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Generalized NAI (GNAI) Extension for Mobile IPv4

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Abstract

The IP Mobility Support for IPv4, revised [4] specification defines a new extension header format, that is intended to extend the Mobile IP extension address space. This document defines the Generalized Network Access Identifier (GNAI) extension, which SHOULD be used by any Mobile IP extension specifying an extension containing an NAI.

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1.0 Introduction

The IP Mobility Support for IPv4, revised specification [4] defines a new extension header format, that is intended to extend the Mobile IP extension address space. The use of a Network Access Identifier for Mobile Nodes for Mobile IPv4 is specified in [2]. This work extends this idea by specifying NAIs for other Mobile IPv4 network elements such as the Foreign Agent and the Home agent in an extension format that optimizes the number space for new extensions. This specification does not define a sub-type to carry a Mobile Node's NAI, since this is already defined in [2].

2.0 Specification Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [1].

3.0 A Generalized NAI (GNAI) Extension

This section defines the GNAI Extension, used by any extension that must carry data in the format of an NAI [2]. This extension may be carried by Registration Request and Reply messages.

0										1										2										3									
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1								
+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-								
Type										Length										Sub-Type										NAI ...									
+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-								

Type

(Type to be assigned by IANA) (skippable) [4]

Length

8-bit unsigned integer. Length of the extension, in octets, excluding the extension Type and the extension Length fields. This field MUST be set to 1 plus the total length of the NAI field.

Sub-Type

This field describes the type of the entity which owns the NAI. The following subtypes are defined:

- 1 HA_NAI
 - 2 FA_NAI
- NAI

Contains the NAI [\[3\]](#) in a string format.

[3.1](#) Processing of GNAI Extension

When a mobile node or home agent adds a GNAI extension to a registration message, the extension MUST appear prior to any authentication extensions.

In the event the Foreign Agent adds an GNAI extension to a registration message, the extension MUST appear prior to any authentication extensions added by the FA.

[4.0](#) IANA Considerations

The value assigned to the Generalized NAI extension, specified in [section 3.0](#), MUST be from the IANA number space for mobile IPv4 skippable extensions. This value MUST NOT conflict with any value assigned to [RFC 3024](#)[\[6\]](#) [RFC 2356](#) [\[7\]](#), [RFC 3012](#) [\[8\]](#), [RFC 3115](#) [\[9\]](#).

[5.0](#) Security Considerations

This specification introduces new Mobile IP extensions that are used to carry mobility agent identities, in the form of Network Access Identifiers. It is assumed that the Mobile IP messages that would carry these extensions would be authenticated in the manner that is described in [\[4\]](#), or any follow-on authentication mechanisms. Therefore, this specification does not lessen the security of Mobile IP messages.

It should be noted, that the identities sent in the extensions specified herein MAY be sent in the clear over the network. However, the authors do not envision that this information would create any

security issues.

6.0 References

- [1] Scott Bradner. Key words for use in RFCs to Indicate Requirement Levels. [RFC 2119](#), March 1997.
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- [7] G. Montenegro, V. Gupta. Sun's SKIP Firewall Traversal for Mobile IP. [RFC 2356](#), June 1998.
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- [10] T. Narten, H. Alvestrand. Guidelines for Writing an IANA Considerations Section in RFCs. [BCP 26](#), [RFC 2434](#), October 1998

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