

## Broadband requirements

To maximize the 5G Cell Booster Pro network performance, we recommend that your broadband meets or exceeds these bandwidths:

Recommended broadband downlink	Recommended broadband uplink
1 GB or higher	100 Mbps or higher

*The number of 5G Cell Booster Pro devices, your site's maximum broadband speed, and the number of simultaneous user sessions plus the session type (voice, data, streaming) will influence the 5G Cell Booster Pro performance.*

At a minimum, your broadband must at least meet these bandwidth standards for 5G Cell Booster Pro to activate and provide network coverage to your location:

Minimum broadband downlink	Minimum broadband uplink
100 Mbps	25Mbps

*The number of 5G Cell Booster Pro devices, your site's maximum broadband speed, and the number of simultaneous user sessions plus the session type (voice, data, streaming) will influence the 5G Cell Booster Pro performance.*

Uncertain if your broadband meets the recommended or minimum standards for 5G Cell Booster Pro? [Click this link](#) to run a speed test for your current in-building broadband.

AT&T cellular based broadband products such as AT&T Internet Air, AT&T Wireless Internet, AT&T Hotspots, etc. cannot be used as the AT&T Cell Booster Pro's backhaul. A landline based broadband product should be used as the AT&T Cell Booster Pro's backhaul.

## Activation troubleshooting and firewall updates

### Initial broadband transport troubleshooting

1. Confirm a tight ethernet cable connection between the WAN port on the Cell Booster Pro device and the internet gateway/router.
2. Power off and then power on the internet gateway. Then, power off and power on the Cell Booster Pro device.
3. If your configuration is internet gateway/router + ISP modem:
  - a. Connect the ethernet cable directly to the port on the ISP model
  - b. This step helps you isolate whether the internet gateway/router is causing the connectivity issues
  - c. If this resolves the issue, check settings or ports to find the connectivity issue with your internet gateway/router.

**If connectivity issues persist**, confirm that your internet Gateway/Router has the following settings and update custom settings as follows:

1. DHCP is on
  - a. Cell Booster Pro data routing does not support static IP. For sites requiring static assignment of an IP address, use MAC binding and static DHCP reservation
2. MTU size is set to 1500 or higher
3. MAC address filtering is either turned off or allows the MAC address of the Cell Booster Pro device
4. IPSec Pass-Through is enabled
5. Block fragmented packets are off
6. If using multiple routers, the Cell Booster Pro device must connect to the first router connected to the broadband modem.
7. Disable NAT in the router or the modem when the following conditions exist:
  - a. The Cell Booster Pro device connects to a router connected to a modem AND
  - b. The router and the modem are NAT-enabled

Because of the wide variety of network configurations, AT&T recommends consultation with a network specialist, router manufacturer, or internet service provider to answer specific network setup questions.

AT&T cannot update the firewall settings for your internal network.

## Firewalls and UDP ports troubleshooting

If the “Internet” LED on the front of the Cell Booster Pro device is flashing or solid orange, check that the following ports are open if your network has a firewall.

1. The following UDP ports need to be open for Cell Booster Pro to make inbound and outbound connections:
2. UDP ports 123, 500, 4500, 33434, 33435, 33436

## Broadband Connectivity and Port Configuration

Installing AT&T Cell Booster behind a firewall or router with firewall capabilities requires the following port settings to allow communication with the AT&T Network. All ports listed need to be open for inbound and outbound connections:

- UDP / 500 IPSEC Port
- UDP / 4500 IPSEC Port
- UDP / 33434 thru 33450
- ESP Protocol 50
- UDP / 123 NTP Port (timing sync)

Unimpeded inbound and outbound traffic on UDP ports 500 and 4500 and/or ESP Protocol 50 is required to establish a secure IPSec tunnel. AT&T Cell Booster uses NTP for timing synchronization and requires UDP port 123 to be open for this traffic.

## IP address pass-through updates for your firewall

If the local network has a firewall that accepts traffic from or passes traffic to specific IP addresses, be sure you add the addresses in the following table to your firewall settings:

- Note: Both IP addresses and IP address subnets are listed below. For IP address subnets notated as /26, the IP address range includes all IP addresses from x.x.x.65 to x.x.x.126
- It may be helpful to perform a packet trace of messaging between the Cell Booster Pro device and the AT&T network to add in troubleshooting.

### NTP IP addresses

✓	IP Address	Port
	216.239.35.8	UDP 123
	216.239.35.12	UDP 123
	129.134.25.123	UDP 123
	17.253.4.125	UDP 123

### IPSec IP addresses

✓	I.P. Address	Port	Protocol
	12.230.208.141	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.208.142	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.208.205	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.208.61	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.208.62	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.208.77	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.208.78	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.12	UDP 500, 4500	UDP
	12.230.209.13	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.14	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.157	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.158	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.221	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.222	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.76	UDP 500,4500, 33434 thru 33450	UDP
	12.230.209.77	UDP 500, 4500, 33434, 33435, 33436	UDP
	12.230.209.78	UDP 500, 4500, 33434, 33435, 33436	UDP
	107.122.134.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP
	107.122.135.64/26	UDP 500, 4500, 33434, 33435, 33450	UDP and/or ESP
	107.122.136.64/26	UDP 500, 4500, 33434, 33435, 33450	UDP and/or ESP
	166.192.42.64/26	UDP 500, 4500, 33434, 33435, 33450	UDP and/or ESP

✓	I.P. Address	Port	Protocol
	166.192.80.64/26	UDP 500, 4500, 33434, 33435, 33450	UDP and/or ESP
	166.192.81.64/26	UDP 500, 4500, 33434, 33435, 33450	UDP and/or ESP
	166.194.142.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP
	166.198.56.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP
	166.198.57.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP
	166.198.58.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP
	166.198.59.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP
	108.144.26.64/26	UDP 500, 4500, 33434 thru 33450	UDP and/or ESP

## IPSec FQDNs

✓	Fully Qualified Domain Name
	bootstrap-ipsecrouter1.ngfemto.wireless.att.com
	initial-ipsecrouter.ngfemto.wireless.att.com
	crtn-oam.ngfemto.wireless.att.com
	crtn-4gb.ngfemto.wireless.att.com
	akr3.oam.ngfemto.wireless.att.com
	akr3-4gb.ngfemto.wireless.att.com
	all4-oam.ngfemto.wireless.att.com
	all4-4gb.ngfemto.wireless.att.com
	atn3.oam.ngfemto.wireless.att.com
	atn3-4gb.ngfemto.wireless.att.com
	atl3-oam.ngfemto.wireless.att.com
	atl3-4gb.ngfemto.wireless.att.com
	brp1-oam.ngfemto.wireless.att.com
	brp1-4gb.ngfemto.wireless.att.com
	chg3.oam.ngfemto.wireless.att.com
	chg3-4gb.ngfemto.wireless.att.com
	fro2-oam.ngfemto.wireless.att.com
	fro2-4gb.ngfemto.wireless.att.com
	hst5-oam.ngfemto.wireless.att.com
	hst5-4gb.ngfemto.wireless.att.com
	isa4-oam.ngfemto.wireless.att.com
	isa4-4gb.ngfemto.wireless.att.com
	scr1-oam.ngfemto.wireless.att.com
	scr1-4gb.ngfemto.wireless.att.com
	wah2-oam.ngfemto.wireless.att.com
	wah2-4gb.ngfemto.wireless.att.com

✓	<b>Fully Qualified Domain Name</b>
	wnd4-oam.ngfemto.wireless.att.com
	wnd4-4gb.ngfemto.wireless.att.com