ETSI TS 129 251 V14.1.0 (2017-10)

LTE;
Gw and Gwn reference point for sponsored data connectivity
(3GPP TS 29.251 version 14.1.0 Release 14)

Reference
RTS/TSGC-0329251ve10

Keywords
LTE

ETSI

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 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:
http://www.etsi.org/standards-search

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.
Information on the current status of this and other ETSI documents is available at
https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx

If you find errors in the present document, please send your comment to one of the following services:
https://portal.etsi.org/People/CommiteeSupportStaff.aspx

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.
The content of the PDF version shall not be modified without the written authorization of ETSI.
The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2017.
All rights reserved.

DECT™, **PLUGTESTS**™, **UMTS**™ and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE**™ are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.
oneM2M logo is protected for the benefit of its Members.
GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (https://ipr.etsi.org/).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

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

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights 2
Foreword 2
Modal verbs terminology 2
Foreword 5
1 Scope 6
2 References 6
3 Definitions and abbreviations 7
3.1 Definitions 7
3.2 Abbreviations 7
4 Gw reference point 7
4.1 Overview 7
4.2 Gw reference model 7
4.3 Functional elements 8
4.3.1 PFDF 8
4.3.2 PCEF 8
4.4 Procedures over Gw reference point 8
4.4.1 Request for PFDs ("Pull mode" and "Combination mode") 8
4.4.2 Provisioning of PFDs ("Push mode"" and "Combination mode") 9
5 Gwn reference point 10
5.1 Overview 10
5.2 Gwn reference model 10
5.3 Functional elements 10
5.3.1 PFDF 10
5.3.2 TDF 10
5.4 Procedures over Gwn reference point 10
6 Gw/Gwn protocol 11
6.1 Introduction 11
6.2 Transport layer 11
6.3 Application delivery layer 12
6.3.2 Resources and URI design 12
6.3.2.1 General 12
6.3.2.2 URI design for Pull mode 13
6.3.2.3 URI design for Push mode 13
6.3.3 HTTP request/response formats 13
6.3.3.1 General 13
6.3.3.2 GET /gwapplication/pfds/{application-identifier} 14
6.3.3.3 GET /gwapplication/pfds?{query-parameters } 15
6.3.3.4 GET /gwapplication/pfds 17
6.3.3.5 POST /gwapplication/provisioning 18
6.3.4 HTTP status codes 20
6.3.5 Feature negotiation 20
6.3.5.1 General 20
6.3.5.2 HTTP custom headers 21
6.3.5.2.1 3gpp-Optional-Features 21
6.3.5.2.2 3gpp-Required-Features 21
6.3.5.2.3 3gpp-Accepted-Features 21
6.4 Specific application communication 22
6.4.1 General 22
6.4.2 Content type 22
6.4.3 JSON PFDs fields 22
6.4.3.1 General 22
6.4.3.2 application-identifier 22

6.4.3.3 void 22
6.4.3.4 caching-time 22
6.4.3.5 pfds 23
6.4.3.6 pfd-identifier 23
6.4.3.7 flow-descriptions 23
6.4.3.8 urls 23
6.4.3.9 domain-names 23
6.4.4 JSON provisioning fields 23
6.4.4.1 General 23
6.4.4.2 notification-flag 24
6.4.4.3 removal-flag 24
6.4.4.4 allowed-delay 24
6.4.4.5 partial-flag 24
6.4.5 JSON errors and informational response fields 24
6.4.5.1 General 24
6.4.5.2 error-tag 25
6.4.6 JSON report fields 25
6.4.6.1 General 25
6.4.6.2 pfd-reports 25
6.4.6.3 pfd-failure-code 26
6.5 The discovery of PCEF/TDF and PFDF 26
6.5.1 PCEF/TDF discovery 26
6.5.2 PFDF discovery 26

7 Secure communication 26

Annex A (normative): JSON Schema 27
A.1 PFDs schema 27
A.2 Provisioning schema 28
A.3 Error and Informational response schema 29

Annex B (informative): Call Flows 32
B.1 General 32
B.2 Request for PFDs (“Pull mode”) 32
B.3 Provisioning of PFDs (“Push mode”) 32
B.4 Provisioning of PFDs by Push with Notifications 33

Annex C (informative): Change history 35

History 36

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.

1 Scope

The present document provides the stage 3 specification of the Gw and Gwn reference points. The functional requirements and the stage 2 specifications of the Gw and Gwn reference points are specified in 3GPP TS 23.203 [2]. The Gw reference point lies between the Packet Flow Description Function (PFDF) and the Policy and Charging Enforcement Function (PCEF). The Gwn reference point lies between the Packet Flow Description Function (PFDF) and the Traffic Detection Function (TDF).

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 23.203: “Policy and charging control architecture”.

[3] 3GPP TS 29.213: "Policy and Charging Control signalling flows and QoS parameter mapping"

[4] 3GPP TS 23.682: "Architecture enhancements to facilitate communications with packet data networks and applications".

[5] 3GPP TS 29.212: "Policy and Charging Control (PCC); Reference points".

[6] IETF RFC 793: "Transmission Control Protocol".

[7] Void.

[8] 3GPP TS 33.210: "3G security; Network Domain Security (NDS); IP network layer security".

[9] IETF RFC 2818: "HTTP Over TLS".

[10] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax"

[11] IETF RFC 7159: "The JavaScript Object Notation (JSON) Data Interchange Format".

[12] IETF draft-newton-json-content-rules-08: "A Language for Rules Describing JSON Content".

Editor's note: The above document cannot be formally referenced until it is published as an RFC.

[13] IETF RFC 6733: "Diameter Base Protocol".

[14] 3GPP TS 29.250: "Nu reference point between SCEF and PFDF for sponsored data connectivity".

[15] 3GPP TS 29.155: "Traffic steering control; Representational state transfer (REST) over St reference point".

[16] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[17] IETF RFC 7231: "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content".

[18] IETF RFC 7232: "Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests".

[19] IETF RFC 7233: "Hypertext Transfer Protocol (HTTP/1.1): Range Requests".