



Browsing Efficiency – Making the most use out of a slow Internet connection.

This document gives an overview of how you can maximize use of a limited bandwidth connection. It has been developed during an attempt to best use a 128/32 kbps satellite connection. Used in conjunction with existing resources on the Internet it will allow you to connect more computers onto an Internet-connected network.

When we add a computer to a network we have to be very careful that that new computer won't abuse the network. The following procedure allows us to give a workable and fair browser connection to everybody. Some of these tweaks are not "ideal," but they make things work. All of the software referenced is available as a free download on the Internet.

1. Uninstall MSN Explorer and IE. You can do this from the Add/Remove programs dialog. Disable Windows Update from the Control Panel, so that updates are always manual, and won't clog the network during peak times.

2. Install Mozilla Firefox. Mozilla is small, portable, quick, and customizable. When bandwidth is a factor these attributes are crucial in choosing a browser to work with.

IN TOOLS>>OPTIONS>>ADVANCED>>UPDATE disable all automatic updates, these will run in the background and consume bandwidth.

Updates can be done manually at off-peak bandwidth hours (nighttime) or from a CD, so that the updates are only downloaded once, and then distributed to multiple computers.

In TOOLS>>OPTIONS>>GENERAL>>CONNECTION SETTINGS setup Firefox to use a proxy. Check 'Manual proxy configuration', type in the ip address of the local computer (i.e. 192.168.0.7), use port '808', and use that for all protocols.

IN TOOLS>>OPTIONS>>CONTENT disable Java.

In TOOLS>>OPTIONS>>PRIVACY>>CACHE change the disk space of the cache to 200MB.

2.1 Install Extensions: Adblock Plus, FiltersetG, and Flashblock

Installing these extensions block certain ads and prevent downloading of flash content automatically. Users retain the options to view the content, they are just not downloaded automatically, and thus save considerable bandwidth.

3. Install Firetune for Firefox

Make a backup of your existing configuration, and then configure for slow computer / slow connections.

4. Install CCProxy

In OPTIONS, select only the proxy services: AUTO STARTUP, AUTO HIDE, PORTMAP.

In OPTIONS>>ADVANCED>>MISCELLANEOUS select HIDE ALL. If you want to password protect the application, you can do that from this screen.

In ACCOUNTS do an auto scan on the local IP address, so if you machine is 192.168.0.7, the auto scan should range from 192.168.0.7 to 192.168.0.7. Once the entry is logged, double click on it and set its bandwidth and connections parameters.

On our connections we are using "2048" Bytes/s and "1" connection maximum.

On the main screen right click on the graph and setup the maximums for the program's graph: Connections Maximum: 1; Bandwidth Maximum: 2 k byte.

5. Tweak Firefox some more.

Now go back to Firefox, open about:config and change the "network.http.max-connections" so that it has a value of "1". This way Firefox will only try to use one connection to the Internet, and it will thus play well with CCProxy, which is controlling its bandwidth (one connection maximum, with a bandwidth maximum of 2Kb). Change "browser.cache.check_doc_frequency" to a value of "2" so that web pages are stored in the cache more rigidly.

So now we've setup our computer to browse with using a max of 2Kbytes/s and one connection. You will be able to connect more machines that if you were simply using MSIE with no modifications. The amount of machines you can connect depends on the quality of the bandwidth you have purchased: how saturated, shared, or "over-subscribed" it is.

In addition to this setup on each node it is advisable to run a caching proxy server at the gateway to the Internet. Open source programs like Squid are ideal for this. We have found a remarkable increase in available bandwidth by using a Squid server. It not only saves common web pages locally, it prevents packets that are lost on a WiFi network from being re-requested through the very limited, very expensive Internet connection. If you install a Squid proxy server you can point the CCProxy program to that server so that the above setup can take advantage of its caching. There are also many How-To's on the Internet for building a transparent Squid caching proxy server.

Regards,

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