

Technology Information Brief

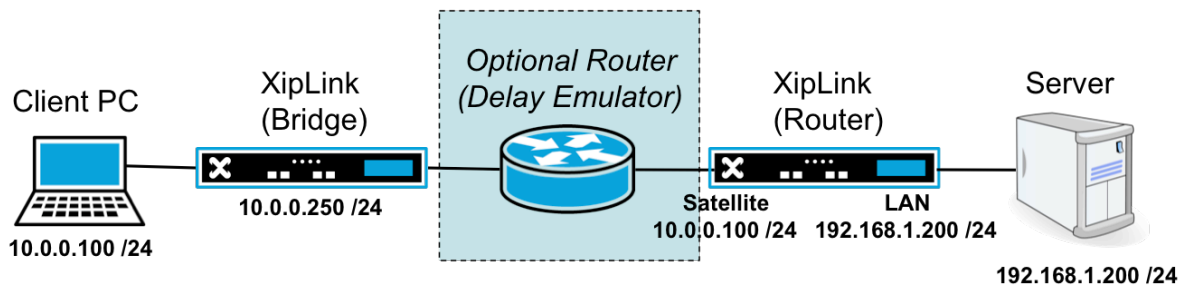
Quick Setup Guide - Back-to-Back Configuration

Setting up XipLink Wireless Optimizer's for back-to-back testing

The following is a description of a simple back-to-back configuration that can be used to verify wireless optimizer configurations in a lab environment. Performance testing requires the addition of a throughput and delay emulator inserted between the back-to-back optimizers.

We recommend using Bridge mode operation on the remote Xiplink optimizer and Router mode operation on the hub / server optimizer. You will also need a PC to act as a test server and a laptop as the client PC in this setup.

Network Diagram and IP addressing



While the Router / Delay Emulator is labeled as optional and a simple crossover Ethernet cable can be used, any performance testing requires the simulation of a wireless link. The Delay Emulator is capable of introducing configurable packet loss (bit error rates) and delay (latency) to simulate the presence of a space segment or wireless link between the two optimizers.

Confirm that the Hub / Server side Optimizer is in Router mode

Establish a TCP connection to the hub / server optimizer in order to access the graphical user interface and to confirm the default settings.

By default the XipLink optimizer will have 192.168.1.200 assigned to the LAN / Router interface and 10.0.0.200 to the Satellite interface and will be operating in Router mode.

Set the laptop's IP address to be 192.168.1.100 /24 (255.255.255.0) but leave the default gateway and DNS name server entries blank.

Boot the optimizer and wait for the LCD panel or LED indicators to show the unit is operational.

Using a crossover Ethernet cable, plug a laptop temporarily into the LAN / Routed interface port. This is the port furthest from the serial port and should be clearly labeled.

At this point you should be able to ping the optimizer at 192.168.1.200.

If ping is successful, you should be able to reach the web based user interface on the optimizer using [HTTPS](https://192.168.1.200) at <https://192.168.1.200> to view or change the configuration.

If using a delay emulator, set the optimizer's throughput and delay parameters to match and confirm that the IP addresses are as expected.

Configure the Test Server

The test server can run Windows, Linux or BSD operating systems, but will need to run a server application like HTTP / FTP that we can actually connect to. FTP, Telnet, DNS, VNC, etc. are all fine, but the preference is to operate a standard Web / FTP server if possible, particularly if any performance testing is to be conducted.

Configure the server with an IP address of 192.168.1.100 /24 (255.255.255.0) and a Default Gateway of 192.168.1.200 /24 (255.255.255.0)

Using a crossover Ethernet cable or a simple layer 2 hub / switch, interconnect the optimizer's LAN / Routed interface to the Server's Ethernet port.

From the server you should be able to ping 192.168.1.200 (the local optimizer interface) and subsequently ping across the optimizer to 10.0.0.200 (the satellite interface). If successful the optimizer is routing properly.

NOTE: There is technically no change to the hub / server optimizer configuration in this test because each optimizer defaults to Router mode and we have matched the test network addresses to the default IP addresses on the optimizer.

Configure the Remote Optimizer in Bridge mode

Follow the same initial procedures to connect your laptop to the optimizer until you are able to ping and subsequently reach the web user interface on the Remote optimizer using the LAN / Routed interface port.

Using the web interface, change the optimizer's operating mode from Router to Bridge. On the Network Interface page, near the very top, click the Switch to Bridge mode button. A reboot is not necessary, but you can optionally navigate to the Profile Management page and click the Reboot button if you choose.

When operating as a bridge, the optimizer requires only a single IP address, typically used for remote management. The interface that we assign an IP address to should be the interface that is connected to the default router. In this case, all remote optimizer traffic will be going over the satellite link to the test server, so the management IP address will be assigned to the Satellite (msk0) interface.

Clear the IP address from the LAN / /Router port (em1) box and change the Satellite port (msk0) IP address to 10.0.0.250 /24 (255.255.255.0) with a Default Gateway address of 10.0.0.200 /24 (255.255.255.0) - then click Update Interfaces. Because you have essentially removed the LAN / Router interface port IP address, your laptop will lose connectivity to the optimizer at this point.



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Re-establish a connection to the Remote Optimizer

Change the IP address of your laptop to 10.0.0.100 /24 (255.255.255.0) with a default gateway of 10.0.0.200 /24.

Physically move your laptop's Ethernet cable from the LAN / Routed interface port to the LAN / Bridged interface port on the Remote optimizer.

Test End to End Path Connectivity

At this point you can connect the two Satellite interfaces of the optimizers back-to-back with a crossover Ethernet cable or install a Router / Delay Emulator between the two optimizers and attempt to ping from the laptop to the test Server.

If you can't reach the server, use ping and tracert (trace route) to debug packet flows.

Troubleshooting

In general, this test setup is very simple and ensures users the opportunity to validate operational configurations and routing paths in a controlled environment. It is beyond the scope of this Technical Information Brief to pursue detailed troubleshooting methods, which are detailed in the User Guide.

In general, the fastest way to determine what may be occurring in the network is to access the serial port on an optimizer using a laptop and an SSH client such as cygwin or PuTTY, which can be downloaded for free from <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

If your setup goes well you should not need the serial console connection or SSH client, but they are the best troubleshooting tools in case of installation failures.