

Network Working Group  
Request for Comments: 3968  
Updates: 3427  
BCP: 98  
Category: Best Current Practice

G. Camarillo  
Ericsson  
December 2004

The Internet Assigned Number Authority (IANA)  
Header Field Parameter Registry for  
the Session Initiation Protocol (SIP)

Status of This Memo

This document specifies an Internet Best Current Practices for the Internet Community, and requests discussion and suggestions for improvements. Distribution of this memo is unlimited.

Copyright Notice

Copyright (C) The Internet Society (2004).

Abstract

This document creates an Internet Assigned Number Authority (IANA) registry for the Session Initiation Protocol (SIP) header field parameters and parameter values. It also lists the already existing parameters and parameter values to be used as the initial entries for this registry.

Table of Contents

1. Introduction . . . . .	2
2. Terminology . . . . .	2
3. Use of the Registry . . . . .	2
4. IANA Considerations . . . . .	3
4.1. Header Field Parameters Sub-Registry . . . . .	3
4.2. Registration Policy for SIP Header Field Parameters. . .	6
5. Security Considerations . . . . .	7
6. Acknowledgements . . . . .	7
7. Normative References . . . . .	7
Author's Address . . . . .	7
Full Copyright Statement . . . . .	8

## 1. Introduction

RFC 3261 [3] allows new header field parameters and new parameter values to be defined. However, RFC 3261 omitted an IANA registry for them. This document creates such a registry.

RFC 3427 [4] documents the process to extend SIP. This document updates RFC 3427 by specifying how to define and register new SIP header field parameters and parameter values.

## 2. Terminology

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in BCP 14, RFC 2119 [1] and indicate requirement levels for compliant implementations.

## 3. Use of the Registry

SIP header field parameters and parameter values MUST be documented in an RFC in order to be registered by IANA. This documentation MUST fully explain the syntax, intended usage, and semantics of the parameter or parameter value. The intent of this requirement is to assure interoperability between independent implementations, and to prevent accidental namespace collisions between implementations of dissimilar features.

Note that this registry, unlike other protocol registries, only deals with parameters and parameter values defined in RFCs (i.e., it lacks a vendor-extension tree). RFC 3427 [4] documents concerns with regards to new SIP extensions which may damage security, greatly increase the complexity of the protocol, or both. New parameters and parameter values need to be documented in RFCs as a result of these concerns.

RFCs defining SIP header field parameters or parameter values MUST register them with IANA as described below.

Registered SIP header field parameters and parameter values are to be considered "reserved words". In order to preserve interoperability, registered parameters and parameter values MUST be used in a manner consistent with that described in their defining RFC. Implementations MUST NOT utilize "private" or "locally defined" SIP header field parameters or parameter values that conflict with registered parameters.

Note that although unregistered SIP header field parameters and parameter values may be used in implementations, developers are cautioned that usage of such parameters is risky. New SIP header field parameters and parameter values may be registered at any time, and there is no assurance that these new registered parameters or parameter values will not conflict with unregistered parameters currently in use.

Some SIP header field parameters only accept a set of predefined parameter values. For example, a parameter indicating the transport protocol in use may only accept the predefined tokens TCP, UDP, and SCTP as valid values. Registering all parameter values for all SIP header field parameters of this type would require a large number of subregistries. Instead, we have chosen to register parameter values by reference. That is, the entry in the parameter registry for a given header field parameter contains references to the RFCs defining new values of the parameter. References to RFCs defining parameter values appear in double brackets in the registry.

So, the header field parameter registry contains a column that indicates whether or not each parameter only accepts a set of predefined values. Implementers of parameters with a "yes" in that column need to find all the valid parameter values in the RFCs provided as references.

#### 4. IANA Considerations

Section 27 of RFC 3261 [3] creates an IANA registry for method names, header field names, warning codes, status codes, and option tags. This specification creates a new sub-registry for header field parameters under the SIP Parameters registry.

##### 4.1. Header Field Parameters Sub-Registry

The majority of the SIP header fields can be extended by defining new parameters. New SIP header field parameters are registered by the IANA. When registering a new parameter for a header field or a new value for a parameter, the following information MUST be provided.

- o Header field in which the parameter can appear.
- o Name of the header field parameter being registered.
- o Whether the parameter only accepts a set of predefined values.

- o A reference to the RFC where the parameter is defined and to any RFC that defines new values for the parameter. References to RFCs defining parameter values appear in double brackets in the registry.

Parameters that can appear in different header fields MAY have the same name. However, parameters that can appear in the same header field MUST have different names.

The following are the initial values for this sub-registry.

Header Field	Parameter Name	Predefined Values	Reference
Accept	q	No	[RFC 3261]
Accept-Encoding	q	No	[RFC 3261]
Accept-Language	q	No	[RFC 3261]
Authorization	algorithm	Yes	[RFC 3261]
			[[RFC 3310]]
Authorization	auts	No	[RFC 3310]
Authorization	cnonce	No	[RFC 3261]
Authorization	nc	No	[RFC 3261]
Authorization	nonce	No	[RFC 3261]
Authorization	opaque	No	[RFC 3261]
Authorization	qop	Yes	[RFC 3261]
Authorization	realm	No	[RFC 3261]
Authorization	response	No	[RFC 3261]
Authorization	uri	No	[RFC 3261]
Authorization	username	No	[RFC 3261]
Authentication-Info	cnonce	No	[RFC 3261]
Authentication-Info	nc	No	[RFC 3261]
Authentication-Info	nextnonce	No	[RFC 3261]
Authentication-Info	qop	Yes	[RFC 3261]
Authentication-Info	rspauth	No	[RFC 3261]
Call-Info	purpose	Yes	[RFC 3261]
Contact	expires	No	[RFC 3261]
Contact	q	No	[RFC 3261]
Content-Disposition	handling	Yes	[RFC 3261]
Event	id	No	[RFC 3265]
From	tag	No	[RFC 3261]
P-Access-Network-Info	cgi-3gpp	No	[RFC 3455]
P-Access-Network-Info	utran-cell-id-3gpp	No	[RFC 3455]
P-Charging-Function-Addresses	ccf	No	[RFC 3455]
P-Charging-Function-Addresses	ecf	No	[RFC 3455]
P-Charging-Vector	icid-value	No	[RFC 3455]
P-Charging-Vector	icid-generated-at	No	[RFC 3455]
P-Charging-Vector	orig-ioi	No	[RFC 3455]
P-Charging-Vector	term-ioi	No	[RFC 3455]

P-DCS-Billing-Info	called	No	[RFC 3603]
P-DCS-Billing-Info	calling	No	[RFC 3603]
P-DCS-Billing-Info	charge	No	[RFC 3603]
P-DCS-Billing-Info	locroute	No	[RFC 3603]
P-DCS-Billing-Info	rksgroup	No	[RFC 3603]
P-DCS-Billing-Info	routing	No	[RFC 3603]
P-DCS-LAES	content	No	[RFC 3603]
P-DCS-LAES	key	No	[RFC 3603]
P-DCS-Redirect	count	No	[RFC 3603]
P-DCS-Redirect	redirector-uri	No	[RFC 3603]
Proxy-Authenticate	algorithm	Yes	[RFC 3261]
			[ [RFC 3310] ]
Proxy-Authenticate	domain	No	[RFC 3261]
Proxy-Authenticate	nonce	No	[RFC 3261]
Proxy-Authenticate	opaque	No	[RFC 3261]
Proxy-Authenticate	qop	Yes	[RFC 3261]
Proxy-Authenticate	realm	No	[RFC 3261]
Proxy-Authenticate	stale	Yes	[RFC 3261]
Proxy-Authorization	algorithm	Yes	[RFC 3261]
			[ [RFC 3310] ]
Proxy-Authorization	auts	No	[RFC 3310]
Proxy-Authorization	cnonce	No	[RFC 3261]
Proxy-Authorization	nc	No	[RFC 3261]
Proxy-Authorization	nonce	No	[RFC 3261]
Proxy-Authorization	opaque	No	[RFC 3261]
Proxy-Authorization	qop	Yes	[RFC 3261]
Proxy-Authorization	realm	No	[RFC 3261]
Proxy-Authorization	response	No	[RFC 3261]
Proxy-Authorization	uri	No	[RFC 3261]
Proxy-Authorization	username	No	[RFC 3261]
Reason	cause	Yes	[RFC 3326]
Reason	text	No	[RFC 3326]
Retry-After	duration	No	[RFC 3261]
Security-Client	alg	Yes	[RFC 3329]
Security-Client	ealg	Yes	[RFC 3329]
Security-Client	d-alg	Yes	[RFC 3329]
Security-Client	d-qop	Yes	[RFC 3329]
Security-Client	d-ver	No	[RFC 3329]
Security-Client	mod	Yes	[RFC 3329]
Security-Client	port1	No	[RFC 3329]
Security-Client	port2	No	[RFC 3329]
Security-Client	prot	Yes	[RFC 3329]
Security-Client	q	No	[RFC 3329]
Security-Client	spi	No	[RFC 3329]
Security-Server	alg	Yes	[RFC 3329]
Security-Server	ealg	Yes	[RFC 3329]
Security-Server	d-alg	Yes	[RFC 3329]
Security-Server	d-qop	Yes	[RFC 3329]

Security-Server	d-ver	No	[RFC 3329]
Security-Server	mod	Yes	[RFC 3329]
Security-Server	port1	No	[RFC 3329]
Security-Server	port2	No	[RFC 3329]
Security-Server	prot	Yes	[RFC 3329]
Security-Server	q	No	[RFC 3329]
Security-Server	spi	No	[RFC 3329]
Security-Verify	alg	Yes	[RFC 3329]
Security-Verify	ealg	Yes	[RFC 3329]
Security-Verify	d-alg	Yes	[RFC 3329]
Security-Verify	d-qop	Yes	[RFC 3329]
Security-Verify	d-ver	No	[RFC 3329]
Security-Verify	mod	Yes	[RFC 3329]
Security-Verify	port1	No	[RFC 3329]
Security-Verify	port2	No	[RFC 3329]
Security-Verify	prot	Yes	[RFC 3329]
Security-Verify	q	No	[RFC 3329]
Security-Verify	spi	No	[RFC 3329]
Subscription-State	expires	No	[RFC 3265]
Subscription-State	reason	Yes	[RFC 3265]
Subscription-State	retry-after	No	[RFC 3265]
To	tag	No	[RFC 3261]
Via	branch	No	[RFC 3261]
Via	comp	Yes	[RFC 3486]
Via	maddr	No	[RFC 3261]
Via	received	No	[RFC 3261]
Via	rport	No	[RFC 3581]
Via	ttl	No	[RFC 3261]
WWW-Authenticate	algorithm	Yes	[RFC 3261]
			[ [RFC 3310] ]
WWW-Authenticate	domain	Yes	[RFC 3261]
WWW-Authenticate	nonce	No	[RFC 3261]
WWW-Authenticate	opaque	No	[RFC 3261]
WWW-Authenticate	qop	Yes	[RFC 3261]
WWW-Authenticate	realm	No	[RFC 3261]
WWW-Authenticate	stale	Yes	[RFC 3261]

#### 4.2. Registration Policy for SIP Header Field Parameters

As per the terminology in RFC 2434 [2], the registration policy for SIP header field parameters and parameter values shall be "IETF Consensus."

For the purposes of this registry, the parameter or the parameter value for which IANA registration is requested MUST be defined by an RFC. There is no requirement that this RFC be standards-track.

## 5. Security Considerations

The registry in this document does not in itself have security considerations. However, as mentioned in RFC 3427, an important reason for the IETF to manage the extensions of SIP is to ensure that all extensions and parameters are able to provide secure usage. The supporting RFC publications for parameter registrations described in this specification MUST provide detailed security considerations for them.

## 6. Acknowledgements

Jonathan Rosenberg, Henning Schulzrinne, Rohan Mahy, Dean Willis, Aki Niemi, Bill Marshall, Miguel A. Garcia-Martin, Jean Francois Mule, and Allison Mankin provided useful comments on this document.

## 7. Normative References

- [1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [2] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 2434, October 1998.
- [3] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, June 2002.
- [4] Mankin, A., Bradner, S., Mahy, R., Willis, D., Ott, J., and B. Rosen, "Change Process for the Session Initiation Protocol (SIP)", BCP 67, RFC 3427, December 2002.

## Author's Address

Gonzalo Camarillo  
Ericsson  
Hirsalantie 11  
Jorvas 02420  
Finland

EMail: [Gonzalo.Camarillo@ericsson.com](mailto:Gonzalo.Camarillo@ericsson.com)

## Full Copyright Statement

Copyright (C) The Internet Society (2004).

This document is subject to the rights, licenses and restrictions contained in BCP 78, and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

## Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the IETF's procedures with respect to rights in IETF Documents can be found in BCP 78 and BCP 79.

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).

## Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.



