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SECMP0015 'GPF timestamp for reading instantaneous Gas values'

Annex A

Business Requirements – version 0.1

About this document

This document contains the Business Requirements that would be required to deliver this Modification Proposal.

These changes have been drafted against SEC Version 5.20.

Functionality Requirements

This SEC modification is to allow Remote Parties and Devices reading the instantaneous values from the GPF to know what the time was on the GSME's Clock to which those values relate. Specifically

1. The GSME is to provide to the GPF with a date-time stamp value whenever the GSME provides its instantaneous values;
2. The GPF is to update its copy of this date-time stamp whenever it updates its copy of the GSME's instantaneous values;
3. The GPF is to make available its copy of the GSME date-time stamp to Devices on the SMHAN;
4. When the GPF creates a Response to Use Cases GCS13a, GCS13b, GCS13c, GCS14 or GCS60, the GPF is to use its copy of the GSME date-time stamp to populate the date-time field in the Response it generates, and mark the source of that date-time stamp in the time status of the Response accordingly; and
5. Parse and Correlate is to decode the time status in Responses so that GSME sourced date-time stamps are flagged, along with (as an option) a decoding as to whether the date-time is (1) reliable, (2) unreliable or (3) invalid.

Changes required to deliver functional requirements

To deliver the functional requirements:

1. GSME would be required to maintain a new Smart Metering Equipment Technical Specifications (SMETS) operational data item ('Instantaneous Values Last Update Date and Time') and provide that value to the GPF each time it provides the instantaneous values. In Zigbee Smart Energy (ZSE), this equates to the ReadingSnapshotTime attribute (0x0007) in the Reading Information Attribute Set within the Metering Cluster;
2. GPF would be required to keep a copy of that value, where it is provided by the GSME, and use it to populate the date-time field in the Responses to Use Cases that read instantaneous values [currently, the GPF puts the Communications Hub (CH) Date and Time in this field]. This Communications Hub Functionality (CHF) would be required to continue to use CH Date and Time, where the GSME does not provide the new data item;
3. GPF would make available its copy of the ReadingSnapshotTime attribute (0x0007) in the Reading Information Attribute Set within the Metering Cluster to Devices on the SMHAN (or would set the to 'invalid time' when it does not have a valid value from the GSME, to make clear to other Devices that it does not have a GSME provided value);
4. Parse and Correlate would decode bit 2 of the 'time status' (in the date-time field with Responses) to flag where date-times come from the GSME rather than the Device (GPF) creating the Response (so where bit 2 is set to 0b1). As an option, Parse and Correlate would also decode bits 0 and 1, in line with GBCS Table 9.1.4.2b. This would require a corresponding change to the MMC.
5. These changes do not affect the structure of any of the existing Use Cases, and so do not require changes to the DCC User Interface Specification (DUIS) or Data Service Provider (DSP) systems.

Testing Requirements

This section sets out the necessary testing requirements to delivery SECMP0015:

1. The DCC will provide Testing Services to support the implementation of SECMP0015 to assess the interoperability of User Systems with DCC Systems and Smart Metering Devices.
2. The DCC will provide an analysis including supporting assumptions and rationale, of any testing required to the DCC Total System.
3. The DCC will prepare a report setting out the scope, phases, timetable, Testing Participants, any assumptions and rationale in relation to SECMP0015 testing.
4. The testing environment that the DCC provides in support of SECMP0015 as part of Testing Services will support the following Service Requests:
    a. 'Read Instantaneous Import Register' Service Request Variance (SRV) 4.1.1
    b. 'Read Instantaneous Import Block Counted' SRV 4.1.4
    c. 'Read Instantaneous Import TOU Matrices' SRV 4.1.2
    d. 'Read Instantaneous Prepay values' SRV 4.3
    e. 'Read Meter Balance' SRV 4.18
5. The testing environment will be open to the User Role of Gas Suppliers in respect of SRV 4.1.1 and SRV 4.1.2.
6. This environment should be made available for a minimum of 15 Working Days, depending on the impact of the change. The DCC must provide the costs and assumptions associated with providing this Testing Service, including whether the testing costs are based on a set number of Users utilising the Testing Service, i.e. up to 10 Users, noting that at least two Large Suppliers may test the functionality. This is to ensure it operates correctly before it is put into the End-to-End and Production environments.
7. The objective of testing as part of the Testing Services will be to ensure that, in response to each of the Service Requests, the User receives the corresponding Service Response from the DCC.
8. As part of the Testing Services, the DCC will provide Users with a corresponding version of the Parse and Correlate software and Message Mapping Catalogue.
9. The acceptance criteria for testing as part of the Testing Services will be, following successful execution of the corresponding Command, the User receives the corresponding Service Response from the DCC.
10. The DCC will provide:
    a. a reasonable number of Test CH for use in the testing environment which represent every combination of Home Area Network (HAN) and Wide Area Network (WAN) Variant. This includes Test CH that comply with version of Communications Hub Technical Specifications (CHTS) in force prior to the Release as well as Test CH that comply with the version CHTS which will be effective on the Release date;

b. Test Stubs (or other alternative arrangements) to emulate GSME behaviour of version(s) of SMETS in force prior to the Release as well as the version of SMETS which will be effective on the Release date.

Implementation Approach

Implementation requirements

The associated changes to SEC documents, including SMETS, CHTS, Great Britain Companion Specification (GBCS) and Message Mapping Catalogue (MMC) would be implemented at 'Version 5.20' of the SEC.

The Functional Requirements in this Modification would need to be met by all GSME / CH which comply with 'Version 5.20' or a later SEC version, covering both those GSME / CH that are newly installed and those whose firmware is upgraded to 'Version 5.20' or a later SEC version.

There would be no requirement to upgrade firmware on installed GSME / CH to implement this Modification. It would be for Suppliers to decide whether to upgrade GSME and for the DCC to decide whether to upgrade CH.

There would be no requirement for other Device types to be upgraded as part of this Modification (e.g. to be able to read the GSME date-time stamp), as there is no requirement for other Device types to use the additional information. It would be for Suppliers (excluding Consumer Access Device (CADs)) or Consumers (CADs) to decide whether to upgrade other Device Types.

From the point at which 'Version 5.20' comes in to force, the DCC would need to make available to DCC Users an updated version of Parse and Correlate software, which includes support for the decoding of time status. In terms of this Modification, it would be for DCC Users to decide whether and when to implement the updated version of Parse and Correlate software.

There would be no obligation on DCC Users or the DCC to make any specific use of the GPF provided GSME date-time stamp, and so there are no additional changes to DCC User or DCC SEC obligations.

Compatibility Requirements

In terms of compatibility between CH and GSME at differing versions of the Technical Specifications, there should be no compatibility issues, since:

1. as above, the CH will revert to existing behaviour where the GSME does not support this feature
2. if the CH does not support this feature it should discard any GSME provided *ReadingSnapshotTime* attribute value reported to it. [DN: DCC to confirm]

In terms of another Device (e.g. CADs) attempting to read the GPF copy of the *ReadingSnapshotTime* attribute, the other Device will receive an UNSUPPORTED_ATTRIBUTE status from the GPF in the response, if the GPF does not support this Modification. It would receive 0xFFFFFFFF (meaning invalid time) if the GPF supports this Modification but the GSME does not. Both these behaviours are part of the ZigBee Specification and so should be factored in to the design of such Device types.

In line with the wider SEC approach, there is no requirement to update already installed GSME or CH to support these changes. The additional attribute shared over the SMHAN does not affect any other Devices.

From a DCC User perspective, access to these Use Cases would be provided by existing, unchanged Service Requests. The structure of existing Responses would also be unchanged. Versions of Parse and Correlate that do not decode the time status in Responses would still be able to process Responses (since the structure and content of Responses is unchanged).

Thus, there would be no requirements for a DCC User to make any changes as a result of this Modification, save that Gas Suppliers would, for newly installed GSME, need to install GSME that include this functionality.