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Diameter ITU-T Rw Policy Enforcement Interface Application

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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/response for authorizing network Quality of Service (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

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 [Q.3303.3]. A new pair of Command Codes have been assigned by IANA. This 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 the 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 (16777256), a new Command Code (315), and new attribute-value pairs (AVPs), which are defined in the vendor-specific namespace.

This application is used to authorize network QoS resources and policy enforcement (including the 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 a 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 who will provide a revised set of recommendations and procedures for IANA considerations [DIME].

2. Terminology

In 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., in the ITU-T term, Policy Decision Functional Entity (PD-FE)) and the Policy Enforcement Point (PEP, i.e., in the ITU-T term, Policy Enforcement Functional Entity (PE-FE)).

The interface 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 conveyed by the Rw interface is:

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

The detailed descriptions of the Diameter Policy Enforcement interface ITU-T Rw can be found in Section 5 of [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 [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 (16777256) for the application of [Q.3303.3] has been assigned by the IANA.

Registry:

ID values	Name	Reference
16777256	ITU-T Rw	7.2.1 of ITU-T Q.3303.3

4.2. Command Codes

IANA has allocated 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
315	Policy-Install-Request(PIR)	7.4.1 of ITU-T Q.3303.3
315	Policy-Install-Answer (PIA)	7.4.2 of ITU-T Q.3303.3

4.3. AVP Codes

The values 1010~1018 are assigned by the 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 detailed information on AVP codes, value types, 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].

6. Acknowledgements

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7. References

7.1. Normative References

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7.2. Informative References

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