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TECHNICAL SPECIFICATION

**iTeh STANDARD**

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**5G System;**

**Access and Mobility Management Services;  
Stage 3**

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**ETSI**

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

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

Siret N° 348 623 562 00017 - APE 7112B  
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## Foreword

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

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- 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:

- shall** indicates a mandatory requirement to do something
- 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.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

- 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.

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# 1 Scope

The present document specifies the stage 3 protocol and data model for the Namf Service Based Interface. It provides stage 3 protocol definitions and message flows, and specifies the API for each service offered by the AMF.

The 5G System stage 2 architecture and procedures are specified in 3GPP TS 23.501 [2] and 3GPP TS 23.502 [3].

The Technical Realization of the Service Based Architecture and the Principles and Guidelines for Services Definition are specified in 3GPP TS 29.500 [4] and 3GPP TS 29.501 [5].

---

# 2 References

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".
- [3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".
- [4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".
- [5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".
- [6] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3".
- [7] 3GPP TS 23.503: "Policy and Charging Control Framework for the 5G System; Stage 2".
- [8] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".
- [9] IETF RFC 2387: "The MIME Multipart/Related Content-type".
- [10] IETF RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies".
- [11] 3GPP TS 24.501: "Non-Access-Stratum (NAS) Protocol for 5G System (5GS); Stage 3".
- [12] 3GPP TS 38.413: "NG Radio Access Network (NG-RAN); NG Application Protocol (NGAP)".
- [13] 3GPP TS 36.355: "Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol (LPP)".
- [14] IETF RFC 6902: "JavaScript Object Notation (JSON) Patch".
- [15] 3GPP TS 24.007: "Mobile radio interface signalling layer 3; General Aspects".
- [16] 3GPP TS 29.502: "5G System, Session Management Services; Stage 3".
- [17] 3GPP TS 38.455: "NR Positioning Protocol A (NRPPa)".
- [18] 3GPP TS 29.531: "Network Slice Selection Services; Stage 3".
- [19] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".
- [20] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".
- [21] 3GPP TS 29.168: "Cell Broadcast Centre interfaces with the Evolved Packet Core; Stage 3".
- [22] 3GPP TS 24.008: "Mobile radio interface Layer 3 specification; Core network protocols; Stage 3".
- [23] OpenAPI Initiative, "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.
- [24] 3GPP TS 36.413: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 Application Protocol (S1AP)".
- [25] 3GPP TS 29.572: "5G System, Location Management Services; Stage 3".

- [26] Void.
- [27] 3GPP TS 33.501: "Security architecture and procedures for 5G system".
- [28] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".
- [29] 3GPP TS 29.510: "Network Function Repository Services; Stage 3".
- [30] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".
- [31] Void.
- [32] 3GPP TS 29.507: "5G System; Access and Mobility Policy Control Service; Stage 3".
- [33] 3GPP TS 23.527: "5G System; Restoration Procedures".
- [34] 3GPP TS 29.525: "5G System; UE Policy Control Service; Stage 3".
- [35] 3GPP TS 29.503: "5G System; Unified Data Management Services; Stage 3".
- [36] IETF RFC 7807: "Problem Details for HTTP APIs".
- [37] 3GPP TR 21.900: "Technical Specification Group working methods".
- [38] Void
- [39] Void
- [40] IETF RFC 6901: "JavaScript Object Notation (JSON) Pointer".
- [41] Void
- [42] Void
- [43] Void
- [44] Void
- [45] Void
- [46] Void
- [47] Void
- [48] Void
- [49] 3GPP TS 33.401: "3GPP System Architecture Evolution (SAE); Security architecture".

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## 3 Definitions 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].

**example:** text used to clarify abstract rules by applying them literally.

## 3.2 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].

5GC	5G Core Network
5GS	5G System
5G-AN	5G Access Network
5G-GUTI	5G Globally Unique Temporary Identifier
5QI	5G QoS Identifier
AMF	Access and Mobility Management Function
EBI	EPS Bearer Identity
GAD	Universal Geographical Area Description
GPSI	Generic Public Subscription Identifier
GUAMI	Globally Unique AMF Identifier
JSON	JavaScript Object Notation
LADN	Local Area Data Network
LMF	Location Management Function
MM	Mobility Management
N3IWF	Non-3GPP InterWorking Function
NEF	Network Exposure Function
NR	New Radio
NRF	Network Repository Function
NRPPa	NR Positioning Protocol A
NSI ID	Network Slice Instance Identifier
NSSAI	Network Slice Selection Assistance Information
PCF	Policy Control Function
PEI	Permanent Equipment Identifier
RAT	Radio Access Type
RFSP	RAT/Frequency Selection Priority
SARI	Service Area Restriction Information
SBI	Service Based Interface
SM	Session Management
SMF	Session Management Function
SMSF	Short Message Service Function
S-NSSAI	Single Network Slice Selection Assistance Information
SUCI	Subscription Concealed Identifier
SUPI	Subscription Permanent Identifier
TA	Tracking Area
TAI	Tracking Area Identity
UDM	Unified Data Management
UDSF	Unstructured Data Storage Function

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## 4 Overview

### 4.1 Introduction

Within the 5GC, the AMF offers services to the SMF, other AMF, PCF, SMSF, LMF, GMLC, CBCF, PWS-IWF and NEF via the Namf service based interface (see 3GPP TS 23.501 [2] and 3GPP TS 23.502 [3]).

Figure 4.1-1 provides the reference model (in service based interface representation and in reference point representation), with focus on the AMF and the scope of the present specification.