ETSI TS 129 569 V19.2.0 (2026-03)

TECHNICAL SPECIFICATION

5G;
5G System;
Ambient IoT Function (AIOTF) Services;
Stage 3
(3GPP TS 29.569 version 19.2.0 Release 19)

Reference
RTS/TSGC-0329569vj20

Keywords
5G

ETSI

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Contents

Foreword

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

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2 presented to TSG for approval;

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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:

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.

1 Scope

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

The 5G System stage 2 architecture and procedures are specified in 3GPP TS 23.369 [14], 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

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

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

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

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[11] IETF RFC 9113: "HTTP/2".

[12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[13] IETF RFC 9457: "Problem Details for HTTP APIs".

[14] 3GPP TS 23.369: "Architecture support for Ambient power-enabled Internet of Things; Stage 2".

[15] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[16] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[17] 3GPP TS 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

[18] 3GPP TS 29.572: "5G System; Location Management Services; Stage 3".

[19] 3GPP TS 24.369: "Ambient IoT Non-Access-Stratum (AIoT NAS) protocol for 5G System (5GS); Stage 3".

3 Definitions, 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 23.369 [14] 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], 3GPP TS 23.369 [14] 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] or 3GPP TS 23.369 [14].

4 Overview

In the frame of AIoT Services, the AIoT Function (AIOTF) provides services to NF service consumers (e.g., NEF, AF) via the Naiotf service-based interface. The AIOTF supports for this purpose the functionalities defined in 3GPP TS 23.369 [14] to enable the management of AIoT services and their exposure to AIoT applications.

Figures°4-1 and 4.2 depict the AIoT related reference architecture of the AIOTF respectively in SBI representation and reference point representation.

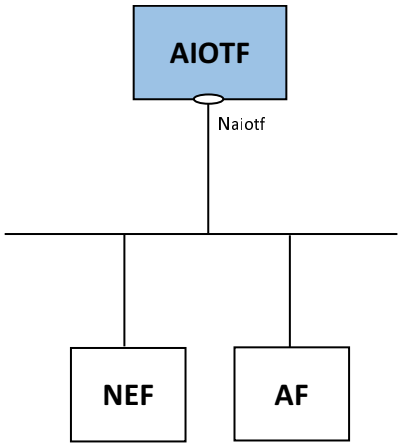

Figure 4-1: Reference model for the AIOTF Services – SBI representation

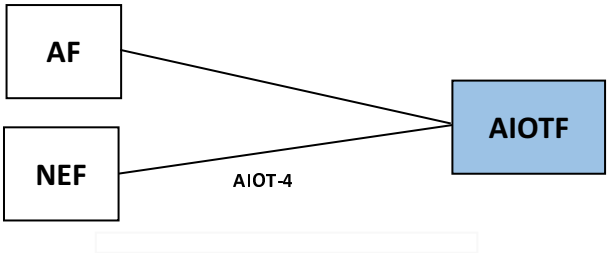

Figure 4-2: Reference Model for the AIOTF Services – Reference point representation

5 Services offered by the AIOTF

5.1 Introduction

The AIOTF provides the following services:

- Naiotf_AIoT

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

Table 5.1-1: API Descriptions

Service Name	Clause	Description	OpenAPI Specification File	apiName	Annex
Naiotf_AIoT	6.1	AIoT Service	TS29569_Naiotf_AIoT.yaml	naiotf-aiot	A.2

5.2 Naiotf_AIoT Service

5.2.1 Service Description

The Naiotf_AIoT service exposed by the AIOTF enables an NF service consumer to:

- request to perform AIoT Inventory operations;
- request to perform AIoT Command operations; and
- receive AIoT operations related event(s) reporting.

5.2.2 Service Operations

5.2.2.1 Introduction

The service operations defined for the Naiotf_AIoT service are shown in table 5.2.2.1-1.

Table 5.2.2.1-1: Naiotf_AIoT Service Operations

Service Operation Name	Description	Initiated by
Naiotf_AIoT_Inventory	This service operation enables the NF service consumer to request to perform an AIoT Inventory operation.	e.g., NEF, AF
Naiotf_AIoT_Command	This service operation enables the NF service consumer to request to perform an AIoT Command operation.	e.g., NEF, AF
Naiotf_AIoT_Notify	This service operation enables the NF service consumer to receive AIoT operations related event(s) reporting.	AIOTF

5.2.2.2 Naiotf_AIoT_Inventory

5.2.2.2.1 General

This service operation is used by an NF service consumer to request to perform an AIoT Inventory operation at the AIOTF.

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

- AIoT Inventory Request.