



Deployment Checklist for I.T.

- ❑ **E-mail notifications / SPAM filter.** Living As One's support team proactively monitors encoders and decoders for errors (video signal loss, bandwidth issues, etc). When a problem is detected, contacts listed in Multisite Controller may be sent a notification e-mail. It is important that these e-mails are not blocked by spam filters. Please ensure that emails sent from the livingasone.com domain are not blocked by spam filters. If you are not able to whitelist at the domain level, please ensure emails from support@livingasone.com and alerts@livingasone.com are allowed.
- ❑ **LAN Mode.** By default decoders will always try to pull event content from the encoder if the encoder is routable (reachable) from the decoder; this is called LAN Mode. LAN Mode is only supported for local area networks, and remote WAN sites connected via MPLS or VPLS. LAN Mode is not supported over VPN. If you have a decoding site connected with VPN, setup firewall rules to block decoders from accessing the encoder.
- ❑ **Bandwidth and Delay.** The resiliency of Living As One's platform will ensure that audio/video (A/V) data integrity is maintained throughout the entire transmission process, regardless of link reliability. However, in terms of content availability, it's up to the connecting network(s) to get the data to the decoder in time for playback. To ensure a high quality and uninterrupted playback experience, you should help your production and leadership teams determine an appropriate minimum playback delay based on the network bandwidth and reliability of the encoding and decoding site(s), and any network path in between.

For minimal playback delay, the upload bandwidth for the encoding site and the download bandwidth for the decoding site should meet or exceed a minimum bandwidth recommendation of 2.5x the total encoding bitrate (video + audio). For example, if the encoding video bitrate is 5,000 Kb/s and the encoding audio bitrate is 128 Kb/s, the respective upload and download bandwidths available to the encoder and decoder should consistently meet or exceed 12,820 Kb/s (12.82 Mb/s).

If this bandwidth recommendation is met, a two (2) minute minimum playback delay is recommend for decoders running in LAN Mode, and a five (5) minute minimum playback delay is recommended for decoders running in Cloud Mode (public internet). If the bandwidth recommendation is not met (for example, a decoding site only has a slow LTE connection available), increase the delay in starting playback so that the decoder will always have enough video buffered to play continuously until the end of the event.

- ❑ **Internet Connections.** Unlike traditional streaming technologies such as RTMP, Living As One encoders do not need to maintain a persistent TCP connection to any specific



remote server while streaming. The encoder's internet connection can be completely interrupted without losing A/V data. Once a connection to the internet is restored, 100% of the A/V data which was encoded during the outage will be transmitted. Because of this flexibility, the encoder can also utilize several different network connections simultaneously (cellular, IP satellite, terrestrial fiber, coax, etc.) to send streaming data without any complex configuration. Ideally (not required), if using multiple network connections, a multi-wan router should manage the connections while providing a single network connection to the encoder. Recommended multi-wan routers may be found on our Certified Peripherals web page:

<https://livingasone.com/multisite/documentation/certified-peripherals/>

- ❑ **IP Addressing & QOS.** File-syncing applications such as Google Drive & Dropbox can consume all available bandwidth (upload and/or download) on a local network, inhibiting encoder/decoder traffic. If possible, isolate guest networks with a separate router or firewall to ensure guest traffic does not flood the network or fill queuing buffers, which could overload and reset some devices.

Living As One recommends providing encoders and decoders with specific IP addresses through mac-based IP reservation (configured with a router or DHCP server), and prioritizing all traffic to and from those IP address over other network traffic. At minimum, reserve the recommended bandwidth $((\text{video} + \text{audio bitrate}) * 2.5)$ for the encoder and decoder. Try to avoid configuring encoders and decoders with Cloud DNS or any DNS service which uses [Anycast](#).

- ❑ **Schools and Theater Networks.** Strict firewall restrictions are commonly placed on networks provided by schools and movie theaters. All IP traffic for Living As One encoders and decoders is communicated over common ports 80 and 443, so it is very likely the A/V content will be transmitted without problems. However, some schools throttle video content download. Make sure to perform an in-app bandwidth test on site. This in-app bandwidth test determines download speed for both video and non-video content, and can help you determine an appropriate minimum delay for playback.
- ❑ **Captive Portals.** Disable "Captive Portals" for encoders and decoders. These types of authorization methods can timeout and interrupt data flow.
- ❑ **Wireless & Hotspots.** Always use a wired network connection for streaming when possible. It is never recommended to stream with a wireless connection when avoidable. If you are using a cellular hotspot, ensure your hotspot is either connected to a multi-wan router or wired directly to the encoder or decoder via ethernet or USB.
- ❑ **Network Power.** Always use an uninterruptible power supply (UPS) to power network equipment, encoder, and decoder.