

Setting Up TP-Link TL-470T+ for Failover Load Balancing with DSL and VSAT Connections

*Instruction Guide for Hardware
Version v6.0, Firmware Version 6.0.0*

1042890-0001

Revision A

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Upgrading the TP-Link Firmware to the latest version

Please follow the video or written instructions below to perform the firmware upgrade before installing the TP-Link router.

1.1 Video Instructions

Watch this helpful video (hninfo.us/tplinkvideo) for a tutorial on how to upgrade the TP-Link firmware:



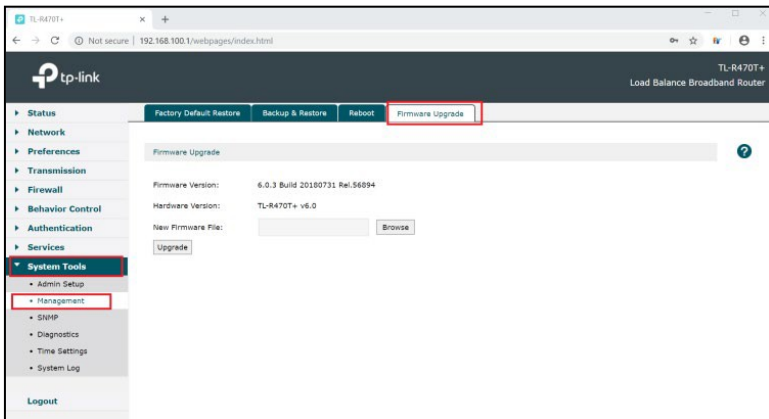
1.2 Written Instructions

1. Browse to hninfo.us/tplink. Download the zip file with the most recent published date.
2. Disconnect your computer from HughesNet Internet service by turning off your wireless connection or unplugging the Ethernet cable if your computer is directly connected to the modem. Once the download is complete unzip the file to your desktop.
3. Connect your computer's Ethernet cable to Port 3 on the back of the TP-Link router.
4. Open a web browser. Type the numbers **192.168.0.1** into the search bar.

5. Log into the TP-Link box with the username **ADMIN** and password is **PASSWORD**.

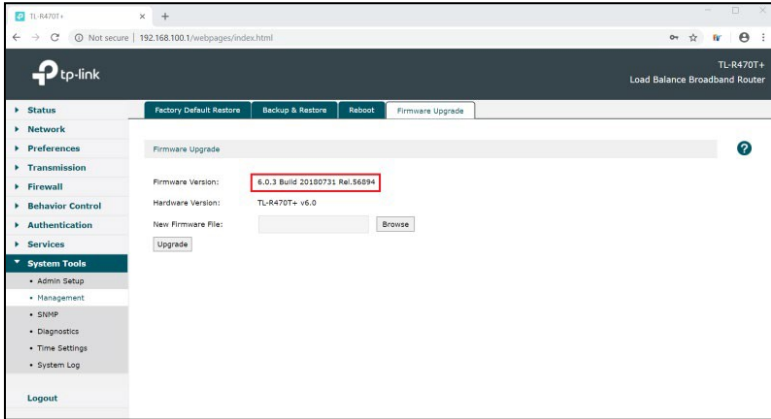


6. Go to System Tools>Management>Firmware Upgrade.



7. Select Browse.
8. Select the unzipped upgrade file that you saved to your desktop.
9. Click Upgrade button, then Yes when asked "Are you sure you want to upgrade the firmware?"

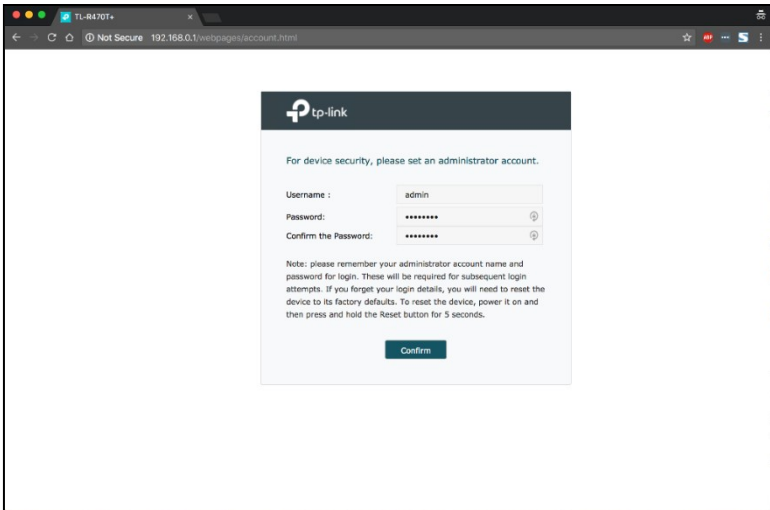
10. The upgrade will take about 3 minutes and then the router will restart.
11. Confirm the firmware upgrade was properly installed by clicking the Firmware Upgrade tab at the top of the page and viewing the Firmware Version name.



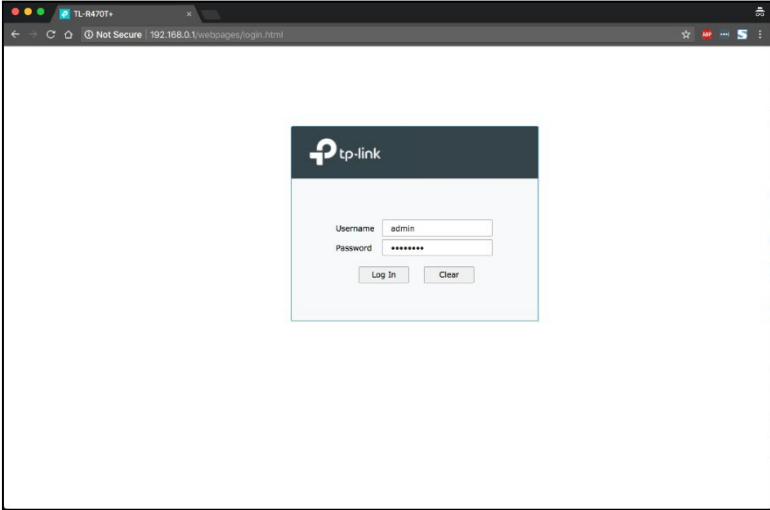
Section 2

Accessing the TL-470T+ (hardware version v6)

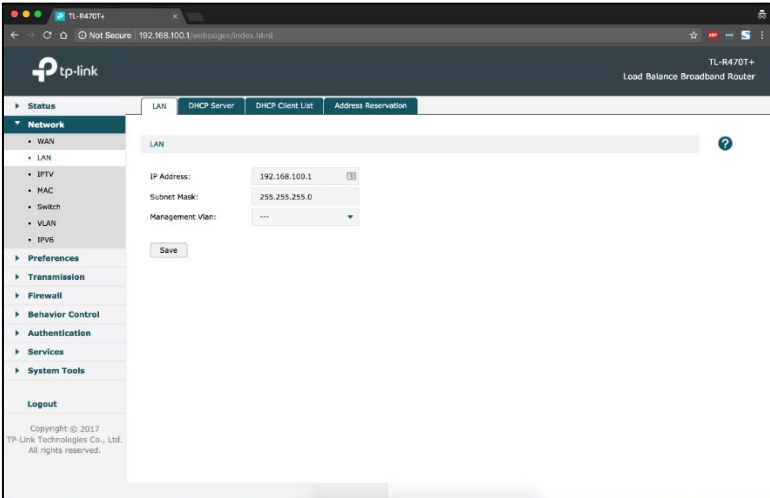
1. Unbox the TP-Link, plug the provided power supply into a power outlet, and connect the power supply to the TP-Link. The TP-Link's "Power" and "System" LEDs will turn solid green.
2. Wait two (2) minutes for the TP-Link to initialize. The TP-Link's "System" LED will begin flashing green when the unit is ready.
3. Using an available computer with an Ethernet port, plug the computer into Port 3 of the TP-Link.
 - a. The computer will obtain an IP address within the 192.168.0.1/24 range.
4. On the computer, open a web browser and access <http://192.168.0.1>.
 - a. The user will be prompted to create a username and password.



5. After account creation, the login page will be displayed. Log in by entering the username and password.

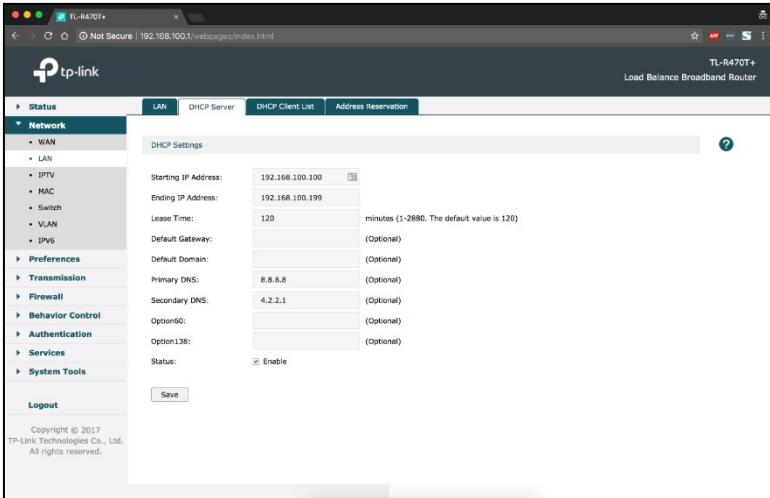


6. After login navigate to *Network > LAN*.
 - a. Under the *LAN* tab, change the default IP address of 192.168.0.1 to 192.168.100.1.



Note: *The third octet of the IP address can be changed to any value between 0 through 255. Please select a value that does not interfere with the Primary WAN's modem network or the HT2000W's network.*

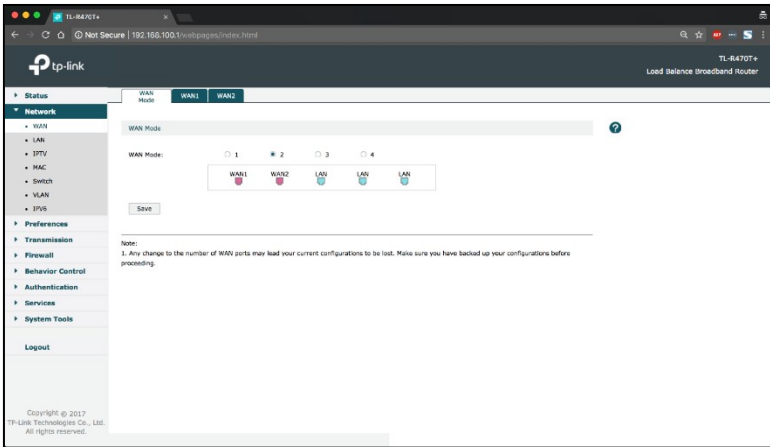
- b. Disconnect and reconnect the Ethernet cable on the PC to refresh the DHCP lease on the computer.
- c. The computer should now be on the 192.168.100.1/24 network.
- d. The TP-Link configuration page can now be accessed from <http://192.168.100.1>.
- e. After logging in, navigate back to *Network > LAN* and access the *DHCP Server* tab.
- f. Set 8.8.8.8 and 4.2.2.1 as the Primary and Secondary DNS entries then click Save.



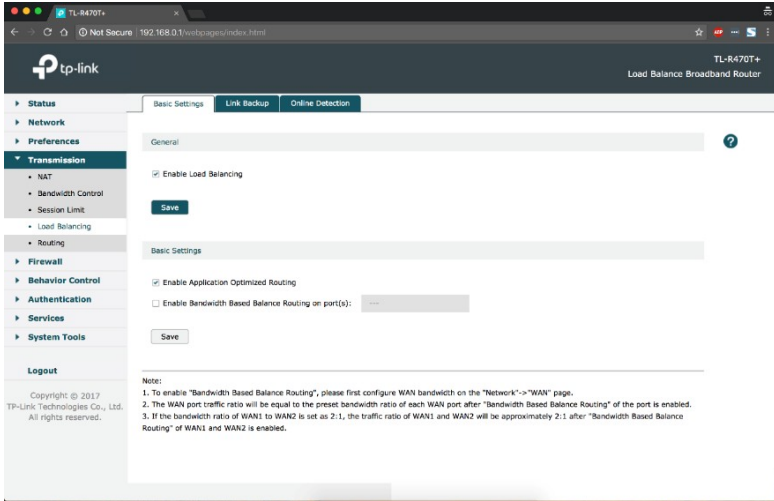
Section 3

Enabling load balancing

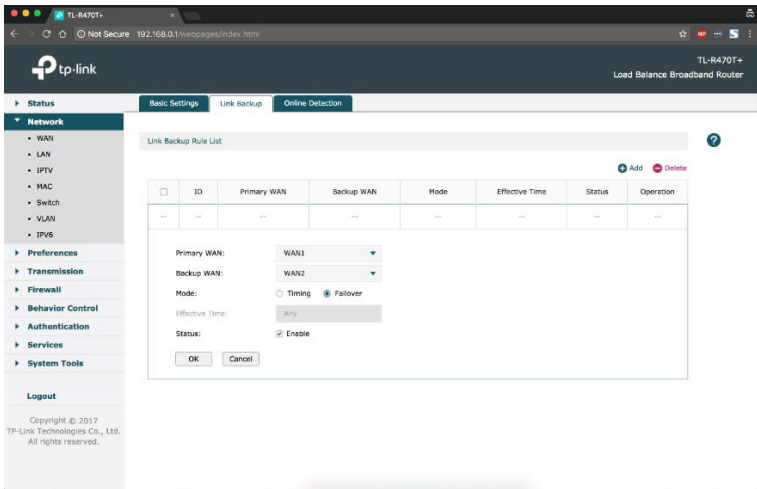
1. Navigate to the side-menu and click *Network > WAN*.
 - a. Verify that “2” is already selected for WAN Mode.
 - b. If it is not already selected, click “2” then click “Save.” The device TP-Link will reboot. After the device finishes rebooting the login prompt will reappear, enter the username and password again.



2. Navigate to *Transmission > Load Balancing*.
 - a. Under the *Basic Settings* tab, verify that “Load Balancing” and “Application Optimized Routing” are already enabled. If not, click the checkboxes then click “Save.”



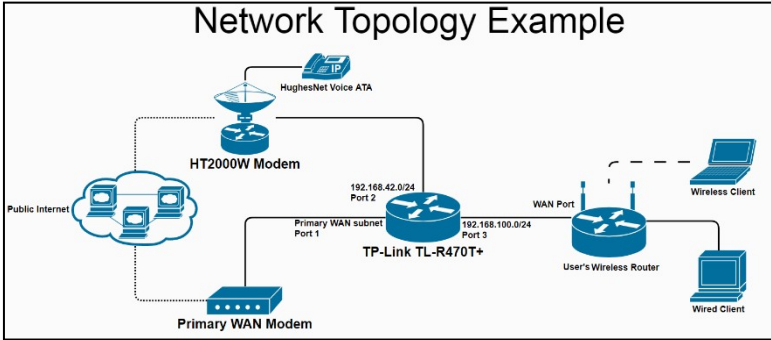
b. Under the *Link Backup* tab, use the “Add” button to create a new rule with the options shown below.



Plugging in primary, backup WAN connections and user's wireless router

1. Ensure that both the Primary WAN's (e.g. DSL, Cable, etc.) modem and the Hughes HT2000W satellite modem is configured for DHCP IP addressing. They should come pre-configured that way out of the box.
2. On the Primary WAN's modem, plug one end of an Ethernet cable to the that device's port 1, and plug the other end of the cable into the TP-Link's **Port 1**.
3. On the Hughes HT2000W satellite modem, plug one end of an Ethernet cable into the HT2000W's port 1, and plug the other end of the cable into TP-Link's **Port 2**.
4. The user may connect a network switch, wireless router or computer to the TP-Link's **Port 3**. Devices connected to **Port 3** will be given IP addresses on the 192.168.100.1/24 network (assuming 192.168.100.1/24 network was configured during *step 6a*).
 - a. It is recommended that user connect all of their devices to the network device attached to the TP-Link's **Port 3**. Any device directly or wirelessly connected to the Primary WAN's modem and/or the HT2000W satellite modem will not automatically transition between uplinks in case of WAN failure.
 - b. **If the user has HughesNet Business Voice:** Connect the ATA directly to the HT2000W.

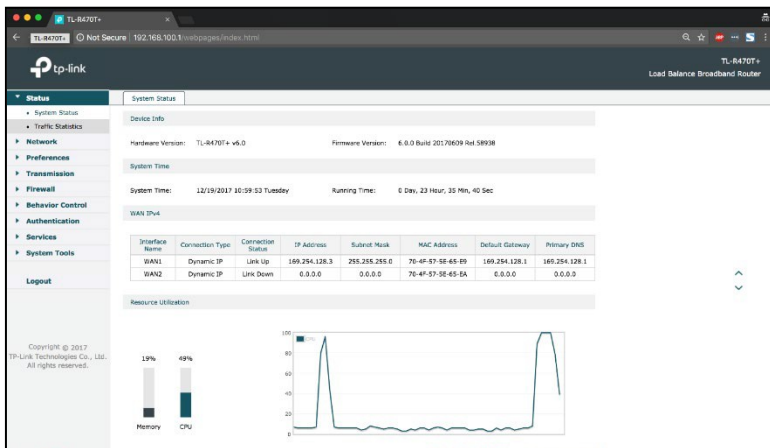
5. The TP-Link is now ready for failover functionality if the Primary WAN loses connection.



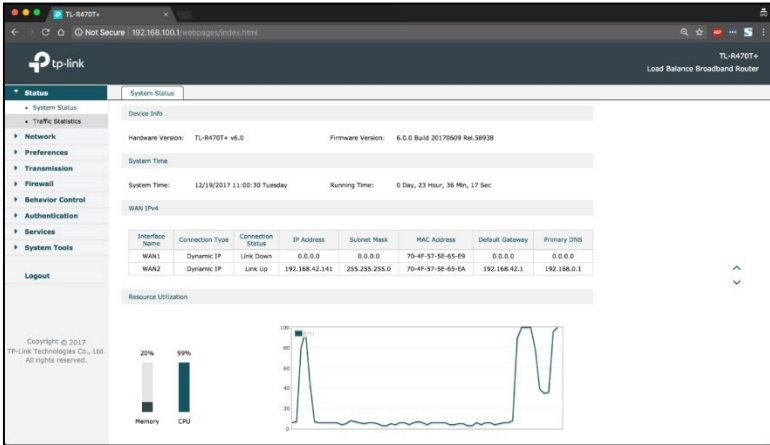
Section 5

Verifying failover functionality on the TP-Link GUI

1. Connect to the user's wireless router/switch or directly connect to the TP-Link's **Port 3** using a computer.
2. Log into the TP-Link device via <http://192.168.100.1> through a web browser.
3. The "Home Page" *Status > System Status* shows the Connection Status of both Primary WAN (**WAN1**) and Backup WAN (**WAN2**).
 - a. When the TP-Link is configured in load balancing failover mode, only one WAN connection will be active at a time. If the Primary WAN is healthy, then the backup WAN will be inactive.



4. Unplug the Ethernet cable attached to the TP-Link's **Port 1** to cause a failover scenario.
 - a. After a few moments WAN1 will be marked as Link Down.
 - b. WAN2 will then be marked as Link Up.



5. Plug the Ethernet cable back into TP-Link's **Port 1** to cause a recovery scenario.
 - a. After a few moments WAN1 will be marked as Link Up.
 - b. WAN2 will then be marked as Link Down.

Verifying failover functionality on your PC via PING tool

1. You can use the PING tool on your PC to verify whether or not you are connected to your Primary (WAN1) or Backup (WAN2) connection by looking at the response time.
 - a. If your PC is Windows, then open a Command Prompt window, and run the following command:
 - i. `PING google.com`

```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\palejand>ping google.com

Pinging google.com [216.58.217.110] with 32 bytes of data:
Reply from 216.58.217.110: bytes=32 time=3ms TTL=51
Reply from 216.58.217.110: bytes=32 time=3ms TTL=51
Reply from 216.58.217.110: bytes=32 time=3ms TTL=51
Reply from 216.58.217.110: bytes=32 time=3ms TTL=51

Ping statistics for 216.58.217.110:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 3ms, Average = 3ms

C:\Users\palejand>
  
```

- b. If your PC is Mac OS, then open a Terminal window:
 - i. `PING -c 4 google.com`

```

patrick — -bash — 80x24
Npsrts-MacBook-Pro:~ patrick$ ping -c 4 google.com
PING google.com (4.35.153.221): 56 data bytes
64 bytes from 4.35.153.221: icmp_seq=0 ttl=58 time=730.286 ms
64 bytes from 4.35.153.221: icmp_seq=1 ttl=58 time=651.432 ms
64 bytes from 4.35.153.221: icmp_seq=2 ttl=58 time=675.557 ms
64 bytes from 4.35.153.221: icmp_seq=3 ttl=58 time=697.714 ms

--- google.com ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 651.432/688.747/730.286/29.036 ms
Npsrts-MacBook-Pro:~ patrick$
  
```

- c. If you are connected to the primary WAN (WAN1), then your response times will be low, most likely under 100 ms.
- d. If you are connected to the backup WAN (WAN2), then your response times will be high, most likely above 600 ms.