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Change Process for the Session Initiation Protocol (SIP) and the Real-time Applications and Infrastructure Area
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Status of this Memo

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Abstract

This memo documents a process intended to organize the future
development of the Session Initiation Protocol (SIP) and related work
in the Real-Time Applications and Infrastructure (RAI) Area. As the
environments in which SIP is deployed grow more numerous and diverse,
modifying or extending SIP in certain ways may threaten the
interoperability and security of the protocol; however, the IETF
process must also cater to the realities of existing deployments and
serve the needs of the implementers working with SIP. This document
therefore defines the functions of two long-lived working groups in the
RAI Area which are, respectively, responsible for the maintenance of
the core SIP specifications and development of new efforts to extend
and apply work in this space. This document obsoletes RFC3427.

Table of Contents

1. Terminology

In this document, the key words "MAY", "MUST, "MUST NOT", "SHOULD", and "SHOULD NOT", are to be interpreted as described in [RFC2119] (Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.). This document additionally uses [RFC5226] (Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs," May 2008.) language to describe IANA registrations.

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2. History and Development

The Session Initiation Protocol (SIP) (Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol," June 2002.) [RFC3261] has grown well beyond its origins in Internet-based multimedia sessions, and now enjoys widespread popularity in Voice over IP or IP telephony applications, both inside IETF and within other standards groups. One result of this popularity has been a continual flood of proposals for SIP modifications and extensions. The challenge for IETF management of SIP has been to preserve baseline interoperability across its many implementations
In order to defend SIP against changes that might reduce interoperability, the working group chairs and Area Directors responsible for its management authored the SIP change process (Mankin, A., Bradner, S., Mahy, R., Willis, D., Ott, J., and B. Rosen, "Change Process for the Session Initiation Protocol (SIP)," December 2002.) [RFC3427]. SIP change defined the role of the SIP and SIPPING working groups in shepherding ongoing work on the SIP standard. It also defined ways that external working groups or bodies could define extensions intended for limited usage, especially through the "P-" header field mechanism.
Over time, however, the management structure of RFC3427 has demonstrated some limitations. The first and most significant of these concerns "P-" header fields. While "P-" header fields require expert review and IESG shepherding, in practice IETF oversight of these header fields is quite limited, and the value added by the IETF supervising their development remains unclear. More importantly, the presence of a "P-" in front of a header field name does nothing to prevent a popular header field from seeing deployment outside of the original "limited usage" it envisioned; a prominent example of this today is the P-Asserted-Identity (PAID) header field, described in RFC3325 (Jennings, C., Peterson, J., and M. Watson, "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks," November 2002.) [RFC3325].

Consequently, this document obsoletes RFC3427 and describes a new structure for the management of deliverables in the Real-time Applications and Infrastructure Area.

2.1. The IETF SIPCORE Working Group

Historically, the IETF SIP Working Group (sip) was chartered to be the "owner" of the SIP protocol (Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol," June 2002.) [RFC3261] for the duration of the working group. All changes or extensions to SIP were first required to exist as SIP Working Group documents. The SIP working group was charged with being the guardian of the SIP protocol for the Internet, and therefore was mandated only to extend or change the SIP protocol when there are compelling reasons to do so.
The SIPCORE working group replaces the function of the SIP working group in the original RFC3427 account. Documents that must be handled by the SIPCORE working group include all documents which update or obsolete RFC3261 through RFC3265 or their successors. All SIP extensions considered in SIPCORE must be standards track. They may be based upon requirements developed externally in other IETF working groups.
Typical IETF working groups do not live forever; SIPCORE's charter is however open-ended in order to allow it to remain the place where core SIP development will continue. In the event that the SIPCORE working group has closed and no suitable replacement or follow-on working group is active (and this specification also has not been superseded), then when modifications to the core SIP protocol are proposed the RAI Area Directors will use the non-working group standards track document process (described in Section 6.1.2 of RFC 2026 (Bradner, S., "The Internet Standards Process -- Revision 3," October 1996.) [RFC2026]) using the SIPCORE mailing list and designated experts from the SIP community for review.
It is appropriate for any IETF working group to develop SIP event packages (Roach, A., "Session Initiation Protocol (SIP)-Specific Event Notification," June 2002.) [RFC3265], but the working group must have charter approval to do so. The IETF will also require RFC5226 IETF Review for the registration of event packages developed outside the scope of an IETF working group. Instructions for event package registrations are provided in Section 4.1 (SIP Event Packages).

2.2. The IETF DISPATCH Working Group

Historically, the IETF Session Initiation Protocol Proposal
Investigation (sipping) Working Group was chartered to be a filter in
front of the SIP Working Group. This working group investigated
requirements for applications of SIP, some of which led to requests for
extensions to SIP. These requirements may come from the community at
large, or from individuals who are reporting the requirements as
determined by another standards body.
The DISPATCH working group replaces the function of the SIPPING WG,
although with several important changes to its functionality, the most
notable being that its scope expands beyond just SIP to the entire work
of the RAI Area. Like SIPPING, DISPATCH considers new proposals for
work in the RAI Area, but rather than taking on specification
deliverables as charter items itself, DISPATCH identifies the proper
venue for work. If no such venue yet exists in the RAI Area, DISPATCH
will develop charters and consensus for a BoF, working group, or
[exploratory group (Aboba, B. and L. Dondeti, "Experiment in Exploratory
Group Formation within the Internet Engineering Task Force (IETF),"
January 2008.)](#) [RFC5111] as appropriate. Unlike the previous change
structure, a DISPATCH review of any proposed change to core SIP is not
required before it progresses to SIPCORE; however, any new proposed
work which does not clearly fall within the charter of an existing RAI
Area effort should be examined by DISPATCH.
In reaction to a proposal, the DISPATCH Working Group may determine:
that these requirements justify a change to the core SIP specifications
(RFC3261 through RFC3265) and thus any resulting work must transpire in
SIPCORE, that the requirements do not change the SIP core
specifications but require a new effort in the RAI area (be that a
working group, a BoF, or what have you), that the requirements fall
within the scope of existing chartered work in the RAI Area, or that
the proposal should not be acted upon at this time. Because the SIP
protocol gets so much attention, some application designers may want to
use it just because it is there, such as for controlling household
appliances. DISPATCH should act as a filter, accepting only proposals
which play to the strengths of SIP, not those that confuse its
applicability or ultimately reduce its usefulness as a means for
immediate personal communications on the Internet.
In practice, it is expected that the DISPATCH WG behaves as a RAI "Open
Area" working group, similar to those employed in other areas of the
IETF. While it does not have the traditional deliverables of a working
group, DISPATCH may at the discretion of its chairs and Area Directors
adopt milestones, in accordance with standard working group milestone
adoption procedures, such as the production of charter text for a BoF
or working group, a "-00" problem statement document that explicates a
proposed work effort, or a document explaining why a particular
direction for standards development was not pursued.

3. Introducing New Work to RAI

When proposals arise for modifications or extensions to SIP outside the scope of existing chartered RAI Area work, they must be written up as a problem statement (preferably as an Internet-Draft) explaining the problem they are trying to solve, why SIP is the applicable protocol, and why the existing SIP protocol will not work. The problem statement must include a detailed set of requirements (distinct from solutions) that SIP would need to meet to solve the particular problem. The problem statement must also describe in detail any security issues that arise from meeting those requirements. After the problem statement is published, the authors should send a note to the DISPATCH Working Group mailing list to start discussion on the problem.

The DISPATCH working group chairs, in conjunction with the RAI Area Directors, will determine if the particular problems raised in the requirements problem statement are indeed outside the charter of existing efforts, and if so, if they warrant a DISPATCH milestone for the definition of a new effort; this DISPATCH deliverable may take the form of a problem statement Internet-Draft, charter or similar milestone that provides enough information to make a decision, but must not include protocol development. The DISPATCH working group should consider whether the requirements can be merged with other requirements from other applications, and refine the problem statement accordingly.

Once a new effort has been defined in DISPATCH and there is working group consensus that it should go forward, if the new effort will take the form of a working group or BoF, then the ADs will present the proposed new effort charter to the IESG and IAB, in accordance with the usual chartering process. If the new effort involves the rechartering of an existing working group, then similarly the existing working group rechartering functions will be performed by the appropriate WG chairs and ADs. If the IESG (with IAB advice) approves of the new charter or BoF, the DISPATCH working group has completed its deliverable and the new effort becomes autonomous.

Anyone proposing requirements for new work is welcome to jointly develop, in a separate Internet-Draft, a mechanism that would meet the requirements. No working group is required to adopt the proposed solution from this additional Internet-Draft.

Work overseen by the SIPCORE Working Group is required to protect the architectural integrity of SIP and must not add features that do not have general use beyond the specific case. Also, SIPCORE must not add features just to make a particular function more efficient at the expense of simplicity or robustness.

Some working groups generate requirements for SIP solutions and/or extensions. At the time this document was written, some groups with such chartered deliverables include SIP for Instant Messaging and Presence Leveraging Extensions (simple), Basic Level of Interoperability for SIP Services (bliss) and Session Peering for Multimedia Interconnect (speermint).

The RAI ADs may, on an exceptional, case by case basis, support a
process in which the requirements analysis is implicit and a RAI area
working group handling extensions to SIP requests the addition of a
charter item for an extension without a full DISPATCH process as
described.

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4. Extensibility and Architecture

In an idealized protocol model, extensible design would be self-
contained, and it would be inherent that new extensions and new header
fields would naturally have an architectural coherence with the
original protocol.
However, this idealized vision has not been attained in the world of
standards track protocols. While interoperability implications can be
addressed by capabilities negotiation rules, the effects of adding
features that overlap, or that deal with a point solution and are not
general, are much harder to control with rules. Therefore, the RAI Area
calls for architectural guardianship and application of Occam's Razor
by the SIPCORE and DISPATCH Working Groups.
In keeping with the IETF tradition of "running code and rough
consensus", it is valid to allow for the development of SIP extensions
that are either not ready for standards track, but might be understood
for that role after some running code, or are private or proprietary in
nature, because a characteristic motivating them is usage that is known
not to fit the Internet architecture for SIP. In the past, header
fields associated with those extensions were called "P-" header fields,
for "preliminary", "private", or "proprietary".
However, the "P-" header field process has not served the purpose for
which it was designed - namely, to restrict to closed environments the
usage of mechanisms the IETF would not (yet) endorse for general usage.
In fact, some "P-" header fields have enjoyed widespread
implementation; because of the "P-" prefix, however, there seems to be
no plausible migration path to designate these as general-usage header
fields without trying to force implausible changes on large installed
bases.
Accordingly, this specification deprecates the previous RFC3427
guidance on the creation of "P-" header fields. Existing "P-" header
fields are to be handled by user agents and proxy servers as the "P-"
header field specifications describe; the deprecation of the change
process mechanism entails no change in protocol behavior. New proposals
to document SIP header fields of an experimental or private nature,
however, shall not use the 'P-" prefix (unless existing deployments or
standards use the prefix already, in which case they may be admitted as
grandfathered cases at the discretion of the Designated Expert).
Instead, the registration of SIP header fields in Informational RFCs,
or in documents outside the IETF, is now permitted under the Designated

Expert (per RFC5226) criteria. The future use of any header field field name prefix ("P-" or "X-" or what have you) to designate SIP header fields of limited applicability is discouraged. Experts are advised to review documents for overlap with existing chartered work in the RAI Area, and are furthermore instructed to ensure the following two criteria are met:

1. The proposed header field MUST be of a purely informational nature, and MUST NOT significantly change the behavior of SIP entities which support it. Header fields which merely provide additional information pertinent to a request or a response are acceptable; these header fields are thus expected to have few, if any, implications for interoperability and backwards compatibility. Similarly, header fields which provide data consumed by applications at the ends of SIP's rendez-vous function, rather than changing the behavior of the rendez-vous function, are likely to be information in this sense. If the header fields redefine or contradict normative behavior defined in standards track SIP specifications, that is what is meant by significantly different behavior. Ultimately, the significance of differences in behavior is a judgment call that must be made by the expert reviewer.

2. The proposed header field MUST NOT undermine SIP security in any sense. The Internet Draft proposing the new header field MUST address security issues in detail as if it were a Standards Track document. Note that, if the intended application scenario makes certain assumptions regarding security, the security considerations only need to meet the intended application scenario rather than the general Internet case. In any case, security issues need to be discussed for arbitrary usage scenarios (including the general Internet case).

Note that the deprecation of the "P-" header field process does not alter processes for the registration of SIP methods, URI parameters, response codes, or option tags.

4.1. SIP Event Packages

SIP events [RFC3265] (Roach, A., "Session Initiation Protocol (SIP)-Specific Event Notification," June 2002.) defines two different types of event packages: normal event packages, and event template-packages. Event template-packages can only be created and registered by the publication of a Standards Track RFC (from an IETF Working Group). Note that the guidance in RFC3265 states that the IANA registration policy

for normal event packages is "First Come First Serve"; this document
replaces that policy with the following:

Individuals may wish to publish SIP Event packages that they believe
fall outside the scope of any chartered work currently in RAI.
Individual proposals for registration of a SIP event package MUST first
be published as Internet-drafts for review by the DISPATCH Working
Group, or the working group, mailing list, or expert designated by the
RAI Area Directors if the DISPATCH Working Group has closed. Proposals
should include a strong motivational section, a thorough description of
the proposed syntax and semantics, event package considerations,
security considerations, and examples of usage. Authors should submit
their proposals as individual Internet- Drafts, and post an
announcement to the working group mailing list to begin discussion. The
DISPATCH Working Group will determine if a proposed package is a) an
appropriate usage of SIP which should be spun into a new effort, b)
applicable to SIP but not sufficiently interesting, general, or in-
scope to adopt as a working group effort, c) contrary to similar work
chartered in an existing effort, or d) recommended to be adopted as or
merged with chartered work elsewhere in RAI.

"RFC Required" in conjunction with "Designated Expert" (both as defined
in RFC5226) is the procedure for registration of event packages
developed outside the scope of an IETF working group, according to the
following guidelines:

1. A Designated Expert (as defined in RFC5226) must review the
   proposal for applicability to SIP and conformance with these
   guidelines. The Designated Expert will send email to the IESG
   on this determination. The expert reviewer can cite one or more
   of the guidelines that have not been followed in his/her
   opinion.

2. The proposed extension MUST NOT define an event template-
   package.

3. The function of the proposed package MUST NOT overlap with
   current or planned chartered packages.

4. The event package MUST NOT redefine or contradict the normative
   behavior of SIP events [RFC3265] (Roach, A., "Session
   Initiation Protocol (SIP)-Specific Event Notification,"
   June 2002.), SIP [RFC3261] (Rosenberg, J., Schulzrinne, H.,
   Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley,
   M., and E. Schooler, "SIP: Session Initiation Protocol,"
   June 2002.), or related standards track extensions. (See
   Section 4 (Extensibility and Architecture))

5. The proposed package MUST NOT undermine SIP security in any
   sense. The Internet Draft proposing the new package MUST
   address security issues in detail as if it were a Standards

Track document. Security issues need to be discussed for arbitrary usage scenarios (including the general Internet case).

6. The proposed package MUST be clearly documented in an (Individual) Informational RFC, and registered with IANA. The package MUST document all the package considerations required in Section 5 of SIP events [RFC3265] (Roach, A., "Session Initiation Protocol (SIP)-Specific Event Notification," June 2002.).

7. If determined by the Designated Expert or the chairs or ADs of the DISPATCH WG, an applicability statement in the Informational RFC MUST clearly document the useful scope of the proposal, and explain its limitations and why it is not suitable for the general use of SIP in the Internet.

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5. Summary   [TOC]

1. Documents that update or obsolete RFC 3261 through 3265 must advance through the SIPCORE WG.

2. Standard SIP extensions which do not update RFC 3261 through 3265, including event packages, may advance through chartered activity in any RAI Area WG, or with the agreement of the RAI ADs any IETF working group that constitutes an appropriate venue.

3. Documents that specify Informational header fields pass through an Expert Review system.

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6. Security Considerations   [TOC]

Complex and indeterminate and hard-to-define protocol behavior, depending on the interaction of many optional extensions, is a fine breeding ground for security flaws.
All Internet-Drafts that present new requirements for SIP must include a discussion of the security requirements and implications inherent in the proposal. All RFCs that modify or extend SIP must show that they have adequate security, must consider the security implications of feature interactions, and most of all must not worsen SIP's existing security considerations.

7. IANA Considerations

[RFC 3261 (Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol," June 2002.)](#) [RFC3261] directs the Internet Assigned Numbers Authority (IANA) to establish a registry for SIP method names, a registry for SIP option tags, and a registry for SIP response codes, and to amend the practices used for the existing registry for SIP header fields. Reiterating the guidance of RFC3261, method names, option tags and SIP response codes require a Standards Action for inclusion in the IANA registry. Authors of specifications should also be aware that the SIP parameter registry is further elaborated in [RFC3968 (Camarillo, G., "The Internet Assigned Number Authority (IANA) Header Field Parameter Registry for the Session Initiation Protocol (SIP)," December 2004.)](#) [RFC3968].
Previously in RFC3427, all new SIP header field registrations required a Standards Action (per RFC5226) with the exception of "P-" header fields; now, Informational registration of non-"P-" header fields is permitted if approved by a Designated Expert, as described in [Section 4 (Extensibility and Architecture)](#).
Each RFC shall include an IANA Considerations section which directs IANA to create appropriate registrations. Registration shall be done at the time the IESG announces its approval of the draft containing the registration requests.
Standard header fields and messages MUST NOT begin with the leading characters "P-". Existing "P-" header field registrations are considered grandfathered, but new registrations of Informational header fields should not begin with the leading characters "P-" (unless the "P-" would preserve compatibility with an pre-existing unregistered usage of the header field, at the discretion the Designated Expert). Short forms of header fields MUST only be assigned to standards track header fields.
Similarly, [RFC 3265 (Roach, A., "Session Initiation Protocol (SIP)-Specific Event Notification," June 2002.)](#) [RFC3265] directs the IANA to establish a registry for SIP event packages and SIP event template packages. For event template packages, registrations must follow the RFC5226 processes for Standards Action within an IETF working group. For normal event packages, as stated previously registrations minimally require RFC5226 "RFC Required" with "Designated Expert". In either case, the IESG announcement of RFC approval authorizes IANA to make the registration.

7.1. Clarification of RFC3969

[RFC3969 (Camarillo, G., "The Internet Assigned Number Authority (IANA) Uniform Resource Identifier (URI) Parameter Registry for the Session Initiation Protocol (SIP)," December 2004.)](#) [RFC3969] stipulates that the (original) RFC2434 rule of "Specification Required" applies to registrations of new SIP URI parameters; however Section 3 of that same document mandates that a standards action is required to register new parameters with the IANA. This contradiction arose from a misunderstanding of the nature of the RFC2434 categories; the intention was for the IANA Considerations to mandate that Standards Action is required.

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8. Overview of changes to RFC3427

This section provides a high-level overview of the changes between this document and RFC 3427. It is not a substitute for the document as a whole - the details are necessarily not represented.
This document:

1. Changes the description of the SIP and SIPPING WG functions to the SIPCORE and DISPATCH WG functions using the context of the RAI Area.

2. Deprecates the process for "P-" header field registration, and changes the requirements for registration of SIP header fields of a purely informational nature.

3. Updates IANA registry requirements, reflecting the publication of RFC 5226, clarifying the policies in RFC 3969, clarifying that the original RFC 3237 updated the policies in RFC 3265.

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9. Acknowledgments

The credit for the notion that SIP required careful management belongs to the original authors: Allison Mankin, Scott Bradner, Rohan Mahy, Dean Willis, Joerg Ott, and Brian Rosen. The current editors have provided only an update to reflect lessons learned from running the code, the changing situation of the IETF and the IANA registration procedures. Gonzalo Camarillo was instrumental to the development of the concept of SIPCORE and DISPATCH. Useful comments were provided by Jonathan Rosenberg, Mary Barnes, Dan York, John Elwell, Alan Johnston, Spencer Dawkins, Alfred Hines, Russ Housley and Dean Willis. The

10. References

10.1. Normative References

[RFC2026]	Bradner, S., "The Internet Standards Process -- Revision 3," BCP 9, RFC 2026, October 1996 (TXT).
[RFC2119]	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," BCP 14, RFC 2119, March 1997 (TXT, HTML, XML).
[RFC3261]	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 (TXT).
[RFC3265]	Roach, A., "Session Initiation Protocol (SIP)-Specific Event Notification," RFC 3265, June 2002 (TXT).
[RFC3969]	Camarillo, G., "The Internet Assigned Number Authority (IANA) Uniform Resource Identifier (URI) Parameter Registry for the Session Initiation Protocol (SIP)," BCP 99, RFC 3969, December 2004 (TXT).
[RFC5226]	Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs," BCP 26, RFC 5226, May 2008 (TXT).

10.2. Informative References

[RFC3325]	Jennings, C., Peterson, J., and M. Watson, "Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks," RFC 3325, November 2002 (TXT).

[RFC3427]	Mankin, A., Bradner, S., Mahy, R., Willis, D., Ott, J., and B. Rosen, "Change Process for the Session Initiation Protocol (SIP)," RFC 3427, December 2002 (TXT).
[RFC3968]	Camarillo, G., "The Internet Assigned Number Authority (IANA) Header Field Parameter Registry for the Session Initiation Protocol (SIP)," BCP 98, RFC 3968, December 2004 (TXT).
[RFC5111]	Aboba, B. and L. Dondeti, "Experiment in Exploratory Group Formation within the Internet Engineering Task Force (IETF)," RFC 5111, January 2008 (TXT).

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