Universidad Autónoma de Chiapas

Act- 5.3 Primera Entrega de la antena enlazar ´punto a punto

Materia:

Conmutadores Y Redes Inalámbricas.

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Grupo: 7° M

13 de Octubre del 2023.

Prerrequisitos.

Antes de dar inicio con la configuración de la antena y la generación de pruebas, es fundamental que revises detenidamente los materiales y herramientas recomendadas para la construcción de la antena.

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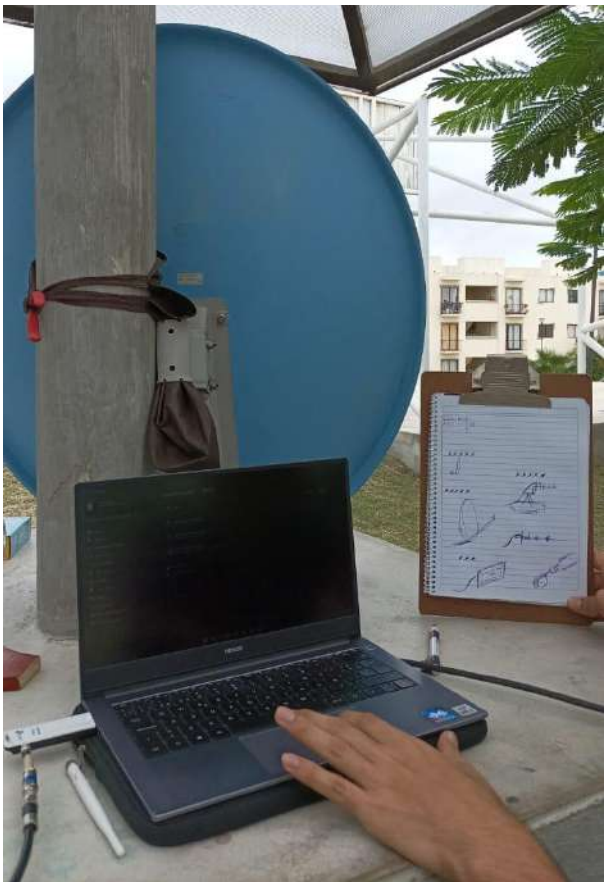


Comprendiendo lo anterior, comenzemos.

Configuración del router con la antena.

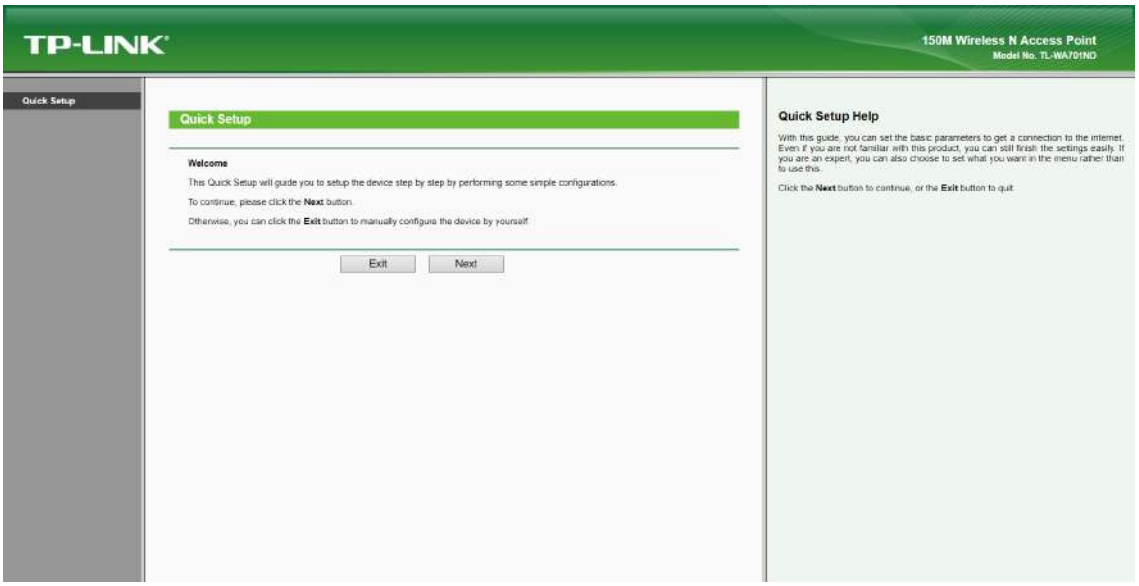
Para comenzar, enlistamos los materiales necesarios para el desarrollo de la la actividad, los cuales son los siguientes:

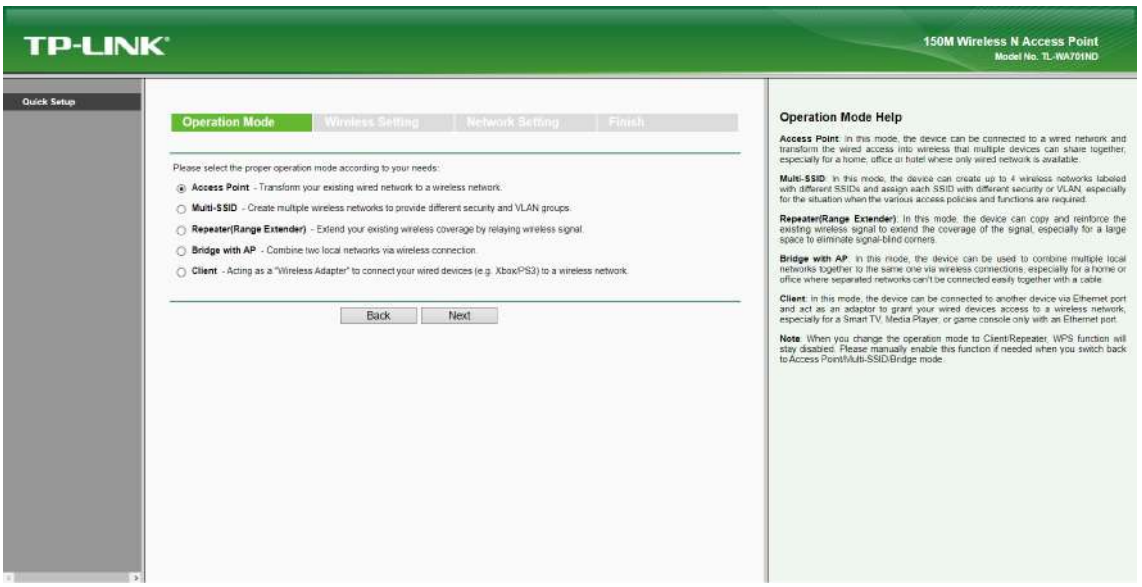
1. Un equipo de cómputo con puerto Ethernet.
2. Un router o access point (en nuestro caso es un TP Link).
3. Cable de alimentación para el router o access point.
4. Cable de Ethernet para comunicar el router o access point con la laptop o pc.
5. Un celular que tenga la capacidad de crear un punto de acceso inalámbrico.

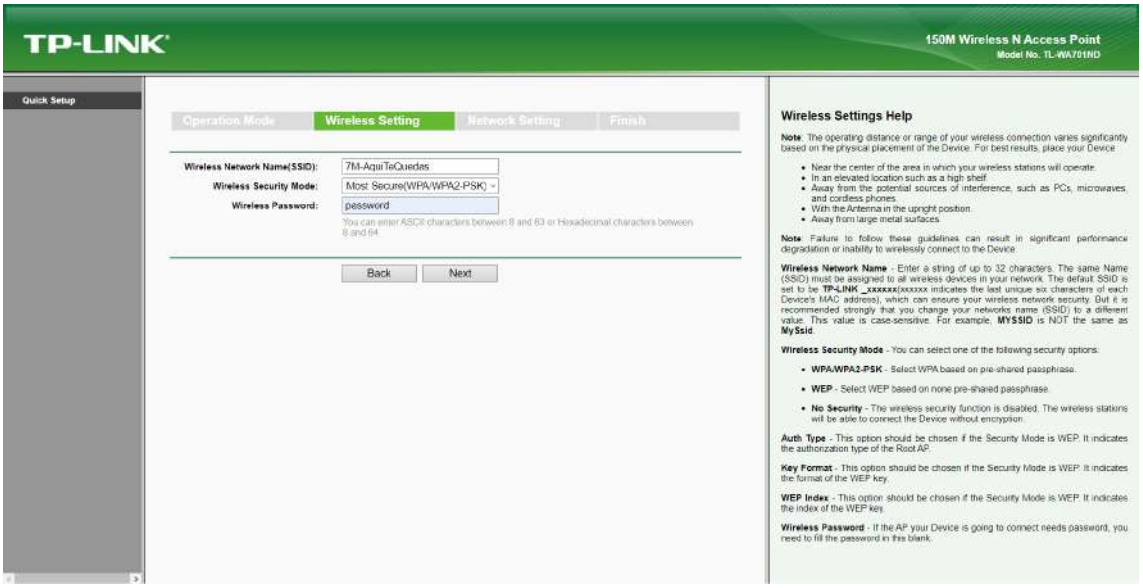
Encendemos nuestra computadora y nuestro router, luego conectaremos una punta del cable ethernet en la computadora, y la otra punta en nuestro router, y esperamos aproximadamente 1 minuto para que estos se enlazan automáticamente, cabe resaltar que durante este proceso es posible que se encienda únicamente una luz del router, y este empiece a parpadear.

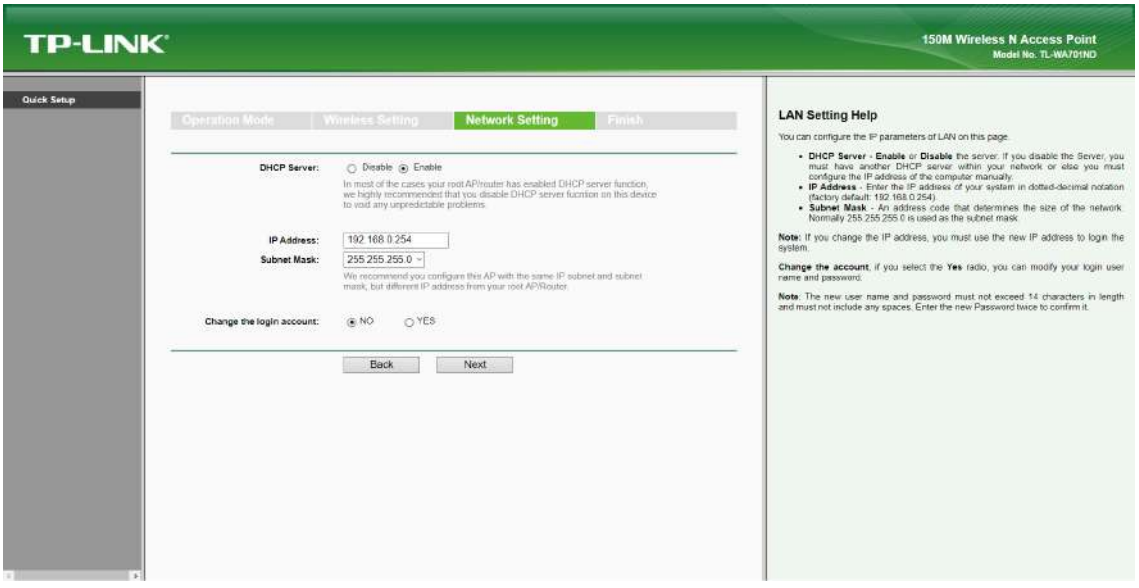
Después, veremos que todas las luces del router se encienden automáticamente, cuando pase eso, ingresamos desde nuestra computadora a la ip predeterminada que nos indique el router, en nuestro caso, esta viene en una etiqueta en la parte trasera: 192.168.0.255

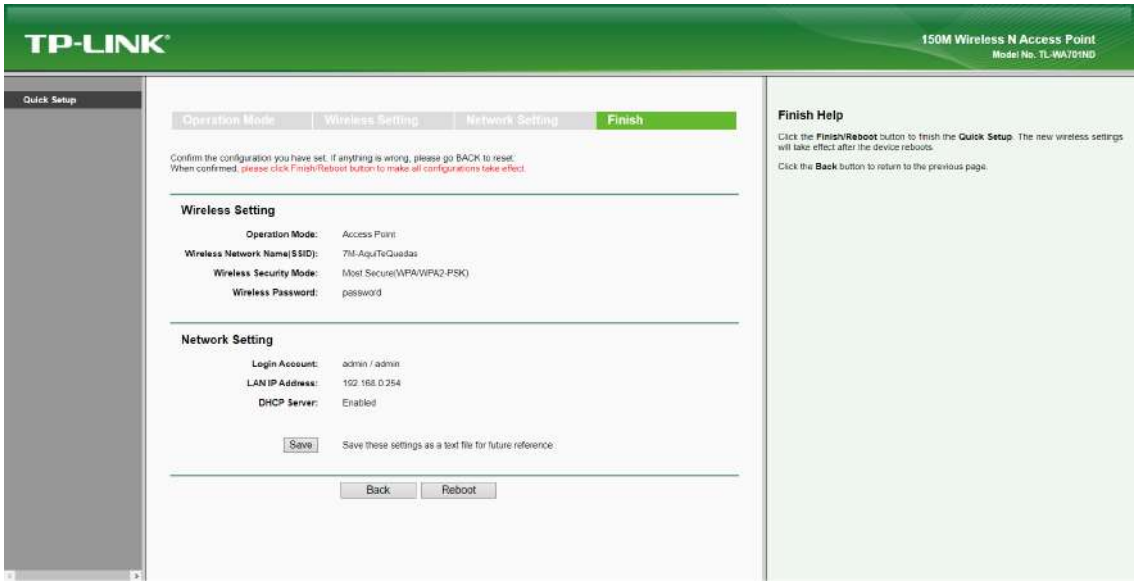
Esperaremos, y una vez se conecte, se nos mostrará la siguiente interfaz:




TP-LINK
150M Wireless N Access Point
Model No. TL-WA701ND
Quick Setup
Operation Mode
Wireless Setting
Network Setting
Finish
Please select the proper operation mode according to your needs:
Access Point - Transform your existing wired network to a wireless network.
Multi-SSID - Create multiple wireless networks to provide different security and VLAN groups.
Repeater(Range Extender) - Extend your existing wireless coverage by relaying wireless signal.
Bridge with AP - Combine two local networks via wireless connection.
Client - Acting as a "Wireless Adapter" to connect your wired devices (e.g. Xbox/PS3) to a wireless network.
Back
Next
Operation Mode Help
Access Point: In this mode, the device can be connected to a wired network and transform the wired access into wireless that multiple devices can share together, especially for a home, office or hotel where only wired network is available.
Multi-SSID: In this mode, the device can create up to 4 wireless networks labeled with different SSIDs and assign each SSID with different security or VLAN, especially for the situation when the various access policies and functions are required.
Repeater(Range Extender): In this mode, the device can copy and reinforce the existing wireless signal to extend the coverage of the signal, especially for a large space to eliminate signal-blind corners.
Bridge with AP: In this mode, the device can be used to combine multiple local networks together to the same one via wireless connections, especially for a home or office where separated networks can't be connected easily together with a cable.
Client: In this mode, the device can be connected to another device via Ethernet port and act as an adaptor to grant your wired devices access to a wireless network, especially for a Smart TV, Media Player, or game console only with an Ethernet port.
Note: When you change the operation mode to Client/Repeater, WPS function will stay disabled. Please manually enable this function if needed when you switch back to Access Point/Multi-SSID/Bridge mode.

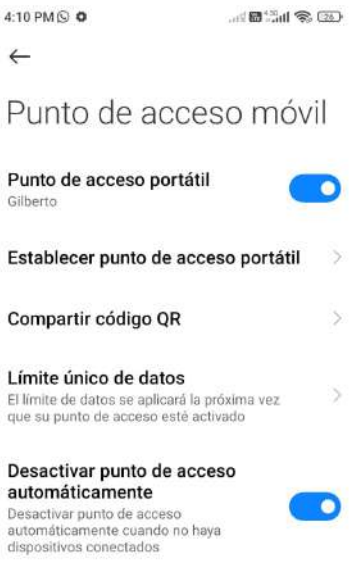

TP-LINK
150M Wireless N Access Point
Model No. TL-WA701ND
Quick Setup
Operation Mode
Wireless Setting
Network Setting
Finish
Wireless Network Name(SSID):
7M-AquiTeQuedas
Wireless Security Mode:
Most Secure(WPA/WPA2-PSK)
Wireless Password:
password
You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 and 64.
Back
Next
Wireless Settings Help
Note: The operating distance or range of your wireless connection varies significantly based on the physical placement of the Device. For best results, place your Device
Near the center of the area in which your wireless stations will operate.
In an elevated location such as a high shelf.
Away from the potential sources of interference, such as PCs, microwaves, and cordless phones.
With the Antenna in the upright position.
Away from large metal surfaces.
Note: Failure to follow these guidelines can result in significant performance degradation or inability to wirelessly connect to the Device.
Wireless Network Name - Enter a string of up to 32 characters. The same Name (SSID) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_xxxxxx(xxxxxx indicates the last unique six characters of each Device's MAC address), which can ensure your wireless network security. But it is recommended strongly that you change your networks name (SSID) to a different value. This value is case-sensitive. For example, MYSSID is NOT the same as MySsid.
Wireless Security Mode - You can select one of the following security options:
WPA/WPA2-PSK - Select WPA based on pre-shared passphrase.
WEP - Select WEP based on none pre-shared passphrase.
No Security - The wireless security function is disabled. The wireless stations will be able to connect the Device without encryption.
Auth Type - This option should be chosen if the Security Mode is WEP. It indicates the authorization type of the Root AP.
Key Format - This option should be chosen if the Security Mode is WEP. It indicates the format of the WEP key.
WEP Index - This option should be chosen if the Security Mode is WEP. It indicates the index of the WEP key.
Wireless Password - If the AP your Device is going to connect needs password, you need to fill the password in this blank.


TP-LINK
150M Wireless N Access Point
Model No. TL-WA701ND
Quick Setup
Operation Mode
Wireless Setting
Network Setting
Finish
DHCP Server:
Disable
Enable
In most of the cases your root AP/router has enabled DHCP server function, we highly recommended that you disable DHCP server function on this device to void any unpredictable problems.
IP Address:
192.168.0.254
Subnet Mask:
255.255.255.0
We recommend you configure this AP with the same IP subnet and subnet mask, but different IP address from your root AP/Router.
Change the login account:
NO
YES
Back
Next
LAN Setting Help
You can configure the IP parameters of LAN on this page.
DHCP Server - Enable or Disable the server. If you disable the Server, you must have another DHCP server within your network or else you must configure the IP address of the computer manually.
IP Address - Enter the IP address of your system in dotted-decimal notation (factory default: 192.168.0.254).
Subnet Mask - An address code that determines the size of the network. Normally 255.255.255.0 is used as the subnet mask.
Note: If you change the IP address, you must use the new IP address to login the system.
Change the account, if you select the Yes radio, you can modify your login user name and password.
Note: The new user name and password must not exceed 14 characters in length and must not include any spaces. Enter the new Password twice to confirm it.



Pruebas de comunicación de internet.

Para corroborar el correcto funcionamiento de nuestra antena, estaremos primeramente preparando nuestro entorno de pruebas, para ello inicializamos un punto de conexión wifi en nuestro celular, y lo ubicamos a 100 metros de distancia de nuestro router.



Luego, ahora si, la conectaremos a nuestra entrada SMA, y compararemos su potencia respecto a la antena original:

Siendo que en nuestro caso, obtuvimos una mejora de aproximada de un 70%, todo ello gracias al embobinado de nuestra antena, y el cálculo de la posición y ángulo de nuestra parábola.