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# Connection-Establishment Preconditions in the Session Initiation Protocol (SIP)

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## Status of this Memo



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## Abstract

This document defines the connection-establishment precondition type for the SIP preconditions framework. Connection-establishment preconditions are met when a transport connection (e.g., a TCP connection) is successfully established between two endpoints.

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## 1. Introduction

RFC 3312 [3] defines a framework for preconditions for SIP [2], which is updated by [4]. This document defines a new precondition type for that framework: connection-establishment preconditions.

UAs (User Agents) use connection-establishment preconditions when they need to know whether a transport connection (e.g., a TCP connection) has been established successfully and is ready to carry user data.

We define the connection-establishment precondition type following the guidelines provided in [4] to extend the SIP preconditions framework.

## 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. Precondition Tag

The precondition tag associated with the connection-establishment preconditions is "conn". This precondition tag is registered with the IANA in Section 10.

## 4. Status Type

RFC 3312 [3] defines two status types, end-to-end and segmented, but only the end-to-end status type applies to connection-establishment preconditions. So, connection-establishment preconditions MUST use the end-to-end status type and MUST NOT use the segmented status type.

## 5. Direction Tag

RFC 3312 [3] defines four direction tags: none, send, recv, and sendrecv. Once a transport connection is established, they indicate in which directions the connection can carry user data. For example, a successfully-established TCP connection would have an associated direction tag of sendrecv because it can carry data in both directions.

## 6. Precondition Strength

RFC 3312 [3] defines optional and mandatory preconditions, but only mandatory preconditions apply to connection-establishment preconditions. So, connection-establishment preconditions MUST NOT use optional preconditions.

## 7. Suspending and Resuming Session Establishment

According to [4], documents defining new precondition types need to describe the behavior of UAs from the moment session establishment is suspended due to a set of preconditions until is resumed when these preconditions are met.

While session establishment is suspended due to connection-establishment preconditions, user agents SHOULD not send any user data over any media stream. Additionally, the UAS (User Agent Server) SHOULD NOT alert the called user.

Offers with connection-establishment preconditions in re-INVITEs or UPDATEs follow the rules given in Section 6 of RFC 3312 [3].

> Both user agents SHOULD continue using the old session parameters until all the mandatory preconditions are met. At that moment, the user agents can begin using the new session parameters.

## 8. Examples

TBD

```
m=audio 20000 RTP/AVP 0
a=curr:conn e2e none
a=des:conn mandatory e2e sendrecv
```

## 9. Security Considerations

TBD.

## 10. IANA Considerations

TBD.

## 11. References

## 11.1 Normative References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[2] 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.

[3] Camarillo, G., Marshall, W. and J. Rosenberg, "Integration of Resource Management and Session Initiation Protocol (SIP)", RFC 3312, October 2002.

[4] Camarillo, G., "Interactions of Preconditions with Session Mobility in the Session Initiation Protocol (SIP)", draft-ietf-sip-rfc3312-update-00 (work in progress), November 2003.

## 11.2 Informational References

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