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Traversal Using Relays around NAT (TURN) Uniform Resource Identifiers  
draft-petithuguenin-behave-turn-uri-bis-05

## Abstract

This document defines two URI schemes that can be used to provision the configuration values needed by the resolution mechanism defined in [RFC5928].

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## 1. Introduction

[RFC5928] defines a resolution mechanism to convert a secure flag, an host name or IP address, a eventually empty port, and an eventually empty transport to a list of IP address, port, and TURN transport tuples.

To simplify the provisioning of TURN clients, this document defines a TURN and a TURNs URI scheme that can carry the four components needed for the resolution mechanism.

## 2. Syntax of a TURN or TURNs URI

A TURN/TURNs URI has the following ABNF syntax [RFC5234]:

```
turnURI      = scheme ":" turn-host [ ":" turn-port ]
               [ "?transport=" transport ]
scheme       = "turn" / "turns"
transport    = "udp" / "tcp" / transport-ext
transport-ext = 1*unreserved
turn-host    = IP-literal / IPv4address / reg-name
turn-port    = *DIGIT
IP-literal   = "[" ( IPv6address / IPvFuture  ) "]"
IPvFuture    = "v" 1*HEXDIG "." 1*( unreserved / sub-delims / ":" )
IPv6address  =
    / 6( h16 ":" ) ls32
    / "::" 5( h16 ":" ) ls32
    / [ h16 ] "::" 4( h16 ":" ) ls32
    / [ *1( h16 ":" ) h16 ] "::" 3( h16 ":" ) ls32
    / [ *2( h16 ":" ) h16 ] "::" 2( h16 ":" ) ls32
    / [ *3( h16 ":" ) h16 ] "::" h16 ":" ls32
    / [ *4( h16 ":" ) h16 ] "::" ls32
    / [ *5( h16 ":" ) h16 ] "::" h16
    / [ *6( h16 ":" ) h16 ] "::"
h16          = 1*4HEXDIG
ls32         = ( h16 ":" h16 ) / IPv4address
IPv4address  = dec-octet "." dec-octet "." dec-octet "." dec-octet
dec-octet    = DIGIT              ; 0-9
              / %x31-39 DIGIT     ; 10-99
              / "1" 2DIGIT        ; 100-199
              / "2" %x30-34 DIGIT ; 200-249
              / "25" %x30-35      ; 250-255
reg-name     = *( unreserved / pct-encoded / sub-delims )
```

<unreserved>, <sub-delims>, and <pct-encoded> are specified in [RFC3986].

<secure> is equal to false if <scheme> is equal to "turn" and equal

to false if <scheme> is equal to "turns".

### 3. Security Considerations

Security considerations for the resolution mechanism are discussed in [RFC5928].

The "turn" and "turns" URI schemes do not introduce any specific security issues beyond the security considerations discussed in [RFC3986].

### 4. IANA Considerations

This section contains the registration information for the "turn" and "turns" URI Schemes (in accordance with [RFC4395]).

#### 4.1. TURN URI Registration

URI scheme name: turn

Status: permanent

URI scheme syntax: See [Section 2](#).

URI scheme semantics: See [RFC5928].

Encoding considerations: There are no encoding considerations beyond those in [RFC3986].

Applications/protocols that use this URI scheme name:

The "turn" URI scheme is intended to be used by applications that might need access to a TURN server.

Interoperability considerations: N/A

Security considerations: See [Section 3](#).

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References: This document.

[Note to RFC Editor: Replace "This document" with reference to this document]

## 4.2. TURNS URI Registration

URI scheme name: turns

Status: permanent

URI scheme syntax: See [Section 2](#).

URI scheme semantics: See [\[RFC5928\]](#).

Encoding considerations: There are no encoding considerations beyond those in [\[RFC3986\]](#).

Applications/protocols that use this URI scheme name:

The "turns" URI scheme is intended to be used by applications that might need access to a TURN server.

Interoperability considerations: N/A

Security considerations: See [Section 3](#).

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References: This document.

[Note to RFC Editor: Replace "This document" with reference to this document]

## 5. Acknowledgements

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The <turn-port> and <turn-host> ABNF productions have been copied from the <port> and <host> ABNF productions from [\[RFC3986\]](#).

This document was written with the xml2rfc tool described in [\[RFC2629\]](#).

## 6. References

## 6.1. Normative References

- [RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, [RFC 3986](#), January 2005.
- [RFC5234] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, [RFC 5234](#), January 2008.
- [RFC5928] Petit-Huguenin, M., "Traversal Using Relays around NAT (TURN) Resolution Mechanism", [RFC 5928](#), August 2010.

## 6.2. Informative References

- [RFC2629] Rose, M., "Writing I-Ds and RFCs using XML", [RFC 2629](#), June 1999.
- [RFC4395] Hansen, T., Hardie, T., and L. Masinter, "Guidelines and Registration Procedures for New URI Schemes", [BCP 35](#), [RFC 4395](#), February 2006.
- [I-D.wood-tae-specifying-uri-transports]  
Wood, L., "Specifying transport mechanisms in Uniform Resource Identifiers",  
[draft-wood-tae-specifying-uri-transports-08](#) (work in progress), May 2010.

## Appendix A. Release notes

This section must be removed before publication as an RFC.

### A.1. Modifications between petithuguenin-05 and petithuguenin-04

- o Nits.
- o Fixed schemes registration.

### A.2. Modifications between petithuguenin-04 and petithuguenin-03

- o Fixed references code link.

### A.3. Modifications between petithuguenin-03 and petithuguenin-02

- o Updated RFC references.

#### A.4. Modifications between petithuguenin-02 and petithuguenin-01

- o Nits.

#### A.5. Modifications between petithuguenin-01 and petithuguenin-00

- o Shorten I-D references.

#### A.6. Design Notes

- o <password> is not used in the URIs because it is deprecated.  
<username> is not used in the URIs because it is not used to guide the resolution mechanism.
- o As discussed in Dublin, there is no generic parameters in the URI to prevent compatibility issues.

#### A.7. Running Code Considerations

- o Reference Implementation of TURN URI parser and resolver (<http://debian.implementers.org/turn-uri.tar.gz>). Marc Petit-Huguenin. Implements version -05.

#### A.8. TODO List

- o Instead of using a transport parameter perhaps a scheme prefix, as proposed in [[I-D.wood-tae-specifying-uri-transports](#)] is better.
- o Same thing for using a "+s" suffix instead of a "s" suffix for security.

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