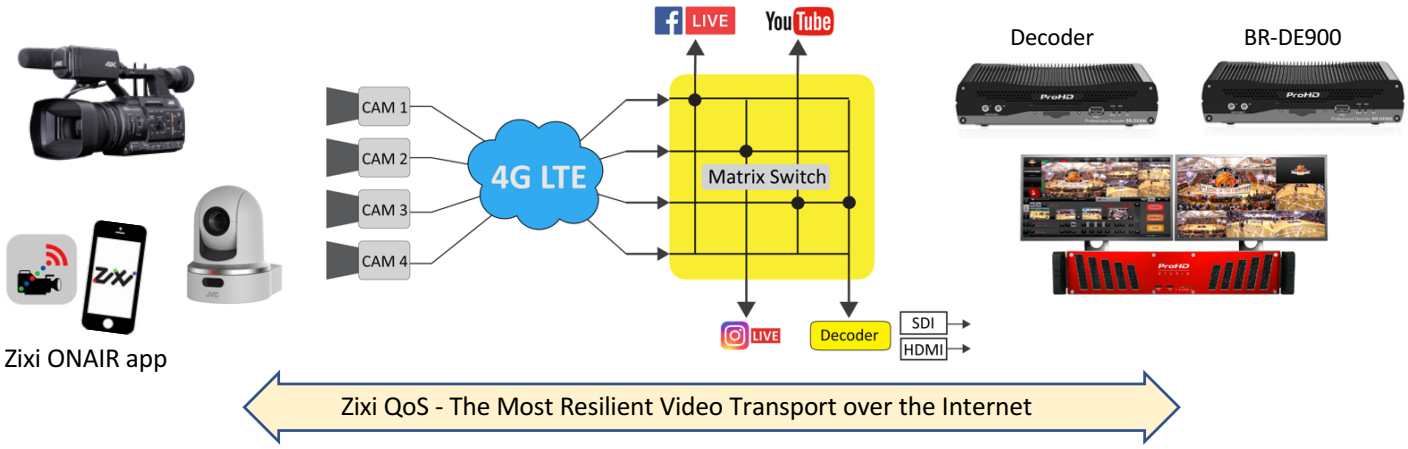
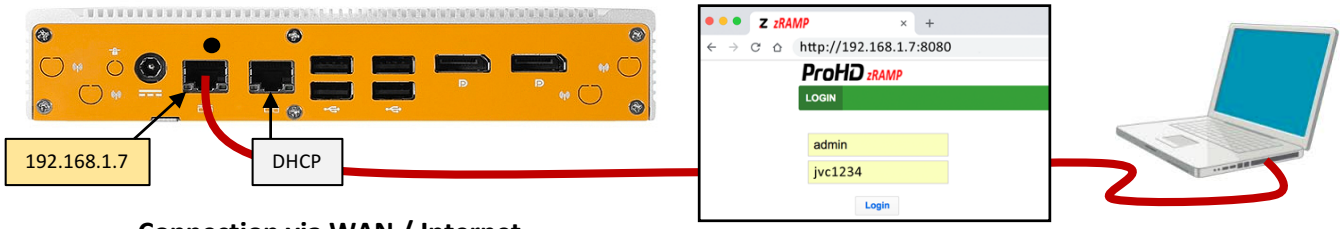
zRAMP
Quick Setup Guide

The zRAMP Video-over-IP server accepts Zixi transport protocol from JVC cameras and Zixi ONAIR iOS/Android app. Zixi protocol utilizes Forward Error Correction (FEC), Repeat Request (ARQ) and Adaptive Bit Rate (ABR) to compensate for up to 30-40% of packet loss due to network congestion, limited bandwidth and excessive jitter.
The zRAMP outputs UDP, RTP, RTP+SMPTE FEC and RTMP streams to hardware/software decoders, CDNs (Facebook, YouTube etc.) and SW video switchers (ProHD Studio, vMix).



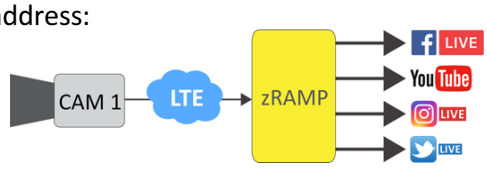
The zRAMP is a *Network Attached Appliance* and is controlled/operated via browser from another PC or smart device on the same network or via WAN / Internet. Recommended browsers: Chrome, Mozilla Firefox.
(Please, do not connect a monitor to the DisplayPort, only Linux login will be displayed.)

zRAMP login:
Setup PC network adapter: IP = 192.168.1.77 (or similar), Netmask = 255.255.255.0
Launch Chrome browser, type http://192.168.1.7:8080, Login = admin Password = jvc1234

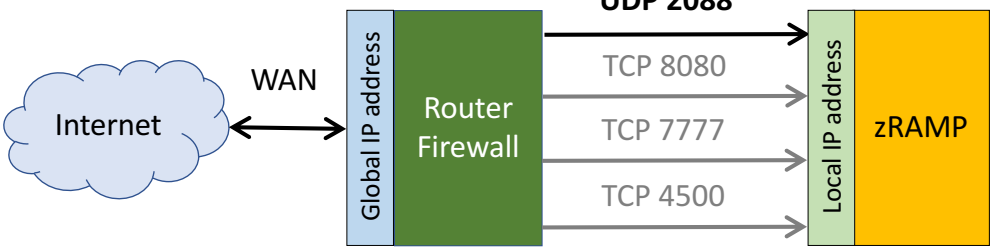


Connection via WAN / Internet
In most cases, the zRAMP would be connected to the Internet via router/firewall gateway.
The following ports need to be forwarded to the zRAMP local IP address:

UDP 2088	for incoming video stream.
TCP 8080	to enable login from the Internet / WAN
TCP 7777	to stream Flash preview to the Internet / WAN
TCP 4500	HTTP proxy for files transfer
TCP 22	SSH for service



Port Forwarding

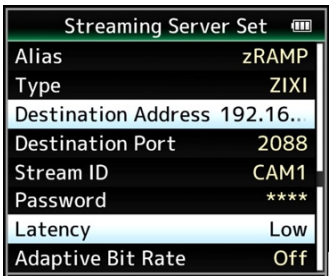


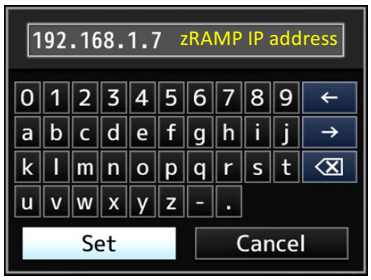
zRAMP operation – adding new Inputs:

The JVC camera *Streaming Server* settings should be matched with the *Stream ID* on the zRAMP.
Camera settings: Menu – System – Network – Settings – Live streaming – Server – Streaming Server
zRAMP settings: Inputs - New Input – Push
Latency is always fixed and selected in the camera settings depending on the quality of connection:

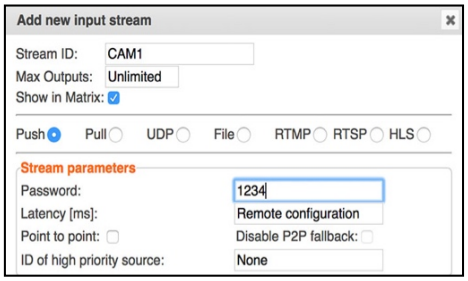
Camera Settings	Latency	Packet Loss Tolerance	Algorithm	*Recommended for:*
Min	500 ms	5%	FEC, ARQ, ABR	*Bi-directional conversation*
Low	900 ms	10%		
Medium	4 sec	30%	ARQ, ABR	*Event coverage*
High	10 sec	40-50%	ARQ, ABR	

JVC Camera settings

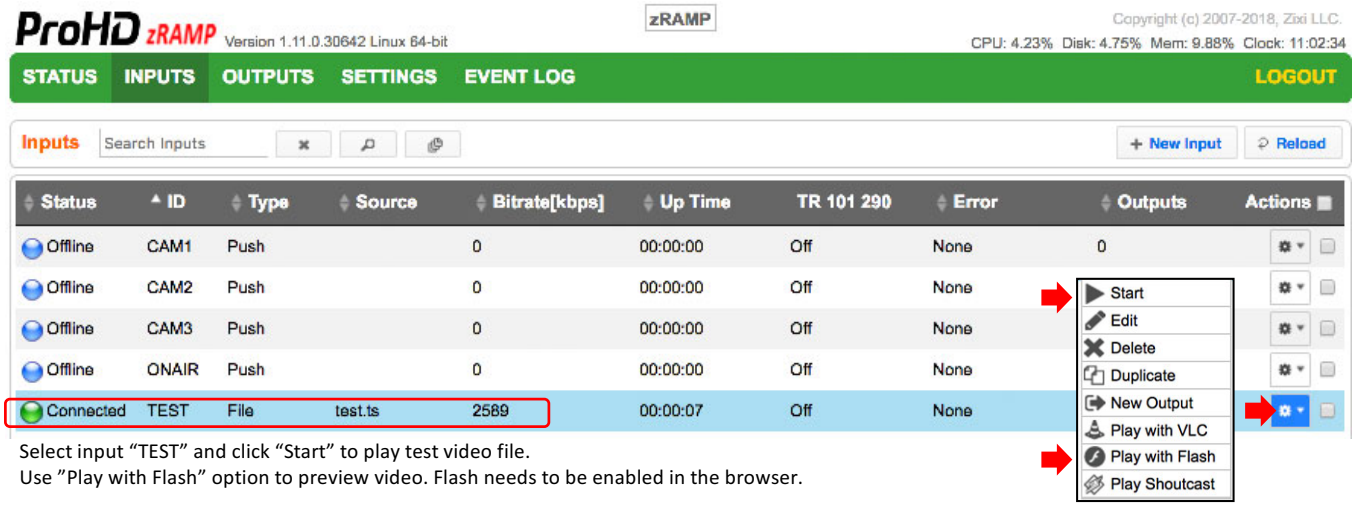




zRAMP settings



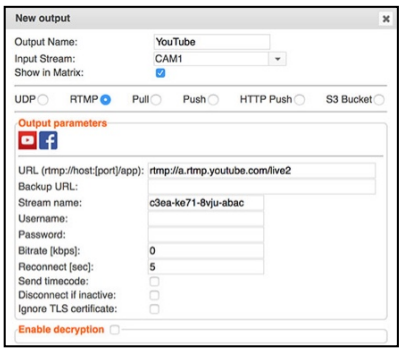
Stream ID and *Password* settings on the camera *Streaming Server* and zRAMP input should be identical.
The zRAMP IP address should be "Global" when running server behind the router/firewall.
Start streaming - Input Status should switch to "connected" (green), Bitrate and IP address will be indicated.



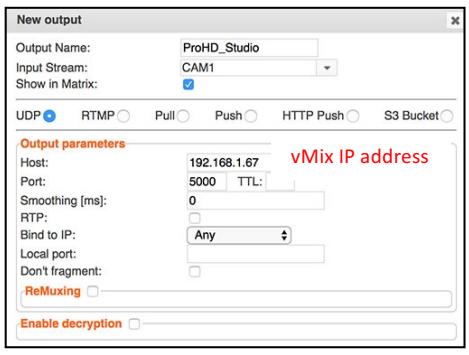
Select input "TEST" and click "Start" to play test video file.
Use "Play with Flash" option to preview video. Flash needs to be enabled in the browser.

zRAMP operation – adding Outputs:

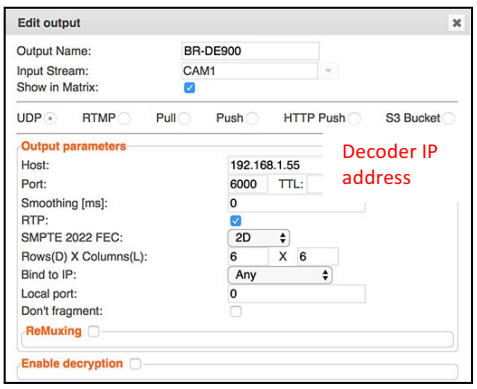
RTMP Output for YouTube



UDP Output for ProHD Studio / vMix



RTP+SMPTE FEC Output for BR-DE900 decoder



The zRAMP software is based on the BR-800 ProHD Broadcaster.
Both IP Video servers support the same Zixi protocol with the same packet loss compensation.
The amount and supported protocols for inputs/outputs and features are compared in the following table:

	zRAMP-2/4	BR-800 ProHD Broadcaster
Inputs		
Zixi Push from **JVC / ProHD c**ameras and encoders	2/4*	Unlimited From any source
Zixi ONAIR App for iOS/Android		
Zixi Feeder for Win/OSX/Linux	no	
Zixi Pull from another server		
MPEG-TS over UDP		
MPEG-TS over RTP with SMPTE-2022		
RTMP pull from CDNs and/or other sources		
RTMP push		
RTMPS		
RTSP input		
Pre-recorded TS files from local HDD	yes	
* zRAMP-2 features two inputs, zRAMP-4 - four inputs		
Outputs		
Zixi TS Push to another server	no	Unlimited
Zixi TS Pull from BR-DE900 or *Return Video* decoder		
MPEG-TS over UDP	2/4**	
MPEG-TS over RTP with SMPTE-2022		
RTMP push to CDNs and media servers		
Apple HTTP Live Streaming (HLS)		
Adobe HTTP Dynamic Streaming (HDS)		
FLV over HTTP (HTTP pseudo-streaming)		
MPEG-DASH (DASH264 profile)		
SHOUTcast (audio only)		
Recording TS files to local HDD		
Re-multiplex output streams to strict CBR		
** zRAMP-2 features two outputs, zRAMP-4 - four outputs		
Features		
Robust error correction + adaptive bitrate	yes	yes
Network bonding with hit-less fail-over		
Recording streams as MPEG-TS files		
Matrix and flash preview of input/output streams		
Secure and rapid file transfer		
Real-time network and content analysis		
Transport Stream Analyzer – ETSI TR 101-290	no	
Time-shift – delayed broadcasting of input stream		
Clustering and load balancing		

License		
Perpetual, one-time fee license	yes	
Annual Subscription with metered output		yes

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