

Diameter Maintenance and  
Extensions (DIME)  
Internet-Draft  
Intended status: Informational  
Expires: May 14, 2009

D. Sun  
Alcatel-Lucent  
November 10, 2008

Diameter ITU-T Rw Policy Enforcement Interface Application  
draft-sun-dime-itu-t-rw-02.txt

#### Status of this Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at  
<http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at  
<http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on May 14, 2009.

Internet-Draft

ITU-T Rw Interface

November 2008

## Abstract

This document describes the need for a new pair of IANA Diameter Command Codes to be used in a vendor-specific new application, namely for the ITU-T Rec. Q.3303.3 - Rw interface used to send a request/responses for authorizing network QoS resources and policy enforcement in a network element, as one of the recommendations of the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T).

## Table of Contents

<a href="#">1.</a>	Introduction . . . . .	<a href="#">3</a>
<a href="#">2.</a>	Terminology . . . . .	<a href="#">4</a>
<a href="#">3.</a>	Diameter ITU-T Rw Policy Enforcement Interface . . . . .	<a href="#">5</a>
<a href="#">4.</a>	IANA Considerations . . . . .	<a href="#">6</a>
<a href="#">4.1.</a>	Application Identifier . . . . .	<a href="#">6</a>
<a href="#">4.2.</a>	Command Codes . . . . .	<a href="#">6</a>
<a href="#">4.3.</a>	AVP Codes . . . . .	<a href="#">6</a>
<a href="#">5.</a>	Security Considerations . . . . .	<a href="#">7</a>
<a href="#">6.</a>	Acknowledgements . . . . .	<a href="#">8</a>
<a href="#">7.</a>	References . . . . .	<a href="#">9</a>
<a href="#">7.1.</a>	Normative References . . . . .	<a href="#">9</a>
<a href="#">7.2.</a>	Informative References . . . . .	<a href="#">9</a>
	Author's Address . . . . .	<a href="#">10</a>
	Intellectual Property and Copyright Statements . . . . .	<a href="#">11</a>

## 1. Introduction

This document summarizes the use of Diameter codes in a newly defined realization of a specification for authorizing network QoS resources and policy enforcement. A new pair of Command Codes is requested to be assigned by IANA. The document summarizes the uses of newly defined Diameter codes (Command Codes, AVP, vendor-specific application id). When combined with the Diameter Base protocol, this application's specification [[Q.3303.3](#)] satisfies the requirements of [[Y.2111](#)] of the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T) to send a request and receive a response for controlling the policy enforcement.

The Diameter realization of this application assumes the use of Diameter Base protocol, as per [RFC 3588](#), and extends it only for a specific application using a vendor-id (ITU-T), a vendor-specific application ID (166777256), a new Command Code (TBD), and new AVPs defined in the vendor-specific namespace.

This application is used to authorize network QoS resources and policy enforcement (including amount of bandwidth, QoS class and traffic flow processing) as an extension of the Diameter application [[RFC4006](#)]. The request is based on the Diameter extensibility discussions in the DIME WG that led to the conclusion that it is better to define new Command Codes whenever the ABNF of a command is modified by adding, removing or semantically changing required AVP in order to avoid interoperability problems. The document is utilizing authorization and accounting functionality and the entire exchange is related to users utilizing applications that require QoS treatment. This approach is consistent with the practice and experience gained since the publication of [[RFC3588](#)] (see for example [[RFC5224](#)]) which is now under revision by the DIME Working Group and will provide a revised set of recommendations and procedures for IANA considerations[[draft-ietf-dime-3588bis](#)].

## [2.](#) Terminology

The base Diameter specification [\[RFC3588\] Section 1.4](#) defines most of the terminology used in this document. Additionally, the terms and acronyms defined in [Section 3](#) and Section 4 of [\[Q.3303.3\]](#) are used in this document.

### [3.](#) Diameter ITU-T Rw Policy Enforcement Interface

The Rw interface is used for information exchange to apply policy decisions between the Policy Decision Point (PDP, i.e. Policy Decision Functional Entity (PD-FE) in the ITU-T term) and the Policy Enforcement Point (PEP, i.e. Policy Enforcement Functional Entity (PE-FE) in the ITU-T term).

It allows the PDP to push the authorized admission decisions to the PEP. It also allows the PEP to request the authorization of admission decisions from the PDP when path-coupled resource reservation mechanisms are in use. The main information is conveyed by the Rw interface:

- o Resources reservation and/or allocation request for media flows;
- o QoS handling request such as packet marking and policing;
- o Gate control (opening/closing) request for a media flow;
- o NAPT and NAT traversal request for the necessary address mapping information;
- o Resource usage information request and report for media flows

The detailed descriptions of the Diameter Policy Enforcement interface ITU-T Rw can be found in [Section 5](#) of the [\[Q.3303.3\]](#).

#### [4.](#) IANA Considerations

This section provides guidance to the Internet Assigned Numbers Authority (IANA) regarding registration of values related to the Diameter protocol, in accordance with [BCP 26](#) [[RFC5226](#)].

This document defines values in the namespaces that have been created and defined in the [[RFC3588](#)]. The IANA Considerations section of that document details the assignment criteria. Values assigned in this document, or by future IANA action, must be coordinated within this shared namespace.

##### [4.1.](#) Application Identifier

A vendor-specific application ID - 166777256 for the application

[[Q.3303.3](#)] is assigned by the IANA.

Registry:

ID values	Name	Reference
-----		
166777256	ITU-T Rw	7.2.1 of ITU-T Q.3303.3

#### [4.2.](#) Command Codes

IANA is requested to allocate command code values for the following commands defined in Section 7.4 of [[Q.3303.3](#)] from the Command Code namespace defined in [[RFC3588](#)].

Registry:

Code Value	Name	Reference
-----		
to be assigned	Policy-Install-Request(PIR)	7.4.1 of ITU-T Q.3303.3
to be assigned	Policy-Install-Answer (PIA)	7.4.2 of ITU-T Q.3303.3

#### [4.3.](#) AVP Codes

The values 1010~1018 are assigned by ITU-T to the following AVPs within the ITU-T vendor-ID 11502 namespace: PI-Request-Type AVP, PI-Request-Number AVP, Traffic-Descriptor-UL AVP, Traffic-Descriptor-DL AVP, Maximum-Burst-Size AVP, Committed-Data-Rate AVP, Committed-Burst-Size AVP, Excess-Burst-Size, Removal-Cause AVP.

See Table 1/Q.3303.3 in Section 7.3.1 of [[Q.3303.3](#)] for the detailed information of AVP codes, value type and flag rules.

## [5.](#) Security Considerations

This document describes the Diameter Policy Enforcement Application. It builds on top of the Diameter Base protocol and the same security considerations described in [[RFC3588](#)] are applicable to this document. No further extensions are required beyond the security mechanisms offered by [[RFC3588](#)].





The author would like to thank Dan Romascanu, Hannes Tschofenig and Tina Tsou for their help and support. Finally, the author would like to thank Alcatel-Lucent, as most of the effort put into this document was done while he was in their employ.

## [7.](#) References

### [7.1.](#) Normative References

[Q.3303.3]

ITU-T Recommendation Q.3303.3, "Resource control protocol no. 3 (rcp3): Protocol at the Rw interface between the Policy Decision Physical Entity (PD-PE) and the Policy Enforcement Physical Entity (PE-PE): Diameter", 2008.

[RFC3588] Calhoun, P., Loughney, J., Guttman, E., Zorn, G., and J. Arkko, "Diameter Base Protocol", [RFC 3588](#), September 2003.

### [7.2.](#) Informative References

[RFC4006] Hakala, H., Mattila, L., Koskinen, J-P., Stura, M., and J. Loughney, "Diameter Credit-Control Application", August 2005.

[RFC5224] Brenner, M., "Diameter Policy Processing Application", March 2008.

[RFC5226] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", May 2008.

[Y.2111] ITU-T Recommendation Y.2111, "Resource and admission control functions in Next Generation Networks", September 2006.

[\[draft-ietf-dime-3588bis\]](#)

Fajardo, V., Arkko, J., Loughney, J., and G. Zorn, "Diameter Base Protocol", November 2008.

Internet-Draft

ITU-T Rw Interface

November 2008

Author's Address

Dong Sun  
Alcatel-Lucent  
600 Mountain Ave  
Murray Hill, NJ 07974  
USA

Phone: +1 908 582 2617

Email: [dongsun@alcatel-lucent.com](mailto:dongsun@alcatel-lucent.com)

## Full Copyright Statement

Copyright (C) The IETF Trust (2008).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

## Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this

specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).