

SimplySNAP can provide all of its basic lighting control services without an internet connection. However, many customers will find that internet (or LAN) connectivity provides additional functionality and benefits.

When connecting SimplySNAP to the internet (or LAN), the following information may be important to you and your IT team.

## System Information

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### Physical Access

Security of the SimplySNAP system begins with physical security. The SimplySNAP site controller provides a recovery mechanism for resetting the default password and factory defaulting the entire system, so physical access to these buttons should be limited to authorized personnel only.

### Software Updates

New features and security enhancements are provided in SimplySNAP software updates multiple times a year. We recommend upgrading your system regularly to maintain a secure device.

### Local Services

The SimplySNAP UI is delivered via a web interface. The UI is always available over the Wi-Fi interface, and can also be available from the LAN over the Ethernet interface. To provide the UI, the system must be able to receive inbound connections on TCP port 443 (HTTPS). SimplySNAP also accepts connections on TCP port 80 (HTTP), but will then automatically redirect to port 443.

The SimplySNAP system will respond to ICMP echo (ping) requests.

The SimplySNAP system will accept inbound SSH connections on TCP port 22. This connection is for Synapse internal use only and is not available for use by SimplySNAP customers.

The SimplySNAP system is listening on TCP port 9999 but will only accept inbound connections from the SSRA server.

The SimplySNAP system will respond to DHCP requests on the Wi-Fi interface using UDP port 67.

In SimplySNAP 3.1 and later, the SimplySNAP system will respond to DNS requests on the Wi-Fi interface using UDP port 53.

## Remote Services

SimplySNAP offers several services over the internet. An internet connection (Ethernet or Cellular) is required for each of these services; without an Internet connection, these services are not available.

- **SimplySNAP Remote Access (SSRA)** - SSRA is an optional service which allows a system administrator to access the UI of the SimplySNAP system via the internet. The SimplySNAP system must be able to establish outbound connections to `vpn.simplysnap.snaplighting.com` on UDP port 1196 to connect to the remote access server.
- **Email Notifications** - SimplySNAP can send notifications (also known as alarms or alerts) via email. The SimplySNAP system must be able to establish outbound connections to TCP port 443 to connect to the email server.
- **Remote Troubleshooting and Upgrades** - Synapse Wireless Customer Support may occasionally need to perform remote troubleshooting or remote upgrades of the SimplySNAP system. The SimplySNAP system must be able to establish outbound connections to `tunnel.snap-lighting.com` on TCP port 22 for Synapse Wireless Customer Support to contact the system.
- **NTP** - the SimplySNAP system will attempt to sync its local clock to a Network Time Protocol (NTP) server by connecting to UDP port 123 on either `ntp.ubuntu.com` or `time.nist.gov`.

## Passwords

A "secure password" is long (at least 12 characters) and not easily guessed. (For example, don't use information like your name or birthday or anniversary.) A combination of letters, numbers, and symbols is recommended.

SimplySNAP versions prior to 3.3 have a single username and password. We recommend changing these values from the defaults to more secure values at the time of commissioning.

In SimplySNAP 3.3 and later, the system supports multiple users, each with their own password. We recommend changing the administrator password from the default to a more secure value at the time of commissioning. We also recommend creating secure passwords when each new user is created. SimplySNAP 3.3 and later will enforce password complexity requirements.

In SimplySNAP 3.3 and later, the Wi-Fi SSID and password are configurable. We recommend changing the Wi-Fi password from the default to a new, secure value at the time of commissioning.

For SSRA we recommend changing the password from the default to a new, secure value when you log in the first time.

## LAN Connectivity

If the SimplySNAP system is connected to an active Ethernet network, the system will attempt to retrieve an IPv4 address assignment using DHCP. You can determine which IP address is assigned via DHCP to the device by connecting to the Wi-Fi interface and viewing the Config page(s).

The recommended method for assigning an unchanging IP address to the system is to configure the DHCP server always serve the same IP address to the system (for example, by using a DHCP host pool or address reservation in your router). For more information, please consult your router or DHCP server.

When the SimplySNAP system is connected to a LAN, the user interface should be accessible to all devices on that LAN segment. The LAN can also be configured to isolate the SimplySNAP system on a separate LAN segment (typically referred to as a VLAN) that allows internet connectivity but limits access to/from other LAN segments. For information about how to configure the LAN in this manner, please consult your switch or router documentation. When the LAN is configured in this way, SSRA may be required to allow access to the UI of the system from devices on other segments of the LAN. The SimplySNAP system cannot accept tagged VLAN traffic and must receive traffic without 802.1q tags.

The Ethernet interface of the SimplySNAP system cannot be disabled. If a LAN connection is not desired, we recommend not connecting an Ethernet cable to the system.

## Wi-Fi Configuration

The Wi-Fi access point built into the SimplySNAP site controller provides a mechanism for delivering the UI without requiring a LAN. If the LAN is also connected, the SimplySNAP system will not allow traffic to be bridged in either direction between the Wi-Fi interface and the LAN interface.

The access point uses WPA2-PSK authentication. In SimplySNAP 3.3 and later, the Wi-Fi SSID and password are configurable. However, the SimplySNAP system does not support disabling SSID broadcast while leaving the Wi-Fi access point interface enabled. In SimplySNAP 3.3 and later, this Wi-Fi access point can be disabled. We recommend disabling the Wi-Fi interface if Wi-Fi access is not required. However, disabling the Wi-Fi interface may make troubleshooting (ie, LAN connectivity) more difficult.

The SimplySNAP system does not support using Wi-Fi in client mode to connect to an existing WLAN.

## Cellular

The SimplySNAP system is available with an optional integrated Verizon cellular modem. This cell modem can provide the system an internet connection for situations where a LAN connection is not available or not desired. Although you can connect the system to a LAN via the Ethernet port, the system will not use the LAN unless a cellular connection cannot be established. If the LAN is also connected, the SimplySNAP system will not allow traffic to be bridged in either direction between the cellular interface and the LAN interface. If present, the cellular connection cannot be disabled on the SimplySNAP system; however, the cellular interface will not be functional unless the device is activated on a Verizon data plan.

## Applications & Recommendations

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Below you will find several sets of recommended network security best practices, depending on how the SimplySNAP system is being used.

### No internet connectivity desired

For a site without Internet access and where the benefits of cellular access do not outweigh the cost, SimplySNAP can function stand-alone. At this type of site, all system management will be done locally via the system's Wi-Fi interface.

**For this type of installation, we make the following recommendations:**

1. Install the device in a secure location that limits physical access to authorized personnel only. This location must also be suitable for the Wi-Fi network and the mesh network to operate.
2. Change the default administrator password at commissioning.
3. Change the default Wi-Fi password at commissioning.
4. Enable mesh encryption after commissioning.

### Shared internet connection available

For sites with an internet-connected LAN where segmenting the LAN may be beyond the capability of the IT equipment or staff, SimplySNAP can share the internet connection with other devices.

**For this type of installation, we make the following recommendations:**

1. Install the device in a secure location that limits physical access to authorized personnel only. This location must also be suitable for the Wi-Fi network and the mesh network to operate.
2. Change the default administrator password at commissioning.
3. Change the default Wi-Fi password at commissioning (or disable Wi-Fi altogether).
4. If possible, configure the router or DHCP server to always assign the same IPv4 address to the SimplySNAP system.
5. Subscribe to the desired internet-enabled services.
6. Enable mesh encryption after commissioning.

### Internet access desired, limited LAN access required

Some sites may have an IT or network policy that does not allow devices to be installed onto existing LAN segments.

**For this type of installation, we make the following recommendations:**

1. Install the device in a secure location that limits physical access to authorized personnel only. This location must also be suitable for the Wi-Fi network and the mesh network to operate.
2. Change the default administrator password at commissioning.
3. Change the default Wi-Fi password at commissioning (or disable Wi-Fi altogether).

4. Provision the LAN to create a separate segment (VLAN) for SimplySNAP that allows outbound internet traffic only.
5. If possible, configure the router or DHCP server to always assign the same IPv4 address to the SimplySNAP system.
6. If possible, configure the traffic filters between the existing LAN segment(s) and the new LAN segment to allow access to port 443 on the SimplySNAP system.
7. Subscribe to the desired internet-enabled services.
8. Enable mesh encryption after commissioning.

## **Local access desired, internet access prohibited**

Some sites may have an IT or network policy that does not allow devices on the LAN to connect to the internet.

### **For this type of installation, we make the following recommendations:**

1. Install the device in a secure location that limits physical access to authorized personnel only. This location must also be suitable for the Wi-Fi network and the mesh network to operate.
2. Change the default administrator password at commissioning.
3. Change the default Wi-Fi password at commissioning (or disable Wi-Fi altogether).
4. If desired or required, provision the LAN to create a separate segment (VLAN) for SimplySNAP that allows outbound internet traffic only.
5. Then, if possible, configure the traffic filters between the existing LAN segment(s) and the new LAN segment to allow access to port 443 on the SimplySNAP system.
6. If possible, configure the router or DHCP server to always assign the same IPv4 address to the SimplySNAP system.
7. If required, configure the LAN to block all outbound connections from the SimplySNAP system.
8. Enable mesh encryption after commissioning.

## **Internet access desired, LAN access prohibited**

Some sites may have an IT or network policy that does not allow devices to be connected to the LAN in any way. Other sites may not have a LAN at all.

### **For this type of installation, we make the following recommendations:**

1. Purchase a SimplySNAP site controller with an integrated Verizon cellular modem.
2. Activate the system's cell modem on your Verizon data plan.
3. Install the device in a secure location that limits physical access to authorized personnel only. This location must also be suitable for the Wi-Fi network and the mesh network to operate.
4. Change the default administrator password at commissioning.
5. Change the default Wi-Fi password at commissioning (or disable Wi-Fi altogether).
6. Enable mesh encryption after commissioning.



## Other types of applications

For recommendations regarding other types of applications and installations, please contact Synapse Wireless Customer Support.