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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - APE 7112B
Association à but non lucratif enregistrée à la
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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

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shall not indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

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should indicates a recommendation to do something

should not indicates a recommendation not to do something

may indicates permission to do something

need not indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possible

cannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

1 Scope

The present document specifies the stage 3 Protocol and data model for the MMTel Enabler Server services, enabling the support of MMTel applications and services over 3GPP networks. It provides stage 3 protocol definitions and message flows, and specifies the API of each service offered by the MMTel Enabler Server over the MMTel-2/3 interface. The stage 2 application layer architecture, functional requirements, procedures and information flows necessary for MMTel Service are contained in 3GPP TS 23.392 [2].

The stage 2 application layer architecture for MMTel, functional requirements, procedures and information flows necessary for enabling MMTel applications over 3GPP networks are specified in 3GPP TS 23.392 [6].

The common protocol and interface aspects for API definition are specified in clause 5.2 of 3GPP TS 29.122 [2].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[3] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[4] OpenAPI: "OpenAPI Specification Version 3.0.0", https://spec.openapis.org/oas/v3.0.0.

[5] 3GPP TR 21.900: "Technical Specification Group working methods".

[6] 3GPP TS 23.392: "Application enablement aspects for MMTel".

[7] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[8] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2".

[9] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3".

[10] 3GPP TS 33.122: "Security aspects of Common API Framework (CAPIF) for 3GPP northbound APIs".

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

[12] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[13] 3GPP TS 29.175: "IP Multimedia Subsystem (IMS) Application Server (AS) Services Stage 3".

[14] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[15] OMA-TS-REST_NetAPI_ThirdPartyCall-V1_0-20130212-C: "RESTful Network API Framework for Third Party Call ".

3 Definitions of terms, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

For the purpose of the present document, the terms and definitions given in clause 3 of 3GPP TS 23.392 [6] also apply, including the ones referencing other specifications.

3.2 Symbols

Void

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

4 Overview

3GPP TS 23.392 [6] has specified the application layer architecture, architectural requirements, procedures, information flows, in order to support the Application enablement for MMTel Service, mainly including DC Application management, DC Application downloading control, MMTel service usage and Multiple call control handling.

The present document specifies the APIs needed to support MMTel Services for interworking between the MMTel Enabler Server and the Controlling Application Server or Application Server, including the following functionalities:

1. Server-side functionality with the DC application configuration, update, deletion and information query, provided by the MMTel Enabler Server over the MMTel-2 interface.

2. Server-side functionality to provide capabilities to application providers/Vertical service providers to use MMTel services over the MMTel-3 interface.

Figure 4-1 shows the reference model of the MMTel Application Enabler Layer, with a focus on the MMTel Enabler Server:

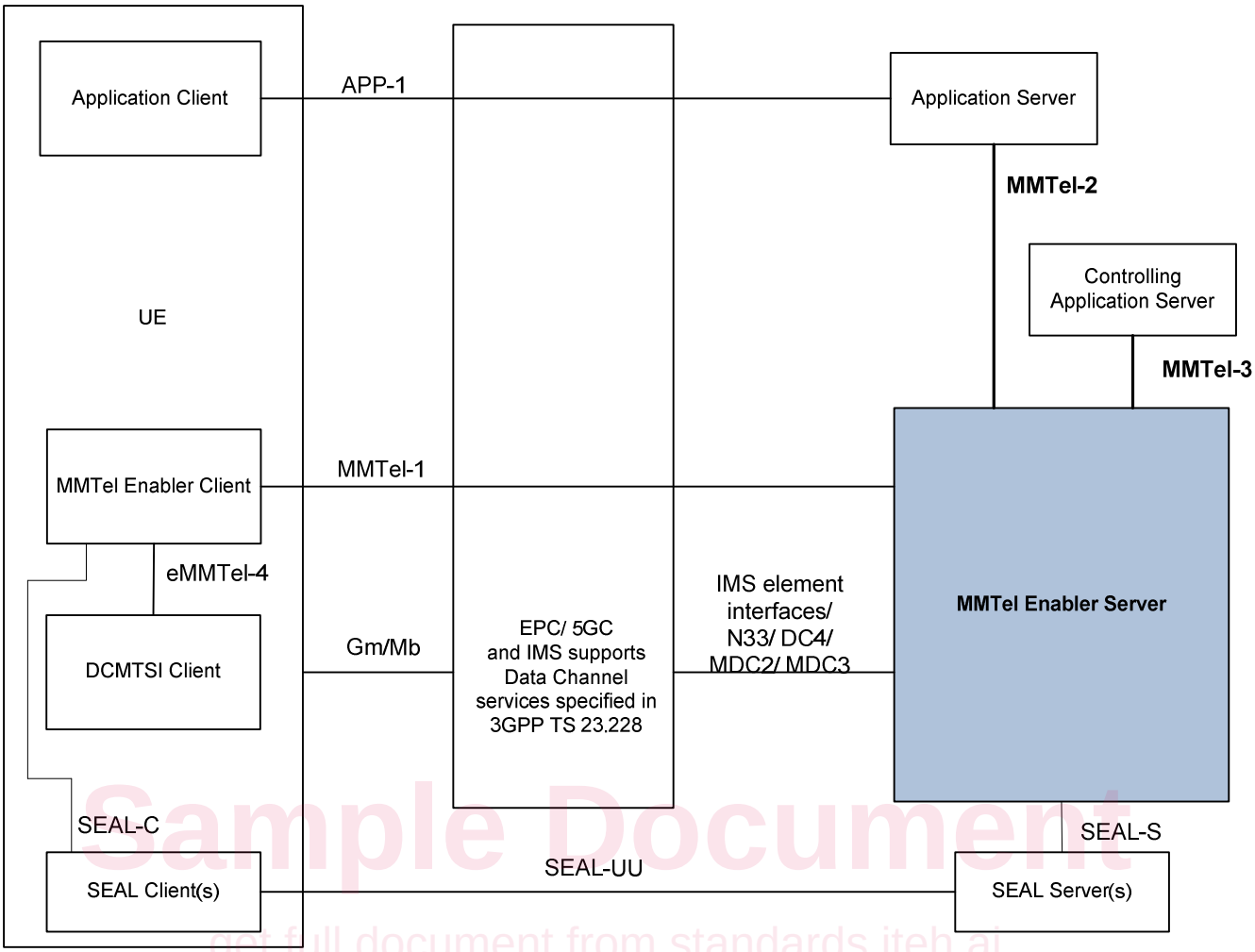

Figure 4-1: MMTel Application Enabler Layer functional model

5 Services offered by the MMTel Enabler Server

5.1 Introduction

Table 5.1-1 summarizes the corresponding APIs defined for this specification.

Table 5.1-1: API Descriptions

Service Name	Clause	Description	OpenAPI Specification File	API Name	Annex
MMTel_DCAppManagement Service	6.1	MMTel DC Application Management Service	TS29392_MMTel_DCAppManagement.yaml	mmtel-dcappmgmt	A.2
MMTel_DCAppCall Service	6.2	MMTel DC Application Call Service	TS29392_MMTel_DCAppCall.yaml	mmtel-dcappcall	A.3
MMTel_CallEvent Service	6.3	MMTel Enabler Server Call Event Service.	TS29392_MMTel_CallEvent.yaml	mmtel-callevent	A.4
MMTel_CallControl Service	6.4	MMTel Call Control Service	TS29392_MMTel_CallControl.yaml	mmtel-callcontrol	A.5

NOTE: When 3GPP TS 29.122 [2] is referenced for the common protocol and interface aspects for API definition in this document, the MMTel Server) takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

5.2 MMTel_DCAppManagement Service

5.2.1 Service Description

The MMTel_DCAppManagement Service as defined in clause 8.2 in 3GPP TS 23.392 [6], is provided by the MMTel Enabler Server.

This service:

- allows Controlling Application Server invokes services provided by a MMTel Enabler Server to config DC application and profile to the MMTel Enabler Server;
- allows Controlling Application Server invokes services provided by a MMTel Enabler Server to update DC application and profile to the MMTel Enabler Server.
- allows Controlling Application Server invokes services provided by a MMTel Enabler Server to delete DC application.
- allows Controlling Application Server invokes services provided by a MMTel Enabler Server to obtain detail DC application profile information on the MMTel Enabler Server.

5.2.2 Service Operations

5.2.2.1 Introduction

The service operations defined for MMTel_DCAppManagement Service is shown in the table 5.2.2.1-1

Table 5.2.2.1-1: Operations of the MMTel_DCAppManagement Service

Service operation name	Description	Initiated by
MMTel_DCAppManagement_Configure	This service operation is used by the service consumer to configure DC application and profile to the MMTel Enabler Server.	e.g., Controlling Application Server
MMTel_DCAppManagement_Update	This service operation is used by Controlling Application Server to update an existing DC application profile information or DC application.	e.g., Controlling Application Server
MMTel_DCAppManagement_Delete	This service operation is used by the service consumer to delete an existing DC application.	e.g., Controlling Application Server
MMTel_DCAppManagement_Retrieval	This service operation is used by the service consumer to retrieve the details of an existing DC application profile information.	e.g., Controlling Application Server

5.2.2.2 MMTel_DCAppManagement_Configure

5.2.2.2.1 General

This service operation is used by the service consumer to configure DC application and profile to the MMTel Enabler Server.

The following procedures are supported by the "MMTel_DCAppManagement_Configure" service operation:

- DC Application and Profile Configuration.

5.2.2.2.2 DC Application and Profile Configuration

Figure 5.2.2.2.2-1 depicts a scenario where a Controlling Application Server sends a request to the MMTel Enabler Server to configure DC application and profile (see also clause 8.2.2 of 3GPP TS 23.392 [6]).

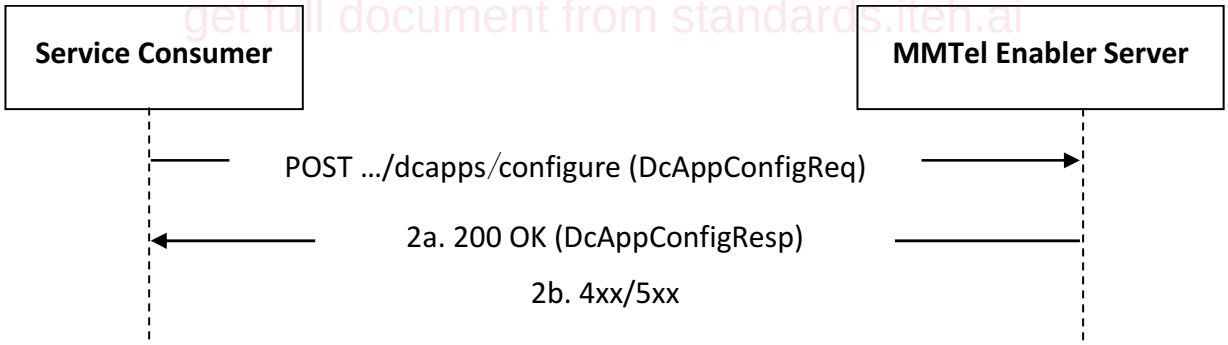

Figure 5.2.2.2.2-1: Procedure for DC Application and Profile Configuration

1. In order to configure DC application and profile, the Controlling Application Server shall send an HTTP POST request (i.e., resource custom operation "Configure") to the MMTel Enabler Server targeting the "DC APP" collection resource, with the request body including the DcAppConfigReq data structure.

2a. Upon success, the MMTel Enabler Server shall respond with an HTTP "200 OK" status code with the response body containing the DC application and profile configuration response information within the DcAppConfigResp data structure.

2b. On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the HTTP POST response body, as specified in clause 6.1.7.