R3 - API Documentation Enterprise Application on Lightweight 5G Telco Edge (EALTEdge)

Introduction

As part of this release EALTEdge Blueprint are releasing few API's which can be used by other Akraino Blueprints or Non Akraino Blueprints / Projects. The API's given are for the MM3 and MP1 Interface.

These APIs are in compliance with the API Standards defined by ETSI in Multi-access Edge Computing (MEC); MEC Management; Part 2: Application lifecycle, rules and requirements management. (https://www.etsi.org/deliver/etsi_gs/MEC/001_099/01002/02.01.01_60/gs_MEC01002v020101p.pdf) and Multi-access Edge Computing (MEC); Edge Platform Application Enablement (https://www.etsi.org/deliver/etsi_gs/MEC/001_099/011/02.01.01_60/gs_MEC011v020101p.pdf)

In this release EALTEdge are exposing API's related to :-

1. Application Life Cycle Management
2. MEC Service Management.

API Definitions

Application Life Cycle Management

Create Application Instance

1.	**API Name**	**Create Application Instance**	**Type : POST**	**Interface : MM3**
Description		The POST method is used to create an application instance resource, which refers to the procedure of "creating application instance resource operation"		
Resource URI		/ealtedge/mepm/app_lcm/v1/app_instances		
Request Body Parameters				
Parameter Name		Cardinality	Type	Description
appDId		1	String	Application Description ID
appInstancename		1	String	Application Instance Name
appInstanceDescriptor		1	String	Application Instance Descriptor
Response Codes		**201**		
Response Parameters				
Parameter Name		Cardinality	Type	Description
AppInstanceInfo		1	Complex	Application Instance Info

Get Application Instance

2.	**API Name / Category**	**Application Instance Info**	**Type : GET**	**Interface : MM3**
Description		The GET method retrieves the information of an individual application instance via reading an individual application instance resource, which is used by the procedure of "query application instance information operation"		
Resource URI		/ealtedge/mepm/app_lcm/v1/app_instances/{appInstanceId}		
Request Body Parameters - None				
	Response Codes	**201**		
Response Parameters				
Parameter Name		Cardinality	Type	Description / Example
AppInstanceInfo		1	Complex	Application Instance Info

Delete Application Instance

3.	API Name: Delete Application Instance	Type : DELETE	Interface : MM3
Description		The DELETE method deletes an individual application instance resource, which refers to the procedure of "delete application instance identifier operation"	
Resource URI		/ealtedge/mepm/app_lcm/v1/app_instances/{appInstanceId}	
Request Body Parameters - None			
	Response Codes	**204**	
Response Parameters - No Content			

Instantiate Application

4.	API Name: Instantiate Application	Type : POST	Interface : MM3
Description	This resource represents the task of instantiating an application instance. The client can use this resource to instantiate an application instance.		
Resource URI	/ealtedge/mepm/app_lcm/v1/app_instances/{appInstanceId}/instantiate		
Request Body Parameters			
Attribute Name	Cardinality	Type	Description
#InstantiateAppRequest	1	Complex	Request parameters of the "Instantiate Application" operation
	Response Codes	**202 - Accepted. The request was accepted for processing, but the processing has not yet been completed**	
Response Parameters - Response Body is Empty			

Terminate Application

5.	API Name: Terminate Application	Type : POST	Interface : MM3
Description	This resource represents the task of terminating an application instance. The client can use this resource to terminate an application instance		
Resource URI	/ealtedge/mepm/app_lcm/v1/app_instances/{appInstanceId}/terminate		
Request Body Parameters			
Name	Cardinality	Type	Description
#TerminateAppRequest	1	Complex	
	Response Codes	**202 - Accepted. The request was accepted for processing, but the processing has not yet been completed**	
Response Parameters - Response Body is Empty			

MEC Service Management

Get Service List

1.	API Name	Get Service List	Type : GET	Interface : MP1
Description		To get the List of all the Services Registered in MEP services		
		/ealtedge/mep/mec_service_mgmt/v1/services		
Request Body Parameters - No Parameters				
Response Codes		**201**		
Response Parameters				
Parameter Name		Cardinality	Type	Description

Get Service

2.	API Name	Get Service ID Information	Type : GET	Interface : MP1
Description		Get Service Information of a specific service. Service Id is passed in the request URI		
Resource URI		/ealtedge/mep/mec_service_mgmt/v1/services/serviceId		
Request Body Parameters - No Parameters				
Response Codes		**201**		
Response Parameters				
Parameter Name		Cardinality	Type	Description

Service Registration

3.	API Name	Service Registration	Type : POST	Interface : MP1
Description		This method is used to create a mecService resource that is associated with the application instance. This method is typically used in "service availability update and new service registration" procedure		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/services		
Request Body Parameters				
Parameter Name		Cardinality	Type	Description
ServiceInfo		1	Complex	
Response Codes		**201 : Created**		
Response Parameters				
Parameter Name		Cardinality	Type	Description
ServiceInfo		1	Complex	Upon success, the HTTP response shall include a "Location" HTTP header that contains the resource URI of the created resource.

4.	API Name	Service Availability Information	Type : GET	Interface : MP1
Description		This method retrieves information about a list of MEC Service resources that is associated with an application instance. This method is typically used in "service availability query" procedure		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/services		
Request Body Parameters – None				
Response Codes		**201 : Created**		
Response Parameters				
Parameter Name		Cardinality	Type	Description
ServiceInfo		0..N	Complex	Upon success, a response body containing an array of the mecServices is returned.

Service Management Subscription

5.	API Name	Fetch all Subscription Information	Type : GET	Interface : MP1
Description		The GET method may be used to request information about all subscriptions for this requester. Upon success, the response contains payload body with all the subscriptions for the requester		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/subscriptions		
Request Body Parameters - None				
Response Codes		**200 : OK**		
Response Parameters				
Parameter Name		Cardinality	Type	Description

SubscriptionLinkList	1	Complex	Upon success, a response body containing the list of links to the requested subscriptions is returned.

Service Subscription

6.	API Name	New service Subscription	Type : POST	Interface : MP1
Description		The POST method may be used to create a new subscription. One example use case is to create a new subscription to the MEC 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		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/subscriptions		
Request Body Parameters				
Parameter Name		Cardinality	Type	Description
SerAvailabilityNotificationSubscription		1	Complex	Payload body in the request contains a subscription to the MEC service availability notifications that is to be created.
Response Codes		**201 : Created**		
Response Parameters				
Parameter Name		Cardinality	Type	Description
SerAvailabilityNotificationSubscription		1	Complex	Upon success, the HTTP response shall include a "Location" HTTP header that contains the resource URI of the created subscription resource.

Individual Service Management Subscription

7.	API Name	Single Subscription Information	Type : GET	Interface : MP1
Description		The GET method requests information about a subscription for this Requestor. Upon success, the response contains payload body with the subscription for the Requestor		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/subscriptions/{subscriptionId}		
Request Body Parameters - None				
Response Codes		**201**		
Response Parameters				
Parameter Name		Cardinality	Type	Description
SerAvailabilityNotification Subscription		1	Complex	Upon success, a response body containing the requested subscription is returned.

Individual Service Management Deletion

8.	API Name	Delete Individual Subscription	Type : DELETE	Interface : MP1
Description		This method is typically used in "Unsubscribing from event notifications" procedure		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/subscriptions/{subscriptionId}		
Request Body Parameters - None				
Response Codes		**204 : No content**		
Response Parameters - None				

Get Service Information

9.	API Name	Get Service Information	Type : GET	Interface : MP1
Description		This method retrieves information about a mecService resource that is associated with an application instance. This method is typically used in "service availability query"		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/services/{serviceId}		

Request Body Parameters - None			
Response Codes	**200: OK**		
Response Parameters			
Parameter Name	Cardinality	Type	Description
ServiceInfo	1	Complex	It is used to indicate nonspecific success. The response body contains a representation of the resource.

Update Service Information

10.	**API Name**	**Update Service Information**	**Type : GET**	**Interface : MP1**
Description		This method updates the information about a mecService resource that is associated with the application instance		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/services/{serviceId}		
Request Body Parameters - None				
Parameter Name		Cardinality	Type	Description
ServiceInfo		1	Complex	It is used to indicate nonspecific success. The response body contains a representation of the resource.
Response Body Parameters - None				
Response Codes		**200: OK**		
Parameter Name		Cardinality	Type	Description
ServiceInfo		1	Complex	Upon success, a response body containing data type describing the updated ServiceInfo is returned.

Service Deregistration Information

11.	**API Name**	**Service Deregistration**	**Type : DELETE**	**Interface : MP1**
Description		This method deletes a MEC Service resource. This method is typically used in the service deregistration procedure		
Resource URI		/ealtedge/mec_service_mgmt/v1/applications/{appInstanceId}/services/{serviceId}		
Request Body Parameters - None				
Response Codes		**204 : No Content**		
Response Parameters				
Parameter Name		Cardinality	Type	Description

Types

AppInstanceInfo

AppInstanceInfo Parameters			
Attribute Name	Cardinality	Data Type	Description
ID	1	String	Application Instance Description Ex : ID1
AppInstanceName	0..1	String	Application Descriptor ID
AppInstanceDescription	0..1	String	Application Provider Ex: Huawei
AppDID	1	String	Application Name Ex : Face_Recognition.
AppProvider	1	String	
AppName	1	String	Deploy Type ; Ex : Helm

AppSoftVersion	1	String	Application Package ID Ex: b1bb0ce7-ebca-4fa7-95ed-4840d70a1177
AppDVersion	1	String	Instantiation State. Ex : NOT_INSTANTIATED

InstantiateAppRequest

InstantiateAppRequest Parameters			
Attribute Name	Cardinality	Data Type	Description
selectedMECHostInfo	1..N	MECHostInformation	Describes the information of selected host for the application instance

TerminateAppRequest

TerminateAppRequest Parameters			
Attribute Name	Cardinality	Data Type	Description
terminationType	1	Enum	Indicates whether forceful or graceful termination is requested. See note. • FORCEFUL: it will shut down the application instance and release the resources immediately after accepting the request. See note. • GRACEFUL: it will first arrange to take the application instance out of service after accepting the request. Once the operation of taking the application instance out of service finishes or once the timer value specified in the "gracefulTerminationTimeout" attribute expires, it will shut down the application instance and release the resources.
gracefulTerminationTimeout	0..1	Integer	This attribute is only applicable in case of graceful termination. It defines the time to wait for the application instance to be taken out of service before shutting down the application and releasing the resources. The unit is seconds. If not given and the "terminationType" attribute is set to "GRACEFUL", it is expected to wait for the successful taking out of service of the application, no matter how long it takes, before shutting down the application and releasing the resources.

ServiceInfo

ServiceInfo Parameters			
Attribute Name	Cardinality	Data Type	Description
serInstanceId	0..1	SerInstanceId	Identifier of the service instance assigned by the MEPM/MEC platform. For the uniqueness of the identifier across the MEC system, UUID format [i. 7] is recommended. Shall be absent in POST requests, and present otherwise.
serName	1	serName	The name of the service. This is how the service producing MEC application identifies the service instance it produces.
serCategory	0..1	CategoryRef	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	1	String	Version of the Service
state	1	ServiceState	Contains the service state.
transportId	0..1	String	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.
transportInfo	0..1	TransportInfo	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.

serializer	1	SerializerType	Indicate the supported serialization format of the service
scopeOfLocality	0..1	LocalityType	The scope of locality as expressed by "consumedLocalOnly" and "isLocal". If absent, defaults to MEC_HOST
consumedLocalOnly	0..1	Boolean	Indicate whether the service can only be consumed by the MEC applications located in the same locality (as defined by scopeOfLocality) as this service instance (TRUE) or not (FALSE). Default to TRUE if absent.
isLocal	0..1	Boolean	Indicate whether the service is located in the same locality (as defined by scopeOfLocality) as the consuming MEC application (TRUE) or not (FALSE). Default to TRUE if absent.

TransportInfo

TransportInfo Parameters			
Attribute Name	Cardinality	Data Type	Description
id	1	string	The identifier of this transport.
name	1	string	The name of this transport. .
description	0..1	string	Human-readable description of this transport.
type	1	#TransportType	Type of the transport
protocol	1	string	The name of the protocol used. Shall be set to "HTTP" for a REST API
version	1	String	The version of the protocol used.
endpoint	1	EndPointInfo	Information about the endpoint to access the transport.
security	1	SecurityInfo	Indicate the supported serialization format of the service
implSpecificInfo	0..1	Not Specified	Additional implementation specific details of the transport.

Enumeration

TransportType

TransportType Parameters	
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
RPC_STREAMING	Remote procedure call supporting streams of requests and responses. EXAMPLE: GRPC
WEBSOCKET	Websockets as defined in IETF RFC 6455 [12].