

## Doctors Technology Office (DTO): Technical Bulletin

### Test Your Network (PPN or ISP) Performance

<p><b>DTO TB - #16-005</b> <b>V1.2b</b></p>	<p><b>Objective:</b> To ensure your network is performing within specification, and that all networking equipment is configured correctly.</p>
<p><b><u>Brief Description (Non-Technical):</u></b></p> <p>This technical bulletin will provide a number of tests that can be used to assess the health and performance of your network: (Is your network performing within specifications?) These diagnostic tests can reveal:</p> <ul style="list-style-type: none"> <li>• Potential configuration errors of the network (Local and Wide Area)</li> <li>• Potential configuration errors for equipment (Local and Wide Area)</li> </ul> <p><b>Potential Impact:</b></p> <p>If you are dealing with incorrectly configured equipment, performance may be reduced by more than 50%. Users may also experience the following: Random disconnection; Extensive hour-glass; Slow printing; Slow uploads of scans; Need for repeated log in; Plus many other performance issues.</p> <p><b>Tests:</b> (Detail instructions can be found on page 2.)</p> <ol style="list-style-type: none"> <li>1. Bandwidth tests will ensure your Internet Service Provider (ISP) or the Private Network (PPN) is operating optimally for the circuit type installed. Always run each test a few times to have a more accurate measurement.</li> <li>2. Speed/Duplex mismatch tests will reveal incorrectly configured networking equipment problems.</li> <li>3. Latency tests will measure the speed or amount of delays in your network.</li> </ol> <p><b>Other Factors that Impact Performance to Consider:</b></p> <ul style="list-style-type: none"> <li>• Software/hardware incompatibility</li> <li>• Numerous/Unnecessary browser toolbars</li> <li>• Too many opened browsers</li> <li>• Bloat ware (Hardware manufactures' unique, preinstalled, but unnecessary software.)</li> <li>• Old, under powered computers</li> <li>• Outdated network cards &amp; drivers</li> <li>• Consumer instead of "Prosumer" or business quality devices</li> <li>• Network cables under desks or cabinets</li> <li>• Consumer wireless router incorrectly configured</li> <li>• Malware/ Spyware; Unsupported OS (i.e. Windows XP); etc.</li> </ul>	

**Background:**

Through our experience supporting clinics with performance issues, we have come across under-performing networks due to incorrect installation, incorrect configuration and saturation. Understanding the root cause of such issues will assist you with finding the proper solution.

Before you begin testing, you should know the [uniqueness of your PPN network](#). Understanding the circuit type you have will help you to know what can be expected, given the optimal setup. For those not on the PPN private network, know what your Internet Service Provider (ISP) is providing.

Typical PPN circuit types: (If you are unsure of the service, please call DTO or BCCSS for verification.)

Circuit Type	Expected Download (Mbps)	Expected Upload (Mbps)
PPN1	3.5 to 5.0	0.6 to 1.0
PPN1(ER)	1.5	1 to 1.5
PPN (25/5)	23 to 25	4 to 5
PPN2 MB	4 to 5	4 to 5
PPN3	9 to 10	9 to 10
ISP	What you purchased + or - 10%	What you purchased + or - 10%

**Internet Speed:**

The numbers provided, such as 10Mbps (Ten Megabit per second) is not a measurement of speed per se, but rather a measurement of the possible data-transfer rate, also known as “Bandwidth”. Speed, aka throughput - the actual data-transfer rate after interference is taken into account – is never provided due to the many factors that affects its outcome.

Analogy: Bandwidth ≡ Lanes on a highway.

The number of lanes is important only when there are many vehicles on the road. When there is little traffic, adding more lanes will not improve speed.

Identifying data traffic pattern is critical to optimize performance. In other words, there are situations where increasing the bandwidth will help. (Please give DTO a call if your network is always saturated.)

**Details and Additional Information (Technical):**

This technical section is being revised.

**Note:**

Clinics are encouraged to contact their local IT to mitigate these impacts during business hours. Doctors Technology Office, 604-638-5841, [dtotechsupport@doctorsofbc.ca](mailto:dtotechsupport@doctorsofbc.ca)