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TECHNICAL SPECIFICATION

**Universal Mobile Telecommunications System (UMTS);
LTE;
Service capability exposure functionality over
Nt reference point
(3GPP TS 29.154 version 14.2.0 Release 14)**

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Contents

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;

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y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

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1   Scope

This document defines the protocol for Nt reference point. The functional requirements and the stage 2 specifications of the Nt reference point are contained in 3GPP TS 23.203 [2]. The Nt reference point lies between Service Capability Exposure Function (SCEF) and Policy and Charging Rules Function (PCRF).

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]   IETF RFC 3588: "Diameter Base Protocol".

[4]   IETF RFC 4006: "Diameter Credit Control Application".

[5]   3GPP TS 29.214: "Policy and Charging Control over Rx reference point".

[6]   3GPP TS 29.274: "3GPP Evolved Packet System. Evolved GPRS Tunnelling Protocol for EPS (GTPv2)".

[7]   IETF RFC 5719: "Updated IANA Considerations for Diameter Command Code Allocations ".

[8]   IETF RFC 2234: "Augmented BNF for syntax specifications ".

[9]   3GPP TS 29.213: "Policy and charging control signalling flows and Quality of Service (QoS) parameter mapping".

[10]   IETF RFC 7683: "Diameter Overload Indication Conveyance".

[11]   3GPP TS 29.229: "Cx and Dx interfaces based on Diameter protocol; Protocol details".

[12]   IETF RFC 7944: "Diameter Routing Message Priority".

[13]   3GPP TS 29.215: "Policy and Charging Control (PCC) over S9 reference point; Stage 3".

[14]   IETF draft-ietf-dime-load-09: "Diameter Load Information Conveyance".

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

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

3 Definitions 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].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] 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].

ASP	Application Service Provider
BTA	Background Data Transfer Answer
BTR	Background Data Transfer Request
DRA	Diameter Routing Agent
DRMP	Diameter Routing Message Priority
PCRF	Policy and Charging Rules Function
SCEF	Service Capability Exposure Function
SPR	Subscription Profile Repository

4 Nt reference point

4.1 Overview

The Nt reference point is located between the PCRF and the SCEF. The Nt reference point is used for:

- Reporting the transfer policies from the PCRF to the SCEF;

The stage 2 requirements for Nt reference point are defined in TS 23.203 [2].

Refer to Annex G of 3GPP TS 29.213 [9] for Diameter overload control procedures over the Nt interface.

Refer to Annex J of 3GPP TS 29.213 [9] for Diameter message priority mechanism procedures over the Nt interface.

Refer to Annex K of 3GPP TS 29.213 [9] for Diameter load control procedures over the Nt interface.

4.2 Nt Reference Model

The Nt reference point resides between the SCEF and PCRF. The relationship between the two functional entities is depicted in figure 4.2-1. The overall PCC architecture is depicted in subclause 3a of 3GPP TS 29.213 [9].
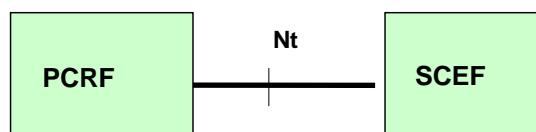

Figure 4.2-1: Nt reference model

NOTE: For roaming case, the SCEF is always in the H-PLMN and always contact the H-PCRF.

4.3 Functional elements

4.3.1 PCRF

The PCRF is a functional element that encompasses policy control decision and flow based charging control functionalities.

The PCRF uses the information received from SCEF and other available information to determine one or more transfer policies for background data to the application service provider. The PCRF provides the selected transfer policies with a reference ID to the SPR for storage.

4.3.2 SCEF

The SCEF is a functional element which provides a means to securely expose the services and capabilities provided by 3GPP network interfaces.

The SCEF is triggered by an SCS/AS which requests for the negotiation with the PCRF for providing necessary policy to transfer background data.

4.4 Procedures over the Nt reference point

4.4.1 Negotiation for future background data transfer

Based on the SCS/AS request, the SCEF shall send the Background-Data-Transfer-Request (BTR) command to the PCRF including the Transfer-Request-Type AVP with the value TRANSFER_POLICY_REQUEST(0), it shall also include the ASP identifier within the Application-Service-Provider-Identity AVP, volume of data per UE within the CC-Output-Octets AVP for downlink volume and/or the CC-Input-Octets AVP for uplink volume, or the CC-Total-Octets AVP for total volume regardless direction, expected number of UEs within the Number-Of-UEs AVP and desired time window within the Time-Window AVP.
The Time-Window AVP shall include desired start time within the Transfer-Start-Time AVP and desired end time within the Transfer-End-Time AVP.
The SCEF may also provide network area information within Network-Area-Info-List AVP.

Once the PCRF receives the BTR command, the PCRF shall retrieve all existing transfer policies stored for any ASP from the SPR.
When all existing transfer policies are retrieved, the PCRF shall determine one or more transfer policies based on the information received from the SCEF and other available information (e.g. network policy, congestion level (if available), load status estimation for the required time window and network area, existing transfer policies) and respond with a Background-Data-Transfer-Answer (BTA) command including the possible transfer policies within Transfer-Policy AVP (s) and a reference ID within Reference-Id AVP.
The Transfer-Policy AVP(s) shall include the Transfer-Policy-Id AVP, the Time-Window AVP, the Rating-Group AVP, and may also include an Max-Requested-Bandwidth-DL AVP and/or an Max-Requested-Bandwidth-UL AVP.

If more than one transfer policies are included in the BTA command, the PCRF shall also include the PCRF Id within the PCRF-Address AVP in the BTA command.

NOTE 1: If only one Transfer-Policy AVP is included in the BTA command, the PCRF sends a request to the SPR to store the reference ID together with the transfer policy and corresponding network area information(if available).
If there is more than one Transfer-Policy AVP included in the BTA command, the PCRF waits for the transfer policy selected by the SCS/AS before communicating with the SPR.

If there is more than one transfer policy provided from the PCRF to the SCEF in the BTA command, when the SCEF receives the selected transfer policy from the SCS/AS, the SCEF shall send Background-Data-Transfer-Request (BTR) command to the PCRF including the Transfer-Request-Type AVP set to the value TRANSFER_POLICY_NOTIFICATION (1). The SCEF shall also include the reference ID in the Reference-Id AVP, the identity of the selected transfer policy within the Transfer-Policy-Id AVP and the destination PCRF Id within the Destination-Host AVP.

NOTE 2: When receiving the BTA command from the PCRF, if there is only one transfer policy included, the SCEF forwards the transfer policy to SCS/AS.
If there is more than the one transfer policy included, the SCEF forwards these transfer policies to the SCS/AS and waits for the answer including the identity of the transfer policy selected by the SCS/AS.

The PCRF shall acknowledge the BTR command by sending Background-Data-Transfer-Answer (BTA) command.

NOTE 3: The PCRF sends a request to the SPR to store the reference ID together with the transfer policy and corresponding network area information (if available).

4.5 PCRF selection

The SCEF or DRA (if deployed) may select a PCRF in the HPLMN based on operator policy (e.g. pre-configured PCRF identities or routing strategy, etc).

5 Nt protocol

5.1 Protocol support

The Diameter Base Protocol as specified in IETF RFC 6733 [15] shall apply except as modified by the defined support of the methods and the defined support of the commands and AVPs, result and error codes as specified in this specification. Unless otherwise specified, the procedures specified in IETF RFC 6733 [15] (including error handling and unrecognised information handling) shall be used unmodified.

The Nt application is defined as vendor specific Diameter application, where the vendor is 3GPP and the Application-ID for the Nt Application in the present release is 16777348. The vendor identifier assigned by IANA to 3GPP (http://www.iana.org/assignments/enterprise-numbers) is 10415.

With regard to the Diameter protocol defined over the Nt interface, the PCRF acts as a Diameter server, in the sense that it is the network element that handles background data transfer request. The SCEF acts as the Diameter client, in the sense that it is the network element requesting background data transfer.

5.2 Initialization, maintenance and termination of connection and session

The initialization and maintenance of the connection between each SCEF and PCRF pair is defined by the underlying protocol. Establishment and maintenance of connections between Diameter nodes is described in IETF RFC 6733 [15].After establishing the transport connection, the SCEF and the PCRF shall advertise the support of the Nt specific Application by including the value of the application identifier in the Auth-Application-Id AVP and the value of the 3GPP (10415) in the Vendor-Id AVP of the Vendor-Specific-Application-Id AVP contained in the Capabilities-Exchange-Request and Capabilities-Exchange-Answer commands. The Capabilities-Exchange-Request and Capabilities-Exchange-Answer commands are specified in the Diameter Base Protocol (IETF RFC 6733 [15]).

An Nt Diameter session shall consist of a single request and answer pair. The Nt Diameter session is terminated after each request and answer pair interaction. In order to indicate that the session state is not to be maintained, the Diameter client and server shall include the Auth-Session-State AVP with the value set to NO_STATE_MAINTAINED (1), in the request and in the answer messages (see IETF RFC 6733 [15]).

5.3 Nt specific AVPs

5.3.1 General

Table 5.3.1.1 describes the Diameter AVPs defined for the Nt reference point, their AVP Code values, types, possible flag values, whether or not the AVP may be encrypted and which supported features the AVP is applicable to. The Vendor-Id header of all AVPs defined in the present document shall be set to 3GPP (10415).

Table 5.3.1.1: Nt specific Diameter AVPs

Attribute Name	AVP Code	Clause defined	Value Type (Note 2)	AVP Flag rules (Note 1)				Applicability
				Must	May	Should not	Must not	
Network-Area-Info-List	4201	5.3.2	OctetString	M,V	P			
Number-Of-UEs	4209	5.3.10	Unsigned32	M,V	P			
Reference-Id	4202	5.3.3	OctetString	M,V	P			
Transfer-Request-Type	4203	5.3.4	Unsigned32	M,V	P			
Time-Window	4204	5.3.5	Grouped	M,V	P			
Transfer-End-Time	4205	5.3.6	Time	M,V	P			
Transfer-Policy	4207	5.3.8	Grouped	M,V	P			
Transfer-Policy-Id	4208	5.3.9	Unsigned32	M,V	P			
Transfer-Start-Time	4206	5.3.7	Time	M,V	P			
NOTE 1: The AVP header bit denoted as 'M', indicates whether support of the AVP is required. The AVP header bit denoted as 'V', indicates whether the optional Vendor-ID field is present in the AVP header. For further details, see IETF RFC 6733 [15]. NOTE 2: The value types are defined in IETF RFC 6733 [15].								

5.3.2 Network-Area-Info-List AVP

The Network-Area-Info-List AVP (AVP code 4201) is of type OctetString, it contains the network area information which is coded as specified in 3GPP TS 29.274 [6] in Presence Reporting Area Action IE, starting from octet 9.

5.3.3 Reference-Id AVP

The Reference-Id AVP (AVP code 4202) is of type OctetString. It is used by the PCRF to correlate an SCS/AS request with the transfer policy retrieved from the SPR. It is assigned by the PCRF and shall be globally unique per PLMN.

NOTE: To guarantee the uniqueness of the Reference Id, the Reference Id can follow the definition of Session Id in IETF RFC 6733 [15].

5.3.4 Transfer-Request-Type AVP

The Transfer-Request-Type AVP (AVP code 4203) is of type Unsigned32, it contains the reason for sending the BT-Request message.

The following values are defined:

0 (TRANSFER_POLICY_REQUEST)

The BT-Request message is sent to initiate a transfer policy request procedure.

1 (TRANSFER_POLICY_NOTIFICATION)

The BT-Request message is sent to initiate a transfer policy notification procedure.

5.3.5 Time-Window AVP

The Time-Window AVP (AVP code 4204) is of type Grouped. It contains a Transfer-Start-Time and a Transfer-End-Time. It describes the time interval during which the SCS/AS may realize the background data transfer.

```
Time-window ::= < AVP Header: 4204 >
                { Transfer-Start-Time }
                { Transfer-End-Time }
                *[ AVP ]
```

5.3.6 Transfer-End-Time AVP

The Transfer-End-Time AVP (AVP code 4205) is of type Time. It indicates the NTP time at which the SCS/AS shall stop the background data transfer.

5.3.7 Transfer-Start-Time AVP

The Transfer-Start-Time AVP (AVP code 4206) is of type Time. It indicates he NTP time when the SCS/AS may start the background data transfer.

5.3.8 Transfer-Policy AVP

The Transfer-Policy AVP (AVP code 4207) is of type Grouped. It indicates the transfer policy determined by the PCRF.

```
Transfer-Policy ::= < AVP Header: 4207 >
                    { Transfer-Policy-Id }
                    [ Time-Window ]
                    [ Rating-Group ]
                    [ Max-Requested-Bandwidth-DL ]
                    [ Max-Requested-Bandwidth-UL ]
                    *[ AVP ]
```

5.3.9 Transfer-Policy-Id AVP

The Transfer-Policy-Id AVP (AVP code 4208) is of type Unsigned32. It indicates the identity of the transfer policy. It is assigned by the PCRF and is unique per Reference-Id.

5.3.10   Number-Of-UEs AVP

The Number-Of-UEs AVP (AVP code 4209) is of type Unsigned32. It indicates the expected number of UEs.

5.4   Nt re-used AVPs

5.4.1   General

Table 5.4.1 lists the Diameter AVPs re-used by the Nt reference point from other existing Diameter Applications, reference to their respective specifications, short description of their usage within the Nt reference point. Other AVPs from existing Diameter Applications, except for the AVPs from Diameter base protocol, do not need to be supported. The AVPs from Diameter base protocol are not included in table 5.4.1, but they are re-used for the Nt reference point. Unless otherwise stated, re-used AVPs shall maintain their 'M', 'P' and 'V' flag settings.

Table 5.4.1: Nt re-used Diameter AVPs

Attribute Name	Reference	Description	Applicability (NOTE)
Application-Service-Provider-Identity	3GPP TS 29.214 [5]	The identity of the application service provider that is delivering a service to an end user.	
CC-Output-Octets	IETF RFC 4006 [4]	It contains the number of requested, octets that may be sent to involved users.	
CC-Input-Octets	IETF RFC 4006 [4]	It contains the number of requested octets that may be received from the involved users.	
CC-Total-Octets	IETF RFC 4006 [4]	It contains the total number of requested octets regardless of the direction (sent or received).	
DRMP	IETF RFC 7944 [12]	Allows Diameter endpoints to indicate the relative priority of Diameter transactions.	
Load	IETF draft-ietf-dime-load [14]	The AVP used to convey load information between Diameter nodes. This AVP and all AVPs within this grouped AVP shall have the 'M' bit cleared.	
Max-Requested-Bandwidth-DL	3GPP TS 29.214 [5]	Defines the maximum aggregated authorized bandwidth for downlink by the PCRF.	
Max-Requested-Bandwidth-UL	3GPP TS 29.214 [5]	Defines the maximum aggregated authorized bandwidth for uplink by the PCRF.	
OC-OLR	IETF RFC 7683 [10]	Contains the necessary information to convey an overload report.	
OC-Supported-Features	IETF RFC 7683 [10]	Defines the support for the Diameter overload indication conveyence by the sending node.	
PCRF-Address	3GPP TS 29.215 [13]	The identity, which indicates the destination PCRF.	
Rating-Group	IETF RFC 4006 [4]	The charging key for the aggregated traffic of all involved UEs used for rating purpose.	
Supported-Features	3GPP TS 29.229 [11]	If present, this AVP informs the destination host about the features that the origin host requires to successfully complete this command exchange.	
NOTE: AVPs marked with a supported feature are applicable as described in subclause 5.4.2.			

5.4.2 Use of the Supported-Features AVP on the Nt reference point

When new functionality is introduced on the Nt reference point, it should be defined as optional. If backwards incompatible changes cannot be avoided, the new functionality shall be introduced as a new feature and support advertised with the Supported-Features AVP. Unless otherwise stated, the use of the Supported-Features AVP on the Nt reference point shall be compliant to the usage of the Supported-Features AVP on the Cx reference point and consistent with the procedures for the dynamic discovery of supported features as defined in subclause 7.2 of 3GPP TS 29.229 [11].

The base functionality for the Nt reference point is the 3GPP Rel-13 standard and a feature is an extension to that functionality. If the origin host does not support any features beyond the base functionality, the Supported-Features AVP may be absent from the Nt commands. As defined in subclause 7.1.1 of 3GPP TS 29.229 [11], when extending the application by adding new AVPs for a feature, the new AVPs shall have the M bit cleared and the AVP shall not be defined mandatory in the command ABNF.

When extending the application by adding new AVPs for a feature, the new AVPs shall have the M bit cleared and the AVP shall not be defined mandatory in the command ABNF.

As defined in 3GPP TS 29.229 [11], the Supported-Features AVP is of type grouped and contains the Vendor-Id, Feature-List-ID and Feature-List AVPs. On the all reference points as specified in this specification, the Supported-Features AVP is used to identify features that have been defined by 3GPP and hence, for features defined in this document, the Vendor-Id AVP shall contain the vendor ID of 3GPP (10415). If there are multiple feature lists defined for the reference point, the Feature-List-ID AVP shall differentiate those lists from one another.

The Supported-Features AVP shall be included in every BTR and BTA command if supported by the SCEF and PCRF respectively.

The table 5.4.2.1 defines the features applicable to the Nt reference point for the feature list with a Feature-List-ID of 1.

Table 5.4.2.1: Features of Feature-List-ID 1 used in Nt

Feature bit	Feature	M/O	Description
Feature bit: The order number of the bit within the Feature-List AVP where the least significant bit is assigned number "0".			
Feature: A short name that can be used to refer to the bit and to the feature, e.g. "EPS".			
M/O: Defines if the implementation of the feature is mandatory ("M") or optional ("O") in this 3GPP Release.			
Description: A clear textual description of the feature.			

NOTE: This table is a placeholder for when any supported features are added to Nt. There are no supported features in this release.

5.5 Nt specific Experimental-Result-Code AVP values

5.5.1 General

This subclause defines result code values that shall be supported by Diameter implementations that conform to this specification.

5.5.2 Success

Result Codes that fall into the Success category are used to inform a peer that a request has been successfully completed. The Result-Code AVP values defined in Diameter base protocol IETF RFC 6733 [15] are applied.

5.5.3 Permanent Failures

Errors that fall into the Permanent Failures category shall be used to inform the peer that the request has failed, and should not be attempted again.

The Result-Code AVP values defined in Diameter base protocol IETF RFC 6733 [15] are applied.

5.5.4 Transient Failures

Errors that fall within the Transient Failures category are used to inform a peer that the request could not be satisfied at the time it was received, but may be able to satisfy the request in the future.

The Result-Code AVP values defined in Diameter base protocol IETF RFC 6733 [15] are applied.

5.6 Nt messages

5.6.1 Command-Code Values

This subclause defines the Command-Code values for the Nt interface application as allocated by IANA from the vendor-specific namespace defined in IETF RFC 5719 [7]. Every command is defined by means of the ABNF syntax in IETF RFC 2234 [8], and according to the rules in IETF RFC 6733 [15].

NOTE: As the commands in the present specification have originally been defined based on the former specification of the Diameter Base Protocol (IETF RFC 3588 [3]), the Vendor-Specific-Application-Id AVP is still assumed as a required AVP (an AVP indicated as {AVP}) in the command code format to avoid backward compatibility issues, even if the use of this AVP has been deprecated in the new specification of the Diameter Base Protocol (IETF RFC 6733 [15]).

The Nt application identifier shall be included in the Auth-Application-Id AVP within the Vendor-Specific-Application-Id grouped AVP contained in the BT-Request/Answer commands.

The following Command Codes are defined in this specification:

Table 5.6.1: Command-Code values for Nt

Command-Name	Abbreviation	Code	Section
Background-Data-Transfer-Request	BTR	8388723	5.6.2
Background-Data-Transfer-Answer	BTA	8388723	5.6.3

5.6.2   Background-Data-Transfer-Request (BTR) command

The BTR command, indicated by the Command-Code field set to 8388723 and the 'R' bit set in the Command Flags field, is sent by the SCEF to the PCRF as part of Negotiation for future background data transfer procedure.

Message Format:

```
<BT-Request> ::= <Diameter Header: 8388723, REQ, PXY >
                < Session-Id >
                [ DRMP ]
                { Vendor-Specific-Application-Id }
                { Auth-Session-State }
                { Origin-Host }
                { Origin-Realm }
                { Destination-Realm }
                { Transfer-Request-Type }
                [ Destination-Host ]
                [ OC-Supported-Features ]
                [ Application-Service-Provider-Identity ]
                [ CC-Output-Octets ]
                [ CC-Input-Octets ]
                [ CC-Total-Octets ]
                [ Number-Of-UEs ]
                [ Time-Window ]
                [ Network-Area-Info-List ]
                [ Reference-Id ]
                [ Transfer-Policy-Id ]
               *[ Proxy-Info ]
               *[ Route-Record ]
               *[ Supported-Features ]
               *[ AVP ]
```

5.6.3   Background-Data-Transfer-Answer (BTA) command

The BTA command, indicated by the Command-Code field set to 8388723 and the 'R' bit cleared in the Command Flags field, is sent by the PCRF to the SCEF as part of Negotiation for future background data transfer procedure.

Message Format:

```
<BT-Answer> ::= <Diameter Header: 8388723, PXY >
                < Session-Id >
                [ DRMP ]
                { Vendor-Specific-Application-Id }
                { Auth-Session-State }
                { Origin-Host }
                { Origin-Realm}
                [ Result-Code ]
                [ Experimental-Result ]
                [ Error-Message ]
                [ Error-Reporting-Host ]
                [ Failed-AVP ]
               *[ Redirect-Host ]
                [ Redirect-Host-Usage ]
```

```
            [ Redirect-Max-Cache-Time ]
            [ Reference-Id ]
            [ OC-Supported-Features ]
            [ OC-OLR ]
           *[ Transfer-Policy ]
            [ PCRF-Address ]
           *[ Proxy-Info ]
           *[ Route-Record ]
           *[ Supported-Features ]
           *[ Load ]
           *[ AVP ]
```

Annex A (informative):
Change history

Change history								
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment		Old	New
2015-08					Editor's Initial Draft			0.0.0
2015-08	CT3#82	C3-153468			Initial version includes agreed documents: C3-153405, C3-153406, C3-153408,		0.0.0	0.1.0
2015-10	CT3#82 bis				Initial version includes agreed documents:C3-154100, C3-154293, C3-154180, C3-154317, C3-154295, C3-154330		0.1.0	0.2.0
2015-11	CT3#83	C3-155418			Initial version includes agreed documents: C3-155110, C3-155150, C3-155277, C3-155279, C3-155281, C3-155282, C3-155332, C3-155356.		0.2.0	1.0.0
2015-11	CT#70	CP-150823			TS presented to plenary for information and approval		1.0.0	1.0.1
2015-12	CT#70	CP-150823			TS 29.154 upgraded tp 13.0.0 after approval		1.0.1	13.0.0

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Cat	Subject/Comment	New
2016-03	CT#71	CP-160095	0001	1	F	Add command codes and AVP numbers for Nt protocol	13.1.0
2016-03	CT#71	CP-160095	0002	2	F	Missed Transfer-Request-Type AVP in the BTR/BTA commands	13.1.0
2016-03	CT#71	CP-160095	0003	2	F	Some corrections for Nt protocol	13.1.0
2016-03	CT#71	CP-160093	0004	2	B	Diameter Message Priority over Nt interface	13.1.0
2016-06	CT#72	CP-160251	0005	2	F	Some corrections to 29.154	13.2.0
2016-06	CT#72	CP-160251	0006	-	F	Correction of future background data transfer procedure	13.2.0
2016-06	CT#72	CP-160251	0007	-	F	Define Diameter application identifier for Nt reference point	13.2.0
2016-09	CT#73	CP-160444	0008	2	F	Correction of the inconsistent terminology	13.3.0
2016-09	CT#73	CP-160444	0009	2	F	Correction to PCRF addressing of transfer policy negotiation	13.3.0
2016-12	CT#74	CP-160614	0011	-	F	Change IETF drmp draft version to official RFC 7944	13.4.0
2016-12	CT#74	CP-160615	0010	1	B	Diameter Load Control Mechanism	14.0.0
2016-12	CT#74	CP-160616	0012	1	F	Diameter base protocol specification update	14.0.0
2017-03	CT#75	CP-170076	0013	-	F	Update instance number for the Failed-AVP in answer commands	14.1.0
2017-06	CT#76	CP-171119	0019	1	F	Reference update for draft-ietf-dime-load	14.2.0
2017-06	CT#76	CP-171136	0020	1	F	Vendor-Specific-Application-Id AVP handling	14.2.0

History

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V14.1.0	April 2017	Publication
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