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**Via header field parameter to indicate received realm**  
**draft-holmberg-sipcore-received-realm-03.txt**

Abstract

This specification defines a new Session Initiation Protocol (SIP) Via header field parameter, "received-realm", which allows a SIP entity acting as an entry point to a transit network to indicate from which adjacent upstream network a SIP request is received, using a network realm value associated with the adjacent network.

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## [1. Introduction](#)

### [1.1. General](#)

When SIP sessions are established between networks belonging to different operators, or between interconnected networks belonging to the same operator (or enterprise), the SIP requests might traverse transit network.

Such transit networks might provide different kind of services. In order to do that, a transit network often needs to know to which operator (or enterprise) the adjacent upstream network, from which the SIP session initiation request is received, belongs.

This specification defines a new Session Initiation Protocol (SIP) Via header field parameter, "received-realm", which allows a SIP entity acting as an entry point to a transit network to indicate from



which adjacent upstream network a SIP request is received, using a network realm value associated with the adjacent network.

NOTE: As the adjacent network can be an enterprise network, an Inter Operator Identifier (IOI) cannot be used to identity the network, as IOIs are not defined for enterprise networks.

The following sections describe use-case where the information is needed.

### **1.2. Use-Case: Transit Network Application Services**

The 3rd Generation Partnership Project (3GPP) TS 23.228 specifies how an IP Multimedia Subsystem (IMS) network can be used to provide transit functionality. An operator can use its IMS network to provide transit functionality e.g. to non-IMS customers, to enterprise networks, and to other network operators.

The transit network operator can provide application services to the networks for which it is providing transit functionality. Transit application services are typically not provided per user basis, as the transit network does not have access to the user profiles of the networks for which the application services are provided. Instead, the application services are provided per served network.

When a SIP entity that provides application services (e.g. an Application Server) within a transit network receives a SIP request, in order to apply the correct services it needs to know the adjacent upstream network from which the SIP request is received.

### **1.3. Use-Case: Transit Network Routing**

A transit network operator normally interconnects to many different operators, including other transit network operators, and provides transit routing of SIP requests received from one operator network towards the destination. The destination can be within an operator network to which the transit network operator has a direct interconnect, or within an operator network that only can be reached via one or more interconnected transit operators.

For each customer, i.e. interconnected network operator for which, the transit network operator routes SIP requests towards the requested destination a set of transit routing policies are defined. These policies are used to determine how a SIP request shall be routed towards the requested destination to meet the agreement the transit network operator has with its customer.



When a SIP entity that performs the transit routing functionality receives a SIP request, in order to apply the correct set of transit routing policies, it needs to know from which of its customers, i.e. adjacent upstream network, the SIP request is received.

## **2. Applicability**

The mechanism defined in this specification **MUST** only be used by SIP entities that are able to verify from which adjacent upstream network a SIP request is received.

The mechanism for verifying from which adjacent upstream network a SIP request is received is outside the scope of this specification.

## **3. Conventions**

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [BCP 14](#), [RFC 2119](#) [[RFC2119](#)].

## **4. Definitions**

SIP entity: SIP User Agent (UA), or SIP proxy, as defined in [RFC 3261](#).

Adjacent upstream SIP network: The adjacent SIP network in the direction from which a SIP request is received.

Network entry point: A SIP entity on the border of network, which receives SIP requests from adjacent upstream networks.

Inter Operator Identifier (IOI): A globally unique identifier to correlate billing information generated within the IP Multimedia Subsystem (IMS).

## **5. User Agent and Proxy behavior**

### **5.1. General**

This section describes how a SIP entity, acting as an entry point to a network, uses the "received-realm" Via header field parameter.

### **5.2. Behavior of a SIP entity acting as a network entry point**

When a SIP entity, acting as a network entry point, forwards a SIP request, or initiates a SIP request on its own (e.g. a PSTN gateway), the SIP entity adds a Via header field to the SIP request, according



to the procedures in [RFC 3261](#) [[RFC3261](#)]. In addition, if the SIP entity is able to assert the adjacent upstream network, and if the SIP entity is aware of a network realm value defined for that network, the SIP entity can add a "received-realm" Via header field parameter, conveying the network realm value, to the Via header field added to the SIP request.

## 6. Examples

### 6.1. Example 1

TBD

```
Operator 1          T_EP                                T_AS

- INVITE ----->
  Via: IP_UA

      - INVITE ----->
        Via: IP_TEP; received-realm=operator_1.com
        Via: IP_UA; received=IP_UA

      <- 200 OK -----
        Via: IP_TEP; received-realm=operator_1.co
        Via: IP_UA; received=IP_UA

<- 200 OK-----
  Via: IP_UA; received=IP_UA
```

### 6.2. Example 2

TBD

## 7. Syntax

### 7.1. General

This section describes the syntax extensions to the ABNF syntax defined in [RFC 3261](#) [[RFC3261](#)], by defining a new Via header field parameter, "received-realm". The ABNF defined in this specification is conformant to [RFC 5234](#) [[RFC5234](#)]. "EQUAL" and "hostname" are defined in [RFC 3261](#) [[RFC3261](#)]. "DIGIT" is defined in [RFC 5234](#) [[RFC5234](#)]





## [7.2.](#) ABNF

via-params =/ received-realm

received-realm = "received-realm" EQUAL hostname

## [8.](#) IANA Considerations

### [8.1.](#) 'received-realm' Via header field parameter

This specification defines a new Via header field parameter called received-realm in the "Header Field Parameters and Parameter Values" sub-registry as per the registry created by [\[RFC3968\]](#). The syntax is defined in [Section 7](#). The required information is:

| Header Field | Parameter Name | Predefined Values | Reference |
|--------------|----------------|-------------------|-----------|
| -----        | -----          | -----             | -----     |
| Via          | received-realm | No                | RFCXXXX   |

## [9.](#) Security Considerations

TBD

## [10.](#) Acknowledgements

TBD

## [11.](#) Change Log

[RFC EDITOR NOTE: Please remove this section when publishing]

Changes from [draft-holmberg-received-realm-02](#)

- o New version due to expiration.

Changes from [draft-holmberg-received-realm-01](#)

- o New version due to expiration.

Changes from [draft-holmberg-received-realm-00](#)

- o New version due to expiration.



## **12. References**

### **12.1. Normative References**

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [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.
- [RFC5234] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, [RFC 5234](#), January 2008.

### **12.2. Informative References**

- [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.

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