# ETSI TR 129 909 V12.0.0 (2014-10)


**Digital cellular telecommunications system (Phase 2+);**
**Universal Mobile Telecommunications System (UMTS);**
**LTE;**
**Diameter-based protocols usage and recommendations in 3GPP**
**(3GPP TR 29.909 version 12.0.0 Release 12)**

Reference
RTR/TSGC-0329909vc00

Keywords
GSM, LTE, UMTS

***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

# 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 (http://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 Report (TR) 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**", "**may not**", "**need**", "**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

# Foreword

This Technical Report 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.

# Introduction

As a new generation AAA (Authentication, Authorization and Accounting) protocol, Diameter has been used widely and will be used more and more widely in 3GPP. Since several 3GPP WGs are developing Diameter based interfaces, e.g. CT3, CT4, etc, so in order to ensure correctness and consistency of using Diameter within all 3GPP WGs, a common set of principles, rules and recommendations across 3GPP WGs are necessary to be given clearly and followed. The present is to describe existing status of Diameter usage within 3GPP, find existing inconsistency of rules used for Diameter based interfaces which were specified in 3GPP and propose common recommendations of using Diameter to all 3GPP WGs to follow.

With more and more Diameter deployment, an inter-operator Diameter signalling network infrastructure will become necessary, so the present document will also study Diameter inter-operator considerations with brief guidelines on how to deploy & realize the inter-operator Diameter-based roaming infrastructure.

# 1 Scope

The present document contains a common set of principles, rules and recommendations across 3GPP WGs to ensure Diameter-based interfaces have the same treatment for release control and generating new applications-id. Also to address in a unified manner the use/re-use of AVPs, and other Diameter BASE (see IETF RFC 3588 [x]) related decisions.

The present document covers all aspects of Diameter usage within 3GPP, including description of the current situation of Diameter usage in different 3GPP WGs (CT3, CT4, SA5) in Release 6/7, describe recommendations and conditions to re-use existing Diameter applications (3GPP or IETF application-id), commands, AVPs and/or AVP values, describe recommendations and conditions to define new Diameter applications, commands, AVPs and/or AVP values, and any other related issues, e.g. the cross-release issue, whether to apply proposed guideline back to existing Diameter applications or not, or only new SAE Diameter interfaces, etc.

To achieve maximum benefit from this work it is strongly recommended that all 3GPP Diameter-based protocols follow the recommendations in the present document.

The present document also serves a placeholder for Diameter inter-operator considerations with brief guidelines on how to deploy & realize the inter-operator Diameter-based roaming infrastructure.

# 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] IETF RFC 3588 (September 2003): "Diameter Base Protocol".

[3] IETF RFC 4005 (August 2005): "Diameter Network Access Server Application".

[4] IETF RFC 4006 (August 2005): "Diameter Credit-Control Application".

[5] 3GPP TS 29.234: "3GPP system to Wireless Local Area Network (WLAN) interworking; Stage 3".

[6] IETF RFC 4072 (August 2005): "Diameter Extensible Authentication Protocol (EAP) Application".

[7] 3GPP TS 32.299: "Diameter charging applications ".

[8] 3GPP TS 29.229: "Cx and Dx interfaces based on the Diameter protocol; Protocol details".

[9] 3GPP TS 29.230: "Diameter applications; 3GPP specific codes and identifiers".

[10] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services and Packet Data Networks (PDN)"

[11] IETF Draft, "Diameter Base Protocol", draft-ietf-dime-rfc3588bis-08.txt, working in progress.

[12] IETF Draft, "Diameter Applications Design Guidelines", draft-ietf-dime-app-design-guide-03.txt, working in progress.