



Department for
Energy Security
& Net Zero

Smart Metering Implementation Programme

Technical Specification Issue Resolution Proposal

This note provides DESNZ's interim position on an issue identified with the current version of the Technical Specifications or their associated content. Please note this position should be considered as Draft until ratified through TBDG.

Date	13 June 2025
Issue Resolution Proposal	IRP667
Issues Log ID	TS1658
Issue Title	Duplicate UTRN entry on PPMID
Source	TSIRS
Date Raised	25 October 2024
Status	Draft v0_3
Documentation Reference	GBCS v4.3 & TS1643

Description:

As part of the Issue TS1643, the following question was asked:

'If I enter a duplicate UTRN into a PPMID, that is intended to top up a GSME. Should the GSME send a response to the PPMID to indicate it has been rejected due to a duplicate UTRN?'

Currently as per GBCS v4.3 and the response provided in response to TS1643, the following explanation applies:

A UTRN can be considered a 'compressed' form of Remote Party Message. If the consumer enters a UTRN into the PPMID, this is delivered to the GSME using a PCS01 Command. The GSME will process the UTRN and if it sees it is a duplicate, the GSME considers it to be a replayed message and anti-replay processing according to GBCS, Section 6.2.4.2 is invoked. This results in an 8F1E Alert being sent to the Remote Party that originated the UTRN. According to GBCS Section 14.7.4.1.4, if the GSME does not issue a Response to the Remote Party that originated the UTRN, the GSME will also not generate a PCS01 Response to the PPMID.

An implication of this is that the PPMID will not be able to positively determine that a duplicate UTRN has been entered and thus will not be able to notify the consumer accordingly, and in the worst case may just result in consumer repeatedly trying the same UTRN. It should be noted that duplicate UTRN entry at the meter typically results in accurate messaging to the consumer.

Although the issue raised was specific to GSME, this IRP has been drafted to cover both ESME and GSME.

Proposed Position:

The purpose of this IRP is to amend GBCS to remove ambiguity such that the HAN Only Response associated with processing a HAN Only Command, which is either a PCS01 Command (for GSME) or a ZSE 'Consumer Top Up' command (for ESME), is independent from the Response associated with processing the UTRN, and thus conveys the appropriate result code to the PPMID resulting from the application of the UTRN.

We propose to achieve this by removing text at GBCS, Section 14.7.4.1.4, that had implied a dependency on there being a Remote Party Response to the Supplier before a HAN Only Response to the HAN Only Command is sent.

We also propose to add text to GBCS, Section 14.7.4.1.2 'Command Construction by PPMID', to clarify that processing of the delivery of the UTRN is separate from processing the UTRN payload itself.

Further, we propose to simplify the HAN Only Command Validation, at GBCS, Section 14.7.4.1.3, to reference the requirements of GBCS, Section 13.7.3 'Device-Based Access Control', rather than repeating those requirements. We also propose to clarify the need to comply with the requirements of both Sections 14.6.4 and 14.6.5.

Following Command Validation by ESME / GSME, in the scenario described by the Issue Description above i.e., a duplicate UTRN entered by the consumer, then this would generate a Response with 'Result Type' of '0x02' as indicated by the following rationale:

In the description of 'Consumer Top Up Response' in the Use Case PCS01 at GBCS, Table 19.3 (Apply Prepayment Top Up to GSME using PPMID), there is reference to the value to use for 'Result Type'. In the case of a duplicate UTRN this would be '0x02 = Rejected-Duplicate Top Up', as shown in the capture below.

Consumer Top Up Response			
GBZ Use Case specific component			
Extended Header Control Field		0x01	1
Extended Header Cluster ID		0x0705	2
Extended Header GBZ Command Length		0x000D	2
ZCL header			
Frame control	Cluster-specific; not manufacturer specific; server-client; allow default response;	0b00001001	1
Transaction sequence number	Start at 0, increment for each ZCL/ZSE command in this GBZ payload	*	1
Command identifier	Consumer Top Up Response	0x03	1
ZCL payload			
Result Type (ENUM8)	0x00 = Accepted; 0x01 = Rejected-Invalid Top Up; 0x02 = Rejected-Duplicate Top Up ; 0x03 = Rejected-Error; 0x04 = Rejected-Max Credit Reached; 0x05 = Rejected-Keypad Lock; 0x06 = Rejected-Top Up Value Too Large; 0x10 = Accepted-Supply Enabled; 0x11 = Accepted-Supply Disabled; 0x12 = Accepted-Supply Armed	*	1

For the ZSE 'Consumer Top Up Response' command sent directly from ESME, the Result Type would also be '0x02 = Rejected-Duplicate Top Up'.

Interoperability and / or Compatibility

GSME may not process the PCS01 Command in the way proposed by this IRP until modified to do so.

Current ESME may already process the ZSE 'Consumer Top Up' command in the way proposed by this IRP because there is a ZSE test (19.11 in test spec 07-5384-23) that explicitly checks for a duplicate UTRN.

On the basis that the proposed changes result in a clarification to the method of delivery of the UTRN (noting that there are no changes to the security of the UTRN itself or original policy intent), it is proposed that the SEC Security Sub-Committee (SSC) is invited to consider the proposed changes as part of the review process and to progress the IRP only if SSC are content.

Required Changes to Documentation:

1. At GBCS, Section 14.7.4.1.2, amend the title of the Section, and add the text as shown by the following mark-up:

■ **14.7.4.1.2 HAN-Only Command Construction by the PPMID**

~~The HAN-Only Command is sent from the PPMID to the ESME / GSME to deliver the UTRN. The processing of the HAN-Only Command is independent from the processing of the UTRN contained as payload of the HAN-Only Command.~~

Where the target Device is a GSME, the PPMID shall construct the Command according to the requirements of Use Case PCS01.

Where the target Device is an ESME, the PPMID shall construct a ZSE Consumer Top-Up command.

In all cases:

- → the value of the Top-Up Code, with its ZSE meaning, shall be set to be a VisibleString whose value is the 20-digit UTRN; and
- → the value of the Originating Device, with its ZSE meaning, shall be 0x02 (IHD).

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2. At GBCS, Section 14.7.4.1.3, make the changes as indicated by the following mark-up:

■ **14.7.4.1.3 HAN-Only Command Validation by the ESME / GSME**

~~If the ESME / GSME has no PPMID in its Device Log, the ESME / GSME shall apply the requirements of Section 6.2.4.2 to reflect the failed check, and undertake no additional processing.~~

~~If the ESME / GSME has a PPMID in its Device Log:~~

- → ~~if the receiving Device is an ESME, the ESME shall use ZSE cryptographic processes to establish whether the Command was authentically issued by a PPMID that is in its Device Log; or~~
- → ~~if the receiving Device is a GSME, the GSME shall undertake Command Authenticity and Integrity Verification, as required for a Command of Message Category SME.C.PPMID-GSME to establish whether the Command was authentically issued by the PPMID that is in its Device Log. For clarity, the 'PPMID entity ID' and the 'Meter entity ID' from PCS01 and PCS02 Commands are the Business Originator ID and Business Target ID respectively used in the Section 6.2.4.1.1 checks.~~

~~If the Command was not authentically issued by a PPMID within the Device Log, the ESME / GSME shall apply the requirements of Section 6.2.4.2 to reflect the failed check.~~

~~The HAN-Only Command shall comply with the Device Based Access Control (DBAC) requirements of Section 13.7.3. If the HAN-Only Command was authentically issued by a PPMID within the Device Log is permitted, the ESME / GSME shall comply with the requirements of Sections 14.6.4 and 14.6.5 (but excluding requirements in Sections 14.6.4.1.1, save that the ESME / GSME shall disregard the 20th digit before undertaking any further steps), and so process the contents of the Command accordingly and always send a HAN-Only Response.~~

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3. At GBCS, Section 14.7.4.1.4, make the changes shown by the following mark-up:

14.7.4.1.4 HAN Only Response Construction and Issue

~~Where the ESME / GSME successfully creates a Remote Party Response to its Supplier, as per the requirements in Section 14.6.5, the ESME / GSME shall also~~The ESME / GSME shall:

- where the Device is a GSME, construct the HAN Only Response according to the requirements of Use Case PCS01 and send it to the PPMID; or
- where the Device is an ESME, construct a ZSE Consumer Top Up Response command, and send it to the PPMID.

In all cases the value of the Source of Top up, with its ZSE meaning, shall be 0x02 (IHD).

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TS version for incorporation	TBC
Impact on previous RPs	None
Attachment(s)	None
TSIRS view of impact	Consumers: A consumer using a PPMID for UTRN entry would be better informed if they were informed that a duplicate UTRN had been entered. Currently, based on the specification, the PPMID is unlikely to provide a meaningful response
	DCC Users: Refer to ' <i>Interoperability and / or Compatibility</i> ' Section above
	DCC & Testing: There are no changes required of DCC systems
	Non-SMETS functionality in installed devices: No impact identified