

# ETSI TS 129 282 V8.1.0 (2009-06)

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*Technical Specification*

**Universal Mobile Telecommunications System (UMTS);  
LTE;  
Mobile IPv6 vendor specific option format  
and usage within 3GPP  
(3GPP TS 29.282 version 8.1.0 Release 8)**

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**Reference**

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# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

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Version x.y.z

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- 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.

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# 1 Scope

The present document specifies the format and usage of the Mobile IPv6 Vendor Specific Option [2] within the Third Generation Partnership Project.

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# 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 5094: "Mobile IPv6 Vendor Specific Option"
- [3] IANA Private Enterprise Numbers Registry, <<http://www.iana.org/assignments/enterprise-numbers>>.
- [4] IETF RFC 3775: "Mobility Support in IPv6"
- [5] IETF Draft draft-ietf-mext-nemo-v4traversal: "Mobile IPv6 Support for Dual Stack Hosts and Routers (DSMIPv6)"
- [6] IETF RFC 5213: "Proxy Mobile IPv6"
- [7] 3GPP TS 29.275: "Proxy Mobile IPv6 (PMIPv6) based Mobility and Tunnelling protocols; Stage 3".
- [8] 3GPP TS 24.327: "Mobility between 3GPP Wireless Local Area Network (WLAN) interworking (I-WLAN) and 3GPP systems; General Packet Radio System (GPRS) and 3GPP I-WLAN aspects; Stage 3".

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# 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 3GPP 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].

# 4 3GPP Mobile IPv6 Option

## 4.1 General

The 3GPP Mobile IPv6 Option is a Mobile IPv6 Vendor-Specific Option as defined by IETF RFC 5094 [2] using the Vendor-Id assigned to 3GPP. The 3GPP Mobile IPv6 Option is used to encode 3GPP Specific Information Elements within the protocols based on Mobile IPv6 (MIPv6) as defined by IETF RFC 3775 [4], such as the Dual Stack Mobile IPv6 (DSMIPv6) and Proxy Mobile IPv6 (PMIPv6) protocols respectively defined by IETF Draft draft-ietf-mext-nemo-v4traversal [5] and IETF RFC 5213 [6].

## 4.2 Format

The format of the 3GPP Mobile IPv6 Option is shown in table 4.2-1. The defined 3GPP Specific Information Elements are listed in table 4.2-2. The data format of a given 3GPP Specific Information Element (IE) is defined in the specification defining its usage, as indicated in table 4.2-2.

| Octets | Bits                              |   |   |   |   |   |   |
|--------|-----------------------------------|---|---|---|---|---|---|
|        | 8                                 | 7 | 6 | 5 | 4 | 3 | 2 |
| 1      | Type                              |   |   |   |   |   |   |
| 2      | Length                            |   |   |   |   |   |   |
| 3      | Vendor Id (1 <sup>st</sup> Octet) |   |   |   |   |   |   |
| 4      | Vendor Id (2 <sup>nd</sup> Octet) |   |   |   |   |   |   |
| 5      | Vendor Id (3 <sup>rd</sup> Octet) |   |   |   |   |   |   |
| 6      | Vendor Id (4 <sup>th</sup> Octet) |   |   |   |   |   |   |
| 7      | Sub-Type                          |   |   |   |   |   |   |
| 8      | Reserved                          |   |   |   |   |   | M |
| 9-n    | 3GPP Specific IE Data Fragment    |   |   |   |   |   |   |

Figure 4.2-1: 3GPP Mobile IPv6 Option

**Table 4.2-1: Fields in a 3GPP Mobile IPv6 Option**

| Field  | Content   | Reference    |
|--|---|--------------|
| Type   | Value is decimal 19 the assigned value for the Vendor-Specific mobility option  | RFC 5094 [2] |
| Length                                       | An 8-bit field indicating the length of the option in octets excluding the Type and the Length fields. All other fields are included.   | RFC 5094 [2] |
| Vendor ID                                    | A 32-bit field. Value is set to the SMI Network Management Private Enterprise Number for 3GPP, which is decimal "10415".  | IANA [3]     |
| Sub-Type                                     | Indicate the type of the 3GPP Specific Information Element encoded by the 3GPP Mobile IPv6 Option.  | RFC 5094 [2] |
| Reserved                                     | Value set to zero by sender and ignored by receiver.  | Defined here |
| More 3GPP Specific IE Data Fragment (M) Flag | Value set to "1" if this instance of the 3GPP Mobile IPv6 Option is followed by another 3GPP Mobile IPv6 Option encoding the follow up 3GPP Specific IE data fragment that does not fit in this instance of the 3GPP Mobile IPv6 Option. Set to zero otherwise.   | Defined here |
| 3GPP Specific IE Data Fragment               | The 3GPP Specific IE might be split over multiple 3GPP Mobile IPv6 Options in case the total length of the 3GPP Specific Information Element exceeds 248 bytes. This is the data fragment of the 3GPP Specific IE contained in this instance of the 3GPP Mobile IPv6 Option. The data fragment has a maximum length of 248 bytes. | Defined here |

**Table 4.2-2: Subtypes for 3GPP specific Information Elements**

| 3GPP-specific IE Subtype | 3GPP-specific Information Element                      | Reference          |
|--------------------------|--|--------------------|
| 1                        | Protocol Configuration Options.                        | 3GPP TS 29.275 [7] |
| 2                        | 3GPP Specific PMIPv6 Error Code.                       | 3GPP TS 29.275 [7] |
| 3                        | PMIPv6 PDN GW IP Address.                              | 3GPP TS 29.275 [7] |
| 4                        | PMIPv6 DHCPv4 Address Allocation Procedure Indication. | 3GPP TS 29.275 [7] |
| 5                        | PMIPv6 Fully Qualified PDN Connection Set Identifier   | 3GPP TS 29.275 [7] |
| 6                        | PMIPv6 PDN type indication.                            | 3GPP TS 29.275 [7] |
| 7                        | Charging ID  | 3GPP TS 29.275 [7] |
| 8                        | Selection Mode   | 3GPP TS 29.275 [7] |
| 9                        | I-WLAN Mobility Access Point Name (APN).               | 3GPP TS 24.327 [8] |
| 10                       | Charging Characteristics                               | 3GPP TS 29.275 [7] |
| 11                       | Mobile Equipment Identity (MEI)                        | 3GPP TS 29.275 [7] |
| 12                       | MSISDN   | 3GPP TS 29.275 [7] |
| 13                       | Serving Network  | 3GPP TS 29.275 [7] |



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## Annex A (informative): Change History

| Change history |       |           |      |     |  |       |       |
|----------------|-------|-----------|------|-----|--|-------|-------|
| Date           | TSG # | TSG Doc.  | CR   | Rev | Subject/Comment                              | Old   | New   |
| 03/2009        | CT#43 | CP-090057 |      |     | V1.0.0 Approved in CT#43                     | 1.0.0 | 8.0.0 |
| 06/2009        | CT#43 | CP-090290 | 0001 |     | PMIP VSO Charging Characteristics            | 8.0.0 | 8.1.0 |
|                |       | CP-090290 | 0002 | 2   | Registration of new 3GPP specific PMIPv6 IEs |       |       |
|                |       | CP-090290 | 0003 | 2   | FQ-CSID                                      |       |       |

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# History

| <b>Document history</b> |            |             |
|-------------------------|------------|-------------|
| V8.0.0                  | April 2009 | Publication |
| V8.1.0                  | June 2009  | Publication |
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