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Mobile Edge Computing (MEC);
UE Identity API

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Reference

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Mobile Edge Computing (MEC).

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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1 Scope

The present document focuses on the UE Identity functionality. It describes the related application policy information (including authorization, access control and traffic rule pattern format), information flows, required information and service aggregation patterns. The present document specifies the necessary API, data model and data format, considering existing API(s) if applicable.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

[1] ETSI GS MEC 001: "Mobile Edge Computing (MEC); Terminology".

[2] ETSI GS MEC 002: "Mobile Edge Computing (MEC); Technical Requirements".

[3] ETSI GS MEC 009: "Mobile Edge Computing (MEC); General principles for Mobile Edge Service APIs".

[4] IETF RFC 2818: "HTTP Over TLS".

NOTE: Available at https://tools.ietf.org/html/rfc2818.

[5] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".

NOTE: Available at https://tools.ietf.org/html/rfc5246.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] OpenAPI Specification.

NOTE: Available at https://github.com/OAI/OpenAPI-Specification.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI GS MEC 001 [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI GS MEC 001 [1] and the following apply:

API	Application Programming Interface
HTTP	Hypertext Transfer Protocol
IETF	Internet Engineering Task Force

4 Overview

The present document specifies the API for the UE Identity feature to support the corresponding requirements defined for the Mobile Edge Computing in ETSI GS MEC 002 [2].

Clause 5 contains the description of the feature and the information flows of the procedures. Clause 6 describes the data model and data format applied in the UE Identity API. Clause 7 is the actual API definition of the UE Identity feature.

5 Description of the feature (informative)

5.1 Introduction

The purpose of the UE Identity feature is to allow UE specific traffic rules in the mobile edge system.

When the mobile edge system supports the UE Identity feature, the mobile edge platform provides the functionality for a mobile edge application to register a tag (representing a UE) or a list of tags. Each tag has been mapped into a specific UE in the mobile network operator's system. The mobile edge platform is provided with the mapping information. How the mapping is realized is outside the scope of the present document. The UE Identity tag registration triggers the mobile edge platform to activate the corresponding traffic rule(s) linked to the tag. Later, if the application does not wish to use the traffic rule for that user, it may de-register the UE Identity tag by invoking the de-registration procedure.

5.2 Sequence diagrams

5.2.1 General

The following clauses describe how mobile edge applications can register and de-register tags as part of UE Identity feature. The related sequence diagrams are presented.

5.2.2 UE Identity tag registration

Figure 5.2.2-1 illustrates the message flow for the UE Identity tag registration procedure. The tag is used in UE Identity feature.

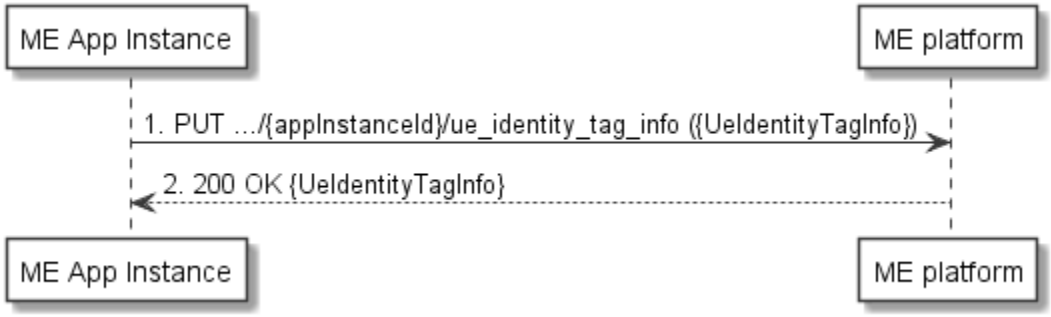

Figure 5.2.2-1: UE Identity tag registration

The UE Identity tag registration procedure consists of the following steps:

1) The mobile edge application instance sends a PUT request with the message body containing the UeIdentityTagInfo data structure with the state set to REGISTERED to the mobile edge platform. The variable {appInstanceId} is set to the application instance identifier assigned to the mobile edge application instance.

2) The mobile edge platform sends "200 OK" response with the message body containing the UeIdentityTagInfo data structure with the state set to REGISTERED.

Once the tag or the list of tags, is successfully registered in the mobile edge platform the related traffic rules can then be activated.

NOTE: It is out of the scope of the present document how the mobile edge application obtains the UE Identity tag(s).

5.2.3 UE Identity tag de-registration

Figure 5.2.3-1 illustrates the message flow for the UE Identity tag deregistration procedure.

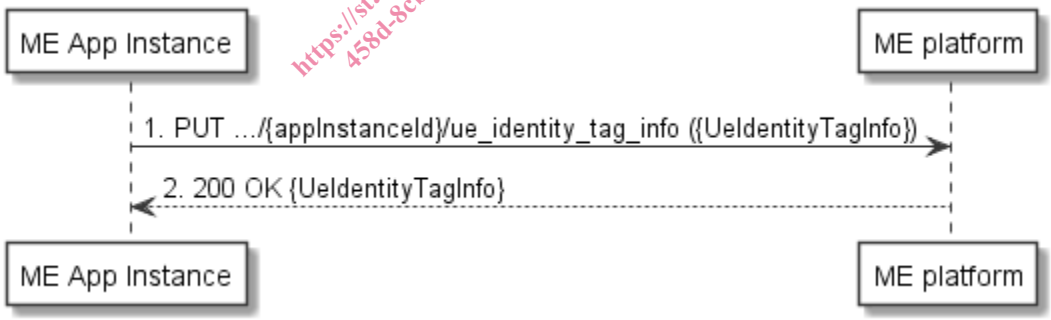

Figure 5.2.3-1: UE Identity tag de-registration

The UE Identity tag deregistration procedure consists of the following steps:

1) The mobile edge application instance sends a PUT request with the message body containing the UeIdentityTagInfo data structure with the state set to UNREGISTERED to the mobile edge platform. The variable {appInstanceId} is set to the application instance identifier assigned to the mobile edge application instance.

2) The mobile edge platform sends "200 OK" response with the message body containing the UeIdentityTagInfo data structure with the state set to UNREGISTERED.

Once the tag or the list of tags is successfully deregistered in the mobile edge platform the related traffic rules are then deactivated.

6 Data model & Data format (normative)

6.1 Introduction

The following clauses specify the data types that are used to implement the UE Identity feature, for which the relevant sequence diagrams are described in clauses 5.2.2 and 5.2.3.

6.2 Resource data types

6.2.1 Introduction

This clause defines data structures to be used in resource representations.

6.2.2 Type: UeIdentityTagInfo

This type represents the information of UE Identity tag used in the UE Identity feature.

Table 6.2.2-1: Definition of type UeIdentityTagInfo

Attribute name	Data type	Cardinality	Description
ueIdentityTags	Structure (inlined)	1..N	1 to N tags presented by a ME Application instance to a ME Platform
>ueIdentityTag	String	1	Specific tag presented by a ME Application instance to a ME Platform
>state	Enum (inlined)	1	The following numeric values are defined: 0 = UNREGISTERED 1 = REGISTERED

6.3 Subscription types

In the present document, no subscription data types are defined.

6.4 Notifications types

In the present document, no notifications data types are defined.

6.5 Referenced structured data types

In the present document, no referenced structured data types are defined.

6.6 Referenced simple data types

In the present document, no referenced simple data types are defined.

7 API definition (normative)

7.1 Introduction

This clause defines the resources and operations of the UEIdentity API.

7.2 Global definitions and resource structure

All resource URIs of this API shall have the following root:

{apiRoot}/ui/v1/

The "apiRoot" is discovered using the service registry. The API shall support HTTP over TLS (also known as HTTPS - see IETF RFC 2818 [4]). TLS version 1.2 as defined by IETF RFC 5246 [5] shall be supported. HTTP without TLS is not recommended. All resource URIs in the sub-clauses below are defined relative to the above root URI.

The content format JSON shall be supported.

The JSON format is signalled by the content type "application/json".

This API supports additional application-related error information to be provided in the HTTP response when an error occurs. See clause 7.15 of ETSI GS MEC 009 [3] for more information.

Figure 7.2-1 illustrates the resource URI structure of this API.

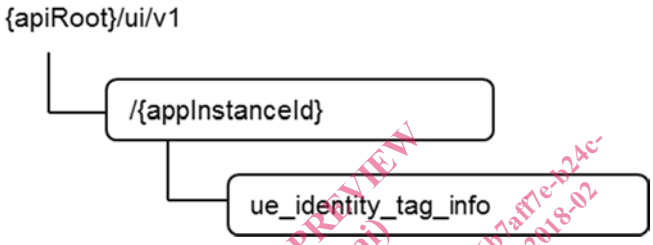

Figure 7.2-1: Resource URI structure of the UE Identity API.

Table 7.2-1 provides an overview of the resources defined by the present document, and the applicable HTTP methods.

Table 7.2-1: Resources and methods overview

Resource name	Resource URI	HTTP method	Meaning
Individual UeIdentityTagInfo	…/{appInstanceId}/ue_identity_tag_info	**GET**	Retrieve information about specific UeIdentityTagInfo
		PUT	Register/De-register the information about specific UeIdentityTagInfo

7.3 Resource: individual UeIdentityTagInfo

7.3.1 Description

This resource is used to represent the information of a single UE Identity tag resource, which follows the resource data type of "UeIdentityTagInfo" as specified in clause 6.2.2.