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# Streaming Server

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Servidor de **Audio** y **Video** con Grabación de Sesión

### Protocolos Soportados

- RTMP (Real Time Messaging Protocol)
- RTSP
- HLS

[RSS - Github](#)

# Protocolos

## RTMP

Realtime Messaging Protocol

TCP - port:1935

Canales para enviar y recibir paquetes independientes (video, audio)

## RTSP

Realtime Streaming Protocol

TCP - port:8554  
UDP - ports:8000-8001  
RTP

Manda audio y video por UDP

Best effort

## HLS

HTTP Live Streaming

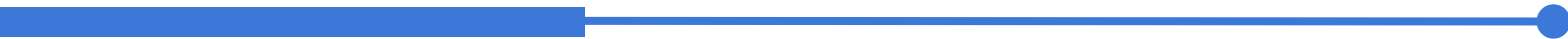
HTTP - port:8888

Desarrollado por Apple

File.m3u8

# Codecs

	RTMP	RTSP	HLS
AUDIO	<b>HE-AAC</b> AAC AAC-LC MP3	<b>AAC</b> AAC-LC HE-AAC+ v1 & v2 MP3	AAC-LC <b>HE-AAC+</b> v1 & v2 xHE-AAC FLAC
VIDEO	<b>H.264</b> H.263 VP8 VP6	<b>H.264</b> <b>H.265</b>	H.265 <b>H.264</b>



# Demo



RTMP  
RTSP

RTMP  
RTSP  
HLS

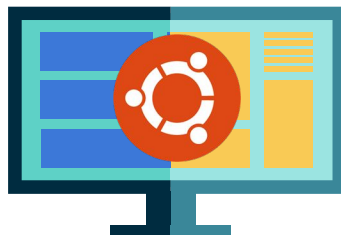
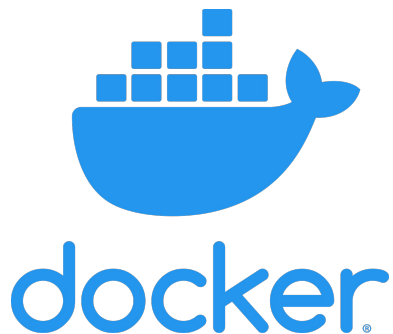
**OBS Studio**  
Publicar Streams



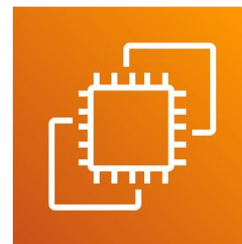
 **FFmpeg : ffmpeg**  
Consumir Streams



# Levantar el Server



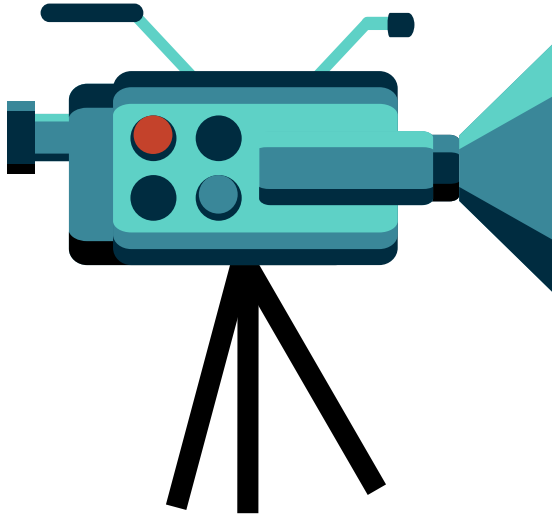
**Localmente**  
Ubuntu 20.04



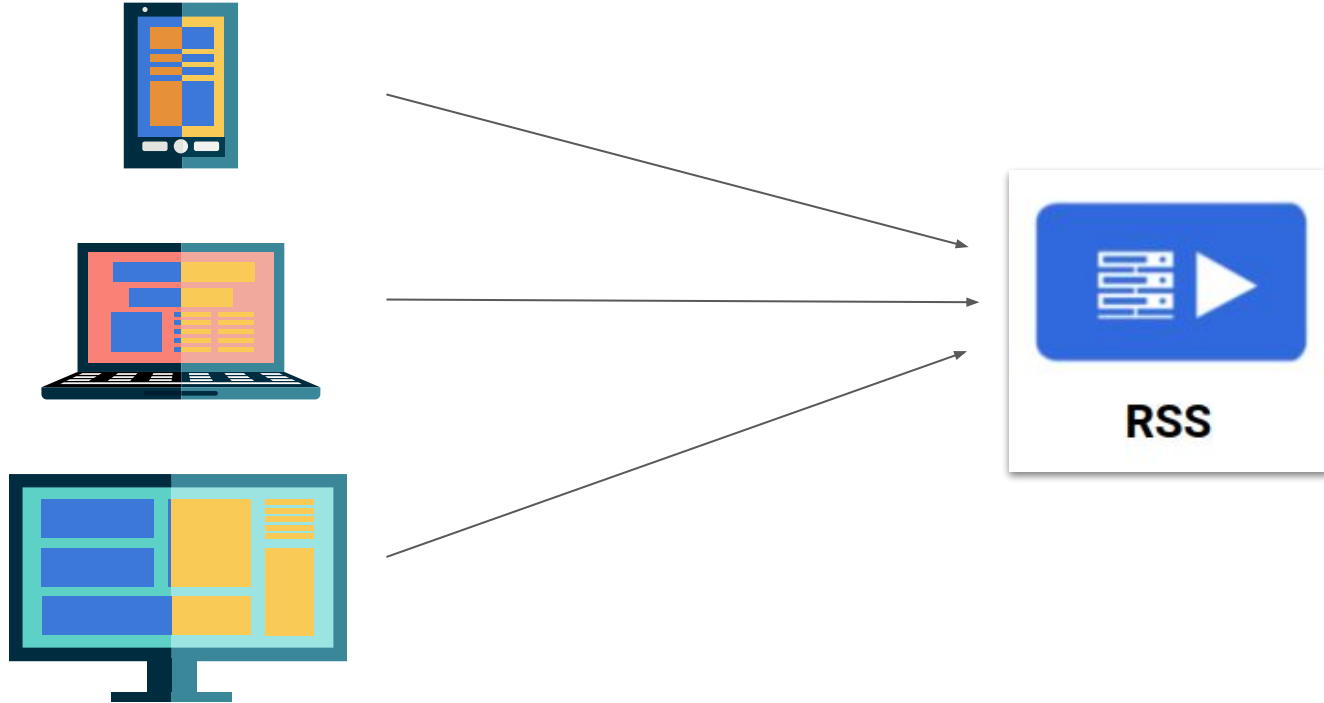
**Amazon EC2**  
AMI Ubuntu 22.04



# Live Streaming



# Múltiples Clientes





# Publicar un Video



# Métricas

- Cantidad de Clientes conectados
- Ancho de Banda total y por cliente

GET /v1/rtspsessions/list



GET /v1/paths/list



GET /v1/rtmpconns/list



GET /v1/hlsmuxers/list



# Wireshark

- Protocolos
- CODECS
- Ancho de Banda por Cliente

RTMP	243	Handshake S0+S1+S2
TCP	66	47886 → 1935 [ACK] Seq=1538 Ack=3074 Win=61312 Len=0 TSval=...
RTMP	1602	Handshake C2
TCP	66	1935 → 47886 [ACK] Seq=3074 Ack=3074 Win=59776 Len=0 TSval=...
RTMP	266	Set Chunk Size 4096 connect('app')
TCP	66	1935 → 47886 [ACK] Seq=3074 Ack=3274 Win=59648 Len=0 TSval=...
RTMP	82	Window Acknowledgement Size 2500000
TCP	66	47886 → 1935 [ACK] Seq=3274 Ack=3090 Win=64128 Len=0 TSval=...
RTMP	1038	Set Peer Bandwidth 2500000,Dynamic Set Chunk Size 60000
TCP	66	47886 → 1935 [ACK] Seq=3274 Ack=4062 Win=63232 Len=0 TSval=...
RTMP	113	releaseStream('eugestream')
TCP	66	4096 → 47886 [ACK] Seq=4062 Ack=321 Win=59648 Len=0 TSval=...
RTMP	475	FCP... (ReleaseStream) (1) (chunk 4)

Real Time Messaging Protocol (Audio Data)	
RTMP Header	
00... = Format: 0	
..00 0100 = Chunk Stream ID: 4	
Timestamp: 0	
Body size: 4	
Type ID: Audio Data (0x08)	
Stream ID: 4	
RTMP Body	
Control: 0xaf (HE-AAC 44 kHz 16 bit stereo)	
1010... = Format: HE-AAC (16)	
.... 11.. = Sample rate: 44 kHz (3)	
.... ..1. = Sample size: 16 bit (1)	
.... ...1 = Channels: stereo (1)	
Audio data: 001190	

IPv4 · 114		IPv6 · 2		TCP · 124		UDP · 29											
Port A	Address B	Port B	Packets	Bytes	Packets A → B	Bytes A → B	Packets B → A	Bytes B → A	Abs Start	Duration	Bits/s A → B	Bits/s					
38018	35.228.14.46	443	18	2,079	7	1,037	11	1,042	1:56:38.04214	63.0873	131	66					
46658	104.19.149.54	443	11	675	6	324	5	351	1:56:38.49780	39.0088	66	66					
35904	104.18.4.81	443	13	789	7	378	6	411	1:56:38.49783	38.8862	77	77					
48004	151.101.193.69	443	4	264	2	132	2	132	1:56:38.49784	45.1001	23	23					
44244	35.244.216.234	443	5	403	3	198	2	205	1:56:39.78329	0.0212	74 k	74 k					
40776	162.247.241.14	443	16	912	8	432	8	480	1:56:40.49986	76.8007	44	44					
50096	35.186.224.25	443	9	735	4	276	5	459	1:56:40.54586	49.1075	44	44					
56756	104.22.17.141	443	15	903	8	432	7	471	1:56:40.54587	83.8359	41	41					
43606	35.207.24.140	443	4	337	2	132	2	205	1:56:41.21650	0.2048	5.157	5.157					
39198	104.45.184.134	443	20	2,031	11	1,197	9	834	1:56:42.43396	61.2476	156	156					
33003	35.230.18.153	443	7	460	4	240	3	320	1:56:42.50300	13.0003	130	130					

**DEMO**



**¡ GRACIAS !**

