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Achieving Reliable Connectivity

Network Best Practices for Videri Devices

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About This Guide

Every Videri device connects to your network and communicates with the Videri Cloud to receive content, stay in sync, and report its status. This guide covers what your network needs to support that: Wi-Fi security and placement, outbound ports and protocols, and bandwidth for single devices and Walls. All communication is initiated by the device, so no inbound rules or static IP addresses are required.

These requirements apply to all Videri devices: Canvases, Videri Embedded partner displays, and Videri SparkBridge devices.

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Requirements At A Glance

Use this table to check a network against Videri device requirements. The following pages cover each item in detail.

REQUIREMENT	SPECIFICATION
Wi-Fi security	WPA2-PSK (AES) recommended; see Wi-FI Setup for all supported modes
Not supported	EAP-TLS (client certificates), sign-in or landing pages
Network	Password-protected, dedicated to Videri devices, not shared with guests
Signal strength	-70 dBm or better at every device
Inbound access	None required; no static or routable IP needed
Outbound ports	TCP 443 (HTTPS), TCP 80 (HTTP), UDP 53 (DNS), TCP 53 (DNS), TCP 5222 (XMPP), ICMP, UDP 123 (NTP)
Bandwidth per device	200 kb/s after content downloads, plus 10 kb/s upstream for screen capture

Wi-Fi Setup

Videri devices connect over Wi-Fi to a password-protected network. For the best network speeds, use WPA2-PSK (AES).

Supported security modes

- WPA2-PSK (AES), recommended
- WPA2-PSK (TKIP)
- WPA2-Enterprise using RADIUS
- WPA-PSK (AES)
- WPA-PSK (TKIP)
- WEP (128)
- WEP (64)

WPA2-Enterprise authenticates with a username and password, using one of these EAP methods:

EAP METHOD	INNER AUTHENTICATION
PEAP	MSCHAPv2 or GTC
EAP-TTLS	PAP, MSCHAP, MSCHAPv2, or GTC
EAP-PWD	None (password-based)

NOT SUPPORTED

Devices can’t install client certificates, so EAP-TLS isn't supported. Sign-in or landing pages aren't supported either.

Wi-Fi Setup, continued

Placement + signal strength

Every device needs a signal strength of -70 dBm or better and a network of its own. Follow these guidelines:

- Put Videri devices on their own network, separate from any guest network.
- Place each device in line of sight of its access point.
- Avoid metal beams and concrete walls between a device and its access point.

Once a device is connected to the Videri cloud, you can check its signal strength in Portal3 or Videri Ignite.

Firewall + Cloud Access

All cloud communication is initiated by the device, so no inbound rules, routable IP, or static IP is required. Allow the following outbound traffic:

PROTOCOL	PORT	DESTINATION
HTTPS	TCP 443	Any. Devices contact public websites during normal signage operations, so destinations depend on content.
HTTP	TCP 80	Only needed for content scheduled by URL from third-party sites that don't use HTTPS. All Videri-hosted content uses HTTPS.
XMPP	TCP 5222	xmpp-go.videri.com
DNS	UDP 53, TCP 53	The DNS servers assigned by DHCP
ICMP	ICMP	xmpp-go.videri.com, 8.8.8.8
NTP	UDP 123	*The NTP pools listed below*

NTP pools

Videri devices use NTP to keep time, which Walls depend on to stay in sync. They contact these pools:

- time.nist.gov
- pool.ntp.org
- 0.pool.ntp.org
- 1.pool.ntp.org
- 2.pool.ntp.org
- 3.us.pool.ntp.org
- 0.android.pool.ntp.org
- 1.android.pool.ntp.org
- 2.android.pool.ntp.org
- 3.android.pool.ntp.org

Each pool contains thousands of individual servers, so allowlist NTP traffic by protocol rather than by IP address.

Bandwidth Planning

Once content has downloaded, a device stays online and in sync on as little as 200 kb/s. For the device to report screen captures to the portal, add 10 kb/s of upstream bandwidth per device.

Content downloads

Downloads need more bandwidth than steady-state operation, and how much depends on the type and size of the content. Canvases in a Wall download content at the same time, so they need higher sustained downstream bandwidth. Larger installations that need sync should also plan for higher upstream bandwidth.

Signal quality and network load

A weak Wi-Fi signal causes download retries, which congest the entire network. Make sure your infrastructure can handle multiple parallel connections at full load, or give Videri devices a dedicated access point or several access points.

Network Requirements for Walls

A Wall is a group of Canvases (and some supported Videri Embedded devices) that play content together as one video wall. Walls put more demand on the network than single devices: every device downloads content at once, and synchronized playback depends on accurate time from NTP.

Network tolerances

PARAMTER	TOLERANCE
Latency	Canvases function correctly with packet delay of up to 1 second.
Jitter	Packet jitter over 500 ms on a normal distribution produces ± 15 ms of desync between Canvases, a delay of about 1 frame.
Packet loss	Canvases function normally with up to 15% packet loss. At 50%, they lose sync over 24 hours and show a permanent offline status.

*These tolerances were measured over Wi-Fi within the requirements in this guide, after the RMS error on chrony fell below 1 ms. Under those conditions, video sync tolerance across a Wall is 30 ms ± 7 ms. For content transition tolerances, see *Achieving Ideal Playback: Content Best Practices for Videri Canvases.*

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Videri is a digital signage platform that unifies hardware, CMS, device management, and intelligence in a single, end-to-end system, turning on-site screens into measurable action at the moment of decision. Whether deployed on Videri hardware or embedded within partner ecosystems, Videri gives enterprises centralized control at scale and gives partners the tools to deploy, manage, and grow signage networks without added complexity.

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