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Internet Assigned Numbers Authority (IANA) Registration of the Session Initiation Protocol (SIP) Feature-Capability indicators draft-allen-sipcore-sip-tree-cap-indicators-02

Abstract

This document registers with IANA SIP Feature-Capability indicators in the "SIP Feature-Capability Indicator Registration Tree" of the IANA "Proxy-Feature Feature-Capability Indicator Trees" registry for use with the SIP Feature-Caps header field and defines their usage and interpretation.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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1. Introduction

RFC 6809 [1] specifies the SIP Feature-Caps header field that conveys feature-capability indicators that are used to indicate support of features and capabilities for SIP entities that are not represented by the Uniform Resource Identifier (URI) of the Contact header field. RFC 6809 [1] also creates a new IANA registry, "Proxy-Feature Feature-Capability Indicator Trees", for registering feature-capability indicators including a SIP feature-capability indicator tree for registering SIP feature-capability indicators that is similar to the media feature tag SIP tree defined in RFC 3840 [2]. To date only one feature-capability indicator, sip.607 (RFC 8197 [8]) has been included in the SIP feature-capability indicator tree.

This document populates this SIP tree with some additional feature-capability indicators that are based upon those already defined in RFC 3840 [2], RFC 4569 [3], RFC 5768 [4], RFC 5688 [5] and RFC 6913 [6] and also defines an additional SIP feature-capability indicator "Contact-features" that allows an intermediary to indicate a contact address and the capabilitie supported by that intermediary if SIP Requests are sent to that contact address.

2. Motivation

SIP sessions often involve intermediaries (typically acting as B2BUAs) that in addition to forwarding SIP requests and responses can also act as UAs to perform more complex manipulations of the session. Examples of such intermediaries include IP PBXs (Internet Protocol Private Branch Exchanges), Telephony Call Feature Application Servers and Session Transfer Anchor Points. Often the manipulations of the session by the intermediary are initiated by one of the UAs in the session sending a request (such as REFER request) to the intermediary to for example transfer the session or create a conference. Additionally UAs may also need to subscribe to events related to the session with the intermediary accepting such subscriptions and providing the notification of event state changes.

Typically such functionality has been achieved by sending such REFER and SUBSCRIBE requests within the established dialog for the session, with the intermediary then intercepting and processing the REFER or SUBSCRIBE request rather than forwarding it to the remote UAS. However such dialog reuse has been problematic and RFC 6665 [9] has deprecated dialog reuse (except for legacy interoperability). However, in order to avoid reusing the same dialog as the session and achieve equivalent functionality when interacting with intermediaries using for instance REFER request requires that the UA obtain the Globally Routable User Agent URI (GRUU) of the intermediary and also

know that the intermediary supports the relevant capabilities such as the required SIP methods (i.e. REFER) as well as the needed SIP extensions, (such as target dialog extension specified in RFC 4538 in [10]).

Typically B2BUAs have acted as two UAs back-to-back with the Contact URI being the URI of the B2BUA. However this means that GRUU of the UA is overwritten by the B2BUA and the meaning of the Contact header field parameters becomes obscure. Do the Contact header field parameters reflect the capabilities of the Contact address (i.e. the B2BUA) or do they reflect the capabilities of the remote UA? If they reflect the capabilities of the B2BUA then the identification of the capabilities of the remote UA have been lost. If they reflect the capabilities of the remote UA then they falsely identify that the B2BUA contact address has the capabilities of the remote UA.

Another use case for B2BUAs is in control of Application Level Gateways (ALGs). These ALGs are controlled by SIP intermediaries that act as routing B2BUs and perform media functions such as IP address translation, transcoding, and media policing. Such ALGs may only support some media types while blocking others. It is useful if the media types that are allowed can be communciated to other entities in the SIP signaling so that fruitless attempts to establish sessions with media types that will not be allowed are not attempted.Such functionality is required by 3GPP IMS (IP Multimedia Subsystem) to avoid unnecessary failed session establishment attempts.

What is needed is a way for intermediaries to pass the remote UA's contact address and capabilities transparently in the Contact header field while being able to indicate their own contact address (i.e GRUU) and associated capabilities to the UA.

RFC 6809 [1] provides that addresses of intermediaries can be communicated as a value of an associated feature-capability indicator. What is needed is a feature capability indicator to communicate the contact address GRUU (Globally Routable User Agent URI of the intermediary along with the associated media feature-capability indicators tags representing the capabilities supported by that of the intermediary if SIP Requests are sent to that contact address. The feature-capability indicators for communicating SIP related capabilities (e.g. supported SIP Methods and extensions) also need to be registered in the SIP tree in order to allow an intermediary to indicate the SIP features it supports when forwarding SIP requests or the media capabilities it supports as an ALG.

3. SIP Feature-Capability indicators

This document defines a new Feature-Capability indicator in the SIP tree:

sip.contact

The sip.contact Feature-Capability indicator provides a GRUU as the contact address of the intermediary along with a list of all the Fmedia feature tags representing the capabilities of the intermediary supported by that intermediary if SIP Requests areent to that contact address.

The following media feature tags from RFC 3840 [2]", RFC 4569 [3], RFC 5768 [4], RFC 5688 [5] and RFC 6913 [6] are considered to be useful to also be defined as Feature-Capability indicators:

sip.audio
sip.application
sip.data
sip.control
sip.video
sip.text
sip.message
sip.ice
sip.app-subtype
sip.fax

An intermediary that includes at least feature capability indicator of one of the above media capabilities SHOULD include all the feature capability indicators for the media it will allow. The absence of a media capability from the list of feature capability indicators MAY be interpreted by another entity as indicating that this media is not allowed. The lack of indication of any of the above media capabilities SHOULD be interpreted as inconclusive information about what media is allowed or not allowed.

The following media feature tags from RFC 3840 [2], RFC 4235 [11] and RFC 5626 [12] are currently NOT considered to be useful to be defined as Feature-Capability indicators since they do not represent stream types likely to be implemented by an intermediary:

sip.automata
sip.class
sip.mobility
sip.actor
sip.byeless
sip.rendering
sip.instance

sip.duplex
sip.description
sip.events
sip.priority
sip.methods
sip.extensions
sip.schemes
sip.isfocus

4. Security Considerations

The security considerations in RFC 3840 [2] and RFC 6809 [1] apply to the use of Feature-capability indicators in the SIP tree.

5. IANA Considerations

This specification registers the following new feature-capability indicators in the SIP tree per the procedures defined in RFC 6809 [12].

5.1. Contact

Feature-capability indicator name: sip.contact

Description:
This Feature-capability indicator indicator provides a GRUU as the contact address of the intermediary along with a list of all the media feature tags representing the capabilities of the intermediary supported by that intermediary if SIP Requests are sent to that contact address.

Feature-capability indicator specification reference: The present document.

Additional information:

Values appropriate for use with this Feature-Capability indicator:

String with an equality relationship. The Syntax for the string is the same as the of the contents of the Contact header field defined in RFC 3261 [7].

This Feature-Capability indicator is most useful in a communications application, such as an IP-PBX or conference bridge for providing a contact address and the capabilities of a network intermediary at that contact address.

Examples of typical use: An conference server indicating that it is capable of accepting SIP REFER requests for inviting 3rd parties to a conference.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.2. Audio

Feature-capability indicator name: sip.audio

Description:
This Feature-capability indicator indicates that the intermediary supports audio as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 3840 [2].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of accepting and initiating sessions with audio as a streaming media type.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.3. Application

Feature-capability indicator name: sip.application

Description:
This Feature-capability indicator indicates that the intermediary supports application as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 3840 [2].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of accepting and initiating sessions with a media control application.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.4. Data

Feature-capability indicator name: sip.data

Description:
This Feature-capability indicator indicates that the intermediary supports data as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 3840 [2].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of accepting and initiating sessions with data as a streaming media type.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.5. Control

Feature-capability indicator name: sip.control

Description:
This Feature-capability indicator indicates that the intermediary supports control as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 3840 [2].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: A conference bridge indicating that it is capable of supporting a floor control application.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.6. Video

Feature-capability indicator name: sip.video

Description:
This Feature-capability indicator indicates that the intermediary supports video as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 3840 [2].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of accepting and initiating sessions with video as a streaming media type.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.7. Text

Feature-capability indicator name: sip.text

Description:
This Feature-capability indicator indicates that the intermediary supports text as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 3840 [2].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of accepting and initiating sessions with text as a streaming media type.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1] and RFC 3840 [2].

5.8. Message

Feature-capability indicator name: sip.message

Descrition:
This Feature-capability indicator indicates that the intermediary supports message as a streaming media type for sessions established via it.

Feature-capability indicator specification reference: RFC 4569 [3].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of accepting and initiating sessions with message as a streaming media type.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1], RFC 3840 [2] and RFC 4569 [3].

5.9. Interactive Connectivity Establishment

Feature-capability indicator name: sip.ice

Description:
This Feature-capability indicator indicates that the intermediary supports Interactive Connectivity Establishment (ICE) for sessions established via it.

Feature-capability indicator specification reference: RFC 5768 [4].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Boolean.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: An IP PBX indicating that it is capable of using ICE to establish media connectivity for sessions.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1], RFC 3840 [2] and RFC 5768 [4].

5.10. Application Subtype

Feature-capability indicator name: sip.app-subtype

Description:
This Feature-capability indicator indicates the MIME application subtypes supported by the intermediary for purposes of streaming media for sessions established via it.

Feature-capability indicator specification reference: RFC 5688 [5].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Token (equality relationship).

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: A conference server indicating that it supports an application specific media burst control protocol for Push to Talk sessions.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1], RFC 3840 [2] and RFC 5688 [5].

5.11. Fax

Feature-capability indicator name: sip.fax

Description:
This Feature-capability indicator indicates whether an intermediary accepts sessions using the ITU-T T.38 [13] fax protocol ("t38") or the passthrough method of fax transmission using the ITU-T G.711 [14] audio codec ("passthrough").

Feature-capability indicator specification reference: RFC 6913 [6].

Additional information:

Values appropriate for use with this Feature-Capability indicator: Token with an equality relationship. Values are:

t38: The device supports the "image/t38" media type (RFC 3326) [15] and implements ITU-T T.38 [13] for transporting the ITU-T T.30 [16] and ITU-T T.4 [17] fax data over IP.

passthrough: The device supports the "audio/pcmu" and "audio/ pcma" media types (RFC4856) [18] for transporting ITU-T T.30 [16] and ITU-T T.4 [17] fax data using the ITU-T G.711 [14] audio codec.

This Feature-Capability indicator is most useful in a communications application for describing the capabilities of a network intermediary, such as an IP-PBX or conference bridge.

Examples of typical use: A conference bridge indicating that it is capable of distributing T.38 fax media to the participants in a conference.

Security Considerations: Security considerations for this Feature-capability indicator are discussed in RFC 6809 [1], RFC 3840 [2] and RFC 6913 [6].

6. Acknowledgements

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