BG LIVE

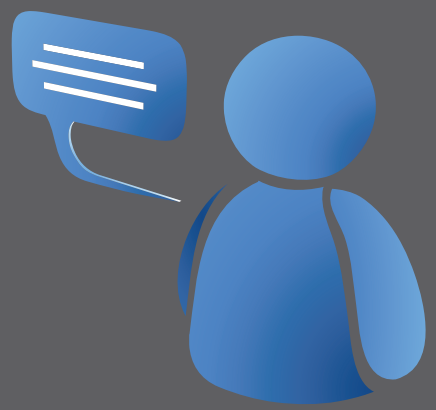
A STEP-BY-STEP GUIDE & REQUIREMENTS FOR STREAMING LIVE

BITGRAVITY™
FROM TATA COMMUNICATIONS

BitGravity offers a live streaming service called **BG Live** that enables organizations to broadcast live content over the Internet to audiences around the globe. This guide provides simple, step-by-step instructions on what's required and how to stream live with **BG Live**, the live streaming product from **BitGravity**.

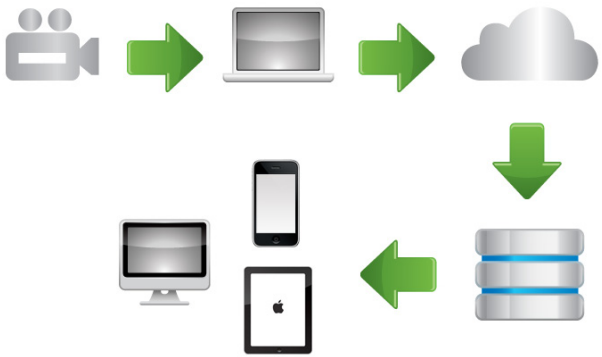
Based on your objectives and target audience, we provide guidance on encoder and best practices for live streaming.

If you are discussing BG Live with a BitGravity sales representative, we recommend you thoroughly review this guide and surface any questions with your representative during your next interaction.



BG Live services are for broadcasting your live video from your encoder (see below to learn more about encoders) to your Web site. Although we can provide a high-level understanding about encoders, publishing live streams on your site, and troubleshooting, and do provide 24/7 support when you are successfully live streaming, we do not provide end-to-end troubleshooting for all aspects of your live stream. Video signal acquisition and production is your responsibility.

To successfully deploy a live streaming solution on your Web site, we strongly suggest you have production and Web development resources.



REQUIREMENTS

- **Camera/Video Signal**
  Content that is captured by a camera or that is output by a media device.

- **Encoder**
  A software based solution for compressing and re-encoding a video signal for transmission over and playback on the Internet.

- **Dedicated Internet Connection**
  For transmitting your video signal from your encoder over BitGravity to a video player embedded on your Web site. Your dedicated Internet connection should have at least 2X the upload bandwidth of your total combined bitrates for your live stream.

- **BitGravity**
  A content delivery network that specializes in live streaming and broadcasts your signal to your viewers.

- **Video Player**
  Software integrated into your Web site or application that displays your video signal so viewers can watch your live stream.

GENERAL SET-UP

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a. Camera/Other Devices

Live streaming can begin with one of two different outputs of content: output from a camera or output from another device. We cover both scenarios below:

Cameras

Live streaming begins with action captured by your camera. There are a variety of cameras you can use to stream via BG Live, from television production-quality cameras to simple, hand-held video cameras or camcorders. The live video captured by your camera is passed over a cable to an encoder. Please ensure that your camera or the source of your signal is compatible with your encoder.

Other Devices

Live streaming can commence by outputting feeds from servers, satellite trucks, or DVD players. The important requirement is that feeds from other devices need to be output into the encoder either directly or through a capture card.

GENERAL SET-UP (CONT'D) 2

b. Encoders & Encoding Your Feed for Streaming Over the Internet

An encoder receives the live video that is output by a camera or other device and prepares it for delivery over the Internet.

Aside from compressing the video signal, some encoders are also able to output multiple quality levels. These multiple quality levels are referred to as bitrates, which is the number of bits that are conveyed over a period of time.

Publishing a live stream in multiple bitrates is important because not all viewers can watch high-quality live streams due to their Internet connection. If a viewer tries to watch a high-quality stream on a slow Internet connection, the live stream may be choppy or stutter. It's important to keep your end-users' Internet connections in mind when determining the bitrate(s) which you want to broadcast.

GENERAL SET-UP (CONT'D) 2

To account for this, we recommend that you publish your live stream with at least a high and low bitrate. Low bitrates are especially important if you intend to live stream to mobile devices.

Supported Encoders:

- Flash Media Live Encoder (FMLE)
- Wirecast
- Inlet Spinnaker
- Kulabyte
- Tricaster
- BG Encoder

We recommend using a dedicated computer with no other applications running as encoding software can be CPU-intensive. Your encoder has many settings that can affect the quality of your live streams. If you have questions on specific configurations and settings, we recommend that you contact your manufacturer.

See the last section of this document for more information on recommended encoders.

GENERAL SET-UP (CONT'D) 2

c. Dedicated Internet Connection

With your video signal connected to your encoder, you are almost ready to start live streaming. However, one of the most important aspects of having a successful live stream is having a dedicated Internet connection with sufficient upload bandwidth so that you can successfully push your stream from your location up to the BitGravity network for delivery to your end users. If BitGravity doesn't receive your video signal(s) properly we won't be able to deliver them smoothly to your end users.

The amount of dedicated upload bandwidth you need is dependant on the bitrate or combined bandwidth of all the bitrates you are pushing from your endcoder to the BitGravity network.

GENERAL SET-UP (CONT'D) 2

IMPORTANT: This is a critical part of the set-up process. To publish your streams correctly, you will need to have two to three times the upload bandwidth of all streams output by your encoder. For example:

Target Bitrate	Required Upload Bandwidth
1.5 Mbps	3.0 Mbps to 4.5 Mbps
1.5 Mbps + 500 Kbps + 300 Kbps + 56 Kbps = 2.356 Mbps	5.82 Mbps to 8.18 Mbps

If you are unsure of your upload bandwidth, go to **http://www.speedtest.net** to determine the amount of upload bandwidth you have. We also recommend you contact your Internet Service Provider (ISP) to determine your bandwidth.

GENERAL SET-UP (CONT'D) 2

d. BitGravity

BitGravity specializes in live streaming over the Internet. Once you become a customer, you will be provided with information to input to your encoder so you can push your live stream to our network so we can deliver it to a video player embedded on your Web site.

GENERAL SET-UP (CONT'D) 2

e. Video Player

A video player is software that is embedded on your Web site through which your audience watches your live stream. BitGravity supports a wide range of video players, including:

- JW Player: http://www.longtailvideo.com/players
- Flowplayer: http://flowplayer.org/
- BG Flash Player: http://player.bitgravity.com

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SELECTING AN ENCODER

BitGravity supports numerous encoders.
Next are three options to help you get started.

Encoder	Best for...	Pros	Cons	Price
BG Encoder	Those who are new to live streaming and only need to publish a single bitrate.	Simple and fully supported by BitGravity.	• Mac-based only • Only outputs one bitrate • Only supports Firewire input	Free
FMLE	Those who have experience with live streaming and need to push multiple bitrates.	• Support output of multiple bitrates. • Robust feature set • Free	• More complex to configure.	Free
Wirecast	Those who have experience with live streaming and need to push multiple bitrates.	• Support output of multiple bitrates • Most robust feature set	• Licensing fee • More complex to configure	Starting at $449