**How to Rectify Slow / Unstable Internet Speed / Stability Problem --- Specially for Broadband Engineers / Users  :-**

**Dear friends,**

**The Broadband Speed does not alone depend upon the Broadband Plan of the connection,** there are multiple factors that boost or enhance the performance of Broadband speed on your System. Just for the knowledge & for better understanding you can note down the following points. Pls keep these points/steps in mind while Installing/Troubleshooting Broadband connection or resolving Internet speed problem. I am sure it will help in improving your Internet experience with BSNL.

**Steps for a Trouble-free Broadband Internet Connection:**-

**1. For Reliability & Speed, Use following DNS Addresses:**

A) On **Dial-up or Bridge mode** Broadband connections.

Enter following DNS address at Local Area Connection or Wireless Network Connection.

**Primary DNS** -- 192.168.1.1 (Filling this IP will automatically takes first DNS server from BSNL)

**Alternate DNS** -- 156.154.70.1 or 156.154.71.1 or 4.2.2.2 or 208.67.222.222 or 208.67.220.220 or 8.8.4.4 or 8.8.8.8 (Use any of these)

B) **Automatic or Multiuser or PPPoE mode** Broadband connection.

Login inside the Modem or Router Interface and enter the following DNS address

**Primary DNS** -- 156.154.70.1 or 156.154.71.1 or 4.2.2.2 or 208.67.222.222 or 208.67.220.220 or 8.8.4.4 or 8.8.8.8 (Use any of these)

**Alternate DNS** -- 156.154.70.1 or 156.154.71.1 or 4.2.2.2 or 208.67.222.222 or 208.67.220.220 or 8.8.4.4 or 8.8.8.8 (Use any of these but different from Primary DNS).

**2. Check SNR Value:**

SNR (Signal to Noise Ratio) value at Downstream must be greater than 13 dB**.** See DSL Line Parameters in Modem Interface Page under heading Overview or Device Info or Status or Statistics as different Modems have different styles of interfaces. If SNR value is lower than 13 dB then insist for Change of Line (Drop Wire), Jumper, Vertical, DP or Line Pair. Broadband may work on a value lower than 13 dB but there would be likely a Slow speed, frequent disconnections & Time outs. Practically it’s not possible to provide a line with exact value of SNR. So variations could be there & try for best possible value in any given conditions.

**3. Check Attenuation Value:**

Attenuation value at Downstream must be less than 45 dB. See DSL Line Parameters in Modem Interface Page under heading Overview or Device Info or Status or Statistics. If the value is greater than 43 dB then insist for Change of Phone Line (Drop Wire), Jumper, Vertical, DP or Line Pair. Broadband may work on a value higher than 45 dB but there would be likely a Slow speed, frequent Disconnections and Time outs. Practically it’s not possible to provide a line with exact value of Attenuation. So variations could be there & try for best possible value in any given conditions.

**4. Choose Right MTU Size (Maximum Transmission Unit):**

Almost all MTU sizes (like 1500, 1492 or 1480) give good speed performance among all website browsing & downloading. But one should preferably use 1492 as MTU in all Modem/Router connections until & unless one faces any significant problem with MTU. The value is defined inside the Modem or Router configuration page.

**5. Always use ADSL Splitter:**

ADSL Splitter must be used on a Telephone Line at the subscriber premises if the user is having a Broadband connection. Its actually divides main (frequency) Telephone Line coming from Exchange into Phone (Low frequency) & Broadband (High frequency) connection. So Modem must be feed with pure ADSL signal.

 **6. Right Physical Layout:**

Physical Layout of line must be in accordance with the technical norms followed for Broadband connection i.e., Phone Line coming from DP (Distribution Point) must be First terminated at an ADSL Splitter in a subscriber's home.

 **7. Use Multiple Telecommunication devices only after Splitter:**

The extra Telecommunication devices must be connected only after the ADSL Splitter. So is advised to avoid the use of following...

       a) No Parallel Phones Connection,

       b) No Intercom,

       c) No EPBAX,

       d) No Joints/Cuts in Line,

       e) No Conduit/Internal Wiring.

 **8. Use Good Quality Wires:**

Pls avoid PVC wires & other non-Telecommunication wires for a Telephone having a Broadband connection. Instead Use Drop Wire (made up of Copper) supplied by BSNL.

**9. Keep the line path away from any Interferences:**

Telephone Line Path should be away from any kind of Electrical Lines & Electrical or Electronic Appliances/Equipments/Devices.

 **10. Keep Connecting Terminals Clean:**

All the Connecting Terminals or Points must be Clean and free from Rust/Dust/Carbon.

 **11. Cover Joints:**

Proper Insulation & Tapping of Joints must be done at all points or terminations. Don't let any joint open or hanging loose in the air as it may invite trouble anytime.

 **12. Check Loose Connections:**

Telephone cables, Drop wires, LAN & USB cables should be tightly & properly connected for proper flow of data transmission and smooth connectivity at all times.

**13. Choose Right Media:**

For faster speed experience, LAN (Ethernet) Cable should be preferred over Wireless medium (Wi-Fi) & USB Cable for Broadband connections.

**14. Avoid Joints/Cuts:**

Check Telephone Line, Drop wire for any Cuts & Cracks and replace the same whenever you notice. If possible & feasible use single wire without any Joints.

**15. Noise free Line:**

There must be No Noise & Disturbance in the telephone line. You may pick the phone receiver and dial any digit once (let’s say number 5) and silently hear the Sound if any to determine the hidden noise/disturbance. Any good line has a complete silence when heard through receiver.

**16. Use Proper Modulation:**

If the distance of the subscriber's modem is more than 2.5 Kms of length from the Telephone Exchange (DSLAM) then Use only G.dmt Modulation in the modem DSL settings. Disable all other modulations if possible**.** The distance of underground cable from Exchange to the user Home is considered rather than road or aerial distance.

  **17. Use Proper & High Quality Splitter:**

If SNR or Attenuation levels are not at recommended levels even after changing the Line/Drop wire etc. then Pls try to change the Splitter to see any difference in their values. Sometimes internal circuit of splitter becomes faulty & give false parameters.

**18. Use Proper & High Quality Modem device:**

Modems of different Companies or different Models of Modem have different Internal Circuitry and they read line parameters differently. So if Line parameters are not at recommended levels then try to change the Modem to see any difference.

The Modems like Teracom, Huawei, UT-Star, TP-link, D-link, and Link Sys perform exceptionally well even in poor signal to noise ratio conditions also. That means if your house is at considerable distance from your BSNL exchange, naturally the line attenuation will be more and the cheap quality Modems used at subscriber's home would fail to perform reliably or read line profile accurately.

**19. Use UPS for Stable Power Supply:**

Try to Use power supply from a UPS (Uninterrupted Power Supply) for Modem & Router's adapter to avoid any kind of power fluctuations.

 **20. Use Correct Modem Adapter:**

Use Modem Adapter as per the Original Current & Voltage ratings given on adapter or printed on Modem box. Using Low or High voltage/current rating adapter may cause Modem & DSL to behave improperly.

**21. Prefer PPPoE settings over Bridge Mode of Connection:**

PPPoE (Always ON) settings are much stable, secure and faster than Bridge (Dial-up) settings. Even if there is High Attenuation and Low SNR the Broadband connects & works well for most of the times. Moreover, Hackers can't access your PC easily in PPPoE mode connection as the Modem itself is dialing to the server & comes in between PC & Internet. This is good considering the security point of view.

**22. Check Line Profile:**

The default Line Profile of a Broadband connection (DSLAM port) is generally set at 2 Mbps (2048kbps) rate. But sometimes speed problem comes when we have 4 Mbps or higher plan & our speed does not cross beyond 2 Mbps. Then we need to check whether our Line profile is configured correctly as per our selected Broadband plan. As the wrong profile freezes our speed at certain level.

 **23. Lower the Line Profile if the Line Quality is Extremely Poor:**

If the Line quality is very poor despite using all the above steps & the Broadband plan or speed requirements are less than 2 Mbps speed bandwidth (like in the case of unlimited 256kbps or 512kbps or 1Mbps Plan) then request your local NIB Section to Lower the Line Profile of Broadband connection (DSLAM port) to 1 Mbps from the default profile of 2Mbps. It will make your SNR signal value to go up, the DSL Link becomes more stable & ultimately the overall experience of speed increases. This could be the last resort for broadband connections installed at far distances (usually in rural areas) or with areas having poor line quality. This is done only with the permission of NIB staff and to save the connection from being getting disconnected. For us, every customer is important & we need to find out alternate ways to satisfy his purpose & utility.

 **24. Unused/Extra PVC values may be Removed:**

You may delete or disable all the irrelevant PVC values in the WAN settings of the Modem except 0/35 which is meant for BSNL Broadband. Some PVC values like 0/100, 0/32, 8/35 are used for IPTV, VPN & VoIP respectively and generally not used for any home broadband connection until & unless customer has subscribed to the above special services.

 **25. Check if you have crossed your High Speed Download Limit:**

In some connections, it is noticed that Broadband speed decreases after a specific download limit. Those unlimited plans comes under Fair Usage Policy (FUP) Plans where the broadband speed comes down to a specific rate automatically after the stipulated download limit at higher speed is consumed. So actually the speed decreases due to the plan chosen by the user itself.

 **26. Select Right Modem Settings:**

Always Enable NAT, Firewall & Default Route check-boxes (features) in the Modem configuration/interface page.

**27. Disable Automatic Updates of Softwares:**

If possible, disable Automatic Updates of most of the third party Programs installed in your Computer. Instead choose or change their settings to Manual updates available in the options/feature button.

**28. Remove unused Software Applications:**

Please Delete or Uninstall Unnecessary Softwares like Web Toolbars, browser Add-ons, browser extensions, Screensavers, Weather updates, Desktop Gadgets & Programs which are hooked to internet from the PC.

 **29. Install Good Anti-Virus with firewall:**

Useany (free or paid) good Anti-Virus with Internet Security suite for extra protection from Malwares. As most of the speed is hogged by Viruses, Trojans, Worms, Spywares, Adwares etc. likely present in all computers due to use of pen drives & online activities. Firewall will display which program is requesting for Internet access.

**30. Choose Good Browser:**

One should use browsers like Mozilla Firefox, Google Chrome and Opera for Web surfing which are much faster, safer and reliable than the conventional Internet Explorer which is embedded in the windows.

**31. Install Updates on Time:**

Install all Security and Essential updates regularly from Microsoft if you are using Genuine Windows in your computer. Those who are using non-Windows operating system should also update their system with regular service patches.

 **32. Use Specific Software for Specific Purpose:**

Use Download Manager for Downloading Files rather than using inbuilt windows or browser's traditional downloading feature for saving files in hard disk. As the Download Manager uses specific technology which boost speed many times (i.e., utilizes full bandwidth available in your Broadband Plan).

**33. Choose Good Operating System (Windows):**

Prefer Windows 7  & Windows XP than the Windows Vista for using Internet as the later is slower in comparison to others while using Internet based activities & programs.

 **34. Only one ADSL splitter per Line:**

Never use two ADSL Splitters on the same line for any parallel phone connections. Instead use phone extensions for using multiple telephone connections.

 **35. Secure your Wi-Fi connection:**

Never let your Wireless Modem or Router unsecured. Use WEP-128 bits or WPA security key settings. Choose strong key but easy to remember Wi-Fi password containing both letters & digits. You may also use MAC based security which is the strongest security that enables only systems which are present in MAC list to have internet access.

**36. Ensure Proper Connections in Exchanges too:**

All connections, jumpers and fuses should be neatly & tightly connected at MDF Side of the Telephone Exchange.

**37. Unplug Fuses in Rare Cases:**

In old (E10B) exchanges we may avoid using GD Tubes in Fuses at MDF side to increase Line Quality i.e., SNR value. It should be used only in cases where the line quality is very poor.

**38. Keep a Tab on Torrent or Hidden applications:**

Most of the torrent softwares keep running all the time in the background which may reduce your browsing speed. So better quit the application if its not in use or your download is finished.

**39. Choose Right Plan for Right Purpose:**

One should use right broadband plan for right kind of activity. Suppose someone wants to use only Audio chat then one should have a connection with more than 128kbps of speed and if someone wants to use Video chat then one should use a connection with a speed of 512 kbps or more. The speed of 256 kbps is fine for email checking & browsing different websites. For multitasking, one should prefer high speed broadband plans. So, one should opt Right plan for Right kind of online activity.

**40. Use Ad-blocker softwares/extensions/add-ons:**

One may use Ad-blocker softwares/extensions/add-ons for their web browsers which can block unnecessary Ads in your web page thereby increasing total web browsing experience.

 **41.** **Last but not the Least**, Wires & connections installed in **Pillars and DP boxes should be free from Dust and Rust** for good line parameters.

 *There are several other factors at various levels which affect Internet speed but most of the above points are enough to be checked at Telephone Exchange, Outdoor & at Subscriber's premises to troubleshoot slow or unstable Internet speed if there is no issue at back-end server*.

**Pls book complaints at 198 or 1500 or 1504 from any BSNL Landline.**

**You may also lodge complaint from Any Mobile at Toll Free Number 1800-345-2025.**

**Thanks & Regards,**

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 **Note: -** Pls feel free to give Feedback/Suggestions on the article for further improvement.

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