



ThoughtData

SoHo360

Getting Started Guide

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About this document

This guide is meant to help *ThoughtData SoHo360* users to get familiar with the first steps to be taken prior to deploying and using SoHo360 on a regular day-to-day basis, for monitoring their home or small business internet.

Note: *The scope of this document does not include description of the workflows for troubleshooting issues using SoHo360. Refer to the ThoughtData SoHo360 user guide for related details*

Related Documentation

For details about the ThoughtData SoHo360 Solution refer to the documentation described in the table below.

<i>Information type</i>	<i>Document name</i>
Usage	ThoughtData SoHo360 User Guide

Table 1. Reference Documentation

Stable Internet for small offices and home businesses

We live in a connected world today especially when it comes to commercial businesses – big and small. With internet becoming one of the most critical requirements in our daily lives, any down-time or poor performance severely impact, access to critical information, productivity and profitability.

As the “work from home” lifestyle continues to grow a high performing internet connection becomes an essential requirement. It goes without saying that productivity in home/small business depends on a reliable and high-speed internet connection.

When smart media and entertainment gadgets become part of such small networks, the same internet connection has to afford users seamless entertainment and value for money. If applications in your phone, computer, or media devices perform poorly even when your internet connection is up and running, you may have no means to identify whether the performance issue is because of

- your device,
- the internet link,
- the application service in use.

In most cases users live with the problem or call their internet service provider (ISP) just to hear that the ISP side of the network is fine and problem free. The ISP may even persuade users to upgrade their internet connection to a higher bandwidth to resolve the complaint. With very little idea of their current internet bandwidth usage such users may even be forced to pay for upgrades or more expensive internet services. Thus there is clearly a big case for monitoring and maintaining a high internet uptime for the Small-office and Home-office (SoHo) network.

ThoughtData SoHo360 - for the SoHo Network

Small offices and Home offices, (SoHo in short) are beset by typical problems irrespective of where they operate from. Some familiar and commonly reported situations are

- unstable internet connection
- unplanned bandwidth usage and inability to optimize connectivity costs
- slow performance of applications over internet
- problems in VPN connectivity to enterprise networks
- monitoring juvenile internet activity
- cyber threat monitoring

ThoughtData’s SoHo360 provides the much-needed real time visibility into internet usage, bandwidth consumption and all the application traffic flowing on your internet connection. It can pin-point application failures and poor performance to help you troubleshoot point of performance bottlenecks. This in turn enables you to take appropriate action for correcting problems.

SoHo360 and Typical challenges

The following sections describe the typical challenges, frequent issues and how SoHo360 can help small users:

- manage their internet connection costs with the ISP,
- be able make informed decisions about increasing their bandwidth speed and to improve their connectivity experience.
- to troubleshoot problems related to internet connectivity and applications performance.

Unstable Internet Connection

Unstable internet connectivity is a frequently occurring issue in small setups.

The unpredictability and the time taken for resolution by your internet service provider (ISP) can ruin productivity.

With SoHo360 in your IT setup you can:

- troubleshoot the real-time performance of your internet connection,
- understand down-time, link errors and network latency connecting to your ISP network.
- talk to the ISP with evidence of the problem when your internet connectivity is down or is unstable, to correct the issue from their side of the network.

Bandwidth usage and cost optimization

In most cases users subscribe to internet connection speeds with no prior idea of their actual needs. Your internet speed offered by your service provider

- is only for last mile to your home or small business,
- does not represent your actual internet experience.

As more smart devices that constantly communicate with the internet get added to your home or small business you are never sure whether you are

- under using or over using the internet bandwidth,
- getting the actual internet speed you subscribed for.

With SoHo360 in your IT setup you can:

- get visibility into current and historical internet bandwidth usage,
- monitor visually the actual performance of your link,
- make the decision to increase or decrease your internet speed or bandwidth to manage your subscription costs.

Slow performance of applications over internet

Slow performance of apps on phone, computers and TVs is a constant day to day problem. When applications perform slowly, it is difficult to nail the source of problem. Users give up easily stating that the issue is with the network, whereas the problem could be in

- your own devices,
- the service provider network or

SoHo360 and Typical challenges

- application servers in internet.

Should you call the ISP or application service provider to fix the problem? With a shaky internet connection your productivity is already ruined and if it has to do with streaming media or app subscriptions it can lead to a waste of money. For the right action to fix the problem, you need real time visibility into

- each app connection,
- the performance of every device in your network,
- where the latency is suffering

With SoHo360 in your IT setup you can get real time application experience about:

- general internet browsing
- streaming media such as Netflix, Amazon video, Hulu, Disney, CBS, Xfinity etc.
- web conferencing apps like zoom, microsoft teams, webex, goto meeting, blue jeans etc.
- email apps
- online games
- VoIP and Chat apps like whatsapp, skype, telegram
- SaaS apps for office productivity

You can troubleshoot each application connection failure and poor performance issue to understand the root cause to talk to the right persons and correct the issue.

Problems in VPN connectivity to enterprise networks

Your work from home productivity highly relies on secure VPN connectivity to your employer's enterprise network on your internet connection. Failures and slow VPN connections can hamper productivity and slow down your ability to meet deadlines in time

With SoHo360 in your IT setup you can troubleshoot VPN connection failures and poor performance to improve your work from home experience over VPN connections.

Monitoring Children Internet Activity

Monitoring internet usage by children and youngsters is a major concern for modern day parents. With SoHo360 in your IT setup you can:

- keep a tab on all the internet activity of your children.
- get visibility into web sites visited, apps usage, time spent over internet etc.

Cyber Threat Monitoring

Ransomware, Malware and Phishing scams are always on the rise. Sensitive data stored in your computers and devices are under constant threat from cyber-attacks from your internet connection. Don't let your identity and sensitive information in your devices stolen by hackers.

With SoHo360 in your home and small business IT setup you can:

- detect cyber threats on your home and small business devices,
- understand nature of cyber threats and their source.
- use information from SoHo360 to block traffic from unwanted sources in your home or small business internet gateway firewalls.

Deployment Options

ThoughtData Inc. offers the following 2 deployment options

- ThoughtData - SoHo360 Small Business
- ThoughtData - SoHo360 Home

Table 2 illustrates the differences between these options.

	<i>SoHo360 – Home</i>	<i>SoHo360-Small Business</i>
<i>Target Usage</i>	To handle home internet traffic	To handle small business internet traffic
<i>Monitoring Capability/ Performance</i>	Single Port 1Gbps Ethernet with 50k packets per second	Single Port 1Gbps Ethernet with 100 -150k packets per second.
<i>Data Retention and Storage</i>	SD card-based storage – up to 1-month aggregated data storage	SSD based storage – up to 3-month aggregated data storage plus packet store.

Table 2. SoHo360-Home and SoHo360-Small Business

Getting started with SoHo360

Complete the following steps before you can get started with SoHo360.

- Unbox SoHo360 – Small Business or Home based on what you have purchased.
- Make the connections
- Complete the configuration

Unboxing SoHo360

Your package would have components as illustrated below. Check if you have received the components matching the respective illustration.

- for the SoHo360 Small Business package, see [Figure 1](#).
- for the SoHo360 Home package, see [Figure 2](#).

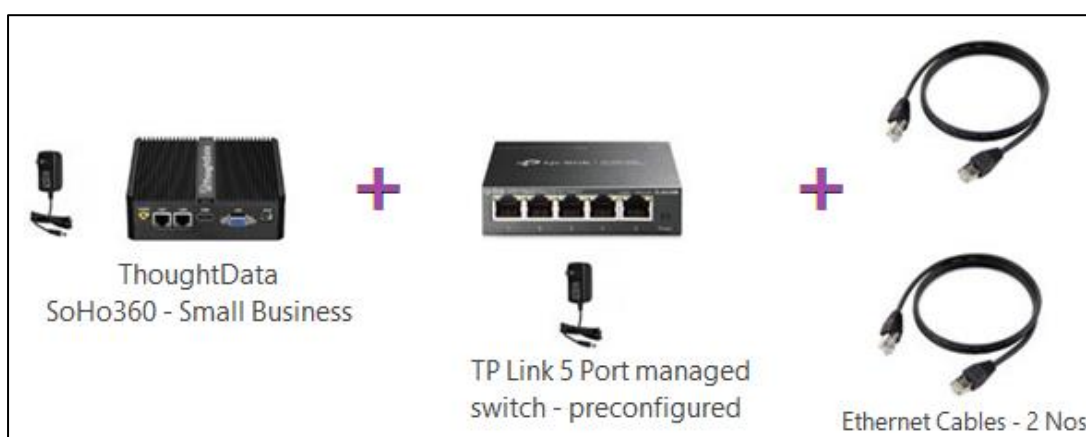


Figure 1. SoHo360 Small Business



Figure 2. SoHo360 Home

Note: The TP link switch in each package is pre-configured to allow you to tap the traffic for monitor with SoHo360.

SoHo360 internet traffic monitoring deployment considerations

Important: Read this section very carefully and follow instructions before you deploy SoHo360 for internet traffic monitoring in home or small business.

Soho360 is an ethernet based network monitoring solution and needs a physical traffic aggregation point inside your home or small business to monitor all the traffic internally as well as that going towards internet. Traffic has to be monitored internal to your home or small business network to get full visibility into all devices accessing internet. Check your current home or small business internet setup by answering the following question and follow the deployment options below.

Do you have only a single device for both WiFi and Internet?

This device could be purchased by yourself or provided by your internet service provider (ISP).

Note: This is the most common scenario.

Answer: YES

You don't have an internal traffic aggregation point to monitor your internet traffic. Since all the devices connect directly to your single device acting as Wifi + Internet router and exits out of your home towards the service provider network. You are required to create a traffic aggregation point to monitor the traffic. This can be easily done by adding a wifi router behind your internet router

You have 2 options to monitor the traffic

Option 1:

- Buy Soho360 option with Tenda gigabit router, the package comes with a new dual band gigabit router
- Add Soho360 in between your internal wifi router and internet gateway to monitor your internet traffic

Option 2:

- Buy a new wifi router of your own choice and add it to your network
- Buy Soho360 base edition and introduce it between your new wifi router and internet router

Answer: NO

- You already have a separate wifi router and not using wifi on your internet router. You are all set, Buy the Soho360 base edition and introduce it between your wifi router and internet router

Advantages of separating Wifi router functions from your internet router

Adding your new wifi router internal to your home network has several advantages

- 1. It removes the wifi function over head on your internet router. Your internet router performs better*
- 2. It provides more range and options to extend your wifi network in your home. Wifi based mesh routers internal to your home provides more range, resilience and coverage*
- 3. It improves cyber security in your home or small business since hackers only can see and target your internet gateway not your internal network.*
- 4. It enables you to change your internet service provider and your internet router without changing your internal WiFi network configuration on the devices*

Note: *If you decided to buy your own wifi router to separate the wifi function from your internet router, please choose any wifi router which supports access point (AP) mode. Wifi routers with access point mode bridges your wifi traffic to main internet router without Network Address Translation (NAT) which is required to get full visibility into your devices while monitoring your internet traffic. Most new generation wifi routers supports access point (AP) mode, however there are few which doesn't*

- 1. Running your internal wifi router in AP (access point) mode, will remove un necessary NAT internal to your network, otherwise your internal wifi router and your internet router will both do NAT which results in double NAT scenario and slows down your internet link performance*

Setting up SoHo360 in your WiFi network

Your SoHo360 comes preinstalled with all the software and configurations from ThoughtData, however it needs to be configured to connect to your home or small business WiFi network

Follow the steps below to configure WiFi for SoHo360 in your small-business or home network.

Step 1. Power on your internal Wifi router, follow the instructions that comes with it. Setup new wifi network with a SSID and connect all your home or small business devices to the internal wifi router. Make sure you choose router mode as **Access Point (AP)** mode during the setup. If you already have a pre-existing internal wifi router separate from your internet router skip this step. If you need to setup your existing internal wifi router in **Access Point (AP)** mode, refer to its manual/user guide.

Step 2. Power on your SoHo360 – Home or Small Business unit using its supplied power adapter

Step 3. Connect an ethernet cable (part of the package) from your Windows-based laptop to

- the ethernet Port 1 of SoHo360 - Small Business - see Figure 3.

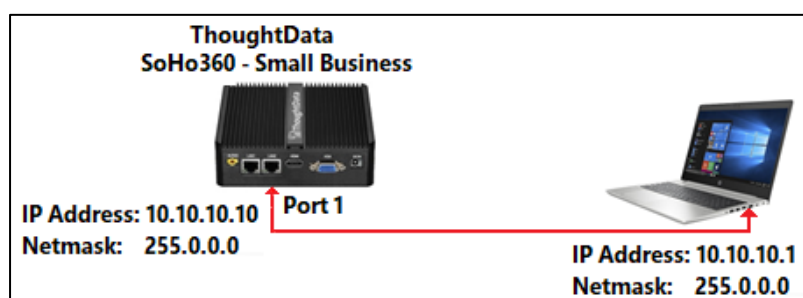


Figure 3. Connect to SoHo360 – Small Business

or

- the ethernet port of SoHo360 – Home – see Figure 4.

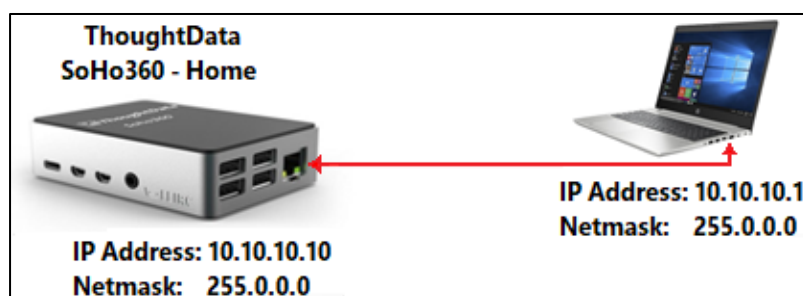


Figure 4. Connect to SoHo360 – Home

Step 4. Download the shell program *putty* to your Windows laptop from <https://www.putty.org/>

Step 5. Set the configuration for the ethernet port/adaptor on the Windows laptop to:

IP address: **10.10.10.1**

Netmask: **255.0.0.0**

Getting started with SoHo360

Step 6. Start a command prompt on the laptop and ping **10.10.10.10** to check connectivity to SoHo360.

Your SoHo360 is preconfigured with default IP address of **10.10.10.10/255.0.0.0**

Step 7. Launch putty app.

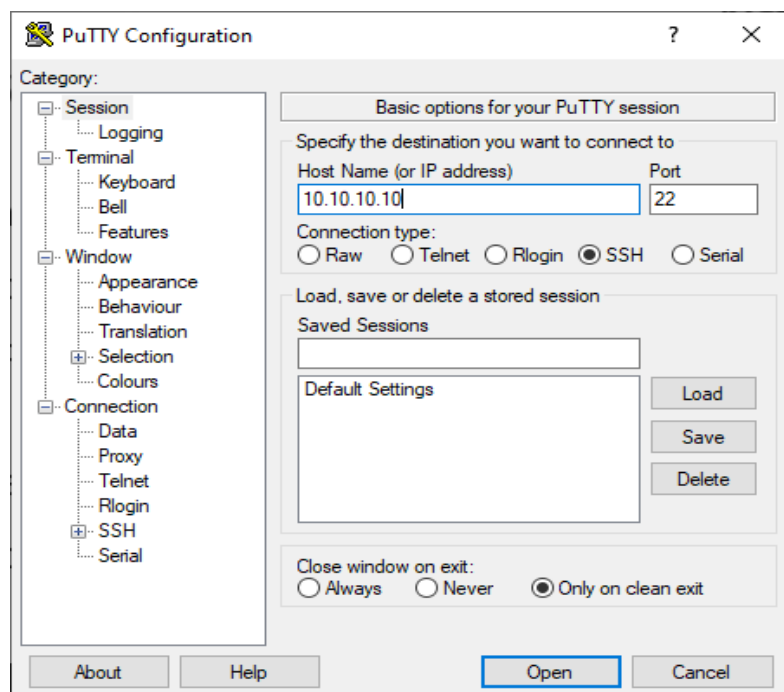


Figure 5. IP address

Step 8. In the Host Name (or IP address) field type the IP address as **10.10.10.10**.

Step 9. Click 

Step 10. At the login prompt, type the following to login to the console.

username: **ubuntu**

password: **thoughtdata1**

```
System load: 2.38          Processes:                159
Usage of /: 35.9% of 29.05GB Users logged in:         0
Memory usage: 61%        IPv4 address for docker0: 172.17.0.1
Swap usage: 0%           IPv4 address for wlan0:  192.168.1.242
Temperature: 40.9 C

* Pure upstream Kubernetes 1.21, smallest, simplest cluster ops!

https://microk8s.io/

14 updates can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable

Last login: Sat May  8 00:30:36 2021 from 192.168.1.254
ubuntu@ubuntu:~$ su
Password: █
```

Getting started with SoHo360

Step 11. At the command prompt type su, and press the <Enter> key.

Step 12. Type password: **thoughtdata1**

Step 13. At the command prompt, type:

./soho360-rphw-wlan-update.sh and press the <Enter> key.

```
Last login: Sat May  8 00:30:36 2021 from 192.168.1.254
ubuntu@ubuntu:~$ su
Password:
root@ubuntu:/home/ubuntu# ./soho360-rphw-wlan-update.sh
Wireless LAN interaface access point configuration and initialization script
Provide the wireless lan SSID(access-point) name :
```

Step 14. Enter your small business/home internal WiFi SSID and password/passphrase,

```
Provide the wireless lan SSID(access-point) name :FiOS-9D1M8
Provide the wireless lan SSID(access-point) passphrase :_*****
```

The script configures and brings up the WiFi interface on your SoHo360.

```
Wireless lan service status for wlan0
• netplan-wpa-wlan0.service - WPA supplicant for netplan wlan0
  Loaded: loaded (/run/systemd/system/netplan-wpa-wlan0.service; enabled-runtime; vendor pre
set: enabled)
  Active: active (running) since Sat 2021-05-08 20:48:29 UTC; 31s ago
  Main PID: 131933 (wpa_supplicant)
  Tasks: 1 (limit: 9257)
  CGroup: /system.slice/netplan-wpa-wlan0.service
          └─131933 /sbin/wpa_supplicant -c /run/netplan/wpa-wlan0.conf -iwlan0

May 08 20:48:29 ubuntu systemd[1]: netplan-wpa-wlan0.service: Succeeded.
May 08 20:48:29 ubuntu systemd[1]: Started WPA supplicant for netplan wlan0.
May 08 20:48:29 ubuntu wpa_supplicant[131933]: Successfully initialized wpa_supplicant
May 08 20:48:32 ubuntu wpa_supplicant[131933]: wlan0: Trying to associate with SSID 'FiOS-9D1M8
'
May 08 20:48:34 ubuntu wpa_supplicant[131933]: wlan0: Associated with c8:a7:0a:ac:c5:12
May 08 20:48:34 ubuntu wpa_supplicant[131933]: wlan0: CTRL-EVENT-CONNECTED - Connection to c8:a
7:0a:ac:c5:12 completed [id=0 id_str=]
May 08 20:48:34 ubuntu wpa_supplicant[131933]: wlan0: CTRL-EVENT-SUBNET-STATUS-UPDATE status=0
May 08 20:48:34 ubuntu wpa_supplicant[131933]: wlan0: CTRL-EVENT-REGDOM-CHANGE init=COUNTRY_IE
type=COUNTRY alpha2=US
```

Step 15. Note down the WiFi IP address of your SoHo360, when it is displayed by the script.

```
IP address assigned to wirereless lan interface wlan0=192.168.1.242
User can now access the Enterprise 360 using the following url https://192.168.1.242
root@ubuntu:/home/ubuntu#
```

Important: This is the IP address you will use to access SoHo360 from any device in your small business or home WiFi network.

- this is the DHCP IP address provided by your WiFi router.
- while your WiFi router continues to provide the same IP address to SoHo360 based on its mac address the IP address rarely changes due to power reset or long gaps or power shutdown to SoHo360 or due to any change in your WiFi router.

If you are unable to access SoHo360 over WiFi you can always connect an ethernet cable from your laptop and follow the steps to login to SoHo360 using putty program. Go to [Step 7](#).

- You can check the new WiFi IP address by running the **ifconfig** at the command prompt or
- You can opt to re-configure the WiFi and obtain a new IP address for your SoHo360 if you made changes to your WiFi network.

Your SoHo360 is designed to start all its software components in the event of a power reset.

Step 16. Wait for 5 minutes, for the script to reboot your Soho360 and for all changes to take effect. SoHo360 restarts and starts up all its services.

Step 17. Close the putty program.

Important: If you did not enter the right SSID and password for your SoHo360 wifi network configuration, the script displays the error and terminates. You have re-do this procedure from [Step 13](#) to configure the right WiFi credentials for SoHo360.

Step 18. Launch browser from any device(phone/tablet/computer) connected to your WiFi network and enter

Step 19. **https://<WiFi IP address of your soho360>**

E.g : **https:// 192.168.1.112**

Step 20. Certain browsers can throw a self-signed certificate warning, click connect anyway to continue.

Step 21. In the SoHo360 login page enter the default username and password:

Username - **soho360**

Password - **password**

You are now ready to use SoHo360 and finalize your network set up and connections for traffic monitoring.

Deploying SoHo360 between your internal wifi router and internet router

Follow the setup diagram as illustrated below depending on if you purchased Soho360 Home or Soho360 Small Business.

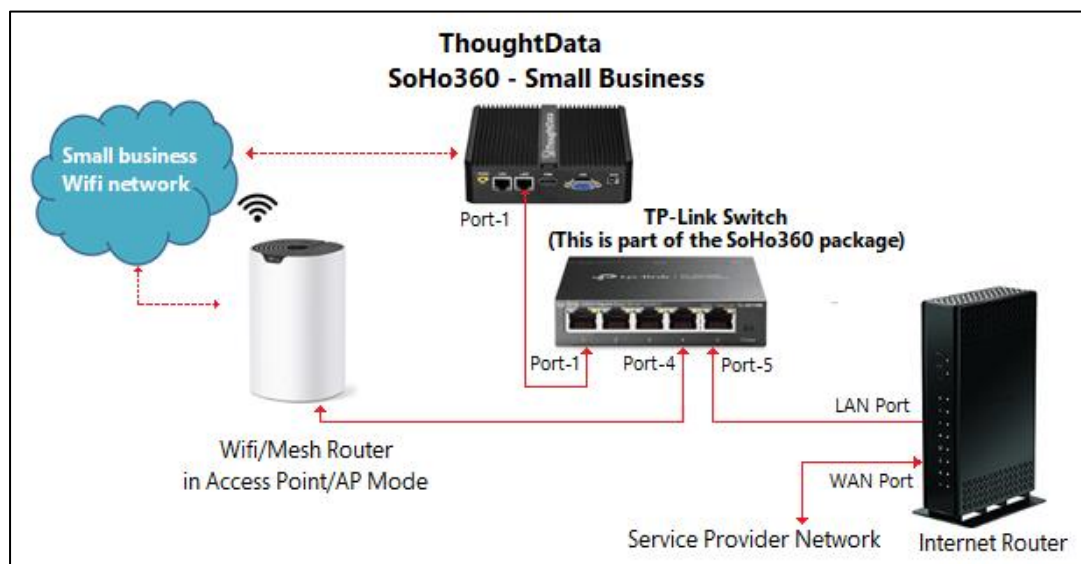


Figure 6. SoHo360 – Small Business internet traffic monitoring

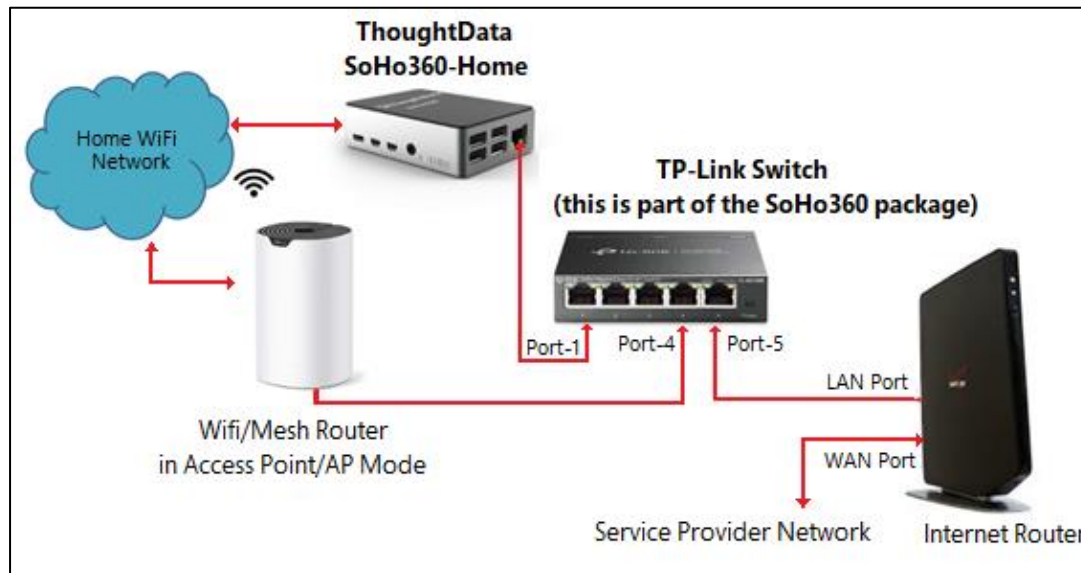


Figure 7. SoHo360 – Home internet traffic monitoring

Complete the following steps:

Step 1. Disconnect the ethernet connection from your laptop to SoHo360.

Step 2. Disconnect your ethernet link from WiFi/mesh router to internet router.

Step 3. Introduce and power on TP link switch. Note that your TP link switch with preconfigured settings is part of the SoHo360 package shipped to you.

Getting started with SoHo360

Step 4. Connect the ethernet cable from **Port 5** of the TP link switch to any LAN port of your internet router.

Step 5. Connect the ethernet cable from **Port 4** of the TP link switch to the WAN port of your internal WiFi/mesh router.

Step 6. Connect the ethernet cable from **Port 1** of the TP link switch to the **Ethernet port** of your SoHo360 - Small Business or SoHo360 - Home.

Your setup is now complete and you are now ready to monitor your internet link with SoHo360 using its WiFi IP address.

Important: *Your TP link switch comes with pre-configured settings, Follow the port numbers mentioned in this document, do not use ports 2, 3 or interchange ports for connections.*

Administrator access to SoHo360

The default username: **soho360** and password: **password** provides user level access to all the workflows in SoHo360.

You can change the default password after first login.

Administrator access is available with account/username: **admin** and password: **thoughtdata1**. Administrator account allows full access to all configurations and settings.

Important: *Your SoHo360 comprises default dashboard with pre-configured settings. Changing the settings in these default dashboards or deleting workflows can impact your SoHo360 adversely causing irrecoverable effects. It is highly recommended not to change any settings under the administrator account. Do refer to the ThoughtData SoHo360 User Guide for details.*

Monitoring Traffic

Once set up and deployed, SoHo360 is perennially at work, collecting data and monitoring your internet traffic.

Its out-of-box-workflows make the most of the collected data to help you in troubleshooting across all situations related to monitoring your small business or home internet link.

Now that you have completed a roundup of the deployment details of ThoughtData SoHo360, the next logical step is to get familiar with its workflows and use cases. You can get started by a detailed study of the *ThoughtData SoHo360 User Guide*.

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