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| Input Contribution | |
| Meeting ID\* | SDS#46 |
| Title:\* | Pseuddonymization and anonymization of privacy data |
| Source:\* | JaeSeung Song, KETI, jssong@sejong.ac.kr  Minbyeong Lee, Hyundai Motors, [minbyeong.lee@hyundai.com](mailto:minbyeong.lee@hyundai.com) |
| Date:\* | 2020-07-07 |
| Input related to\* | WI-0095 oneM2M System Enhancement to Support Privacy Data Protection Regulations (eDPR)  TR-0062 V 0.1.0 |
| Intended purpose of  document:\* | Decision  Discussion  Information  Other <specify> |
| Impacted other TS/TR(s) |  |
| Decision requested or recommendation:\* | Agree for inclusion in TR-0062 |
| Template Version: January 2017 (Do not modify) | |

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# Introduction

This contribution provides input about key issue on pseudonymization and anonymization of privacy data for GDPR.

### -----------------------Start of change 1-------------------------------------------

# 8 Proposed Solutions

*Editor’s Note: The section provides solutions to the required functions identified in the previous section.*

## 8.x Solution: Key Issue x – Pseudonymization and Anonymization of Privacy Data

As pseudonymization and anonymization can reduce risk and assist data processor in fulfilling their dta compliance regulations, both are considered as key techniques to be used in IoT plaforms to be compliant with GDPR. Two techniques are different and provide different results after prodessing. Therefore, the platform has to use these technicques depend on the degree of risk and how the data will be processed. In addition, various algorithms and implementations are also available for each techniques.

* **pseudonymisation** means the processing of personal data in such a manner that the personal data can no longer be attributed to a specific data subject without the use of additional information, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person.
* **Anonymisation Techniques:** the data must be stripped of sufficient elements such that the data subject can no longer be identified. More precisely, that data must be processed in such a way that it can no longer be used to identify a natural person by using ‘all the means likely reasonably to be used’ by either the controller or a third party. An important factor is that the processing must be irreversible.

Specifically, the GDPR defines pseudonymization in Article 3, as “the processing of personal data in such a way that the data can no longer be attributed to a specific data subject without the use of additional information.” To pseudonymise a data set, the “additional information” must be “kept separately and subject to technical and organisational measures to ensure non-attribution to an identified or identifiable person.”

In general,

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| General procedure for handling privacy data | oneM2M annotated procedure |

In order to process privacy data in oneM2M based on regulations, oneM2M system should provide a set of attributes enabling to hold information to be used for data processing. In particular, some necessary information for the processor to process privacy data are as follows:

* Which regulations to be applied?
* Is the subject privacy data?
* What kinds of rules have to be applied?
* What kinds of techniques or algorithms have to be used?
* Which parts of data are privacy data?

Such information can be modeled as attributes of oneM2M resources such as [contentInstance] and [container]. The definition of the attributes are explained in the table below.

Table x: Attributes needed to support privacy data

| Attributes | Multiplicity | RW/  RO/  WO | Description |
| --- | --- | --- | --- |
| *privacyRegulation* | 1 | RW | Used to indicate which regulation is to be applied. An example of this attribute is gdpr (for EU) or pipa (for KR) |
| *privadyIndication* | 1 | RW | Used to indicate that this data is subject to privacy regulation |
| *privacyProcessingRule* | 1 | RW | Used to mention a technique to be used, for example, pseudonymization or anonymization |
| *privacyTechniques* | 1 | RW | Optionally this attribute can be used to mention about detail information such as replacement, scrambling, masking, personalized anonymization, blurring |
| *privacyBlock* | 1 | RW | If parts of data contain privacy related data, this attribute can be used to identify the accurate parts of data to be handled.  For example, Alice-info-3948272 contains ‘Alice-info’, which is data that should be anonymized. In this case, 10 characters should be anonymized |
| *privacySubject* | 1 | RW | Used to indicate which parts of a resource are subject for this privacy regulation (name or data) |

The following figure shows how privacy data can be processed in oneM2M system.



Figure x2. Privacy data handling procedure

* Step 1-3:   
  A wearable sensor application that is associated with a person registers and creates corresponding resources with IN-CSE. As the sensor application contains privacy data, the creation message contains attributes indicating which regulation to follow and a type of data processing mechanisms (e.g., pseudonimysation).
* Step 4-5:   
  When a new measurement from the sensor application creates a contentInstance resource, the data in the contentInstance is pseudonymized as indicated in the resource attribute.
* Step 6-7:   
  AE2 tries to read AE#1 resource to show the value to its user. As the resource is indicated as a privacy data, the response includes pseudonymized data.

### -----------------------End of change 1-------------------------------------------