



# **FLOW Streaming - STUN/TURN Server Configuration**

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# Contents

<b>FLOW Network Streaming</b>	<b>3</b>
What is a STUN Server?	3
What is a TURN Server?	3
Using an External STUN/TURN Service	4
Configuring a TURN Service on a FLOW Ingest Server	4
Location of TURN Service	5
Updating a STUN/TURN Server in FLOW Control	5
TURN Server License	7

# FLOW Network Streaming

FLOW Ingest servers are collocated with FLOW Streaming service, which is responsible for providing real-time streaming of video and audio to browser-based clients (e.g. FLOW Control or FLOW Live Capture applications) over the WebRTC protocol. This process would normally use multiple UDP ports from a wide range of ports (49152-65535), which makes it difficult to configure port forwarding.

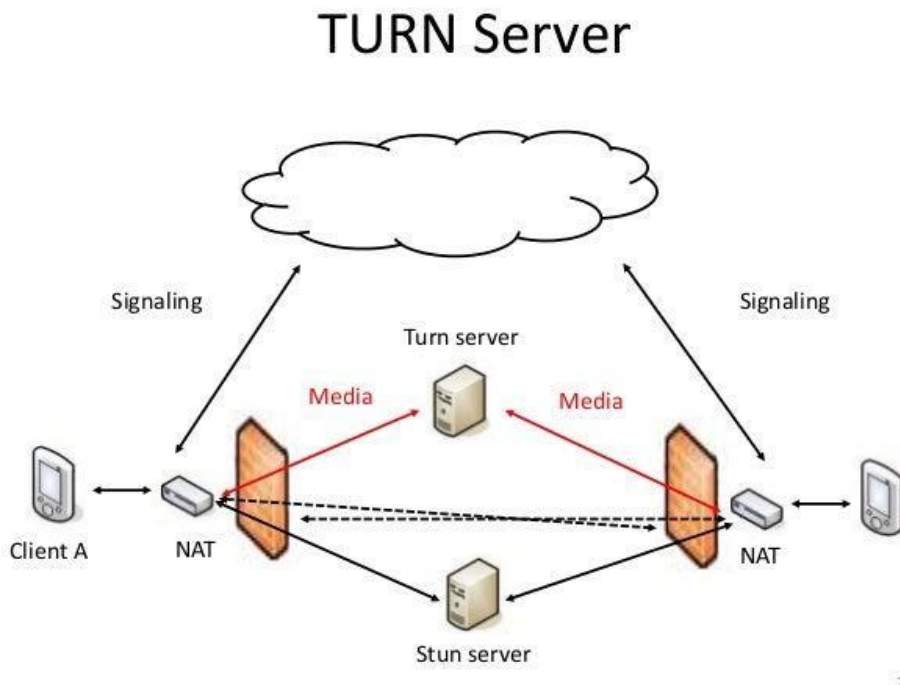
If the client's browser or FLOW Streaming service is located behind a NAT, then in certain situations it can be impossible to establish the WebRTC connection. In these situations it is necessary to use additional STUN (Session Traversal Utilities for NAT) or TURN (Traversal Using Relays around NAT) servers. STUN and TURN servers can be referred to together as ICE servers.

## What is a STUN Server?

The STUN protocol allows clients to discover their public IP address and the type of NAT they are behind. This information is used to establish the media connection. In most cases, a STUN server is only used during the connection setup and once that session has been established, media flows directly between the peer and the Video Gateway (WebRTC).

## What is a TURN Server?

Even when a STUN server is configured properly, there are very restrictive corporate networks (for example: UDP traffic forbidden, only 443 TCP allowed.), which require clients to use a TURN server to relay traffic if the direct (peer to Video Gateway) connection fails. In these cases, you can install a TURN server (in another instance) to solve these issues. The following is a TURN server example:



For further information, contact EditShare Customer Support.

## Using an External STUN/TURN Service

FLOW can work with external STUN servers that are compliant with RFC5389 and TURN servers compliant with RFC5766 that support username/password authentication. These servers can be local network appliances or cloud-based managed public or private services.

Public STUN servers are readily available, and are recommended by EditShare.

A STUN address has the form `stun://HOST:PORT`. For example:

```
stun://stun.l.google.com:19302
stun://stun1.l.google.com:19302
```

TURN servers can be unencrypted (`turn:// url`) or encrypted (`turns:// url`) and have URLs in the form:

```
turn://USER:PASSWORD@HOST:3478
turns://USER:PASSWORD@HOST:3478
```

NOTE: If you already have one of these URLs, refer to [Updating a STUN/TURN server in FLOW Control](#).

## Configuring a TURN Service on a FLOW Ingest Server

As of FLOW 2022.2, EditShare FLOW is shipped with Coturn Service, which is a free, open-source implementation of TURN server, which also implements the STUN protocol. The service can be configured to work with EditShare FLOW. Please read the [TURN Server License](#) section before continuing.

*NOTE: There is no explicit role for the TURN service in EditShare Role Assistant and the service needs to be configured manually which requires root privileges.*

To configure the TURN service manually:

1. Confirm the service is installed and active:

```
systemctl status coturn
```

The output should include `Active: active (exited)`, which means the service is installed and active but not running by default.

2. To run the service on every startup:

```
sudo sed -i '/TURN_SERVER_ENABLED/c\TURN_SERVER_ENABLED=1'
/etc/default/coturn
```

3. Configure the service by editing the `/etc/turnserver.conf` file to enable TURN (this requires adding static credentials). Append this minimal configuration at the end of the file, as follows:

```
verbose
```

```
fingerprint
lt-cred-mech
user=TESTUSER:TESTPASSWORD
realm=test
syslog
proc-user=turnserver
proc-group=turnserver
```

*NOTE: In the above configuration, replace `TESTUSER` and `TESTPASSWORD` with a different username and secure password. Using default credentials is not secure.*

This enables STUN and the TURN service on default port 3478 with basic user-password authentication and logging to syslog for troubleshooting. For additional information, such as encrypting the connection with a trusted certificate, refer to the online documentation of the coturn linux service, `man coturn` or `man turnserver`.

4. Restart the service:

```
sudo systemctl restart coturn
```

5. Update FLOW to use the Coturn Service. In order to configure FLOW to use the Coturn Service running on the FLOW server, refer to [Updating a STUN/TURN Server in FLOW Control](#) and use the address:

```
turn://TESTUSER:TESTPASSWORD@HOST:3478
```

Where `HOST` is the address of the FLOW server where the Coturn Service is running.

## Location of TURN Service

The TURN Service is typically enabled on the FLOW Ingest server and then the FLOW Streaming service on the Ingest Server is configured with the address of the TURN service on the Ingest server.

If you have more than one Ingest Server, you can either use separate TURN services on each Ingest Server or you can configure all of the Streaming services to use the same TURN server.

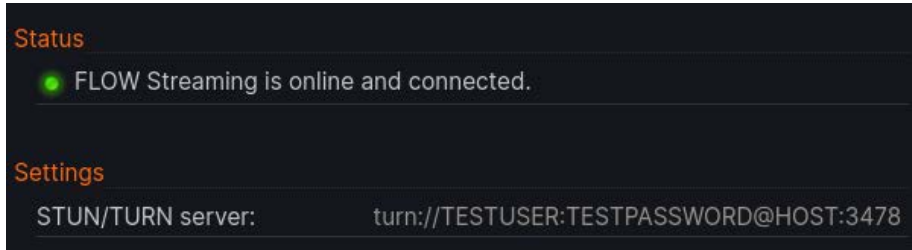
## Updating a STUN/TURN Server in FLOW Control

In order to configure FLOW to use a STUN or TURN server:

1. Log into FLOW Control and navigate to the Systems tab.
2. Within the Status area, search for **FLOW Streaming** service.
3. Click to highlight the row.
4. On the right hand side in "STUN/TURN server" field input one of the following:

- `stun://HOST:3478`
- `turn://USER:PASSWORD@HOST:3478`
- `turns://USER:PASSWORD@HOST:3478`

For example:



This instructs the flow-streaming service, as well as FLOW Control and FLOW Ingest clients to use the STUN/TURN server to help with establishing the WebRTC connection for real-time streaming of audio and video. The TURN address is preferred, as when possible it would attempt to use the STUN protocol first and then fall back to TURN relay otherwise.

*NOTE: When a secure (turns://) address is used the TURN server must be configured to use a valid and trusted TLS certificate for web browsers to successfully connect with it. Self-signed certificates may not work.*

*Also note that this HOST address and port 3478 (UDP and TCP) should be accessible for the FLOW Streaming Service, as well as the FLOW Control and FLOW Ingest Web clients. Additional port 3478 forwarding may also be required.*

# TURN Server License

TURN Server - RFC5766 TURN Server implementation  
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