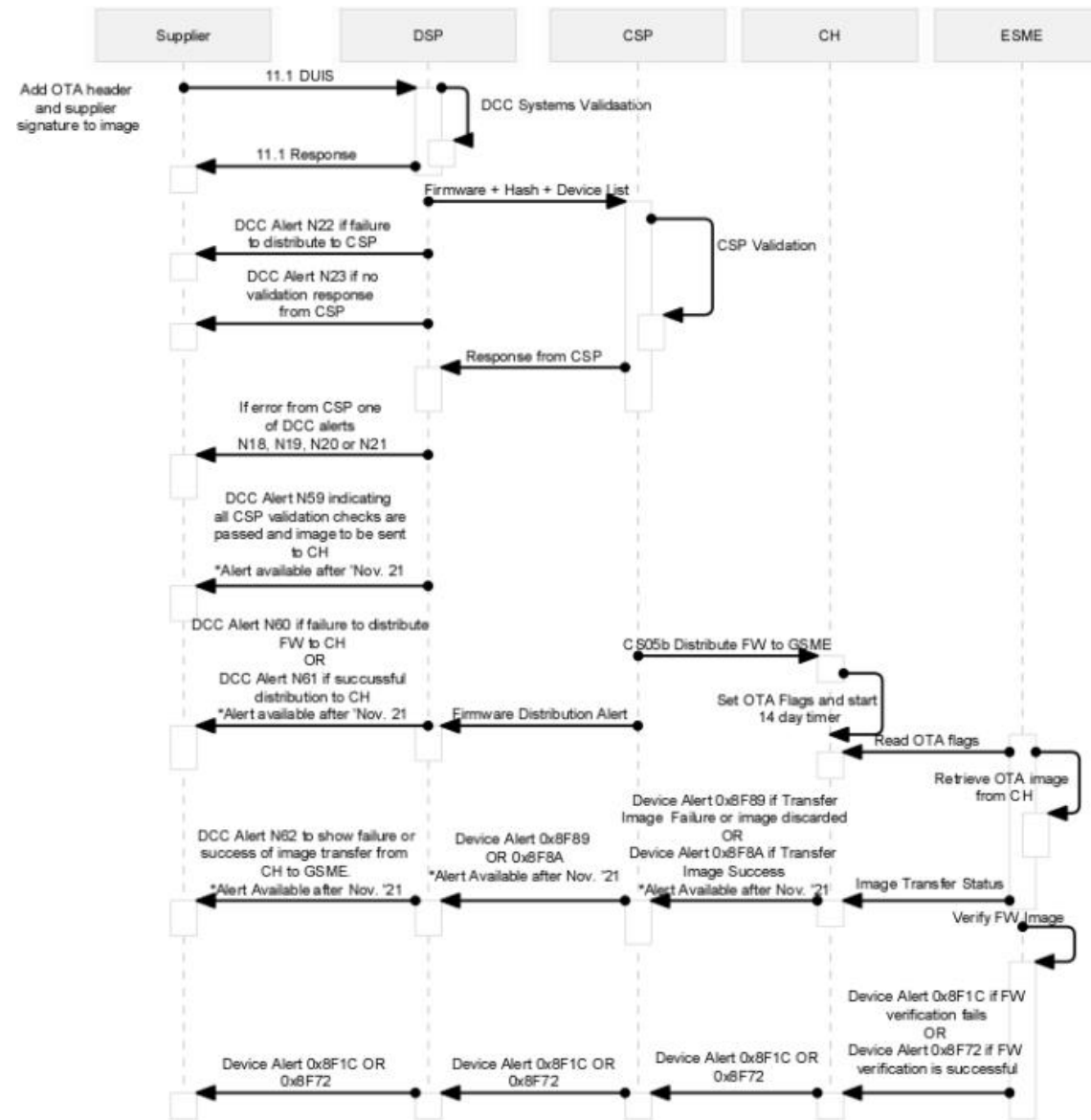
The Alerts and SRs below are not available until after 'Nov 21.

- SR11.4
- Extension of DCC Alert N39 to show activation of firmware on PPMID
- DCC Alert N59.
- DCC Alert N60
- DCC Alert N61
- DCC Alert N62
- Device Alert 0x8F89
- Device Alert 0x8F8A
- Device Alert 0x8F8B

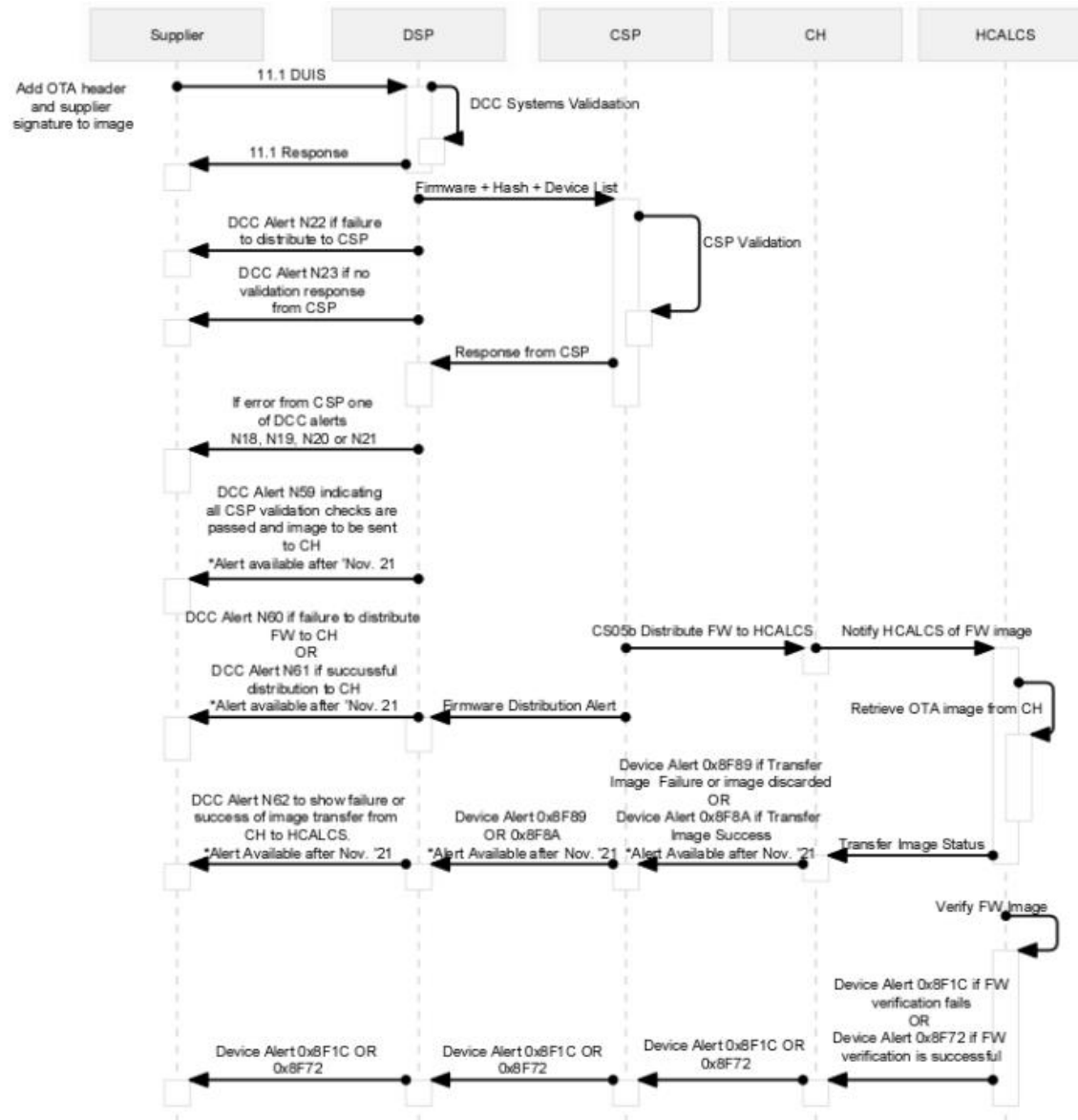
5.3.1. Firmware Update ESME



5.3.2. Firmware Update GSME

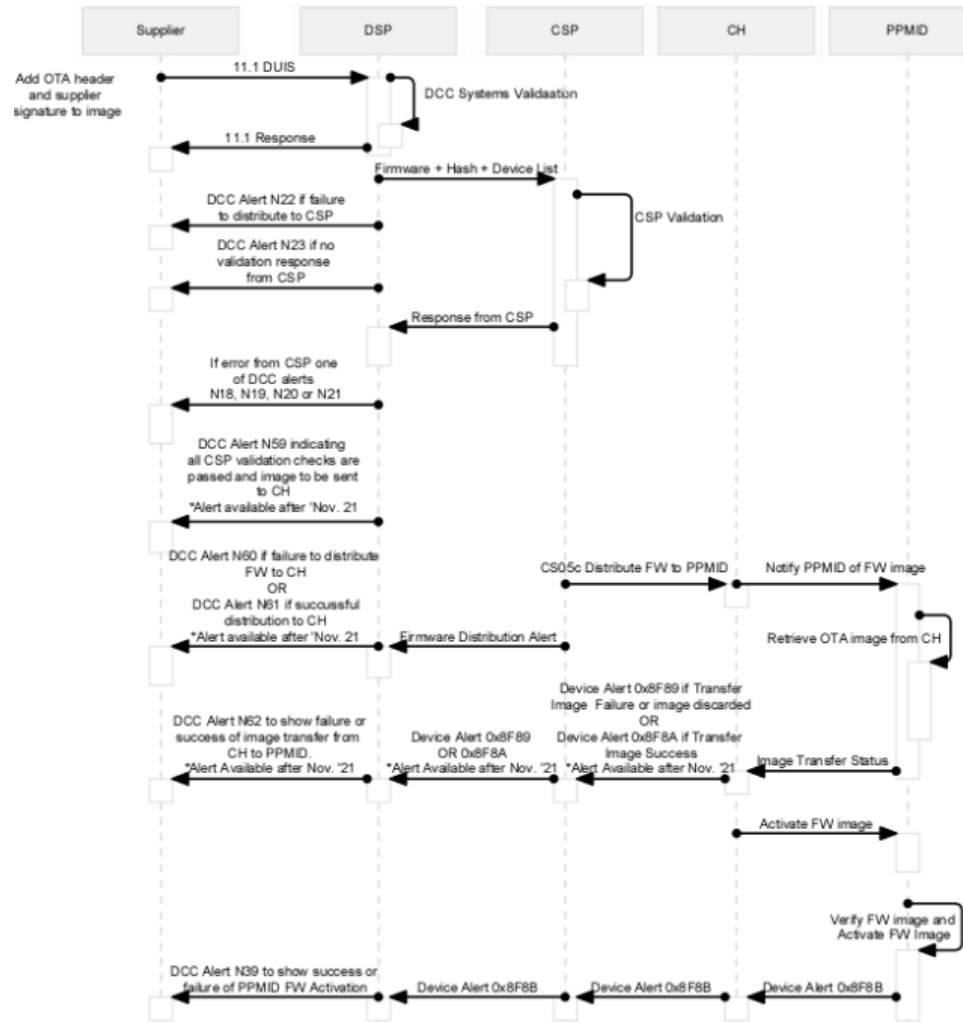


5.3.3. Firmware Update HCALCS



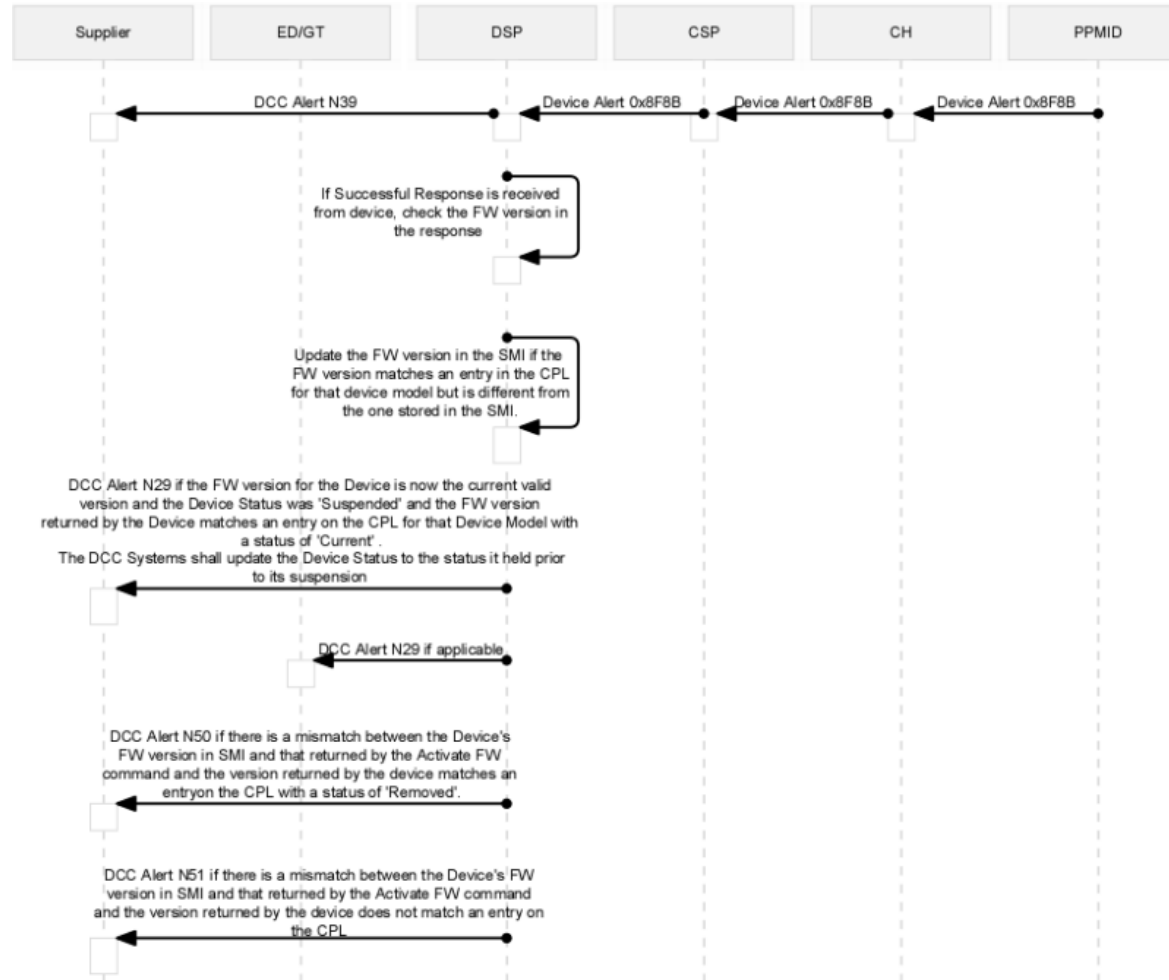
5.3.4. Firmware Update PPMID

Please note this SR will not be available until after Nov. '21 release. The new alert 0x8F3B which is sent from the PPMID to indicate failure or success of the FW activation will not be generated and sent from the PPMID in the case that the new PPMID FW update fails when trying to replace an old PPMID FW image which does not have the capability to send the device alert 0x8F3B.



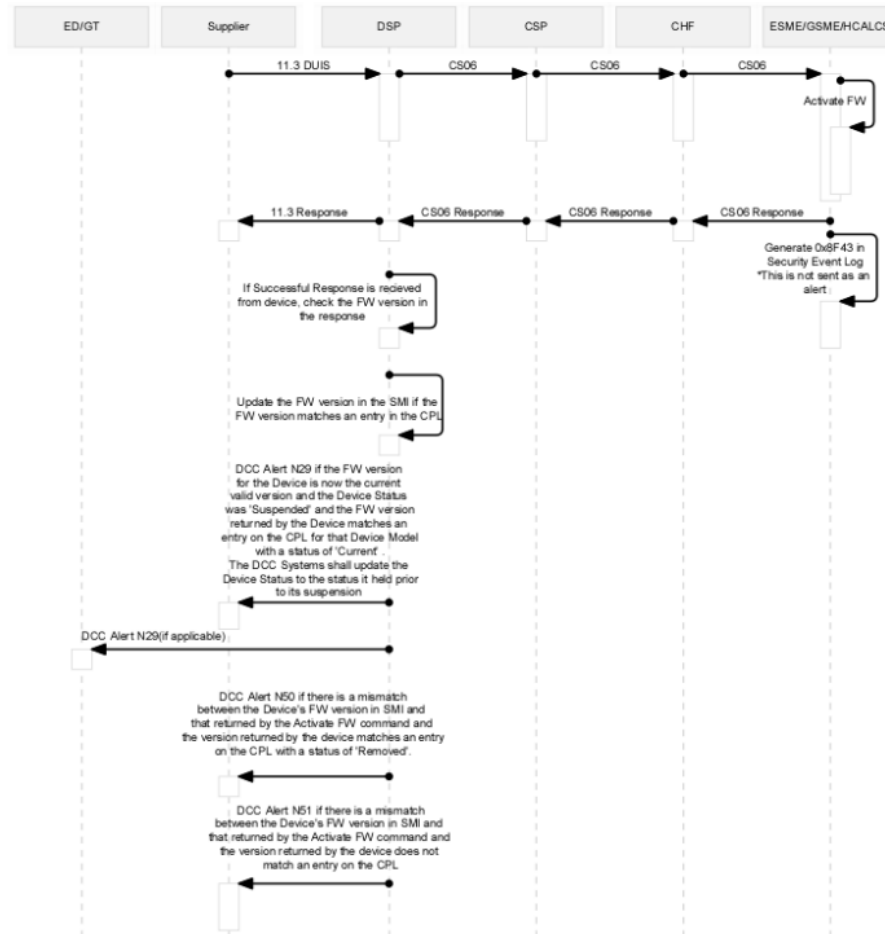
5.3.5. DCC Alerts After PPMID Firmware Activation

Firmware Distribution and Activation of the PPMID Firmware is a one step process with SR 11.4. This diagram shows the DCC Alerts that may be generated after Device alert 0x8F3B is generated from the PPMID. Although alerts N29, N50 and N51 already exist, they will not be generated in this case until after Nov. '21.



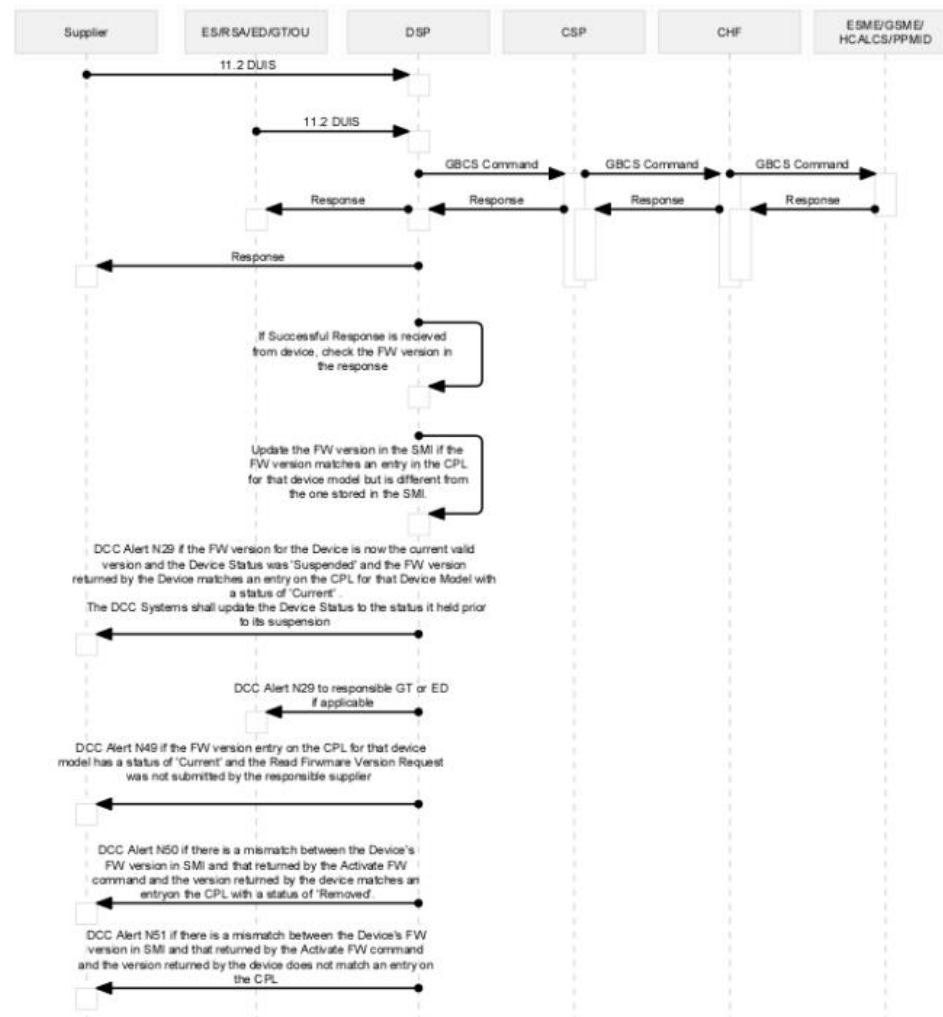
5.4. Firmware Activation ESME/GSME/HCALCS

Unlike the PPMID, the ESME, GSME and HCALCS have a two-step process in updating firmware. First SR11.1 to distribute the FW to the device will be sent by the supplier. On receipt of 0x8F72 to show that the device has successfully verified the firmware or after the 5-day SLA is over, the supplier may then send SR 11.3 to activate the firmware. Activating the HCALCS FW is not available until after Nov. '21.



5.5. Read FW Version ESME/GSME/HCALCS/PPMID

Reading the FW version on the HCALCS or the PPMID is not available until after Nov. '21



6. Change Of Supplier Business Scenarios

This section will give the DCC view on the service requests to send when there is a change of supplier, both loss and gain of supplier scenarios. The aim is to standardise the service requests as much as possible. DCC user backend system integration or third parties integration; for example Industry Flows; is out of scope.

6.1. Business Scenarios

Description	Payment Type	Fuel Type	User Role
Change of Supplier – Gain	Credit	Electricity	IS
Change of Supplier – Gain	Credit	Gas	GS
Change of Supplier – Gain	Prepayment (Gain as ‘Credit’)	Electricity	IS
Change of Supplier – Gain	Prepayment (Gain as ‘Credit’)	Gas	GS
Change of Supplier – Gain HCALCS	Credit	Electricity	IS
Change of Supplier – Loss	Credit	Electricity	IS
Change of Supplier – Loss	Credit	Gas	GS
Change of Supplier – Loss	Prepayment (Loss in ‘Credit’)	Electricity	IS
Change of Supplier – Loss	Prepayment (Loss in ‘Credit’)	Gas	GS

Change of Supplier only takes places whilst the meter is in credit mode as per suppliers obligations set out in MRA MAP24 and SPAA schedule 38.

6.2. Alerts

Alert	Alert Type	Trigger
N27	DCC	Trigger by ACB to Old Supplier
N26	DCC	Update Security Credentials (CoS)– access control failure
N17	DCC	Schedule removal because of CoS
N38	DCC	Cancellation of Future Dated Response Pattern (DSP) requests because of COS
N58	DCC	ALCS/HCALCS/SAPC configuration change
0x8F66	Device	Future – date HAN Interface Command Successfully Actioned
0x8F67	Device	Future – date HAN Interface Command not Successfully Actioned





6.3. Pre-requisites

- Supplier Trust anchors are populated with Digital Signature, Key Agreement Key and Prepayment Key Agreement Key certificates on ESME, GSME, GPF and HCALCS
- There are no impacts on DNO or GT in Change of Supplier
- Read Inventory process is completed by new supplier
- Same SR's sequence can be utilised by multiple business scenario's
- Traditional industry flows (e.g. D0010) are out of scope for discussion
- In CoS Loss process, energy supplier must change payment mode to 'Credit' Mode if meter is operating in prepayment mode
- In CoS Gain process, energy supplier must gain meter in 'Credit' mode and then change and configure payment mode if required

Devices			ESME / SAPC electricity meter	GSME gas meter	CHF comms hub	GPF gas proxy	PPMID pre-payment meter	HCALC HAN auxiliary load control
DCC	Root OCA	A						
DCC	Recovery Digital Signature	A						
Supplier	Supplier Digital Signature	A						
Supplier	Supplier Key Agreement	A						
Supplier	Supplier Key Agreement (Pre-Payment)	A						
Network Operator	Network Operator Digital Signature	A						
Network Operator	Network Operator Key Agreement	A						
DCC	AccessControlBroker Digital Signature	A						
DCC	AccessControlBroker Key Agreement	A						
DCC	transitionalCoS Digital Signature	A						
DCC	wanProvider Digital Signature	A						
DCC	Load Controller Digital Signature	A						
DCC	Load Controller Key Agreement	A						

DCC Keys/Certificates		
DCC	Contingency Symmetric	S
DCC	Contingency Private Key	A
DCC	Issuing OCA	A
DCC	Issuing DCA	A
DCC	Root DCA	A

Key:

-  Key Custodian
-  Key type
(asymmetric/symmetric)
-  SMKI Certificate in Device Slot
-  No Certificate in Device Slot

6.4. Change Of Supplier – Gain Scenarios

6.4.1. Change Of Supplier Gain – ESME

SR	Description	Comment
6.23	Update Security Credential (CoS)	Supplier Certificates
6.15.1	Update Security Credentials (KRP)	Update Load Controller Certificates (DS / KA) – Only applicable if ESME has SAPC.
	Wait for Alert 0x8F66/0x8F67	For Future Dated Command
1.1.1	Update Import Tariff (Primary Element)	
1.6	Update Payment Mode	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
5.1	Create Schedule	DSP Schedule
6.8	Update Device Configuration (Billing Calendar)	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.25	Set Electricity Supply Tamper State	
6.4.1	Update Device Configuration (Load Limiting)	
6.22	Configure Alert Behaviour	
6.12	Update Device Configuration (Instantaneous Power Threshold)	
3.1	Display Message	

6.4.2. Change Of Supplier Gain – GSME

SR	Description	Comment
6.23	Update Security Credential (CoS)	GSME - Supplier Certificates
6.23	Update Security Credential (CoS)	GPF-Supplier Certificates
	Wait for Alert 0x8F66/0x8F67	For Future Dated Command
1.1.1	Update Import Tariff (Primary Element)	
1.6	Update Payment Mode	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
5.1	Create Schedule	
6.8	Update Device Configuration (Billing Calendar)	
1.5	Update Meter Balance	
6.6	Update Device Configuration (Gas Conversion)	
6.7	Update Device Configuration (Gas Flow)	For SMETS2V4 onward
3.4	Update Supplier Name	
6.22	Configure Alert Behaviour	
3.1	Display Message	

6.4.3. Change Of Supplier Gain – ESME – Prepayment (Gain in Credit Mode and Change mode to Prepayment)

SR	Description	Comment
6.23	Update Security Credential (CoS)	Supplier Certificates
6.15.1	Update Security Credentials (KRP)	Update Load Controller Certificates (DS / KA) – Only applicable if ESME has SAPC.
	Wait for Alert 0x8F66/0x8F67	For Future Dated Command
2.1	Update Prepay Configuration	
1.6	Update Payment Mode	
1.1.1	Update Import Tariff (Primary Element)	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
5.1	Create Schedule	DSP Schedule
6.8	Update Device Configuration (Billing Calendar)	
2.3	Update Debt	Reset/Update Debt
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.25	Set Electricity Supply Tamper State	
6.4.1	Update Device Configuration (Load Limiting)	
6.22	Configure Alert Behaviour	
6.12	Update Device Configuration (Instantaneous Power Threshold)	
3.1	Display Message	

6.4.4. Change Of Supplier Gain _ GSME – Prepayment (Gain Credit Mode and then Change mode to Prepayment Post Gain)

SR	Description	Comment
6.23	Update Security Credential (CoS)	GSME
6.23	Update Security Credential (CoS)	GPF
	Wait for Alert 0x8F66/0x8F67	For Future Dated Command
2.1	Update Prepay Configuration	
1.6	Update Payment Mode	
1.1.1	Update Import Tariff (Primary Element)	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
5.1	Create Schedule	DSP Schedule
6.8	Update Device Configuration (Billing Calendar)	
2.3	Update Debt	Reset/Update Debt
1.5	Update Meter Balance	
6.6	Update Device Configuration (Gas Conversion)	Update CV value
6.7	Update Device Configuration (Gas Flow)	For SMETS2V4 onward
3.4	Update Supplier Name	
6.22	Configure Alert Behaviour	
3.1	Display Message	

6.4.5. Change Of Supplier Gain – ESME With SAPC

SR	Description	Comment
6.23	Update Security Credential (CoS)	Supplier Certificates
6.15.1	Update Security Credentials (KRP)	Update Load Controller Certificates (DS / KA) – Only applicable if ESME has SAPC.
	Wait for Alert 0x8F66/0x8F67	For Future Dated Command
1.1.1	Update Import Tariff (Primary Element)	
1.6	Update Payment Mode	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
5.1	Create Schedule	DSP Schedule
6.8	Update Device Configuration (Billing Calendar)	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.25	Set Electricity Supply Tamper State	
6.4.1	Update Device Configuration (Load Limiting)	
6.22	Configure Alert Behaviour	
6.12	Update Device Configuration (Instantaneous Power Threshold)	
3.1	Display Message	

6.4.6. Change Of Supplier Gain – ESME With HCALCS

SR	Description	Comment
6.23	Update Security Credential (CoS)	ESME
6.23	Update Security Credential (CoS)	HCALCS
	Wait for Alert 0x8F66/0x8F67	For Future Dated Command
1.6	Update Payment Mode	
1.1.1	Update Import Tariff (Primary Element)	
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
5.1	Create Schedule	DSP Schedules
6.8	Update Device Configuration (Billing Calendar)	
1.5	Update Meter Balance	
3.4	Update Supplier Name	
6.22	Configure Alert Behaviour	
6.14.1	Update Device Configuration (Auxiliary Load Control Description)	N58 alert to DNO
6.14.2	Update Device Configuration (Auxiliary Load Control Scheduler)	N58 alert to DNO
3.1	Display Message	

6.5. Change Of Supplier – Loss Scenarios

6.5.1. Change Of Supplier Loss – Elec Credit; Elec Credit with HCALCS and Gas Credit

SR	Description	Comment
4.6.1	Retrieve Import Daily Read Log	Meter Reading (midnight read)
5.3	Delete Schedule	Optional – As DSP schedule will be deleted by SR 6.23

6.5.2. Change Of Supplier Loss Elec Prepayment and Gas Prepayment

(CoS Loss in Credit Mode)

SR	Description	Comment
4.3	Read Instantaneous Prepay Values	Retrieve Prepayment Values
2.3	Update Debt	Reset Debt
1.6	Update Payment Mode	Change payment mode to ‘Credit’
4.6.1	Retrieve Import Daily Read Log	Meter Reading (midnight read)
5.3	Delete Schedule	Optional – As DSP schedule will be deleted by SR 6.23

7. Change of Tenancy Business Scenarios

This section will give the DCC view on the end-to-end Change Of Tenancy scenario. Energy Supplier back end system integration or third parties integration is out of scope.

7.1. Business Scenarios

Description	User Role
Change of Tenancy Move-Out(Credit)	IS
Change of Tenancy Move-Out(Credit)	GS
Install & Commission - ESME Prepayment (Incl. Post Commissioning Activities)	IS
Install & Commission - GSME Prepayment (Incl. Post Commissioning Activities)	GS
Install & Commission - ESME Credit with HCALCS (Incl. Post Commissioning Activities)	IS

Business Scenario	Payment Mode	Fuel Type	User Role
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Change of Tenancy Move-Out	Credit	Electricity	IS
Change of Tenancy Move-Out	Credit	Gas	GS
Change of Tenancy Move-Out	Prepayment	Electricity	IS
Change of Tenancy Move-Out	Prepayment	Gas	GS
Change of Tenancy Move In (no Mode Change)	Credit	Electricity	IS
Change of Tenancy Move In (no Mode Change)	Credit	Gas	GS
Change of Tenancy Move In (no Mode Change)	Prepayment	Electricity	IS
Change of Tenancy Move In (no Mode Change)	Prepayment	Gas	GS
Change of Tenancy Move In (PP To CR)	Prepayment	Electricity	IS
Change of Tenancy Move In (PP To CR)	Prepayment	Gas	GS
Change of Tenancy Move In (CR To PP)	Credit	Electricity	IS
Change of Tenancy Move In (CR To PP)	Credit	Gas	GS

7.2. Alerts

Alert	Alert Type	Description
N3	DCC	Cancellation of “Future Dated Response Pattern (DSP)” requests because of Change of Tenancy
N4	DCC	Removal of “Other User” - DCC Schedules because of Change of Tenancy

7.3. Change Of Tenancy - Tenant Moving Out

These Business Scenarios cover a tenant who is moving out. This covers both the GSME and the ESME.

7.3.1. Tenant Moving Out - Credit Mode.

- Change Of Tenancy Move-Out (Credit) - ESME
- Change Of Tenancy Move-Out (Credit) – GSME

This Business Scenario is for a tenant who was in credit mode and is moving out. This is the same for both GSME and ESME.

SR	Description	Comment
3.2	Restrict Access for Change of Tenancy	
3.5	Disable Privacy PIN	Disable Pin. This may have been set up for the tenant moving out to protect any of the messages sent to them.
1.1.1	Update Import Tariff (Primary Element)	Update Tariff and Price
4.6.1	Retrieve Import Daily Read Log	Read back the midnight meter reading that the meter has made.
4.4.2	RetrieveCoMOrTariffTriggeredBillingDataLog	Meter Reading at the time of Tariff/Payment Mode Update. This will be generated by the ESME or the GSME on the change of mode.
1.5	Update Meter Balance	Adjust/Reset Meter Balance if required.
5.3	Delete Schedule	Delete any schedules that may have been set up for the tenant that is moving out.
5.1	Create Schedule	Default schedule.
3.1	Display Message	The supplier may wish to send a custom message.

7.3.2. Tenant Moving Out – Prepayment Mode.

This Business Scenario is for a tenant who was in prepayment mode and is moving out. This is the same for both GSME and ESME.

- Change Of Tenancy Move-Out (Prepayment) - ESME
- Change Of Tenancy Move-Out (Prepayment) – GSME

SR	Description	Comment
3.2	Restrict Access for Change of Tenancy	
3.5	Disable Privacy PIN	Disable Pin. This may have been set up for the tenant moving out to protect any of the messages sent to them.
1.1.1	Update Import Tariff (Primary Element)	Update Tariff and Price
4.6.1	Retrieve Import Daily Read Log	Read back the midnight meter reading that the meter has made.
4.4.2	RetrieveCoMOrTariffTriggeredBillingDataLog	Meter Reading at the time of Tariff/Payment Mode Update. This will be generated by the ESME or the GSME on the change of mode.
2.3	Update Debt	Update Debt Configuration that the previous tenant has had.
1.5	Update Meter Balance	Adjust/Reset Meter Balance if required.
5.3	Delete Schedule	Delete any schedules that may have been set up for the tenant that is moving out.
5.1	Create Schedule	Default schedule.
3.1	Display Message	The supplier may wish to send a custom message.

7.4. Change Of Tenancy – Tenant Moving In.

These Business Scenarios cover a tenant who is moving into a property.

7.4.1. Tenant Moving In - No Mode Change.

This Business Scenario is for a tenant who is moving in with no mode change between the previous tenant and the new tenant. This covers both prepayment and credit mode as well as ESME and GSME.

- Change Of Tenancy Move-In (No Mode Change - Credit) - ESME
- Change Of Tenancy Move-In (No Mode Change- Credit) – GSME
- Change Of Tenancy Move-In (No Mode Change - Prepayment) - ESME
- Change Of Tenancy Move-In (No Mode Change - Prepayment) – GSME

SR	Description	Comment
3.2	Restrict Access for Change of Tenancy	
3.5	Disable Privacy PIN	Disable Pin. This may have been set up for the tenant moving out to protect any of the messages sent to them. If this is not set up, the new tenant will not be able to see any messages that might be sent by the supplier.
1.1.1	Update Import Tariff (Primary Element)	Update Tariff and Price Update the:- <ul style="list-style-type: none"> • .Non-Disablement Calendar. This will stop the load switch from opening in case of prepayment tenant. • Prepayment Setting.
2.1	Update Prepay Configuration	
4.6.1	Retrieve Import Daily Read Log	Read back the midnight meter reading that the meter has made.
4.4.2	RetrieveCoMORTariffTriggeredBillingDataLog	Meter Reading at the time of Tariff/Payment Mode Update. This will be generated by the ESME or the GSME on the change of mode.
2.3	Update Debt	Update Debt Configuration that the previous tenant has had.
1.5	Update Meter Balance	Adjust/Reset Meter Balance if required.
5.3	Delete Schedule	Delete any schedules that may have been set up for the tenant that is moving out.
5.1	Create Schedule	Default schedule.
3.1	Display Message	The supplier may wish to send a custom message.

7.4.2. Tenant Moving In - Mode Change Prepayment To Credit.

This Business Scenario is for a tenant who is moving in and there will be a mode change followed from prepayment to credit mode. This covers both ESME and GSME.

- Change Of Tenancy Move-In (Mode Change – Prepayment To Credit) - ESME
- Change Of Tenancy Move-In (Mode Change – Prepayment To Credit) – GSME

SR	Description	Comment
3.2	Restrict Access for Change of Tenancy	
3.5	Disable Privacy PIN	Disable Pin. This may have been set up for the tenant moving out to protect any of the messages sent to them. If this is not set up, the new tenant will not be able to see any messages that might be sent by the supplier.
1.1.1	Update Import Tariff (Primary Element)	Update Tariff and Price
1.6	Update Payment Mode	Payment Mode = 'Credit;
4.6.1	Retrieve Import Daily Read Log	Read back the midnight meter reading that the meter has made.
4.4.2	RetrieveCoMOrTariffTriggeredBillingDataLog	Meter Reading at the time of Tariff/Payment Mode Update. This will be generated by the ESME or the GSME on the change of mode.
4.14	Read Prepayment Daily Read Log	Take the mid-night Prepayment data, which was the last log taken for the old tenant.
1.5	Update Meter Balance	Adjust/Reset Meter Balance if required.
5.3	Delete Schedule	Delete any schedules that may have been set up for the tenant that is moving out. This is optional if there is a change in schedule.
5.1	Create Schedule	Default schedule. This is optional if there is a change in schedule.
3.1	Display Message	The supplier may wish to send a custom message.

7.4.3. Tenant Moving In - Mode Change Credit To Prepayment.

- Change Of Tenancy Move-In (Mode Change – Credit To Prepayment) - ESME
- Change Of Tenancy Move-In (Mode Change – Credit To Prepayment) – GSME

SR	Description	Comment
3.2	Restrict Access for Change of Tenancy	
3.5	Disable Privacy PIN	Disable Pin. This may have been set up for the tenant moving out to protect any of the messages sent to them. If this is not set up, the new tenant will not be able to see any messages that might be sent by the supplier.
1.1.1	Update Import Tariff (Primary Element)	Update Tariff and Price Update the:-
2.1	Update Prepay Configuration	<ul style="list-style-type: none"> • .Non-Disablement Calendar. This will stop the load switch from opening in this case of a prepayment customer. • Prepayment Setting.
1.6	Update Payment Mode	<ul style="list-style-type: none"> • Payment Mode = 'Prepayment' • Set the Debt Collection Settings and the Disablement Threshold
4.6.1	Retrieve Import Daily Read Log	Read back the midnight meter reading that the meter has made.
4.4.2	RetrieveCoMOrTariffTriggeredBillingDataLog	Meter Reading at the time of Tariff/Payment Mode Update. This will be generated by the ESME or the GSME on the change of mode.
2.3	Update Debt	Set up any debts for the new tenant.
1.5	Update Meter Balance	Adjust/Reset Meter Balance if required.
5.3	Delete Schedule	Delete any schedules that may have been set up for the tenant that is moving out. This is optional if there is a change in schedule.
5.1	Create Schedule	Default schedule. This is optional if there is a change in schedule.
3.1	Display Message	The supplier may wish to send a custom message.

8. Change of Mode Business Scenarios

This section will give the DCC view on the end to end Change Of Mode scenario. Energy Supplier back end system integration or third parties integration is out of scope.

8.1. Business Scenarios

Description	Payment Mode	Fuel Type	User Role
Change of Mode – PP to CR	Prepayment	Electricity	IS
Change of Mode – PP to CR	Prepayment	Gas	GS
Change of Mode – CR to PP	Credit	Electricity	IS
Change of Mode – CR - PP	Credit	Gas	GS

8.2. Alerts

Alert	Alert Type	Description
0x8F66	Device	Future Dated Command Outcome - Success
0x8F67	Device	Future Dated Command Outcome - Failure

8.3. Change Of Mode – PP to CR

This business scenario covers a change of mode from Prepayment to Credit. This covers both the GSME and the ESME.

SR	Description	Comment
1.1.1	Update Import Tariff (Primary Element)	Tariff And Price Update
1.6	Update Payment Mode	Payment Mode = Credit
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
1.5	Update Meter Balance	
5.3	Delete Schedue	Optional-If Change in Schedule
5.1	Create Schedule	Optional – If Change in Schedule
3.1	Display Message	The supplier may wish to send a custom message.

8.4. Change Of Mode – CR to PP

This business scenario covers a change of mode from Credit to Prepayment. This covers both the GSME and the ESME.

SR	Description	Comment
2.1	Update Prepay Configuration	Set up the a non-disconnect calendar in order to not disable the supply if the change of mode takes place with not enough meter balance.
1.6	Update Payment Mode	Payment Mode = Prepayment
1.1.1	Update Import Tariff (Primary Element)	Tariff and Price Update
4.4.2	Retrieve Change of Mode/Tariff Triggered Billing Data Log	Meter Reading
2.3	Update Debt	
1.5	Update Meter Balance	
5.3	Delete Schedule	Optional – If Change in Schedule
5.1	Create Schedule	Optional – If Change in Schedule
3.1	Display Message	The supplier may wish to send a custom message.

9. Top Up Device

This section will give the DCC view on the end to end Top Up Device Business scenario. Energy Supplier back end system integration or third parties integration is out of scope.

9.1. Business Scenarios

Business Scenario	Payment Mode	Fuel Type	User Role
Top Up Device	Credit	Electricity	IS
Top Up Device	Credit	Gas	GS

9.2. Alerts

Alert	Alert Type	Description
0x810E	Device	Credit Added Locally via PPMID or Meter

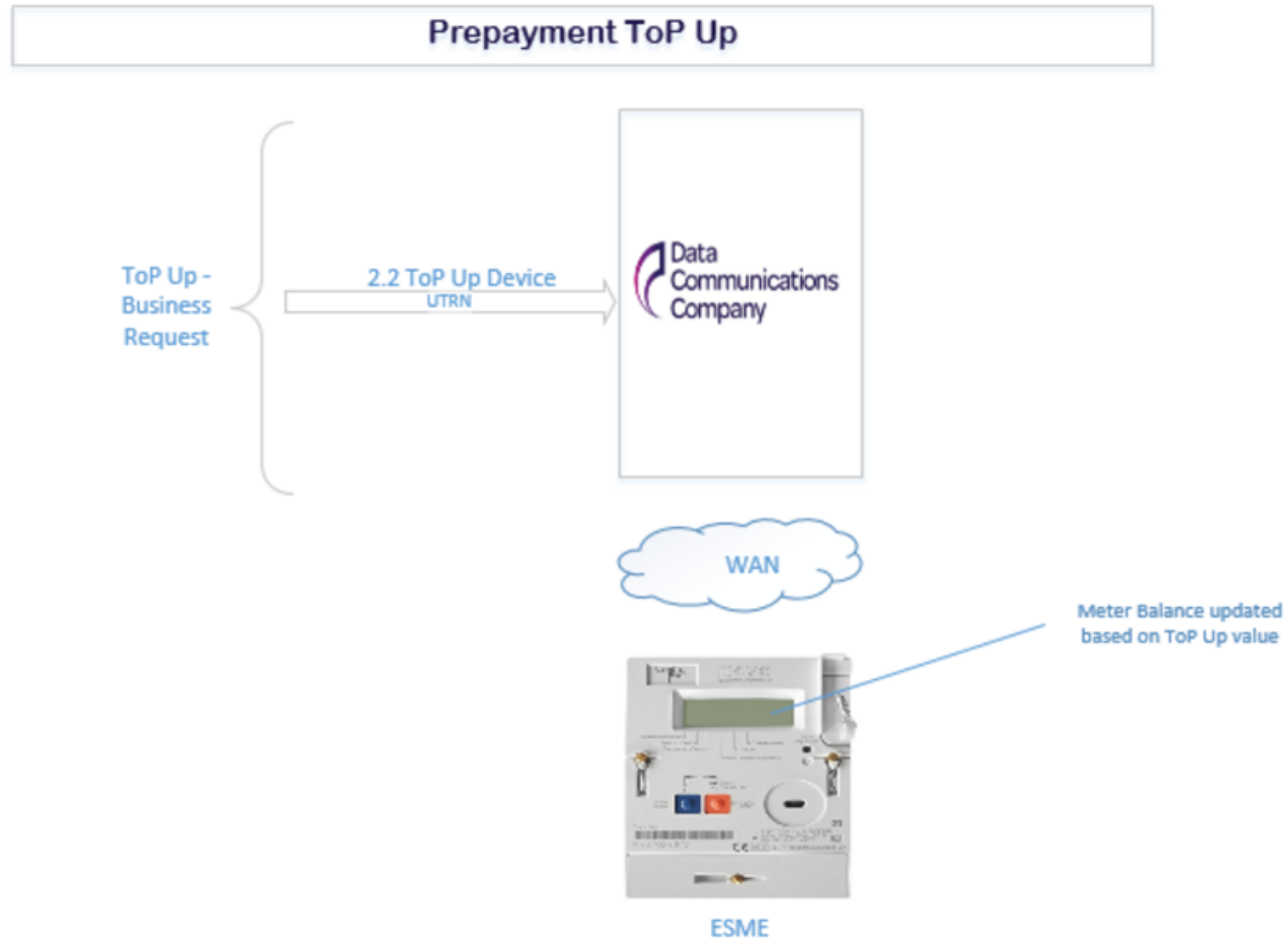
9.3. Pre-requisites

The metering device must be in Prepayment Mode.

9.4. Top Up device Remotely

If a meter is in prepayment mode, it is possible for the Import Supplier to top up the device. This scenario is the same for both ESME and GSME

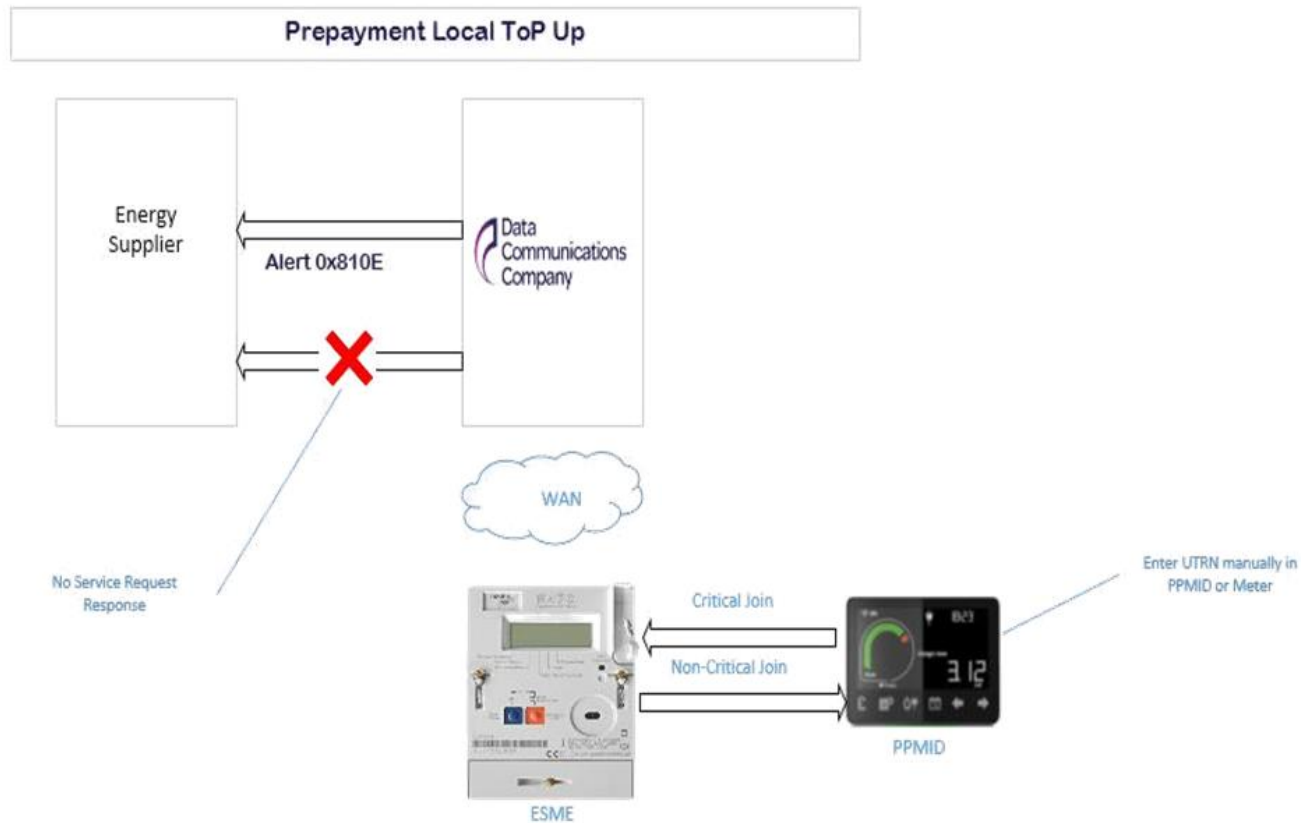
SR	Description	Comment
2.2	Top Up Device	Update Device Meter Balance with positive value



9.5. Top Up

Device Locally

In this instance, the top up is entered via the PPMID, and so there is no SR that is sent from the remote party.



DUIS does not support unsolicited service request response

10. Comms Hub Replacement

This section will give the DCC view on the end-to-end Comms Hub Replacement scenario. Energy Supplier back-end system integration or third parties integration is out of scope.

10.1. Business Scenarios

Description	User Role
CHF Replacement by Electricity Supplier (Elec Only Site)	IS
CHF Replacement by Gas Supplier (Gas Only Site)	GS
CHF Replacement by Electricity Supplier (Dual Fuel Site-each fuel supplied by different supplier)	IS
CHF Replacement by Gas Supplier (Dual Fuel Site-each fuel supplied by different supplier)	GS

10.2. Alerts

Alert	Alert Type	Description
N30	DCC	CHF Device Log Restored
N31	DCC	GPF Device Log Restored
N9	DCC	Decommission of Communications Hub
N42	DCC	Remote Party (e.g. Network Operator) whose certificate has been placed on Devices
0x8183	Device	Device joined SMHAN

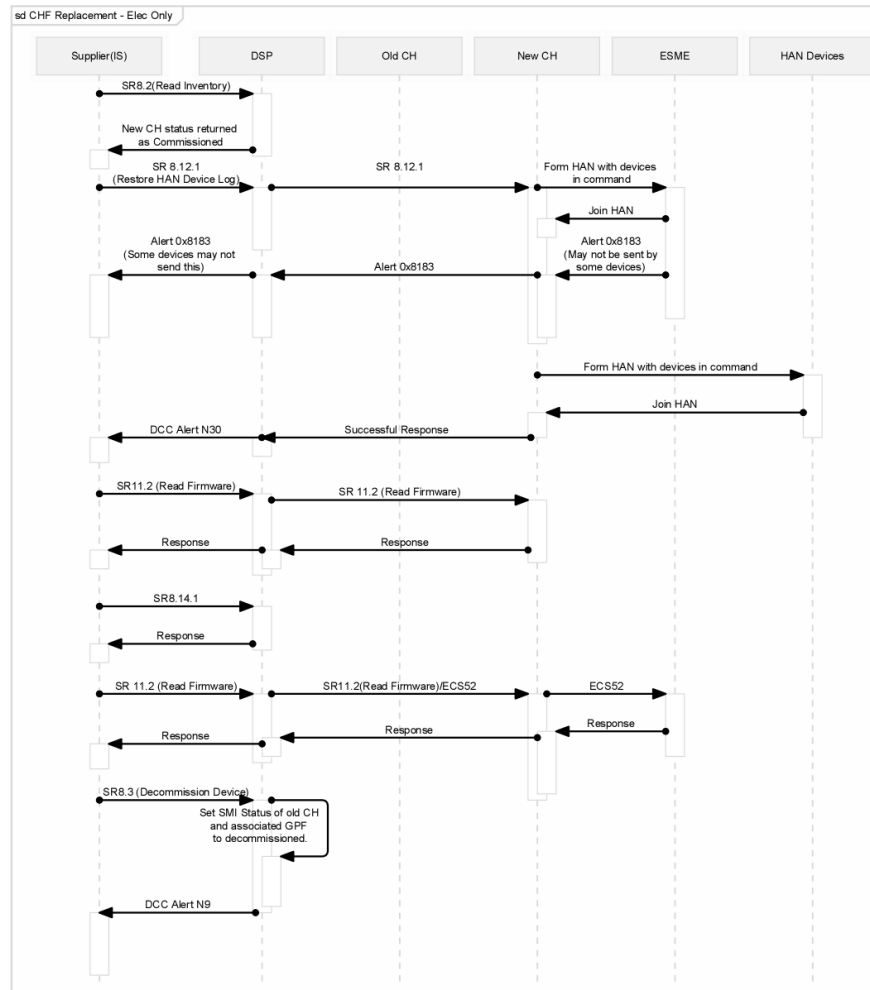
10.3. Pre-requisites

- Device pre-notification to DCC is completed. Use SR8.2 to confirm the prenotification before send engineer on site.
- WAN matrix checks are completed using SR12.1 or there is a WAN coverage database check in the SSML.
- ACB certificates are pre-populated on supplier/network operator trust anchors of a new CH. ACB certificates are pre-populated on the Trust Anchor Cells of the GPF during manufacturer. If a CH is reused, the ACB certificates will in probably be no longer pre-populated in the relevant trust anchor slots.
- For Gas site, the DSP schedule is created on GPF.
- An Installer is onsite to perform job.

A Key Assumption is that the Comms Hub does not have to be commissioned during installation as it is set to 'Commissioned' in the DCC Smart Inventory when it connects to the SMWAN.

In Dual fuel multi-supplier scenario, the CHF replacement is performed by the lead supplier.

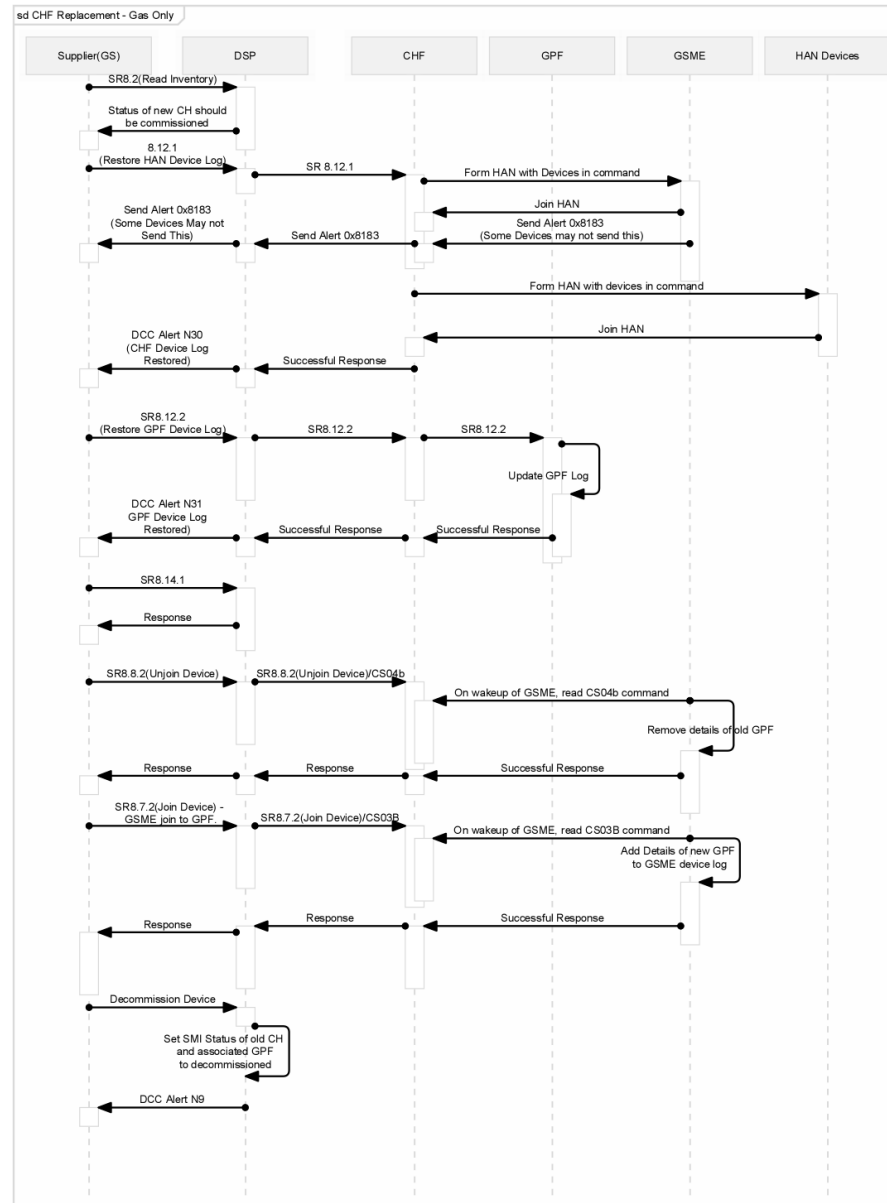
10.4. CHF Replacement by Electricity Supplier (Elec Only Site)



SR	Description	Comment
11.2	Read Firmware	This is a recommended SR to send to the new CH to ensure that it is communicating with the network.
8.12.1	Restore HAN Device Log	The Target ID will be the ID of the New CHF.
	Wait for Device Alerts 0x8183 and 0x8F69	These alerts may not be sent by all devices.
8.14.1	CommunicationsHubStatusUpdate-InstallSuccess	This is mandatory to send since if not sent, then the CH manufacturers will not know what the status of the CH was at the time of the Replacement.
11.2	Read Firmware	This is an optional SR sent to the ESME to check that it is communicating.
8.3	Decommission Device	The Target ID will be the ID of the old CHF.

***Please note that if there are any other devices present on the HAN for example PPMID/IHD/CAD, SR 8.12.1 should successfully move all devices over to the new CH. That is, there is no need to join/unjoin from the new CH to the old CH for all other HAN devices and this scenario should be enough to move the devices over to the new CH. The ESME connection that it has with the other HAN devices will be maintained.**

10.5. CHF Replacement by Supplier (Gas Only Site)



SR	Description	Comment
11.2	Read Firmware	This is a recommended SR to send to the new CH to ensure that it is communicating with the network.
8.12.1	Restore HAN Device Log	The Target ID will be the ID of the new CHF.
8.12.2	Restore GPF Device Log	The Target ID will be the ID of the new GPF.
	Wait for Device Alerts 0x8183 and 0x8F69	These alerts may not be sent by all devices.
8.14.1	CommunicationsHubStatusUpdate-InstallSuccess	This is mandatory to send since if not sent, then the CH manufacturers will not know what the status of the CH was at the time of the Replacement.
8.8.2	Unjoin Device (Non-critical)	Unjoin GSME From Old GPF
8.7.2	Join Device (Non-critical)	Join GSME To New GPF
11.2	Read Firmware	This is an optional SR to send to the new GSME to check comms. This would cause a delay since the GSME being a sleepy device has to be taken into account.
8.3	Decommission Device	The target ID will be the ID of the old CHF.
6.21	Request Handover of DCC Controlled Device	New GPF – Supplier Certificate (ACB certificates are pre-populated on GPF Trust Anchor Cells during manufacturer. If thus SR fails, please check with SR 6.24.1 that this is not a reused CH that might already have Supplier certs that are already loaded into this anchor slot.)
6.21	Request Handover of DCC Controlled Device	New GPF – Network Operator Certificate. (ACB certificates are pre-populated on GPF Trust Anchor Cells during manufacturer. If this SR fails, check that there is not a DNO cert that is already in the relevant trust anchor slot.)
6.17	Issue Security Credential	New GPF Rekey - Digital Signature
6.15.2	Update Security Credential (Device)	New GPF Rekey - Digital Signature
5.1	Create Schedule	Device ID = New GPF ID. Could be multiple schedule
	Trigger TOM Commands	Trigger Set of TOM Commands SRs

***Please note that if there are any other devices present on the HAN for example PPMID/IHD/CAD, SR 8.12.1 should successfully move all devices over to the new CH. SR 8.12.2 should also successfully move all the device information that was on the old GPF to the new GPF. That is, there is no need to join/unjoin from the new CH to the old CH for all other HAN devices or do the same to move from the old GPF to the new GPF.**

10.6. CHF Replacement by Electricity Supplier (Dual Fuel Site – each fuel supplied by different supplier)

Supplier A is the Electricity supplier and Supplier B is the Gas Supplier.

10.6.1. Supplier A (this is the electricity supplier that is replacing the CH.)

SR	Description	Comment
11.2	Read CH Firmware	This is a recommended SR to send to the new CH to ensure that it is communicating with the network.
8.12.1	Restore HAN Device Log	Target ID: New CHF ID
8.12.2	Restore GPF Device Log	Target ID: New GPF ID
	Wait for Device Alerts 0x8183 and 0x8F69	These alerts may not be sent by all devices.
8.14.1	Communications Hub Status Update- Install Success	This is mandatory to send since if not sent, then the CH manufacturers will not know what the status of the CH was at the time of the Replacement.
11.2	Read Firmware	This is an optional SR sent to the ESME to check that it is communicating.
8.8.2	Unjoin Device (Non-critical)	Unjoin GSME To Old GPF
8.7.2	Join Device (Non-critical)	Join GSME To New GPF
11.2	Read Firmware	This is an optional SR sent to the GSME to check that it is communicating. This will be a delayed response due to the sleepy nature of the GSME.
8.3	Decommission Device	Target ID: Old CHF

10.6.2. Supplier B

SR	Description	Comment
	Wait for receipt of DCC alerts N31, N30 or N9. Wait for device alert 0x8183 or Read Device Log	Not all devices may send 0x8183.

6.21	Request Handover of DCC Controlled Device	New GPF – Supplier Certificate (ACB certificates are pre-populated on GPF Trust Anchor Cells during manufacturer. If thus SR fails, please check with SR 6.24.1 that this is not a reused CH that might already have Supplier certs that are already loaded into this anchor slot.)
6.21	Request Handover of DCC Controlled Device	New GPF – Network Operator Certificate. (ACB certificates are pre-populated on GPF Trust Anchor Cells during manufacturer. If this SR fails, check that there is not a DNO cert that is already in the relevant trust anchor slot.)
6.17	Issue Security Credential	New GPF Rekey - Digital Signature
6.15.2	Update Security Credential (Device)	New GPF Rekey - Digital Signature
6.17	Issue Security Credential	New GPF Rekey – Key Agreement Key
6.15.2	Update Security Credential (Device)	New GPF Rekey – Key Agreement Key
5.1	Create Schedule	Device ID = New GPF ID. Could be multiple schedule.
	Trigger TOM Commands	Trigger Set of TOM Commands SR's

11. Decommission Device

11.1. Business Scenarios

Business Scenario	Payment Mode	Fuel Type	User Role
Decommission Device	Credit	Electricity	IS
Decommission Device	Prepayment	Electricity	IS
Decommission Device	Credit	Gas	GS
Decommission Device	Prepayment	Gas	GS

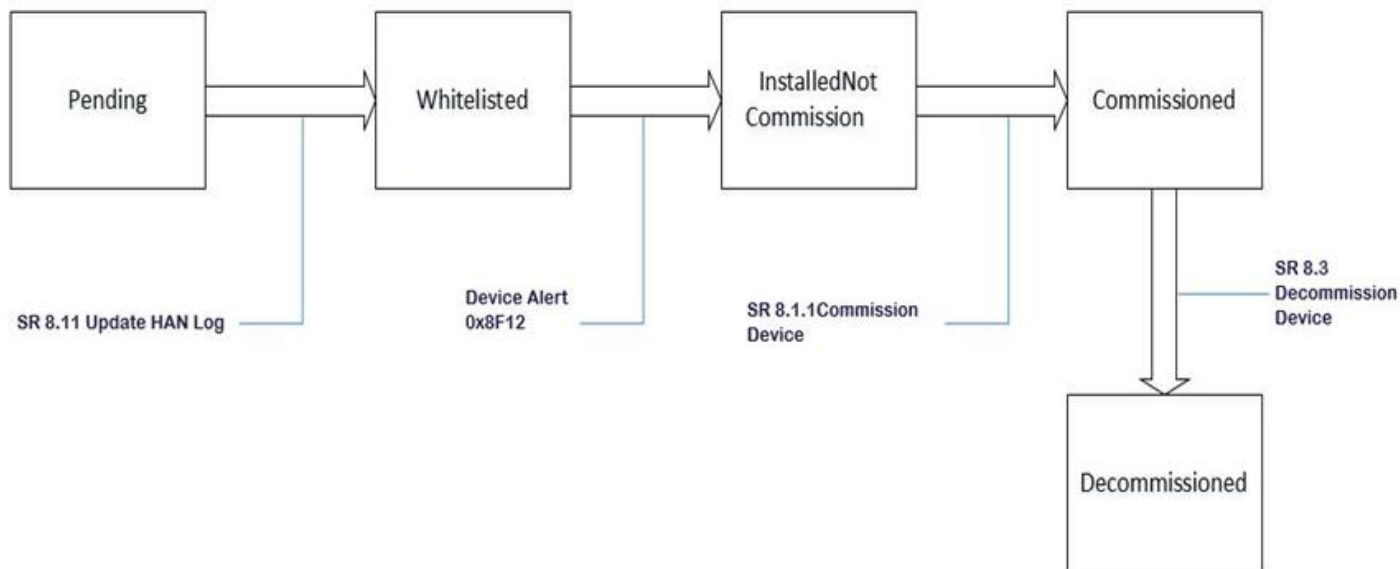
11.2. Alerts

Alert	Alert Type	Description	Recipient
N6	DCC	Schedule removal because of Device decommission	Schedule Owners
		Cancellation of Future Dated Response Pattern (DSP) requests	Future Dated
N33	DCC	because of Device Decommission	Command Sender
		Cancellation of all “Future Dated (DSP)” Services not yet	Future Dated
N34	DCC	submitted to the CHF and its associated GPF	Command Sender
N1	DCC	Electricity Smart Meter Decommission or withdrawal	ENO
N2	DCC	Gas Smart Meter Decommission or withdrawal	GNO Energy Supplier ENO
N9	DCC	Decommission of Communication Hub	GNO

11.3. Prerequisites

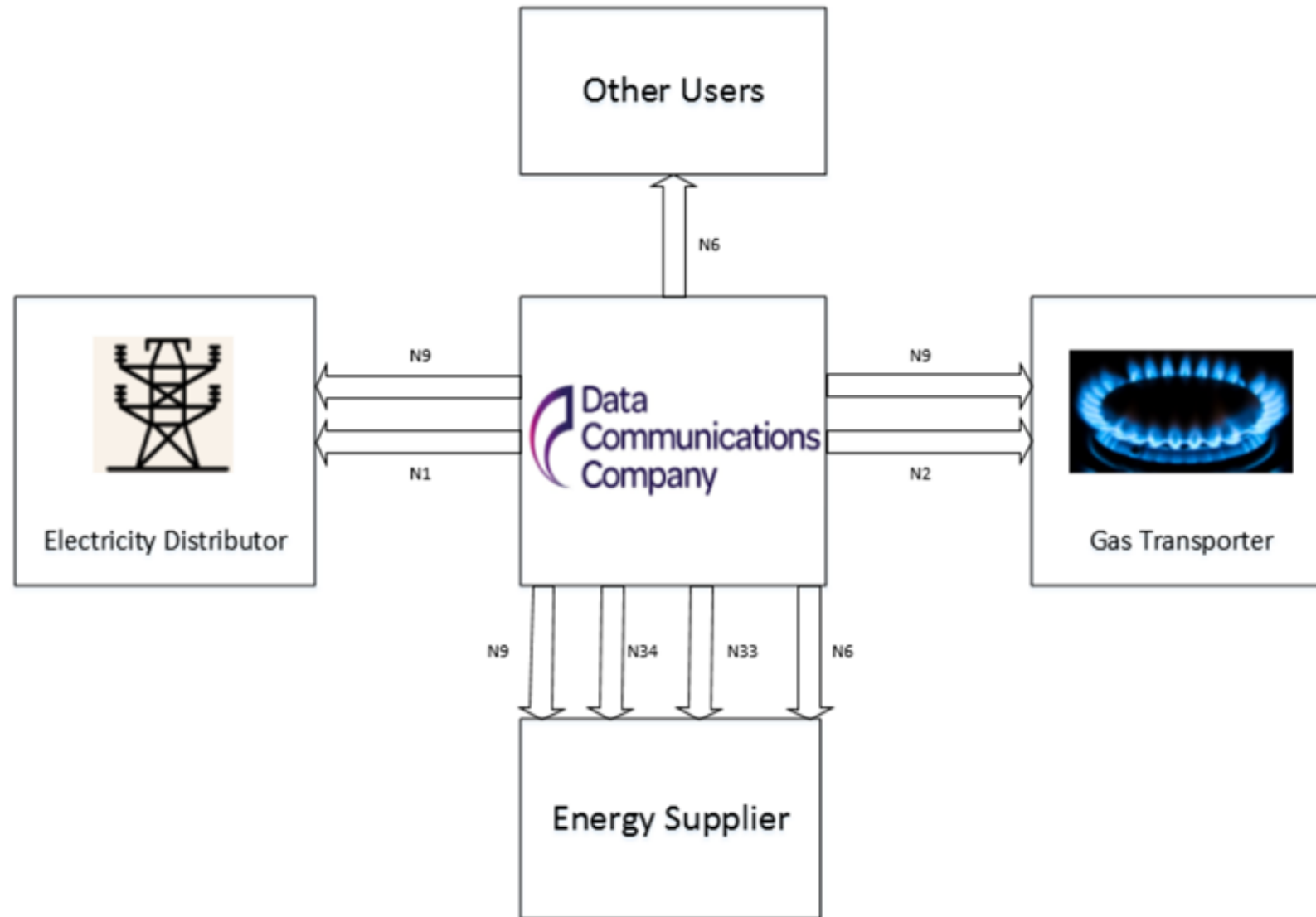
- Device type GPF, IHD and CAD can't be decommissioned
- After device decommission, device must go to the factory reset process to clear logs and certificates before device can be re-use
- Advise from E2E testing team: Please don't trigger SR 8.3 during testing because getting CHs back to useable state involves a lot of teams and a lot of work
- PPMID/IHD unjoin process must be consider after decommission. Process steps are included into Prepayment and IHD business forum
- After decommission process, energy supplier and device manufacturer must comply with customer data privacy policy

11.4. Device Flow Status



Decommission request will disconnect the device association with MPXN in SMI.

11.5. Device Decommission Alert Diagram



11.6. Decommission Device ESME Credit

SR	Description	Comment
4.1.1	Read Instantaneous Import Registers	Meter Reading
4.1.2	Read Instantaneous Import TOU Matrices	Meter Reading
1.5	Update Meter Balance	Clear Customer Data (Meter Balance)
6.20.1	Set Device Configuration (Import MPXN)	Clear customer data (MPXN)
3.2	Restrict Access For Change of Tenancy	Put privacy flag on meter logs
6.13	Read Event or Security Log	Event Log
6.13	Read Event or Security Log	Security Log
8.11	Update HAN Log	Remove Device from whitelist
8.3	Decommission Device	Update Device Status in SMI

11.7. Decommission Device ESME Prepayment

SR	Description	Comment
4.1.1	Read Instantaneous Import Registers	Meter Reading
4.1.2	Read Instantaneous Import TOU Matrices	Meter Reading
4.3	Read Instantaneous Prepay Values	Read Prepayment Data
2.3	Update Debt	Clear customer data (Debt)
1.5	Update Meter Balance	Clear customer data (Meter Balance)
6.20.1	Set Device Configuration (Import MPXN)	Clear customer data (MPXN)
3.2	Restrict Access For Change of Tenancy	Put privacy flag on meter logs
6.13	Read Event or Security Log	Event Log
6.13	Read Event or Security Log	Security Log
8.11	Update HAN Log	Remove Device from whitelist
8.3	Decommission Device	Update Device Status in SMI

11.8. Decommission Device GSME Credit

SR	Description	Comment
4.1.1	Read Instantaneous Import Registers	Meter Reading
4.1.2	Read Instantaneous Import TOU Matrices	Meter Reading
1.5	Update Meter Balance	Clear customer data (Meter Balance)
6.20.1	Set Device Configuration (Import MPXN)	Clear customer data (MPXN)
3.2	Restrict Access For Change of Tenancy	Put privacy flag on meter logs
6.13	Read Event or Security Log	Event Log
6.13	Read Event or Security Log	Security Log
8.8.2	UnJoin Service (Non-Critical)	Unjoin GSME from GPF
8.11	Update HAN Log	Remove Device from whitelist
8.3	Decommission Device	Update Device Status in SMI

11.9. Decommission Device GSME Prepayment

SR	Description	Comment
4.1.1	Read Instantaneous Import Registers	Meter Reading
4.1.2	Read Instantaneous Import TOU Matrices	Meter Reading
4.3	Read Instantaneous Prepay Values	Read Prepayment Data
2.3	Update Debt	Clear customer data (Debt)
1.5	Update Meter Balance	Clear customer data (Meter Balance)
6.20.1	Set Device Configuration (Import MPXN)	Clear customer data (MPXN)
3.2	Restrict Access For Change of Tenancy	Put privacy flag on meter logs
6.13	Read Event or Security Log	Event Log
6.13	Read Event or Security Log	Security Log
8.8.2	UnJoin Service (Non-Critical)	Unjoin GSME from GPF
8.11	Update HAN Log	Remove Device from whitelist
8.3	Decommission Device	Update Device Status in SMI