NGINX + RTMP + HLS Secure Streaming (Windows Server)

This document explains how to install and configure a secure live streaming server on Windows using NGINX with RTMP.
Features included:
- Password-protected RTMP (username + key)
- HLS streaming
- HLS token protection
- IP restriction
- HTTPS with Let's Encrypt
- Dynamic IP support (DuckDNS / No-IP)

Step 1: Download NGINX with RTMP (Windows)

Download the precompiled NGINX RTMP Windows build from:
https://github.com/illuspas/nginx-rtmp-win32
Extract the contents to:
C:\nginx

Step 2: Create Required Folders

Create the following directories:
C:\nginx\html\hls
C:\nginx\conf\auth

Step 3: RTMP Authentication (Username + Key)

RTMP publishing is protected using on_publish authentication.
Example credentials:
Username: liveuser
Stream Key: mystreamkey123
These values are validated internally by NGINX.

Step 4: NGINX Configuration

Edit the file:
C:\nginx\conf\nginx.conf
The configuration enables RTMP ingest, HLS output, authentication, IP restriction, and HTTPS.
Make sure to update your domain name, IP ranges, and secret tokens.

Step 5: HTML Player Page

Create the file:
C:\nginx\html\index.html
The page uses HLS.js to play the secure HLS stream directly from the same server.

Step 6: HLS Token Protection

HLS playback URLs are protected using secure_link.

Token format:
MD5(expires + /hls/stream.m3u8 + SECRET)
Expired or invalid tokens are rejected automatically.

Step 7: IP Restriction

RTMP publishing and HLS viewing can be limited to specific IP addresses or networks.
Examples:
- Allow only LAN for publishing
- Allow only trusted viewers for playback

Step 8: Dynamic IP (DuckDNS / No-IP)

Register a free dynamic DNS hostname.
Example:
myhome.duckdns.org
Install the updater client on Windows to keep your IP in sync.

Step 9: HTTPS with Let's Encrypt (Windows)

Download win-acme from:
https://www.win-acme.com/
Use HTTP-01 validation to issue a certificate.
Certificates auto-renew without manual intervention.

Step 10: Firewall Configuration

Open the following inbound ports on Windows Defender Firewall:
- 1935 (RTMP)
- 80 (HTTP)
- 443 (HTTPS)

Step 11: OBS Configuration

OBS Settings:
Service: Custom
Server: rtmp://yourdomain/live
Stream Key:
stream?name=liveuser&key;=mystreamkey123

Final Result

You now have a fully secure live streaming platform running on a Windows-based NGINX server with:
- Authenticated RTMP ingest
- Token-protected HLS playback
- HTTPS encryption
- Dynamic IP support
- HTML playback page hosted on the same server