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| Input Contribution | |
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| Source:\* | JaeSeung Song, KETI, jssong@sejong.ac.kr |
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# Introduction

This contribution analysis proposed potential requirements and identify key issues.

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

# 8 Requirement Analysis of the Current oneM2M System to Support AI/ML

*Editor’s Note: The section provides key issues of the current oneM2M system to enable AI/ML features.*

## 8.1 Overview

Table 8-1-1 presents a collection of potential requirements and their corresponding use cases specified in the previous chapters.

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| Use case | Potential requirements |
| Use case #1.  Data augmentation for autonomous driving | The oneM2M System shall be able to handle *data augmentation* requests for AI/ML purposes. |
| The oneM2M System shall be able to generate *augmented data resources* from a given source data and data augmentation technique. |
| The oneM2M System shall be able to *manage data for AI/ML* purposes such as model training and augmentation of training dataset. |
| Use case #2.  Last mile delivery | The oneM2M System shall be able to *manage structured and unstructured data for training*, for example, preprocessing data, describing data and inferring meaning. |
| The oneM2M System shall be able to *update trained AI/ML model* according to continuous measuring data e.g., location, time series and historical data. |
| The oneM2M System shall be able to provide *a classification function* (e.g., split data into two parts, training and validating) in supervised Machine Learning. |
| Use case #3.  Smart virtual store using metaverse | The oneM2M System shall be able to synchronize between real and virtual world devices |
| The oneM2M System shall enable Edge/Fog Nodes to *run AI/ML models* to retrieve information from the real world |
| Use case #4.  Detection of patterns in video streams | The oneM2M system shall be able to support the *creation and management of classifiers for AI/ML* application as follows:   * Predefined-classifier function comes with a predefined and pretrained classifier for Object detection, Object tracking, Semantic Segmentation, Instance Segmentation, etc. from data generated by IoT devices (e.g., smart city camera). * Customized classifier that can be generated by an application to support a specific detection function such as visual recognition. |
| Use case #5.  Autonomous operations using automated machine learning | The oneM2M System shall be able to *distinguish the data set that will be trained and has already been trained*. |
| The oneM2M System shall be able to provide *automated machine learning* under certain conditions, e.g., building a model every week or when the number of datasets reaches 100. |
| Use case #6.  IoT device calibration using ML | The oneM2M System shall be able to manage calibration information and training datasets for ML to eliminate or minimize measurement errors from IoT sensors**.** |
| The oneM2M System shall be able to *perform ML using training datasets* from reference IoT devices and notify calibration results to a target sensor that requires calibration. |

The potential requirements can be further classified into four issues, i.e., (1) managing training data for AI/ML, (2) managing AI/ML input data, (3) creation of AI/ML model, and (4) managing AI/ML model (see Figure 8.1-1). Each key issue covers detailed items to be resolved as follows:

1. Training data management for AI/ML

* Data augmentation
* Training dataset
* Reuse training data
* Data labeling

1. Input data management for AI/ML

* Structured and unstructured data
* Calibration data

1. Creation of AI/ML model

* Trained model
* Predefined and customized classifiers

1. Managing AI/ML model

* Distributed training model
* Continuous learning
* AI/ML model on Edge/Fog



Figure 8.1-x. Classify potential requirements to identify key issues

## 8.2 Key Issue 1

*Editor’s Note: This section describes a.key issue that the oneM2M system does not provide.*

## 8.3 Key Issue n

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