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MN Identifier Types for RFC 4283 Mobile Node Identifier Option
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Abstract

Additional Identifier Types are proposed for use with the Mobile Node Identifier Option for MIPv6 (RFC 4283).

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Table of Contents

1. Introduction	2
2. New Mobile Node Identifier Types	2
3. Security Considerations	3
4. IANA Considerations	4
5. References	6
5.1. Normative References	6
5.2. Informative References	6
Authors' Addresses	7

1. Introduction

The Mobile Node Identifier Option for MIPv6 [RFC4283] has proved to be a popular design tool for providing identifiers for mobile nodes during authentication procedures with AAA protocols such as Diameter [RFC3588]. To date, only a single type of identifier has been specified, namely the MN NAI. Other types of identifiers are in common use, and even referenced in RFC 4283. In this document, we propose adding some basic types that are commonly in use in various telecommunications standards, including the IMSI, P-TMSI, IMEI, GUTI, and IEEE MAC-layer addresses. In addition, we include the IPv6 address itself as a legitimate mobile node identifier.

2. New Mobile Node Identifier Types

The following types of identifiers are commonly used to identify mobile nodes. For each type, references are provided with full details on the format of the type of identifier.

EPC supports several encoding systems or schemes including

- o RFID-GID (Global Identifier),
- o RFID-SGTIN (Serialized Global Trade Item Number),
- o RFID-SSCC (Serial Shipping Container),
- o RFID-GLN (Global Location Number),
- o RFID-GRAI (Global Returnable Asset Identifier),
- o RFID-DOD (Department of Defense) and
- o RFID-GIAI (Global Individual Asset Identifier).

For each RFID scheme except GID, there are two variations: a 64-bit scheme (for example, GLN-64) and a 96-bit scheme (GLN-96). GID has only a 96-bit scheme. Within each scheme, an EPC identifier can be represented in a binary form or other forms such as URI.

The following list includes the above RFID types as well as various other common identifiers and several different types of DUIDs.

- o IPv6 Address [RFC2373]
- o IMSI [ThreeGPP-IDS]
- o P-TMSI [ThreeGPP-IDS]
- o GUTI [ThreeGPP-IDS]
- o EUI-48 address [IEEE802]
- o EUI-64 address [IEEE802]
- o DUID-LLT [RFC3315]
- o DUID-EN [RFC3315]
- o DUID-LL [RFC3315]
- o DUID-UUID [RFC6355]
- o 12-15 reserved
- o 16 reserved
- o RFID-SGTIN-64 [EPC-Tag-Data]
- o RFID-SSCC-64 [EPC-Tag-Data]
- o RFID-GLN-64 [EPC-Tag-Data]
- o RFID-GRAI-64 [EPC-Tag-Data]
- o RFID-DOD-64 [RFID-DoD-96]
- o RFID-GIAI-64 [EPC-Tag-Data]
- o 23 reserved
- o RFID-GID-96 [EPC-Tag-Data]
- o RFID-SGTIN-96 [EPC-Tag-Data]
- o RFID-SSCC-96 [EPC-Tag-Data]
- o RFID-GLN-96 [EPC-Tag-Data]
- o RFID-GRAI-96 [EPC-Tag-Data]
- o RFID-DOD-96 [RFID-DoD-96]
- o RFID-GIAI-96 [EPC-Tag-Data]
- o 31 reserved
- o RFID-GID-URI [EPC-Tag-Data]
- o RFID-SGTIN-URI [EPC-Tag-Data]
- o RFID-SSCC-URI [EPC-Tag-Data]
- o RFID-GLN-URI [EPC-Tag-Data]
- o RFID-GRAI-URI [EPC-Tag-Data]
- o RFID-DOD-URI [RFID-DoD-96]
- o RFID-GIAI-URI [EPC-Tag-Data]
- o 39-255 reserved

3. Security Considerations

This document does not introduce any security mechanisms, and does not have any impact on existing security mechanisms. Insofar as the selection of a security association may be dependent on the exact form of a mobile node identifier, additional specification may be necessary when the new identifier types are employed with the general AAA mechanisms for mobile node authorizations.

Some identifiers (e.g., IMSI) are considered to be private information. If used in the MNID extension as defined in this document, the packet including the MNID extension should be encrypted

so that personal information or trackable identifiers would not be inadvertently disclosed to passive observers. Moreover, MNIDs containing sensitive identifiers might only be used for signaling during initial network entry. Subsequent binding update exchanges would then rely on a temporary identifier allocated during the initial network entry.

4. IANA Considerations

The new mobile node identifier types defined in the document should be assigned values from the "Mobile Node Identifier Option Subtypes" registry. The following values should be assigned.

New Mobile Node Identifier Types

Identifier Type	Identifier Type Number
IPv6 Address	2
IMSI	3
P-TMSI	4
EUI-48 address	5
EUI-64 address	6
GUTI	7
DUID-LLT	8
DUID-EN	9
DUID-LL	10
DUID-UUID	11
	12-15 reserved
	16 reserved
RFID-SGTIN-64	17
RFID-SSCC-64	18
RFID-GLN-64	19
RFID-GRAI-64	20
RFID-DOD-64	21
RFID-GIAI-64	22
	23 reserved
RFID-GID-96	24
RFID-SGTIN-96	25
RFID-SSCC-96	26
RFID-GLN-96	27
RFID-GRAI-96	28
RFID-DOD-96	29
RFID-GIAI-96	30
	31 reserved
RFID-GID-URI	32
RFID-SGTIN-URI	33
RFID-SSCC-URI	34
RFID-GLN-URI	35
RFID-GRAI-URI	36
RFID-DOD-URI	37
RFID-GIAI-URI	38
	39-255 reserved

Table 1

See Section 2 for details about the identifier types.

5. References

5.1. Normative References

- [RFC2373] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", RFC 2373, July 1998.
- [RFC3315] Droms, R., Bound, J., Volz, B., Lemon, T., Perkins, C., and M. Carney, "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", RFC 3315, July 2003.
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- [RFC4283] Patel, A., Leung, K., Khalil, M., Akhtar, H., and K. Chowdhury, "Mobile Node Identifier Option for Mobile IPv6 (MIPv6)", RFC 4283, November 2005.
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- [RFC6355] Narten, T. and J. Johnson, "Definition of the UUID-Based DHCPv6 Unique Identifier (DUID-UUID)", RFC 6355, August 2011.

5.2. Informative References

- [EPC-Tag-Data] EPCglobal Inc., , "EPC(TM) Generation 1 Tag Data Standards Version 1.1 Rev.1.27 http://www.gs1.org/gsmp/kc/epcglobal/tds/tds_1_1_rev_1_27-standard-20050510.pdf", January 2005.
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- [RFID-DoD-96] Department of Defense, , "United States Department of Defense Suppliers Passive RFID Information Guide (Version 15.0)", January 2010.

[ThreeGPP-IDS]

3rd Generation Partnership Project, , "3GPP Technical Specification 23.003 V8.4.0: Technical Specification Group Core Network and Terminals; Numbering, addressing and identification (Release 8)", March 2009.

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