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# Mobile Edge Computing (MEC);
# Mobile Edge Management;
# Part 1: System, host and platform management

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# Contents


Intellectual Property Rights ..... 5
Foreword ..... 5
Modal verbs terminology ..... 5
1 Scope ..... 6
2 References ..... 6
2.1 Normative references ..... 6
2.2 Informative references ..... 7
3 Definitions and abbreviations ..... 7
3.1 Definitions ..... 7
3.2 Abbreviations ..... 7
4 Overview ..... 8
5 Specification level requirements ..... 8
5.1 Requirements ..... 8
5.1.1 Requirements for reference point Mm2 ..... 8
5.1.1.1 Requirements related to the mobile edge host ..... 8
5.1.1.1.1 Configuration Management requirements ..... 8
5.1.1.1.2 Fault Management requirements ..... 8
5.1.1.2 Requirements related to the mobile edge applications ..... 9
5.1.1.2.1 Configuration Management requirements ..... 9
5.1.1.2.2 State Management requirements ..... 9
6 Information flows ..... 9
6.1 Configuration management flows ..... 9
6.1.1 Creation and deletion of managed objects representing application instances ..... 9
6.1.2 Configuration of DNS rules ..... 11
6.1.3 Activation of DNS rules ..... 11
6.1.4 Deactivation of DNS rules ..... 12
6.1.5 Configuration of traffic rules ..... 12
6.1.6 Activation of traffic rules ..... 12
6.1.7 Deactivation of traffic rules ..... 12
6.2 Fault management flows ..... 12
7 Information models and interfaces ..... 12
7.1 Applicable reference points ..... 12
7.2 Information models ..... 13
7.2.1 Mobile edge host information model ..... 13
7.2.1.1 Imported information entities and local labels ..... 13
7.2.1.2 Class diagram ..... 13
7.2.1.2.1 Relationships ..... 13
7.2.1.2.2 Inheritance ..... 15
7.2.1.3 Information Object Class definitions ..... 15
7.2.1.3.1 `CoveredENB` ..... 15
7.2.1.3.2 `ServedENB` ..... 16
7.2.1.3.3 `MobileEdgeHostFunction` ..... 16
7.2.1.3.4 `MobileEdgePlatform` ..... 16
7.2.1.3.5 `MobileEdgeApplication` ..... 17
7.2.1.3.6 `MobileEdgePlatformService` ..... 18
7.2.1.3.7 `MobileEdgeApplicationService` ..... 18
7.2.1.3.8 `RNIService` ..... 18
7.2.1.3.9 `LocationService` ..... 19
7.2.1.3.10 `TrafficRule` ..... 19
7.2.1.3.11 `DNSRule` ..... 20
7.2.1.4 Attribute definitions ..... 20
7.2.1.5 Common notifications ..... 24


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https://standards.iteh.ai/catalog/standards/sist/02b457e4-fa95-4e3e-bb22-2572929950e4/etsi-gs-mec-010-1-v1.1.1-2017-10

7.2.1.5.1 Alarm notifications ..... 24
7.2.1.5.2 Configuration notifications ..... 24
7.3 Interfaces ..... 25
7.3.1 Fault Management interface ..... 25
7.3.2 Configuration Management interface (passive part) ..... 25
7.3.3 Configuration Management interface (active part) ..... 25
8 Data models and interface protocols ..... 25
8.1 Data models ..... 25
8.2 Interface protocols ..... 25
History ..... 26

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# Foreword

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

The present document is part 1 of a multi-part deliverable covering Mobile Edge Management, as identified below:

**Part 1: "System, host and platform management";**

Part 2: "Application lifecycle, rules and requirements management".

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# Modal verbs terminology

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# 1 Scope

The present document defines the management of the mobile edge system, mobile edge hosts and mobile edge platforms. This includes platform configuration, performance and fault management, application monitoring, remote service configuration and service control, information gathering regarding the platform features, available services, and available virtualised resources.

# 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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[1] ETSI TS 132 302: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Configuration Management (CM); Notification Integration Reference Point (IRP); Information Service (IS) (3GPP TS 32.302)".

[2] ETSI TS 132 602: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Configuration Management (CM); Basic CM Integration Reference Point (IRP); Information Service (IS) (3GPP TS 32.602)".

[3] ETSI TS 132 662: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Configuration Management (CM); Kernel CM Information Service (IS) (3GPP TS 32.662)".

[4] ETSI TS 132 111-2: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service (IS) (3GPP TS 32.111-2)".

[5] ETSI TS 132 332: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Notification Log (NL) Integration Reference Point (IRP); Information Service (IS) (3GPP TS 32.332)".

[6] ETSI TS 128 622: "Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS) (3GPP TS 28.622)".

[7] ETSI TS 136 300: "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (3GPP TS 36.300)".

[8] ETSI GS MEC 010-2: "Mobile Edge Computing (MEC); Mobile Edge Management; Part 2: Application lifecycle, rules and requirements management".

[9] ETSI TS 136 413: "LTE; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP) (3GPP TS 36.413)".

[10] ETSI TS 132 103: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Integration Reference Point (IRP) overview and usage guide (3GPP TS 32.103)".

[11] ETSI TS 132 150: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Integration Reference Point (IRP) Concept and definitions (3GPP TS 32.150)".

[12] ETSI TS 132 151: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Integration Reference Point (IRP) Information Service (IS) template (3GPP TS 32.151)".

[13] ETSI TS 132 152: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Integration Reference Point (IRP) Information Service (IS) Unified Modelling Language (UML) repertoire (3GPP TS 32.152)".

[14] ETSI TS 132 153: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Integration Reference Point (IRP) technology specific templates, rules and guidelines (3GPP TS 32.153)".

[15] ETSI TS 132 157: "Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Integration Reference Point (IRP) Information Service (IS) template (3GPP TS 32.157)".

[16] ETSI TS 132 156: "Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Fixed Mobile Convergence (FMC) model repertoire (3GPP TS 32.156)".

[17] ETSI TS 132 300: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Configuration Management (CM); Name convention for Managed Objects (3GPP TS 32.300)".

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

# 3 Definitions and abbreviations

## 3.1 Definitions

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

## 3.2 Abbreviations

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

CM Configuration Management
DN Distinguished Name

| | |
|---|---|
| DNS | Domain Name System |
| FQDN | Fully Qualified Domain Name |
| GS | Group Specification |
| IOC | Information Object Class |
| IP | Internet Protocol |
| IRP | Integration Reference Point |
| IS | Information Service |
| ISG | Industry Specification Group |
| MEC | Mobile Edge Computing |
| MEPM | Mobile Edge Platform Manager |
| NL | Notification Log |
| NM | Network Manager |
| OSS | Operations Support System |
| PLMN | Public Land Mobile Network |
| RAB | Radio Access Bearer |
| UE | User Equipment |
| UMTS | Universal Mobile Telecommunications System |

# 4 Overview

The management interfaces are designed according to the IRP methodology defined in [10], [11], [12], [13], [14], [15] and [16]. Naming conventions for managed object instances are specified in [17].

# 5 Specification level requirements

## 5.1 Requirements

### 5.1.1 Requirements for reference point Mm2

#### 5.1.1.1 Requirements related to the mobile edge host

##### 5.1.1.1.1 Configuration Management requirements

**REQ-MM2-MEH-CM-1:** The Mm2 reference point shall support a capability allowing the OSS to retrieve the information model of the mobile edge host, or parts thereof, from the mobile edge platform manager.

**REQ-MM2-MEH-CM-2:** The Mm2 reference point shall support a capability allowing the mobile edge platform manager to notify changes related to the information model of the mobile edge host to the OSS.

**REQ-MM2-MEH-CM-3:** The Mm2 reference point shall support a capability allowing the OSS to configure the mobile edge host.

**REQ-MM2-MEH-CM-4:** The Mm2 reference point shall support a capability allowing the OSS to configure the DNS rules.

**REQ-MM2-MEH-CM-5:** The Mm2 reference point shall support a capability allowing the OSS to configure the traffic rules.

##### 5.1.1.1.2 Fault Management requirements

**REQ-MM2-MEH-FM-1:** The Mm2 reference point shall support a capability allowing the mobile edge platform manager to send mobile edge platform related alarms to the OSS.

**REQ-MM2-MEH-FM-2:** The Mm2 reference point shall support a capability allowing the OSS to retrieve and manage alarms from the mobile edge platform manager.

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#### 5.1.1.2 Requirements related to the mobile edge applications

##### 5.1.1.2.1 Configuration Management requirements

**REQ-MM2-MEA-CM-1:** The Mm2 reference point shall support a capability allowing the OSS to create managed object instances representing mobile edge application instances in the mobile edge platform manager.

**REQ-MM2-MEA-CM-2:** The Mm2 reference point shall support a capability allowing the OSS to delete managed object instances representing mobile edge application instances in the mobile edge platform manager.

**REQ-MM2-MEA-CM-3**: The Mm2 reference point shall support a capability allowing the OSS to activate and deactivate the DNS rules related to a certain mobile edge application instance.

**REQ-MM2-MEA-CM-4**: The Mm2 reference point shall support a capability allowing the OSS to activate and deactivate the traffic rules related to a certain mobile edge application instance.

**REQ-MM2-MEA-CM-5:** The Mm2 reference point shall support a capability allowing the mobile edge platform manager to notify changes of managed object instances representing mobile edge application instances to the OSS.

**REQ-MM2-MEA-CM-6:** The Mm2 reference point shall support a capability allowing the mobile edge platform manager to notify object creation and deletion events of managed object instances representing mobile edge application instances to the OSS.

NOTE: The configuration management of the application functionality as such is out of scope.

##### 5.1.1.2.2 State Management requirements

**REQ-MM2-MEA-SM-1:** The Mm2 reference point shall support a capability allowing the mobile edge platform manager to expose the operational state of instantiated mobile edge applications to the OSS.

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# 6 Information flows

## 6.1 Configuration management flows

### 6.1.1 Creation and deletion of managed objects representing application instances

There are two ways for the creation and deletion of managed objects representing application instances:

1) The managed object instances representing on Mm2 application instances are created and deleted automatically by the MEPM. MEPM sends automatically object creation/deletion notifications to the OSS carrying the application instance identifier.

2) The managed object instances representing on Mm2 application instances are created and deleted by the OSS.

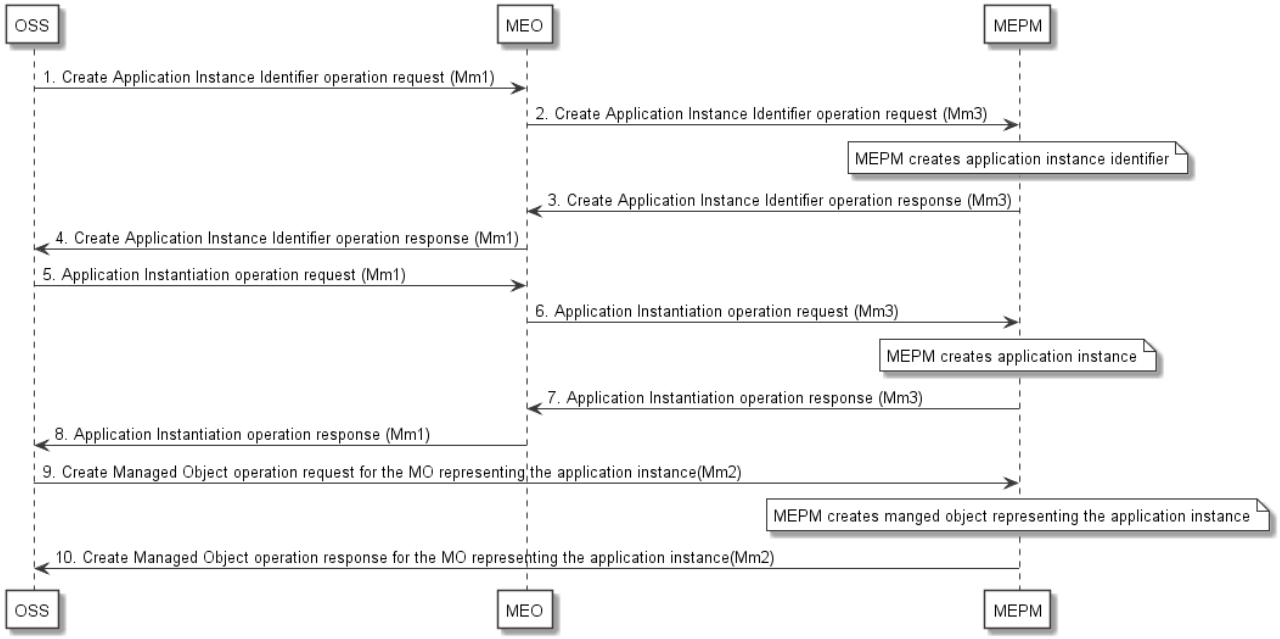


**Figure 6.1.1-1: Managed object creation by the OSS flow**

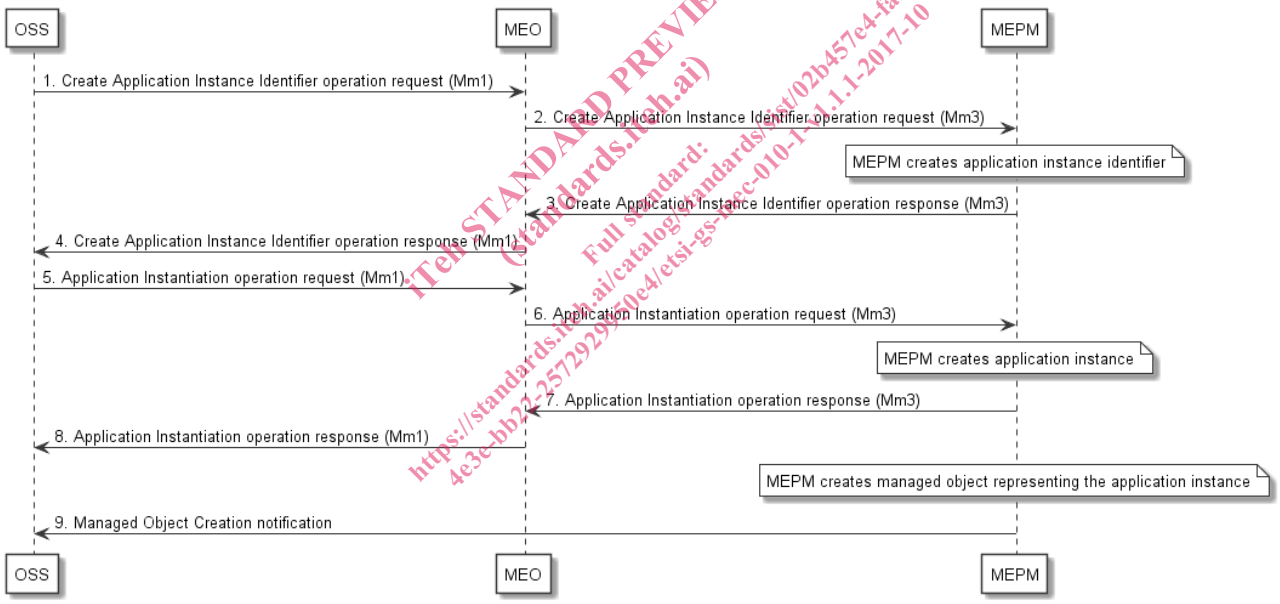


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**Figure 6.1.1-2: Managed object creation by the MEPM flow**