12 de julio de 2024

CARTA DE PRESENTACIÓN DE LA OFERTA

Señores

Hospital Susana López de Valencia E.S.E.
Ciudad

Yo, Juan Carlos Gomez Holguin, identificado con la cédula de ciudadanía No. 76303950 De Popayán, actuando en nombre y representación de Microingeniería Aplicada SAS, Nit 900481154-3 sociedad constituida por documento privado No. 1 del 25 de noviembre de 2011 de la asamblea de accionistas, debidamente registrada en la Cámara de comercio del Cauca bajo número 29220 del libro IX del registro mercantil el 01 de diciembre de 2011, domiciliada en Popayán, por medio de la presente me permito presentar propuesta para la invitación, cuyo objeto es la contratación **para la "Adquisición de un Sistema para Monitoreo de Temperatura y Humedad del Hospital Susana López de Valencia E.S.E."**, de acuerdo con las condiciones establecidas en los términos de referencia y declaro:

1.- Que bajo juramento, que no me hallo incurso en ninguna de las causales de inhabilidad y / o incompatibilidad establecidas en la ley 80 de 1993 arts. 8º. Y 9º. , demás normas sobre la materia y que tampoco se encuentra incursa en ninguno de los eventos previstos como prohibiciones especiales para contratar , que en caso de sobrevenir alguna inhabilidad o incompatibilidad me haré responsable frente al Hospital y frente a terceros por los perjuicios que se ocasionen

2. Que ninguna persona o entidad distinta de la aquí nombrada tiene intereses en esta propuesta, ni en el contrato que como consecuencia de ella se llegare a celebrar y que por consiguiente sólo compromete a la persona jurídica o natural por mí representada.

3. Que conozco los términos de referencia, los anexos, especificaciones y demás documentos de la invitación y que acepto todos los requisitos en él contenidos.

4. Que en caso de que sea aceptada nuestra propuesta, nos comprometemos a suscribir el contrato correspondiente, en el lapso de tiempo señalado en los términos de referencia.

5. Que conozco la información general y específica y demás documentos de la invitación y acepto los requisitos en ellos contenidos.

6. Que tengo en mi poder los documentos que integran los términos de referencia y sus anexos.

7. Que realizaré los trámites necesarios para el perfeccionamiento, legalización y ejecución del contrato en el término señalado en los términos de referencia.

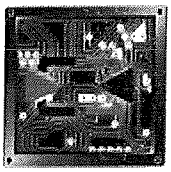
8. A continuación relaciono la documentación exigida por el HOSPITAL SUSANA LOPEZ DE VALENCIA EMPRESA SOCIAL DEL ESTADO y que incluyó en la propuesta.

9. Autorizo al Hospital Susana López de Valencia, para que todos los actos administrativos que se expiden en ocasión del presente proceso contractual sean realizados en la siguiente dirección de correo electrónico: victor@microingenieria.net

10. Igualmente señalo como dirección donde se pueden remitir por correo documentos, notificaciones o comunicaciones relacionadas con la presente invitación, la siguiente:
Dirección: Carrera 15 # 8N 188 Cs J-6 Teléfono: 6028371099 Celular: 3053547411 E-mail: juanmanuel@microingenieria.net; jose@microingenieria.net; Ciudad: Popayán.

Atentamente,

FIRMA



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¿Quiénes somos?

Microingeniería Aplicada SAS es una empresa de la ciudad de Popayán, con más de 9 años de trayectoria en el diseño y desarrollo de soluciones tecnológicas de alto impacto.

Somos un apasionado grupo de profesionales de ingeniería física, electrónica y de sistemas, que diseña y desarrolla dispositivos electrónicos y que en conjunto con diseñadores de UX/UI fabrica aplicaciones web y aplicaciones móviles para la interfaz y el control de esos dispositivos.

Somos expertos en instrumentación electrónica y mantenimiento industrial.

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¿Qué hacemos?

1. Diseño y desarrollo de dispositivos electrónicos de monitorización y control.
2. Diseño y desarrollo de dispositivos biomédicos y aplicaciones para diagnóstico y rehabilitación.
3. Diseño e implementación de dispositivos electrónicos didácticos y videojuegos serios.
4. Control, automatización y mantenimiento industrial.
5. Diseño y desarrollo Full Stack (BackEnd y FrontEnd) para aplicaciones web y aplicaciones móviles nativas.

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¿Cómo lo hacemos?

1. Definimos el propósito y objetivos de tu requerimiento.
2. Investigamos, analizamos y diseñamos la arquitectura hardware y software que responda correctamente a tus necesidades.
3. Diseñamos la infraestructura hardware y la desplegamos a través de la ejecución de un cronograma coordinado contigo, con personal capacitado y bajo el cumplimiento de todos los protocolos de seguridad.
4. Realizamos un proceso de Discovery de la aplicación de software y construimos un prototipo visual detallado de cada una de sus funcionalidades y solo procederemos a programarlo una vez que lo apruebes.
5. Desplegamos el software en un servidor especializado en la nube y capacitaremos al personal encargado de su funcionamiento.
6. Desarrollaremos un estricto protocolo de seguridad para garantizar la protección de los datos y el control del acceso no autorizado a tu aplicación de tu información.
7. Pondremos a tu disposición personal experto para darte soporte y garantía del software y el hardware entregados.

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RED INALÁMBRICA DE MONITORIZACIÓN DE HUMEDAD, TEMPERATURA Y PRESION ATMOSFERICA PARA EL HOSPITAL SUSANA LÓPEZ DE VALENCIA

Propuesta técnica

Objetivo:

Dotar a la institución HSLV de una plataforma para la monitorización de 50 puntos de humedad relativa y temperatura y 10 puntos de presión barométrica, a través de una aplicación software a medida.

Descripción:

Se pretende desplegar una red de 50 termohigrómetros digitales y 10 trasmisores de presión (todos ellos de grado industrial), conectados de forma inalámbrica a 5 enrutadores con conexión cableada o WiFi a la red de la institución.

Una aplicación desplegada en un servidor en la nube de CloudFlare permitirá gestionar de forma automática la lectura de las variables físicas de forma instantánea, consultando por ubicación y accediendo a un histórico gráfico de mediciones de cada dispositivo en su base de datos.

La aplicación será accesible a través de autenticación de usuarios con roles de Supervisor y Administrador, con permisos establecidos según las política de la institución.

La aplicación, permitirá la gestión de alarmas cuando se presenten eventos de sobrepaso de límites que podrán ser establecidos de forma individual para cada sensor. Estas alarmas alertarán a la plataforma de monitorización y enviarán comunicaciones a través de mensajes de correo electrónico y notificaciones push a usuarios con rol de Supervisor.

La plataforma de monitorización estará dividida en dos estaciones dotadas de un computador de escritorio y una Tablet industrial en cada una de ellas.

El sistema podrá ser configurado para definir los intervalos de medición (periodos de tiempo) para todos los dispositivos.

El sistema será escalable y permitirá la adhesión de nuevos dispositivos desde la aplicación.

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Propuesta económica

EQUIPOS / HARDWARE	MARCA	VR UNIT	CANT	SUB TOTAL	IVA	TOTAL
Sensor / transmisor de temperatura y humedad relativa – Wi-Fi.	UBIBOT GS1-A	$ 545.000	40	$ 21.800.000	$ 4.142.000	$ 25.942.000
Sensor / transmisor de temperatura y humedad relativa – cable y Wi-Fi.	UBIBOT GS1-A1RS	$ 820.000	10	$ 8.200.000	$ 1.558.000	$ 9.758.000
Sensor de presión atmosférica.	UBIBOT ATMOSPHERIC PRESSURE SENSOR UB-ATHP-N1	$ 165.000	10	$ 1.650.000	$ 313.500	$ 1.963.500
Router Wi-Fi 2.4 Ghz, banda dual, velocidad Wi-Fi de 1200 Mbps, tres (3) antenas externas, puerto USB 2.0.	TP-LINK MODELO AC1200	$ 180.000	5	$ 900.000	$ 171.000	$ 1.071.000
Computador Intel Core i5 12450H, 16gb de Ram ddr4 320 Mhz, SSD M2 PCIe 512gb, bluetooth, Wi-Fi, puertos Ethernet, puertos HDMI, puertos USB 2.0 y 3.2, pantalla 23,8 FHD y sistema operativo Windows 10.	ALL IN ONE AIO LENOVO MODELO IDEACENTR AIO3 24ALC6	$ 3.000.000	2	$ 6.000.000	$ 1.140.000	$ 7.140.000
Tablet industrial, tipo de conectividad bluetooth, Wi-Fi, 4G, sistema operativo Android, resolución HD, 4gb de RAM, capacidad de almacenamiento de memoria de 64 GB.	ULEFONE MODELO ARMOR PAD 8	$ 3.500.000	2	$ 7.000.000	$ 1.330.000	$ 8.330.000
TOTAL HARDWARE				$ 45.550.000	$ 8.654.500	$ 54.204.500

SERVICIOS / SOFTWARE	VR UNIT	CANT	SUB TOTAL	IVA	TOTAL
Calibración de sensor.	$ 170.000	60	$ 10.200.000	$ 1.938.000	$ 12.138.000
Instalación, conexión y configuración de sensor.	$ 200.000	60	$ 12.000.000	$ 2.280.000	$ 14.280.000
Instalación, conexión y configuración de router Wi-Fi en la red local.	$ 250.000	5	$ 1.250.000	$ 237.500	$ 1.487.500
Instalación y configuración de la arquitectura en la nube de CloudFlare del Front End de la aplicación, conexión al sistema de gestión de versiones de GitHub.	$ 6.500.000	1	$ 6.500.000	$ 1.235.000	$ 7.735.000
Servidor en la nube para la base de datos, almacenamiento y despliegue de la aplicación – Licencia por un (1) año.	$ 2.700.000	1	$ 2.700.000	$ 513.000	$ 3.123.000
Capacitación del personal para la administración, configuración y gestión de la aplicación – Una (1) hora.	$ 200.000	4	$ 800.000	$ 152.000	$ 952.000
Diseño, desarrollo, despliegue, pruebas y validación de la aplicación de monitorización con licencia de software vitalicia y actualizaciones por un (1) año.	$ 55.000.000	1	$ 55.000.000	EXENTO	$ 55.000.000
TOTAL SOFTWARE / SERVICIOS			$ 88.450.000	$ 6.355.500	$ 94.805.500
TOTAL GENERAL			$ 134.000.000	$ 15.010.000	$ 149.010.000

Propuesta económica

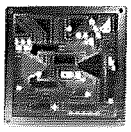
NOTA:

La disponibilidad de los Manuales de Usuario y Fichas Técnicas de los dispositivos Hardware para su entrega se establece de la siguiente manera:

DISPOSITIVO	MANUAL DE USUARIO	FICHA TÉCNICA
SENSOR / TRANSMISOR DE TEMPERATURA Y HUMEDAD RELATIVA MARCA UBIBOT MODELO GS1-A	X	X
SENSOR / TRANSMISOR DE TEMPERATURA Y HUMEDAD RELATIVA MARCA UBIBOT MODELO GS1-A1RS	X	X
SENSOR DE PRESIÓN ATMOSFÉRICA MARCA UBIBOT MODELO UB-ATHP-N1	X	X
ROUTER WiFi 2,4 GHz MARCA Tp-link MODELO AC1200	X	X
COMPUTADOR ALL IN ONE MARCA Lenovo MODELO IdeaCentre AIO3 24ALC6		X
TABLET INDUSTRIAL MARCA Ulefone MODELO Armor Pad 8"		X

NOTA:

Los dispositivos suministrados son de ambiente industrial y/o de oficina, por lo que no requieren ni traen registro INVIMA por parte del proveedor.



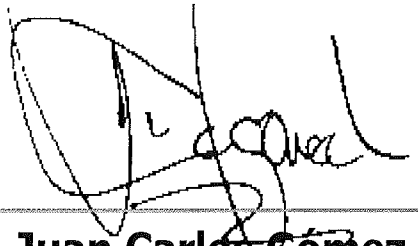
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Contacto

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juanmanuel@microingenieria.net
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+57 305 354 7411



Juan Carlos Gómez
Representante Legal
c.c. 76303950

UbiBot GS1-AETH1RS Industrial-Grade WIFI RJ45 Temperature Humidity Light Data Logger IoT System



Model: UBIGS1AETH1RS
Manufacture warranty: 12 months
Country of Origin: China

Descriptions

This version provides two ways of data synchronization: 2.4GHz WiFi and Ethernet cable. When used in an environment where WiFi is not available or unstable, the Ethernet cable helps a lot. This model is embedded with internal temperature and humidity sensors. Integrated with RS485 interface, external probes can also be connected, such as TH30S-B, soil temperature and humidity probe, etc. Because of the cable port, this version is not waterproof.

Please note, the GS1 device only supports Ethernet switch with 100 mbps or lower. Gigabit switching hub with auto-negotiation is also compatible.

The UbiBot ® GS1 uses the cutting-edge IoT technologies to offer a more stable environmental monitoring with high performance. Via WiFi or RJ45 Ethernet cable, it detects environmental data all day round and automatically syncs all the data to the UbiBot ®IoT Platform. The clear 4'' screen allows you to instantly view the latest data. You can also access your device readings in real-time via our App or using a browser anywhere in the world.

Our cloud-based IoT platform offers advanced data analysis and management. It also allows you to setup real-time notifications - if a metric goes outside the range you specify, the platform will notify you through the app, by email, SMS text, voice call and HTTP, allowing you to respond promptly before costly damage happens. Please note, charges may apply to SMS text and voice call alert modes. These two modes cost the balance of the credits in your account.

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Tel: +65-6386 1815 Email: sales@testmeter.sg

Features

- Free App & email alerts
- Instant data visualization via LCD screen
- Data sync via WiFi & Ethernet cable connectivity
- 24/7 temperature & humidity monitoring
- RS485 interface, multiple probes accessible
- Multiple power supply methods
- Larger internal storage with up to 300,000 records
- No hub required

Applications

- Online real-time detecting temperature, humidity and light level
- Agriculture
- Greenhouse
- Museum
- Wine Cellar
- Pharmacy
- Horticulture
- Animal Breeding Warehouse

Dimension:

- 11.5 x 9 x 5.5 cm
- Weight: 450 grams

Package List

- 1 x GS1-AETH1RS
- 1 x manual book
- 1 x Type-C USB cable

Specification:

- Temperature
  - Range: -20℃ to 60℃ (-4℉ to 140℉)
  - Accuracy: ±0.3℃
- Humidity
  - Range: 10% to 90%
  - Accuracy: ±3%RH
- External Light
  - Range: 0 to 83,000 lux
  - Accuracy: ±2%
- Memory: 300,000 sensor records
- WiFi Specifications: **2.4GHz**, channels 1-13 **(5GHz WiFi NOT supported)**
- Ethernet Specifications: RJ45 Ethernet cable.
- Ethernet switch: 100 mbps or lower.
- Screen Size: 4”
- Color: White
- Material: Flame resistant ABS+PC
- Switch Type: button
- Power Source:
  - Internal Lithium 2900mAh batteries (Built-in)
  - Type-C 5V USB Cable (Provided)
  - DC 12V (Optional)



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External Probe Selection (Optional):

- External DS18B20 temperature probe
- RS485 temperature and humidity probe
- Soil temperature and humidity probe
- PT100 industrial-grade temperature probe



⚠ Supports up to 4 probes simultaneously, 1 of each type. The TH30S-B probe isn't compatible with CO2 probe. Avoid using them together.



⚠ The GS1-AETH1RS device consumes a lot of power for constant performance. So We recommend you plug it to any of the external power supplies, especially the first time switch it on.

Multiple Accurate Sensors integrated into One Device



Temperature	
Precision	± 0.3℃
Range	– 20~60℃

Humidity	
Precision	± 3%RH
Range	10~90%

The cloud-based IoT platform offers advanced data analysis and management. It also allows you to setup real-time notifications - if a metric goes outside the range you specify, the platform will notify you through the app, by email or other methods, allowing you to respond promptly before costly damage happens. The IoT platform gives users access to both the real-time data and history via our mobile app or on any browser. We are now working with IFTTT (if this then that), allowing you to build custom link with other smart devices.

The data sync interval can be set by you. This allows you to balance battery life against frequency of data capture. With the default data sync interval of 15 minutes the device has a battery life of up to 4- 6 months using 2 AA alkaline batteries. Power-supply using Micro-USB is supported. You can check the battery voltage of the device remotely and set up rules to be notified when low-battery, network failure or sensor reading exceeds the setting range. Available rule alerts include Email, APP. Please note, charges may apply to SMS text and voice call alert modes. These two modes cost the balance of the credits in your account.

No subscription is needed. Free 200MB Cloud Storage enough to store data over 2 years on default settings. Export the data to CSV or PDF without extra charge.

View through mobile APP

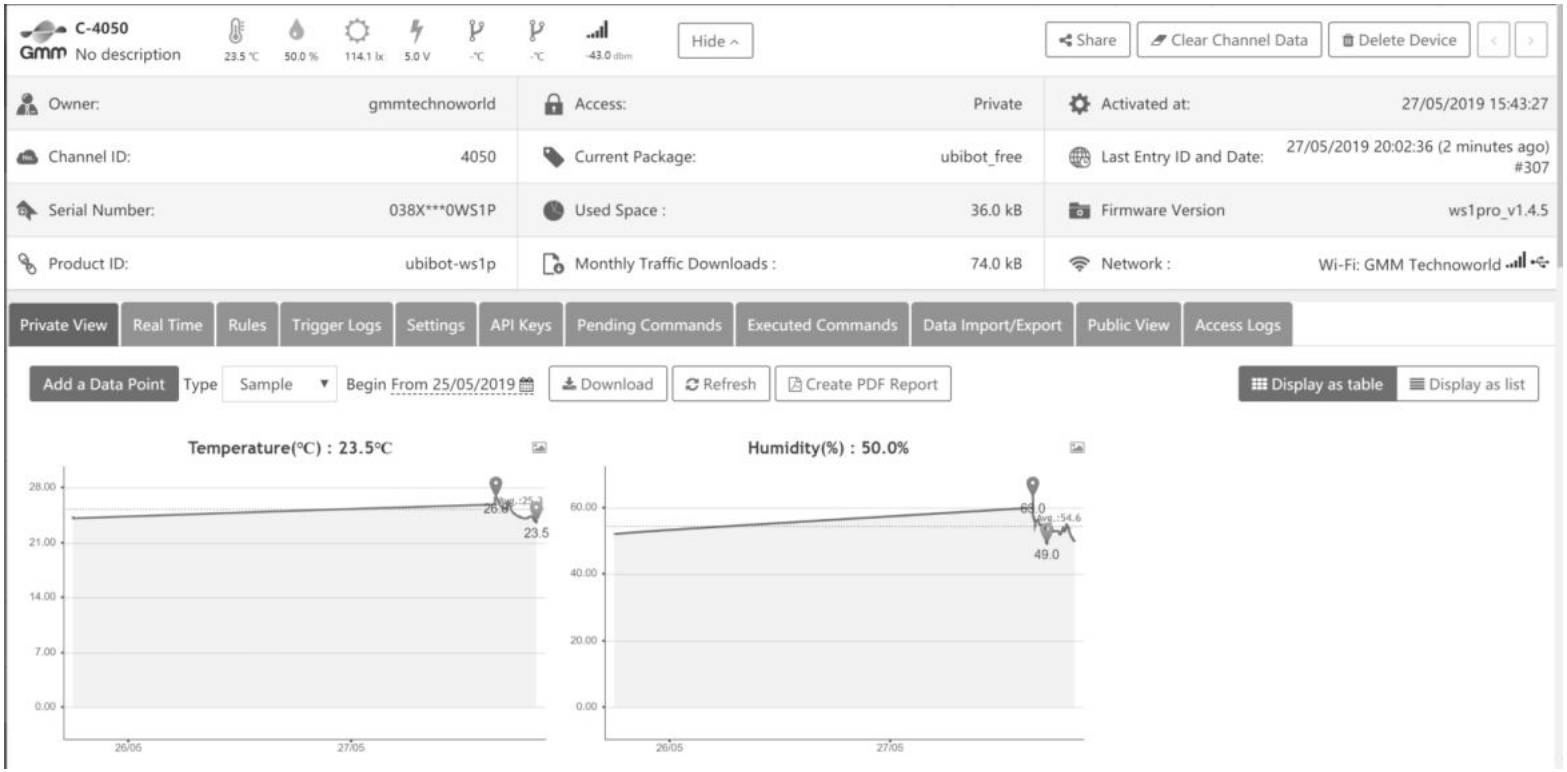


Data download in CSV format

created_at	field1 (Temperature °C)	field2 (Humidity)	field3(Light)	field4(Voltage)
2019-05-27T15:28:08+08:00	25.88121	60	81.639999	5
2019-05-27T15:28:10+08:00	25.894562	60	76.439995	5
2019-05-27T15:28:12+08:00	25.937286	61	76.919998	5
2019-05-27T15:28:14+08:00	25.937286	61	79.5	5
2019-05-27T15:28:15+08:00	25.96666	62	77.799995	5
2019-05-27T15:28:16+08:00	25.96666	62	75.919998	5
2019-05-27T15:28:18+08:00	26.006714	62	76.860001	5
2019-05-27T15:28:19+08:00	26.022736	62	77.720001	5
2019-05-27T15:28:25+08:00	26.121536	63	78.540001	5
2019-05-27T15:28:47+08:00	26.404594	60	97.439995	5
2019-05-27T15:28:51+08:00				
2019-05-27T15:29:47+08:00	26.615547	58	78.939995	
2019-05-27T15:30:47+08:00	26.658272	58	86.559998	
2019-05-27T15:31:47+08:00	26.700996	57	96.839996	
2019-05-27T15:32:47+08:00	26.700996	57	84.479996	
2019-05-27T15:33:47+08:00	26.743721	57	83.279999	

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View dashboard through PC





UbiBot GS1-A1RS

Industrial Grade WIFI Temperature Humidity Light Data Logger IoT System

SKU: UBIGS1A1RS
Manufacture Warranty period: 12 months
Country of Origin: China

Introduction

UbiBot ® GS1-A1RS is an industrial-grade cloud-based environmental monitoring data logger. It supports WiFi network connection. This model is embedded with internal temperature, humidity and ambient light sensors. It detects environmental data all day round and automatically syncs all data to the UbiBot ® IoT cloud platform, allowing you to access data and monitor the environment remotely from anywhere in the world via the free UbiBot APP or Web Console and to receive real-time alerts.

It also supports 5V RS485 external probes, but only one of each type can be connected at a time.

The clear 4” LCD screen allows you to instantly view the latest data.

The device supports three types of power supply: internal lithium battery, Type-C 5V (USB cable provided), and DC 5V/2A (included). The 2900mA lithium battery ensures a long working time.

*The UBIBOT GS1-A1RS unable to support DS18B20-Audio Temperature Probe.

Features

- Built-in temperature, humidity, and ambient light sensors
- 2.4 GHz WiFi network connection, no need of hubs or gateways
- Industrial-grade shell, strong and durable
- 4" high-quality LCD screen displaying current environmental conditions
- Free App & Web Console to access and monitor real-time data remotely.
- UbiBot cloud storage for historical data; and data export
- Multiple ways of receiving real-time alerts: App notifications, emails, phone calls, SMS, HTTP
- Working with IFTTT, Google Sheet, Alexa
- Supporting multiple RS485 external probes, but only one of each type can be connected at a time
- Easy setup with free UbiBot App or PC tools
- Memory with a capacity of 300,000 records stores all data even if the network is temporarily disconnected, which ensures there are no gaps in the data history.
- Compliance with CE, EN 12830, FCC, FDA CFR21, IC, RCM, RoHS, TELEC

Specifications

Temperature	
Range:	-20 ºC to 60ºC
Accuracy:	± 0.3ºC
Resolution:	Resolution: 0.1
Humidity	
Range:	10% to 90%, No condensation
Accuracy:	±3%
Resolution:	0.1
Ambient Light	
Range:	0.1 to 157K Lux
Accuracy:	±10%
Resolution:	0.1

Operation System	iOS 11+, Android 8.1+, or Windows 7+, or masOS v10.8
WiFi Information	Supports 20MHz or “Auto” setting supports OPEN, WEP, or WPA/WPA2 types, WPA2-Enterprise (802.1x / RADIUS authentication) network is not supported, requires 2.4GHz (802.11 b/g/n), channels 1-13 (5GHz WiFi NOT supported)
Memory	300,000 sensor records
Material	Flame resistant ABS+PC
Switch Type	Button
Colour	White
Power Source	Internal Lithium batteries 2900 mAh (Built-in)
	Type-C 5V USB Cable (1m) - Included
	5V2A UK Power adapter (Provided to Singapore only)
Screen Size	4”
Dimensions	11.5 x 9 x 5.5 cm
Weight	436g ± 3g







Package includes

1 x GS1-A1RS device
1 x External antenna
1 x manual book
1 x Type-C USB cable (1m)
1 x 5V/2A Power Adapter (Safety Mark)

The cloud-based IoT platform

UbiBot ® offers a revolutionary way to monitor environmental conditions where they matter. The sensors synchronize data to UbiBot ® IoT Platform using WiFi, Cellular or Ethernet connection (depending on the specific model purchased). Users can then access data from anywhere via a smartphone or the Web console.

Features:

- **Data Management:** Manage all your IoT data in one place; you could add as many devices as you want to one UbiBot account.
- **Unlimited Storage:** Unlimited cloud-based storage ensures you will never run out of space. This allows you to view all your historical data via UbiBot App or Web.
- **Free App & Web Console:** Using UbiBot App and Web Console is free. Powerful and thoughtful features provide you brilliant experience.
- **Analysis and Visualization:** Use powerful analysis and visualization tools to get the most out of your data; spot trends and direct comparisons.
- **Real-Time Alerts:** Fully customizable alert system will notify you via App notifications, emails, phone call/SMS, HTTP whenever any metric goes out of the range preset.
- **Highly Secure Platform:** UbiBot IoT platform is designed to keep all your data secure so you never have to worry about hackers or other security issues.
- **Working with IFTTT, Alexa, Google Assistant, Google Sheet**
- Compliant with FDA CFR21

Details:

Real-time and history data
The UbiBot Platform is a cloud-based IoT platform where all measured data is uploaded and stored. UbiBot App and Web Console allow you to view current data as well as historical data in graphs.

Customizable alerts and bulk operation
Setting and receiving alerts on your devices helps you to get notified of the conditions timely. When you have many devices to manage, it's time-consuming to set each alert rule one by one. Therefore, we've developed a bulk operation module with which you can set the same rule for many devices at a time.

Data export
On UbiBot Platform, you can download the history data in CSV or PDF format. The CSV file only contains raw data, while the PDF file is a summarized report with average, maximum and minimum value within the chosen period. The PDF file is much easier to read and archive.

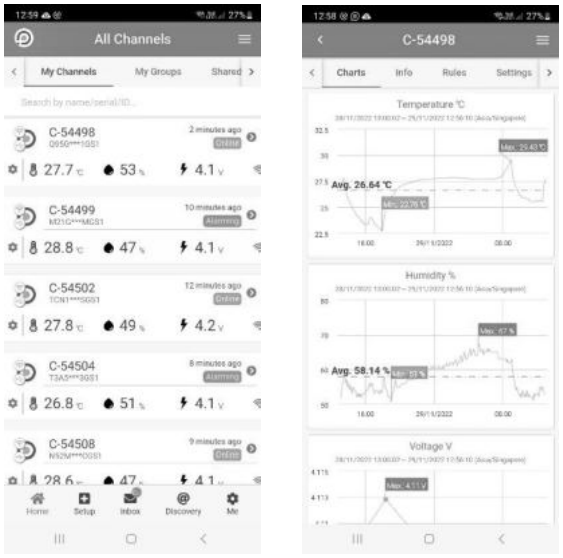
Device sharing and bulk operation
For business users, centralized control over multiple devices is available, with no limit on the number of devices in one account. Also available are bulk operations that apply to sensor settings, alerts, and remote control routines. Devices can be shared with other people, which allows for distributed management by different colleagues.

Intelligent automation in UbiBot platform
UbiBot is committed to building intelligent industrial and home ecosystems. By integrating temperature and humidity sensors and the smart plug SP1 in one system, automated operation is achieved through data linkage. For example, fans can be switched on when the temperature rises to 30 °C.

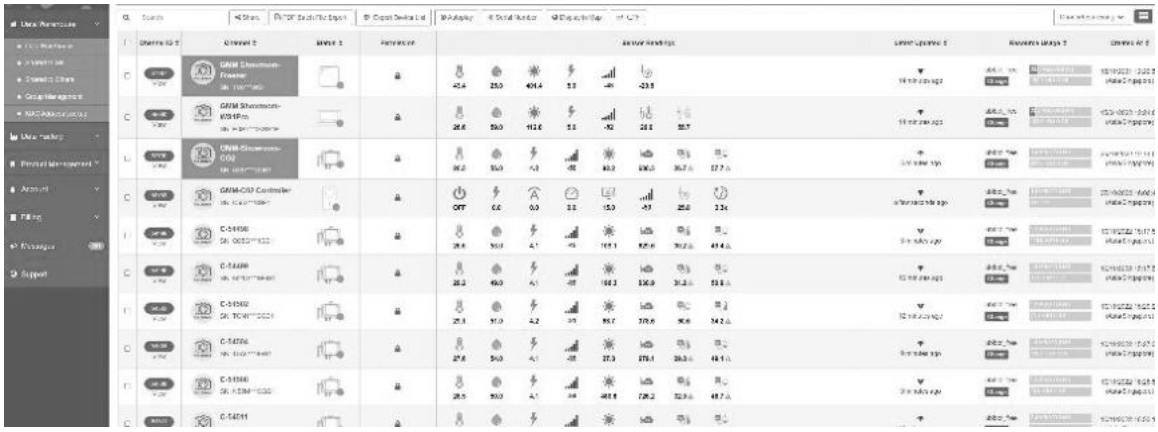
Data forwarding
UbiBot is an open platform that provides cloud-based services while supporting customers to use their own storage servers. With the data forwarding service, you can forward the data collected by your device to your own private URL to protect privacy.

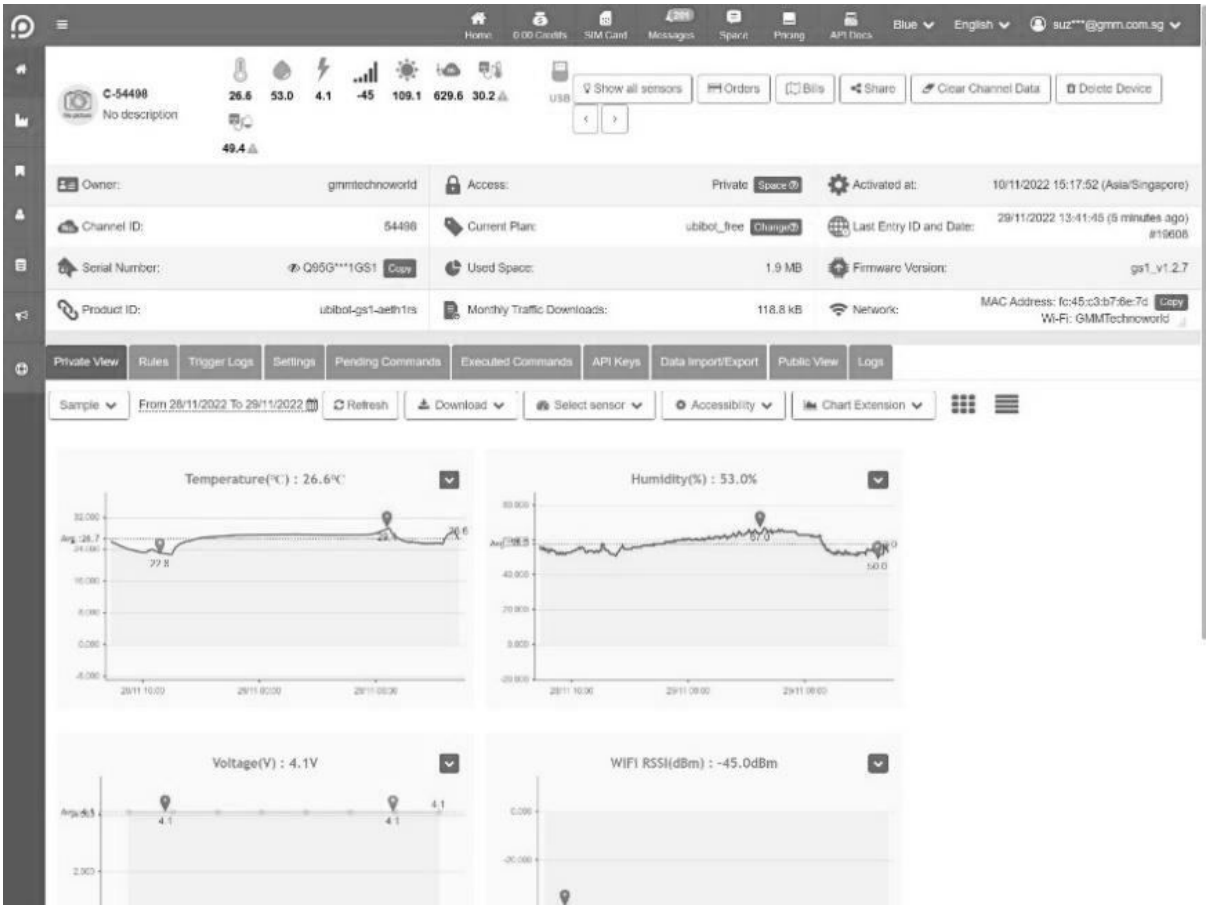
Platform-based calibration
UbiBot platform supports data calibration both on the platform level as well as the device level. One-step calibration, instant display, no impact on historical data.

View Data from Mobile APP Dashboard



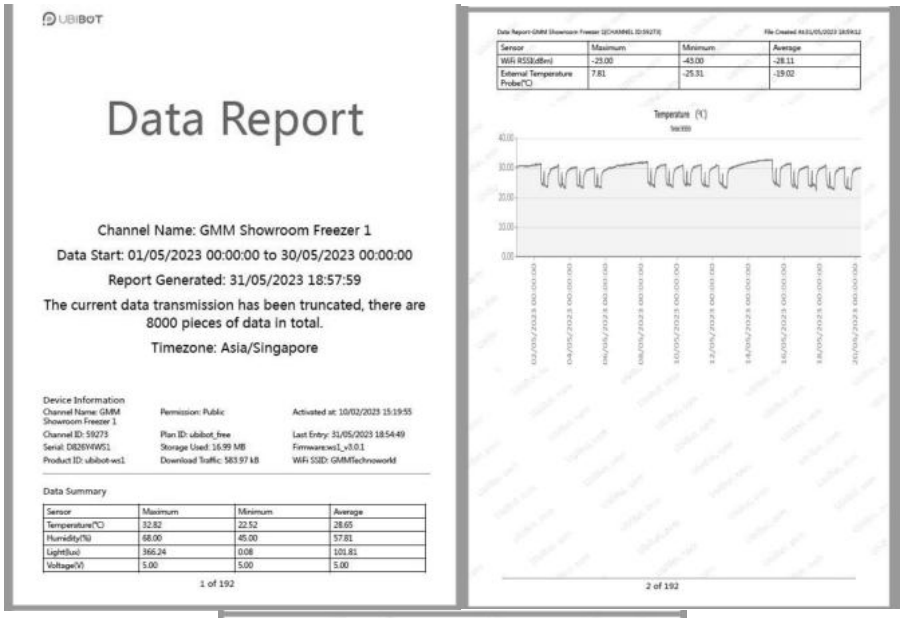
View Data from PC Dashboard





Download Data in Excel or PDF Format

created_at	field1 (Temperature ºC)	field2 (Humidity)	field3(Light)	field4(Voltage)
2019-05-27T15:28:08+08:00	25.88121	60	81.639999	5
2019-05-27T15:28:10+08:00	25.894562	60	76.439995	5
2019-05-27T15:28:12+08:00	25.937286	61	76.919998	5
2019-05-27T15:28:14+08:00	25.937286	61	79.5	5
2019-05-27T15:28:15+08:00	25.96666	62	77.799995	5
2019-05-27T15:28:16+08:00	25.96666	62	75.919998	5
2019-05-27T15:28:18+08:00	26.006714	62	76.860001	5
2019-05-27T15:28:19+08:00	26.022736	62	77.720001	5
2019-05-27T15:28:25+08:00	26.121536	63	78.540001	5
2019-05-27T15:28:47+08:00	26.404594	60	97.439995	5
2019-05-27T15:28:51+08:00				
2019-05-27T15:29:47+08:00	26.615547	58	78.939995	
2019-05-27T15:30:47+08:00	26.658272	58	86.559998	
2019-05-27T15:31:47+08:00	26.700996	57	96.839996	
2019-05-27T15:32:47+08:00	26.700996	57	84.479996	
2019-05-27T15:33:47+08:00	26.743721	57	83.279999	



UBIBOT

Data Report

Channel Name: GMM Showroom Freezer 1

Data Start: 01/05/2023 00:00:00 to 30/05/2023 00:00:00

Report Generated: 31/05/2023 18:57:59

The current data transmission has been truncated, there are 8000 pieces of data in total.

Timezone: Asia/Singapore

Device Information

Channel Name: GMM Showroom Freezer 1 | Permission: Public | Activated at: 10/02/2023 15:19:55
Channel ID: 59273 | Plan ID: ubibot_free | Last Entry: 31/05/2023 18:54:49
Serial: D828YAW51 | Storage Used: 16.99 MB | Firmware:ws1_v3.0.1
Product ID: ubibot-ws1 | Download Traffic: 583.97 kB | WiFi SSID: GMMTechnoworld

Data Summary

Sensor	Maximum	Minimum	Average
Temperature(℃)	32.82	22.52	28.65
Humidity(%)	68.00	45.00	57.81
Light(lux)	366.24	0.08	101.81
Voltage(V)	5.00	5.00	5.00

1 of 192

Data Report-GMM Showroom Freezer 1(CHANNEL ID:59273) File Created At:31/05/2023 18:59:12

Sensor	Maximum	Minimum	Average
WiFi RSSI(dBm)	-23.00	-45.00	-28.11
External Temperature Probe(℃)	7.81	-25.31	-19.02

Temperature (℃)

2 of 192

Data Report-GMM Showroom Freezer 1(CHANNEL ID:59273) File Created At:31/05/2023 18:59:12

GMM Showroom Freezer 1(Channel ID: 59273) Temperature(℃)
From 01/05/2023 00:00:00 to 30/05/2023 00:00:00

Entry	Created At	Temperature	Entry	Created At	Temperature	Entry	Created At	Temperature
1	01/05/2023 00:03:56	30.45	44	01/05/2023 03:38:59	30.58	87	01/05/2023 07:14:01	30.66
2	01/05/2023 00:08:55	30.59	45	01/05/2023 03:43:59	30.52	88	01/05/2023 07:19:01	30.60
3	01/05/2023 00:13:55	30.56	46	01/05/2023 03:48:58	30.50	89	01/05/2023 07:24:01	30.70
4	01/05/2023 00:18:56	30.53	47	01/05/2023 03:53:58	30.55	90	01/05/2023 07:29:01	30.66
5	01/05/2023 00:23:56	30.59	48	01/05/2023 03:58:59	30.55	91	01/05/2023 07:34:01	30.69
6	01/05/2023 00:28:56	30.50	49	01/05/2023 04:03:59	30.53	92	01/05/2023 07:39:01	30.71
7	01/05/2023 00:33:56	30.46	50	01/05/2023 04:08:59	30.66	93	01/05/2023 07:44:02	30.66
8	01/05/2023 00:38:56	30.55	51	01/05/2023 04:13:59	30.65	94	01/05/2023 07:49:02	30.65
9	01/05/2023 00:43:56	30.50	52	01/05/2023 04:18:59	30.66	95	01/05/2023 07:54:02	30.69
10	01/05/2023 00:48:56	30.50	53	01/05/2023 04:23:58	30.73	96	01/05/2023 07:59:02	30.60
11	01/05/2023 00:53:56	30.62	54	01/05/2023 04:28:58	30.73	97	01/05/2023 08:04:02	30.65
12	01/05/2023 00:58:56	30.59	55	01/05/2023 04:33:58	30.71	98	01/05/2023 08:09:02	30.73
13	01/05/2023 01:03:56	30.53	56	01/05/2023 04:38:59	30.80	99	01/05/2023 08:14:02	30.66
14	01/05/2023 01:08:56	30.59	57	01/05/2023 04:43:59	30.73	100	01/05/2023 08:19:02	30.65
15	01/05/2023 01:13:56	30.45	58	01/05/2023 04:48:59	30.74	101	01/05/2023 08:24:02	30.74
16	01/05/2023 01:18:56	30.45	59	01/05/2023 04:53:59	30.84	102	01/05/2023 08:29:02	30.65
17	01/05/2023 01:23:57	30.57	60	01/05/2023 04:58:59	30.76	103	01/05/2023 08:34:02	30.62
18	01/05/2023 01:28:57	30.58	61	01/05/2023 05:03:59	30.74	104	01/05/2023 08:39:02	30.69
19	01/05/2023 01:33:57	30.49	62	01/05/2023 05:08:59	30.81	105	01/05/2023 08:44:03	30.65
20	01/05/2023 01:38:57	30.59	63	01/05/2023 05:13:59	30.77	106	01/05/2023 08:49:03	30.63
21	01/05/2023 01:43:57	30.49	64	01/05/2023 05:18:59	30.77	107	01/05/2023 08:54:03	30.71
22	01/05/2023 01:48:57	30.46	65	01/05/2023 05:23:59	30.89	108	01/05/2023 08:59:03	30.65
23	01/05/2023 01:53:57	30.53	66	01/05/2023 05:28:59	30.74	109	01/05/2023 09:04:03	30.62
24	01/05/2023 01:58:57	30.43	67	01/05/2023 05:33:59	30.70	110	01/05/2023 09:09:03	30.69
25	01/05/2023 02:03:57	30.43	68	01/05/2023 05:39:00	30.77	111	01/05/2023 09:14:03	30.63
26	01/05/2023 02:08:57	30.56	69	01/05/2023 05:44:00	30.73	112	01/05/2023 09:19:03	30.63
27	01/05/2023 02:13:57	30.53	70	01/05/2023 05:49:00	30.70	113	01/05/2023 09:24:03	30.70
28	01/05/2023 02:18:57	30.50	71	01/05/2023 05:54:00	30.86	114	01/05/2023 09:29:03	30.69
29	01/05/2023 02:23:58	30.56	72	01/05/2023 05:59:00	30.71	115	01/05/2023 09:34:03	30.62
30	01/05/2023 02:28:58	30.50	73	01/05/2023 06:04:00	30.65	116	01/05/2023 09:39:02	30.67
31	01/05/2023 02:33:58	30.45	74	01/05/2023 06:09:00	30.73	117	01/05/2023 09:44:02	30.59
32	01/05/2023 02:38:58	30.55	75	01/05/2023 06:14:00	30.67	118	01/05/2023 09:49:03	30.60
33	01/05/2023 02:43:58	30.50	76	01/05/2023 06:19:00	30.67	119	01/05/2023 09:54:03	30.65
34	01/05/2023 02:48:58	30.52	77	01/05/2023 06:24:00	30.77	120	01/05/2023 09:59:03	30.66
35	01/05/2023 02:53:58	30.63	78	01/05/2023 06:29:00	30.73	121	01/05/2023 10:04:03	30.63
36	01/05/2023 02:58:58	30.55	79	01/05/2023 06:34:00	30.67	122	01/05/2023 10:09:03	30.73
37	01/05/2023 03:03:58	30.47	80	01/05/2023 06:39:01	30.74	123	01/05/2023 10:14:03	30.66
38	01/05/2023 03:08:58	30.55	81	01/05/2023 06:44:01	30.65	124	01/05/2023 10:19:03	30.62
39	01/05/2023 03:13:58	30.49	82	01/05/2023 06:49:01	30.65	125	01/05/2023 10:24:03	30.66
40	01/05/2023 03:18:58	30.50	83	01/05/2023 06:54:01	30.81	126	01/05/2023 10:29:03	30.59
41	01/05/2023 03:23:59	30.60	84	01/05/2023 06:59:01	30.73	127	01/05/2023 10:34:03	30.59
42	01/05/2023 03:28:59	30.56	85	01/05/2023 07:04:01	30.70	128	01/05/2023 10:39:02	30.67
43	01/05/2023 03:33:59	30.50	86	01/05/2023 07:09:01	30.77	129	01/05/2023 10:44:02	30.60

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UBIBOT ATMOSPHERIC PRESSURE SENSOR UB-ATHP-N1

Monitoring the atmosphere pressure with embedded RS485 interface

$ 29.00 USD

Quantity: - 1 +

- Power supply: DC 5V
- Measuring medium: air
- Measuring range: 26~126kPa
- Accuracy: ±50Pa
- Long-term stability: -0.1kPa/year
- Response time: ≤1s
- Output signal: RS485 (Modbus protocol)
- Working with UbiBot GS1 only
- For more details, please click on the Contact Us.

Description

Explore the advanced features of our Atmospheric Pressure Sensor, crafted for monitoring atmospheric pressure changes with unparalleled accuracy. This sensor, equipped with an embedded RS485 interface, delivers high-precision data to meet your environmental monitoring needs.

Powered by DC 5V, the sensor ensures reliable and consistent performance. The temperature range spans from -40℃ to 80℃, catering to various environmental conditions. With an impressive accuracy of ±50Pa, the sensor guarantees reliability in atmospheric pressure applications.

Achieving long-term stability at -0.1kPa/year ensures consistent and reliable performance over an extended period. The sensor boasts a rapid response time of ≤1s, ensuring prompt and accurate pressure readings.

The Atmospheric Pressure Sensor features an RS485 output signal utilizing the Modbus protocol for seamless integration into diverse systems. This compatibility allows easy connectivity with a variety of devices in different applications.

Choose our cutting-edge Atmospheric Pressure Sensor to elevate your environmental monitoring capabilities. Order now and experience the forefront of environmental sensing technology!

Key Specifications:

Temperature Range: -40℃ to 80℃
Humidity Range: 0% to 100% Relative Humidity (RH)
Pressure Range: ±50Pa
Temperature Accuracy: ±0.2℃ (@0 to 65℃)
Humidity Accuracy: ±2%RH (@10 to 90% RH)
Impressive Accuracy: ±50Pa

TP-LINK®

Archer C1200

User Guide

AC1200 Wireless Dual Band Gigabit Router

REV1.0.0 1910011686

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About This Guide

This guide is a complementation of Quick Installation Guide. The Quick Installation Guide instructs you on quick Internet setup, and this guide provides details of each function and shows you the way to configure these functions appropriate to your needs.

When using this guide, please notice that features of the router may vary slightly depending on the model and software version you have, and on your location, language, and Internet service provider. All screenshots, images, parameters and descriptions documented in this guide are used for demonstration only.

Conventions

In this guide the following conventions are used:

Convention	Description
Blue Italic	Hyperlinks are in blue italic. You can click to redirect to a website or a specific section.
Blue	Contents to be emphasized and texts on the web page are in blue, including the menus, items, buttons, etc.
>	The menu structures to show the path to load the corresponding page. For example, Advanced > Wireless > MAC Filtering means the MAC Filtering function page is under the Wireless menu that is located in the Advanced tab.
Note:	Ignoring this type of note might result in a malfunction or damage to the device.
Tips:	Indicates important information that helps you make better use of your device.
symbols on the web page	• click to edit the corresponding entry. • click to delete the corresponding entry. • click to enable or disable the corresponding entry. • click to view more information about items on the page.

More Info

The latest software, management app and utility can be found at Download Center at *www.tp-link.com/support*.

The Quick Installation Guide can be found where you find this guide or inside the package of the router.

Specifications can be found on the product page at *http://www.tp-link.com*.

A Technical Support Forum is provided for you to discuss our products at *http://forum.tp-link.com*.

Our Technical Support contact information can be found at the *Contact Technical Support* page at *www.tp-link.com/support*.

Chapter *1*

Get to Know About Your Router

This chapter introduces what the router can do and shows its appearance.

This chapter contains the following sections:

- *Product Overview*
- *Panel Layout*

1. 1. Product Overview

The TP-LINK router is designed to fully meet the need of Small Office/Home Office (SOHO) networks and users demanding higher networking performance. The powerful antennas ensure continuous Wi-Fi signal to all your devices while boosting widespread coverage throughout your home, and the built-in Ethernet ports supply high-speed connection to your wired devices.

Moreover, it is simple and convenient to set up and use the TP-LINK router via its intuitive web interface and the powerful Tether app.

1. 2. Panel Layout

1. 2. 1. Top View



The router's LEDs (view from left to right) are located on the front panel. You can check the router's working status by following the LED Explanation table.

LED Explanation

Name	Status	Indication
(Power)	On	System initialization completes.
	Flashing	System initialization or firmware upgrade is in process. Do not disconnect or power off the router.
	Off	Power is off.

LED Explanation

Name	Status	Indication
(2.4GHz Wireless)	On	The 2.4GHz wireless band is working properly.
	Off	The 2.4GHz wireless band is disabled.
(5GHz Wireless)	On	The 5GHz wireless band is working properly.
	Off	The 5GHz wireless band is disabled.
(Ethernet 1-4)	On	At least one Ethernet port is connected.
	Off	No Ethernet port is connected.
(Internet)	Green On	Internet is available.
	Orange On	The router's Internet port is connected, but the Internet is not available.
	Off	The router's Internet port is not connected.
(WPS)	On/Off	Turns on when a WPS connection is established, and goes off about 5 minutes later.
	Flashing	A wireless device is trying to connect to the network via WPS. This process may take up to 2 minutes.
(USB)	On	A USB device is connected to the corresponding USB port.
	Flashing	A USB device is connecting to the corresponding USB port.
	Off	No USB device is the corresponding USB port.

1. 2. 2. The Back Panel



The following parts (view from left to right) are located on the rear panel.

Item	Description
Power Port	For connecting the router to a power socket via the provided power adapter.
On/Off Button	Press this button to power on or off the router.
Reset Button (hole)	Use a pin to press and hold this button for about 5 seconds to reset the router to its factory default settings.
USB Ports (1/2)	For connecting a USB device to the router.
Internet Port	For connecting to a DSL/Cable modem, or an Ethernet port.
Ethernet Ports (1/2/3/4)	For connecting your PCs or other wired network devices to the router.
WPS/Wi-Fi Button	Press and hold this button for about 2 seconds to turn on or off the wireless function of your router.
	Press this button, and immediately press the WPS button on your client device. The WPS LED of the router should change from flashing to solid on, indicating successful WPS connection.

Chapter *2*

Connect the Hardware

This chapter contains the following sections:

- *Position Your Router*
- *Connect Your Router*

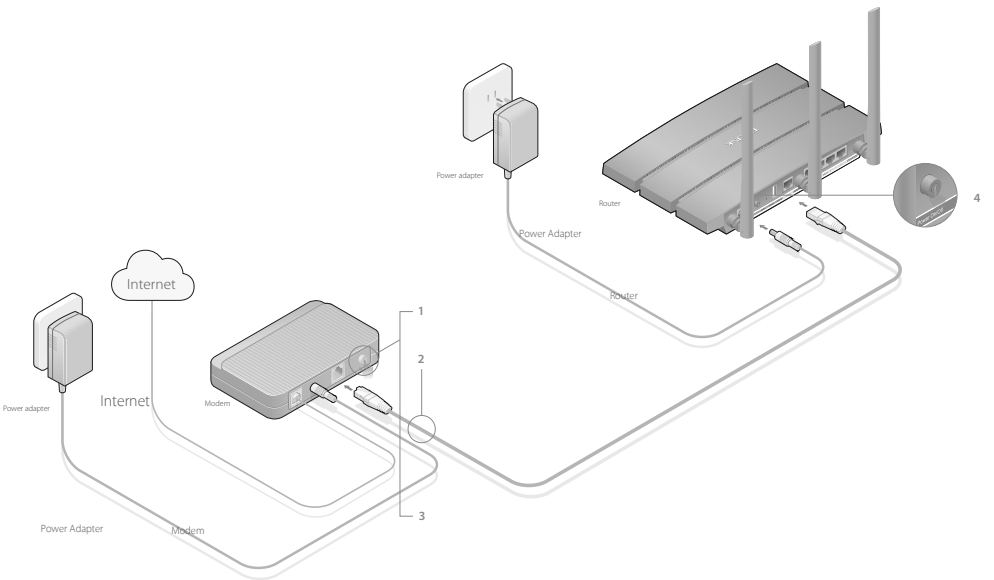
2. 1. Position Your Router

- The product should not be located where it will be exposed to moisture or excessive heat.
- Place the router in a location where it can be connected to devices as well as to a power source.
- Make sure the cables and power cord are safely placed out of the way so they do not create a tripping hazard.
- The router can be placed on a shelf or desktop.
- Keep the router away from the strong electromagnetic radiation and the device of electromagnetic sensitive.

2. 2. Connect Your Router

1. Follow the steps below to connect your router.

If your Internet connection is through an Ethernet cable from the wall instead of through a DSL / Cable / Satellite modem, connect the Ethernet cable directly to the router's Internet port, then follow Step 4 and 5 to complete the hardware connection.



1) Turn off the modem, and remove the backup battery if it has one.

2) Connect the modem to the Internet port on your router via an Ethernet cable.

3) Turn on the modem, and then wait about **2 minutes** for it to restart.

4) Turn on the router.

5) Verify that the hardware connection is correct by checking these LEDs.

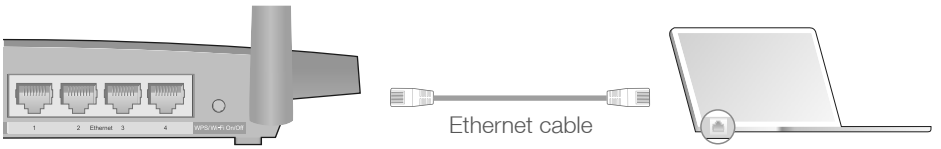


Note: If 2.4GHz LED and 5GHz LED are off, press the WPS/Wi-Fi On/Off button for about 2 seconds, and then check the LEDs again in a few seconds.

2. Connect your computer to the router.

- **Method 1: Wired**

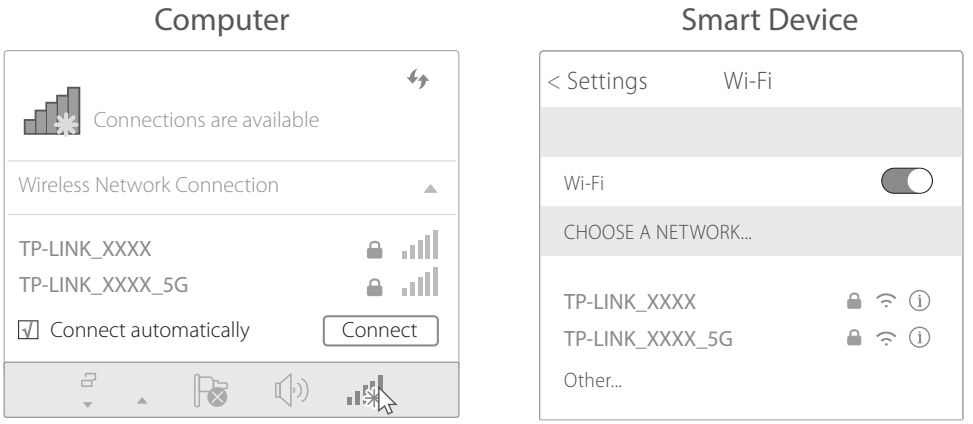
Turn off the Wi-Fi on your computer and connect the devices as shown below.



- **Method 2: Wirelessly**

1) Find the SSID (Network Name) and Wireless Password/PIN printed on the label at the bottom of the router.

2) Click the network icon of your computer or go to Wi-Fi Setting of your smart device, and then select the SSID to join the network.



- **Method 3: Use the WPS button**

Wireless devices that support WPS, including Android phones, tablets, most USB network cards, can be connected to your router through this method (WPS is not supported by iOS devices).

Note:

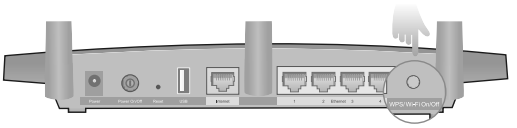
The WPS function cannot be configured if the wireless function of the router is disabled. Also, the WPS function will be disabled if your wireless encryption is WEP. Please make sure the wireless function is enabled and is configured with the appropriate encryption before configuring the WPS.

1. Tab the WPS icon on the device's screen.

2. Immediately press the WPS button on your router.



Close to



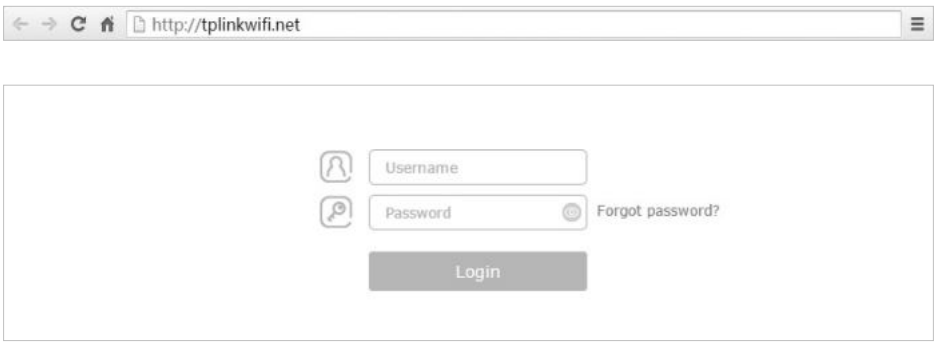
Chapter *3*

Log into Your Router

With the web-based utility, it is easy to configure and manage the router. The web-based utility can be used on any Windows, Macintosh or UNIX OS with a Web browser, such as Microsoft Internet Explorer, Mozilla Firefox or Apple Safari.

Follow the steps below to log into your router.

1. Set up the TCP/IP Protocol in Obtain an IP address automatically mode on your computer.
2. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router. The default one is admin for both username and password.



Note:
If the login window does not appear, please refer to the *FAQ* section.

Chapter *4*

Set Up Internet Connection

This chapter introduces how to connect your router to the Internet. The router is equipped with a web-based Quick Setup wizard. It has necessary ISP information built in, automates many of the steps and verifies that those steps have been successfully completed. Furthermore, you can also set up an IPv6 connection if your ISP provides IPv6 service.

This chapter contains the following sections:

- *Use Quick Setup Wizard*
- *Manually Set up Your Internet Connection*
- *Set Up an IPv6 Internet Connection*

4. 1. Use Quick Setup Wizard

The Quick Setup Wizard will guide you through the process to set up your router.

Tips:

If you need the IPv6 Internet connection, please refer to the section of *Set Up an IPv6 Internet Connection*.

Follow the steps below to set up your router.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Click Quick Setup on the top of the page. Then follow the step-by-step instructions to connect your router to the Internet.

Note:

During the quick setup process:

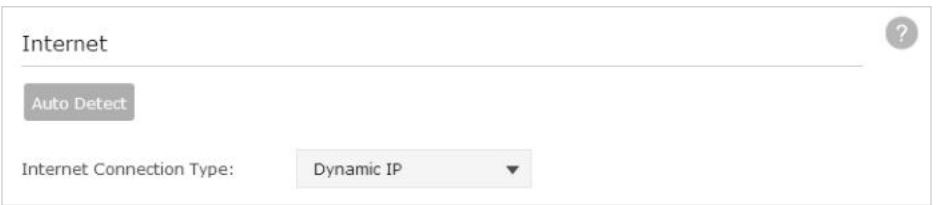
- If you are not sure of the Internet Connection Type, please click Auto Detect or contact your ISP for Internet connection information.
- If you have changed the preset wireless network name (SSID) and wireless password, all your wireless devices must use the new SSID and password to connect to the router.

4. 2. Manually Set up Your Internet Connection

In this part, you can check your current Internet connection settings. You can also modify the settings according to the service information provided by your ISP.

Follow the steps below to check or modify your Internet connection settings.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Basic > Internet.
3. Select your Internet connection type from the drop-down list.

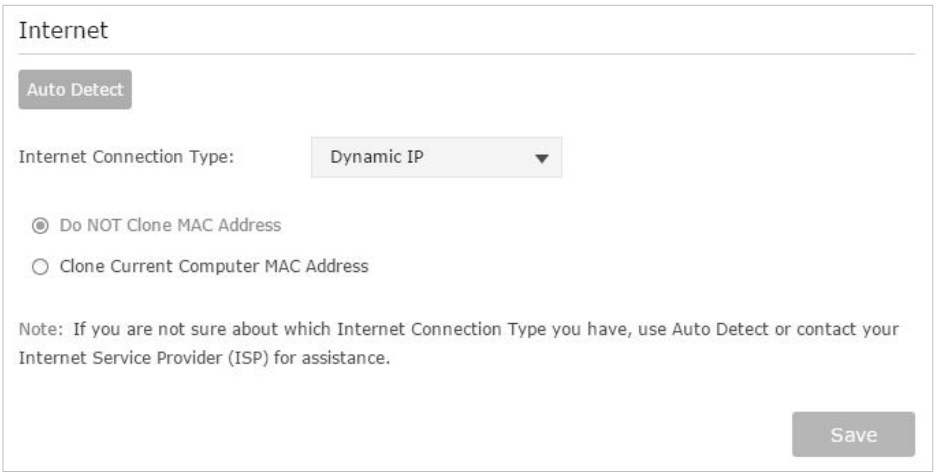


Note:

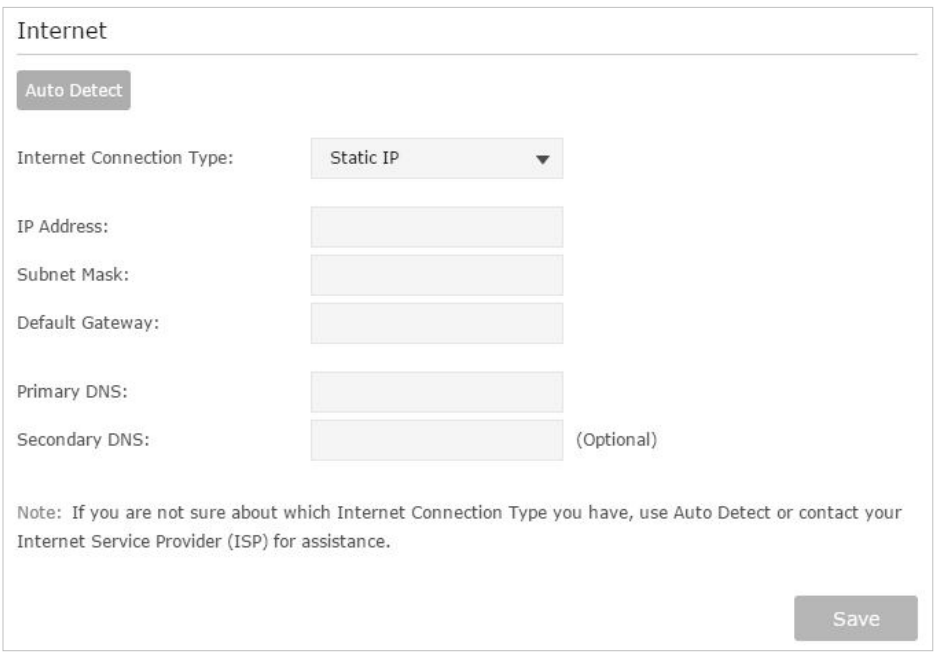
If you are unsure of your connection type, click Auto Detect. Since different connection types require different cables and connection information, you can also refer to the demonstrations in Step 4 to determine your connection type.

4. Follow the instructions on the page to continue the configuration. Parameters on the figures are just used for demonstration.

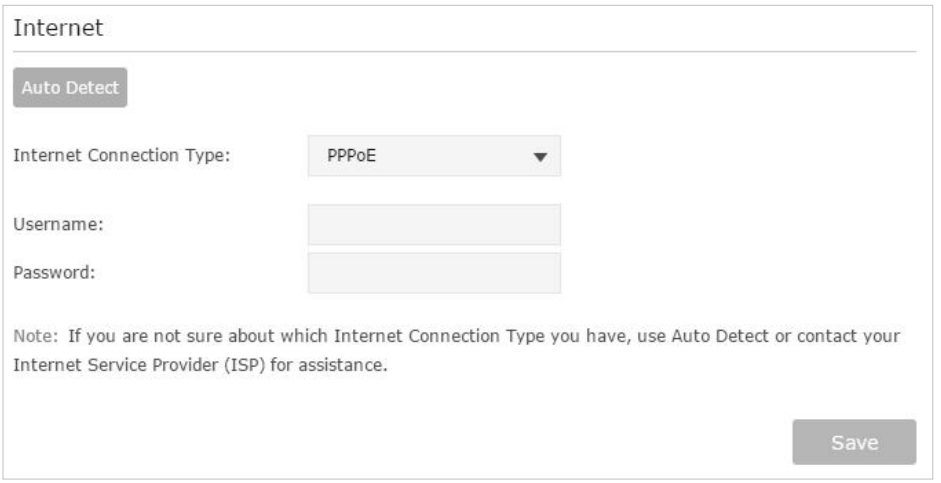
   1) If you choose Dynamic IP, you need to select whether to clone the MAC address. Dynamic IP users are usually equipped with a cable TV or fiber cable.



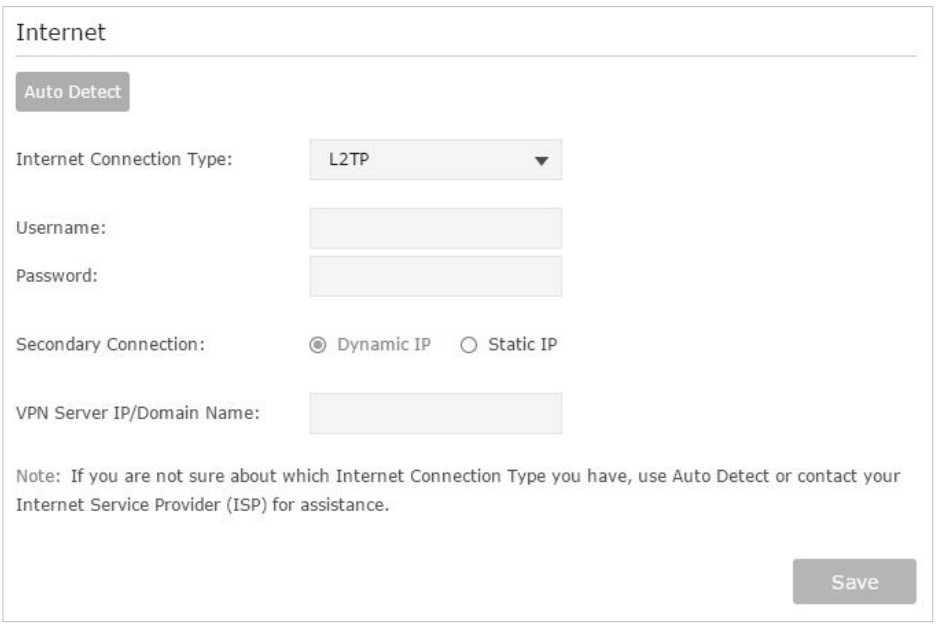
2) If you choose Static IP, enter the information provided by your ISP in the corresponding fields.



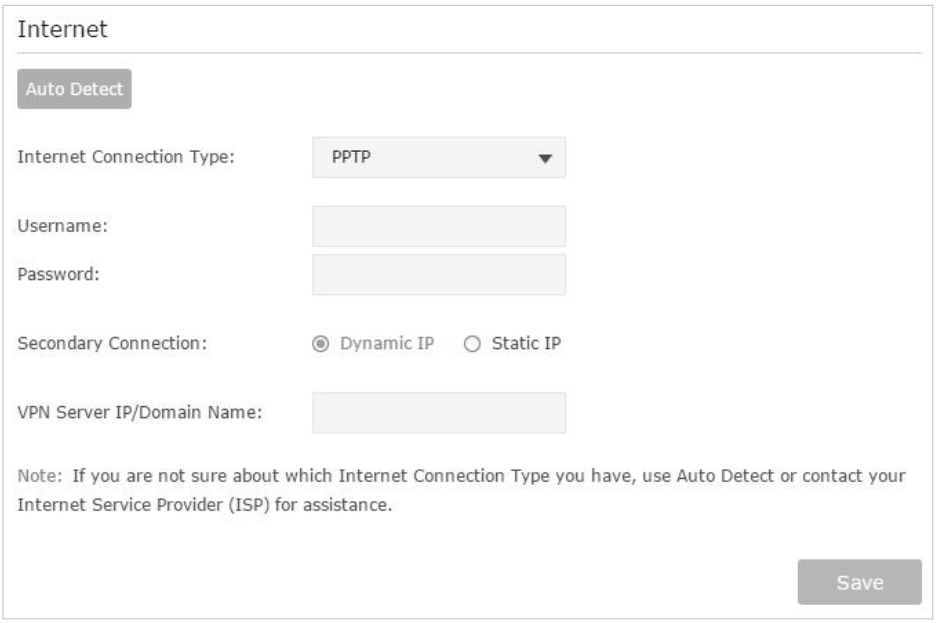
3) If you choose PPPoE, enter the username and password provided by your ISP. PPPoE users usually have DSL cable modems.



4) If you choose L2TP, enter the username and password and choose the Secondary Connection provided by your ISP. Different parameters are needed according to the Secondary Connection you have chosen.



5) If you choose PPTP, enter the username and password, and choose the Secondary Connection provided by your ISP. Different parameters are needed according to the Secondary Connection you have chosen.



5. Click Save. To check your Internet connection, click Network Map on the left of the page.

Note:

It may take 1-2 minutes to make the settings valid.

6. After the connection succeeds, the screen will display as follows. Here we take PPPoE as an example.



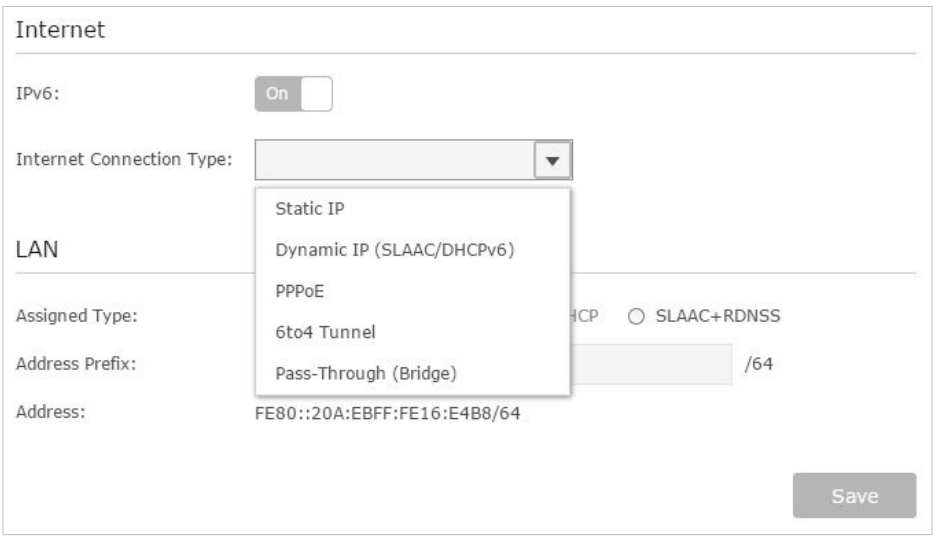
Tips:

1. If your Internet connection type is BigPond Cable, please go to Advanced > Network > Internet to set your router.
2. If you use Dynamic IP and PPPoE and you are provided with any other parameters that are not required on the page, please go to Advanced > Network > Internet to complete the configuration.
3. If you still cannot access the Internet, refer to the *FAQ* for further instructions.

4. 3. Set Up an IPv6 Internet Connection

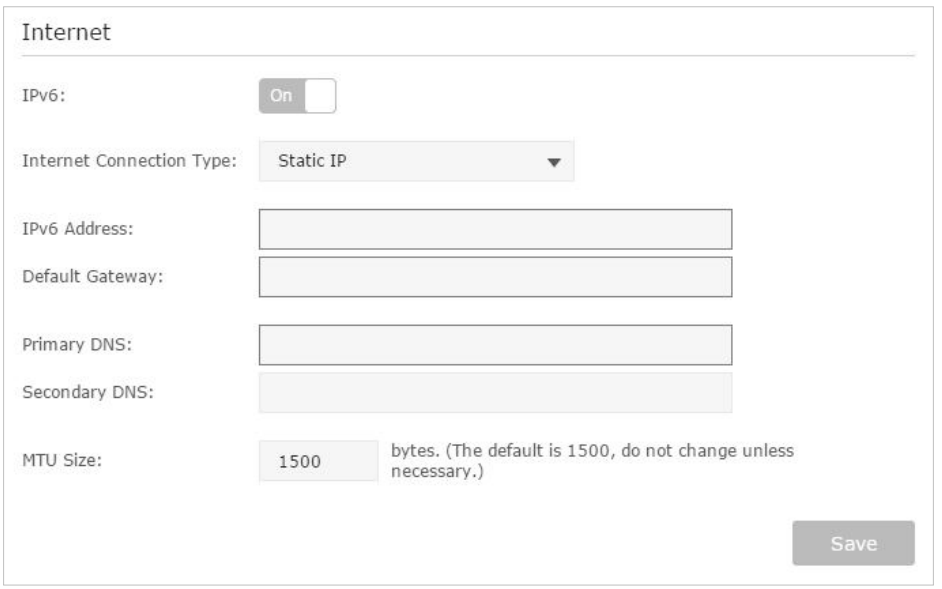
Your ISP provides information about one of the following IPv6 Internet connection types: PPPoE, Dynamic IP(SLAAC/DHCPv6), Static IP, 6to4 tunnel, Pass-Through (Bridge).

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > IPv6. Select the Internet connection type provided by your ISP.

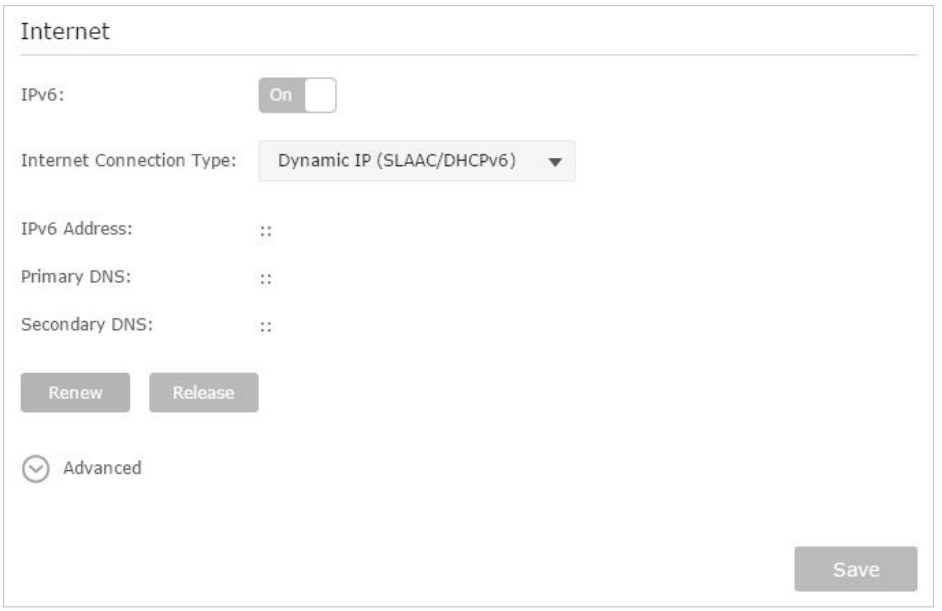


Tips:
If you do not know what your Internet connection type is, contact your ISP or judge according to the already known information provided by your ISP.

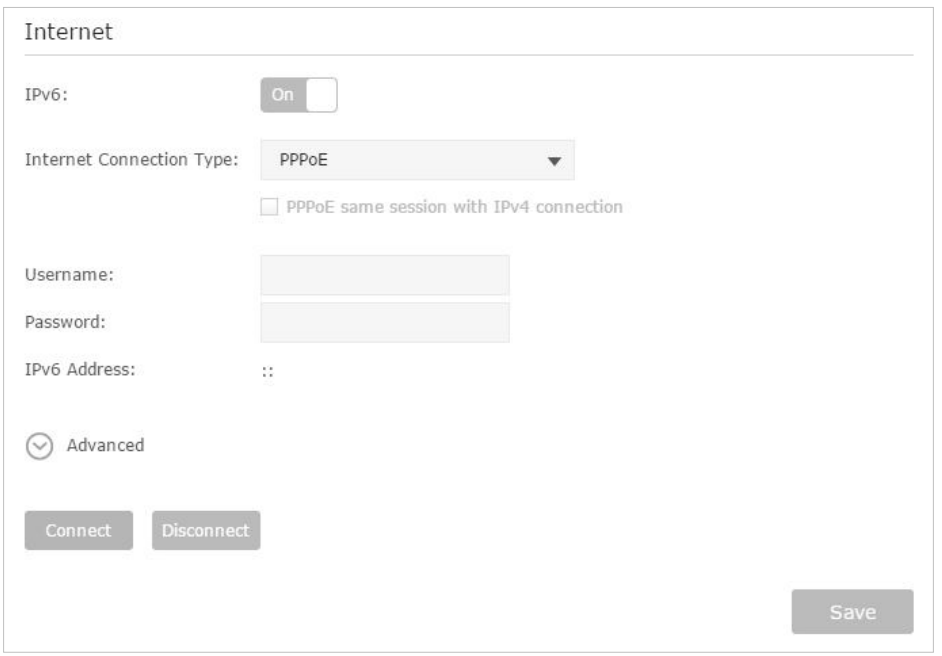
3. Fill in information as required by different connection types. Red blanks must be filled in.
   1) Static IP: Fill in blanks and click Save.



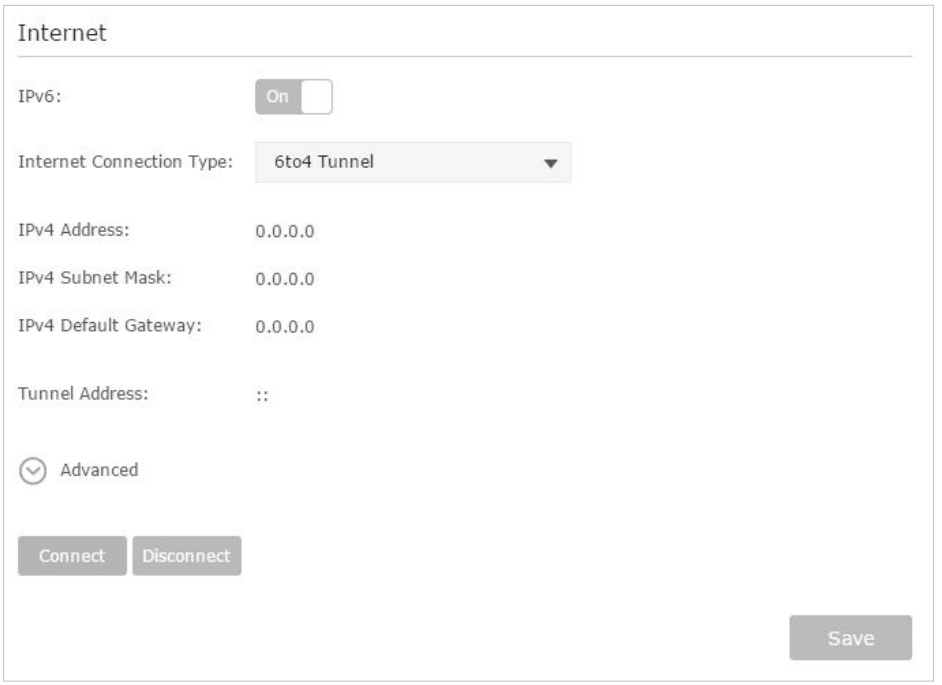
2) Dynamic IP(SLAAC/DHCPv6): Click Advanced to do more configuration if your ISP requires. Click Save and then click Renew to finish the configuration.



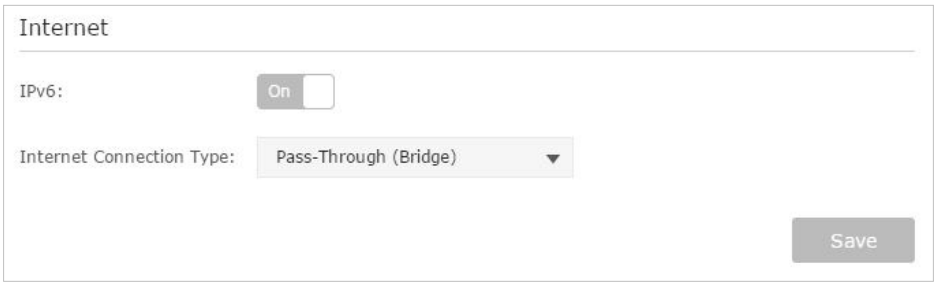
3) PPPoE: Fill in the Username and Password. Click Advanced to do more configuration if your ISP requires. Click Save and then click Connect to finish the configuration.



4) 6to4 Tunnel: An IPv4 Internet connection type is a prerequisite for this connection type (*Manually Set up Your Internet Connection*). Click Advanced to do more configuration if your ISP requires. Click Save and then click Connect to finish the configuration.



5) Pass-Through (Bridge): Click Save and skip to step 6.



4. Configure LAN ports. Windows users are recommended to choose from the first two types. Fill in Address Prefix provided by your ISP, and click Save.

Tips:
Find Help on the management interface to know more about the items.



5. Click Status to check whether you have successfully set up an IPv6 connection. The following figure is an example of a successful PPPoE configuration.



Tips:
Visit the *FAQ* if there is no Internet connection.

Chapter *5*

Guest Network

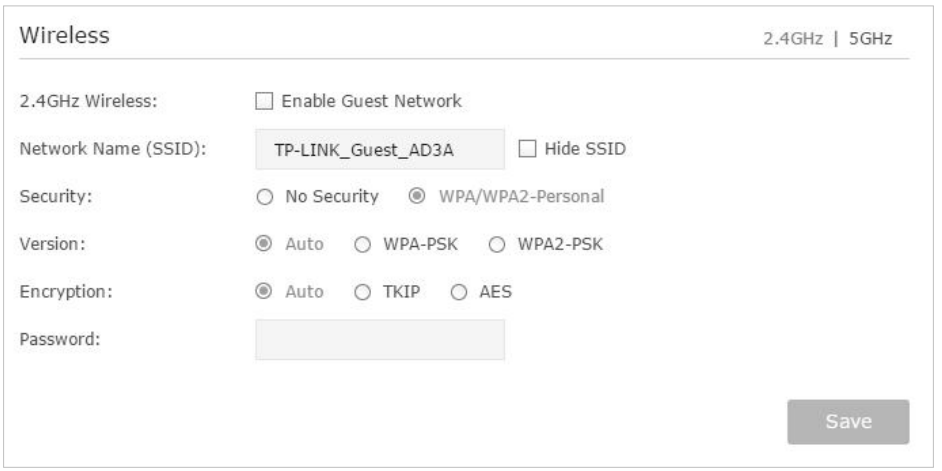
This function allows you to provide Wi-Fi access for guests without disclosing your main network. When you have guests in your house, apartment, or workplace, you can create a guest network for them. In addition, you can customize guest network options to ensure network security and privacy.

This chapter contains the following sections:

- *Create a Network for Guests*
- *Customize Guest Network Options*

5. 1. Create a Network for Guests

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Guest Network. Locate the Wireless section.
3. Create a guest network as needed.
   1) Enable 2.4GHz Wireless network or 5GHz Wireless network.
   2) Customize the SSID. Don't select Hide SSID unless you want your guests to manually input the SSID for guest network access.
   3) Set Security to WPA/WPA2 Personal, keep the default Version and Encryption values, and customize your own password.



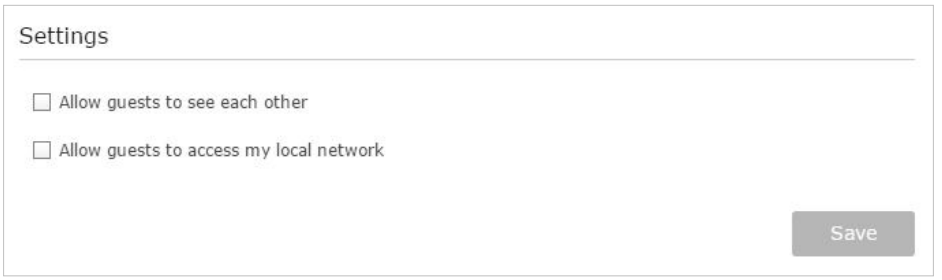
4. Click Save. Now your guests can access your guest network using the SSID and password you have set!

Tips:

To view the guest network information, go to Advanced > Status and locate the Guest Network section.

5. 2. Customize Guest Network Options

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Guest Network. Locate the Settings section.
3. Customize guest network options as needed.



- Allow guests to see each other

Select this checkbox if you want to allow the wireless clients on your guest network to communicate with each other via methods such as network neighbors and Ping.

- Allow guests to access my local network

Select this checkbox if you want to allow the wireless clients on your guest network to communicate with the devices connected to your router's LAN ports or main network via methods such as network neighbors and Ping.

4. Click Save. Now you can ensure network security and privacy!

Tips:

To view guest network information, go to Advanced > Status and locate the Guest Network section.

Chapter *6*

USB Application

This chapter describes how to share and access USB devices connected to the router among different clients. The router only supports USB external flash drives, hard drives and USB printers.

This chapter contains the following sections:

- *Local Storage Sharing*
- *Remote Access via FTP Serverr*
- *Media Sharing*
- *Printer Sharing*

6. 1. Local Storage Sharing

Share your USB storage devices with different users on the network.

6. 1. 1. Access the USB disk

1. Connect Your USB Disk

Insert your USB storage device into the router's USB port directly or using a USB cable. Wait several seconds until the USB LED becomes solid on.

Tips:

- If you use USB hubs, make sure no more than 4 devices are connected to the router.
- If the USB storage device requires using bundled external power, make sure the external power has been connected.
- If you use a USB hard drive, make sure its file system is FAT32 or NTFS.
- Before you physically disconnect a USB device from the router, safely remove it to avoid data damage: Go to Advanced > USB Settings > Device Settings and click Safely Remove.

2. Access Your USB Disk

By default, all the network clients can access all folders on your USB disk. Refer to the following table for access instructions. You can also customize your sharing content and set a sharing account by referring to *Customize Your Settings*.

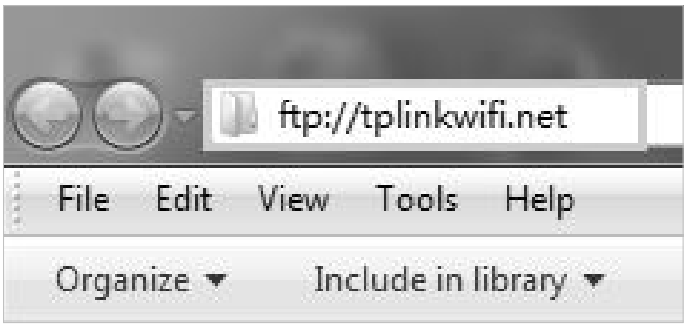
Windows computer

➢ **Method 1:**

Go to Computer > Network, then click the Network Server Name (*Model number*-share by default) in the Computer section.

Note:
Operations in different systems are similar. Here we take Windows 7 as an example.



<table>
<tr><td>Windows computer</td><td>➢ Method 2:
Open the Windows Explorer (or go to Computer), type the server address \\tplinkwifi.net or ftp://tplinkwifi.net in the address bar, and then press [Enter].

</td></tr>
<tr><td>Mac</td><td>1) Select Go > Connect to Server.
2) Type the server address smb://tplinkwifi.net.
3) Click Connect.


4) When prompted, select the Guest radio box. (If you have set up a username and password to deny anonymous access to the USB disks, you should select the Registered User radio box. To learn how to set up an account for the access, refer to To Set up Authentication for Data Security.)</td></tr>
<tr><td>pad</td><td>Use a third-party app for network files management.</td></tr>
</table>

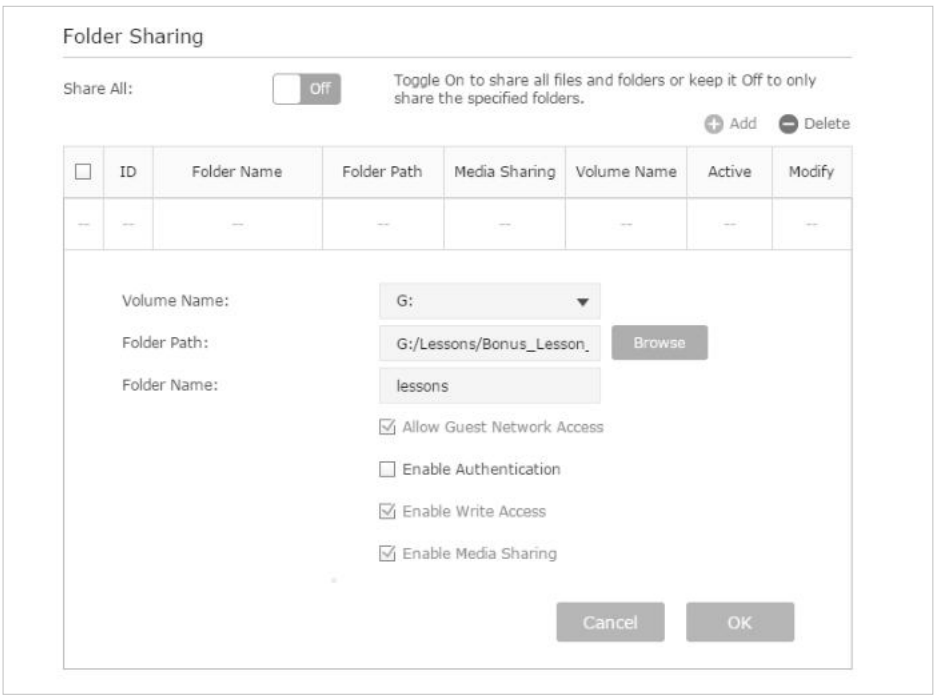
Tips:
You can also access your USB disk by using your Network/Media Server Name as the server address. Refer to *To Customize the Address of the USB Disk* to learn more.

6. 1. 2. Customize Your Settings

➢ **To Only Share Specific Content**

By default, Share All is enabled so all contents on the USB disk is shared. If you want to only share specific folders, follow the steps below:

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Select Basic > USB Settings > Sharing Access. Focus on the Folder Sharing section. Click the button to disable Share All, and click Add to add a new sharing folder.



3. Select the Volume Name and Folder Path, and then enter a Folder Name as needed.
4. Decide the way you share the folder:
   - Allow Guest Network Access: If you tick this check box, guest network users can access the folder.
   - Enable Authentication: If you tick this check box, you will be required to use a username and password to access the folder. Refer to *To Set up Authentication for Data Security* to learn more.
   - Enable Write Access: If you tick this check box, network clients can modify the folder.
   - Enable Media Sharing: If you tick this check box, you can view photos, play music and watch movies in the folder directly with DLNA-supported devices. Click *Media Sharing* to learn more.
5. Click OK.

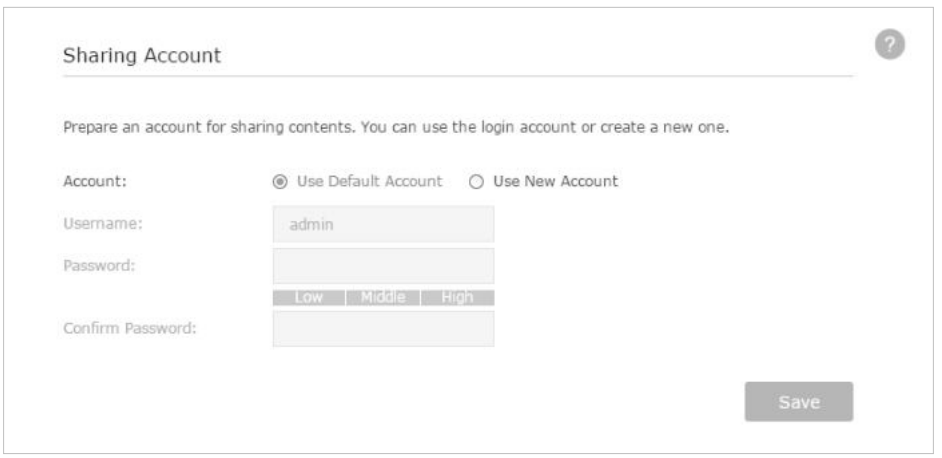
Tips:
The router can share 32 volumes at most. You can click on the page to detach the corresponding volume you do not need to share.



➢ To Set up Authentication for Data Security

If you enable Authentication, network clients will be required to enter the username and password you set when accessing the USB disk.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Select Advanced > USB Settings > Sharing Access. Focus on the Sharing Account section.

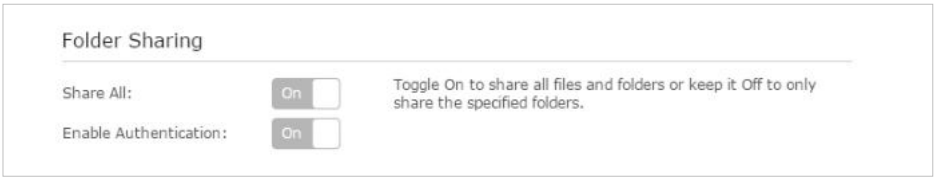


3. Choose Use Default Account (admin) or Use New Account and click Save.

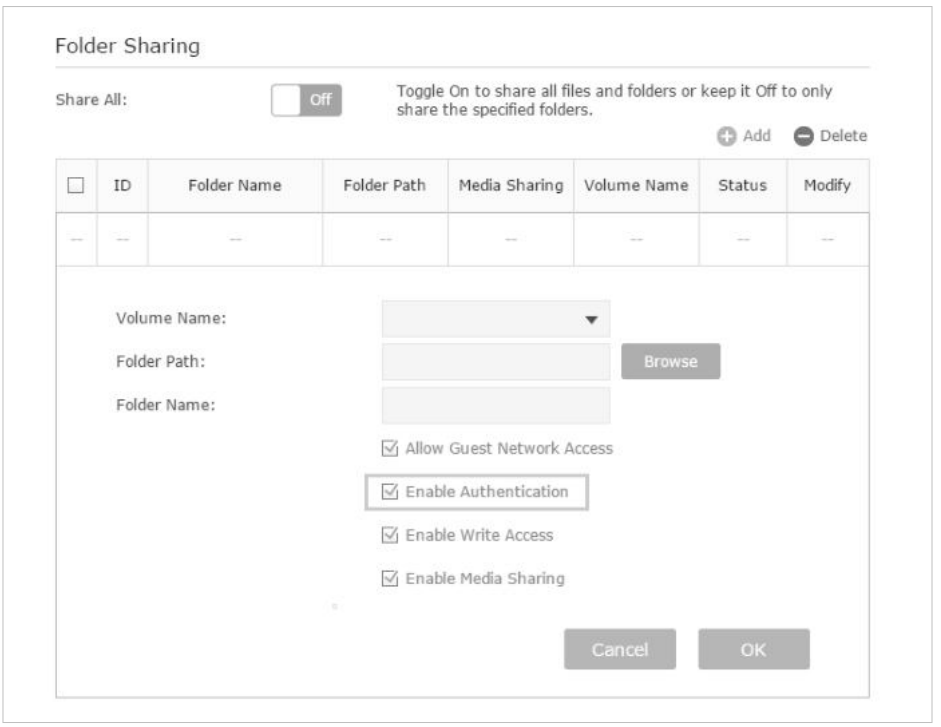
Note:
For Windows users, do not set the sharing username the same as the Windows username. Otherwise, Windows credential mechanism may cause the following problems:

- If the sharing password is also the same as the Windows password, authentication will not work since the Windows will automatically use its account information for USB access.
- If the sharing password is different from the Windows password, the Windows will be unable to remember your credentials and you will always be required to enter the sharing password for USB access.

4. Enable Authentication to apply the account you just set.
   - If you leave Share All enabled, click the button to enable Authentication for all folders.



- If Share All is disabled, enable Authentication for specific folders.



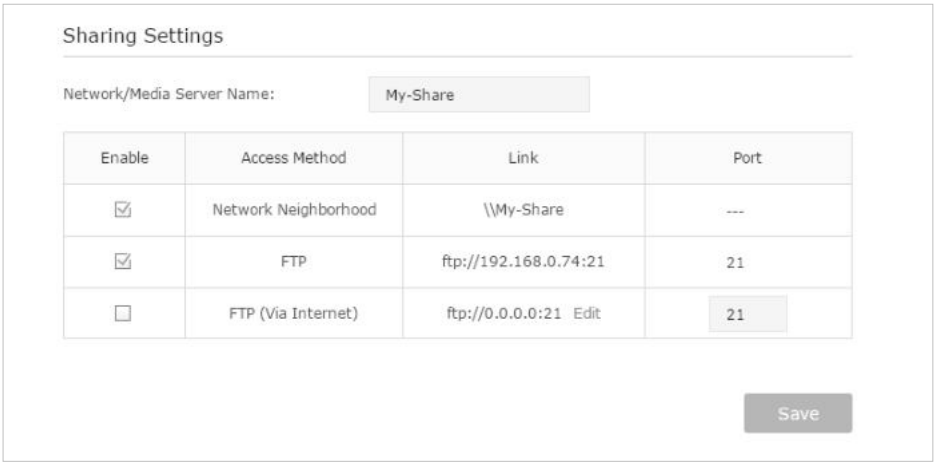
Note:

Due to Windows credential mechanism, you might be unable to access the USB disk after changing Authentication settings. Please log out from Windows and try to access again. Or you can change the address of the USB disk by referring to *To Customize the Address of the USB Disk*.

➢ To Customize the Address of the USB Disk

You can customize the server name and use the name to access your USB disk.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Select Advanced > USB Settings > Sharing Access. Focus on the Sharing Settings section.
3. Make sure Network Neighborhood is ticked, enter a Network/Media Server Name as you like, such as My-Share, and then click Save.



4. Now you can access the USB disk by visiting \\My-Share (for Windows) or smb://My-Share (for Mac).

6. 2. Remote Access via FTP Server

You can access your USB disk outside the local area network.

For example:

- Share photos and other large files with your friends without logging in to (and paying for) a photo-sharing site or email system.
- Get a safe backup for the materials for a presentation.
- Store the files on your camera's memory card from time to time during the journey.

Note:

If your ISP assigns a private WAN IP address (such as 192.168.x.x or 10.x.x.x), you cannot use this feature because private addresses are not routed on the Internet.

6. 2. 1. Access the USB Disk

1. Connect Your USB Disk

Insert your USB storage device into the router's USB port directly or using a USB cable. Wait several seconds until the USB LED becomes solid on.

Tips:

- If you use USB hubs, make sure no more than 4 devices are connected to the router.
- If the USB storage device requires using bundled external power, make sure the external power has been connected.
- If you use a USB hard drive, make sure its file system is FAT32, exFat, NTFS or HFS+.
- Before you physically disconnect a USB device from the router, safely remove it to avoid data damage: Select Advanced > USB Settings > Device Settings and click Safely Remove.

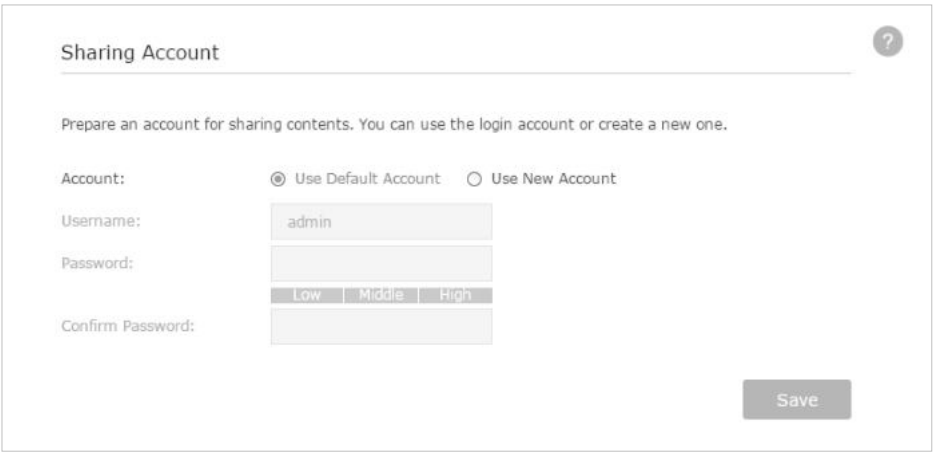
2. Enable Authentication for Data Security

It is strongly recommended that you set and apply a sharing account for data security.

1) Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.

2) Select Advanced > USB Settings > Sharing Access.

3) Choose Use default Account (admin) or Use New Account and click Save.



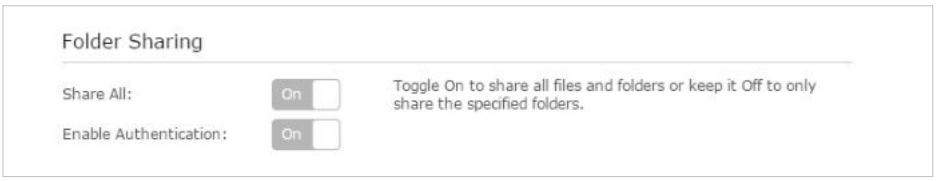
Note:

For Windows users, do not set the sharing username the same as the Windows username. Otherwise, Windows credential mechanism may cause the following problems:

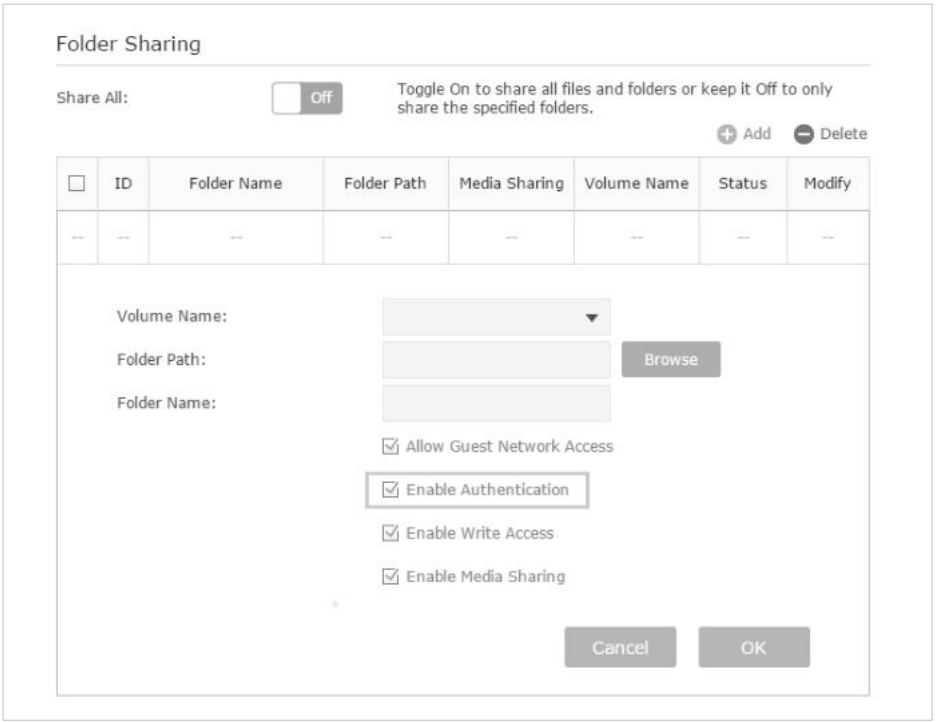
- If the sharing password is also the same as the Windows password, authentication will not work since the Windows will automatically use its account information for USB access.
- If the sharing password is different from the Windows password, the Windows will be unable to remember your credentials and you will always be required to enter the sharing password for USB access.

4) Enable Authentication to apply the sharing account.

- If you leave Share All enabled, click the button to enable Authentication for all folders.



- If Share All is disabled, enable Authentication for specific folders.

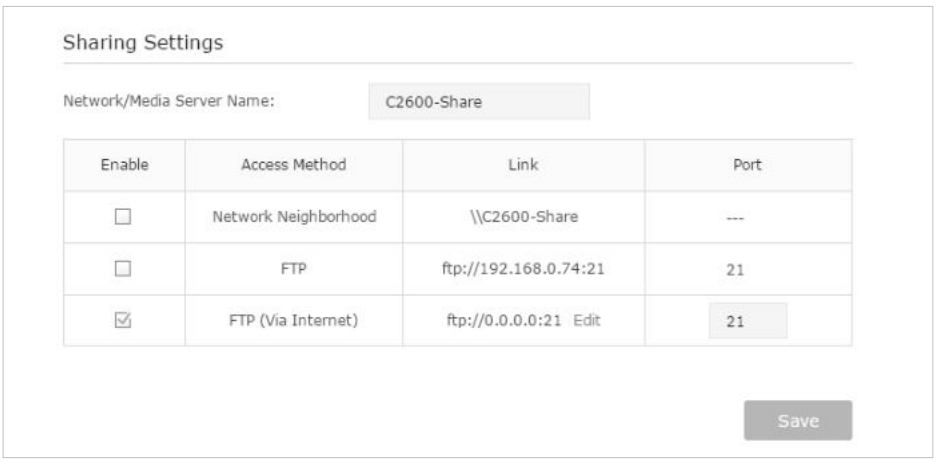


Note:

Due to Windows credential mechanism, you might be unable to access the USB disk after changing Authentication settings. Please log out from Windows and try to access again.

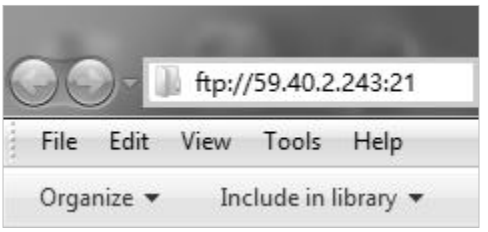
3. Enable the FTP (via Internet)

Select the check box to enable FTP(via Internet), and then click Save.



4. Access Your USB Disk via Internet

Now different clients with Internet connection can access the USB disk:

Computer	1) Open the Windows Explorer (or go to Computer, only for Windows users) or open a web browser. 2) Type the server address in the address bar: Type in ftp://<WAN IP address of the router>:<port number> (such as ftp://59.40.2.243:21). If you have specified a domain name for the router, you can also type in ftp://<domain name>:<port number> (such as ftp://MyDomainName:21)  The Address Bar the Windows Explorer (Windows 7) 3) Press [Enter]. 4) Access with the username and password you set in Step 2 *Enable Authentication for Data Security*. **Tips:** You can also access the USB disk via a third-party app for network files management, which can resume broken file transfers.
Pad	Use a third-party app for network files management.

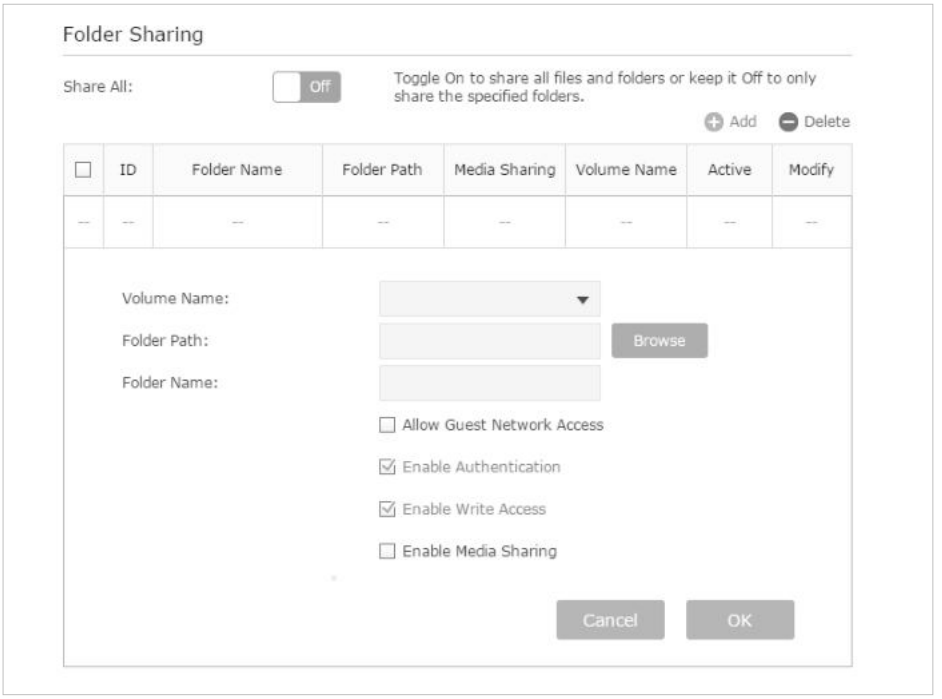
Tips:
Click *Set Up a Dynamic DNS Service Account* to learn how to set up a domain name for you router.

6. 2. 2. Customize Your Settings

➢ **To Only Share Specific Content**

By default, Share All is enabled so all contents on the USB disk is shared. If you want to only share specific folders, follow the steps below:

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Select Basic > USB Settings > Sharing Access. Focus on the Folder Sharing section. Click the button to disable Share All, and then click Add to add a new sharing folder.



3. Select the Volume Name and Folder Path, and specify the Folder Name as needed.
4. Tick Enable Authentication. If you allow network clients to modify this folder, tick Enable Write Access.
5. Click OK.

Tips:
The router can share 32 volumes at most. You can click on the page to detach the corresponding volume you do not need to share.



6. 3. Media Sharing

The Media Sharing feature allows you to view photos, play music and watch movies stored on the USB disk directly with DLNA-supported devices, such as your computer, pad and PS2/3/4.

6. 3. 1. Access the USB Disk

1. Connect Your USB Disk

Insert your USB storage device into the router's USB port directly or using a USB cable. Wait several seconds until the USB LED becomes solid on.

Tips:

- If you use USB hubs, make sure no more than 4 devices are connected to the router.
- If the USB storage device requires using bundled external power, make sure the external power has been connected.
- If you use a USB hard drive, make sure its file system is FAT32, exFat, NTFS or HFS+.
- Before you physically disconnect a USB device from the router, safely remove it to avoid data damage: Go to Advanced > USB Settings > Device Settings and click Safely Remove.

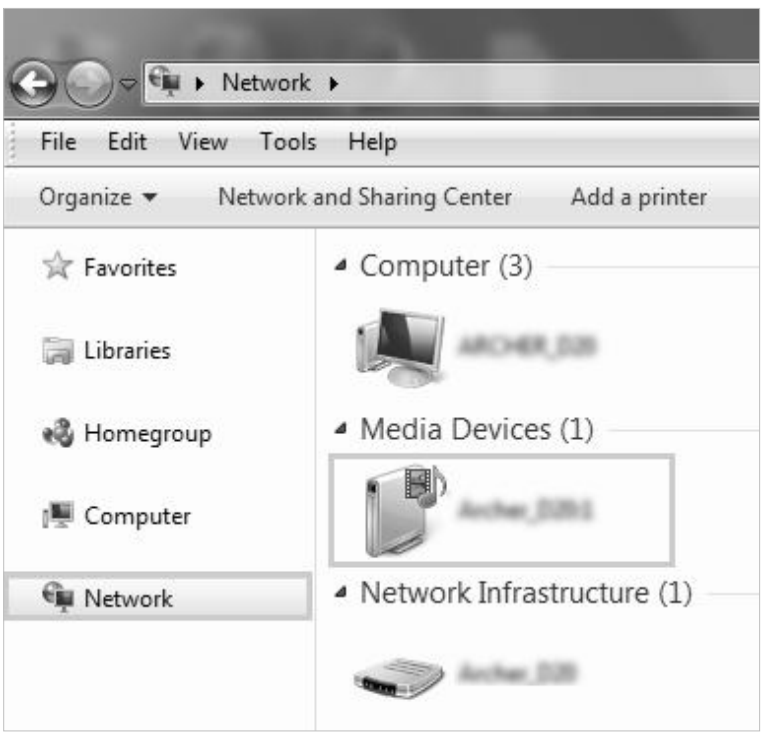
2. Access the Media Files on Your USB Disk

Now the DLNA-supported devices (such as your computer and pad) connected to the router can detect and play the media files on the USB disk.

Windows computer

- Go to Computer > Network, and click the Media Server Name (*Model number-share* by default) in the Media Devices section.

Note:
Here we take Windows 7 as an example.



Pad

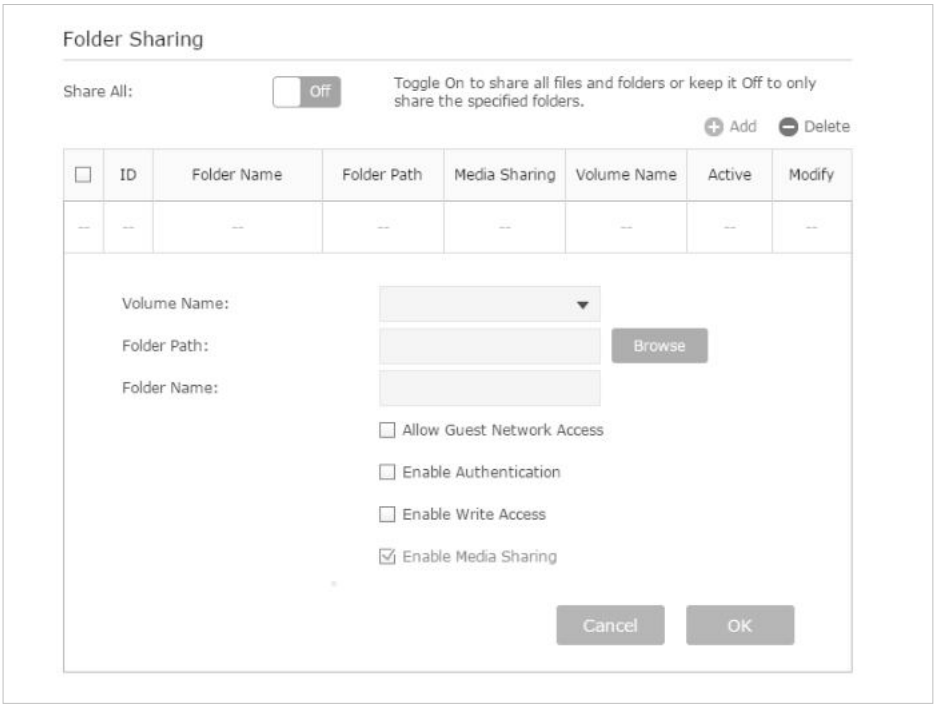
- Use a third-party DLNA-supported player.

6. 3. 2. Customize Your Settings

➢ **To Only Share Specific Content**

By default, Share All is enabled so all contents on the USB disk is shared. If you want to only share specific folders, follow the steps below:

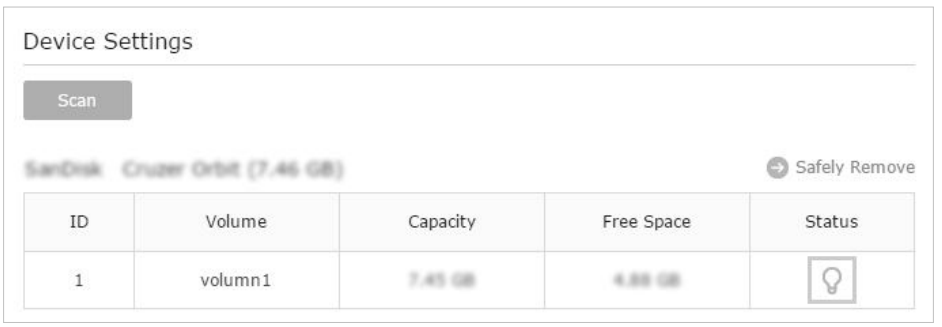
1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Select Basic > USB Settings > Sharing Access.
3. Focus on the section of Folder Sharing. Click the button to disable Share All, and click Add to add a new sharing folder.



4. Select the Volume Name and Folder Path, then enter a Folder Name as you like.
5. Tick Enable Media Sharing and click OK.

Tips:

The router can share 32 volumes at most. You can click on the page to detach the corresponding volume you do not need to share.



6. 4. Printer Sharing

The Printer Sharing feature helps you share a printer with different computers connected to the router.

Note:
Printers unlisted on this page may be incompatible with the router:
http://www.tp-link.com/common/compatible/print-server/.

1. **Install the Driver of the Printer**

   Make sure you have installed the driver of the printer on each computer that needs printer service.

   If you do not have the driver, contact the printer manufacturer.

2. **Connect the Printer**

   Connect a printer to the USB port via the provided USB cable of the printer. Wait several seconds until the USB LED becomes solid on.

3. **Install the TP-LINK USB Printer Controller Utility**

   The TP-LINK USB Printer Controller Utility helps you access the shared printer. Download and install the utility on each computer that needs printer service.

   1) Visit *http://www.tp-link.com/app/usb/*.

   2) Click PC Utility (for Windows users) or Mac Utility to download the installation file and uncompress it.



   3) Open the uncompressed folder, and click TP-LINK USB Printer Controller Setup (for Windows users) or TP-Link UDS Printer Controller Installer (for Mac users) to install the utility.

4. **Access the Printer**

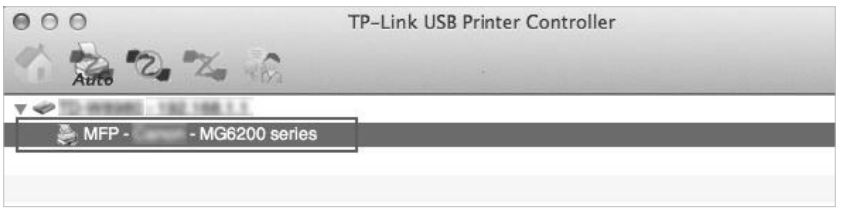
   You should set the shared printer as Auto-Connect Printer on every computer that needs printer service.

   1) Double-click the icon  on your desktop to launch the USB Printer Controller.

   2) Highlight the printer you share.



Windows

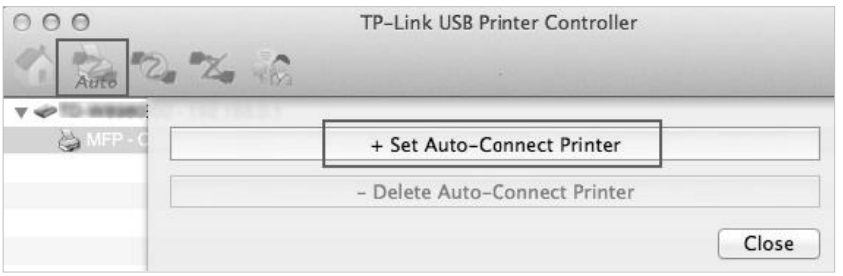


Mac

3) Click the Auto-Connect for printing tab to pull down a list, and select Set Auto-Connect Printer.

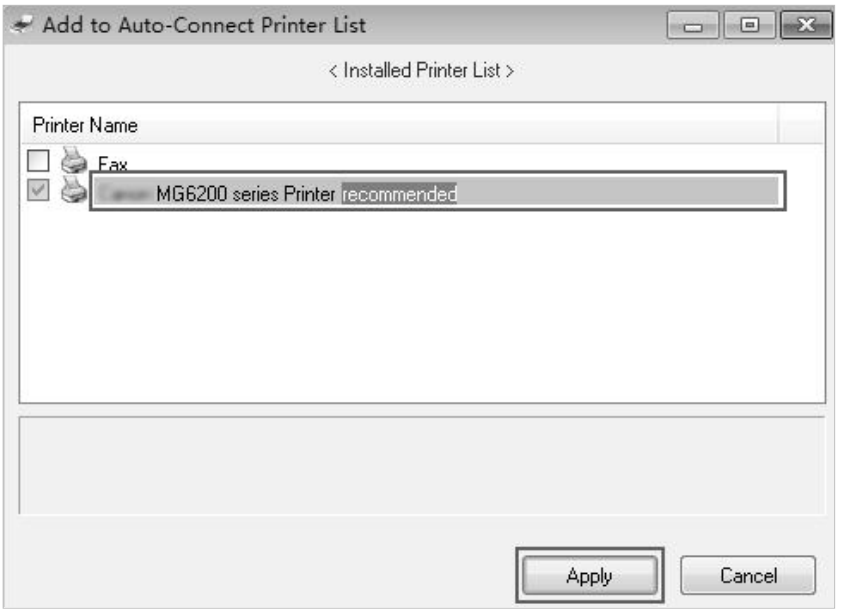


Windows

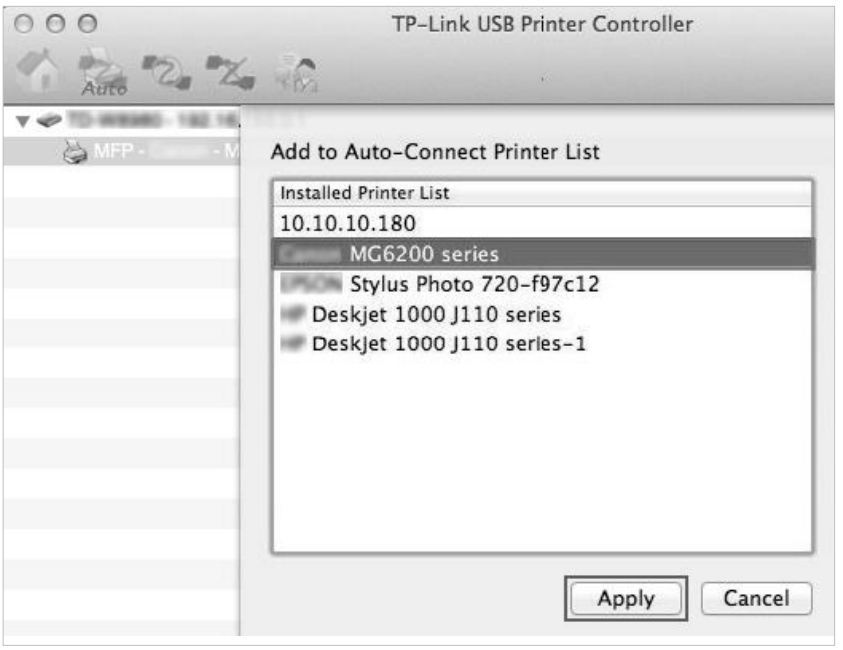


Mac

4) Select the printer you share, and click Apply.



Windows

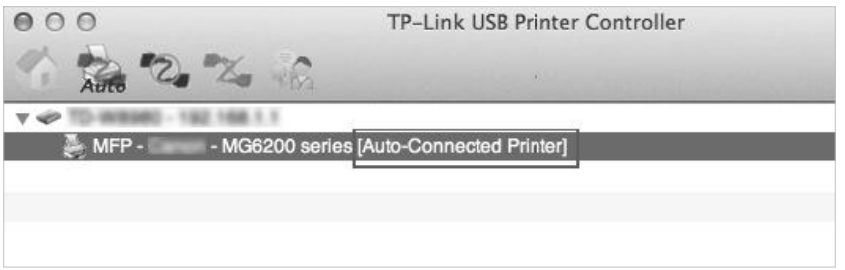


Mac

5) You will see the printer marked as Auto-Connect Printer. Now you can print with this printer.



Windows



Mac

Tips:

The Print Server also allows different clients to share the scan feature of MFPs (Multi-Function Printers). To scan with TP-LINK USB Printer Controller, right-click the printer and select Network Scanner. Then a scanning window will pop up. Finish the scanning process by following on-screen instructions.

Chapter *7*

Parental Controls

This function allows you to block inappropriate, explicit and malicious websites, and controls access to specified websites during specified time.

I want to:

Control the time during which my children or other home network users are allowed to access the Internet and even the types of websites they can visit.

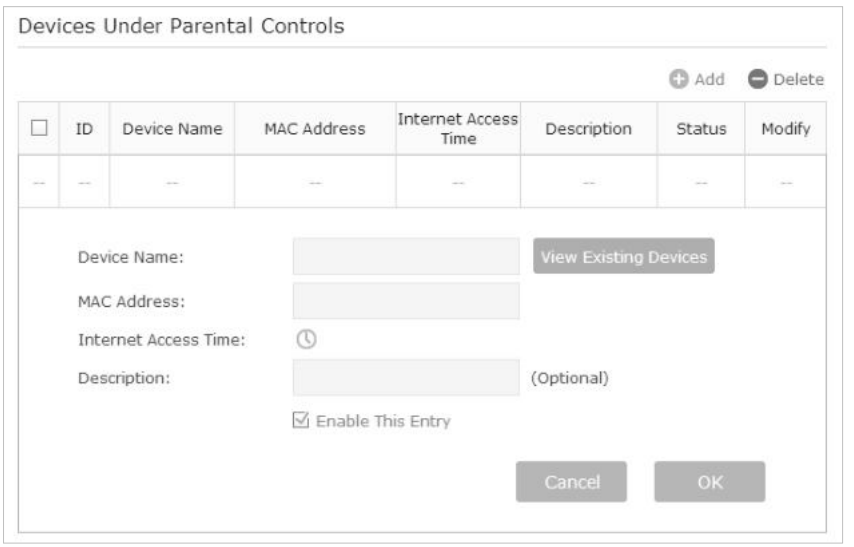
For example, I want to allow my children's devices (e.g. a computer or a tablet) to access only *www.tp-link.com* and *Wikipedia.org* from 18:00 (6PM) to 22:00 (10PM) at the weekend and not other times.

How can I do that?

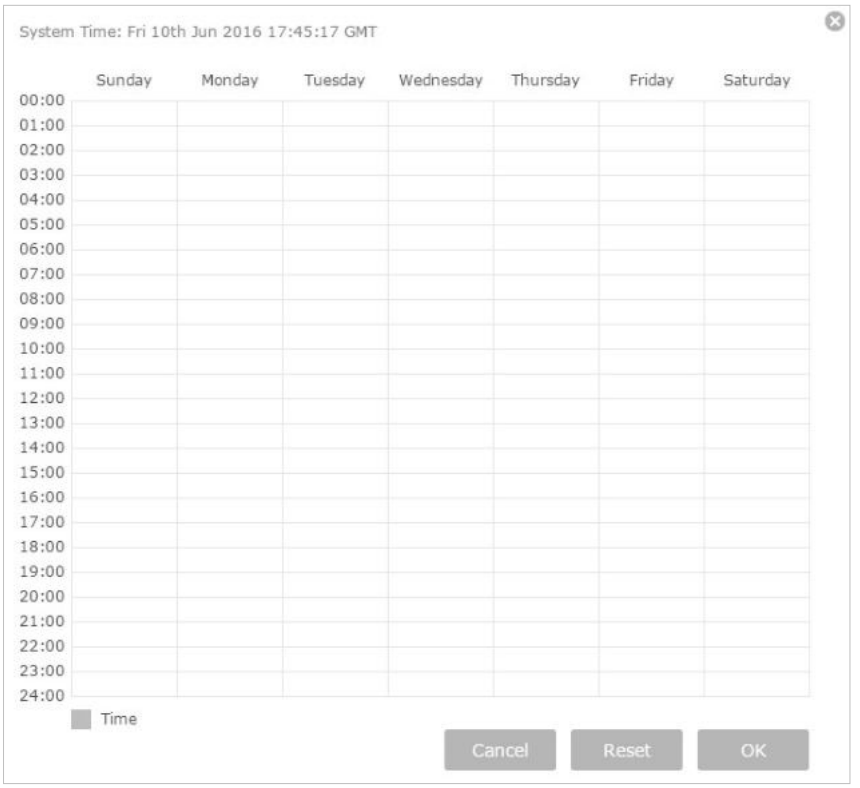
1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Parental Controls and enable Parental Controls.



3. Click Add. Then Click View Existing Devices, and select the access device. Or input the Device Name and MAC Address manually.



4. Click the icon to set the Internet Access Time. Drag the cursor over the appropriate cell(s) and click OK.



5. Enter a Description for the entry. Keep the Enable This Entry checkbox selected. Click OK.

6. Select Whitelist as the restriction policy.



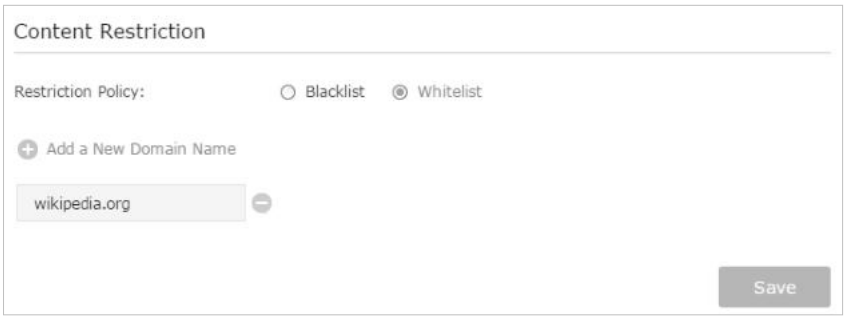
Tips:

1. With Blacklist selected, the controlled devices cannot access any websites containing the specified keywords during the Internet Access Time period.
2. With Whitelist selected, the controlled devices can only access websites containing the specified keywords during the Internet Access Time period.

7. Click Add a New Domain Name. Enter a domain name and click Save.

   You can add up to 32 keywords for either Blacklist or Whitelist. Below are some sample entries to allow access.

   - For Whitelist, enter a web address (e.g. wikipedia.org) to only allow access only to the related website. If you want to block all Internet browsing access, do not add any content to the Whitelist.
   - For Blacklist, specify a web address (e.g. wikipedia.org), a web address keyword (e.g. wikipedia) or a domain suffix (e.g. .edu or .org) to block access only to the websites with that keyword.



Done! Now you can control your children's Internet access as needed.

Chapter *8*

QoS

This chapter introduces how to create a QoS (Quality of Service) rule to specify prioritization of traffic and minimize the impact caused when the connection is under heavy load.

This chapter contains the following sections:

- *Prioritize Internet Traffic with QoS*
- *Update the Database*

8. 1. Prioritize Internet Traffic with QoS

QoS (Quality of Service) is designed to ensure the efficient operation of the network when coming across network overload or congestion.

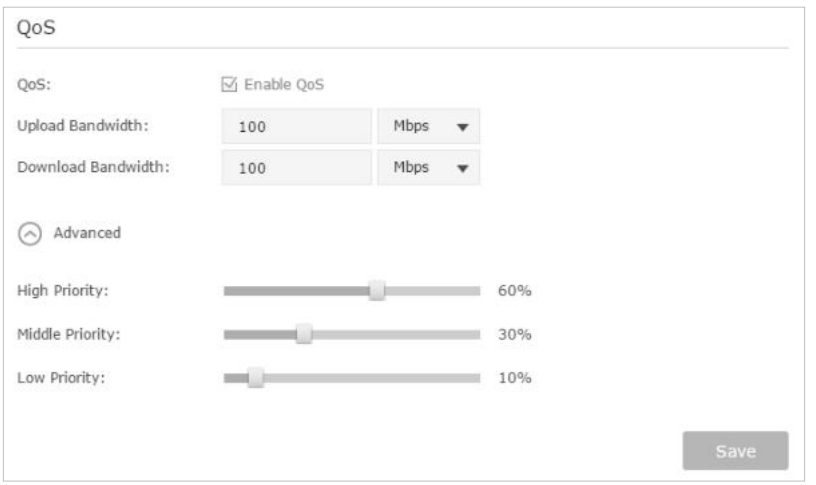
I want to:

Specify priority levels for some devices or applications.

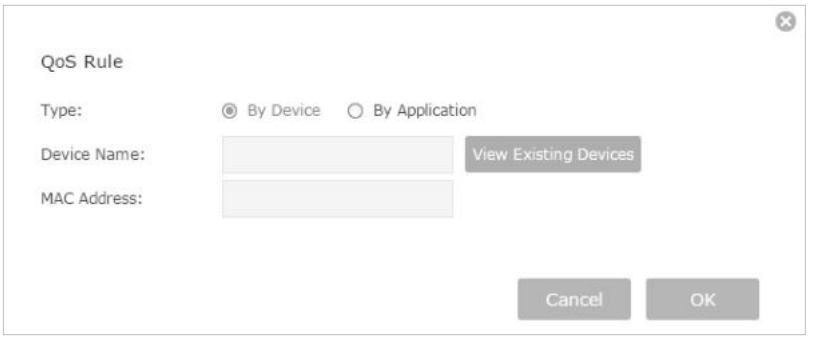
For example, I have several devices that are connected to my wireless network. I would like to set an intermediate speed on the Internet for my phone.

How can I do that?

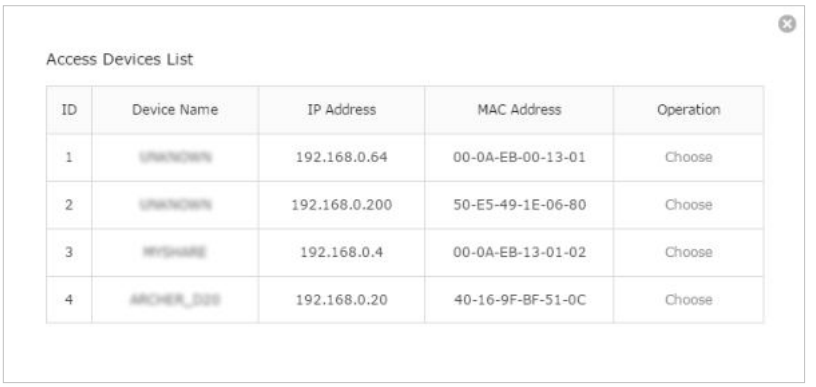
1. Enable QoS and set bandwidth allocation.
   1) Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
   2) Go to Advanced > QoS > Settings.
   3) Select Enable QoS.
   4) Input the maximum upload and download bandwidth provided by your service provider. 1Mbps is equal to 1000Kbps.
   5) Click Advanced and drag the scroll bar to set the bandwidth priority percentage.
   6) Click Save.



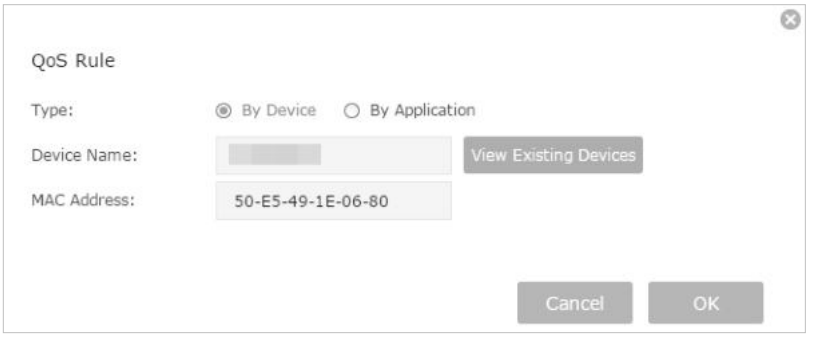
2. Add a middle priority QoS rule for the phone.
   1) Select By Device and then click View Existing Devices.



2) Choose the respective device from the list.



3) Click OK.



3. Refer to the steps above to apply other QoS rules if any.

Done! Now QoS is implemented to Prioritize Internet Traffic.

8. 2. Update the Database

This function can help to add or update the applications the router supports. If the applications you need are not listed on the Application list, you can try to download the new version and upgrade the list. New database versions are posted at *www.tp-link.com* and can be downloaded for free.

1. Download the latest QoS database from our website (*www.tp-link.com*).

2. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
3. Go to Advanced > QoS > Database. Click Browse to select the database upgrade file, and then click Upgrade. Wait until the upgrade is completed and do not operate during the process.



Chapter *9*

Network Security

This chapter guides you on how to protect your home network from cyber attacks and unauthorized access by implementing these three network security functions. You can protect your home network against DoS (Denial of Service) attacks from flooding your network with server requests using DoS Protection, block or allow specific client devices to access your network using Access Control, or you can prevent ARP spoofing and ARP attacks using IP & MAC Binding.

This chapter contains the following sections:

- *Protect the Network from Cyber Attacks*
- *Access Control*
- *IP & MAC Binding*

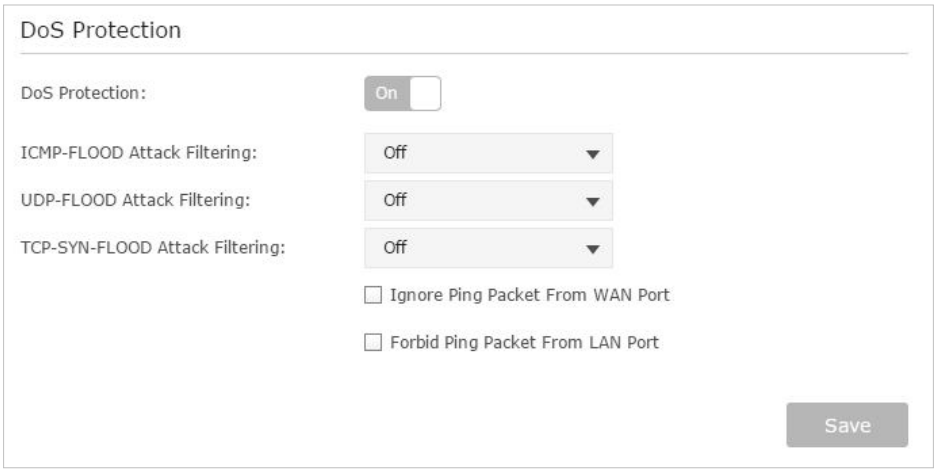
9. 1. Protect the Network from Cyber Attacks

The SPI (Stateful Packet Inspection) Firewall and DoS (Denial of Service) Protection protect the router from cyber attacks.

The SPI Firewall can prevent cyber attacks and validate the traffic that is passing through the router based on the protocol. This function is enabled by default, and it's recommended to keep the default settings.

DoS Protection can protect your home network against DoS attacks from flooding your network with server requests. Follow the steps below to configure DoS Protection.

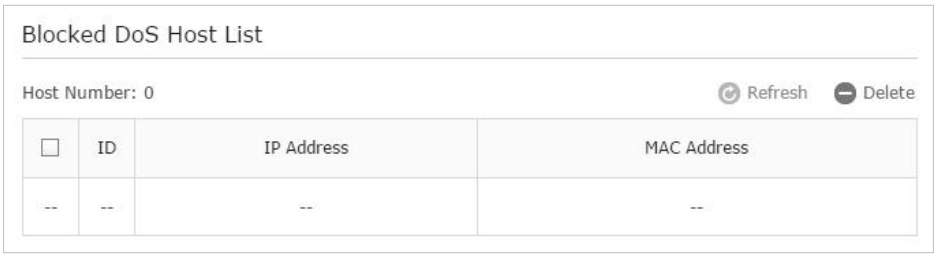
1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Security > Settings.



3. Enable DoS Protection.
4. Set the level (Off, Low, Middle or High) of protection for ICMP-FLOOD Attack Filtering, UDP-FlOOD Attack Filtering and TCP-SYN-FLOOD Attack Filtering.
   - ICMP-FLOOD Attack Filtering - Enable to prevent the ICMP (Internet Control Message Protocol) flood attack.
   - UDP-FlOOD Attack Filtering - Enable to prevent the UDP (User Datagram Protocol) flood attack.
   - TCP-SYN-FLOOD Attack Filtering - Enable to prevent the TCP-SYN (Transmission Control Protocol-Synchronize) flood attack.

   Tips:

   The level of protection is based on the number of traffic packets. The protection will be triggered immediately when the number of packets exceeds the preset threshold value (the value can be set on Advanced > System Tools > System Parameters > DoS Protection Level Settings), and the vicious host will be displayed in the Blocked DoS Host List.



5. If you want to ignore the ping packets from the WAN port, select Ignore Ping Packet From WAN Port; if you want to ignore the ping packets form the LAN port, select Ignore Ping Packet From LAN Port.
6. Click Save.

9. 2. Access Control

Access Control is used to block or allow specific client devices to access your network (via wired or wireless) based on a list of blocked devices (Blacklist) or a list of allowed devices (Whitelist).

I want to:

Block or allow specific devices to access my network (via wired or wireless).

How can I do that?

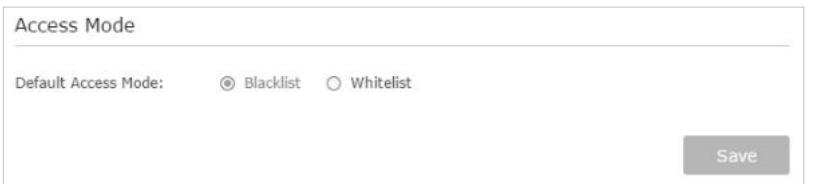
1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Security > Access Control.
3. Enable Access Control.



4. Select the access mode to either block (recommended) or allow the device(s) in the list.

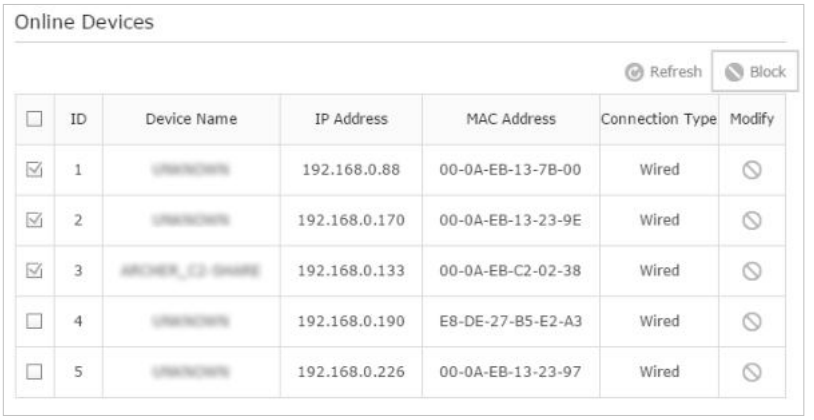
   To block specific device(s)

   1) Select Blacklist and click Save.



   2) Select the device(s) to be blocked in the Devices Online table by ticking the box.

3) Click Block above the Online Devices table. The selected devices will be added to Devices in Blacklist automatically.

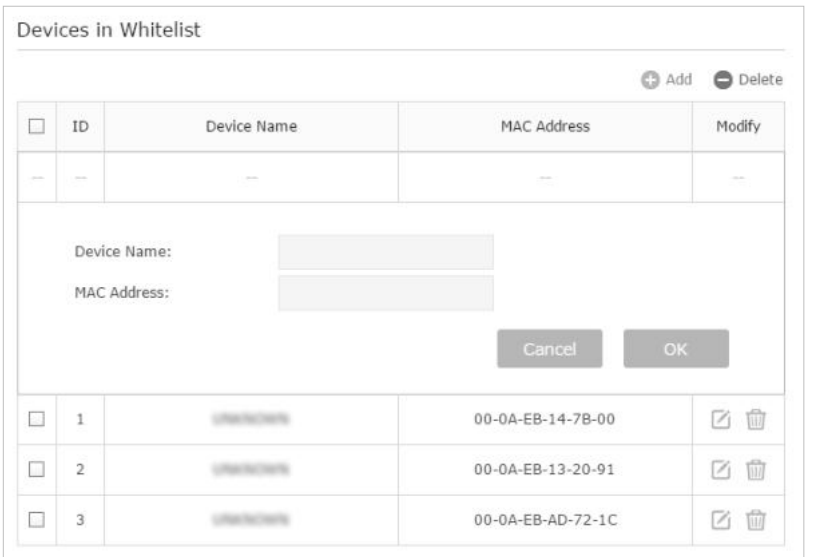


To allow specific device(s)

1) Select Whitelist and click Save.



2) Click Add in the Devices in Whitelist section. Enter the Device Name and MAC Address (you can copy and paste the information from the Online Devices list if the device is connected to your network).



3) Click OK.

Done!

Now you can block or allow specific client devices to access your network (via wired or wireless) using the Blacklist or Whitelist.

9. 3. IP & MAC Binding

IP & MAC Binding, namely, ARP (Address Resolution Protocol) Binding, is used to bind network device's IP address to its MAC address. This will prevent ARP Spoofing and other ARP attacks by denying network access to a device with a matching IP address in the Binding list, but an unrecognized MAC address.

I want to:

Prevent ARP spoofing and ARP attacks.

How can I do that?

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Security > IP & MAC Binding.
3. Enable ARP Binding.



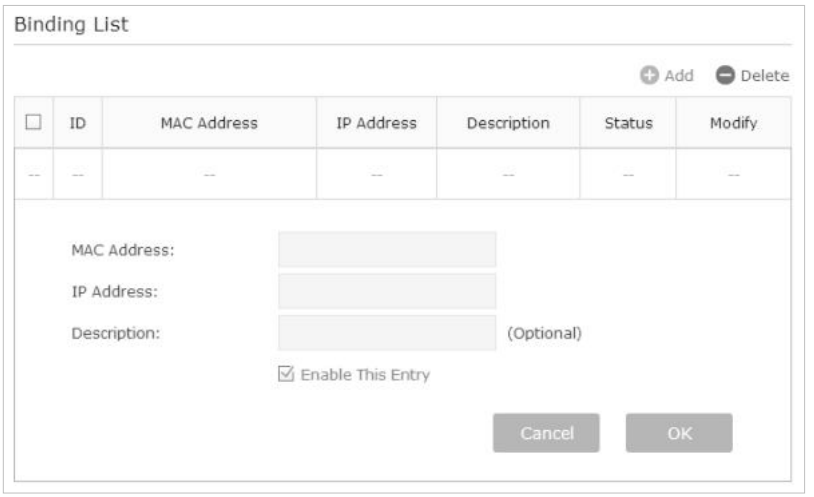
4. Bind your device(s) according to your need.

   To bind the connected device(s):

   Click to add the corresponding device to the Binding List.

   To bind the unconnected device

   1) Click Add in the Binding List section.



   2) Enter the MAC address and IP address that you want to bind. Enter a Description for this binding entry.

   3) Tick the Enable This Entry check box and click OK.

Done!

Now you don't need to worry about ARP spoofing and ARP attacks!

Chapter *10*

NAT Forwarding

Router's NAT (Network Address Translation) feature makes the devices in the LAN use the same public IP address to communicate on the Internet, which protects the local network by hiding IP addresses of the devices. However, it also brings about the problem that external host cannot initiatively communicate with the specified device in the local network.

With forwarding feature the router can penetrate the isolation of NAT and allows the external hosts on the Internet to initiatively communicate with the devices in the local network, thus to realize some special functions.

TP-LINK router includes four forwarding rules. If two or more rules are set, the priority of implementation from high to low is Virtual Servers, Port Triggering, UPNP and DMZ.

This chapter contains the following sections:

- *Share Local Resources on the Internet by Virtual Servers*
- *Open Ports Dynamically by Port Triggering*
- *Make Applications Free from Port Restriction by DMZ*
- *Make Xbox Online Games Run Smoothly by UPnP*

10. 1. Share Local Resources on the Internet by Virtual Servers

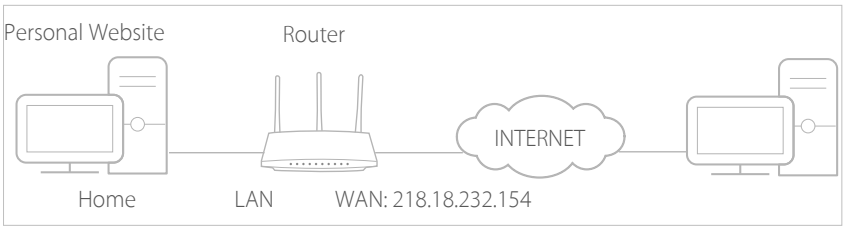
When you build up a server in the local network and want to share it on the Internet, Virtual Servers can realize the service and provide it to the Internet users. At the same time Virtual Servers can keep the local network safe as other services are still invisible from the Internet.

Virtual Servers can be used for setting up public services in your local network, such as HTTP, FTP, DNS, POP3/SMTP and Telnet. Different service uses different service port. Port 80 is used in HTTP service, port 21 in FTP service, port 25 in SMTP service and port 110 in POP3 service. Please verify the service port number before the configuration.

I want to:

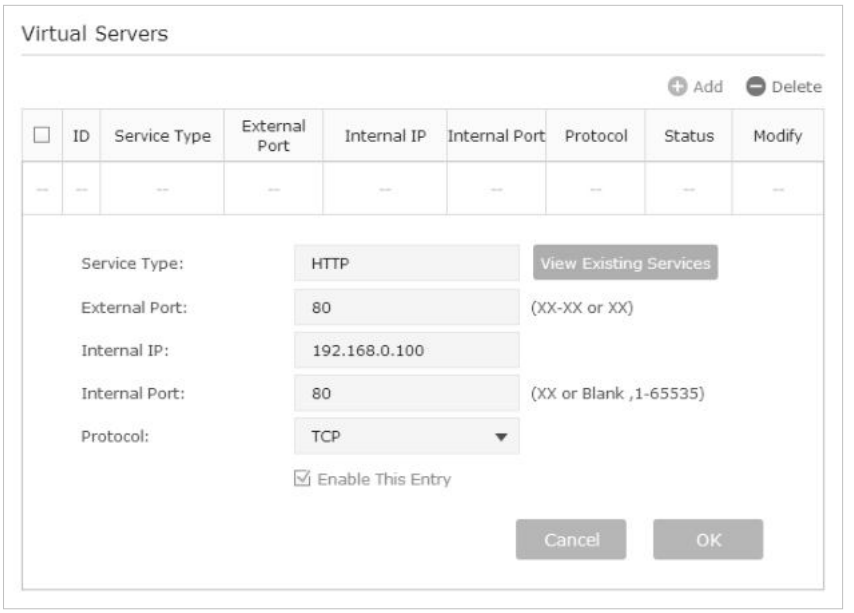
Share my personal website I've built in local network with my friends through the Internet.

For example, the personal website has been built on my home PC (192.168.0.100). I hope that my friends on the Internet can visit my website in some way. The PC is connected to the router with the WAN IP address 218.18.232.154.



How can I do that?

1. Assign a static IP address to your PC, for example 192.168.0.100.
2. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
3. Go to Advanced > NAT Forwarding > Virtual Servers.
4. Click Add. Click View Existing Services and select HTTP. The External Port, Internal Port and Protocol will be automatically filled with contents. Enter the PC's IP address 192.168.0.100 into the Internal IP field.
5. Click OK.



Tips:

1. It is recommended to keep the default settings of Internal Port and Protocol if you are not clear about which port and protocol to use.
2. If the service you want to use is not in the Service Type, you can enter the corresponding parameters manually. You should verify the port number that the service needs.
3. You can add multiple virtual server rules if you want to provide several services in a router. Please note that the External Port should not be overlapped.

Done!

Users on the Internet can enter http:// WAN IP (in this example: http:// 218.18.232.154) to visit your personal website.

Tips:

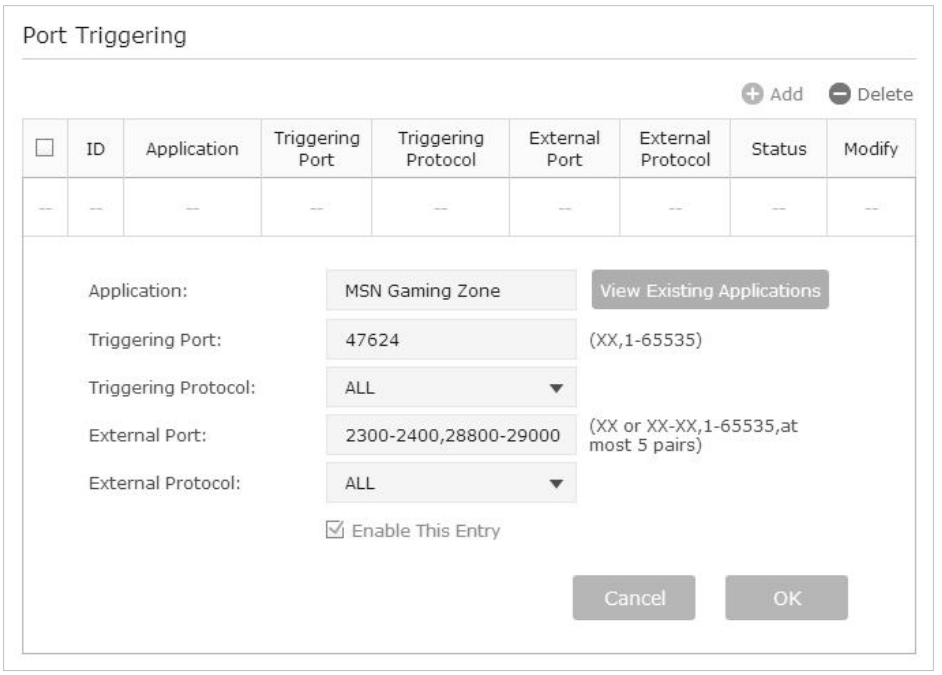
1. WAN IP should be a public IP address. For the WAN IP is assigned dynamically by ISP, it is recommended to apply and register a domain name for the WAN referring to *Set Up a Dynamic DNS Service Account*. Then users on the Internet can use http:// domain name to visit the website.
2. If you have changed the default External Port, you should use http:// WAN IP: External Port or http:// domain name: External Port to visit the website.

10. 2. Open Ports Dynamically by Port Triggering

Port Triggering can specify a triggering port and its corresponding external ports. When a host in the local network initiates a connection to the triggering port, all the external ports will be opened for subsequent connections. The router can record the IP address of the host, when the data from the Internet return to the external ports, the router can forward them to the corresponding host. Port Triggering is mainly applied to online games, VoIPs, video players, and common applications including MSN Gaming Zone, Dialpad and Quick Time 4 players, etc.

Follow the steps below to configure the Port Triggering rules:

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > NAT Forwarding > Port Triggering and click Add.
3. Click View Existing Applications, and select the desired application. The External Port, Internal Port and Protocol will be automatically filled with contents. The following picture takes application MSN Gaming Zone as an example.
4. Click OK.



Tips:

1. You can add multiple port triggering rules according to your network need.
2. The triggering ports can not be overlapped.
3. If the application you need is not listed in the Existing Applications list, please enter the parameters manually. You should verify the external ports the application uses first and enter them into External Port field according to the format the page displays.

10. 3. Make Applications Free from Port Restriction by DMZ

When a PC is set to be a DMZ (Demilitarized Zone) host in the local network, it is totally exposed to the Internet, which can realize the unlimited bidirectional communication between internal hosts and external hosts. The DMZ host becomes a virtual server with all ports opened. When you are not clear about which ports to open in some special applications, such as IP camera and database software, you can set the PC to be a DMZ host.

Note:
When DMZ is enabled, the DMZ host is totally exposed to the Internet, which may bring some potential safety hazards. If DMZ is not in use, please disable it in time.

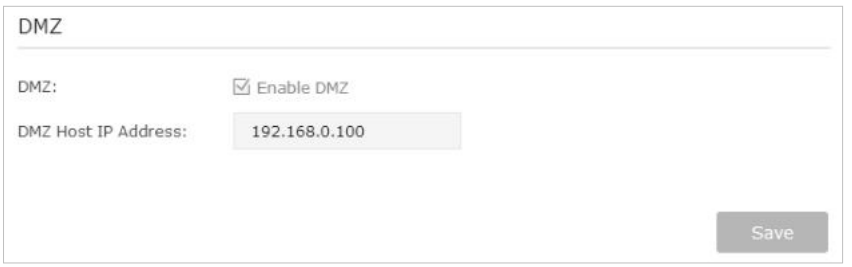
I want to:

Make the home PC join the Internet online game without port restriction.

For example, due to some port restriction, when playing the online games, you can login normally but cannot join a team with other players. To solve this problem, set your PC as a DMZ with all ports opened.

How can I do that?

1. Assign a static IP address to your PC, for example 192.168.0.100.
2. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
3. Go to Advanced > NAT Forwarding > DMZ and select Enable DMZ.
4. Enter the IP address 192.168.0.100 in the DMZ Host IP Address filed.



5. Click Save.

Done!

The configuration is completed. You've set your PC to a DMZ host and now you can make a team to game with other players.

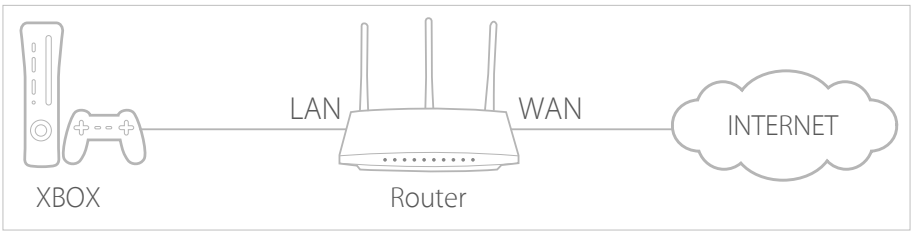
10. 4. Make Xbox Online Games Run Smoothly by UPnP

UPnP (Universal Plug and Play) protocol allows the applications or host devices to automatically find the front-end NAT device and send request to it to open the corresponding ports. With UPnP enabled, the applications or host devices on the local network and the Internet can freely communicate with each other realizing the seamless connection of the network. You may need to enable the UPnP if you want to use applications for multiplayer gaming, peer-to-peer connections, real-time communication (such as VoIP or telephone conference) or remote assistance, etc.

Tips:

1. UPnP is enabled by default in this router.
2. Only the application supporting UPnP protocol can use this feature.
3. UPnP feature needs the support of operating system (e.g. Windows Vista/ Windows 7/ Windows 8, etc. Some of operating system need to install the UPnP components).

For example, when you connect your Xbox to the router which has connected to the Internet to play online games, UPnP will send request to the router to open the corresponding ports allowing the following data penetrating the NAT to transmit. Therefore, you can play Xbox online games without a hitch.



If necessary, you can follow the steps to change the status of UPnP.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > NAT Forwarding > UPnP and toggle on or off according to your needs.



Chapter *11*

VPN Server

The VPN (Virtual Private Networking) Server allows you to access your home network in a secure way through the Internet when you are out of home. The router offers two ways to set up VPN connection: OpenVPN and PPTP (Point to Point Tunneling Protocol) VPN.

OpenVPN is somewhat complex but with higher security and stability. It is suitable for restricted environment, such as campus network and company intranet.

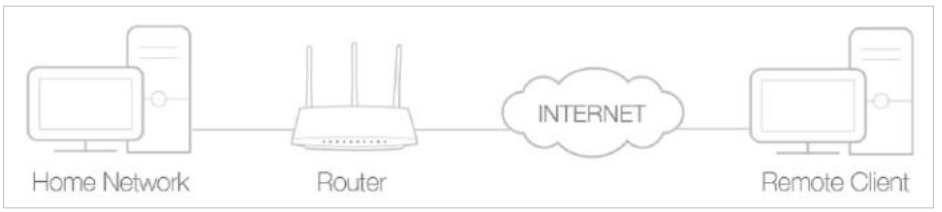
PPTP VPN is more easily used and with faster speed; it's compatible with most operating systems and also supports mobile devices. Its security is poor and your packets may be cracked easily, and PPTP VPN connection may be prevented by some ISPs.

This chapter contains the following sections, and please choose the appropriate VPN server connection type as needed.

- *Use OpenVPN to Access Your Home Network*
- *Use PPTP VPN to Access Your Home Network*

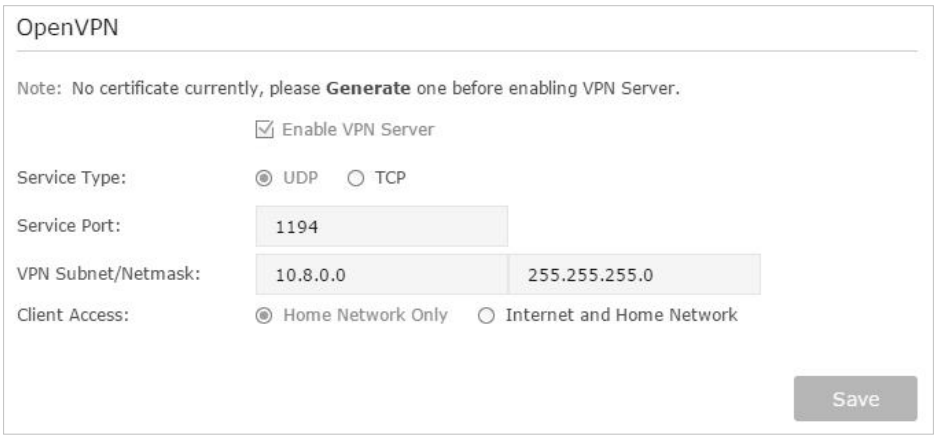
11. 1. Use OpenVPN to Access Your Home Network

In the OpenVPN connection, the home network can act as a server, and the remote client can access the server through the router which acts as an OpenVPN Server gateway. To use the VPN feature, you should enable OpenVPN Server on your router, and install and run VPN client software on the remote client. Please follow the steps below to set up an OpenVPN connection.



Step1. Set up OpenVPN Server on Your Router

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > VPN Server > OpenVPN, and select Enable VPN Server.

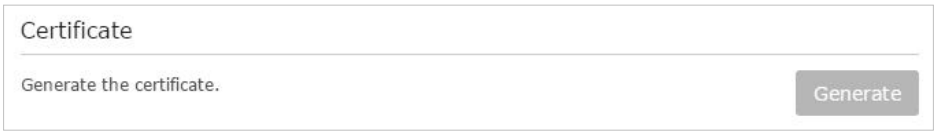


Note:

1. Before you enable VPN Server, we recommend you configure Dynamic DNS Service (recommended) or assign a static IP address for router's WAN port and synchronize your System Time with Internet.
2. The first time you configure the OpenVPN Server, you may need to Generate a certificate before you enable the VPN Server.

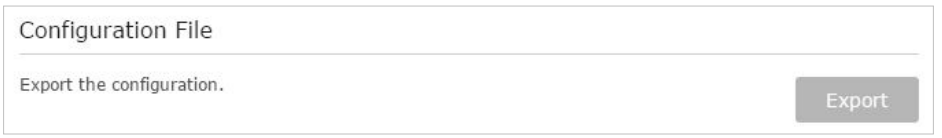
3. Select the Servive Type (communication protocol) for OpenVPN Server: UDP, TCP.
4. Enter a VPN Service Port to which a VPN client connects, and the port number should be between 1024 and 65535.
5. In VPN Subnet/Netmask field, enter the range of IP addresses that can be leased to the client by the OpenVPN server.
6. Select your Client Access type., select Home Network Only if you only want the remote client to access your home network, select Internet and Home Network if the remote client also want to access Internet through VPN Server.

7. Click Save.
8. Click Generate to generate a new certificate.



Note:
If you have already generated one, please skip this step, or click Generate to update the certificate.

9. Click Export to save the OpenVPN configuration file. Remote client will use this configuration file to access your router.



Step 2. Configure OpenVPN Connection on Your Remote Client

1. Visit *http://openvpn.net/index.php/download/community-downloads.html* to download the OpenVPN software, and install it on your client where you want to run the OpenVPN client utility.

Note:
You need to install the OpenVPN client utility on each client that you plan to use for VPN connections to your router. Mobile devices should download third-party app from Google Play or Apple App Store.

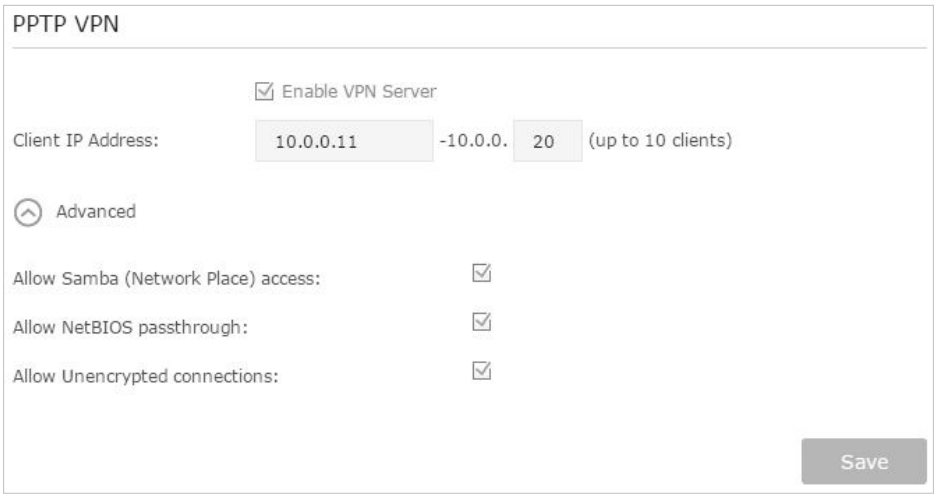
2. After the installation, copy the file exporting from your router to OpenVPN client utility's "config" folder (for Windows): C:\Program Files\OpenVPN\config. The path is depending on where the OpenVPN client utility is installed on.
3. Run the OpenVPN client utility and connect it to OpenVPN Server.

11. 2. Use PPTP VPN to Access Your Home Network

PPTP VPN Server is used to create a VPN connection for remote client. To use the VPN feature, you should enable PPTP VPN Server on your router, and configure the PPTP connection on the remote client. Please follow the steps below to set up a PPTP VPN connection.

Step 1. Set up PPTP VPN Server on Your Router

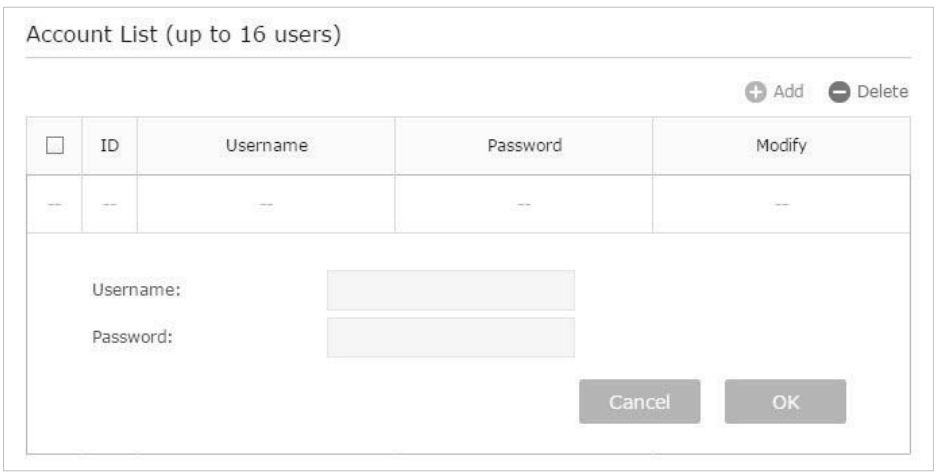
1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > VPN Server > PPTP VPN, and select Enable VPN Server.



Note:

Before you enable VPN Server, we recommend you configure Dynamic DNS Service (recommended) or assign a static IP address for router's WAN port and synchronize your System Time with Internet.

3. In the Client IP Address filed, enter the range of IP addresses (up to 10 clients) that can be leased to the client by the PPTP VPN server.
4. Click Advanced to set the PPTP connection permission according to your needs.
   - Select Allow Samba (Network Place) access to allow your VPN client to access your local Samba server.
   - Select Allow NetBIOS passthrough to allow your VPN client to access your Samba server using NetBIOS name.
   - Select Allow Unencrypted connections to allow unencrypted connections to your VPN server.
5. Click Save.
6. Configure the PPTP VPN connection account for the remote client, you can create up to 16 accounts.



1) Click Add.

2) Enter the Username and Password to authenticate clients to the PPTP VPN Server.

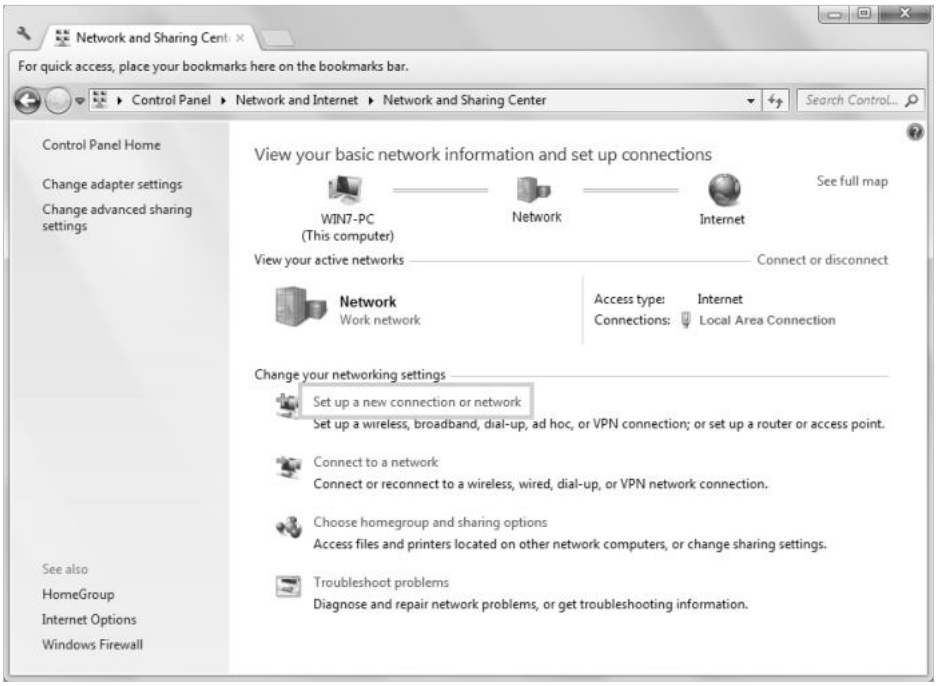
3) Click OK.

Step 2. Configure PPTP VPN Connection on Your Remote Client

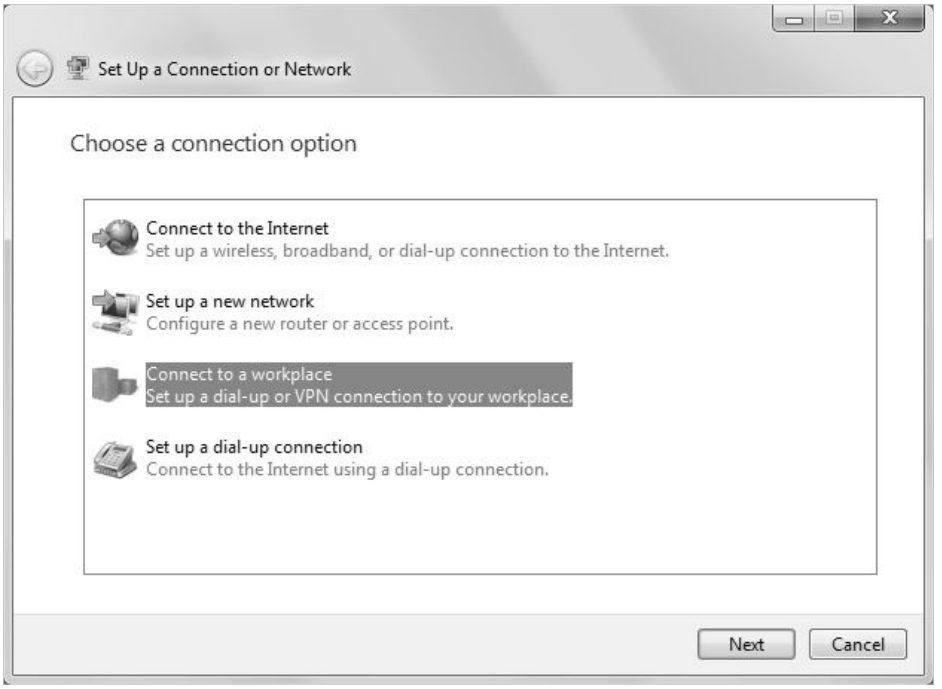
Remote client can use Windows built-in PPTP software or third-party PPTP software to connect to PPTP Server. Here we use Windows built-in PPTP software as an example.

1. Go to Start > Control Panel > Network and Internet > Network and Sharing Center.

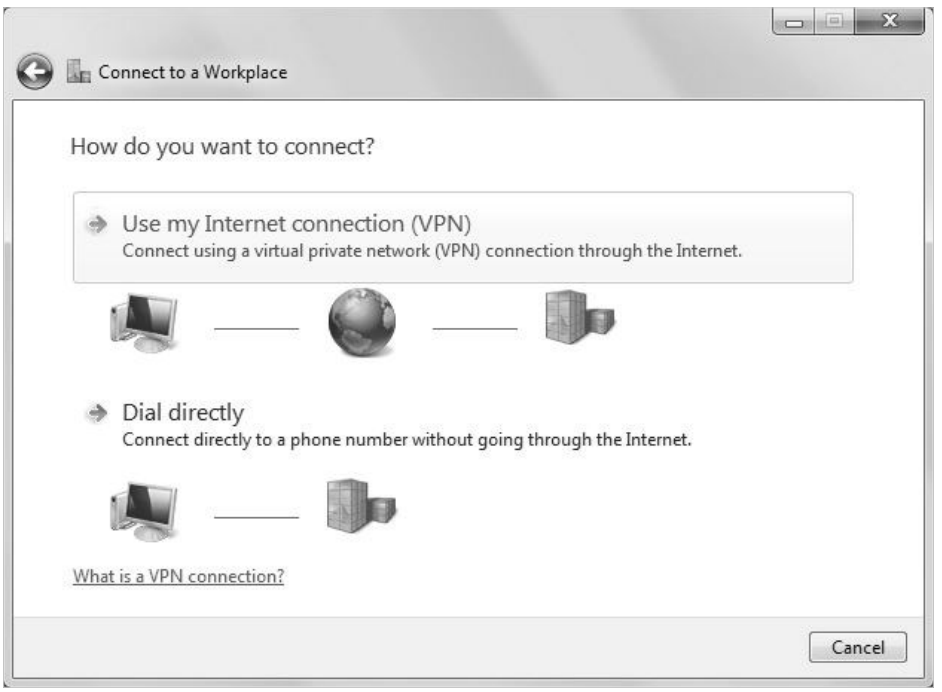
2. Select Set up a new connection or network.



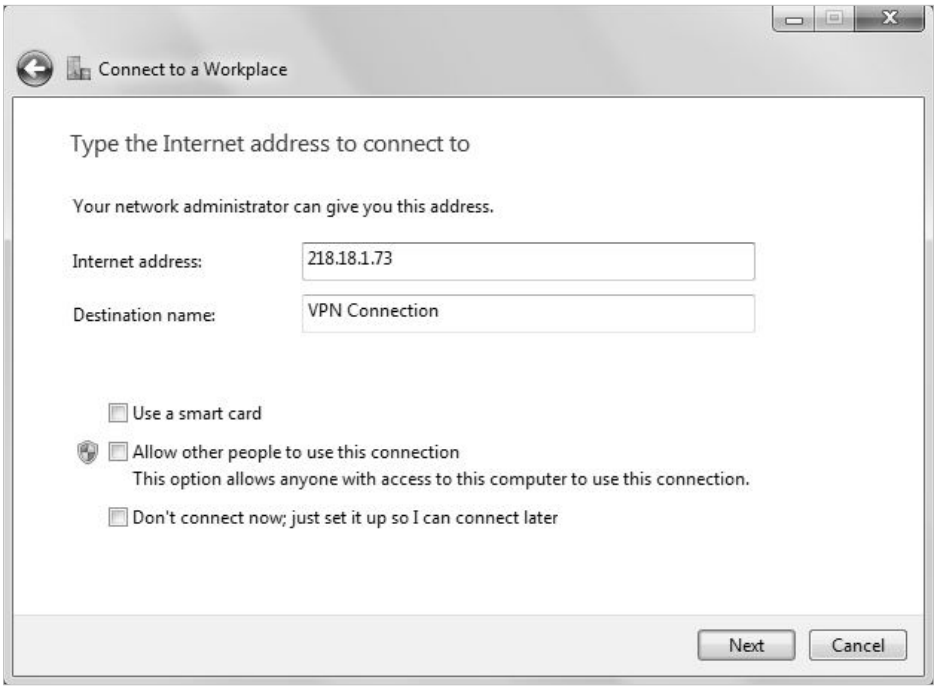
3. Select Connect to a workplace and click Next.



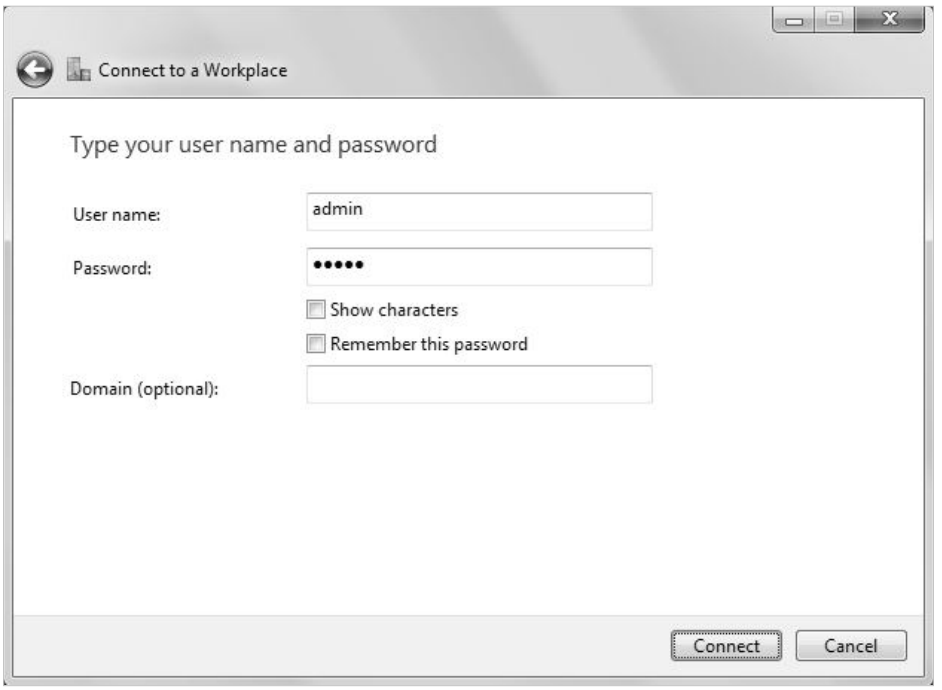
4. Select Use my Internet connection (VPN).



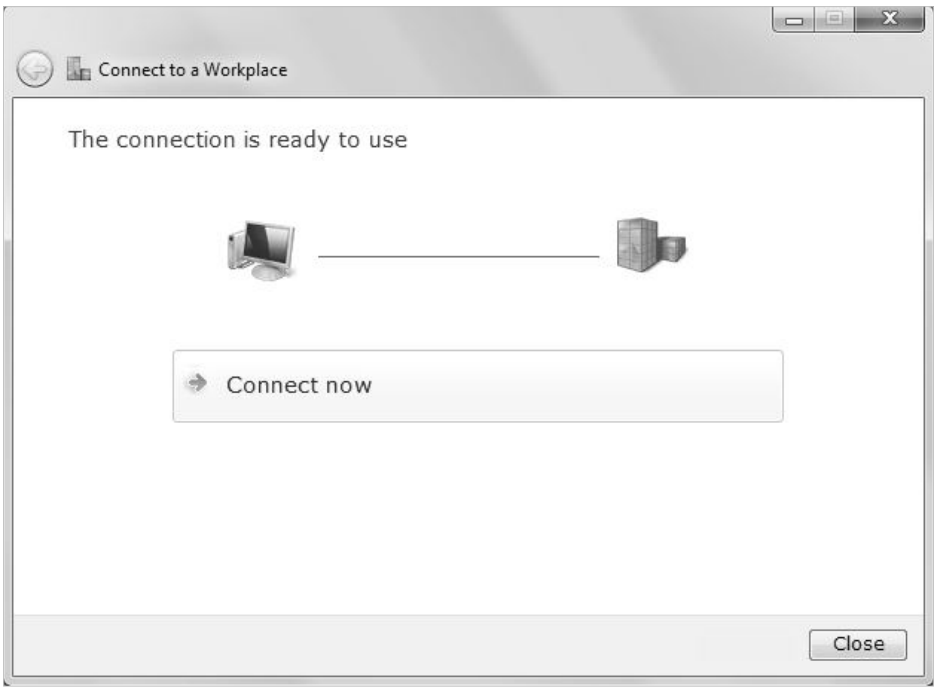
5. Enter the WAN IP address of the router (for example: 218.18.1.73) in the Internet address field. Click Next.



6. Enter the User name and Password, it's the username and password you have set on your router, and click Connect.



7. The PPTP VPN connection is created and ready to use.



Chapter *12*

Customize Your Network Settings

This chapter guides you on how to configure advanced network features.

This chapter contains the following sections:

- *Change the LAN Settings*
- *Configure to Support IPTV Service*
- *Specify DHCP Server Settings*
- *Set Up a Dynamic DNS Service Account*
- *Create Static Routes*
- *Specify Wireless Settings*
- *Use WPS for Wireless Connection*

12. 1. Change the LAN Settings

The router is preset with a default LAN IP 192.168.0.1, which you can use to log in to the web management page. The LAN IP address together with the Subnet Mask also defines the subnet that the connected devices are on. If the IP address conflicts with another device on your local network or your network requires a specific IP subnet, you can change it.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Network > LAN.
3. Type in a new IP Address appropriate to your needs. And leave the Subnet Mask as the default settings.



4. Click Save.

Note:

If you have set the Virtual Server, DMZ or DHCP address reservation, and the new LAN IP address is not in the same subnet with the old one, then you should reconfigure these features.

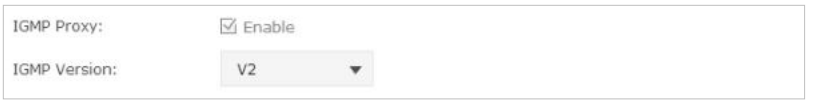
12. 2. Configure to Support IPTV Service

I want to:

Configure IPTV setup to enable Internet/IPTV/Phone service provided by my Internet Service Provider (ISP).

How can I do that?

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Network > IPTV.
3. **If your ISP provides the networking service based on IGMP technology**, e.g., British Telecom(BT) and Talk Talk in UK:
   1) Tick the IGMP Proxy checkbox and select the IGMP Version, either V2 or V3, as required by your ISP.



2) Click Save.

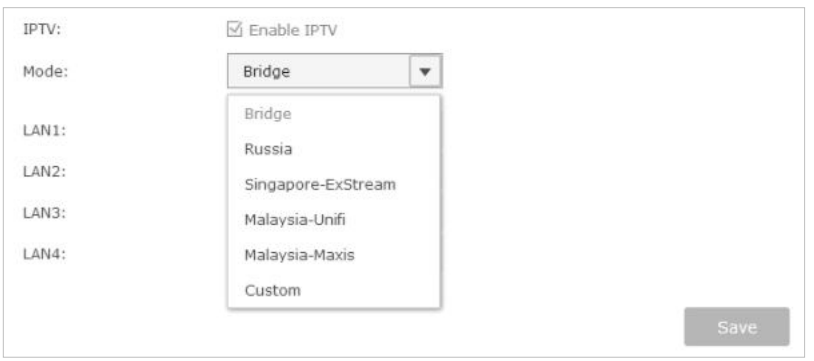
3) After configuring IGMP proxy, IPTV can work behind your router now. You can connect your set-top box to any of the router's Ethernet port.

If IGMP is not the technology your ISP applies to provide IPTV service:

1) Tick Enable IPTV.

2) Select the appropriate Mode according to your ISP.

- Select Bridge if your ISP is not listed and no other parameters are required, and then skip to Step 4.
- Select Custom if your ISP is not listed but provides necessary parameters.



3) After you have selected a mode, the necessary parameters are predetermined. You can perform other configuration, e.g. enter the IPTV Multicast VLAN ID and select the IPTV Multicast VLAN Priority in Russia mode according to your ISP.

4) For Russia, Singapore-ExStream, Malaysia-Unifi and Malaysia-Maxis mode, connect the set-top box to the predetermined LAN port. For Bridge and Custom mode, select the LAN type and connect the set-top box to the corresponding port.

5) Click Save.

Done!

Your IPTV setup is done now! You may need to configure your set-top box before enjoying your TV.

Tips

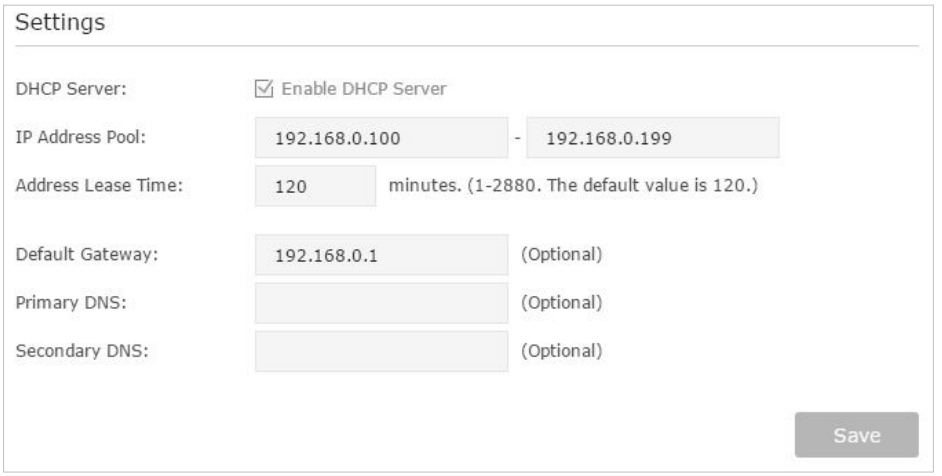
Qos and IPTV cannot be enabled at the same time.

12. 3. Specify DHCP Server Settings

By default, the DHCP (Dynamic Host Configuration Protocol) Server is enabled and the router acts as a DHCP server; it dynamically assigns TCP/IP parameters to client devices from the IP Address Pool. You can change the settings of the DHCP Server if necessary, and you can reserve LAN IP addresses for specified client devices.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Network > DHCP Server.

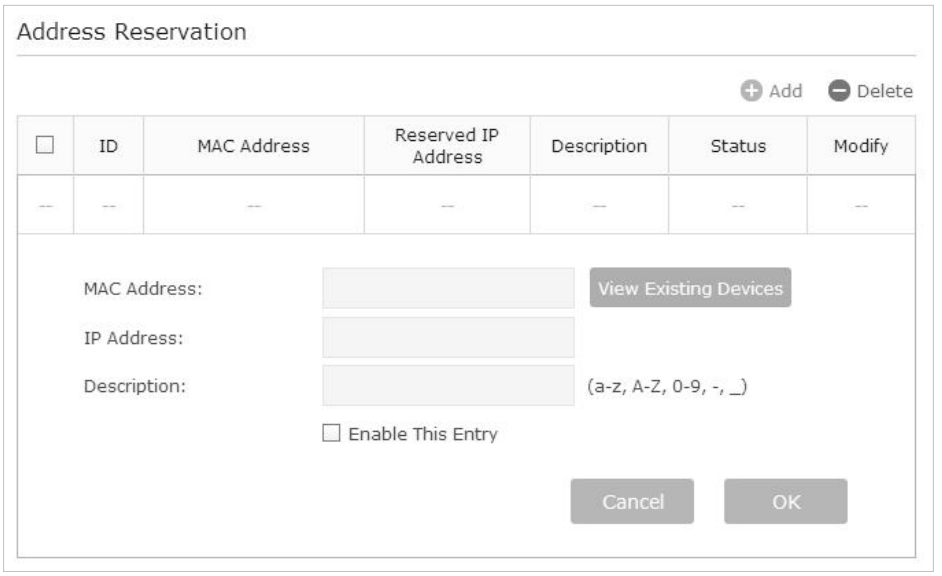
➢ **To specify the IP address that the router assigns:**



1. Make sure that the Enable DHCP Server checkbox is selected.
2. Enter the starting and ending IP addresses in the IP Address Pool.
3. Enter other parameters if the ISP offers, the Default Gateway is automatically filled and is the same as the LAN IP address of the router.
4. Click Save.

➢ **To reserve an IP address for a specified client device:**

1. Click Add in the Address Reservation section.



2. Click View Exsiting Devices or enter the MAC address of the client device.
3. Enter the IP address to reserve for the client device.
4. Enter the Description for this entry.
5. Tick the Enable This Entry checkbox and click OK.

12. 4. Set Up a Dynamic DNS Service Account

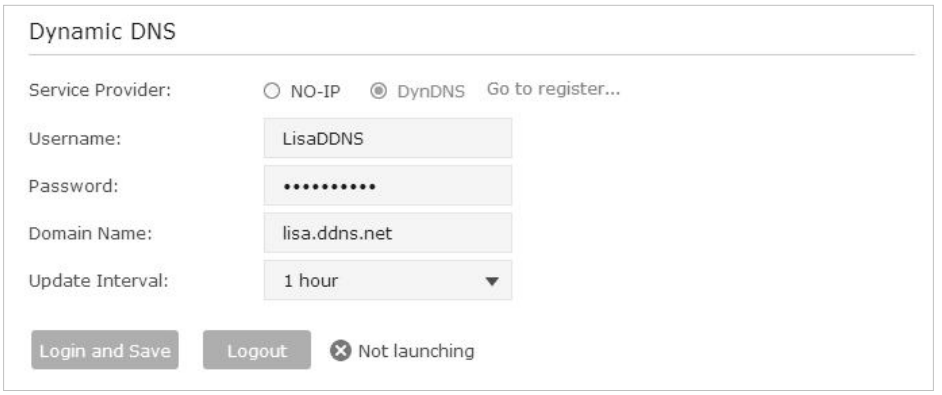
Most ISPs assign a dynamic IP address to the router and you can use this IP address to access your router remotely. However, the IP address can change any time and you don't know when it changes. In this case, you might apply the DDNS (Dynamic Domain Name Server) feature on the router to allow you and your friends to access your router and local servers (FTP, HTTP, etc.) using domain name without checking and remembering the IP address.

Note:

DDNS does not work if the ISP assigns a private WAN IP address (such as 192.168.1.x) to the router.

To set up DDNS, please follow the instructions below:

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Network > Dynamic DNS.
3. Select the DDNS Service Provider (NO-IP or DynDNS). If you don't have a DDNS account, select a service provider and click Go to register.



4. Enter the username, password and domain name of the account (such as lisadns.ddns.net).

5. Click Login and Save.

Tips:

If you want to use a new DDNS account, please logout first, and then login with the new account.

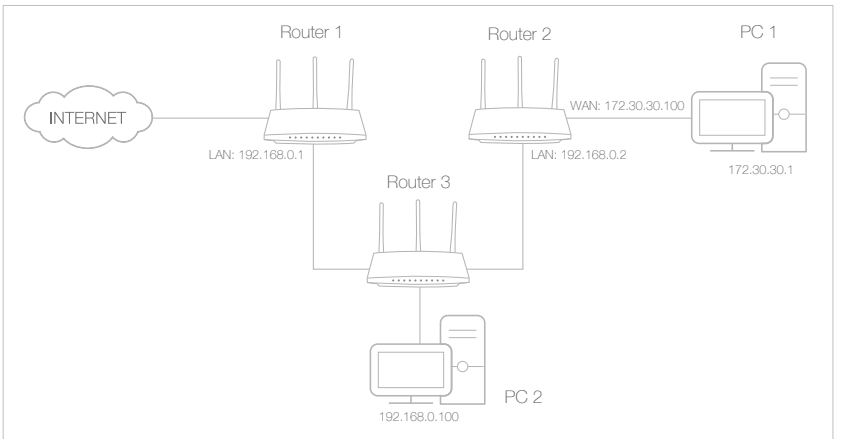
12. 5. Create Static Routes

Static routing is a form of routing that is configured manually by a network administrator or a user by adding entries into a routing table. The manually-configured routing information guides the router in forwarding data packets to the specific destination.

I want to:

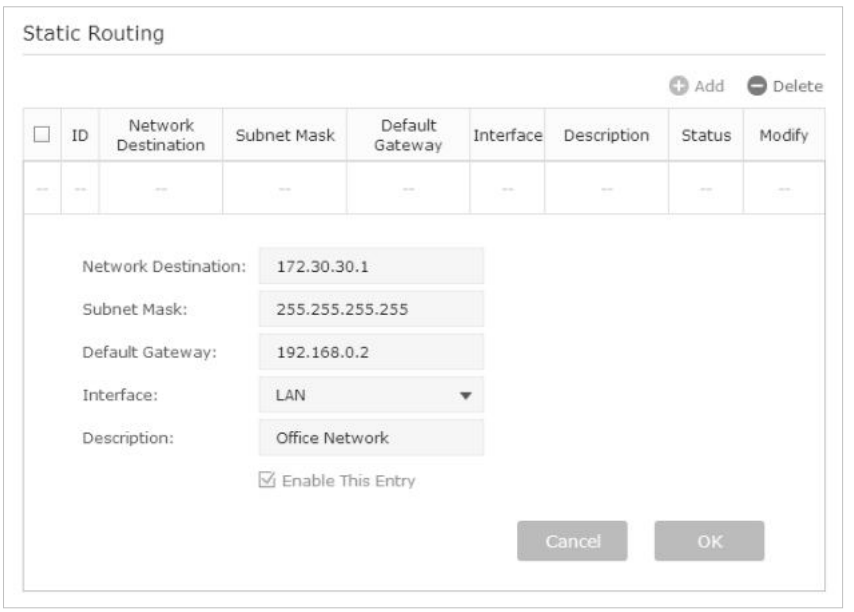
Visit multiple networks and servers at the same time.

For example, in a small office, my PC can surf the Internet, but I also want to visit my company's network. Now I have a switch and another router. I connect the devices as shown in the following figure so that the physical connection between my PC and my company's server is established. To surf the Internet and visit my company's network at the same time, I need to configure the static routing.



How can I do that?

1. Change the router's LAN IP addresses to two different IP addresses on the same subnet. Disable Router 2's DHCP function.
2. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
3. Go to Network > Advanced Routing.
4. Click Add and finish the settings according to the following explanations:



Network Destination: The destination IP address that you want to assign to a static route. This IP address cannot be on the same subnet with the WAN IP or LAN IP of the router. In the example, the IP address of the company network is the destination IP address, so here enter 172.30.30.1.

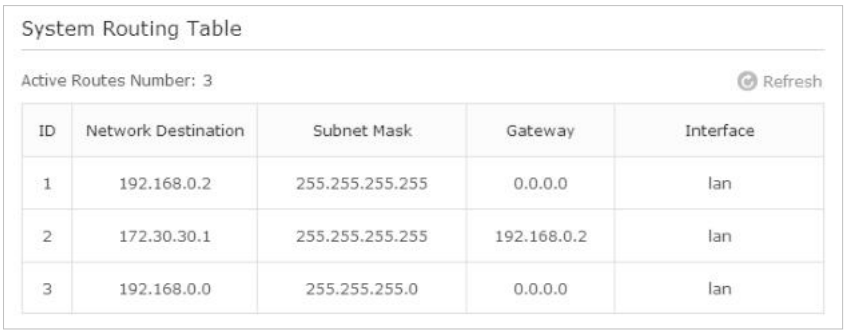
Subnet Mask: Determines the destination network with the destination IP address. If the destination is a single IP address, enter 255.255.255.255; otherwise, enter the subnet mask of the corresponding network IP. In the example, the destination network is a single IP, so here enter 255.255.255.255.

Default Gateway: The IP address of the gateway device to which the data packets will be sent. This IP address must be on the same subnet with the router's IP which sends out data. In the example, the data packets will be sent to the LAN port of Router 2 and then to the Server, so the default gateway should be 192.168.0.2.

Interface: Determined by the port (WAN/LAN) that sends out data packets. In the example, the data are sent to the gateway through the LAN port, so LAN should be selected.

Description: Enter a description for this static routing entry.

5. Click OK.
6. Check the System Routing Table below. If you can find the entry you've set, the static routing is set successfully.


System Routing Table

Active Routes Number: 3 Refresh

ID	Network Destination	Subnet Mask	Gateway	Interface
1	192.168.0.2	255.255.255.255	0.0.0.0	lan
2	172.30.30.1	255.255.255.255	192.168.0.2	lan
3	192.168.0.0	255.255.255.0	0.0.0.0	lan

Done! Open a web browser on your PC. Enter the company server's IP address to visit the company network.

12. 6. Specify Wireless Settings

The router's wireless network name (SSID) and password, and security option are preset in the factory. The preset SSID and password can be found on the label of the router. You can customize the wireless settings according to your needs.

Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.

➢ **To enable or disable the wireless function:**

1. Go to Basic > Wireless.
2. The wireless radio is enabled by default, if you want to disable the wireless function of the router, just clear the Enable Wireless Radio checkbox. In this case, all the wireless settings will be invalid.

➢ **To change the wireless network name (SSID) and wireless password:**

1. Go to Basic > Wireless.
2. Create a new SSID in Network Name (SSID) and customize the password for the network in Password. The value is case-sensitive.

Note:

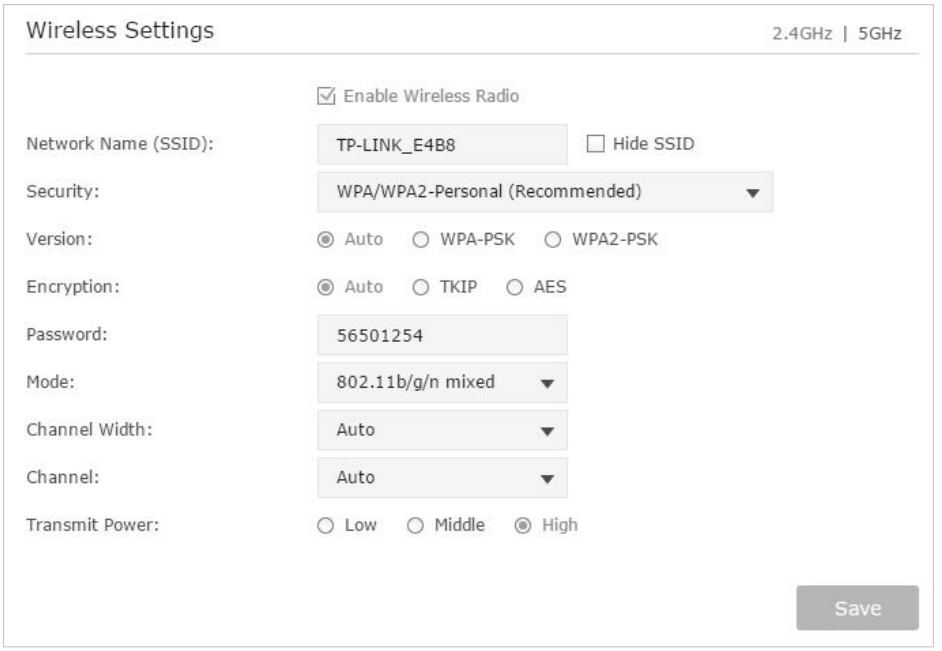
If you change the wireless settings with a wireless device, you will be disconnected when the settings are effective. Please write down the new SSID and password for future use.

➢ **To hide SSID:**

1. Go to Basic > Wireless.
2. Select Hide SSID, and your SSID won't display when you scan for local wireless networks on your wireless device and you need to manually join the network.

➢ **To change the security option:**

1. Go to Advanced > Wireless > Wireless Settings.



2. Select the wireless network 2.4GHz or 5GHz.
3. Select an option from the Security drop-down list. We recommend you don't change the default settings unless necessary. If you select other options, configure the related parameters according to the help page.

In addition

- Mode - Select a transmission mode according to your wireless client devices. It is recommended to just leave it as default.
- Channel Width - Select a channel width (bandwidth) for the wireless network.
- Channel - Select an operating channel for the wireless network. It is recommended to leave the channel to Auto, if you are not experiencing the intermittent wireless connection issue.
- Transmit Power - Select either High, Middle or Low to specify the data transmit power. The default and recommended setting is High.

12. 7. Use WPS for Wireless Connection

Wi-Fi Protected Setup (WPS) provides an easier approach to set up a security-protected Wi-Fi connection.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > Wireless > WPS .

12. 7. 1. Set the Router's PIN

Router's PIN is enabled by default to allow wireless devices to connect to the router using the PIN. You can use the default one or generate a new one.

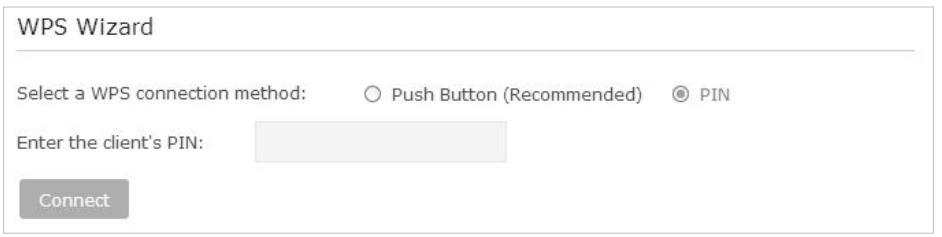


Note:

1. If you want to enable/disable the WPS feature, go to System Tools > System Parameters > WPS, select or clear the Enable WPS check box.
2. PIN (Personal Identification Number) is an eight-character identification number preset to each router. WPS supported devices can connect to your router with the PIN. The default PIN is printed on the label of the router.

12. 7. 2. Use the WPS Wizard for Wi-Fi Connections

1. Select a setup method:
   - **Push Button(Recommended)**: Click Connect on the screen. Within two minutes, press the WPS button on the client device.
   - **PIN**: Enter the client's PIN, and click Connect.



2. Success will appear on the above screen and the WPS LED on the router will keep on for five minutes if the client has been successfully added to the network.

Chapter *13*

Manage the Router

This chapter will show you the configuration for managing and maintaining your router.

This chapter includes the following sections:

- *Set Up System Time*
- *Test the Network Connectivity*
- *Upgrade the Firmware*
- *Backup and Restore Configuration Settings*
- *Change the Administrator Account*
- *Password Recovery*
- *Local Management*
- *Remote Management*
- *System Log*
- *Monitor the Internet Traffic Statistics*
- *Control LEDs*

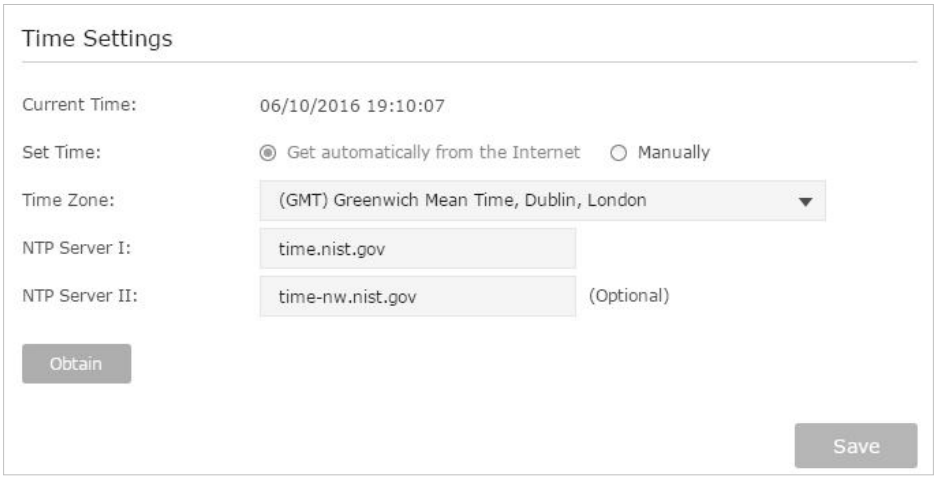
13. 1. Set Up System Time

System time is the time displayed while the router is running. The system time you configure here will be used for other time-based functions like Parental Controls. You can choose the way you prefer to obtain the system time.

Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router. Go to Advanced > System Tools > Time Settings.

➢ **To get time from the Internet:**

1. In the Set Time field, select Get automatically from the Internet.



2. Select your local Time Zone from the drop-down list.
3. In the NTP Server I fileld, enter the IP address or domain name of your desired NTP Server.
4. In the NTP Server II fileld, enter the IP address or domain name of the second NTP Server (Optional).
5. Click Obtain to get the current Internet time and click Save.

➢ **To manually set the date and time:**

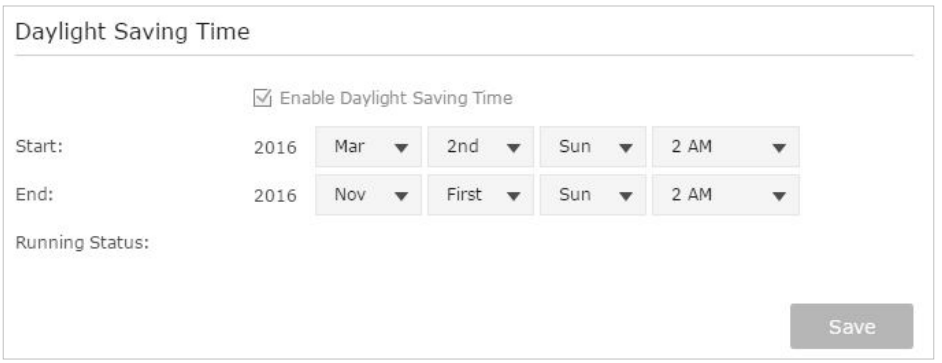
1. In the Set Time field, select Manually.



2. Set the current Date (In MM/DD/YYYY format).
3. Set the current Time (In HH/MM/SS format).
4. Click Save.

➢ **To set up Daylight Saving Time:**

1. Select Enable Daylight Saving Time.

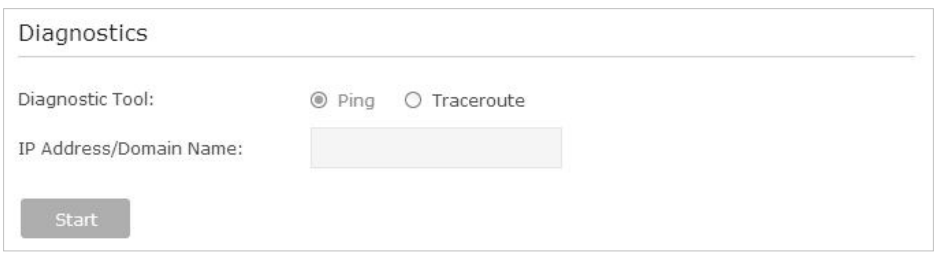


2. Select the correct Start date and time when daylight saving time starts at your local time zone.
3. Select the correct End date and time when daylight saving time ends at your local time zone.
4. Click Save.

13. 2. Test the Network Connectivity

Diagnostics is used to test the connectivity between the router and the host or other network devices.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Diagnostics.



3. Enter the information with the help of page tips:

1) Choose Ping or Traceroute as the diagnostic tool to test the connectivity;

- Ping is used to test the connectivity between the router and the tested host, and measure the round-trip time.

- Traceroute is used to display the route (path) your router has passed to reach the tested host, and measure transit delays of packets across an Internet Protocol network.

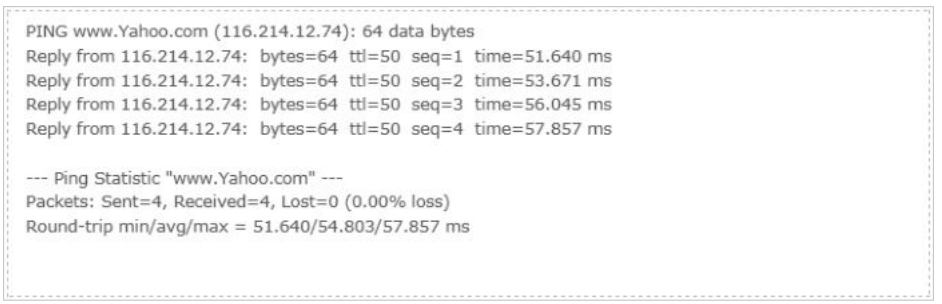
2) Enter the IP Address or Domain Name of the tested host.

4. Click Start to begin the diagnostics.

Tips:

Click Advanced, you can modify the ping count, ping packet size or the Traceroute Max TTL. It's recommended to keep the default value.

The figure below indicates the proper connection between the router and the Yahoo server (www.Yahoo.com) tested through Ping.



The figure below indicates the proper connection between the router and the Yahoo server (www.Yahoo.com) tested through Traceroute.



13. 3. Upgrade the Firmware

TP-LINK aims at providing better network experience for users.

We will inform you through the web management page if there's any update firmware available for your router. Also, the latest firmware will be released at TP-LINK official website, you can download it from the Support page of our website *www.tp-link.com* for free.

Note:

1. Make sure you remove all attached USB storage devices from the router before the firmware upgrade to prevent data loss.
2. Backup your router configuration before firmware upgrade.
3. Do NOT turn off the router during the firmware upgrade.

13. 3. 1. Online Upgrade

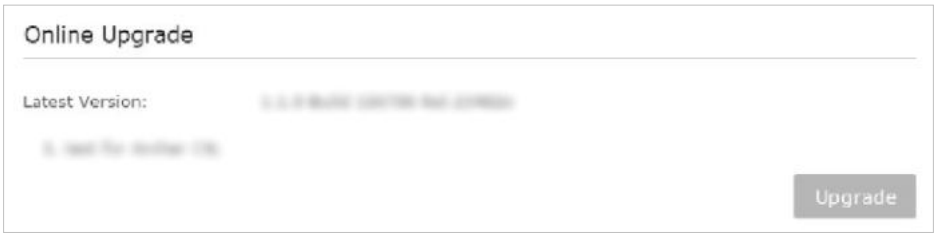
1. Visit *http://tplinkwifi.net*, and log in with the username and password you've set for the router.
2. When the latest firmware is available for your router, the update icon 

will display in the top-right corner of the page. Click the icon to go to the Firmware Upgrade page.

   Alternatively, you can go to Advanced > System Tools > Firmware Upgrade, and click Check for upgrade to see whether the latest firmware is released.



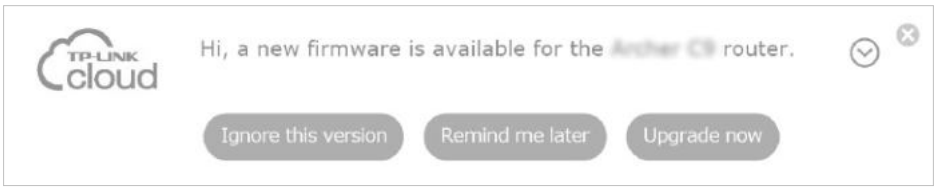
3. Focus on the Online Upgrade section, and click Upgrade.



4. Wait a few minutes for the upgrade and reboot to complete.

Tips:

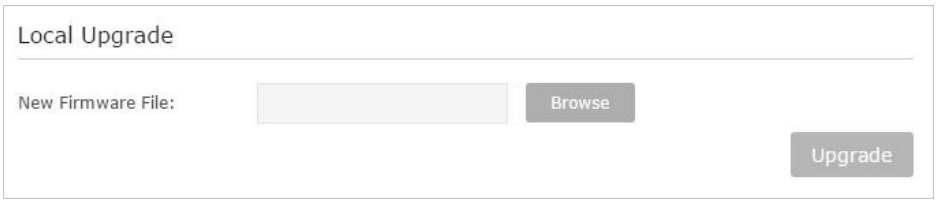
If there's a new and important firmware update for your router, you will see the notification (similar as shown below) on your computer as long as a web browser is opened. Click Upgrade now, and log into the web management page with the username and password you set for the router. You will see the Firmware Upgrade page.



13. 3. 2. Local Upgrade

1. Download the latest firmware file for the router from *www.tp-link.com*.
2. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
3. Go to Advanced > System Tools > Firmware Upgrade.
4. Focus on the Device Information section. Make sure the downloaded firmware file is matched with the Hardware Version.

5. Focus on the Local Upgrade section. Click Browse to locate the downloaded new firmware file, and click Upgrade.

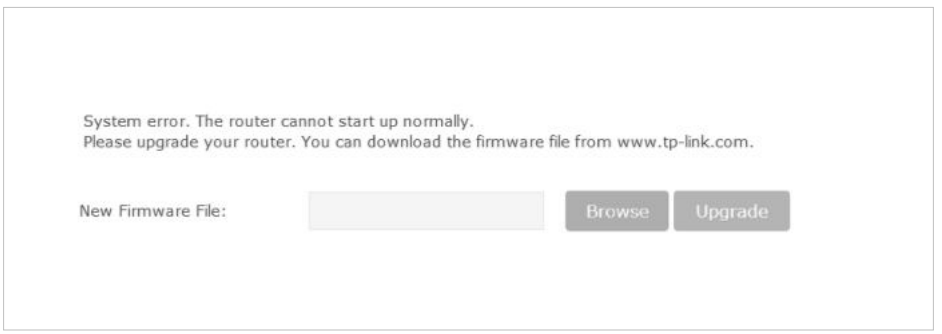


6. Wait a few minutes for the upgrade and reboot to complete.

13. 3. 3. Restore Interrupted Upgrade after Power Failure

If your router cannot start up after an upgrade interruption due to power failure, follow the steps below to restore the interrupted upgrade. Otherwise, your router cannot work again.

1. Make sure you have the latest firmware file in your computer. If not, try another way to connect your computer to the Internet and download the latest firmware file from *www.tp-link.com*.
2. Connect your computer to the router with an Ethernet cable.
3. Visit *192.168.0.1* and you will see the following upgrade page.



4. Click Browse and select the downloaded firmware file.
5. Click Upgrade and wait for a few minutes until the router completes the upgrading and restarts.

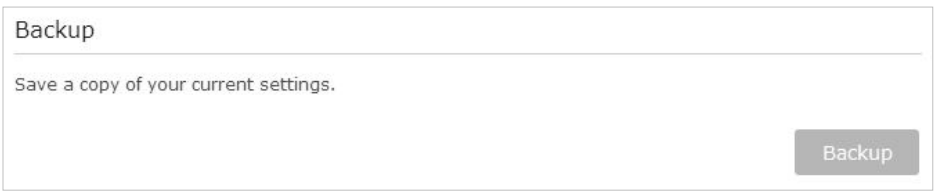
13. 4. Backup and Restore Configuration Settings

The configuration settings are stored as a configuration file in the router. You can backup the configuration file to your computer for future use and restore the router to a previous settings from the backup file when needed. Moreover, if necessary you can erase the current settings and reset the router to the default factory settings.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Backup & Restore.

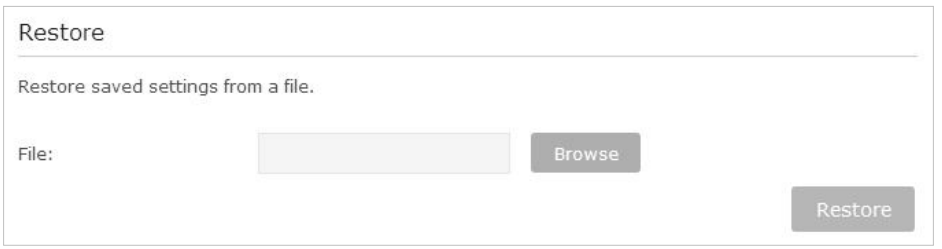
➢ **To backup configuration settings:**

Click Backup to save a copy of the current settings to your local computer. A '.bin' file of the current settings will be stored to your computer.



➢ **To restore configuration settings:**

1. Click Browse to locate the backup configuration file stored on your computer, and click Restore.



2. Wait a few minutes for the restoring and rebooting.

Note: During the restoring process, do not turn off or reset the router.

➢ **To reset the router to factory default settings:**

1. Click Factory Restore to reset the router.



2. Wait a few minutes for the resetting and rebooting.

Note:

1. During the resetting process, do not turn off or reset the router.
2. We strongly recommend you backup the current configuration settings before resetting the router.

13. 5. Change the Administrator Account

The account management feature allows you to change your login username and password of the web management page.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Administration and focus on the Account Management section.



3. Enter the old username and old password. Enter the new username and enter the new password twice (both case-sensitive). Click Save.
4. Use the new username and password for the future logins.

13. 6. Password Recovery

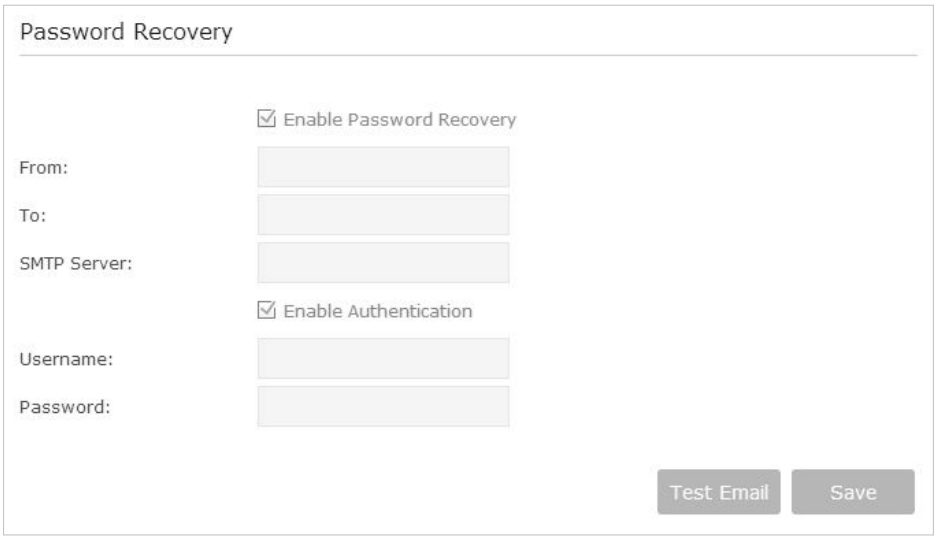
This feature allows you to recover your default login username and password in case you forget them.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Administration and focus on the Password Recovery section.
3. Select the Enable Password Recovery check box.
4. Specify a mailbox (From) for sending the recovery letter and enter its SMTP Server address. Specify a mailbox (To) for receiving the recovery letter. If the mailbox (From) to send the recovery letter requires encryption, select Enable Authentication and enter its username and password.

Tips:

- SMTP server is available for users in most webmail systems. For example, the SMTP server address of Gmail is smtp.gmail.com. You can refer to their Help page to learn the SMTP server address.

- Generally, Enable Authentication should be selected if the login of the mailbox requires username and password.



5. Click Save.

You can click Test Email to test whether the configuration is successful. To recover the default login username and password, please refer to *FAQ*.

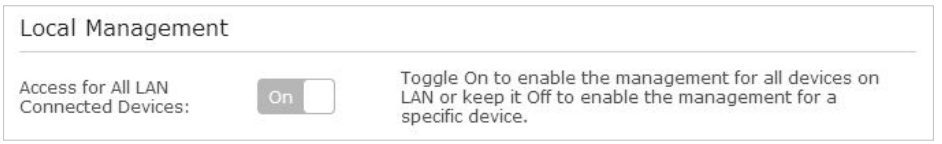
13. 7. Local Management

This feature allows you to limit the number of client devices on your LAN from accessing the router by using the MAC address-based authentication.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Administration and complete the settings In Local Management section according to your needs.

- **Allow all LAN connected devices to manage the router:**

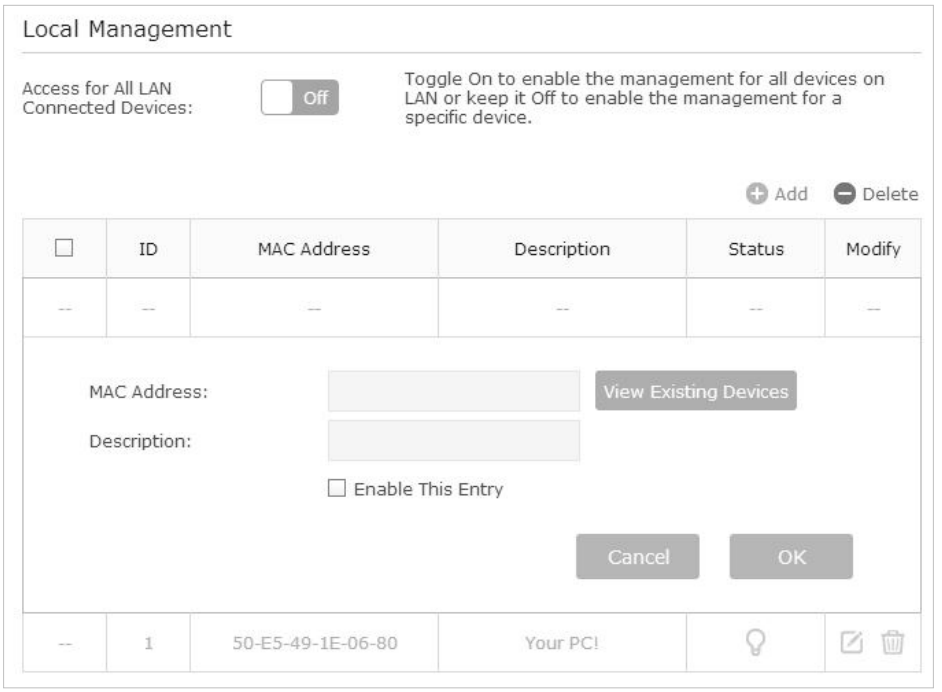
Toggle on Access for All LAN Connected Devices.



- **Allow specific devices to manage the router:**

  1) Toggle off Access for All LAN Connected Devices.

  2) Click Add.



3) Click View Existing Devices and select the device to manage the router from the Existing Devices list, or enter the MAC address of the device manually.

4) Specify a Description for this entry.

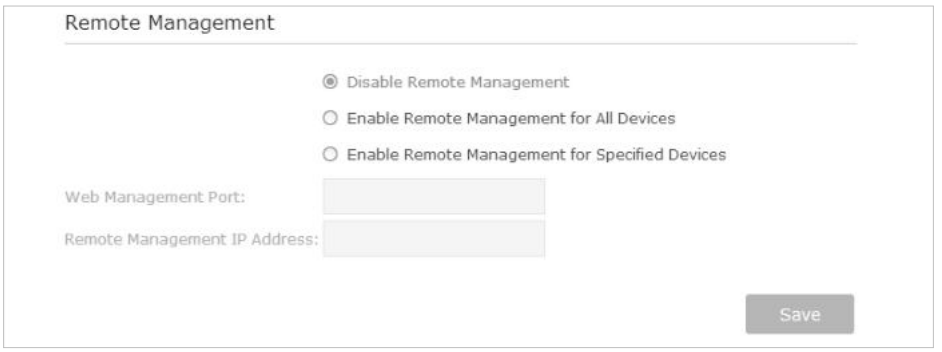
5) Tick the Enable This Entry checkbox.

6) Click OK.

13. 8. Remote Management

This feature allows you to control remote devices' authority to manage the router.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Administration and complete the settings in Remote Management section according to your needs.



- **Forbid all devices to manage the router remotely:** Select Disable Remote Management and click Save.
- **Allow all devices to manage the router remotely:**
  1) Select Enable Remote Management for All Devices.
  2) Enter Web Management Port (1024-65535 or 80).
  3) Click Save.

Devices on the Internet can log in to *http://Router's WAN IP address:port number* (such as *http://113.116.60.229:1024*) to manage the router.

Tips:

1. You can find the WAN IP address of the router on Basic > Network Maps > Internet.
2. The router's WAN IP is usually a dynamic IP. Please refer to *Set Up a Dynamic DNS Service Account* if you want to log in to the router through a domain name.

- **Allow specific devices to manage the router remotely:**
  1) Select Enable Remote Management for Specified Devices.
  2) Enter Web Management Port (1024-65535 or 80).
  3) In Remote Management IP address, enter the IP address of the remote device to manage the router.
  4) Click Save.

Devices using this WAN IP can manage the router by logging in to *http://Router's WAN IP:port number* (such as *http://113.116.60.229:1024*).

Tips:

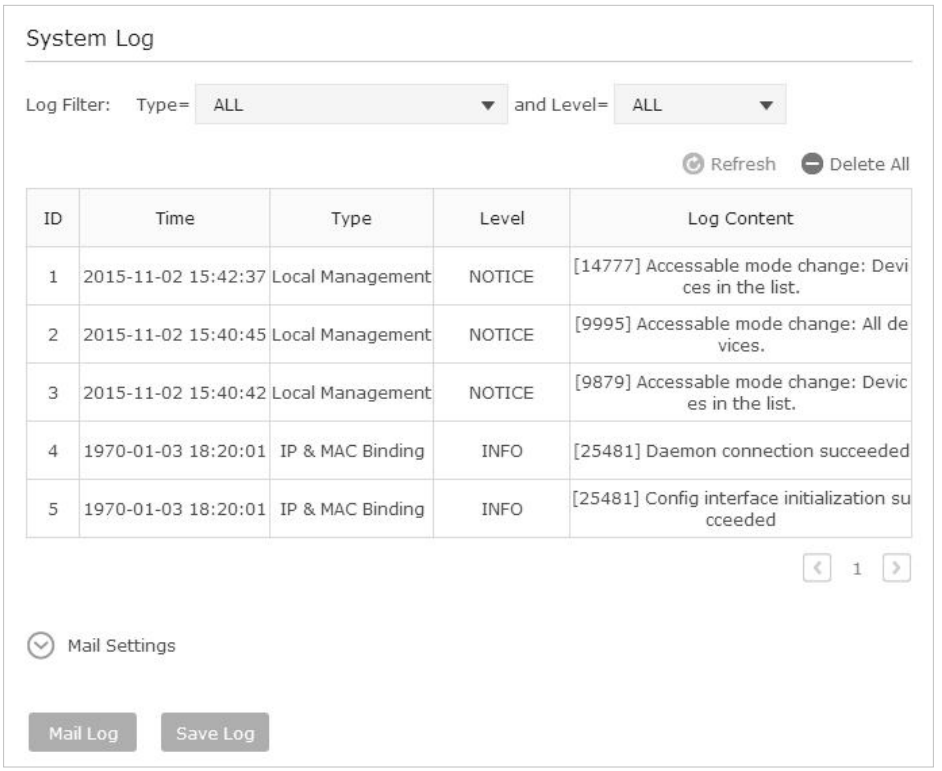
The router's WAN IP is usually a dynamic IP. Please refer to *Set Up a Dynamic DNS Service Account* if you want to log in to the router through a domain name.

13. 9. System Log

When the router does not work properly, you can save the system log and send it to the technical support for troubleshooting.

➢ **To Save the System Log in Local:**

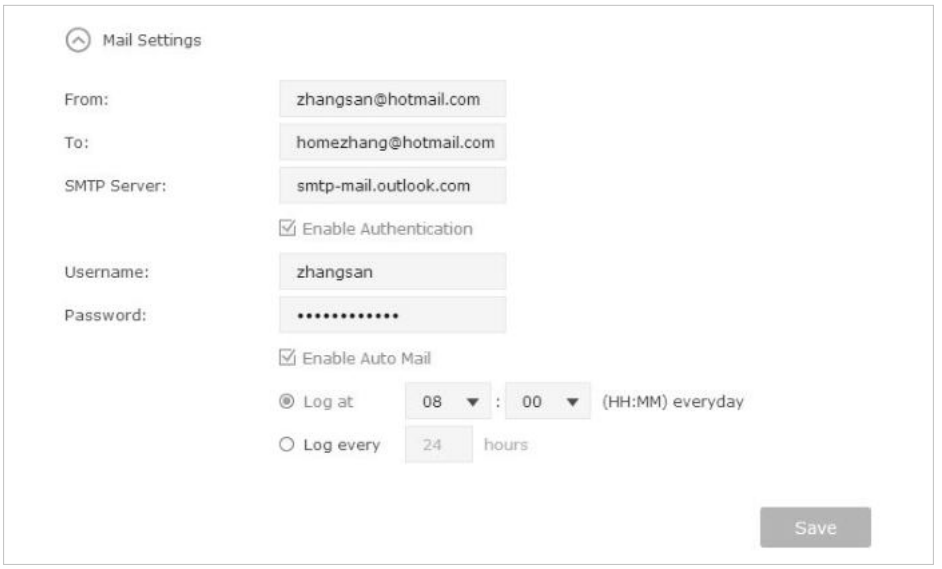
1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > System Log.
3. Choose the type and level of the system logs according to your need.
4. Click Save Log to save the system logs to local.



➢ **To Send the System Log to a Mailbox at a Fixed Time:**

For example, I want to check my router's working status at a fixed time every day, however, it's too troublesome to log in to the web interface every time I want to go checking. It would be great if the system logs could be sent to my mailbox at 8 a.m. every day.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > System Log.
3. Click Mail Settings.
4. Enter the information with the help of page tips:



1) From: Enter the email address used for sending the system log.

2) To: Enter the recipient's email address, which can be the same as or different from the sender's email address.

3) SMTP Server: Enter the SMTP server address.

Tips: SMTP server is available for users in most webmail systems. For example, the SMTP server address of Hotmail is smtp-mail.outlook.com. You can refer to their Help page to learn the SMTP server address.

4) Select Enable Authentication.

Tips: Generally, Enable Authentication should be selected if the login of the mailbox requires username and password.

5) Username: Enter the email address used for sending the system log.

6) Password: Enter the password to login the sender's email address.

7) Select Enable Auto Mail.

Tips: The router will send the system log to the designated email address if this option is enabled.

8) Set a fixed time. The recipient will receive the system log sent at this time every day.

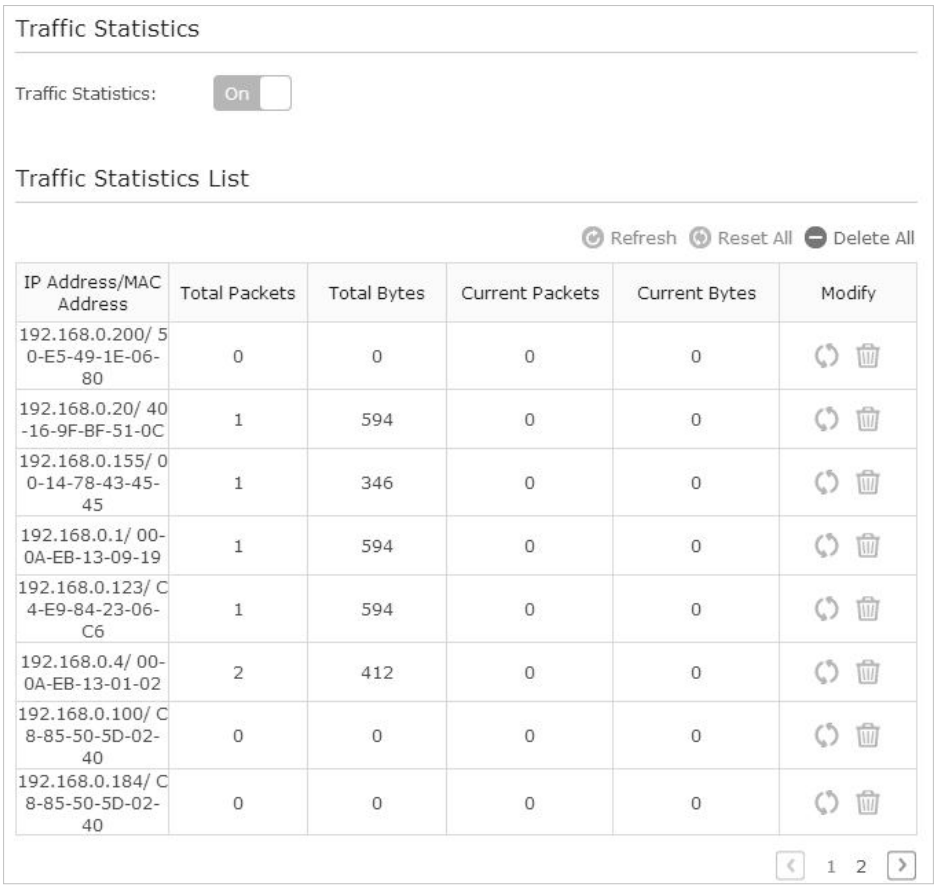
5. Click Save.

13. 10. Monitor the Internet Traffic Statistics

The Traffic Statistics page displays the network traffic of the LAN, WAN and WLAN sent and received packets, allows you to monitor the volume of Internet traffic statistics.

1. Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
2. Go to Advanced > System Tools > Traffic Statistics.

3. Toggle on Traffic Statistics, and then you can monitor the traffic statistics in Traffic Statistics List section.



Click Refresh to update the statistic information on the page.

Click Reset All to reset all statistic values in the list to zero.

Click Delete All to delete all statistic information in the list.

Click to reset the statistic information of the specific device.

Click to delete the specific device item in the list.

13. 11. Control LEDs

The router LEDs indicate router activities and behavior. You can turn on or turn off the LEDs from the web management page.

➢ **To turn on or off the LEDs:**

- Press the LED button on the router (if available) about 2 seconds to turn on or off the LEDs.
- Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router. Click the LED icon in the top-right corner of the page.

➢ **To turn off LEDs during Night Mode Period:**

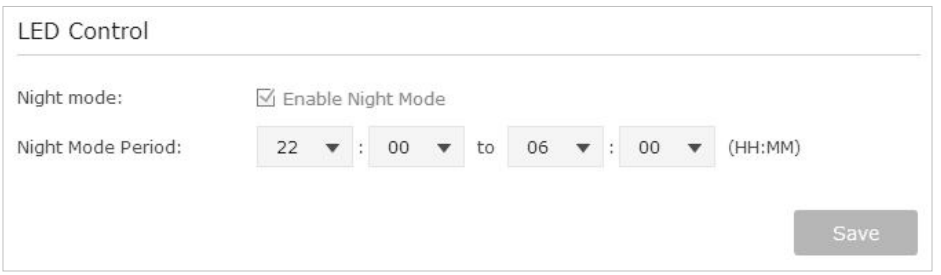
1) Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.

2) Go to Advanced > System Tools > System Parameters.

3) In the LED Control section, select the Enable Night Mode check box.

4) Specify a time period in the Night Mode Period according to your need, and the LEDs will be off during this period.

5) Click Save to make the settings effective.



FAQ

Q1. What can I do if I forgot my wireless password?

The default wireless password is printed on the label of the router. If the password has been altered, please connect your computer to the router using an Ethernet cable and follow the steps below:

1. Visit *http://tplinkwifi.net*.
2. Go to Basic > Wireless to retrieve or reset your wireless password.

Q2. What can I do if I forgot my login password of the web management page?

The default username and password of the web management page are admin (in lowercase). **If your router supports Password Recovery and you have enabled it**, please follow the steps below to reset the password without resetting the router:

Note: Make sure the Internet access is available before using this method.

1. Visit *http://tplinkwifi.net*.
2. Click Forgot password > Send Code, the verification code will be sent to the mailbox you set.
3. Log into your mailbox to copy the verification code.
4. Paste the verification code on the window which pops up in Step 2.
5. Click Confirm (the default login username and password will be reset as admin after the click).
6. Use admin (in lowercase) as both username and password to login.

Tips: Please refer to *Password Recovery* to learn how to configure Password Recovery.

If you have altered the username and password but Password Recovery is disabled:

1. Reset the router to factory default settings: press and hold the Reset button for about 7 seconds, and then release it;
2. Visit *http://tplinkwifi.net*, and enter admin (in lowercase) as both username and password to login.

Note: You'll need to reconfigure the router to surf the Internet once the router is reset, and please mark down your new password for future use.

Q3. I cannot log into the router's web management page, what can I do?

This can happen for a variety of reasons. Please try the methods below to login again.

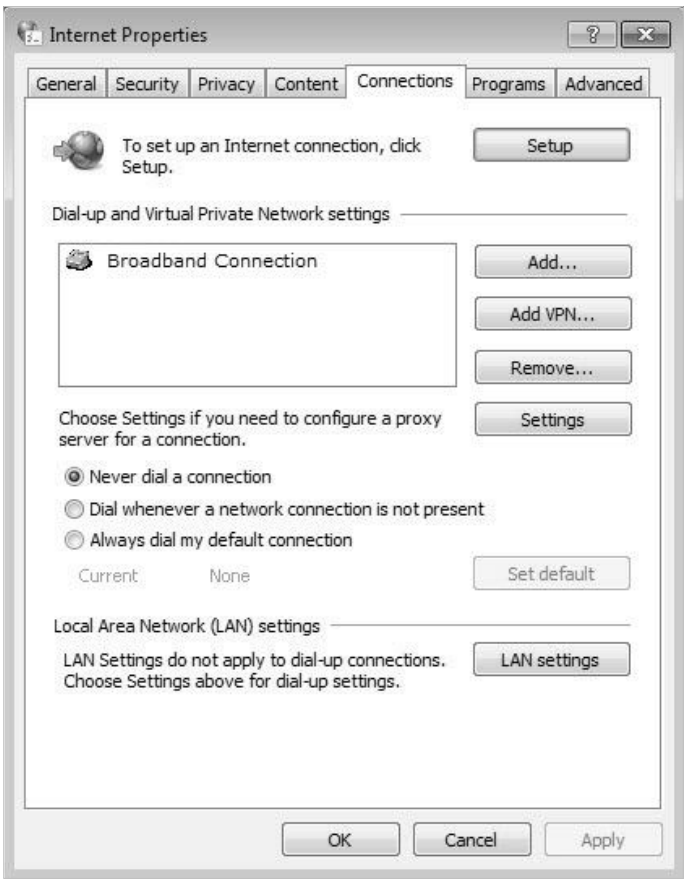
- Make sure the router connect to the computer correctly and the corresponding LED indicator(s) light up.
- Make sure the IP address of your computer is configured as Obtain an IP address automatically and Obtain DNS server address automatically.

- Make sure you enter the correct IP address to login: *http://tplinkwifi.net*.
- Check your computer's settings:

  1) Go to *Start* > *Control Panel* > *Network and Internet*, and click View network status and tasks.

  2) Click Internet Options on the bottom left.

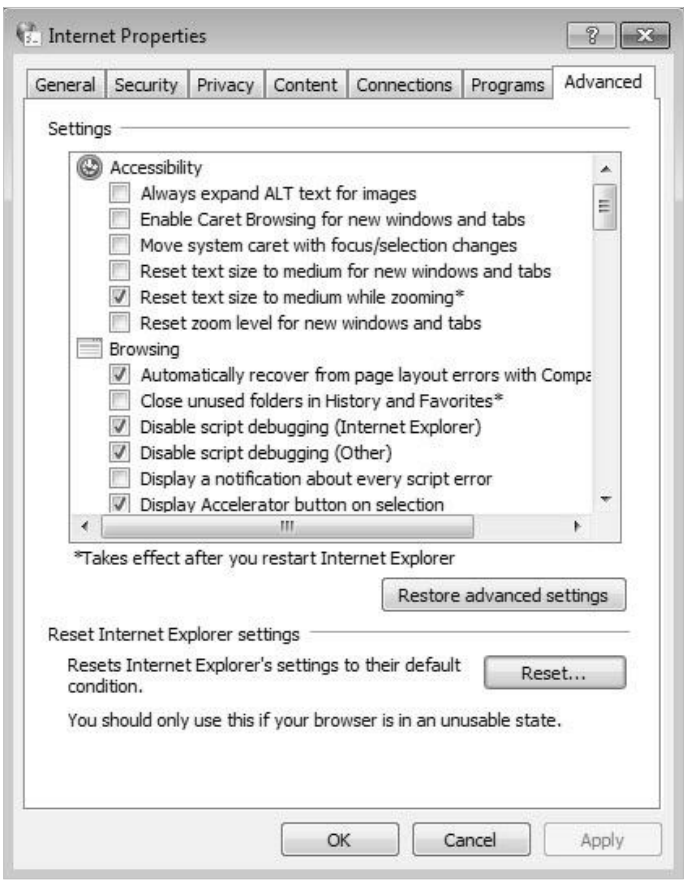
  3) Click Connections and select Never dial a connection.



  4) Click LAN settings and deselect the following three options and click OK.



5) Go to Advanced > Restore advanced settings, click OK to save the settings.



- Use another web browser or computer to login again.
- Reset the router to factory default settings and try again. If login still fails, please contact the technical support.

Note: You'll need to reconfigure the router to surf the Internet once the router is reset.

Q4. I cannot access the Internet even though the configuration is finished, what can I do?

1. Visit *http://tplinkwifi.net*.
2. Go to Advanced > Status to check Internet status:

As the follow picture shows, if IP Address is a valid one, please try the methods below and try again:



- Your computer might not recognize any DNS server addresses, please manually configure DNS server.

  1) Go to Advanced > Network > DHCP Server.

  2) Enter 8.8.8.8 as Primary DNS, click Save.

  Tips: 8.8.8.8 is a safe and public DNS server operated by Google.



- Power cycle the modem and the TP-LINK router.

1) Power off your modem and TP-LINK router, leave them off for 1 minute.

2) Power on your modem first, wait about 2 minutes until it gets a solid cable or Internet light.

3) Power back TP-LINK router.

4) Wait another 1 or 2 minutes and check the Internet access.

- Reset the router to factory default settings and reconfigure the router.
- Upgrade the firmware of the router.
- Check the TCP/IP settings on the particular device if all other devices can get Internet from the router.

As the picture below shows, if the IP Address is 0.0.0.0, please try the methods below and try again:

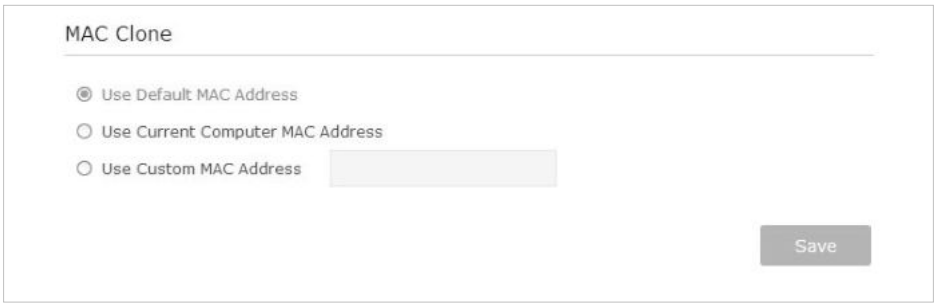


- Make sure the physical connection between the router and the modem is proper
- Clone the MAC address of your computer.

1) Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.

2) Go to Advanced > Network > Internet and focus on the MAC Clone section.

3) Choose an option to your need (Enter the MAC address if Use Custom MAC Address is selected), and click Save.



Tips:

- Some ISP will register the MAC address of your computer when you access the Internet for the first time through their Cable modem, if you add a router into your network to share your Internet connection, the ISP will not accept it as the MAC address is changed, so we need to clone your computer's MAC address to the router.
- The MAC addresses of a computer in wired connection and wireless connection are different.

- Modify the LAN IP address of the router.

Note:

Most TP-LINK routers use 192.168.0.1/192.168.1.1 as their default LAN IP address, it may conflict with the IP range of your existent ADSL modem/router. If so, the router is not able to communicate with your modem and cause you can't access the Internet. To resolve this problem, we need to change the LAN IP address of the router to avoid such conflict, for example, 192.168.2.1.

1) Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.

2) Go to Advanced > Network > LAN.

3) Modify the LAN IP address as the follow picture shows. Here we take 192.168.2.1 as an example.

4) Click Save.



- Power cycle the modem and the TP-LINK router.

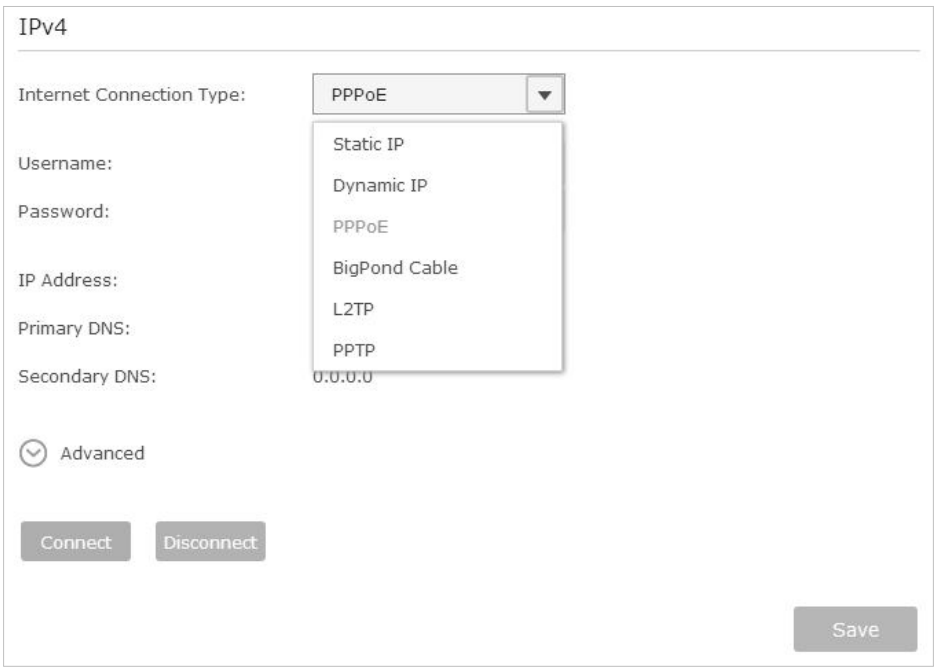
1) Power off your modem and TP-LINK router, leave them off for 1 minute.

2) Power on your modem first, wait about 2 minutes until it get a solid cable or Internet light.

3) Power back TP-LINK router.

4) Wait another 1 or 2 minutes and check the Internet access.

- Double check the Internet Connection Type.
  1) Confirm your Internet Connection Type, which can be learned from the ISP.
  2) Visit *http://tplinkwifi.net*, and log in with the username and password you set for the router.
  3) Go to Advanced > Network > Internet.
  4) Select your Internet Connection Type and fill in other parameters with the help of page tips.
  5) Click Save.



  6) Power cycle the modem and the TP-LINK router again.
- Please upgrade the firmware of the router.

If you've tried every method above but cannot access the Internet, please contact the technical support.

Q5. I cannot find my wireless network or I cannot connect the wireless network, what can I do?

If you fail to find any wireless network, please follow the steps below:

- Make sure the wireless function of your device is enabled if you're using a laptop with built-in wireless adapter. You can refer to the relevant document or contact the laptop manufacturer.
- Make sure the wireless adapter driver is installed successfully and the wireless adapter is enabled.
  - **On Windows 7**

1) If you see the message No connections are available, it is usually because the wireless function is disabled or blocked somehow.

2) Clicking on Troubleshoot and windows might be able to fix the problem by itself.

- **On Windows XP**

1) If you see the message Windows cannot configure this wireless connection, this is usually because windows configuration utility is disabled or you are running another wireless configuration tool to connect the wireless.

2) Exit the wireless configuration tool (the TP-LINK Utility, for example).

3) Select and right click on My Computer on desktop, select Manage to open Computer Management window.

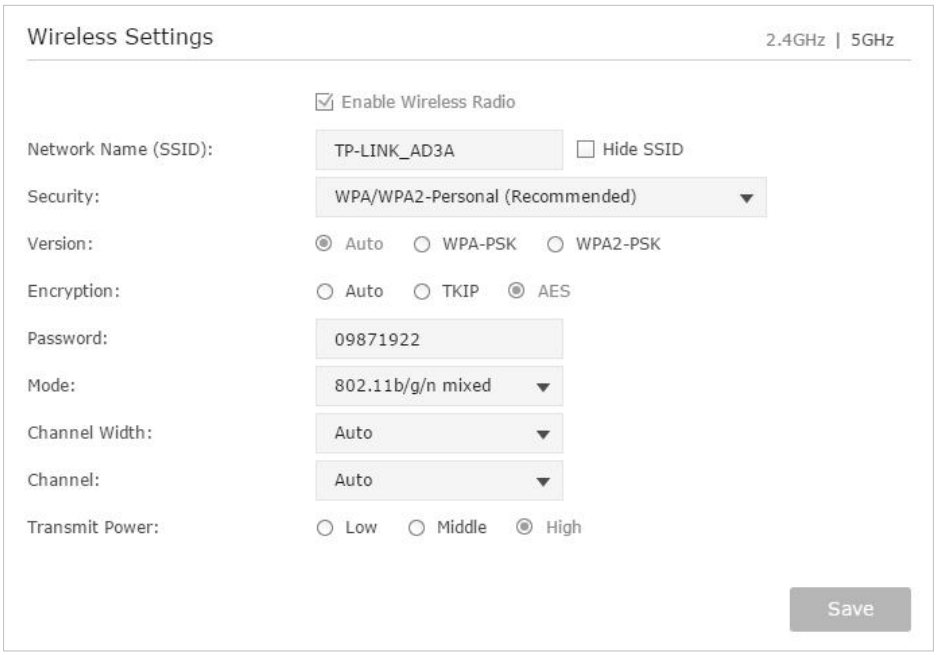
4) Expand Services and Applications > Services, find and locate Wireless Zero Configuration in the Services list on the right side.

5) Right click Wireless Zero Configuration, and then select Properties.

6) Change Startup type to Automatic, click on Start button and make sure the Service status is Started. And then click OK.

If you can find other wireless network except your own, please follow the steps below:

- Check the WLAN LED indicator on your wireless router/modem.
- Make sure your computer/device is still in the range of your router/modem, move closer if it is currently too far away.
- Go to Advanced > Wireless > Wireless Settings, and check the wireless settings, double check your Wireless Network Name and SSID is not hided.



If you can find your wireless network but fail to connect, please follow the steps below:

- **Authenticating problem/password mismatch:**

1) Sometimes you will be asked to type in a PIN number when you connect to the wireless network for the first time. This PIN number is different from the Wireless Password/Network Security Key, usually you can only find it on the label of your router.



2) If you cannot find the PIN or PIN failed, you may choose Connecting using a security key instead, and then type in the Wireless Password/Network Security Key.

3) If it continues to show note of Network Security Key Mismatch, it is suggested to confirm the wireless password of your wireless router.

Note: Wireless Password/Network Security Key is case sensitive.

- **Windows unable to connect to XXXX / Can not join this network / Taking longer than usual to connect to this network:**
    - Check the wireless signal strength of your network, if it is weak (1~3 bars), please move the router closer and try again.
    - Change the wireless Channel of the router to 1,6,or 11 to reduce interference from other networks.
    - Re-install or update the driver for your wireless adapter of the computer.

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FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

The device is restricted in indoor environment only.

Canadian Compliance Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillagecet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution:

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Avertissement:

Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Industry Canada Statement

CAN ICES-3 (B)/NMB-3(B)

Korea Warning Statements:

당해 무선설비는 운용중 전파혼신 가능성이 있음.

NCC Notice

注意！

依據 低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性或功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通行；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信規定作業之無線電信。低功率射頻電機需忍受合法通信或工業、科學以及醫療用電波輻射性電機設備之干擾。

BSMI Notice

安全諮詢及注意事項

- 請使用原裝電源供應器或只能按照本產品注明的電源類型使用本產品。
- 清潔本產品之前請先拔掉電源線。請勿使用液體、噴霧清潔劑或濕布進行清潔。
- 注意防潮，請勿將水或其他液體潑灑到本產品上。
- 插槽與開口供通風使用，以確保本產品的操作可靠並防止過熱，請勿堵塞或覆蓋開口。
- 請勿將本產品置放於靠近熱源的地方。除非有正常的通風，否則不可放在密閉位置中。
- 請不要私自打開機殼，不要嘗試自行維修本產品，請由授權的專業人士進行此項工作。

Safety Information

- When product has power button, the power button is one of the way to shut off the product; when there is no power button, the only way to completely shut off power is to disconnect the product or the power adapter from the power source.
- Don’t disassemble the product, or make repairs yourself. You run the risk of electric shock and voiding the limited warranty. If you need service, please contact us.
- Avoid water and wet locations.
- Adapter shall be installed near the equipment and shall be easily accessible.
- The plug considered as disconnect device of adapter.

Explanations of the symbols on the product label

Symbol	Explanation
⎓	DC voltage

Symbol	Explanation
	RECYCLING This product bears the selective sorting symbol for Waste electrical and electronic equipment (WEEE). This means that this product must be handled pursuant to European directive 2012/19/EU in order to be recycled or dismantled to minimize its impact on the environment. User has the choice to give his product to a competent recycling organization or to the retailer when he buys a new electrical or electronic equipment.


Intel Core I5 12450H
Ram 16GB DDR4 320MHZ
SSD M2 PCIe 512GB
Pantalla 23,8 FHD
intel
CORE
i5

Características principales

Marca	Lenovo
Línea	AIO
Modelo	IdeaCentre AIO 3 24ALC6
Modelo alfanumérico	24ALC6
Color	Blanco
Voltaje	110V
Procesador	Intel Core i5-12450H
Memoria RAM	16 GB
Capacidad de disco SSD	512 GB
Resolución de la pantalla	1920 px x 1080 px
GPU	Integrated Intel Iris Xe Graphics

Otros

Nombre del sistema operativo	FreeDOS
Versión del sistema operativo	10
Con Bluetooth	Sí
Con puerto USB	Sí
Cantidad de puertos USB	4
Tipos de puertos USB	Usb 2.0, USB 3.2
Con Wi-Fi	Sí
Con puerto ethernet	Sí
Con puerto HDMI	Sí
Con conexión Thunderbolt	No



Color: Black

Size and Weight



Height: 213.0 mm

Width: 128.8 mm

Depth: 14.0 mm

Weight: 560 grams

actual product.

Charging and battery
7650mAh Large Battery

Built-in lithium-ion polymer battery

USB Type-C

Supports 18W charging

Battery Life

Standby Time	Up to 414 Hours
Talk Time	Up to 41 Hours

* Typical value. Actual capacity may vary slightly. This capacity is the nominal battery capacity. The actual battery capacity for each individual product may be slightly above or below the nominal battery capacity.

* Non-removable battery. Removing the battery may cause damage to the device.

* Use with original charger and data cable, the max charging power can reach 10W. The actual charging power will intelligently change with different scenarios, please refer to the actual use.

Rugged
Splash, Water and Dust Resistant

Rated IP68 (maximum depth of 1.5 metres up to 30 minutes) under IEC standard 60529

Rated IP69K under IEC standard 60529

MIL-STD-810H Certification

*Armor Pad is splash, water, and dust resistant and was tested under controlled laboratory conditions with a rating of IP68 under IEC standard 60529 (maximum depth of 1.5 meters up to 30 minutes). Charger and accessories are not water-resistant. Splash, water and dust resistance are not permanent and might decrease as a result

Display
8.0-inch (diagonal)

All-screen LCD Multi-Touch display with IPS technology

Resolution: 1280 * 800 HD+

Brightness: 500 nits

*With a rounded corners design on the display, the diagonal length of the screen is 8.0 inches when measured according to the standard rectangle (the actual viewable area is slightly smaller).

*The resolution measured as a standard rectangle, with a rounded corners design, the effective pixels are slightly less.

Processor
MediaTek Helio G25

CPU: MT6762V/CB

CPU architecture: 8*Cortex-A53, 12nm

CPU frequency: Octa(8) Core, up to 2.0GHz

GPU: IMG PowerVR GE8320

GPU frequency: up to 650MHz

Storage and RAM
4GB+64GB

RAM: 4GB memory

Flash storage: 64GB storage

microSD card Up to 256GB

*The Virtual Memory Expansion can be activated in Settings and adds up to 4GB of RAM. Some software may not be compatible with this feature.

*SD card needs to be purchased separately. Recommended to use Class 10 memory cards, other memory cards are not guaranteed to be fully compatible.

Rear Camera
13MP Main Camera

Hi1333, 79.3°, ƒ/2.2

Photo resolution: up to 3120x4160 pixels

Video resolution: up to 1920x1080 pixels

LED Flash

Rear camera video features

1080P recording	30fps
720P recording	30fps
480P recording	30fps

*The actual photo and video resolution may vary depending on the shooting mode.

*The camera software functions are subject to actual presence, some functions and names may vary depending on the software version.

Front Camera
5MP selfie camera

GS5K5E2, 1.12μm, 3P, 83.3°, ƒ/2.0

Front camera video features

1080P recording	30fps
720P recording	30fps

*In different photo modes, the number of pixels may be slightly different, please refer to the actual situation.

*The actual photo and video resolution may vary depending on the shooting mode.

*The camera software functions are subject to actual presence, some functions and names may vary depending on the software version.

Audio

Dual-Speaker Sound System

Immersive Stereo Sound

1217 Box

Underwater Photography

Supports to take photos & video recording

Supports to start/end operation underwater

Supports to quickly switch shooting modes underwater

Unlock Options

Supports Fingerprint Unlock

Side-Mounted Fingerprint, Integrate power key and fingerprint sensor together

Capacitive Touch Sensor

Response speed: Up to 0.1s

Supports the enrollment of 5 sets of fingerprint

Supports Face Unlock

Network

Supports use of dual SIM cards from different carriers

Both cards can access 4G/3G connectivity simultaneously

Dual Nano SIM; either card can be set as the primary card

Supports 4G/3G/2G

Supports VoLTE HD calling

Supported network bands

4G Network

LTE-FDD: B1/2/3/4/5/7/8/12/17/19/20

28A/28B

TDD-LTE: B38/40/41

3G Network

WCDMA: B1/2/4/5/8

2G Network

GSM: B2/3/5/8

*Dual 4G requires the support of local carriers services, and may not be available in all regions.

*Only supports single SIM for communication service, which means when one of the SIM cards is in calling, the other SIM card will not be able to connect.

*Only certain regions and telecom operators support VoLTE.

Connectivity

WLAN

Supports protocols: 802.11 a/b/g/n/ac

Bluetooth

Supports Bluetooth 5.2

Navigation and positioning

Supports multiple positioning systems

GPS

GLONASS

Beidou

Galileo

uSmart Expansion

Endoscope E01

uSmart E02 Endoscope

uSmart C01 Supermicroscope

*For more devices that are compatible with uSmart Expansion Connector, you are recommended to refer to our accessories list. Expansion devices require additional purchases.

NFC

Supports Google Pay

Supports Transit, Loyalty Cards, Gift Cards and Plane tickets

*Supported by Google Pay, you should download Google Pay to use it. Google Pay available countries and regions please refer to https://pay.google.com/about.

Pure Android System

No ads

Buttons



Sensors

Acceleration Sensor, Proximity Sensor, Light Sensor, Gravity Sensor,

Geomagnetic Sensor, Pedometer

Multimedia

Video	3GP/MP4/MOV/FLV/MKV/AVI/3GP
Audio	MP3/AMR/AAC/FLAC/MID/MKA
Image	BMP /GIF /JPG /PNG
Ebook	TXT/HTML

Ports

USB 2.0, Type-C

OTG Function: Supported

3.5 mm Headphone Jack

Card slot

Three(3), Nano SIM+Nano SIM+microSD

SAR

Maximum 10g SAR

We will update the data soon

Language support

Indonesian, Malay, Catalan, Czech, Danish, German, Estonian, English, Spanish, Filipino, French, Croatian, Italian, Latvian, Lithuanian, Hungarian, Dutch, Norwegian, Polish, Portuguese, Romanian, Slovak, Finnish, Swedish,

Vietnamese, Greek, Turkish, Bulgarian, Russian, Serb, Ukrainian, Armenian, Hebrew, Urdu, Arabic, Persian, Hindi, Bengali, Thai, Korean, Burmese,

In the box

Ulefone Armor Pad

AC Power Charger (EU plug)

USB-A to USB Type-C 2.0 Charger Cable (1M)

Protective Film (Pre-installed)

SIM Needle

Multi-languages User Manual

Warranty Card

Charging Instruction Card

Safety Prompt card

Multi-function Instruction Card

*The standard charger is EU type, if you need other chargers please purchase them separately.

*May vary in different market. Subject to the actual product.

*The apperance of package and accessories may be different, but the function remain the same, please refer to the actual.

- The tablet pictures and screen content on the above are for illustration only. The actual tablet (including but not limited to appearance, color, size) and screen (including but not limited to background, UI, and graphics) may be slightly different. Please refer to the actual product.
- The data on the page are theoretical values from Ulefone lab based on specific test environment (see details at specific description). In actual use, there may be slight differences due to product differences, software versions, use conditions and environmental factors, so please refer to actual situation as final.
- The preceding specifications are theoretical values based on product design. Some features and specifications may vary across markets. To provide accurate product information, specifications, and features, Ulefone may make real-time adjustments to the preceding

specifications, so that they match the product performance, specifications, indexes, and components of the actual product. Product information is subject to such changes and adjustments without notice.

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- The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc.

PRODUCTS

Rugged Phone Armor Series

Rugged Phone Armor X Series

Smartphone Note Series

Rugged Tablet Armor Pad

Accessories

Thermal Camera Applications

SUPPORT

Support Centers

User Manuals

ABOUT

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CONTRATO DE COMPRAVENTA No. 5.5-31.3/019 DE 2021

CONTRATANTE: UNIVERSIDAD DEL CAUCA
CONTRATISTA: MICROINGENIERIA APLICADA SAS
NIT: 900481154-3
VALOR: CUARENTA Y DOS MILLONES OCHOCIENTOS CUARENTA MIL PESOS M/CTE ($42.840.000). IVA INCLUIDO.

Entre los suscritos, **CIELO PÉREZ SOLANO**, mayor de edad, identificada con cédula de ciudadanía 34.570.235 de Popayán, debidamente autorizada para celebrar el presente, según artículo 5 del Acuerdo 064 de 2008 y el artículo Primero Numeral 1 y 2 de la Resolución 311 del 27 de mayo del 2020, en su carácter de Vicerrectora Administrativa de la Universidad del Cauca, ente universitario autónomo del orden nacional, vinculado al Ministerio de Educación Nacional, con régimen especial, con personería jurídica, autonomía académica, administrativa y financiera, NIT. 891500319-2, quien para los efectos de este contrato se denominará **LA UNIVERSIDAD**, y de la otra **JUAN CARLOS GÓMEZ HOLGUÍN**, mayor de edad, identificado(a) con cédula de ciudadanía No. 76.303.950 expedida en Popayán, quien obra en su calidad de Representante Legal de la sociedad **MICROINGENIERIA APLICADA S.A.S.**, identificada con NIT 900481154-3, legalmente constituida por documento privado número 1 del 25 de noviembre de 2011 de la asamblea de accionistas, registrado en esta cámara de comercio bajo el número 29220 del libro IX, según consta en el certificado de existencia y representación legal expedido por la Cámara de Comercio del Cauca, expedido el día 04 de octubre de 2021, parte que en adelante se denominará **EL CONTRATISTA,** celebramos el presente contrato de COMPRAVENTA previas las siguientes consideraciones: **1)** El Acuerdo 064 de 2008, emanado del Consejo Superior Universitario establece el régimen contractual y los principios que rigen los contratos que celebra la institución. **2)** El Acuerdo 064 de 2008 o Estatuto de contratación de la Universidad del Cauca, dentro de los tipos de contratos estableció en el artículo 33 el contrato de compraventa. **3)** El artículo 50 del Acuerdo 064 de 2008, estableció como requisitos precontractuales de contratación directa para procesos menores a 50 SMMLV los siguientes: a) Mínimo una cotización y b). Justificación escrita del solicitante, definiendo su conveniencia y oportunidad. **4)** El Laboratorio de Física fundamente su necesidad, carencia y limitaciones que presta respecto de los recursos de soporte para la realización de la parte práctica de asignaturas lo que hace necesario dotar espacio con el propósito de acompañar la realización de las actividades académicas, ya que actualmente solo se dispone de equipos para soportar la realización de prácticas. Es importante resaltar que acceder a estos recursos, contribuye de manera directa y notable a respaldar los procesos de alta calidad que se realizan en nuestra universidad y mejorar los indicadores de esta gestión. **5)** Una vez recibida la cotización por parte del representante legal de **MICROINGENIERIA APLICADA S.A.S.**, la cual se encuentra ajustada a lo dispuesto por el Acuerdo 064 de 2008 y a las necesidades de la institución, las partes acuerdan suscribir el presente contrato el cual se regirá por las siguientes cláusulas:

CLAUSULA PRIMERA –OBJETO: ADQUISICIÓN DE MÁQUINAS SEMIAUTOMÁTICAS PARA EL LABORATORIO DE FÍSICA, DE ACUERDO CON EL SIGUIENTE CUADRO DE CARACTERISTICAS Y ESPECIFICACIONES TECNICAS:

ITEM	DESCRIPCIÓN	VALOR
1	Diseño y construcción de una maquina semiautomática para el Laboratorio de Física. Un Sistema cuyo proceso la emplea como una Planta de Caída Libre para el desarrollo de prácticas remotas. Un mecanismo de movimiento con actuador electromecánico que permita el desplazamiento de un brazo para la ubicación de la cabeza en cada una de 5 alturas predeterminados y un dispositivo con actuador mecánico para soltar un balín de 50gr en acero inoxidable, de forma que, mediante sensores electrónicos, sea posible validar la posición y calcular el tiempo de vuelo, facilitando además la recolección del balín y el reinicio del experimento. Con una tolba de carga para cargar hasta 100 balines. Esta máquina cuenta con alimentación eléctrica, mecanismos elaborados en acero sae 1045 calibrado, rodamientos estándar, accesorios en ABS. Estará inmersa dentro de una cabina de 80 x 90 cm, elaborada en perfil estructural y lamina cold rolled con iluminación tipo led de luz blanca fría. Incluye puerta abatible en acrílico tipo cristal, con manija cromada, empaque espumoso, con instalación de conexiones adaptables a la red eléctrica y salida de datos. Incorpora el sistema electrónico embebido para la recolección de los datos de los sensores y el manejo de los actuadores.	$12.000.000,oo
2	Diseño y construcción de una maquina semiautomática para el Laboratorio de Física. Un Sistema cuyo proceso la emplea como una Planta de Ley de Hooke para prácticas remotas, con actuadores para un movimiento electromecánico y manual asistido, que permita la ubicación y elongación de tres resortes con diferentes constantes de elasticidad, cada uno a su tiempo, todo sobre una base de sensores que harán posible validar la distancia de elongación y la fuerza aplicada, haciendo además posible iniciar, parar, liberar la fuerza y dar reinicio del experimento tantas veces como sea necesario. Estará inmersa dentro de una cabina de 80 x 90 cm, elaborada en perfil estructural y lamina cold rolled con iluminación tipo led de luz blanca fría. Incluye puerta abatible en acrílico tipo cristal, con manija cromada, empaque espumoso, con instalación de conexiones adaptables a la red eléctrica y salida de datos. Incorpora el sistema electrónico embebido para la recolección de los datos de los sensores y el manejo de los actuadores.	$12.000.000,oo
3	Diseño y construcción de una maquina semiautomática para el Laboratorio de Física. Un Sistema cuyo proceso la emplea como una Planta de Movimiento Parabólico para prácticas remotas, con un actuador para provocar un movimiento electromecánico rotatorio que fije el ángulo de lanzamiento entre 30 y 60 grados en pasos de 5 grados, para activar otro mecanismo electromecánico que dispare un balín de 50gr en acero inoxidable a voluntad del usuario, con la inclusión de marcadores luminosos en los puntos de disparo. Mediante diferentes sensores, será posible validar el punto de caída, además de facilitar la recolección del balín y el reinicio del experimento, con tolba recolectora de hasta 100 balines. Estará inmersa dentro de una cabina de 80 x 90 cm, elaborada en perfil estructural y lamina cold rolled con iluminación tipo led de luz blanca fría. Incluye puerta abatible en acrílico tipo cristal, con manija cromada, empaque espumoso, con instalación de conexiones adaptables a la red eléctrica y salida de datos. Incorpora el sistema electrónico embebido para la recolección de los datos de los sensores y el manejo de los actuadores.	$12.000.000,oo
	SUBTOTAL	$36.000.000,oo
	IVA	$ 6.040.000,oo
	TOTAL	$42.040.000,oo

CLAUSULA SEGUNDA –VALOR: Para los efectos legales y fiscales, el valor del presente contrato se fija en la suma de **CUARENTA Y DOS MILLONES OCHOCIENTOS CUARENTA MIL PESOS M/CTE ($42.840.000). IVA INCLUIDO.**

CLAUSULA TERCERA –FORMA DE PAGO: LA UNIVERSIDAD pagará AL CONTRATISTA el valor del contrato 100% contra entrega, previa certificación de recibido a satisfacción por parte del supervisor del contrato y la presentación de los siguientes documentos. 1. Factura, expedida de conformidad con la ley o documento equivalente. 2. Certificación de pago expedida por el supervisor del contrato. 3. Acta de Recibo a Satisfacción. 4. Evaluación de proveedor. 5. Certificación del Representante Legal, sobre el pago de los aportes a los Sistemas de Seguridad Social y parafiscales (Caja de Compensación Familiar, SENA e ICBF), cuando a ello haya lugar, de conformidad con lo establecido en el artículo 50 de la Ley 789 de 2002 y demás normas concordantes. **PARÁGRAFO:** La Universidad pagará al CONTRATISTA el valor del contrato, consignando en la Cuenta Ahorros Damas No. 197000053839 del BANCO DAVIVIENDA, o en la cuenta bancaria que el contratista/ vendedor acredite mediante presentación de certificación expedida por la entidad financiera correspondiente.

CLAUSULA CUARTA –PLAZO: El plazo de ejecución del contrato será de **UN (01) MES**, contados a partir de la fecha de cumplimiento de los requisitos de ejecución.

CLAUSULA QUINTA –SOMETIMIENTO A RUBROS Y GIROS PRESUPUESTALES: Los pagos que en virtud de este contrato obligan a la Universidad, se hará con cargo al Certificado de Disponibilidad Presupuestal Número D412-202101581 de fecha 01 de octubre de 2021, expedido por la División de Gestión Financiera.

CLAUSULA SEXTA –OBLIGACIONES DEL CONTRATISTA: Tendrá a su cargo las siguientes obligaciones: **1)** Cumplir a cabalidad con cada una de las cláusulas del presente contrato. **2)** Entregar la totalidad de los elementos contratados dentro del plazo establecido en el presente proceso, de acuerdo con las características técnicas exigidas por la Entidad. **3)** Garantizar la calidad de los elementos entregados. **4)** Reemplazar los elementos(s) o insumos que presenten defectos en su calidad sin costo adicional para la Entidad, dentro de un tiempo razonable, previo al requerimiento por parte del supervisor del contrato. **5)** El CONTRATISTA deberá estar al día en el pago de los aportes a los sistemas de seguridad social en salud, riesgos laborales y pensiones, e igualmente estar al día en el pago de los aportes parafiscales durante la vigencia del contrato (Caja de Compensación Familiar, ICBF y SENA) y allegar a la UNIVERSIDAD para el trámite de pagos las certificaciones correspondientes. **6)** Acatar las instrucciones que para el desarrollo del contrato le imparta la UNIVERSIDAD por conducto del supervisor del Contrato. **7)** Informar oportunamente al supervisor del contrato sobre las imposibilidades o dificultades que se presenten en la ejecución del mismo y ofrecer alternativas para garantizar la buena ejecución del contrato. **8)** Suscribir los documentos contractuales necesarios para la ejecución. **9)** Entregar la garantía de los equipos adquiridos. **10)** Las demás que sean necesarias para dar cumplimiento al objeto contractual.

CLAUSULA SEPTIMA –OBLIGACIONES DE LA UNIVERSIDAD: **1)** Aprobar la póliza que garantiza el cumplimiento del contrato. **2)** Suministrar oportunamente la información suficiente y requerida por la contratista para la ejecución del contrato. **3)** Aprobar por intermedio del supervisor la entrega de los elementos e insumos objeto del contrato. **4)**

Efectuar los trámites necesarios para el pago dentro de los plazos establecidos. **5)** Realizar el pago previa presentación correcta por parte de la contratista, de los documentos requeridos y acorde con los plazos establecidos por la UNIVERSIDAD. 6) Las demás que sean necesaria acorde con la naturaleza del contrato.

CLÁUSULA OCTAVA –DOCUMENTOS DEL CONTRATO: Forman parte integral del presente contrato: 1) Certificado de Disponibilidad Presupuestal. 2) Oficio de solicitud de CDP, justificación de conveniencia y oportunidad. 3). Oferta del contratista. 4) Certificado de antecedentes judiciales, fiscales y disciplinarios. 6) matriz de riesgos. 7) Estudios previos.

CLÁUSULA NOVENA –SUPERVISOR: La Supervisión del presente contrato estará a cargo del servidor universitario que para el efecto designe la Vicerrectora Administrativa o quien haga sus veces, quien deberá asumir las funciones y responsabilidades de supervisor conforme el Acuerdo 064 de 2008 y demás normas complementarias.

CLÁUSULA DÉCIMA –FUNCIONES DEL SUPERVISOR: Las mismas funciones del Supervisor de la Universidad del Cauca, que se encuentran establecidas en el Acuerdo 064 de 2008, Capitulo II, Artículos del 12 al 19, las cuales entre otras son: 1) Promover la correcta ejecución del contrato. 2) Informar oportunamente a las instancias competentes las irregularidades o incumplimientos por parte del CONTRATISTA. 3) Impartir recomendaciones e indicaciones por escrito a la CONTRATISTA. 4) Remitir a la carpeta original los documentos que acrediten el cumplimiento del objeto contractual. 5) Ejercer los seguimientos, controles y evaluaciones de la ejecución contractual. 6) Las demás que se deriven de sus funciones.

CLÁUSULA DÉCIMA PRIMERA –GARANTÍAS: EL CONTRATISTA deberá constituir a favor de LA UNIVERSIDAD DEL CAUCA, en una Compañía de Seguros legalmente establecida en Colombia, cuya póliza matriz este aprobada por la superintendencia financiera, una garantía única "entre particulares", de conformidad con lo estipulado en el Acuerdo No. 064 de 2008, que ampare lo siguiente: **a). Cumplimiento:** El valor de esta garantía será del veinte por ciento (20%) del valor total del contrato y el contratista deberá otorgarla con una vigencia igual al plazo del contrato garantizado más dos (2) meses. **b). Calidad y correcto funcionamiento:** El valor de esta garantía será del cincuenta por ciento (50%) del valor total del contrato. El contratista deberá otorgarla con una vigencia igual al plazo del contrato garantizado y un (1) año más. **PARÁGRAFO PRIMERO:** Las garantías anteriores deberá renovarlas EL CONTRATISTA oportunamente cuando sea necesario hacerlo. Si EL CONTRATISTA no renovare en su oportunidad las garantías estipuladas por razón de este contrato, de sus prórrogas, adiciones, modificaciones, etc., LA UNIVERSIDAD directamente solicitará a la Compañía de Seguros dicha renovación e imputará el valor de las primas respectivas a los saldos pendientes a favor de EL CONTRATISTA. **PARÁGRAFO SEGUNDO:** Las garantías del presente contrato no eximen AL CONTRATISTA de cumplir con el objeto contractual.

CLÁUSULA DÉCIMA SEGUNDA –CESIÓN Y SUBCONTRATOS: EL CONTRATISTA no podrá ceder ni subcontratar los derechos y obligaciones emanadas del presente contrato en persona natural o jurídica, sin el consentimiento previo y expreso de LA UNIVERSIDAD, pudiendo ésta reservarse las razones que tenga para negar la cesión.

CLAUSULA DÉCIMA TERCERA –APORTES A LA SEGURIDAD SOCIAL: EL CONTRATISTA debe presentar una certificación (expedida por el Revisor Fiscal, cuando éste exista de acuerdo con los requerimientos de la Ley, o por el Representante Legal, cuando no se requiera Revisor Fiscal), en la que se indique que se encuentran al día en el pago de los aportes de sus empleados a los sistemas de salud, riesgos profesionales, pensiones y aportes a las Cajas de Compensación Familiar, Instituto Colombiano de Bienestar Familiar y Servicio Nacional de Aprendizaje SENA, dicho documento debe certificar que ha realizado el pago de los aportes correspondientes.

CLAUSULA DÉCIMA CUARTA –DOMICILIO: Las partes declaran que, para todos los efectos legales, fijan la ciudad de Popayán como domicilio contractual.

CLÁUSULA DÉCIMA QUINTA –MULTAS: En caso de incumplimiento a cargo DEL CONTRATISTA, LA UNIVERSIDAD podrá exigir mullas diarias sucesivas equivalentes al uno por ciento (1%) del valor del contrato, sin que en su conjunto excedan el 10% del valor total del mismo.

CLÁUSULA DÉCIMA SEXTA –PENAL PECUNIARIA: En caso de incumplimiento, sin perjuicio de la imposición de multas, La UNIVERSIDAD podrá exigir AL CONTRATISTA una sanción equivalente al veinte por ciento (20%), del valor total del contrato como sanción anticipada de perjuicios.

CLÁUSULA DÉCIMA SEPTIMA –CAUSALES DE TERMINACIÓN: Las causales de terminación del contrato se encuentran establecidas en el artículo 53 del Acuerdo 064 de 2008, las cuales, entre otras son: 1) Vencimiento del plazo. 2) Mutuo acuerdo. 3) Incumplimiento de las obligaciones estipuladas por parte DEL CONTRATISTA. 4) Fuerza mayor o caso fortuito.

CLÁUSULA DÉCIMA OCTAVA –PROCEDIMIENTOS PARA LA APLICACIÓN DE SANCIONES, MULTAS Y DECLARATORIAS DE INCUMPLIMIENTO: La aplicación de sanciones, multas y declaratorias de incumplimiento se realizará conforme al procedimiento establecido en el parágrafo del artículo 85 del acuerdo 064 del 2008, adicionado por el Acuerdo superior 017 del 21 de junio de 2011.

CLÁUSULA DÉCIMA NOVENA –INHABILIDADES E INCOMPATIBILIDADES: EL CONTRATISTA afirma que no se encuentra incurso en las inhabilidades, incompatibilidades o prohibiciones para contratar con LA UNIVERSIDAD.

CLÁUSULA VIGÉSIMA – DECLARACIONES DE LA CONTRATISTA: EL CONTRATISTA hace las siguientes declaraciones: 1 Conoce y acepta los documentos del proceso. 2. Tuvo la oportunidad de solicitar aclaraciones y modificaciones a los documentos del proceso y recibió de LA UNIVERSIDAD respuesta oportuna a cada una de las solicitudes. 3. Se encuentra debidamente facultado para suscribir el presente contrato. 4. EL CONTRATISTA al momento de la celebración del presente contrato no se encuentra en ninguna causal de inhabilidad, incompatibilidad o prohibición. 5. Se encuentra a paz y salvo con sus obligaciones laborales frente a los sistemas de seguridad social integral y parafiscales. 6. El valor del contrato incluye todos los gastos, costos, derechos, impuestos, tasas y demás contribuciones relacionados con el cumplimiento del objeto del presente contrato. 7. EL CONTRATISTA durante la ejecución del presente contrato realizará todas las actividades necesarias para la

ejecución. 8. EL CONTRATISTA manifiesta que los recursos que componen su patrimonio no provienen de lavado de activos, financiación del terrorismo, narcotráfico, captación ilegal de dineros y en general de cualquier actividad ilícita; de igual manera manifiesta que los recursos recibidos en desarrollo de este contrato, no serán destinados a ninguna de las actividades antes descritas.

CLAUSULA VIGÉSIMA PRIMERA –INDEMNIDAD: EL CONTRATISTA mantendrá indemne a LA UNIVERSIDAD contra todo reclamo, demanda, acción legal y costos que puedan causarse o surgir por daños o lesiones a personas o bienes ocasionados por EL CONTRATISTA durante la ejecución del objeto y obligaciones del contrato. En caso de que formule reclamo, demanda o acción legal en contra de la UNIVERSIDAD por asuntos que según los contratos sean responsabilidad DEL CONTRATISTA, se le comunicará lo más pronto posible de ello para que por su cuenta adopte oportunamente las medidas previstas por la ley para mantener indemne a la UNIVERSIDAD DEL CAUCA y adelante los trámites para llegar a un arreglo del conflicto. Si LE VENDEDOR no asume debida y oportunamente la defensa de la UNIVERSIDAD DEL CAUCA, ésta podrá hacerlo directamente, previa comunicación escrita ALVENDEDOR, quien pagará todos los gastos en que la entidad incurra por tal motivo. En caso de que así no lo hiciere, LA UNIVERSIDAD tendrá derecho a descontar tales erogaciones de cualquier suma que adeude EL CONTRATISTA por razón de los servicios motivo del contrato.

CLAUSULA VIGÉSIMA SEGUNDA –DE LA SOLUCIÓN DE CONTROVERSIAS: La Universidad y EL CONTRATISTA buscarán la solución de sus controversias dentro del desarrollo contractual, de forma ágil, rápida y directa, y para el efecto, a través de la Oficina Jurídica de la Universidad, quien acudirá al empleo de mecanismos de conciliación, transacción o cualquier forma extrajudicial.

CLÁUSULA VIGÉSIMA TERCERA – En el marco de las directrices nacionales establecidas en Resolución No. 385 de 2020 mediante la cual se declara la emergencia sanitaria, prorrogada actualmente por la Resolución No. 1315 del 27 de agosto de 2021 hasta el 30 de noviembre del mismo año, Resolución No. 777 del 02 de junio de 2021 por medio de la cual se definen los criterios y condiciones para el desarrollo de las actividades económicas, sociales y del Estado y se adopta el protocolo de bioseguridad para la ejecución de estas, el Decreto 1026 del 31 de agosto de 2021, por el cual se imparten instrucciones en virtud de la emergencia sanitaria generada por la pandemia del Coronavirus COVID -19, y el mantenimiento del orden público, se decreta el aislamiento selectivo con distanciamiento individual responsable y la reactivación económica segura, LA DIRECCIÓN UNIVERSITARIA ha adoptado diferentes estrategias para fortalecer la prevención del COVID 19. En este sentido, el interesado en el presente proceso, además de lo anterior, deberán observar los lineamientos establecidos en la Resolución R - 0463 de 2021 en la cual se regula el retorno presencial a actividades laborales administrativas de manera progresiva dentro de los espacios físicos de la Universidad del Cauca, a partir del 07 de septiembre de 2021.

CLÁUSULA VIGÉSIMA CUARTA – REVISIÓN JURÍDICA: El revisor (a) jurídico(a) con su visto bueno da fe de que todo lo establecido en el presente contrato, está acorde con el ordenamiento jurídico vigente y demás normas universitarias, razón por la cual recomienda la suscripción del mismo por parte del representante legal de la Universidad del Cauca u Ordenador del Gasto.

CLÁUSULA VIGÉSIMA QUINTA –PERFECCIONAMIENTO Y EJECUCIÓN: El presente contrato se perfecciona con la firma de las partes. Para su ejecución requiere del registro de disponibilidad presupuestal, la constitución y aprobación de las garantías. EL CONTRATISTA dispone de un término de dos (2) días hábiles en los cuales deberá constituir las garantías solicitadas LA UNIVERSIDAD no reconocerá suma alguna si su ejecución se inicia sin el cumplimiento de los citados requisitos.

Para constancia se firma en Popayán, a los veinticinco (26) días del mes de octubre de 2021.

LA UNIVERSIDAD **ELVENDEDOR**

CIELO PÉREZ SOLANO
Vicerrectora Administrativa

JUAN CARLOS GÓMEZ HOLGUÍN
C.C. No. 76.303.950
R.L. de MICROINGENIERIA APLICADA S.A.S.

Elaboró: Deicy Leandra Martínez Maca

CONTRATO DE SUMINISTRO NO. 5.5-31.6/049 DE 2019

CONTRATANTE: UNIVERSIDAD DEL CAUCA.
CONTRATISTA: MICROINGENIERIA APLICADA S.A.S.
NIT: 900481154-3
VALOR: CIENTO ONCE MILLONES SEISCIENTOS MIL PESOS M/CTE ($111.600.000), INCLUIDO IVA.

Entre los suscritos, JOSE LUIS DIAGO FRANCO, mayor de edad, identificado con cédula de ciudadanía número 10.535.
839 expedida en Popayán, obrando en su calidad de Rector y Representante Legal de la Universidad del Cauca, ente universitario autónomo del orden nacional, vinculado al Ministerio de Educación Nacional, con régimen especial, con personería jurídica, autonomía académica, administrativa y financiera, Nit. 891.500.319-2, quien para los efectos del presente se llamará **LA UNIVERSIDAD**, de una parte y de la otra **VICTOR MANUEL GOMEZ HOLGUIN** también mayor de edad, identificado con cédula de ciudadanía número 76.324.962 de Popayán, quien obra en nombre y representación legal de la sociedad MICROINGENIERIA APLICADA S.A.S. identificada con NIT 900481154-3, constituida mediante documento privado No. 1 del 25 de noviembre de 2011 de la asamblea de accionistas, registrado en la Cámara de Comercio del Cauca bajo el número 29220 del libro IX del registro mercantil el 1 de diciembre de 2011, según consta en el certificado de existencia y representación legal expedido por la Cámara de Comercio del Cauca el día 11 de diciembre de 2019, parte que en adelante se llamará **EL CONTRATISTA**, hemos convenido en celebrar el presente contrato que se regirá por el Acuerdo número 064 de 2008 y las disposiciones legales que la reglamenten, modifiquen o adicionen, previas las siguientes consideraciones: **1)** El Acuerdo 064 de 2008, emanado del Consejo Superior Universitario establece el régimen contractual y los principios que rigen los contratos que celebra la Institución. **2)** Con el fin de modernizar y valorizar las instalaciones del laboratorio de hidráulica en lo relativo a tres (3) plantas de generación de energía hidráulica, la Universidad requiere equipos e instrumentos industriales de medición que además de entregar datos para hacer cálculos manuales, estarán conectados a una plataforma automatizada que permitirá el aprovechamiento del laboratorio y los equipos por parte de los investigadores de la Maestría en Automática e Ingeniería Hidráulica e hidrológica, además de los estudiantes de pregrado de las Facultades de Ingeniería Civil e Ingeniería en Electrónica y Telecomunicaciones. **3)** El objeto de este contrato se encuentra dentro de las excepciones para contratar por oferta pública, de conformidad con lo dispuesto en el numeral 8 del artículo 46 del Acuerdo 064 de 2008. En consecuencia, se acuerda:

CLÁUSULA PRIMERA - Objeto: SUMINISTRO, INSTALACIÓN Y PUESTA EN FUNCIONAMIENTO DE UNA SERIE DE EQUIPOS, ARMARIOS, CANALETAS, INSTRUMENTOS, ENTRE OTROS, CONDUCENTES A LA AUTOMATIZACIÓN DE LA SECCIÓN DE GENERACIÓN HIDROELÉCTRICA (CIRCUITOS PELTON Y KAPLAN) DEL LABORATORIO DE HIDRÁULICA DE LA FACULTAD DE INGENIERÍA CIVIL DE LA UNIVERSIDAD DEL CAUCA, conforme las especificaciones técnicas establecidas por la Universidad y la propuesta presentada por el contratista, la cual hace parte integrante del presente contrato.

CLÁUSULA SEGUNDA – Especificaciones Técnicas:

ITEM	DESCRIPCION	UND	CANT.	VR.UNIT.	VR.TOTAL.
1	SUMINISTRO DE EQUIPOS				
1.01	Suministro de Analizadores de redes eléctricas DMG 600 - LOVATO + Modulo EXP 10 13 Modbus TCP	UN	3	$2.279.399	$6.838.197
1.02	Suministro de Transformador de corriente para medicion de potencia	UN	9	$ 203.421	$ 1.830.789
1.03	Suministro de Phoenix Contact - Industrial Ethernet Switch FL Switch SI 16TX	UN	1	$2.144.294	$2.144.294
1.04	Suministro de Cable UTP RJ45 (PATCHORD) 4 paares 8 hilos - CAT 5e	MTS	30	$ 106.305	$3.189.150
1.05	Suministro de Terminales para cable UTP RJ 45 CAT 5e	UN	10	$ 34.078	$ 340.780
1.06	Suministro de PC + Monitor 15 in Touch Industrial FANLESS montaje en Panel ADVANTECH - TPC- 1551T-E3AE	UN	1	$10.300.278	$10.300.278
1.07	Suministro de Ubiquiti UNIFI UAP-AC-M-PRO - Wireless Bridge	UN	2	$ 786.793,00	$1.573.586
1.08	Suministro de Adaptador USB - HART HM-MT-USB-010031	UN	1	$1.627.367	$1.627.367
1.09	Suministro de Calibrador de presión manual Fluke 700PTP-1 Pneumatic Test Pump	UN	1	$7.658.199	$7.658.199
1.10	Suministro de Instrumento Digital patrón Fluke 70G	UN	1	$5.408.603	$5.408.603
1.11	Suministro de Fluke 789 ProcessMeter, Combined MUltimeter & Loop Calibrator, 4 and 20 Ma	UN	1	$3.955.9690	$3.955.969
1.12	Suministro de Servidor tipo rack DELL Power Edge R340 - Sin licencia de Windows	UN	2	$12.541.238	$25.082.476
1.13	Suministro de VMware vSphere Essentials Kit - Licencia Software	UN	1	$2.729.334	$2.729.334
1.14	Suministro de Rack gabinete de piso (150cm) con rodachinas para instalacion de servidores	UN	1	$1.914.550	$1.914.550
1.15	Suministro de Switch de 16 puertos TPLINK 10/100Mbps para montaje en rack	UN	1	$ 382.910,00	$ 382.910,00
1.16	Suministro de Multitoma para rack de servidores	UN	1	$ 319.091,00	$ 319.091,00

1.17	Suministro de Monitor LCD 19 " + Teclado + Mouse	UN	1	$ 604.422,00	$ 604.422,00
	SUBTOTAL				$ 75.899.995
2	INSTALACIÓN Y PUESTA EN FUNCIONAMIENTO DE EQUIPOS				
2.01	Construcción e instalación en laboratorio de hidráulica de tablero de control en acero inoxidable NEMA 4X, de 1.22 mts de alto, 1.14 mts de ancho, 0.55 mts de profundidad. Puerta con perforaciones; una para monitor de 15 (aplicación HMI), perforaciones para elementos de medición de energía de 90x90mm o según medidads de los equipos, conexiones idnependientes para cada instrumento de medición, 24 señales de 4-20 mA, en 3 bloques de brones porta fusibles con tirre de instrumentación, bloque de 8 salidas análogas todso los terminales de cables marquillados, breaker principal de acometida de 20A a dos polos 120VAC, Barraje o bloque de distribución de fases y neutros, barreje de tierra eléctrica y tierra de instrumentación independientes, tomacorriente de 120 VAC, conductos para cables en canaleta ranurada de 46x60mm, diagramas y planos de conexiones Asuild. Adecuación de conexión eléctrica de dos motores exístetes. intalación de variador POwerFlex 400 con elemnetos existentes y sumistrados por el cliente.	UN	1	$5.019.248	$5.019.248
2.02	Instalación Montaje en conduletas y graza sobre piso para cableado hasta tablero de control y montaje de instrumentos en conexiones de proceso lo cual comprende: 38 metros lineales de conductos para cables de 2", instalación de 10 mástil de anclaje con manifold en válvulas de bola para instrumentos de medición y transmisión en presión diferencial PDIT (Deltabar E+H/Honeywell) y presión PIT (Cerabar E+H), instalación de conexiones a proceso mediante tubing de cobre de 3/8" hasta manifold de válvulas de bola.	UN	1	$4.497.081	$4.497.081
2.03	Instalación y Puesta en funcionamiento de equipo para transmisión y medición de presión Cerbar T PMP131 / Cerbar TPMC131	UN	9	$ 151.507,00	$ 1.363.563
2.04	Instalación y Puesta en funcionamiento de equipo para transmisión y medición de presión Diferencial TRAPD-19D Deltabar S / (1) Honeywell ST3000	UN	6	$ 289.646,00	$ 1.737.876

2.05	Instalación de Plataforma Rockwell software en servidores; Factory Talk View hmi Server Network, Factory Talk View Site Edition Client (10 clientes), configuración de servidor de dominio y de directorio FTViwe, Instalaci´n y configuraciòn de servidr de puntos históricos. Desarrollo de aplicación HMI Server para monitores de la instrumnetación del laboratorio de Hidráulica. Desarrollo de lógica ladder para monitoreo de variables en PLC existente. Documento guía de uso y capacitación del funcionamiento de todo el sistema.	UN	1	$ 2.456.417	$ 2.456.417
2.06	Instalación y puesta en funcionamiento de plataforma VMware ESXI en servidor físico para implementar 6 servidores virtuales (Vcenter, HMIServer, Directorio, Históricos, Dataserver).	UN	1	$ 2.807.333	$ 2.807.333
	SUBTOTAL				$ 17.881.518
	TOTAL ANTES DE IVA				$ 93.781.513
	IVA			19%	$ 17.818.487
	VALOR TOTAL DEL PRESUPUESTO				$111.600.000

CLÁUSULA TERCERA - Valor: Para efectos legales y fiscales, el valor del presente contrato se estima en la suma de CIENTO ONCE MILLONES SEISCIENTOS MIL PESOS M/CTE ($111.600.000), INCLUIDO IVA.

CLÁUSULA CUARTA – Anticipo: La Universidad entregará al contratista el quince por ciento (15%) del valor total del contrato, en calidad de anticipo, con la presentación de los siguientes documentos: 1. Acta de Inicio. 2. Plan de inversión del anticipo 3. Aprobación de la garantía única por parte de la Universidad. 4. Copia del contrato debidamente legalizado. 5. Certificación del Representante Legal o del Revisor Fiscal según el caso, sobre el pago de los aportes a los Sistemas de Seguridad Social y parafiscales (Caja de Compensación Familiar, SENA e ICBF), cuando a ello haya lugar, de conformidad con lo establecido en el artículo 50 de la Ley 789 de 2002 y demás normas concordantes.

CLÁUSULA QUINTA – Forma de pago: La Universidad del Cauca pagará el valor del contrato, en pesos colombianos, mediante pagos parciales, previa presentación de los siguientes documentos:

- Factura o documento equivalente de conformidad con la ley.
- Acta de ingreso de los bienes suministrados al almacén de la Universidad del Cauca.
- Certificaciones de cumplimiento y el acta de recibo a satisfacción expedidas por parte del supervisor, en las que se consignarán las cantidades ejecutadas, los precios unitarios y los valores totales de los equipos entregados e instalados.
- Certificación expedida por el revisor fiscal o representante legal donde se certifique la afiliación obligatoria y pago actualizado del personal que requiera

en desarrollo del contrato, al Sistema General de Seguridad Social y parafiscales conforme a la Ley.
- Evaluación de proveedor suscrita por el supervisor del contrato, con el pago final.
- Acta de liquidación final.

La UNIVERSIDAD sólo adquiere obligaciones con el contratista y bajo ningún motivo o circunstancia aceptará pagos a terceros.

Los pagos serán cancelados en pesos colombianos, a través de la consignación en la cuenta bancaria que el contratista señale de las entidades financieras afiliadas al sistema automático de pagos, previos los descuentos de Ley, por intermedio de la Universidad.

CLÁUSULA SEXTA - Plazo: El plazo estimado para la ejecución del contrato se establece en tres (3) meses y quince (15) días calendario, contados a partir de la fecha de suscripción del acta de inicio.

CLÁUSULA SEPTIMA - **Disponibilidad Presupuestal:** LA UNIVERSIDAD, pagará el valor del presente contrato con cargo a los certificados de disponibilidad presupuestal descritos a continuación:

No. CDP	Fecha CDP	Valor
D412201900942	01 de abril de 2019	$16.740.000
Certificado de Disponibilidad vigencias futuras No. 201900029	Según acuerdo consejo superior No. 080 del 27 de noviembre de 2019	$94.860.000

CLÁUSULA OCTAVA - **Obligaciones del Contratista:**

El contratista, además de estar obligado al cumplimiento del objeto contractual, de acuerdo con los bienes a suministrar establecidos en las especificaciones técnicas, deberá cumplir con las siguientes obligaciones:

a. Entregar e instalar la totalidad de los elementos contratados dentro del plazo establecido en el presenta contrato, de acuerdo con las características técnicas exigidas por la entidad y según lo establecido en la cotización.
b. Hacer entrega en perfecto estado de la totalidad de los equipos requeridos.
c. Garantizar la calidad de los elementos entregados, dejando a disposición y a favor de la Universidad la garantía del fabricante, de acuerdo con las Normas Técnicas y especificaciones descritas.
d. Reemplazar los elementos o materiales que presenten defectos en su calidad sin costo adicional para la Entidad, dentro del término que determine el supervisor designado por la Universidad. De no tener disponibilidad, el CONTRATISTA a su costa deberá remplazar en su integridad el elemento o material que compone el objeto contractual por uno nuevo, de idénticas o superiores calidades a las entregadas.
e. El servicio incluye adecuaciones eléctricas e hidráulicas y el suministro de pequeños insumos como son tornillos, empaques y cable, indispensables para la realización del trabajo.
f. El Diseño considera propiedades del fluido y condiciones de proceso suministradas.

g. Los Productos y Trabajos cotizados tienen garantía de 12 meses contra defectos de instalación y fábrica a partir de la fecha de compra.
h. Brindar un curso de capacitación en el manejo de los equipos.
i. Constituir la garantía única de cumplimiento requerida por la Entidad dentro de los tres (3) días hábiles siguientes al perfeccionamiento del contrato.
j. Allegar a la UNIVERSIDAD, para el trámite del pago, certificación del representante legal o del revisor fiscal según el caso, sobre el pago de los aportes al Sistema de Seguridad Social (salud, pensión y riesgos laborales) y parafiscales (Caja de Compensación Familiar, SENA e ICBF), de los empleados del CONTRATISTA, de conformidad con lo establecido en el artículo 50 de la Ley 789 de 2002, y demás normas concordantes.
k. Acatar las instrucciones que para el desarrollo del contrato le imparta la UNIVERSIDAD por conducto del supervisor del Contrato.
l. Informar oportunamente al supervisor del contrato sobre las imposibilidades o dificultades que se presenten en la ejecución del mismo y ofrecer alternativas para garantizar la buena ejecución del contrato.
m. Suscribir los documentos contractuales necesarios para la ejecución y el acta de liquidación, si hubiere lugar.
n. Las demás que sean necesarias para dar cumplimiento al objeto contractual o que se hayan indicado en la oferta o anexos.

CLÁUSULA NOVENA - Obligaciones de la universidad:

a) Aprobar la póliza que garantiza el cumplimiento del contrato
b) Suministrar oportunamente la información suficiente y requerida por el contratista para la ejecución del contrato.
c) Aprobar por intermedio del supervisor la recepción de los elementos suministrados objeto del contrato.
d) Efectuar los trámites necesarios para el pago.
e) Realizar los pagos previa presentación correcta por parte del contratista, los documentos requeridos y acorde con los plazos establecidos por la UNIVERSIDAD.
f) Liquidar el contrato en caso de que aplique.
g) Las demás que sean necesarias, acorde con la naturaleza del contrato.

CLÁUSULA DECIMA - Multas: En caso de mora o incumplimiento parcial de las obligaciones a cargo de EL CONTRATISTA, LA UNIVERSIDAD, le impondrá multas diarias sucesivas equivalentes al 0.5% del valor del Contrato, sin que en su conjunto excedan el 10% del valor total del contrato.

CLÁUSULA DÉCIMA PRIMERA - Penal pecuniaria: En caso de incumplimiento o declaratoria de caducidad del contrato sin perjuicio de la imposición de multas, La UNIVERSIDAD podrá imponer al CONTRATISTA mediante resolución motivada, una sanción equivalente al diez por ciento (10%), del valor del contrato como estimación anticipada de perjuicios. El Valor de la cláusula penal pecuniaria se tomará del saldo a favor del CONTRATISTA, si lo hubiere o de las garantías constituidas y si eso último no fuere posible, se cobrará por jurisdicción coactiva.

CLÁUSULA DÉCIMA SEGUNDA - PROCEDIMIENTOS PARA LA APLICACIÓN DE SANCIONES, MULTAS Y DECLARATORIAS DE INCUMPLIMIENTO: La aplicación de sanciones, multas y declaratorias de incumplimiento se realizará

conforme al procedimiento establecido en el parágrafo del artículo 85 del acuerdo 064 del 2008, adicionado por el Acuerdo superior 017 del 21 de junio de 2011.

CLÁUSULA DÉCIMA TERCERA - CADUCIDAD: LA UNIVERSIDAD, podrá declarar la caducidad de este contrato si se presenta alguno de los hechos constitutivos de incumplimiento de las obligaciones a cargo de EL CONTRATISTA, que afecte de manera grave y directa la ejecución del contrato, según lo establecido en el Acuerdo 064 de 2008, artículo 75.

CLÁUSULA DÉCIMA CUARTA - INHABILIDADES E INCOMPATIBILIDADES: EL CONTRATISTA declara bajo la gravedad del juramento, que no se encuentra incurso en ninguna causal de inhabilidad e incompatibilidad conforme al artículo 74 del Acuerdo 064 de 2008.

CLÁUSULA DÉCIMA QUINTA - SUPERVISION: La supervisión del presente contrato la realizará el Profesional designado por la Universidad del Cauca, quien asumirá las funciones, de acuerdo a lo establecido en el acuerdo 064 del 2008.

CLÁUSULA DÉCIMA SEXTA - FUNCIONES DEL SUPERVISOR: Las Funciones del supervisor de la Universidad del Cauca, se encuentran establecidas en el Acuerdo 064 de 2008, Capitulo II, Artículos del 12 al 19, las cuales entre otras son: 1) Elaborar el acta de inicio, la cual debe estar suscrita por EL CONTRATISTA y el supervisor. 2) Promover la correcta ejecución del contrato. 3) Informar oportunamente a las instancias competentes las irregularidades o incumplimientos por parte de EL CONTRATISTA. 4) Impartir recomendaciones e indicaciones por escrito al CONTRATISTA. 5) Remitir a la carpeta original los documentos que acrediten el cumplimiento del objeto contractual. 6) Ejercer los seguimientos, controles y evaluaciones de la ejecución contractual. 7) Elaborar el Acta de liquidación del contrato, la cual debe ser firmada por el supervisor, EL CONTRATISTA y el Representante Legal de la Universidad u Ordenador del gasto. 8) Las demás que se deriven de sus funciones.

CLÁUSULA DÉCIMA SEPTIMA - GARANTÍAS: EL CONTRATISTA deberá constituir a favor de la Universidad del Cauca de acuerdo con las disposiciones legales vigentes, en una compañía de seguros, legalmente establecida, una garantía a ***FAVOR DE ENTIDADES PARTICULARES*** que incluya: **a) Garantía de Cumplimiento:** Equivalente al veinte por ciento (20%) del valor total del contrato, con vigencia igual a la del contrato y (2) dos meses más. **b) Calidad y correcto funcionamiento:** Por el cincuenta por ciento (50%) del valor del contrato y con un tiempo de duración del contrato y un (1) año más. **c) Salarios y prestaciones sociales:** Por el diez por ciento (10%) del valor del contrato y con un tiempo de duración del contrato y tres (3) años más. **d). Buen manejo del anticipo:** por el 100% del valor del anticipo y con un tiempo de duración del contrato y dos meses más". PARÁGRAFO: Estas garantías no eximen al contratista de que cumpla con el objeto contractual.

CLÁUSULA DÉCIMA OCTAVA - CESIÓN Y SUBCONTRATOS: EL CONTRATISTA no podrá ceder ni subcontratar los derechos y obligaciones emanadas del presente contrato en persona natural o jurídica, sin el consentimiento previo y expreso de LA UNIVERSIDAD, pudiendo esta reservarse las razones que tenga para negar la cesión.

CLÁUSULA DÉCIMA NOVENA - INTERPRETACIÓN, MODIFICACIÓN Y TERMINACIÓN UNILATERAL: LA UNIVERSIDAD puede terminar, modificar y/o interpretar unilateralmente el Contrato, de acuerdo con el artículo 75 del Acuerdo 064 de 2008, cuando lo considere necesario.

CLÁUSULA VIGÉSIMA - DOMICILIO: Para todos los efectos legales se fija como domicilio del presente contrato la Ciudad de Popayán.

CLÁUSULA VIGÉSIMA PRIMERA - APORTES A LA SEGURIDAD SOCIAL INTEGRAL: EL CONTRATISTA se obliga a presentar certificación en la cual se indique el pago de los aportes a los Sistemas de Seguridad Social Integral (salud, pensión y riesgos laborales) del personal vinculado a la ejecución del contrato de acuerdo con la ley y cumplir con los aportes parafiscales del SENA, CAJA DE COMPENSACION FAMILIAR, BIENESTAR FAMILIAR, en el lugar donde se ejecuta el contrato. Estos documentos deberán ser presentados por EL CONTRATISTA, al momento de la celebración del contrato, durante la vigencia, a más tardar a la firma del acta de recibo a satisfacción. PARÁGRAFO. El incumplimiento de esta obligación será causal para la imposición de multas sucesivas hasta tanto se dé cumplimiento, previa verificación de la mora, mediante liquidación efectuada por la entidad administradora. Cuando durante la ejecución del contrato o a la fecha de liquidación se observe la persistencia de este incumplimiento por dos meses, la entidad estatal dará aplicación a la cláusula excepcional de caducidad administrativa, conforme a lo establecido en el artículo primero de la Ley 828 de 2003, modificatorio del parágrafo segundo del artículo 50 de la Ley 789 de 2002.

CLÁUSULA VIGÉSIMA SEGUNDA – LIQUIDACIÓN DEL CONTRATO: La liquidación del Contrato se sujetará a los términos y oportunidades establecidos en el artículo 65 del acuerdo 064 del 2008, modificado por el acuerdo superior 021 del 2018.

CLÁUSULA VIGÉSIMA TERCERA - DECLARACIONES DEL CONTRATISTA: El Contratista hace las siguientes declaraciones: 11.1 Conoce y acepta los Documentos que hacen parte del contrato. 11.2 Tuvo la oportunidad de solicitar aclaraciones y modificaciones a los Documentos que hacen parte del contrato y recibió de LA UNIVERSIDAD respuesta oportuna a cada una de las soliciludes. 11.3 Se encuentra debidamente facultado para suscribir el presente Contrato. 11.4 El Contratista al momento de la celebración del presente Contrato no se encuentra en ninguna causal de inhabilidad, incompatibilidad y prohibición. 11.5 El Contratista está a paz y salvo con sus obligaciones laborales frente a los sistemas de seguridad social integral y parafiscales. 11.6 El valor del Contrato incluye todos los gastos, costos, derechos, impuestos, tasas y demás contribuciones relacionados con el cumplimiento del objeto del presente contrato. 11.7 El Contratista durante la vigencia contractual realizará todas las actividades necesarias para la ejecución. 11.8 El Contratista manifiesta que los recursos que componen su patrimonio no provienen de lavado de activos, financiación del terrorismo, narcotráfico, captación ilegal de dineros y en general de cualquier actividad ilícita; de igual manera manifiesta que los recursos recibidos en desarrollo de éste contrato, no serán destinados a ninguna de las actividades antes descritas.

CLÁUSULA VIGÉSIMA CUARTA - INDEMNIDAD: El Contratista mantendrá indemne a la Universidad contra todo reclamo, demanda, acción legal y costos que

puedan causarse o surgir por daños o lesiones a personas o bienes ocasionados por EL CONTRATISTA o su personal durante la ejecución del objeto y obligaciones del contrato. En caso de que formule reclamo demanda o acción legal contra la UNIVERSIDAD por asuntos que según los contratos sean responsabilidad del CONTRATISTA, se le comunicará lo más pronto posible de ello para que por su cuenta adopte oportunamente las medidas previstas por la ley para mantener indemne a la UNIVERSIDAD DEL CAUCA y adelante los trámites para llegar a un arreglo del conflicto. Si el contratista no asume debida y oportunamente la defensa de UNICAUCA, ésta podrá hacerla directamente, previa comunicación escrita al contratista quién pagará todos los gastos en que la entidad incurra por tal motivo. En caso de que así no lo hiciere el contratista, UNICAUCA tendrá derecho a descontar tales erogaciones de cualquier suma que adeude al contratista por razón de los servicios motivo del contrato.

CLÁUSULA VIGÉSIMA QUINTA – PERFECCIONAMIENTO Y LEGALIZACIÓN: El presente contrato se perfecciona con la firma de las partes. Para su legalización EL CONTRATISTA deberá constituir las garantías previstas en la cláusula décima septima, las que deben ser aprobadas por la Universidad del Cauca y pagar el valor correspondiente a la Estampilla "Universidad del Cauca 180 años".

Para constancia se firma en Popayán, a los veintiséis 26 días del mes de diciembre del 2019

LA UNIVERSIDAD

JOSÉ LUIS DIAGO FRANCO
Rector

EL CONTRATISTA

VICTOR MANUEL GOMEZ HOLGUIN
Representante legal

Proyectó: Adriana M. Pusoux Bravo
Revisó: Cielo Pérez Solano

