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Authors: K. Inamdar	S. Narayanan	D. Engi	G. Salgueiro
Unaffiliated	Cisco	Cisco	Cisco

## **The 'sip-trunking-capability' Link Relation Type**

### **Abstract**

This informational document defines the 'sip-trunking-capability' link relation type that may be used by an enterprise telephony Session Initiation Protocol (SIP) network to retrieve a SIP trunking capability set document, which contains the capabilities and configuration requirements of an Internet Telephony Service Provider (ITSP). These technical requirements allow for seamless peering between SIP-based enterprise telephony networks and the ITSP.

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## 1. Introduction

RFC 8288 [[RFC8288](#)] defines a way of indicating relationships between resources on the Web. This document specifies the 'sip-trunking-capability' link relation type according to the rules of RFC 8288. Links with this relationship type can be used to exchange capability information between potential peer devices. In the event that systems require additional parameters and configuration to negotiate communication, a well-known URI can be utilized to deliver information to potential peers including machine-readable instructions and parameters needed for peering.

The 'sip-trunking-capability' link relation type may be used on web resources hosted by ITSPs to provide a structured and detailed capability set document. The capability set document [[I-D.ietf-asap-sip-auto-peer](#)] encapsulates a set of characteristics of an ITSP, which when retrieved by enterprise telephony network devices allows for automated establishment of SIP [[RFC3261](#)] trunking between the two telephony networks.

## 2. The 'sip-trunking-capability' Link Relation Type

A capability set document is hosted via web resources by the ITSP. A unique location of the document can be preconfigured and provided to each peer by the ITSP, or a centrally published resource can be used that dynamically generates the capability set document based on Uniform Resource Identifier(s) [[RFC3986](#)] determined by the peering device. The capability set document describes the configuration parameters required to successfully establish SIP trunking between an enterprise and an ITSP network. The capability set document is composed of structured and machine-readable parameters that can be converted into configuration data to meet the communication requirements of the ITSP. The need for an enterprise telephony

network to obtain a capability set document from an ITSP is documented in Automatic Peering for SIP Trunks [[I-D.ietf-asap-sip-auto-peer](#)].

### 3. Example Usage

This section provides an example of possible use of the 'sip-trunking-capability' relation type. The enterprise network device solicits the location of the capability set document from the well-known URI hosted by the ITSP using the WebFinger protocol [[RFC7033](#)]. The following examples include line-breaks and indentation for clarity.

```
GET /.well-known/webfinger?
    resource=acct%3Atrunkent1456%40example.com&
    rel=sip-trunking-capability
HTTP/1.1
Host: ssp1.example.com
```

The capability set document location is returned to the network device in the "href" attribute.

```
HTTP/1.1 200 OK
Access-Control-Allow-Origin: *
Content-Type: application/jrd+json
{
  "subject" : "acct:trunkent1456@example.com",
  "links" :
  [
    {
      "rel" : "sip-trunking-capability",
      "href" : "https://capserver.ssp1.example.com/capserver/capdoc"
    }
  ]
}
```

The ITSP may use an authentication framework such as OAuth 2.0 [[RFC6749](#)] to determine the identity of the enterprise telephony network in order to provide the appropriate capability set document.

### 4. IANA Considerations

IANA has registered the 'sip-trunking-capability' link relation under the "Link Relation Types" registry, with a reference to this document, using the following template:

**Relation Name:**

sip-trunking-capability

**Description:** Refers to a capability set document that defines parameters or configuration requirements for automated peering and communication channel negotiation of the Session Initiation Protocol (SIP).

**Reference:** RFCXXXX

[[NOTE TO RFC EDITOR: Please change XXXX to the number assigned to this specification, and remove this paragraph on publication.]]

## 5. Security Considerations

The 'sip-trunking-capability' relation type is not known to introduce any new security issues not already discussed in RFC 8288 for generic use of web linking mechanisms. However, it is recommended to exercise caution when publishing potentially sensitive capability information over unencrypted or unauthenticated channels. Additional security recommendations are outlined in the capability set document definition. See [Security Considerations](#) section in Automatic Peering for SIP Trunks [[I-D.ietf-asap-sip-auto-peer](#)].

## 6. Acknowledgements

This document resulted from the discussions in the ASAP working group, especially the detailed and thoughtful comments of Paul Jones, Marc Petit-Huguenin, Mark Nottingham, Cullen Jennings, Jonathan Rosenberg, Jon Peterson, Chris Wendt, Jean Mahoney, and Murray Kucherawy. Additional thanks to Joe Clarke, Tim Bray, Christopher Wood, Dan Romascanu, David Dong, Eric Vyncke, Robert Wilton, and Lars Eggert for their reviews and feedback.

## 7. References

### 7.1. Normative References

[RFC8288] Nottingham, M., "Web Linking", RFC 8288, DOI 10.17487/RFC8288, October 2017, <<https://www.rfc-editor.org/info/rfc8288>>.

### 7.2. Informative References

[[I-D.ietf-asap-sip-auto-peer](#)] Inamdar, K., Narayanan, S., and C. Jennings, "Automatic Peering for SIP Trunks", October 2021, <<https://datatracker.ietf.org/doc/html/draft-ietf-asap-sip-auto-peer>>.

**[RFC3261]**

Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", RFC 3261, DOI 10.17487/RFC3261, June 2002, <<https://www.rfc-editor.org/info/rfc3261>>.

**[RFC3986]**

Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, RFC 3986, DOI 10.17487/RFC3986, January 2005, <<https://www.rfc-editor.org/info/rfc3986>>.

**[RFC6749]**

Hardt, D., Ed., "The OAuth 2.0 Authorization Framework", RFC 6749, DOI 10.17487/RFC6749, October 2012, <<https://www.rfc-editor.org/info/rfc6749>>.

**[RFC7033]**

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**Authors' Addresses**

Kaustubh Inamdar  
Unaffiliated

Email: [kaustubh.ietf@gmail.com](mailto:kaustubh.ietf@gmail.com)

Sreekanth Narayanan  
Cisco

Email: [sreenara@cisco.com](mailto:sreenara@cisco.com)

Derek Engi  
Cisco  
Ann Arbor, MI  
US

Phone: [+1 919 392 7966](tel:+19193927966)  
Email: [deengi@cisco.com](mailto:deengi@cisco.com)

Gonzalo Salgueiro  
Cisco  
7200-12 Kit Creek Rd.  
Research Triangle Park, NC 27709  
US

Phone: [+1 919 392 3266](tel:+19193923266)  
Email: [gsalguei@cisco.com](mailto:gsalguei@cisco.com)