

Networking Best Practices

A guide to help you build a better network

When installing a network, keep a few simple planning and install tips in mind for faster installs, peak performance, and streamlined troubleshooting.

Set yourself (and the network) up for success!

- 🔧 Hardwire wherever possible
- 🔧 Plan AP placement before running wire
- 🔧 Account for environmental interference
- 🔧 Mount your access points appropriately
- 🔧 Pay attention to your Wi-Fi channels
- 🔧 Understand the limitations of Wi-Fi
- 🔧 Plan for existing and future bandwidth
- 🔧 Label connections
- 🔧 Set up the IP space early
- 🔧 Standardize your installs

🔧 Hardwire wherever possible

There's no way around it: a wired connection always runs faster and more reliably than a wireless connection. For optimal performance, encourage customers to hardwire their devices wherever possible and save wireless connections for when it's unavoidable.

🔧 Plan AP placement before running wire

Before beginning your install, use Wi-Fi planning software to give you an idea of optimal placement for coverage. Perform device-to-AP signal and speed tests to ensure the Wi-Fi signal reaches where it should. Before running wire or mounting, temporarily mount the AP where you plan to install it and set up a quick wire run to verify signal strength and Wi-Fi band overlap. Remember: measure twice, pull once!

🔧 Account for environmental interference

Wi-Fi isn't just affected by placement. Structural materials (including brick, cement, glass, metal pipes, and others) can reduce the signal quality and result in a loss of coverage. Proper placement of your APs can mitigate this loss of coverage. Also check for sources of radio interference throughout the environment to avoid performance issues. Baby monitors, microwaves, TVs, fluorescent lights, and large motors can all impact AP performance.

🔧 Mount your access points appropriately

The antenna configuration for most indoor access points is designed for optimal coverage when mounted to the ceiling. Wall mounting a standard ceiling-mount access point gives a suboptimal signal distribution, causing gaps in coverage. If your install is limited to wall mounting, use an AP that is specially designed for wall mounting, such as the AN-510-AP-IW-AC.

Pay attention to your Wi-Fi channels

Channel planning is one of the most important steps of configuration. Neighboring networks—and even APs in the same network—fight over the same wireless channels, making it crucial to find the least congested channels for optimal performance. Use a channel scanner to find your best solution, and assign those channels manually.

Understand the limitations of Wi-Fi

When testing Wi-Fi speed, remember that many variables impact connection speed: antenna count, connected band, distance between the device and AP, number of connected devices, and radio interference, to name just a few. Understanding how these variables impact performance helps you deliver the best speed.

Plan for existing and future bandwidth

Learn about the types of devices and applications on the network and plan for the required bandwidth needs, both now and into the future where traffic could grow beyond 1Gb. Prepare for 10Gb uplinks between network segments or switches for higher bandwidth passthrough.

Label connections

Label each wired connection both physically on the cables and virtually with OvrC. Keeping track of your connections saves time and will be less confusing later when servicing the network. The OvrC web or mobile app makes labeling switch ports and IP power outlets quick and easy.

Set up the IP space early

Configure the network IP settings (ex: changing the IP subnet) before connecting the rest of the network to avoid extra work later on. Since most devices are DHCP by default, if a device is connected before IP settings are changed, you will have to restart the device to obtain a new IP address.

Make the needed changes on the network for specialty devices before connecting those devices. This saves you headaches and time. For example, MoIP and Sonos devices require specific network configurations to manage their traffic on the network. Configure your managed switches first to ensure that those specialty devices don't flood the entire network when connected. When you understand the configuration requirements for every device in the system, you're on your way to an easy install and happy customers.

Standardize your installs

For easier troubleshooting and a more efficient install, it's a good idea to create a template or standardized spreadsheet for setup and IP addressing that your whole company uses. This document will keep you from losing efficiency when a new tech is on the job.

With some simple planning, you'll deliver a network that exceeds your client's expectations and makes your job easier. For more information, see the links below, or explore our networking content and curriculum on SnapOne.com.

Learn more!

- Avoid common mistakes with our **network installation checklist**: ctrl4.co/net-install
- Quickly find answers and get advice in the **Snap One Tech Community**: ctrl4.co/tc
- Take a deep dive into **wireless best practices**: ctrl4.co/wifi-bp
- Become a **Professional Certified Network Administrator**: ctrl4.co/pcna-info