



GROUP SPECIFICATION

## **Mobile Edge Computing (MEC); Mobile Edge Platform Application Enablement**

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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).

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## Modal verbs terminology

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# 1 Scope

The present document focuses on the Mp1 reference point between mobile edge applications and mobile edge platform, which allows these applications to interact with the mobile edge system. Service related functionality includes registration, discovery, and event notifications. Other functionality includes application availability, traffic rules and DNS, and time of day. It describes the information flows, required information, and specifies the necessary operations, data model and API definition.

---

## 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.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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 003: "Mobile Edge Computing (MEC) Framework and reference architecture".
- [4] ETSI GS MEC 010-2: "Mobile Edge Computing (MEC); Application lifecycle, rules and requirements management".
- [5] ETSI GS MEC 009: "Mobile Edge Computing (MEC); General principles for Mobile Edge Service APIs".
- [6] IETF RFC 2818: "HTTP Over TLS".  
NOTE: Available at <https://tools.ietf.org/html/rfc2818>.
- [7] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".  
NOTE: Available at <https://tools.ietf.org/html/rfc5246>.
- [8] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".  
NOTE: Available at <https://tools.ietf.org/html/rfc3986>.
- [9] IETF RFC 7159: "The JavaScript Object Notation (JSON) Data Interchange Format".  
NOTE: Available at <https://tools.ietf.org/html/rfc7159>.
- [10] Extensible Markup Language (XML) 1.1 (Second Edition), W3C Recommendation 16 August 2006, edited in place 29 September 2006.  
NOTE: Available at <https://www.w3.org/TR/xml11/>.
- [11] IETF RFC 7230: "HTTP/1.1 Message Syntax and Routing".  
NOTE: Available at <https://tools.ietf.org/html/rfc7230>.

[12] IETF RFC 6455: "The WebSocket Protocol".

NOTE: Available at <https://tools.ietf.org/html/rfc6455>.

[13] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

NOTE: Available at <https://tools.ietf.org/html/rfc6749>.

[14] IETF RFC 6750: "The OAuth 2.0 Authorization Framework: Bearer Token Usage".

NOTE: Available at <https://tools.ietf.org/html/rfc6750>.

## 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.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[i.2] IEEE 1588™ (Version 2): "IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems".

[i.3] Protocol buffers, version 3.

NOTE: Available at <https://developers.google.com/protocol-buffers/docs/proto3>.

[i.4] MQTT Version 3.1.1, OASIS Standard, 29 October 2014.

NOTE: Available at <http://docs.oasis-open.org/mqtt/mqtt/v3.1.1/os/mqtt-v3.1.1-os.html>.

[i.5] GRPC™.

NOTE: Available at <http://www.grpc.io/>.

[i.6] OpenAPI Specification.

NOTE 1: Available at <https://github.com/OAI/OpenAPI-Specification>.

NOTE 2: OpenAPI Specification version 2.0 is recommended as it is the official release at the time of publication.

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## 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
DSCP	Differentiated Services Code Point
FQDN	Fully Qualified Domain Name
GRE	Generic Routing Encapsulation



GTP	GPRS Tunnelling Protocol
HTTP	HyperText Transfer Protocol
IETF	Internet Engineering Task Force
JSON	Javascript Object Notation
MAC	Media Access Control
MEPM	Mobile Edge Platform Manager
MQTT	Message Queue Telemetry Transport
NTP	Network Time Protocol
PTP	Precision Time Protocol
QCI	Quality Class Indicator
REST	Representational State Transfer
RFC	Request For Comments
RNI	Radio Network Information
RPC	Remote Procedure Call
TC	Traffic Class
TLS	Transport Layer Security
TOD	Time of Day
URI	Uniform Resource Indicator
UTC	Coordinated Universal Time
XML	eXtensible Markup Language

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## 4 Overview

The present document specifies the Mobile Edge Platform Application Enablement API to support the requirements defined for Mobile Edge Computing in ETSI GS MEC 002 [2].

Clause 5 introduces the Mp1 reference point between mobile edge applications and mobile edge platform. It provides the high level information flows and describes the necessary operations.

The information that may be exchanged over the Application Enablement API is described in clause 6 which provides detailed description on all attributes that are used.

Clause 7 describes the actual Application Enablement API providing detailed information on how the attributes are mapped into a RESTful API design.

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## 5 Description of the services (informative)

### 5.1 Introduction

The mobile edge platform, as defined in ETSI GS MEC 003 [3], offers an environment where mobile edge applications may discover, advertise, consume and offer mobile edge services. Upon receipt of update, activation or deactivation of traffic rules from the mobile edge platform manager, applications or services, the mobile edge platform instructs the data plane accordingly. The mobile edge platform also receives DNS records from the mobile edge platform manager and uses them to configure a DNS proxy/server.

Via Mp1 reference point between the mobile edge platform and the mobile edge applications, as defined in ETSI GS MEC 003 [3], the basic functions are enabled, such as:

- mobile edge service assistance:
  - authentication and authorization of producing and consuming mobile edge services;
  - a means for service producing mobile edge applications to register towards the mobile edge platform the mobile edge services they provide, and to update the mobile edge platform about changes of the mobile edge service availability;
  - a means to notify the changes of the mobile edge service availability to the relevant mobile edge application;

- discovery of available mobile edge services;
- mobile edge application assistance:
  - mobile edge application start-up procedure;
  - mobile edge application graceful termination/stop;
- traffic routing:
  - traffic rules update, activation and deactivation;
- DNS rules:
  - DNS rules activation and deactivation;
- timing:
  - providing access to time of day information;
- transport information:
  - providing information about available transports.

## 5.2 Sequence diagrams

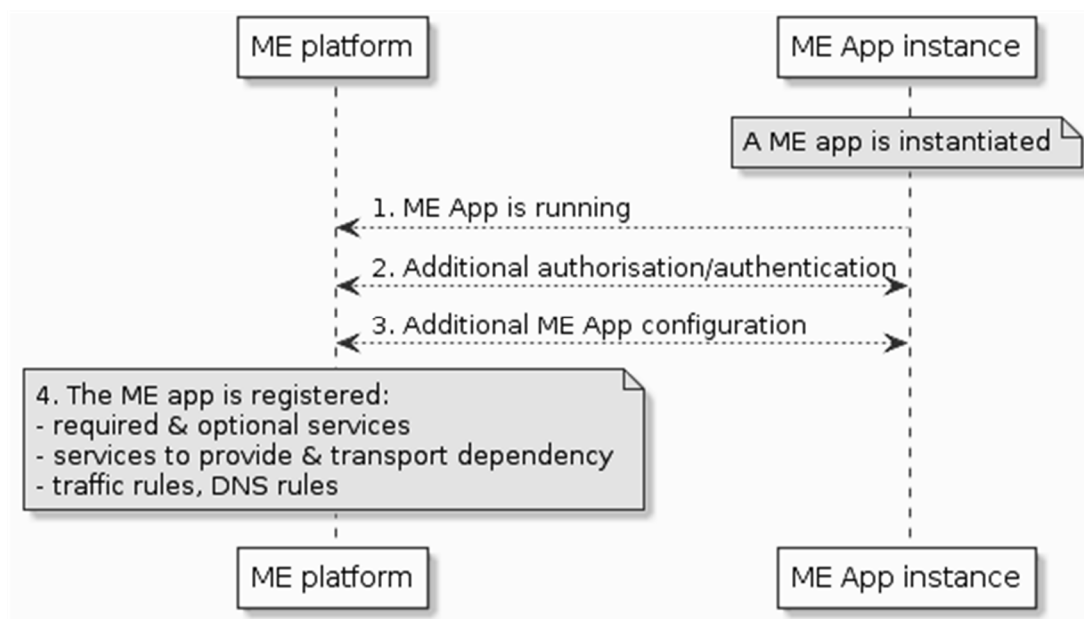
### 5.2.1 General

Clauses 5.2.2 to 5.2.10 describe how mobile edge applications may be supported by the mobile edge platform via Mp1 reference point. The related sequence diagrams are presented.

### 5.2.2 Mobile edge application start-up

Figure 5.2.2-1 shows a scenario where after a mobile edge application is instantiated the mobile edge platform configures the mobile edge application and registers it internally. The related information about this mobile edge application instance is then stored in the mobile edge platform, including the required and the optional services, the services to be offered by this application instance and the associated transport dependency, the traffic rules and DNS rules associated with this application instance, etc. Additional authorization and authentication of the mobile edge application instance may take place based on operator's policies and/or 3<sup>rd</sup> party service providers' requirements. For example, the 3<sup>rd</sup> party service provider may need to be sure that the app is running on a legitimate/permitted host in a correct physical territory (e.g. for video content copyright issues).

NOTE 1: This procedure applies to the mobile edge application that either producing mobile edge services, or consuming mobile edge services, or both.



**Figure 5.2.2-1: Flow of Mobile Edge application start up**

Mobile edge application start up procedure, following the mobile edge application instantiation procedure (as defined in ETSI GS MEC 010-2 [4]), consists of the following steps:

- 1) After instantiation, the mobile edge application instance informs the mobile edge platform that it is up-running. This step is not to be further specified in the present document.

NOTE 2: It is out of scope how an APP instance discovers a ME platform. In practise, this may be statically configured or dynamically discovered via e.g. DNS.

- 2) When required, the mobile edge platform provide necessary information to authorize and authenticate this application instance based on operator's policies and/or 3<sup>rd</sup> party service providers' requirements. This step is not to be further specified in the present document.

NOTE 3: As an example, when additional authorization and authentication of the ME application is required by the 3<sup>rd</sup> party service provider, the needed information may be provided via Mp1 from the ME platform to the ME application.

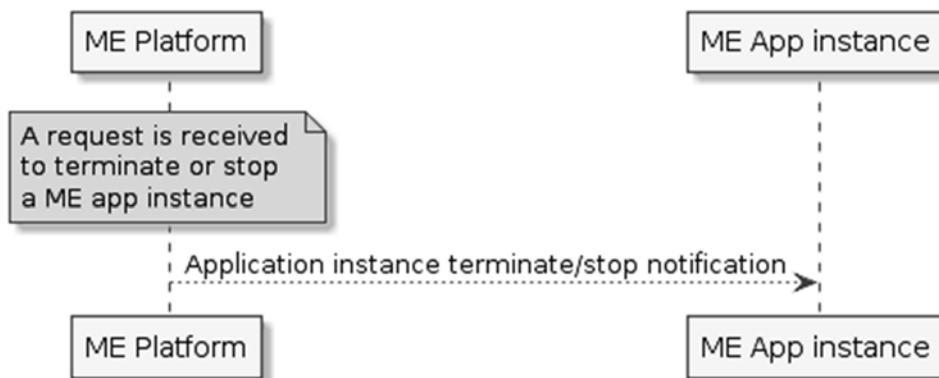
- 3) It is assumed that the mobile edge system pre-configures (not through Mp1) the mobile edge application instance with necessary parameters, for example:
  - the information needed to access the required services;
  - the availability of the optional services;
  - the information needed to access the available optional services.

The additional procedures via Mp1 that are related to this step include, when required, "Traffic rule activation/deactivation/update" as defined in clause 5.2.7, and "DNS rule activation/deactivation" as defined in clause 5.2.8. And the mobile edge application instance may update the mobile edge platform with the information about the available produced mobile edge services as defined in clause 5.2.4.

- 4) Mobile edge platform then registers this application instance internally with related information including the required and optional services, the services to be offered by this application instance and the associated transport dependency, the traffic rules and DNS rules associated with this application instance, etc. This step is not to be further specified in the present document.

### 5.2.3 Mobile edge application graceful termination/stop

Figure 5.2.3-1 shows a flow for mobile edge application graceful termination/stop (as defined in ETSI GS MEC 010-2 [4]). After the mobile edge platform receives a request to terminate or stop a mobile edge application instance the mobile edge platform notifies the mobile edge application instance that it will be terminated or stopped soon if graceful termination/stop is required. The mobile edge platform may also indicate to the mobile edge application instance the length of a time interval during which the application may perform application-specific termination/stop. When the timer expires, the mobile edge platform continues the termination flow of the mobile edge application instance or stop application instance flow by, e.g. deactivating the traffic rules and DNS rules, removing the application instance from the list of instances to be notified about service availability, removing the services provided by the application instance from the service registry, sending service availability notification to the mobile edge applications that consumes the services produced by the terminating mobile edge application instance, etc.



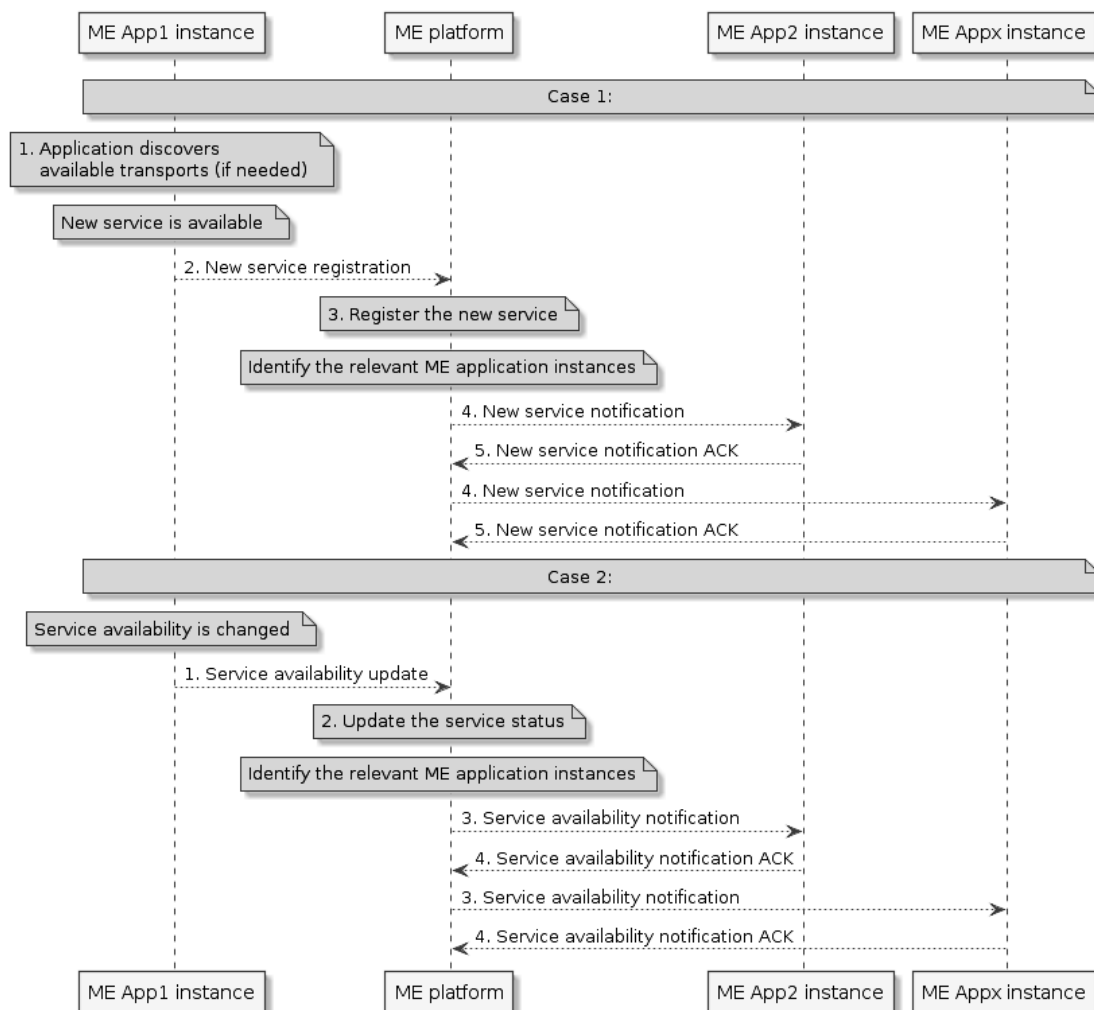
**Figure 5.2.3-1: Flow of Mobile Edge application graceful termination/stop**

### 5.2.4 Service availability update and new service registration

When a mobile edge service is registered by the service producing mobile edge application, the authorized relevant applications (e.g. the applications that indicate the service as "optional" or "required") will be notified about the newly available service. Moreover, the authorized relevant applications will also be notified about the service availability changes of that service.

Figure 5.2.4-1 shows two cases. In the 1<sup>st</sup> case a mobile edge application instance informs the mobile edge platform that the service(s) provided by this application instance become available for the first time (service registration); and then the mobile edge platform notifies the authorized relevant application instances (e.g. the applications that indicate the service(s) as "optional" or "required") about the newly available service(s). As part of service registration, the relevant information about the service is provided to the platform, and the service is bound to a transport that is either provided by the mobile edge platform, or by the application itself.

In the 2<sup>nd</sup> case the service producing mobile edge application instance updates the mobile edge platform about the status change of the produced mobile edge services; and the mobile edge platform notify the authorized relevant application instances about the service availability changes.



**Figure 5.2.4-1: Flow of new service registration and service availability update**

In the 1<sup>st</sup> case the new service registration procedure consists of the following steps:

- 1) If the application intends to use a transport that is provided by the mobile edge platform, it discovers the available transports first, and selects one (or more) for use with the new service.
- 2) After a new mobile edge service becomes available, the service producing mobile edge application instance sends new service registration message to the mobile edge platform.
- 3) Mobile edge platform registers the new service with the service registry. This step is not to be further specified.
- 4) Mobile edge platform then identifies the relevant mobile edge application instance for this update (e.g. the applications that indicate the service as "optional" or "required"), and sends new service notifications to the relevant application instances.
- 5) The mobile edge application instances, optionally, acknowledge the notification.

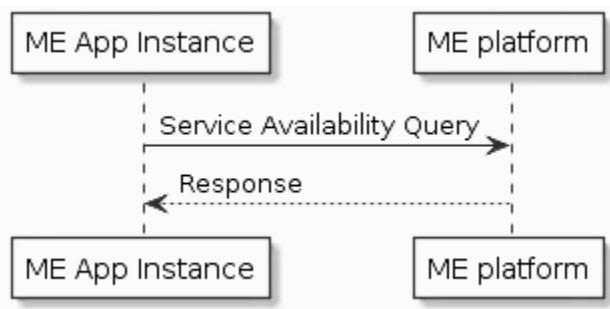
In the 2<sup>nd</sup> case mobile edge service availability update procedure consists of the following steps:

- 1) When a mobile edge service changes its availability, the service producing mobile edge application instance sends service availability update message to the mobile edge platform.
- 2) Mobile edge platform updates the service registry. This step is not to be further specified.
- 3) Mobile edge platform then identifies the relevant mobile edge application instance for this update (e.g. the applications that indicate the service as "optional" or "required"), and sends service availability notifications to the relevant application instances.

- 4) The mobile edge application instances, optionally, acknowledge the notification.

## 5.2.5 Service availability query

Figure 5.2.5-1 shows a scenario where a mobile edge application instance sends a request to receive information on the availability of a mobile edge service or a list of mobile edge services. Typically a mobile edge application may only query about the mobile edge service(s) that it has indicated as "optional" or "required".



**Figure 5.2.5-1: Flow of Mobile Edge application requesting service availability information**

Mobile edge application requesting service availability information, as illustrated in figure 5.2.5-1, consists of the following steps:

- 1) Mobile edge application instance sends a request to query the availability of a mobile edge service or a list of mobile edge services. Typically a mobile edge application instance may only query about the mobile edge service(s) that it has indicated as "optional" or "required".
- 2) Mobile edge platform responds with the message body containing the information about the available service(s), including the information needed to access the available service(s). Note that the service availability information is updated by the service producing mobile edge application instances to the mobile edge platform.

## 5.2.6 Service availability notification subscription

### 5.2.6.1 Introduction

A subscription is required for a service availability notification that is sent from the mobile edge platform in the following two cases as described in clause 5.2.4:

- When a mobile edge service is made available by the service producing mobile edge application, the authorized relevant applications (e.g. the applications that indicate the services as "optional" or "required") will be notified about the newly available service.
- The authorized relevant applications will also be notified about the service availability changes.

This clause describes the sequence diagram of two related procedures:

- Subscribing to service availability event notifications.
- Unsubscribing from service availability event notifications.

### 5.2.6.2 Subscribing to service availability event notifications

Figure 5.2.6.2-1 shows the message flow for subscribing to service availability event notifications.



**Figure 5.2.6.2-1: Flow of Subscribing to service availability event notifications**

Mobile edge application requesting service availability event notifications subscription consists of the following steps:

- 1) Mobile edge application instance sends a request to subscribe to the availability event notifications of a mobile edge service or a list of mobile edge services. Typically a mobile edge application instance may only subscribe to availability event notifications of the mobile edge service(s) that it has indicated as "optional" or "required".
- 2) Mobile edge platform responds with the message body containing the created subscription to the service availability event notifications.

### 5.2.6.3 Unsubscribing from service availability event notifications

Figure 5.2.6.3-1 shows the message flow for unsubscribing from service availability event notifications.



**Figure 5.2.6.3-1: Flow of unsubscribing from service availability event notifications**

Mobile edge application requesting to unsubscribe from the service availability event notifications consists of the following steps:

- 1) Mobile edge application instance sends a request to unsubscribe from the availability event notifications of a mobile edge service or a list of mobile edge services.
- 2) Mobile edge platform responds with an acknowledgement.

## 5.2.7 Traffic rule activation/deactivation/update

Figure 5.2.7-1 shows a flow for traffic rule activation, deactivation, and update. The mobile edge application instance may request the mobile edge platform to activate or deactivate a traffic rule(s). The mobile edge application instance may request the mobile edge platform to update the parameters of an existing traffic rule(s).



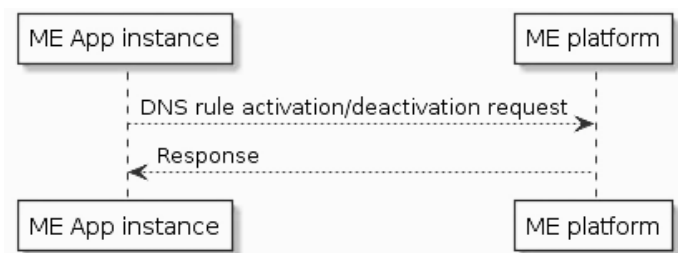
**Figure 5.2.7-1: Flow of traffic rule activation/deactivation/update**

Traffic rule activation/deactivation/update flow consists of the following steps:

- 1) The mobile edge application instance sends traffic rule activation/deactivation/update request to the mobile edge platform. The message identifies one or multiple traffic rules that will be activated, deactivated, or updated. If the request is authorized, the mobile edge platform may update the data plane via Mp2 reference point, which is out of the scope of the present document.
- 2) The mobile edge platform sends response to the mobile edge application instance to indicate the results of the operation.

## 5.2.8 DNS rule activation/deactivation

Figure 5.2.8-1 shows a DNS rule activation/deactivation flow. The mobile edge application instance may request the mobile edge platform to activate or deactivate a DNS rule(s). If the request is authorized and the mobile edge platform succeeds in finding, based on the information contained in the request, the corresponding DNS rule(s) that have been pre-configured and authenticated by the mobile edge management, the mobile edge platform will install or remove the DNS rule(s) into or from the DNS server/proxy.



**Figure 5.2.8-1: Flow of DNS rule activation/deactivation**

DNS activation/deactivation flow consists of the following steps:

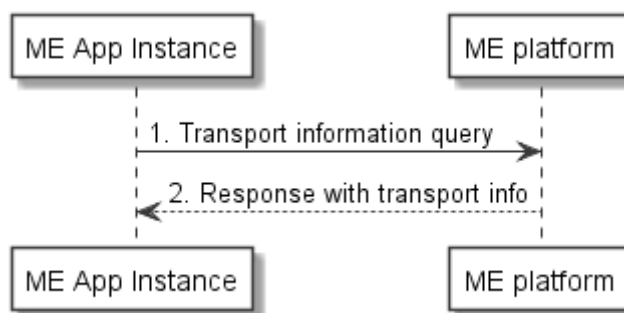
- 1) The mobile edge application instance sends DNS activation/deactivation request to the mobile edge platform. The request includes the DNS rule(s) to be activated or deactivated. If the request is authorized and the mobile edge platform succeeds in finding, based on the information contained in the request, the corresponding DNS rule(s) that have been pre-configured and authenticated by the mobile edge management, the platform will install or remove the DNS rule(s) from the DNS server/proxy.
- 2) The mobile edge platform sends response to the mobile edge application instance. The response contains the result (success or failure) of the DNS rule activation/deactivation.

## 5.2.9 Transport information query

Providing a mobile edge service implies the use of a transport to deliver it to the mobile edge applications that consume it. Examples of transports are REST-HTTP, and message passing systems that support the Publish-Subscribe mode for the communication between mobile edge application instances and the mobile edge platform, or between mobile edge application instances. Any transport other than REST-HTTP is not further specified in the present document. However, transport information query provides a standardized means to the applications to discover the available transports.

Figure 5.2.9-1 shows a scenario where the mobile edge application instance sends a request to receive information on available transports.





**Figure 5.2.9-1: Flow of Mobile Edge application requesting transport information**

Mobile edge application instance requesting transport information, as illustrated in figure 5.2.9-1, consists of the following steps:

- 1) Mobile edge application instance sends a request to query the information about transports provided by the platform.
- 2) Mobile edge platform responds with the message body containing the transports information.

## 5.2.10 Time of Day (TOD)

### 5.2.10.1 Introduction

Mobile edge applications may require TOD information for notifications, logs and special events time notions, packets receipt and transmit timestamping and other needs depending on application purpose.

Required TOD accuracy strongly depends on the application itself. Low accuracy TOD information may be provided to the application by use of simple procedure of current time retrieval from the platform. Higher TOD accuracy may be achieved by use of special protocols that allows timing transfer over packet networks, such as NTP specified in IETF RFC 5905 [i.1] or PTP specified in IEEE 1588™ [i.2]. In case of use of packet timing protocols it is assumed that a mobile edge application will run NTP client or PTP slave while the NTP server(s) or PTP master(s) may run either by the mobile edge platform itself or by other facilities for which the application has network connectivity.

This clause specifies two TOD related information exchange flows:

- "Get platform time" flow to get mobile edge platform current time of day.
- Optional "Timing capabilities query" flow to retrieve information regarding available packet timing facilities.

### 5.2.10.2 Get platform time

Figure 5.2.10.2-1 shows the flow for getting platform time.



**Figure 5.2.10.2-1: Flow of Mobile Edge application requesting platform time**

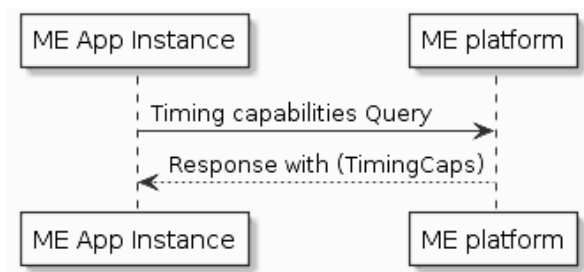
Get platform time flow consists of the following steps:

- 1) The mobile edge application instance sends the get platform time request to the mobile edge platform;

- 2) Mobile edge platform responds with the message body containing CurrentTime.

### 5.2.10.3 Timing capabilities query flow

Figure 5.2.10.3-1 shows a flow for timing capabilities query.



**Figure 5.2.10.3-1: Flow of timing capabilities query**

Timing capabilities query flow consists of the following steps:

- 1) The mobile edge application instance sends the timing capabilities query request to the mobile edge platform.
- 2) Mobile edge platform responds with the message body containing TimingCaps.

## 6 Data model

### 6.1 Introduction

Clauses 6.2 to 6.6 specify the data types that are used to implement the functions enabled via Mp1 reference point, for which the relevant sequence diagrams are described in clause 5.2.

### 6.2 Resource data types

#### 6.2.1 Introduction

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

#### 6.2.2 Type: ServiceInfo

This type represents the general information of a mobile edge service.

The attributes of the ServiceInfo shall follow the indications provided in table 6.2.2-1.

Table 6.2.2-1: Attributes of ServiceInfo

Attribute name	Data type	Cardinality	Description
serInstanceid	String	0..1	Identifier of the service instance assigned by the MEPM/mobile edge platform. Shall be absent in POST requests, and present otherwise.
serName	String	1	The name of the service. This is how the service producing mobile edge application identifies the service instance it produces.
serCategory	CategoryRef	0..1	A Category reference. (The category resource is used to group product offerings, service and resource candidates in logical containers. Categories may contain other categories and/or product offerings, resource or service candidates.) (see note 1) For the serCategory, the example values include: 1. "RNI" 2. "Location" 3. "Bandwidth Management"
version	String	1	The version of the service.
state	Enum (inlined)	1	Contains the service state: ACTIVE, INACTIVE.
transportId	String	0..1	Identifier of the platform-provided transport to be used by the service. Valid identifiers may be obtained using the "Transport information query" procedure. May be present in POST requests to signal the use of a platform-provided transport for the service, and shall be absent otherwise. See note 2.
transportInfo	TransportInfo	0..1	Information regarding the transport used by the service. May be present in POST requests to signal the use of an application-provided transport for the service, and shall be present otherwise. See note 2.
serializer	SerializerTypes	1	Indicate the supported serialization format of the service.
NOTE 1: The service category may be included in the application descriptor. It may be allocated by the operator or by the application developer.			
NOTE 2: Either transportId or transportInfo but not both shall be present in POST requests.			

### 6.2.3 Type: TransportInfo

This type represents the transport information. The attributes of the TransportInfo type shall follow the indications provided in table 6.2.3-1.

Table 6.2.3-1: Attributes of TransportInfo

Attribute name	Data type	Cardinality	Description
id	String	1	The identifier of this transport.
name	String	1	The name of this transport.
description	String	0..1	Human-readable description of this transport.
type	TransportTypes	1	Type of the transport.
protocol	String	1	The name of the protocol used. Shall be set to "HTTP" for a REST API.
version	String	1	The version of the protocol used.
endpoint	EndPointInfo	1	Information about the endpoint to access the transport.
security	SecurityInfo	1	Information about the security used by the transport.
implSpecificInfo	Not specified	0..1	Additional implementation specific details of the transport.

### 6.2.4 Type: TrafficRule

This type represents the general information of a traffic rule.

The attributes of the TrafficRule shall follow the indications provided in table 6.2.4-1.

**Table 6.2.4-1: Attributes of TrafficRule**

Attribute name	Data type	Cardinality	Description
trafficRuleId	String	1	Identify the traffic rule.
filterType	Enum (inlined)	1	Definition of filter per FLOW or PACKET. If flow the filter match UE->EPC packet and the reverse packet is handled in the same context.
priority	Int	1	Priority of this traffic rule. If traffic rule conflicts, the one with higher priority take precedence.
trafficFilter	TrafficFilter	1..N	The filter used to identify specific packets that need to be handled by the ME host.
action	Enum (inlined)	1	The action of the ME host data plane when a packet matches the trafficFilter, the example actions includes: DROP, FORWARD_DECAPSULATED, FORWARD_AS_IS, PASSTHROUGH, DUPLICATE_DECAPSULATED, DUPLICATE_AS_IS, etc.
dstInterface	Interface	0..1	Describes the destination interface information if the action is FORWARD. Some applications (like inline/tap) require two interfaces. The first is on the UE side and the second on the EPC side.
state	Enum (inlined)	1	Contains the traffic rule state: ACTIVE, INACTIVE. This attribute may be updated using HTTP PUT method.

## 6.2.5 Type: DnsRule

This type represents the general information of a DNS rule.

The attributes of the DnsRule shall follow the indications provided in table 6.2.5-1.

**Table 6.2.5-1: Attributes of DnsRule**

Attribute name	Data type	Cardinality	Description
dnsRuleId	String	1	Identifies the DNS Rule
domainName	String	1	FQDN resolved by the DNS rule
ipAddressType	Enum (inlined)	1	Specify the IP address type, value: IP_V6, IP_V4
ipAddress	String	1	IP address associated with the FQDN resolved by the DNS rule
tll	Int	0..1	Time to live value
state	Enum (inlined)	1	Contains the DNS rule state: ACTIVE, INACTIVE

## 6.2.6 Type: TimingCaps

This type represents the information provided by the mobile edge platform in response to the "Timing capabilities Query" message.

The attributes of the TimingCaps shall follow the indications provided in table 6.2.6-1.

Table 6.2.6-1: Attributes of TimingCaps

Attribute name	Data type	Cardinality	Description
timeStamp	Structure (inlined)	0..1	
>seconds	Uint32	1	The seconds part of the Time. Time is defined as Unix-time since January 1, 1970, 00:00:00 UTC
>nanoSeconds	Uint32	1	The nanoseconds part of the Time. Time is defined as Unix-time since January 1, 1970, 00:00:00 UTC
ntpServers	Structure (inlined)	0..N	Number of available NTP servers
>ntpServerAddrType	Enum (inlined)	1	Address type of NTP server with the following permitted values: <ul style="list-style-type: none"> <li>• IP_ADDRESS</li> <li>• DNS_NAME</li> </ul>
>ntpServerAddr	String64	1	NTP server address
>minPollingInterval	Uint32	1	Minimum poll interval for NTP messages, in seconds as a power of two Range: 3...17
>maxPollingInterval	Uint32	1	Maximum poll interval for NTP messages, in seconds as a power of two Range: 3...17
>localPriority	Uint32	1	NTP server local priority
>authenticationOption	Enum (inlined)	1	NTP authentication option with the following permitted values: <ul style="list-style-type: none"> <li>• NONE</li> <li>• SYMMETRIC_KEY</li> <li>• AUTO_KEY</li> </ul>
>authenticationKeyNum	Uint32	1	Authentication key number. This configuration is valid if selected authenticationOption is SymmetricKey
ptpMasters	Structure (inlined)	0..N	Number of available PTP Masters
>ptpMasterIpAddress	String64	1	PTP Master IP Address
>ptpMasterLocalPriority	Uint32	1	PTP Master local priority
>delayReqMaxRate	Uint32	1	Acceptable maximum rate of the Delay_Req messages in packets per second

## 6.2.7 Type: CurrentTime

This type represents the information provided by the mobile edge platform in response to the "Get Platform Time Request" message.

The attributes of the CurrentTime shall follow the indications provided in table 6.2.7-1.

Table 6.2.7-1: Attributes of CurrentTime

Attribute name	Data type	Cardinality	Description
seconds	Uint32	1	The seconds part of the Time. Time is defined as Unix-time since January 1, 1970, 00:00:00 UTC
nanoSeconds	Uint32	1	The nanoseconds part of the Time. Time is defined as Unix-time since January 1, 1970, 00:00:00 UTC
timeSourceStatus	Enum (inlined)	1	Platform Time Source status with the following permitted values: <ul style="list-style-type: none"> <li>• TRACEABLE - time source is locked to the UTC time source</li> <li>• NONTRACEABLE - time source is not locked to the UTC time source</li> </ul>

## 6.3 Subscription data types

### 6.3.1 Introduction

This clause defines data structures that define criteria to be used in subscriptions.

### 6.3.2 Type: SerAvailabilityNotificationSubscription

This type represents a subscription to the notifications from the mobile edge platform regarding the availability of a mobile edge service or a list of mobile edge services.

The attributes of the SerAvailabilityNotificationSubscription shall follow the indications provided in table 6.3.2-1.

**Table 6.3.2-1: Attributes of SerAvailabilityNotificationSubscription**

Attribute name	Data type	Cardinality	Description
subscriptionType	String	1	Shall be set to "SerAvailabilityNotificationSubscription".
callbackReference	URI	1	URI selected by the mobile edge application instance to receive notifications on the subscribed mobile edge service availability information. This shall be included in both the request and the response.
_links	Structure (inlined)	0..1	List of hyperlinks related to the resource. This shall only be included in the HTTP responses.
>self	LinkType	1	Self-referring URI.
filteringCriteria	ServiceInfo	1	The filtering criteria for the subscribed events. It may be "serInstanceld", "serName", "serCategory", "state" or the combination of these attributes defined in "ServiceInfo".

### 6.3.3 Type: AppTerminationNotificationSubscription

This type represents a subscription to the notifications from the mobile edge platform related to mobile edge application instance termination/stop.

The attributes of the AppTerminationNotificationSubscription shall follow the indications provided in table 6.3.3-1.

**Table 6.3.3-1: Attributes of AppTerminationNotificationSubscription**

Attribute name	Data type	Cardinality	Description
subscriptionType	String	1	Shall be set to "AppTerminationNotificationSubscription".
callbackReference	URI	1	URI selected by the mobile edge application instance to receive notifications on the subscribed mobile edge application instance management information. This shall be included in both the request and the response.
_links	Structure (inlined)	0..1	List of hyperlinks related to the resource. This shall only be included in the HTTP responses.
>self	LinkType	1	Self-referring URI.
applInstanceld	String	1	It is used as the filtering criterion for the subscribed events.

### 6.3.4 Type: Mp1SubscriptionLinkList

This type represents a list of links related to currently existing subscriptions for a mobile edge application instance. This information is returned when sending a request to receive current subscriptions.

**Table 6.3.4-1: Attributes of the Mp1SubscriptionLinkList**

Attribute name	Data type	Cardinality	Description
links	Structure (inlined)	1	List of hyperlinks related to the resource.
>self	LinkType	1	Self-referring URI.
>subscription	Structure (inlined)	0..N	A link to a subscription.
>>href	URI	1	The URI referring to the subscription.
>>rel	String	1	Type of subscription. The values are as defined in the "subscriptionType" attribute for each different Mp1 event subscription data type.

## 6.4 Notification data types

### 6.4.1 Introduction

This clause defines data structures that define notifications.

### 6.4.2 Type: ServiceAvailabilityNotification

This type represents the service availability information that is used in the following cases:

- when the mobile edge platform announces the newly available services to the authorized relevant mobile edge applications (e.g. the applications that indicate the services as "optional" or "required") that are subscribed to the corresponding service availability notifications;
- when the mobile edge platform notifies the authorized relevant applications that are subscribed to the corresponding service availability notifications about the service availability changes.

The attributes of the ServiceAvailabilityNotification shall follow the indications provided in table 6.4.2-1.

**Table 6.4.2-1: Attributes of ServiceAvailabilityNotification**

Attribute name	Data type	Cardinality	Description
notificationType	String	1	Shall be set to "SerAvailabilityNotification".
services	ServiceInfo	1..N	This is the information about the services whose availability has changed.
_links	Structure (inlined)	1	List of hyperlinks related to the resource.
>subscription	LinkType	1	A link to the related subscription.

### 6.4.3 Type: AppTerminationNotification

This type represents the information that the mobile edge platform notifies the subscribed application instance about the corresponding application instance termination/stop.

The attributes of the AppTerminationNotification shall follow the indications provided in table 6.4.3-1.

**Table 6.4.3-1: Attributes of AppTerminationNotification**

Attribute name	Data type	Cardinality	Description
notificationType	String	1	Shall be set to "AppTerminationNotification".
maxGracefulTimeout	Uint32	1	Maximum timeout value in seconds for graceful termination or graceful stop of an application instance.
_links	Structure (inlined)	1	List of hyperlinks related to the resource.
>subscription	LinkType	1	A link to the related subscription.

## 6.5 Referenced structured data types

### 6.5.1 Introduction

This clause defines data structures that may be referenced from data structures defined in clauses 6.2 to 6.4, but may neither be resource representations nor notifications.

### 6.5.2 Type: CategoryRef

This type represents the category reference.

The attributes of the CategoryRef shall follow the indications provided in table 6.5.2-1.

**Table 6.5.2-1: Attributes of CategoryRef**

Attribute name	Data type	Cardinality	Description
href	String	1	Reference of the catalogue.
id	String	1	Unique identifier of the category.
name	String	1	Name of the category.
version	String	1	Category version.

### 6.5.3 Type: EndPointInfo

This type represents information about a transport endpoint. The attributes of the EndPointInfo shall follow the indications provided in table 6.5.3-1.

**Table 6.5.3-1: Attributes of EndPointInfo**

Attribute name	Data type	Cardinality	Description
uris	String	0..N	Entry point information of the service as string, formatted according to URI syntax (see IETF RFC 3986 [8]). Shall be used for REST APIs. See note.
addresses	Structure (inlined)	0..N	Entry point information of the service as one or more pairs of IP address and port. See note.
>host	String	1	Host portion of the address.
>port	Int	1	Port portion of the address.
alternative	Not specified	0..1	Entry point information of the service in a format defined by an implementation, or in an external specification. See note.
NOTE: Exactly one of "uris", "addresses" or "alternative" shall be present.			

### 6.5.4 Type: SecurityInfo

This type represents security information related to a transport.

In the present document, only security information for the client credentials grant type of OAuth 2.0 is specified. All parameters related to OAuth 2.0, including additional attributes that might need to be added when more grant types are supported in the future, shall be contained in the "oAuth2Info" structure. For the support of the OAuth 2.0 client credentials grant type, the attributes of the "oAuth2Info" attribute of the SecurityInfo shall follow the indications provided in table 6.5.4-1.

NOTE: For the use of alternative transport mechanisms by implementations, or for their specification in future versions of the present document, it is foreseen that the "SecurityInfo" structure may contain additional attributes that allow the mobile edge application to discover the applicable security-related parameters of these mechanisms.



Table 6.5.4-1: Attributes of SecurityInfo

Attribute name	Data type	Cardinality	Description
oAuth2Info	Structure (inlined)	0..1	Parameters related to use of OAuth 2.0. Shall be present in case OAuth 2.0 (see IETF RFC 6749 [13]) is supported to secure the provision of the service over the transport.
>grantTypes	Enum (inlined)	1..4	<p>List of supported OAuth 2.0 grant types.</p> <p>Each entry shall be one of the following permitted values:</p> <ul style="list-style-type: none"> <li>• OAUTH2_AUTHORIZATION_CODE (Authorization code grant type)</li> <li>• OAUTH2_IMPLICIT_GRANT (Implicit grant type)</li> <li>• OAUTH2_RESOURCE_OWNER (Resource owner password credentials grant type)</li> <li>• OAUTH2_CLIENT_CREDENTIALS (Client credentials grant type)</li> </ul> <p>Only the value "OAUTH2_CLIENT_CREDENTIALS" is supported in the present document.</p>
>tokenEndpoint	URI	0..1	The token endpoint. Shall be present unless the grant type is OAUTH2_IMPLICIT_GRANT.
(extensions)	Not specified	0..N	<p>Extensions for alternative transport mechanisms. These extensions depend on the actual transport, and are out of scope of the present document.</p> <p>For instance, such extensions may be used to signal the necessary parameters for the client to use TLS-based authorization defined for alternative transports (see ETSI GS MEC 009 [5] for more information).</p>

### 6.5.5 Type: LinkType

This type represents a type of link and may be referenced from data structures.

Table 6.5.5-1: Attributes of the LinkType

Attribute name	Data type	Cardinality	Description
href	URI	1	URI referring to a resource

### 6.5.6 Type: TrafficFilter

This type represents the traffic filter.

The attributes of the TrafficFilter shall follow the indications provided in table 6.5.6-1.

Table 6.5.6-1: Attributes of TrafficFilter

Attribute name	Data type	Cardinality	Description
srcAddress	String	0..N	An IP address or a range of IP address. For IPv4, the IP address could be an IP address plus mask, or an individual IP address, or a range of IP addresses. For IPv6, the IP address could be an IP prefix, or a range of IP prefixes.
dstAddress	String	0..N	An IP address or a range of IP address. For IPv4, the IP address could be an IP address plus mask, or an individual IP address, or a range of IP addresses. For IPv6, the IP address could be an IP prefix, or a range of IP prefixes.
srcPort	String	0..N	A port or a range of ports.
dstPort	String	0..N	A port or a range of ports.
protocol	String	0..N	Specify the protocol of the traffic filter.
token	String	0..N	Used for token based traffic rule.
srcTunnelAddress	String	0..N	Used for GTP tunnel based traffic rule.
tgtTunnelAddress	String	0..N	Used for GTP tunnel based traffic rule.
srcTunnelPort	String	0..N	Used for GTP tunnel based traffic rule.
dstTunnelPort	String	0..N	Used for GTP tunnel based traffic rule.
qCI	Int	0..1	Used to match all packets that have the same QCI.
dSCP	Int	0..1	Used to match all IPv4 packets that have the same DSCP.
tC	Int	0..1	Used to match all IPv6 packets that have the same TC.

## 6.5.7 Type: DestinationInterface

This type represents the destination interface.

The attributes of the DestinationInterface shall follow the indications provided in table 6.5.7-1.

Table 6.5.7-1: Attributes of DestinationInterface

Attribute name	Data type	Cardinality	Description
interfaceType	Enum (inlined)	1	Type of the interface, e.g., TUNNEL, MAC, IP, etc.
tunnelInfo	TunnelInfo	0..1	Included only if the destination interface type is "tunnel"
srcMacAddress	String	0..1	If the interface type is "MAC", source address identifies the MAC address of the interface
dstMacAddress	String	0..1	If the interface type is "MAC", destination address identifies the MAC address of the interface. Only used for dstInterface
dstIpAddress	String	0..1	If the interface type is "IP", destination address identifies the IP address of the remote destination. Only used for dstInterface

## 6.5.8 Type: TunnelInfo

This type represents the tunnel information.

The attributes of the TunnelInfo shall follow the indications provided in table 6.5.8-1.

**Table 6.5.8-1: Attributes of TunnelInfo**

Attribute name	Data type	Cardinality	Description
tunnelType	Enum (inlined)	1	Type of the tunnel, e.g. GTP_U, GRE, etc.
tunnelDstAddress	String	0..1	Destination address of the tunnel
tunnelSrcAddress	String	0..1	Source address of the tunnel

## 6.6 Referenced simple data types and enumerations

### 6.6.1 Introduction

This clause defines simple data types that may be referenced from data structures defined in clauses 6.2 to 6.5.

### 6.6.2 Type: Simple data types

No simple data type is defined in the present document.

### 6.6.3 Enumeration: SerializerTypes

The enumeration SerializerTypes represents types of serializers. This enumeration shall be extensible. It shall comply with the provisions defined in table 6.6.3-1.

**Table 6.6.3-1: Enumeration SerializerTypes**

Enumeration value	Description
JSON	Javascript object notation [9]
XML	eXtensible Mark-up Language version 1.1 [10]
PROTOBUF3	Protocol buffers version 3 [i.3]
NOTE:	The enumeration values above shall represent the serializers as defined by the referenced specifications.

### 6.6.4 Enumeration: TransportTypes

The enumeration TransportTypes represents types of transports. It shall comply with the provisions defined in table 6.6.4-1. This enumeration shall be extensible.

**Table 6.6.4-1: Enumeration TransportTypes**

Enumeration value	Description
REST_HTTP	RESTful API using HTTP (as defined in IETF RFC 7230 [11] and related specifications)
MB_TOPIC_BASED	Topic-based message bus which routes messages to receivers based on subscriptions, if a pattern passed on subscription matches the topic of the message. Example: MQTT (see [i.4])
MB_ROUTING	Routing-based message bus which routes messages to receivers based on subscriptions, if a key passed on subscription is equal to the key of the message
MB_PUBSUB	Publish-subscribe based message bus which distributes messages to all subscribers
RPC	Remote procedure call. Example: GRPC (see [i.5])
RPC_STREAMING	Remote procedure call supporting streams of requests and responses. Example: GRPC (see [i.5])
WEBSOCKET	Websockets as defined in IETF RFC 6455 [12]

---

## 7 API definition

### 7.1 Introduction

This clause defines the resources and operations of the Mp1 API.

### 7.2 Global definitions and resource structure

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

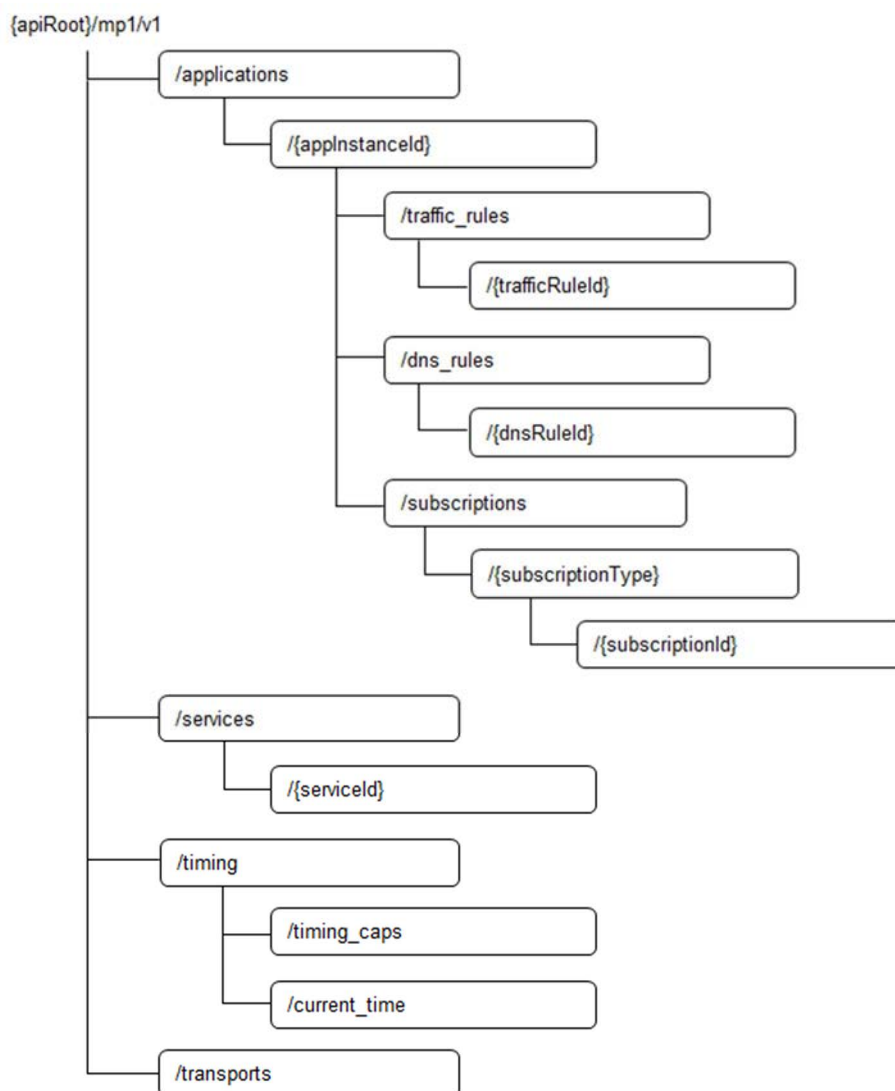
- **{apiRoot}/{apiName}/{apiVersion}/**

The "ApiRoot" is discovered using the service registry. The "apiName" shall be set to "mp1" and the "apiVersion" shall be set to "v1" for the present document. It includes the scheme ("http" or "https"), host and optional port, and an optional prefix string. The API shall support HTTP over TLS (also known as HTTPS [6]) (see IETF RFC 2818 [6]). TLS version 1.2 as defined by IETF RFC 5246 [7] shall be supported. HTTP without TLS is not recommended. All resource URIs in the clauses 7.3 to 7.13 are defined relative to the above root URI.

This API shall require the use of the OAuth 2.0 client credentials grant type according to IETF RFC 6749 [13] with bearer tokens according to IETF RFC 6750 [14]. See clause 7.16 of ETSI GS MEC 009 [5] for more information. How the token endpoint and client credentials are provisioned into the mobile edge applications is out of scope of the present document.

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 [5] for more information.

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



**Figure 7.2-1: Resource URI structure of the Mp1 API**

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

Table 7.2-1: Resources and methods overview

Resource name	Resource URI	HTTP method	Meaning
A list of meService	/services	GET	Retrieve information about a list of meService resources
		POST	Create a meService resource
Individual meService	/services/{serviceId}	GET	Retrieve information about a meService resource
		PUT	Update the information about a meService resource
Parent resource of all meMp1Subscription of a subscriber	/applications/{appInstanceId}/subscriptions	GET	Retrieve information about a list of meMp1Subscription resources for this subscriber
		POST	Create a meMp1Subscription resource
Individual meMp1Subscription	/applications/{appInstanceId}/subscriptions/{subscriptionType}/{subscriptionId}	GET	Retrieve information about a meMp1Subscription resource for this subscriber
		DELETE	Delete a meMp1Subscription resource
Parent resource of all meTrafficRule of an application instance	/applications/{appInstanceId}/traffic_rules	GET	Retrieve information about a list of meTrafficRule resources for an application instance
Individual meTrafficRule	/applications/{appInstanceId}/traffic_rules/{trafficRuleId}	GET	Retrieve information about a meTrafficRule resource
		PUT	Update the information about a meTrafficRule resource
Parent resource of all meDNSRule of an application instance	/applications/{appInstanceId}/dns_rules	GET	Retrieve information about a list of meDNSRule resources for an application instance
Individual meDNSRule	/applications/{appInstanceId}/dns_rules/{dnsRuleId}	GET	Retrieve information about a meDNSRule resource
		PUT	Update the information about a meDNSRule resource
meTimingCaps	/timing/timing_caps	GET	Retrieve information about a meTimingCaps resource
meCurrentTime	/timing/current_time	GET	Retrieve information about a meCurrentTime resource
Transports	/transports	GET	Retrieve information about available transports

## 7.3 Resource: individual meService

### 7.3.1 Description

This resource is used to represent a mobile edge service instance, which follows the resource data type of "ServiceInfo" as specified in clause 6.2.2.

### 7.3.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/services/{serviceId}

Resource URI variables for this resource are defined in table 7.3.2-1.

**Table 7.3.2-1: Resource URI variables for resource "individual meService"**

Name	Definition
apiRoot	See clause 7.2
serviceId	Represents a mobile edge service instance

## 7.3.3 Resource methods

### 7.3.3.1 GET

This method retrieves information about a meService resource. This method is typically used in "service availability query" procedure as described in clause 5.2.5.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.3.3.1-1 and 7.3.3.1-2.

**Table 7.3.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

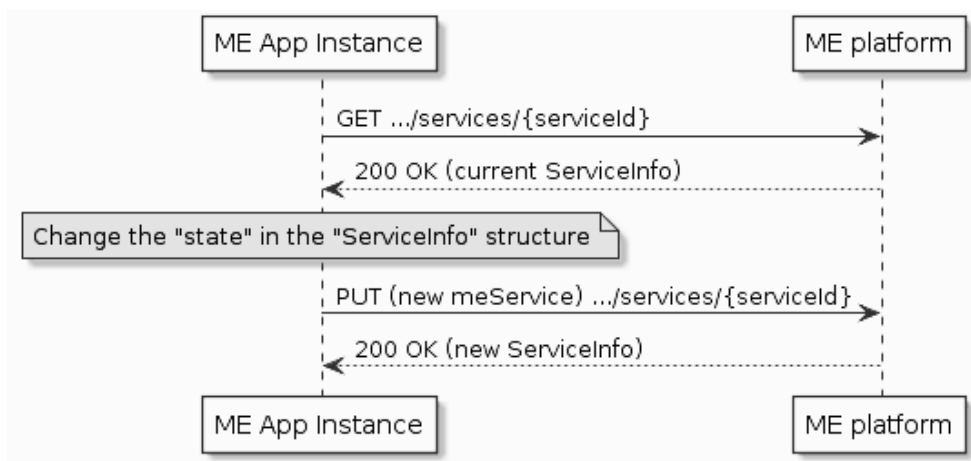
**Table 7.3.3.1-2: Data structures supported by the GET request/response on this resource**

Request body	Data type	Cardinality	Remarks	
n/a				
Response body	Data type	Cardinality	Response codes	Remarks
	ServiceInfo	1	200 OK	It is used to indicate nonspecific success. The response body contains a representation of the resource.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden		The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.3.3.2 PUT

This method updates the information about a meService resource. As specified in ETSI GS MEC 009 [5], the PUT HTTP method has "replace" semantics.

PUT method is typically used in "service availability update" procedure as described in clause 5.2.4. Figure 7.3.3.2-1 shows the message flow using PUT.



**Figure 7.3.3.2-1: Service availability update using PUT**

PUT HTTP method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.3.3.2-1 and 7.3.3.2-2.

**Table 7.3.3.2-1: URI query parameters supported by the PUT method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

**Table 7.3.3.2-2: Data structures supported by the PUT request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	ServiceInfo	1	New ServiceInfo with updated "state" is included as payload body of the request.	
Response body	Data type	Cardinality	Response codes	Remarks
	ServiceInfo	1	200 OK	Upon success, a response body containing data type describing the updated ServiceInfo is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.
	ProblemDetails	0..1	412 Precondition Failed	It is used when a condition has failed during conditional requests, e.g. when using ETags to avoid write conflicts.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.

### 7.3.3.3 PATCH

Not supported.



### 7.3.3.4 POST

Not supported.

### 7.3.3.5 DELETE

Not supported.

## 7.4 Resource: a list of meServices

### 7.4.1 Description

This resource is used to represent a list of mobile edge service instances.

### 7.4.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/services

Resource URI variables for this resource are defined in table 7.4.2-1.

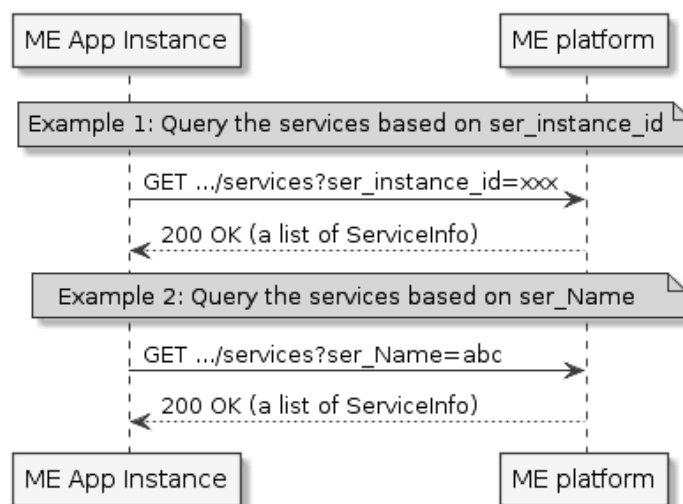
**Table 7.4.2-1: Resource URI variables for resource "a list of meServices"**

Name	Definition
apiRoot	See clause 7.2

### 7.4.3 Resource methods

#### 7.4.3.1 GET

This method retrieves information about a list of meService resources. This method is typically used in "service availability query" procedure as described in clause 5.2.5. Figure 7.4.3.1-1 shows the example message flows using GET method.



**Figure 7.4.3.1-1: Service availability query**

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.4.3.1-1 and 7.4.3.1-2. When no URI query parameter is present, all the relevant meService resources to the requestor will be returned.

**Table 7.4.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
ser_instance_id	String	0..N	A mobile edge application instance may use multiple ser_instance_ids as an input parameter to query the availability of a list of mobile edge service instances. See note.
ser_name	String	0..N	A mobile edge application instance may use multiple ser_names as an input parameter to query the availability of a list of mobile edge service instances. See note.
ser_category_id	String	0..1	A mobile edge application instance may use ser_category_id as an input parameter to query the availability of a list of mobile edge service instances in a serCategory. See note.
NOTE: Either "ser_instance_id" or "ser_name" or "ser_category_id" or none of them shall be present.			

**Table 7.4.3.1-2: Data structures supported by the GET request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	ServiceInfo	0..N	200 OK	Upon success, a response body containing an array of the meServices is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

**7.4.3.2 PUT**

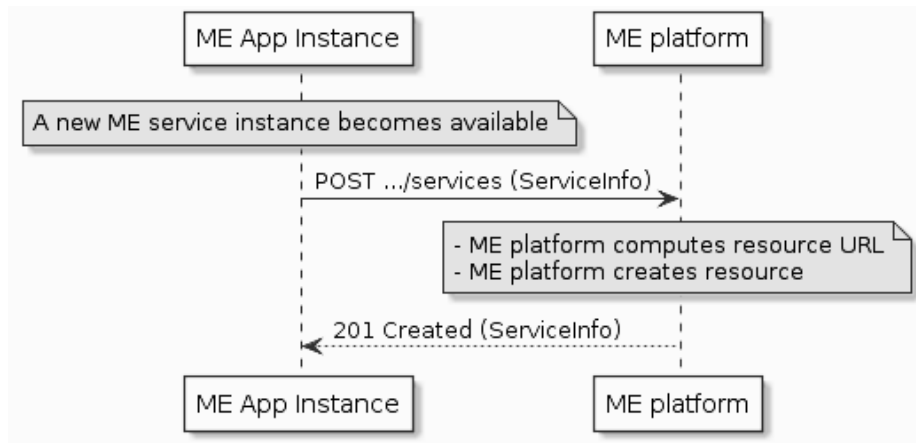
Not supported.

**7.4.3.3 PATCH**

Not supported.

**7.4.3.4 POST**

This method is used to create a meService resource. This method is typically used in "service availability update and new service registration" procedure as described in clause 5.2.4. Figure 7.4.3.4-1 shows the message flow.



**Figure 7.4.3.4-1: New service registration**

POST HTTP method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.4.3.4-1 and 7.4.3.4-2.

**Table 7.4.3.4-1: URI query parameters supported by the POST method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

**Table 7.4.3.4-2: Data structures supported by the POST request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	ServiceInfo	1	Payload body in the request contains ServiceInfo to be created.	
Response body	Data type	Cardinality	Response codes	Remarks
	ServiceInfo	1	201 Created	Upon success, the HTTP response shall include a "Location" HTTP header that contains the resource URI of the created resource.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.4.3.5 DELETE

Not supported.

## 7.5 Resource: individual meMp1Subscription

### 7.5.1 Description

This resource is used to represent a subscription to the notifications from the mobile edge platform. When this resource represents a subscription to the notifications regarding the availability of a mobile edge service or a list of mobile edge services, it shall follow the data type of "SerAvailabilityNotificationSubscription" as specified in clause 6.3.2. The notifications that are related to a meSerAvailSubscription follow the data type of "ServiceAvailabilityNotification" as specified in clause 6.4.2. When this resource represents a subscription to the notifications related to mobile edge application instance termination/stop, it shall follow the data type of "AppTerminationNotificationSubscription" as specified in clause 6.3.3. The notifications that are related to a meSerAvailSubscription follow the data type of "AppTerminationNotification" as specified in clause 6.4.3.

### 7.5.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/ applications/{appInstanceId}/subscriptions/{subscriptionType}/{subscriptionId}

Resource URI variables for this resource are defined in table 7.5.2-1.

**Table 7.5.2-1: Resource URI variables for resource "individual meMp1Subscription"**

Name	Definition
apiRoot	See clause 7.2.
appInstanceId	Represents a mobile edge application instance. Note that the appInstanceId is allocated by the mobile edge platform manager.
subscriptionType	Represents a subscription type to the notifications from the mobile edge platform.
subscriptionId	Represents a subscription to the notifications from the mobile edge platform.

### 7.5.3 Resource methods

#### 7.5.3.1 GET

The GET method requests information about a subscription for this requestor. Upon success, the response contains payload body with the subscription for the requestor.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in tables 7.5.3.1-1 and 7.5.3.1-2.

**Table 7.5.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

Table 7.5.3.1-2: Data structures supported by the GET request/response on this resource

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	SerAvailabilityNotificationSubscription	1	200 OK	Upon success, a response body containing the requested subscription is returned.
	AppTerminationNotificationSubscription	1	200 OK	Upon success, a response body containing the requested subscription is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.5.3.2 PUT

Not supported.

### 7.5.3.3 PATCH

Not supported.

### 7.5.3.4 POST

Not supported.

### 7.5.3.5 DELETE

This method deletes a meMp1Subscription. This method is typically used in "Unsubscribing from service availability event notifications" procedure as described in clause 5.2.6.3. Figure 7.5.3.5-1 shows the example message flows using DELETE method.

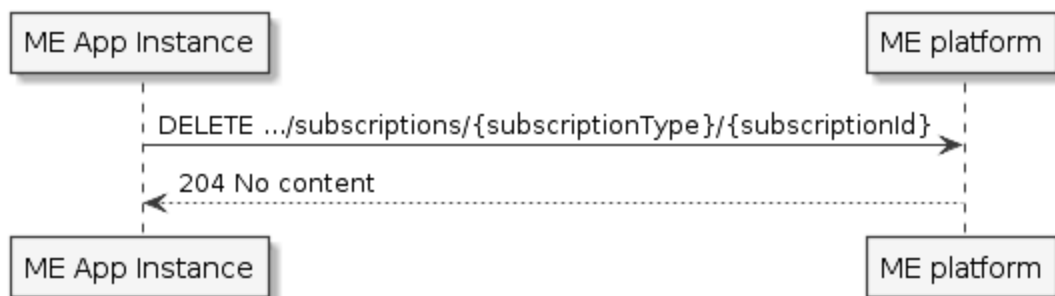


Figure 7.5.3.5-1: Unsubscribing from service availability event notifications

DELETE HTTP method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.5.3.5-1 and 7.5.3.5-2.

Table 7.5.3.5-1: URI query parameters supported by the DELETE method on this resource

Name	Data type	Cardinality	Remarks
n/a			

Table 7.5.3.5-2: Data structures supported by the DELETE request on this resource

Request body	Data type	Cardinality	Remarks	
n/a				
Response body	Data type	Cardinality	Response codes	Remarks
	n/a		204 No Content	
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.	

## 7.6 Resource: all meMp1Subscriptions

### 7.6.1 Description

This resource is used to represent all subscriptions of a subscriber to the notifications from the mobile edge platform.

### 7.6.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/ applications/{appInstanceId}/subscriptions.

Resource URI variables for this resource are defined in table 7.6.2-1.

Table 7.6.2-1: Resource URI variables for resource "all meMp1Subscription"

Name	Definition
apiRoot	See clause 7.2.
appInstanceId	Represents a mobile edge application instance. Note that the appInstanceId is allocated by the mobile edge platform manager.

### 7.6.3 Resource methods

#### 7.6.3.1 GET

The GET method may be used to request information about all subscriptions for this requestor. Upon success, the response contains payload body with all the subscriptions for the requestor.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in tables 7.6.3.1-1 and 7.6.3.1-2.

Table 7.6.3.1-1: URI query parameters supported by the GET method on this resource

Name	Data type	Cardinality	Remarks
n/a			

Table 7.6.3.1-2: Data structures supported by the GET request/response on this resource

Request body	Data type	Cardinality	Remarks	
n/a				
Response body	Data type	Cardinality	Response codes	Remarks
	Mp1SubscriptionLinkList	1	200 OK	Upon success, a response body containing the list of links to the requested subscriptions is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.6.3.2 PUT

Not supported.

### 7.6.3.3 PATCH

Not supported.

### 7.6.3.4 POST

The POST method may be used to create a new subscription. One example use case is to create a new subscription to the mobile edge service availability notifications. Upon success, the response contains payload body describing the created subscription. This method is typically used in "Subscribing to service availability event notifications" procedure as described in clause 5.2.6.2. Figure 7.6.3.4-1 shows the example message flows using POST method.

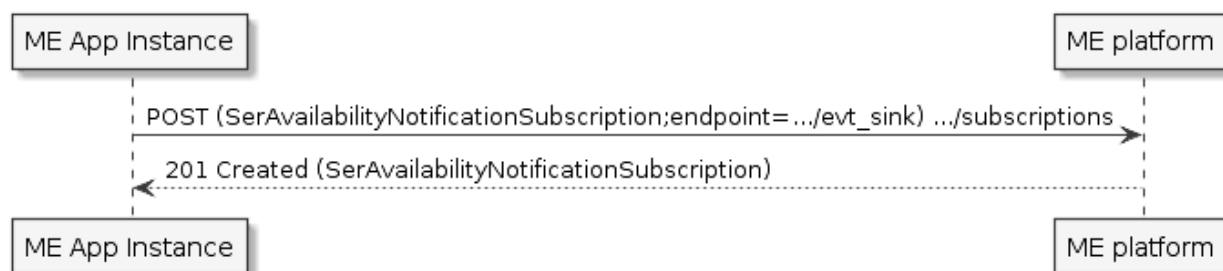


Figure 7.6.3.4-1: Subscribing to service availability event notifications

POST HTTP method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.6.3.4-1 and 7.6.3.4-2.

Table 7.6.3.4-1: URI query parameters supported by the POST method on this resource

Name	Data type	Cardinality	Remarks
n/a			

Table 7.6.3.4-2: Data structures supported by the POST request/response on this resource

Request body	Data type	Cardinality	Remarks	
	SerAvailabilityNotificationSubscription	1	Payload body in the request contains a subscription to the mobile edge service availability notifications that is to be created.	
	AppTerminationNotificationSubscription	1	Payload body in the request contains a subscription to the mobile edge application termination notifications that is to be created.	
Response body	Data type	Cardinality	Response codes	Remarks
	SerAvailabilityNotificationSubscription	1	201 Created	Upon success, the HTTP response shall include a "Location" HTTP header that contains the resource URI of the created subscription resource.
	AppTerminationNotificationSubscription	1	201 Created	Upon success, the HTTP response shall include a "Location" HTTP header that contains the resource URI of the created subscription resource.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.6.3.5 DELETE

Not supported.

## 7.7 Resource: meTimingCaps

### 7.7.1 Description

This resource is used to represent the timing capabilities of the mobile edge platform.

### 7.7.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/timing/timing\_caps.

Resource URI variables for this resource are defined in table 7.7.2-1.

Table 7.7.2-1: Resource URI variables for resource "meTimingCaps"

Name	Definition
apiRoot	See clause 7.2



## 7.7.3 Resource methods

### 7.7.3.1 GET

This method retrieves the information of the platform's timing capabilities which corresponds to the timing capabilities query as described in clause 5.2.10.3. Figure 7.7.3.1-1 shows the example message flow for retrieving timing capabilities using GET method.



**Figure 7.7.3.1-1: GET timing capabilities flow**

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.7.3.1-1 and 7.7.3.1-2.

**Table 7.7.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

**Table 7.7.3.1-2: Data structures supported by the GET request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	TimingCaps	1	200 OK	It is used to indicate nonspecific success. The response body contains a representation of the resource.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.7.3.2 PUT

Not supported.

### 7.7.3.3 PATCH

Not supported.

### 7.7.3.4 POST

Not supported.

### 7.7.3.5 DELETE

Not supported.

## 7.8 Resource: meCurrentTime

### 7.8.1 Description

This resource is used to represent the current time of the mobile edge platform.

### 7.8.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/timing/current\_time.

Resource URI variables for this resource are defined in table 7.8.2-1.

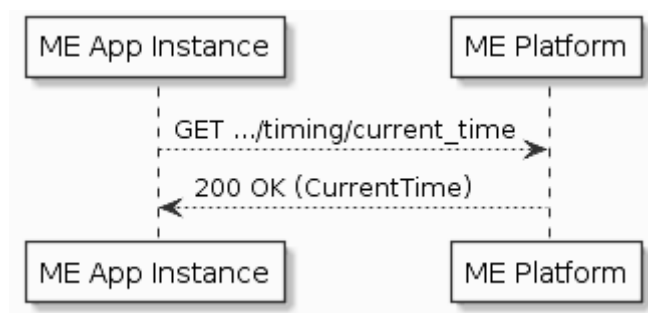
**Table 7.8.2-1: Resource URI variables for resource "meCurrentTime"**

Name	Definition
apiRoot	See clause 7.2

### 7.8.3 Resource methods

#### 7.8.3.1 GET

This method retrieves the information of the platform's current time which corresponds to the get platform time procedure as described in clause 5.2.10.2. Figure 7.8.3.1-1 shows message flow for retrieving current time using GET method.



**Figure 7.8.3.1-1: GET platform time API flow**

This method shall comply with the URI query parameters, request and response data structures, as specified in the tables 7.8.3.1-1 and 7.8.3.1-2.

**Table 7.8.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

Table 7.8.3.1-2: Data structures supported by the GET request/response on this resource

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response Codes	Remarks
	CurrentTime	1	200 OK	It is used to indicate nonspecific success. The response body contains a representation of the resource.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.8.3.2 PUT

Not supported.

### 7.8.3.3 PATCH

Not supported.

### 7.8.3.4 POST

Not supported.

### 7.8.3.5 DELETE

Not supported.

## 7.9 Resource: list of transports

### 7.9.1 Description

This resource is used to represent a list of transports provided by the mobile edge platform.

### 7.9.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/transports.

Resource URI variables for this resource are defined in table 7.9.2-1.

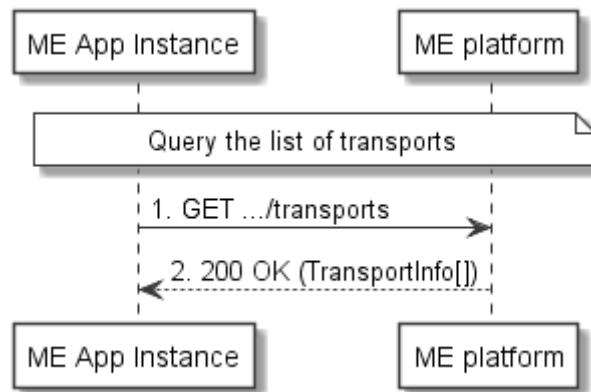
Table 7.9.2-1: Resource URI variables for resource "list of transports"

Name	Definition
apiRoot	See clause 7.2

## 7.9.3 Resource methods

### 7.9.3.1 GET

This method retrieves information about a list of available transports. This method is typically used by a service-producing application to discover transports provided by the mobile edge platform in the "transport information query" procedure as described in clause 5.2.9. Figure 7.9.3.1-1 shows the example message flows using GET method.



**Figure 7.9.3.1-1: Transport information query**

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.9.3.1-1 and 7.9.3.1-2.

**Table 7.9.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

**Table 7.9.3.1-2: Data structures supported by the GET request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	TransportInfo	0..N	200 OK	Upon success, a response body containing an array describing the available transports is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden		The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.9.3.2 PUT

Not supported.

### 7.9.3.3 PATCH

Not supported.

### 7.9.3.4 POST

Not supported.

### 7.9.3.5 DELETE

Not supported.

## 7.10 Resource: all meTrafficRule

### 7.10.1 Description

This resource is used to represent all the traffic rules associated with a mobile edge application instance, which follows the resource data type of "TrafficRule" as specified in clause 6.2.4.

### 7.10.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/applications/{appInstanceId}/traffic\_rules.

Resource URI variables for this resource are defined in table 7.10.2-1.

**Table 7.10.2-1: Resource URI variables for resource "all meTrafficRule"**

Name	Definition
apiRoot	See clause 7.2.
appInstanceId	Represents a mobile edge application instance. Note that the appInstanceId is allocated by the mobile edge platform manager.

### 7.10.3 Resource methods

#### 7.10.3.1 GET

This method retrieves information about all the traffic rules associated with a mobile edge application instance.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.10.3.1-1 and 7.10.3.1-2.

**Table 7.10.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

Table 7.10.3.1-2: Data structures supported by the GET request/response on this resource

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	TrafficRule	0..N	200	Upon success, a response body containing an array of the TrafficRules is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.	

### 7.10.3.2 PUT

Not supported.

### 7.10.3.3 PATCH

Not supported.

### 7.10.3.4 POST

Not supported.

### 7.10.3.5 DELETE

Not supported.

## 7.11 Resource: individual meTrafficRule

### 7.11.1 Description

This resource is used to represent a traffic rule, which follows the resource data type of "TrafficRule" as specified in clause 6.2.4.

### 7.11.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/applications/{appInstanceId}/traffic\_rules/{trafficRuleId}.

Resource URI variables for this resource are defined in table 7.11.2-1.

**Table 7.11.2-1: Resource URI variables for resource "individual meTrafficRule"**

Name	Definition
apiRoot	See clause 7.2.
appInstancelid	Represents a mobile edge application instance. Note that the appInstancelid is allocated by the mobile edge platform manager.
trafficRuleid	Represents a traffic rule.

## 7.11.3 Resource methods

### 7.11.3.1 GET

This method retrieves information about a traffic rule associated with a mobile edge application instance.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.11.3.1-1 and 7.11.3.1-2.

**Table 7.11.3.1-1: URI query parameters supported by the GET method on this resource**

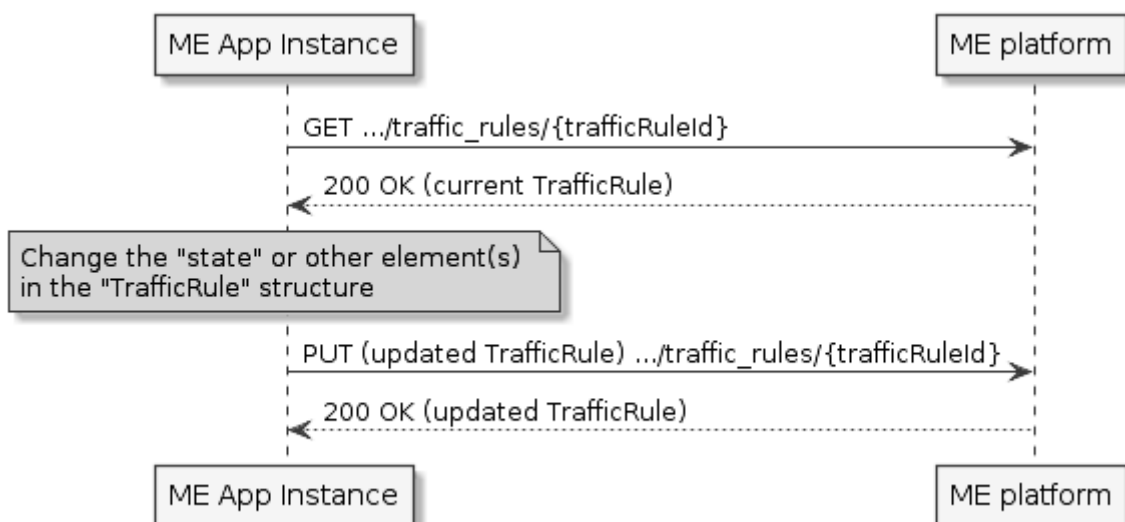
Name	Data type	Cardinality	Remarks
n/a			

**Table 7.11.3.1-2: Data structures supported by the GET request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	TrafficRule	1	200	Upon success, a response body containing the TrafficRules is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.	

### 7.11.3.2 PUT

This method activates, de-activates or updates a traffic rule. Figure 7.11.3.2-1 shows the message flow of "Traffic rule activation/deactivation/update" using PUT.



**Figure 7.11.3.2-1: Traffic rule activation/deactivation/update using PUT**

PUT HTTP method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.11.3.2-1 and 7.11.3.2-2.

**Table 7.11.3.2-1: URI query parameters supported by the PUT method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

**Table 7.11.3.2-2: Data structures supported by the PUT request/response on this resource**

	Data type	Cardinality	Response codes	Remarks
<b>Request body</b>	TrafficRule	1		One or more updated attributes that are allowed to be changed (i.e. "state" or other attributes based on definition in clause 6.2.4) are included in the TrafficRule data structure in the payload body of the request.
<b>Response body</b>	TrafficRule	1	200 OK	Upon success, a response body containing data type describing the updated TrafficRule is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.
	ProblemDetails	0..1	412 Precondition Failed	It is used when a condition has failed during conditional requests, e.g. when using ETags to avoid write conflicts.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.



### 7.11.3.3 PATCH

Not supported.

### 7.11.3.4 POST

Not supported.

### 7.11.3.5 DELETE

Not supported.

## 7.12 Resource: all meDNSRule

### 7.12.1 Description

This resource is used to represent all the DNS rules associated with a mobile edge application instance, which follows the resource data type of "DnsRule" as specified in clause 6.2.5.

### 7.12.2 Resource definition

Resource URI: {apiRoot}/mp1/v1/applications/{appInstanceId}/dns\_rules.

Resource URI variables for this resource are defined in table 7.12.2-1.

**Table 7.12.2-1: Resource URI variables for resource "all meDNSRule"**

Name	Definition
apiRoot	See clause 7.2.
appInstanceId	Represents a mobile edge application instance. Note that the appInstanceId is allocated by the mobile edge platform manager.

### 7.12.3 Resource methods

#### 7.12.3.1 GET

This method retrieves information about all the DNS rules associated with a mobile edge application instance.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.12.3.1-1 and 7.12.3.1-2.

**Table 7.12.3.1-1: URI query parameters supported by the GET method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

Table 7.12.3.1-2: Data structures supported by the GET request/response on this resource

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	DnsRule	0..N	200 OK	Upon success, a response body containing an array of the DnsRules is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.

### 7.12.3.2 PUT

Not supported.

### 7.12.3.3 PATCH

Not supported.

### 7.12.3.4 POST

Not supported.

### 7.12.3.5 DELETE

Not supported.

## 7.13 Resource: individual meDNSRule

### 7.13.1 Description

This resource is used to represent a DNS rule, which follows the resource data type of "DnsRule" as specified in clause 6.2.5.

### 7.13.2 Resource definition

Resource URI: {apiRoot}/mp1/v1 applications/{appInstanceId}/dns\_rules/{dnsRuleId}.

Resource URI variables for this resource are defined in table 7.13.2-1.

**Table 7.13.2-1: Resource URI variables for resource "individual meDNSRule"**

Name	Definition
apiRoot	See clause 7.2.
appInstanceId	Represents a mobile edge application instance. Note the appInstanceId is allocated by the mobile edge platform manager.
dnsRuleId	Represents a DNS rule.

## 7.13.3 Resource methods

### 7.13.3.1 GET

This method retrieves information about a DNS rule associated with a mobile edge application instance.

This method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.13.3.1-1 and 7.13.3.1-2.

**Table 7.13.3.1-1: URI query parameters supported by the GET method on this resource**

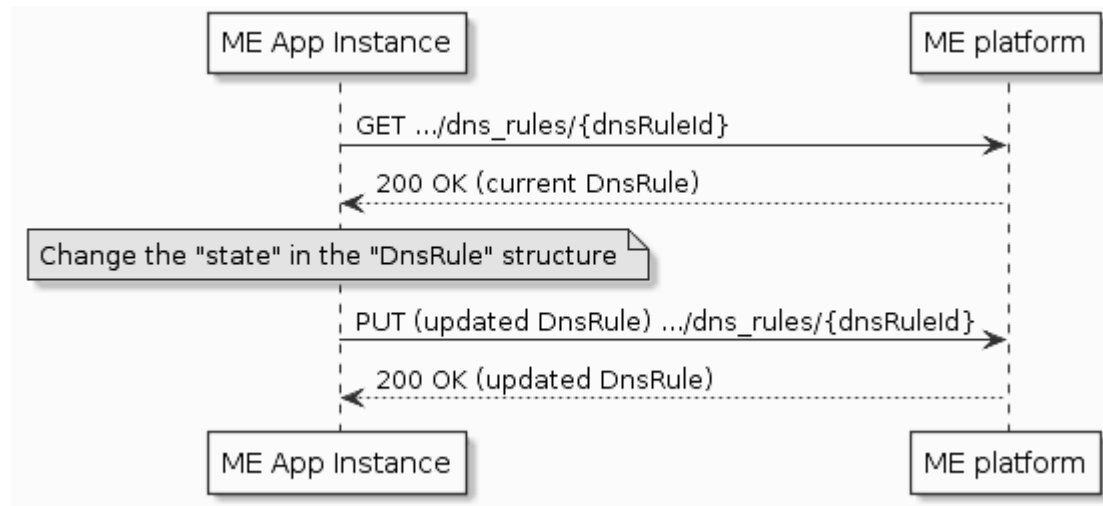
Name	Data type	Cardinality	Remarks
n/a			

**Table 7.13.3.1-2: Data structures supported by the GET request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	n/a			
Response body	Data type	Cardinality	Response codes	Remarks
	DnsRule	1	200 OK	Upon success, a response body containing the DnsRules is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.	

### 7.13.3.2 PUT

This method activates, de-activates or updates a DNS rule. Figure 7.13.3.2-1 shows the message flow of "DNS rule activation/deactivation" using PUT.



**Figure 7.13.3.2-1: DNS rule activation/deactivation using PUT**

PUT HTTP method shall comply with the URI query parameters, request and response data structures, and response codes, as specified in the tables 7.13.3.2-1 and 7.13.3.2-2.

**Table 7.13.3.2-1: URI query parameters supported by the PUT method on this resource**

Name	Data type	Cardinality	Remarks
n/a			

**Table 7.13.3.2-2: Data structures supported by the PUT request/response on this resource**

Request body	Data type	Cardinality	Remarks	
	DnsRule	1	The updated "state" is included in the payload body of the request.	
Response body	Data type	Cardinality	Response codes	Remarks
	DnsRule	1	200 OK	Upon success, a response body containing data type describing the updated DnsRule is returned.
	ProblemDetails	0..1	400 Bad Request	It is used to indicate that incorrect parameters were passed to the request.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	0..1	404 Not Found	It is used when a client provided a URI that cannot be mapped to a valid resource URI.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.
	ProblemDetails	1	403 Forbidden	The operation is not allowed given the current status of the resource.  More information shall be provided in the "detail" attribute of the "ProblemDetails" structure.
	ProblemDetails	0..1	412 Precondition Failed	It is used when a condition has failed during conditional requests, e.g. when using ETags to avoid write conflicts.  In the returned ProblemDetails structure, the "detail" attribute should convey more information about the error.

### 7.13.3.3 PATCH

Not supported.

### 7.13.3.4 POST

Not supported.

### 7.13.3.5 DELETE

Not supported.

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## Annex A (informative): Complementary material for API utilisation

To complement the definitions for each method and resource defined in the interface clauses of the present document, ETSI MEC ISG is providing for the Mobile Edge Platform Application Enablement API a supplementary description file compliant to the OpenAPI Specification [i.6].

In case of discrepancies between the supplementary description file and the related data structure definitions in the present document, the data structure definitions take precedence.

The supplementary description file, relating to the present document, is located at [https://forge.etsi.org/rep/gitweb.cgi/MEC.GS\\_011.git](https://forge.etsi.org/rep/gitweb.cgi/MEC.GS_011.git).

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## History

<b>Document history</b>		
V1.1.1	July 2017	Publication