

# Network Requirements

## Important Information:

- **Ensure that there is NO landing page or sign-in required to get the internet.**
- This is very important. If there is a landing page or sign-in, the canvas will not be able to get the internet; unless you are doing enterprise authorization wherein that case coordinate with VIDERI to ensure this is done correctly.
- **Ensure the canvases have a good line of sight to the wireless access point (AP).**
- Ensure that there are no metal beams or concrete walls in between the canvas and the AP.
- These materials can severely limit or impede the wireless communications if they are in between the canvas and AP.
- **Ensure that the SSID has a password**

## Wireless Connectivity Optimization Best Practices:

- Canvases support WPA2 encryption on a channel not overlapping with neighboring channels. Any required web-based landing page must be disabled. There are no QoS or keep-alive requirements.
- For general uses, all canvases on Wi-Fi must have -70dbm or better signal strength at all times.
- For optimal synchronized experiences, all canvases must have -60dBm signal strength at all times.
- A router might be in close physical proximity to the canvases but still have poor signal quality due to interference from other devices in proximity.
- For downloading content, a maximum of 20 canvases should be connected to a commercial-grade router over Wi-Fi for optimal performance. This allows for content to be downloaded quickly.

- Do not attempt to playback audio via Bluetooth while downloading content. Doing so may result in choppy audio depending on the quality of the Bluetooth receiver.
- Ensure no automatic channel hopping is enabled on the router. While our equipment fully supports routers that optimize the channels, some models of routers may do so too aggressively and prevent smooth playback of content
- Frequently monitor nearby Wi-Fi networks with a Wi-Fi monitor to ensure channels do not overlap.
- The 400 series canvases support 2.4 and 5Ghz wifi frequencies, although 2.4 is recommended as a more reliable network.
- The best channels to use on 2.4Ghz networks are 1, 6 and 11. Avoid using channels in between and ensure neighboring wireless access points do not reside in adjacent channels.
- Ensure DHCP lease duration is no less than 12 hours. Although the product renews DHCP leases before they expire, longer lease renewal time will minimize any unexpected disconnections.

Encryption modes supported are:

1. WEP(64)·WEP(128)
2. WPA-PSK(TKIP)·WPA-PSK(AES)
3. WPA2-PSK(TKIP)·WPA2-PSK(AES)
4. WPA2-Enterprise using RADIUS

## Network Connectivity Requirements

For connectivity to the cloud-based network, the Canvas uses the following ports and protocols. Also, all network communication is initiated from the Canvas and does not require routable IP addresses.

TCP protocol	Ports	Port Direction	DNS
HTTP	TCP 80	Outbound	ANY--our canvases may contact public websites as part of normal signage operations. It depends on the content.
HTTPS	TCP 443	Outbound	ANY--our canvases may contact public websites as part of normal signage operations. It depends on the content.
XMPP	TCP 5222,5223	Outbound	msg.videri.com
NTP	UDP 123	Outbound	<p>The following NTP pools will be contacted. Note that each pool contains 1000s of individual servers with specific IPs. Generally, it is required to whitelist the NTP protocol rather than individual IPs.</p> <p>time.nist.gov</p> <p>0.android.pool.ntp.org</p> <p>1.android.pool.ntp.org</p> <p>2.android.pool.ntp.org</p> <p>3.android.pool.ntp.org</p> <p>0.us.pool.ntp.org</p>

			1.us.pool.ntp.org 2.us.pool.ntp.org 3.us.pool.ntp.org
ICMP	ICMP	Outbound	msg.videri.com
MQTT	1883 8883	Outbound	mqtt.videri.com mqtt.videri.com - SSL enabled