



# METER

## SKALA® SYSTEM NETWORK REQUIREMENTS

METER Group recommends the following as the network requirements for the SKALA deployment environment (the environment where the NEXUS and Apple® iPad® mobile digital device are installed). Implement the security controls that are appropriate for the sensitivity of the data.

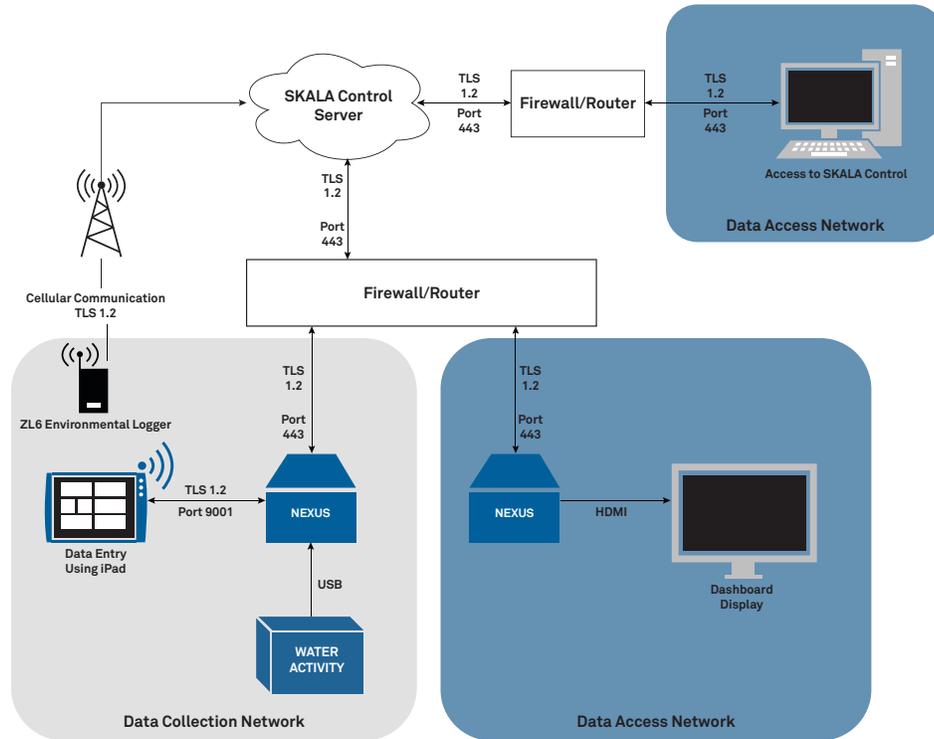
- Internet connection—standard 1 GbE network or faster.
- The devices must be able to connect to the following destinations using the same network:
  - skalacontrol.com—the primary endpoint for the SKALA server, hosted by METER Group.
  - websocket.skalacontrol.com—the functional endpoint for the websocket communications layer.
  - \*.zoho.com—utilized for the METER secure remote support tool.
  - \*.skalanexus.com—connection between the iPad and the NEXUS.
- The iPad and NEXUS devices must be able to communicate over the ports listed in the following table. METER typically recommends placing them on the same subnet to easily facilitate communication. However, if the network team desires, utilizing a network address translation (NAT) to bridge subnets is acceptable.

The following table lists the ports that must be available for the SKALA system to function properly.

| Port | Direction | Destination   | Usage   |
|------|-----------|---|---|
| 8883 | In/Out    | *.amazonaws.com   | AWS IoT Core MQTT communication   |
| 80   | In/Out    | PIP/DPKG sources  | System and package updates  |
| 443  | In/Out    | skalacontrol.com<br>websockets.skalacontrol.com<br>*.skalacontrol.com<br><br><b>EUROPEAN SERVERS</b><br>eu.skalacontrol.com<br>eu-websocket.skalacontrol.com<br><br><b>JAPANESE SERVERS</b><br>jp.skalacontrol.com<br>jp-websocket.skalacontrol.com | HTTPS over TLS communication, used to retrieve and post data to the SKALACONTROL server   |
| 443  | In/Out    | *.zoho.com  | Utilized for the METER remote support tools, enables the METER team to help and resolve issues and outages                        |
| 123  | In/Out    | NTP provider  | Used for NTP time sync  |
| 9001 | In/Out    | *.skalanexus.com  | Used for secure communication between the iPad and NEXUS devices. Communication is made utilizing unicast via a known IP address. |
| 443  | In/Out    | iot-prod.skalacontrol.com   | Communication between the NEXUS or iPad and AWS IoT Core Services   |
| 80   | In/Out    | rasbian.raspberrypi.org   | Used to check for and download updates for the single-board computer OS   |
| 443  | In/Out    | pypi.org  | Checking for and executing dependent package updates  |
| 123  | In/Out    | *.ntp.org   | Used for NTP time sync  |
| 80   | In/Out    | *.decagon.com   | METER firmware updates  |
| 443  | In/Out    | *.metergroup.com  | METER firmware updates  |

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The following diagram illustrates the network connections and communications protocols.



### CONNECTION OPTIONS

The Apple iPad and/or PC has to be able to communicate with the NEXUS via the user's internal network. It does not matter whether the different components are connected via a Wi-Fi® connection or Ethernet cable, respectively.

### AQUALAB 3

AQUALAB 3 always connects to the NEXUS via a USB A to B cable.

### APPLE IPAD

The Apple iPad connects to the network via a Wi-Fi connection or via an Ethernet cable through a lightning port-to-Ethernet adapter.

The iPad can also connect to the network via the NEXUS. To do this, please connect the iPad to the NEXUS using the following configuration:

lightning-to-Ethernet adapter → Ethernet cable → USB-to-Ethernet adapter

### NEXUS

METER recommends connecting the NEXUS to the network via an Ethernet cable. Connecting the NEXUS to WiFi can be configured using the USB-to-USB cable (included) and the NEXUS Utility software (available at [metergroup.com/food/downloads](https://metergroup.com/food/downloads)).

### PC INSTEAD OF IPAD

The user will take readings via <https://skalacontrol.io> accessed from the user's PC web browser. The PC can connect to either Wi-Fi or Ethernet for a nominal fee.

### SKALA CONTROL

SKALA Control is accessible at <https://skalacontrol.com/> via a web browser. METER recommends using Google Chrome for the best possible user experience.

## NEXUS STATIC IP ADDRESS

To allow for encrypted communication between the iPad and the NEXUS, METER registers a subdomain pointing to the local IP address of the NEXUS. The iPad will connect to the NEXUS via \*.skalanexus.com. If the local IP address changes, it could take between 5 min and a few hours for the DNS update to be propagated to the customer DNS server. During this time, the iPad will not be able to communicate with the NEXUS.

To prevent the local IP address from changing, follow these recommendations:

- Use a static IP address for every NEXUS
- Refrain from switching between Wi-Fi® and Ethernet interfaces

If changing the NEXUS local IP address cannot be avoided, Cloudflare® can be used to help changes propagate quickly. Both the iPad or Windows® PC can be set to use Cloudflare as the DNS server.

To set Cloudflare as the DNS server on an Apple iPad (iOS), use the following steps:

1. Navigate to Settings
2. Select Wi-Fi
3. Select the i icon next to the Wi-Fi network in use
4. Press Configure DNS
5. Choose Manual
6. Press Add Server
7. Add the server 1.1.1.1
8. Select Save

To set Cloudflare as the DNS server on a Windows PC (Windows 10), follow [these instructions](https://privateinternetaccess.com/blog/changing-your-dns-settings-on-windows-10) ([privateinternetaccess.com/blog/changing-your-dns-settings-on-windows-10](https://privateinternetaccess.com/blog/changing-your-dns-settings-on-windows-10)).

## USING A METER DATA LOGGER

METER data loggers do not require a Wi-Fi network or Ethernet. The data loggers have an LTE cellular modem that connects directly to METER cloud services. The loggers operate with T-Mobile® and AT&T® cellular carriers and usually find a good signal. If the location is notorious for poor cell coverage, inform METER so other hardware solutions can be considered.

Please review the network requirements prior to the arrival of a member of METER Professional Services to ensure a smooth, quick, and efficient installation process.