



Video Application Note – ANV106

Brivo Eagle Eye Video Upload Data Streams Bandwidth

2026-08-12 Revision 2.0

Target Audience

This Application Note is intended for Customers and Resellers seeking to understand the bandwidth requirements of the Brivo Eagle Eye Video management system (the VMS). Understanding the different data streams used by the VMS and how bandwidth settings affect them is key to determining an effective solution for your VMS implementation. This document focuses on the bandwidth requirements for the data streams between the Brivo Eagle Eye Bridge and Brivo Eagle Eye Video.

The Data Streams Defined

Data flow in a Brivo Eagle Eye Video environment can be generally categorized into five areas, as depicted in Diagram 1.

1. Cloud-to-monitor/user (computer, smartphone, tablet, etc.)
2. Router-to-cloud
3. Bridge-to-router
4. Switch-to-bridge
5. Camera-to-switch

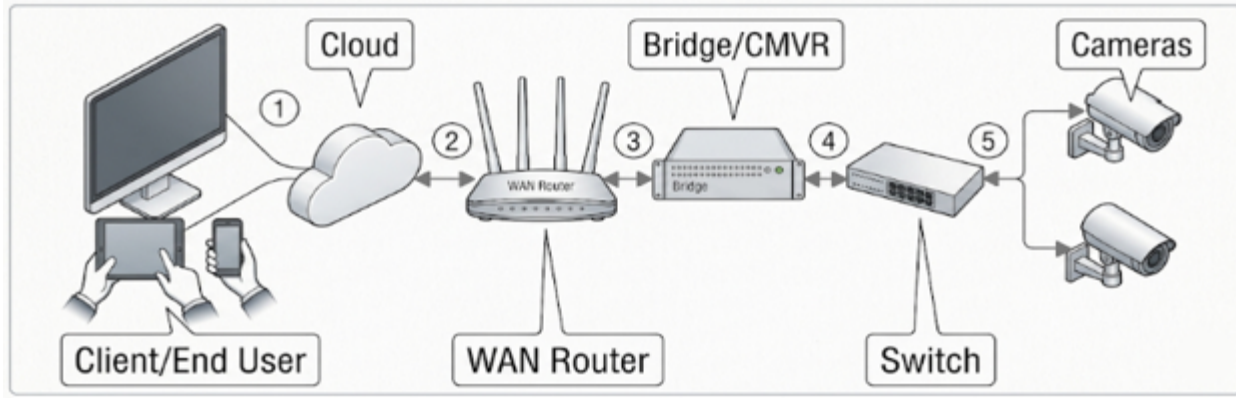


Diagram 1: Brivo Eagle Eye Video Data Flow

This Application Note will focus on connections 2 and 3 from Diagram 1. The majority of a Bridge's bandwidth usage is attributed to video data upload. These uploads fall into three streams.

	Preview Stream	Full Video Stream	Base Function Stream
Purpose	A continuous, lower-resolution video feed is sent from the camera to the bridge and then to the cloud. Used for live previews, layout views, history browsing, and analytics processing.	The primary, high-resolution video stream is recorded and stored in the Brivo Eagle Eye Cloud for detailed playback, investigation, and long-term archival.	An event-driven video burst is sent to the cloud when an analytics engine detects a trigger condition. Includes both the Full Video clip and the Preview stream for the event window.
When Active	Always - runs continuously whenever the camera is connected to the bridge, regardless of motion or recording settings.	Configurable: • On Motion (most common) - uploads only when motion is detected • Always On - continuously records and uploads	Event-driven and only activates in a burst each time a configured analytic fires. Idle when no events are occurring.
Video Format	MJPEG	H.264	H.264 Full Video clip + MJPEG Preview (both streams transmitted per event)

	Preview Stream	Full Video Stream	Base Function Stream
Resolution	Lower resolution to conserve bandwidth - typically CIF or 640×360.	High resolution for detailed capture, typically 1 MP, 2 MP, or 4 MP.	Same as the camera's configured Full Video and Preview resolutions.
Frame Rate	Low - 1 FPS (default)	Higher, typically 10, 12, 15, or 30 FPS, depending on camera settings.	Same as the camera's configured Full Video frame rate.
Approximate Bandwidth	Live Viewing: ~0.1 – 0.2 Mbps per camera (continuous, low baseline)	Live Viewing: ~1 Mbps per megapixel (Preview + Full Video combined) Example: 10 × 2 MP cameras = ~20 Mbps upload	~4 Mbps burst per event (Camera set to 2 MP example: 2 Mbps Full Video + 2 Mbps Preview & metadata) Duration: length of event clip
Upload Trigger	Continuous - always streaming to the cloud	On Motion trigger or continuous (based on recording mode setting)	Per analytic event: • Cloud analytics (LPR, Gun Detection): triggered by detection • Bridge analytics (Line Crossing, Loitering, Intrusion): triggered locally, video pushed to cloud
Controllable?	Yes - governed by the Default Transmit Bandwidth setting in Bridge Settings (see AN004)	Yes - governed by the Default Transmit Bandwidth setting in Bridge Settings (see AN004)	No - event bursts cannot be throttled or limited
Common Uses	• Live view layouts • History Browser thumbnails • Timeline scrubbing • Analytics processing input • Eeva (AI prompt analysis)	• Recorded video storage • Full-resolution playback • Incident investigation • Evidence export • LPR / analytics source	• LPR license plate reads • Gun Detection events • Line Crossing / Loitering alerts • Intrusion Detection • Scene Analysis

Note: The Preview Stream and the Full Video Stream serve different purposes in Brivo Eagle Eye Video. The Preview Stream is optimized for situations with limited bandwidth or when a quick overview is needed. At the same time, the Full Video Stream is designed to capture detailed video that can be stored and reviewed later.

Normal Operational Data Flow to the Brivo Eagle Eye Cloud

This application note does not focus on the internet connection (LAN bandwidth) between the camera and the switch (flow 5), or between the switch and the bridge (flow 4). Instead, we will concentrate on the video showing the transition from the bridge to the cloud, which includes the bridge-to-router (flow 3) and router-to-cloud (flow 2) transitions. We will treat this as a single movement: bridge to cloud.

Recording Video: Preview & Full Video Streams

Video recording can be configured to trigger **on motion**, the most common setup, or to record **always**. The "record always" option should be used sparingly, since most safety, security, and business use cases focus on capturing activity rather than on continuous video.

To manage how recorded video is sent to the cloud, you can adjust the camera's **Preview** and **Full Video** stream settings. Think of this as fine-tuning the data flowing over your internet connection: you can control picture quality, resolution, and frame rate to ensure video reaches the cloud smoothly without straining your network.

Local Buffering: When a video is recorded, it briefly resides on the bridge before being uploaded to the cloud; this is known as local buffering. This happens passively for all videos from cameras configured with Cloud Retention. When footage is stored on a CMVR with local retention (video not stored in the cloud), it will not leave the network unless a user requests remote access to the video.

Viewing Video: On-Demand Stream

Viewing live or historical video will affect bandwidth usage to varying degrees, depending on the number of concurrent viewers, the number of cameras, and the video resolution. Bandwidth is consumed when interacting with:

- Live viewing at full resolution
- Live viewing at preview resolution
- Layouts
- Two-way audio

Cloud-Based Analytics Vs. Bridge-Based Analytics Stream

Analytic	Processing Location	Bandwidth Impact	Notes
Precision Person Detection	Cloud	Yes - additional upload bandwidth	Cloud-based AI distinguishes people from other objects. Works on any compatible camera.
Precision Vehicle Detection	Cloud	Yes - additional upload bandwidth	Cloud-based AI identifies vehicles. Deployed instantly with no hardware changes.
Eeva	Cloud	Yes - additional upload bandwidth	AI video agent powered by LLMs/LVMs. Fully cloud-native; no new hardware required.
Scene Analysis	Cloud	No additional bandwidth	Analyzes and labels scene content locally on the bridge.
License Plate Recognition	Cloud or Bridge	Yes - additional upload bandwidth	Cloud AI reads plates from the Preview Stream. No new hardware required.
Motion Detection	Bridge	No additional bandwidth	Processed locally on the bridge; triggers Full Video Stream upload on motion.
Object Intrusion	Bridge	No additional bandwidth	Detects when an object enters a defined zone. Bridge fires event and sends clip burst.
Object Line Cross Count	Bridge	No additional bandwidth	Counts objects crossing a virtual line. Processed locally on the bridge.
Object Line Cross	Bridge	No additional bandwidth	Detects when an object crosses a virtual line. Processed locally on the bridge.
Tamper Detection	Bridge	No additional bandwidth	Detects camera obstruction or repositioning. Processed locally on the bridge.
Loiter Detection	Bridge	No additional bandwidth	Detects objects remaining in a zone past a set threshold. Processed locally on the bridge.

For both LPR and Gun Detection, the **Full Video Stream** is used, and the **Preview Stream** and metadata are transmitted as well. In addition, LPR events include an additional ~100 KB of

bandwidth per vehicle for a snapshot of the vehicle and a plate crop. For each event, expect the bridge to transmit approximately 5 seconds of video to the cloud.

When a bridge-based analytic detects an event, it immediately sends an Alert notification. It proactively uploads both the Preview Stream and Full Video Stream for the event, typically ~5 seconds of video. The Alert notification itself carries a negligible data load. Note that Scene Analysis has no additional impact on bandwidth, as the Preview Stream is already continuously sent to the cloud.

Examples:

LPR event on a 2MP camera: 2 Mbps for the Full Video Stream plus 2 Mbps for the Preview Stream and metadata, totaling ~4 Mbps for approximately 5 seconds of video, plus ~100 KB for the vehicle snapshot and plate crop.

Line Crossing event on a 2MP camera: 2 Mbps for the Full Video Stream plus 2 Mbps for the Preview Stream and metadata, totaling ~4 Mbps for approximately 5 seconds of video

Expected Bandwidth Utilization Under Normal Operations

Full Video & Preview Streams

The **Full Video Stream** is your camera's primary high-resolution recording, stored in Brivo Eagle Eye Video and available for later playback at the highest quality you've configured.

Bandwidth is simple to estimate: 1 Mbps per megapixel (MP), covering both the Preview and Full Video streams combined.

Example: A Bridge with 10 cameras at 2MP (1080p) will use approximately **20 Mbps** of upload bandwidth.

How Analytics Events Use Bandwidth

When an analytics event is detected — such as a **License Plate Read (LPR)**, **Gun Detection**, or **Line Crossing** — your system automatically sends a short video clip to the cloud. Hence, you never miss the moment that matters.

What gets sent with each event:

- A full-quality video clip (~5 seconds)
- A preview stream
- Event metadata (plate number, timestamp, alert type, etc.)
- An instant alert notification

Alert notifications are sent instantly the moment an event is detected. The associated video is then pushed automatically — no manual action needed. The notification itself uses negligible data.

This applies to all bridge-based analytics, including LPR, Gun Detection, and Line Crossing.

Managing Bandwidth Usage

Bandwidth for the **“Preview” and “Full Video” Recording Streams** can be controlled using the **Default Transmit Bandwidth** setting within Bridge Settings. By default, the bridge is configured to use up to 50% of the maximum throughput bandwidth measured during periodic speed tests to the cloud.

For instructions on configuring the Default Transmit Bandwidth, refer to [App Note 004](#).

In contrast, other upload streams, including the Base Function, Analytics, and On-Demand Streams, cannot be limited. While the Base Function Stream transmits minimal data and is generally not problematic in low-bandwidth environments, sudden spikes from streams such as Analytics and On-Demand can degrade network performance.

Calculating Needed Bandwidth

Although the example calculations above are good estimates, the best way to determine the upload bandwidth needed for any system is to use the [Product Wizard](#).


Product Wizard

Your Requirements

Add new +

No. of cameras ⓘ

25

+ -

Camera resolution ⓘ

2

MP

+ -

Days of retention ⓘ

30

+ -

Retention types ⓘ

Cloud

▼

Camera types ⓘ

IP ONVIF (Dual Strea...

▼

Advanced options +

Choose your device

Bridge ⓘ

CMVR ⓘ

Search results

Product results for 25 cameras | IP ONVIF (Dual Stream) | 2 MP | 30 Days of cloud retention (12 devices found)

Search products

Recommended device...

Bandwidth Usage: (Daily avg: 35.2 ⓘ | Live Viewing: 7.6 ⓘ | Preview & Metadata: 7.6 ⓘ)

Eagle Eye's switch option

SW20g

2 x 16 Port Gigabit Managed POE+ with 2xUplink and 2xSFP; 250W | EN-SW20g-001

View

Eagle Eye Recommended

1 x Bridge 401

Rack 1U | Cameras: 35@4MP; 10 Analytics

| EN-SU401-0 | RACK

Cloud Retention Only

View

Share

Show more

After submitting the number of devices and their resolutions, a bandwidth recommendation will be shown on the right-hand side.

Product results for 25 cameras | IP ONVIF (Dual Stream) | 2 MP | 30 Days of cloud retention (12 devices found)

Search products

Recommended device...

Bandwidth Usage: (Daily avg: 35.2 ⓘ | Live Viewing: 7.6 ⓘ | Preview & Metadata: 7.6 ⓘ)

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