

How to Network your Modbus TCP PLC

This guide provides two examples of how to network your PLC to connect to the Kosmos industrial IoT platform.

For additional questions about setting up your Kosmos IoT System, please email support@temboo.com and we'll get back to you as soon as possible.

Network Configuration Type A

Network Configuration Type A requires static IP assignment. Also, your PLC must have a static IP address.



1. Use an ethernet cable to connect your PLC directly to your Raspberry Pi. Fill in your Kosmos gateway configuration file `[ethernet_interface]` section with the following:
 - a. The subnet mask used by your PLC
 - b. An IP address in the same network as your PLC. *Note: Do not use your exact PLC IP address or the IP address of another device on your network. For example, if your PLC is using 192.168.2.2, use an unused IP like 192.168.2.3 in your Kosmos file.*
2. Connect your Raspberry Pi to the WiFi by entering your WiFi name and password into the Kosmos gateway configuration file `[wifi]` section.

Example Kosmos gateway configuration file A

```
[credentials]
account_name = Tembooaccount
appkey_name = myFirstApp
appkey_value = q7KhLcHdxAdiAZu29y1IGufHcHyDFrrr

[cloud_connection]
gateway_id = raspberry-pi
auth_type = legacy
port = 9009
websocket_version = 1
ws_url = wss://bowie.temboo.com

[wifi]
# Temboo only supports protected wifi networks.
# Enter your wifi network details below to connect your Kosmos gateway to the internet
via wifi.
# ssid (the name of your wifi network)
# password (your wifi network's password)
ssid = workwifi
password = strongpassword123

[ethernet_interface]
# Use this section when you want to configure your Kosmos gateway to connect to a
static ethernet network.
# ip_addr and subnet mask are always required and should be in the form of
XXX.XXX.XXX.XXX
# router is only to be provided if the gateway is connecting to the internet via the
static network.
ip_addr = 192.168.2.3
subnet_mask = 255.255.255.0
router =
```

Network Configuration Type B

Network Configuration Type A supports static and dynamic IP assignment for the Raspberry Pi. Also, your PLC must have a static IP address.



1. Use ethernet cables to connect your PLC and Raspberry to the same network switch.
2. Connect your Raspberry Pi to the WiFi by entering your WiFi name and password into the Kosmos gateway configuration file `[wifi]` section.
3. If your network does not have dynamic IP assignment (DHCP), fill in your Kosmos gateway configuration file `[ethernet_interface]` section by following the steps below. Leave the `[ethernet_interface]` section blank if your network has dynamic IP assignment.
 - a. Enter the subnet mask used by your PLC
 - b. Enter an IP address in the same network as your PLC. *Note: Do not use your exact PLC IP address or the IP address of another device on your network. For example, if your PLC is using 192.168.2.2, use an unused IP like 192.168.2.3 in your Kosmos file.*

Example Kosmos gateway configuration file B

```
[credentials]
account_name = Temboaccount
appkey_name = myFirstApp
appkey_value = q7KhLcHdxAdiAZu29y1IGufHcHyDFrrr

[cloud_connection]
gateway_id = raspberry-pi
auth_type = legacy
port = 9009
websocket_version = 1
ws_url = wss://bowie.temboo.com

[wifi]
# Temboo only supports protected wifi networks.
# Enter your wifi network details below to connect your Kosmos gateway to the internet
via wifi.
# ssid (the name of your wifi network)
# password (your wifi network's password)
ssid = workwifi
password = strongpassword123

[ethernet_interface]
# Use this section when you want to configure your Kosmos gateway to connect to a
static ethernet network.
# ip_addr and subnet mask are always required and should be in the form of
XXX.XXX.XXX.XXX
# router is only to be provided if the gateway is connecting to the internet via the
static network.
ip_addr = 192.168.2.3
subnet_mask = 255.255.255.0
router =
```

Troubleshooting Tips

Problem 1: My gateway is offline.

1. Open your Kosmos gateway configuration file and navigate the [wifi] section.
2. Confirm you have entered the correct WiFi ssid (name) and password. If not, enter the correct values and copy the updated config file to your USB thumb drive.
3. Insert the USB drive with the updated config file into your Raspberry Pi and wait 2 minutes.



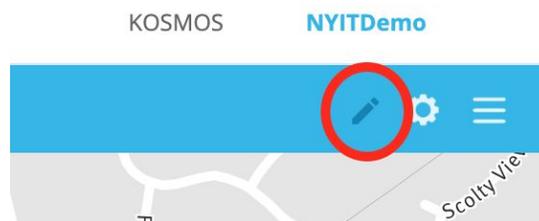
Problem 2: My gateway is online, but my PLC is offline.

1. Open your Kosmos gateway configuration file and navigate to the [ethernet_interface] section.
2. Confirm you have entered a valid IP address and subnet mask for your gateway in the config. If not, enter the correct values and copy the updated config file to your USB thumb drive.
3. Insert the USB thumb drive into your Raspberry Pi. Disconnect your Raspberry Pi from the internet (turn off wifi router), and wait for 2 minutes. Then reconnect the Raspberry Pi to the internet (turn on wifi router).
4. If your PLC is still not online, confirm you entered the correct PLC IP address and port during the setup flow by following the steps below.

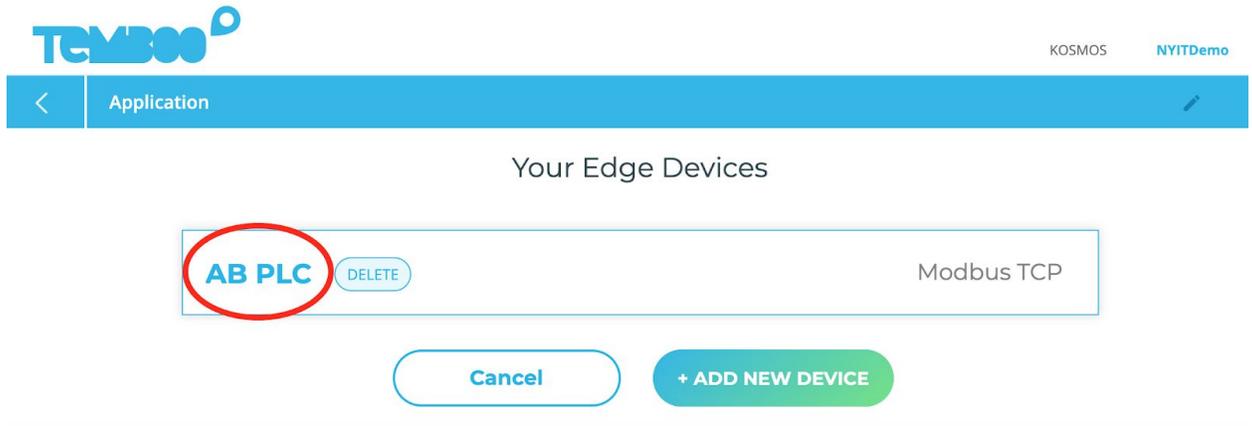


How to confirm or modify your PLC IP address and port

1. Click the pencil icon to modify your Kosmos application



2. Click on the name of your PLC



3. Check the PLC IP address and port are correct. If not, re-enter the values and select "CONFIRM"

What's your PLC's IP address?

Which port are you using?

Populate your Modbus mapping table

[+ Add Row](#)

<input type="checkbox"/>	1 Modbus Row					
<input type="checkbox"/>	Temperature	AI	Temperature	34830	°F	

CONFIRM