

1 Overview

The Cypress EnviroSystems Wireless Pneumatic Thermostat (WPT) retrofits an existing pneumatic thermostat to provide Direct Digital Control (DDC) like zone control functionality at a fraction of the time and cost without disturbing occupants.

The WPT enables remote monitoring of zone temperature, branch pressure, remote control of setpoints, and programmable setback or setup of the pneumatic HVAC systems. It also enables integration with utility Demand Response programs.

The WPT can be integrated with an existing Building Management System via BACnet/IP. As a result, the WPT helps a building owner and tenants save energy by implementing indoor temperature policies, improve comfort, and reduce the maintenance cost of the legacy pneumatic HVAC systems.

1.1 Components

The WPT Server (Green Box) and Gateway (Blue Box) includes the following components:



Figure 1: Server (Green Box) and Gateway (Blue Box)

Server:

- Green Box Server (GBC)
- Wall mounting bracket
- Power supply with wall mounting bracket (requires 120VAC outlet)

Gateway:

- Blue Box Gateway
- Power supply (requires 120VAC outlet)
- 900 MHz antenna
- Ethernet cable (to connect to Server)

1.2 Prerequisites for Installation

The WPT Green Box Server and Blue Box Gateway, requires a 120VAC outlet for power. Additionally, the WPT Server can communicate to a Building Automation System (BAS) using BACnet/IP. This communication requires an ethernet connection between the BAS and WPT Server, ideally with a dedicated static IP for the WPT Server.

Additionally, a setup file (csv format) with all the WPTs will need to be edited. This setup file will be used to configure both the LoRa gateway and the server. Additional details are given in Section 2.2.

2 WPT Gateway and Server Installation

The overall WPT installation procedure includes:

- Mounting the Gateway and Server. The Gateway communicates to the Server using a CAT5 or CAT6 Ethernet cable.
- Powering up the Gateway and Server.
- Setting up the Server and Gateway with the list of installed WPTs

2.1 Mounting and Initial power-up

The WPT LoRa Gateway and Server can be wall-mounted using the included wall-mounting tabs. Once mounted to the wall, the two devices must be connected with ethernet, power and the antenna. Please refer to Figure 2 for the connection diagram.

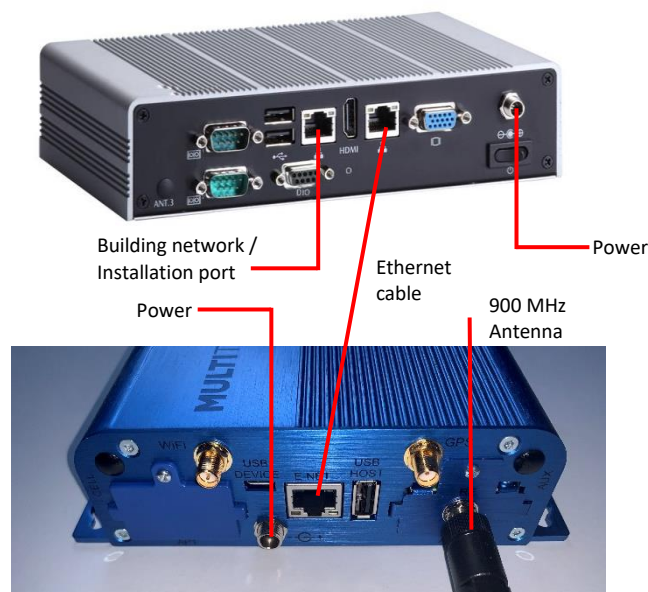


Figure 2: Connection Diagram

After the ethernet, power and antenna are connected, power up the server using the rocker switch under the power connector.

To access the server during installation, there are 2 options.

1. Connect a monitor, keyboard and mouse directly to the server.
2. Use the installation ethernet port to connect a Windows laptop. This port is set at the factory for a static IP address `192.168.1.10` with subnet mask `255.255.255.0`. Once connected, you can use a Remote Desktop session to interact with the server.

Contact support@cypressenvirosystems.com for IP info

2.2 Configuration

To configure the WPT LoRa Gateway and Server, a single setup file (csv format) is used along with software on the LoRa Server (LoRa COM Device Importer).

1. For each WPT, add an entry into the csv setup file. This setup file can be edited in any text editor. A sample version of this file is located on the server (c:\WPT\Cypress_WPT_Info_OTAA.csv).

The setup file has the following comma-separated fields.

- DevEUI:
 - The device equipment unique identifier. For the WPT, this is the MAC ID of the WPT. The setup file only needs the last 4 bytes of the WPT MAC ID.
- NodeID:
 - The user assigned Node ID for the WPT. This should match with the Node ID configured at WPT.
- NodeName:
 - The user assigned name of the WPT
- Location:
 - The location of the WPT
- BACnet ID:
 - The user assigned BACnet ID of the WPT

NOTE: In some instances, there may be an existing LoRa gateway on premises. If the gateway is not a WPT Blue Box, you will need additional parameters to manually enter the WPTs to the existing LoRa gateway. Please refer to the Installation Manual (910-00031-01) for additional details.

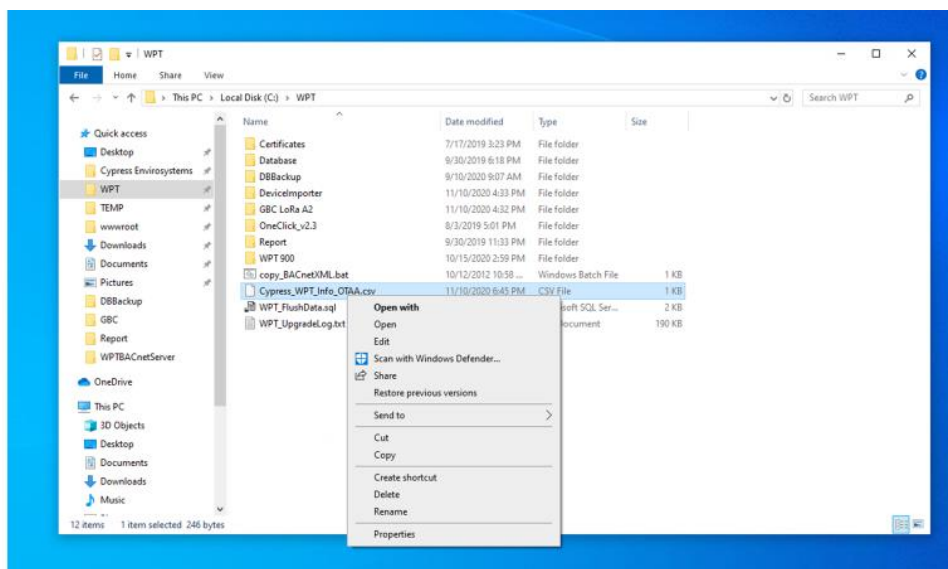


Figure 3: Sample setup file (Cypress_WPT_Info_OTAA.csv) location

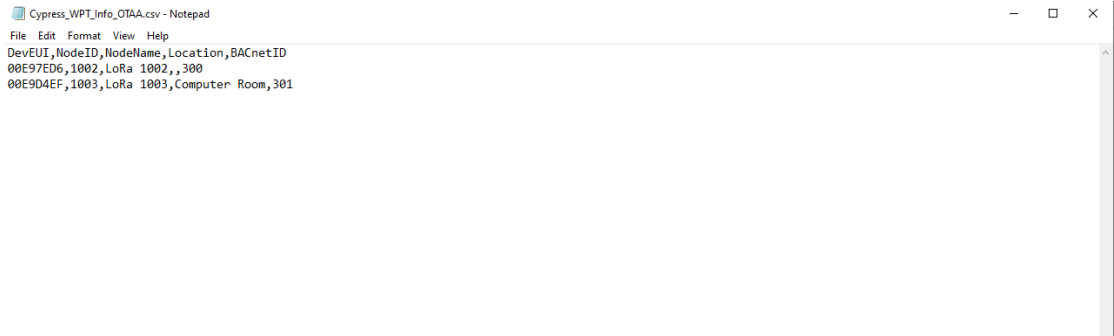


Figure 4: Sample setup file contents

- From the WPT server, launch “LoRa_COM_DeviceImporter.exe” by double-clicking the shortcut at the Desktop.



Figure 5: LoRa COM Device Importer

- Click on “Select Device Info File to View”.
- Select your setup file and click “Open”. In this example, the setup file is called “Cypress_WPT_Info_OTAA.csv”.

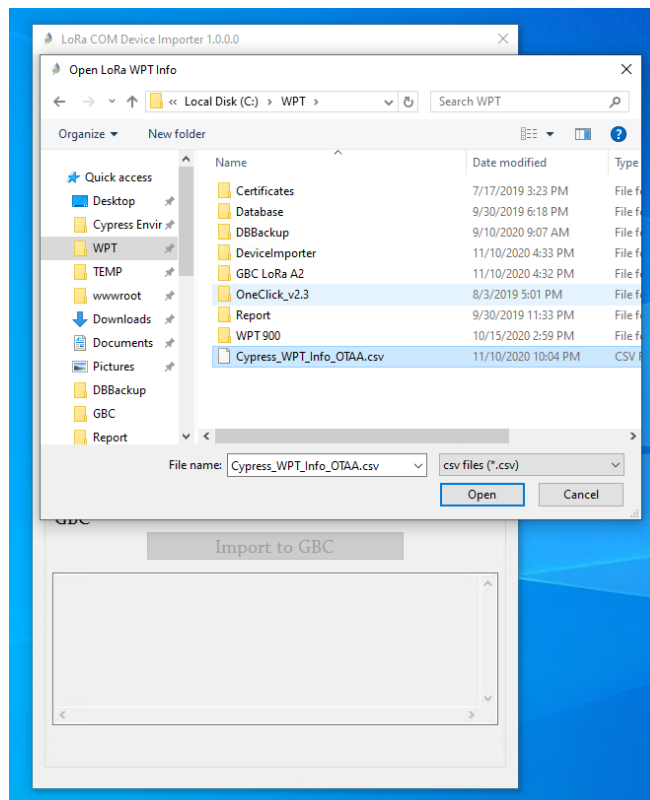


Figure 6: Select the WPT setup file

5. Click “Add to Gateway”. The display will update with the number of new devices to be added along with the message “Saving completed!” when it is finished.
6. Click “Import to GBC”. The display will update with each node information that is being added. Once it is completed, the bottom will display the number of devices successfully added.

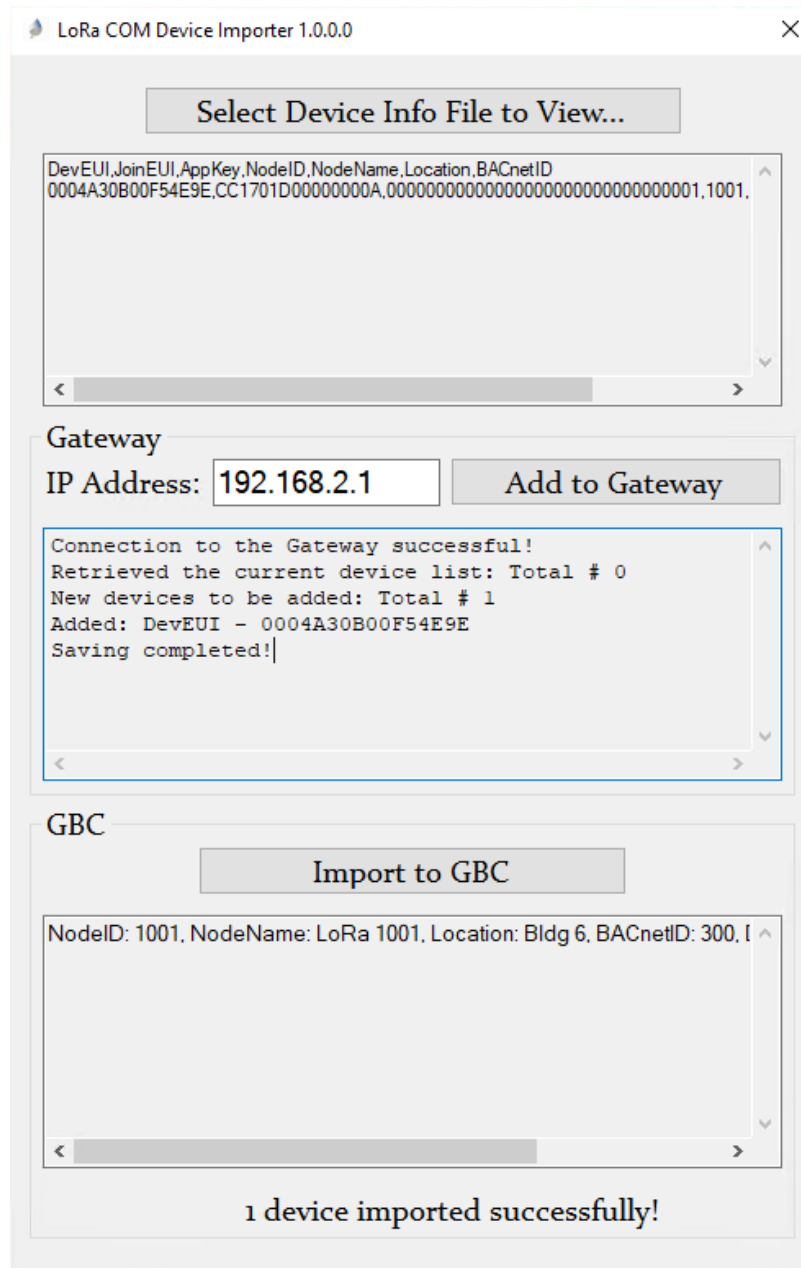


Figure 7: Successful setup of Gateway and Server (GBC)

The LoRa server and gateway are now setup. The system is ready for WPT installation.



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