

## About iSpeed for Windows 95

When networking is installed in Windows 95, the default settings are not such that promote maximum throughput. The registry entries that control these settings have not been widely publicized. Recently however, as users are trying to maximize their throughput to take advantage of the multimedia capability found on the internet, some of these settings are being discussed in public forums.

What iSpeed does is to facilitate making these changes in your registry, in an easy to use and understand format and a GUI interface. iSpeed provides some quick preset profiles that have been found to produce the maximum throughput on a variety of machines. It is recommended that the user try these first, before manually setting the individual entries. Find a preset profile that gets you higher throughput than your current settings, and then tweak them a little at a time, until you find your best setting.

## Getting Started

When you first run iSpeed, it searches your registry for all of your current TCP/IP protocol profiles (up to 50 of them). These are then displayed in a combobox, where you can pick the one or ones you want to modify. **Note that NO changes are made to your registry, until you press the Save button.** As you move through the available profiles, the other settings displayed will change for each profile. To facilitate locating the particular profile you wish to modify, the IP address and subnet masks are displayed for each. If you are assigned a dynamic IP address when you log into your internet service provider, as is the case with most dialup connections, then the IP address and subnet masks will be displayed as 0.0.0.0 and 0.0.0.0. If you connect with your provider, and then run iSpeed, you would see your actual IP address for that connection. Then, make note of the profile name in the combobox, as that will remain constant and be the profile used for all connections to that provider.

Choose the profile you wish to modify and note the displayed settings. Choose one of the buttons for the preset profiles and see how they work for you prior to manually tweaking the settings.

At anytime, you can press the default button to return to the Windows 95 installation defaults.

## Maximum Transmission Unit (MTU)

The MTU is the greatest amount of data that can be transferred in one physical frame on that network. If a packet has an MTU that is smaller than the packet's frame length, then fragmentation occurs. This can dramatically drop your throughput and lead to overall lower system performance. The Windows 95 default setting is 1500. In general, you want to use the highest MTU that you can without generating overruns. The lowest setting you should need would be 552. Some terminal servers work well with 1002. A typical setting that has been found to work well on a number of systems is 576.

## Receive Window (RWIN)

RWIN determines how much data the receiving computer is prepared to receive. An RWIN value that is set too high will result in greater data loss if the packet is lost or damaged in transit. An RWIN value that is set too low will produce very poor throughput. Typically, an RWIN value should be set that is 3 or 4 times the size of the [Maximum Segment Size \(MSS\)](#).

## Maximum Segment Size (MSS)

The MSS is the largest segment of TCP data that the Winsock is prepared to receive on a particular connection. When the TCP connection is initially established, both sides agree to use the minimum of each other's advertised MSS value.

If the MSS is too low, the data/header ratio will be low. And if the MSS is too high, this will lead to large IP datagrams and the packets will tend to fragment in transit where other networks may have small [MTU](#)'s. Hence, performance can increase at times by reducing the MSS value.

Since packet headers are normally 40 bytes in length, your MSS value should always be at least 40 less than the value of the [MTU](#). As a rule of thumb, first try setting the MSS value to be the greatest power of 2 that is at least 30 less than the [MTU](#) value.

## Time To Live (TTL)

The TTL setting determines the number of hops allowed to reach other systems on the network. The default Windows 95 value is 32. This can be a fairly small window on a crowded network - such as the internet. You may wish to try a value of 128 here, especially if you frequently have trouble reaching some sites.

## MTU Auto Discovery

Checking the MTU Auto Discovery box allows the TCP connection to sort out the [MTU](#) automatically. Favorable results have been realized with this on and off. It is recommended to try both settings with each profile and use whichever works best. This can be used in conjunction with other [MTU](#) settings.

## Support and Updates

Among various other sites, you will always find the latest release of iSpeed and other High Mountain Software applications at our ftp and web sites. These are as follows:

Web: <http://www.hms.com/index.htm>

Ftp: <ftp://ftp.dimensiona.com/users/hms>

You can also send any bug reports, help requests, comments, and suggestions to us via email by sending to [support@hms.com](mailto:support@hms.com).



## Registry Entries

Following are the registry entries that iSpeed manipulates:

**MTU:** *HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\Class\NetTrans\00xx\MaxMTU*  
(where xx is the profile number)

**RWIN:**  
*HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\VxD\MSTCP\DefaultRcvWindow*

**MSS:**  
*HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\VxD\MSTCP\DefaultMSS*

**TTL:**  
*HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\VxD\MSTCP\DefaultTTL*

**MTU Auto Discovery:**  
*HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\VxD\MSTCP\PMTUDiscovery*

**Black Hole Detect:**  
*HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Services\VxD\MSTCP\PMTUBlackHoleDetect*

## What's New?

### 24 May 1998, Version 1.50:

- Instead of setting the PMTU.... values to 0 in the registry when not checked in iSpeed, the keys are now removed from the registry.
- If DefaultRcvWin and/or DefaultMSS are set to blank or 0, then their keys are removed from the registry instead of being saved as 0.
- If iSpeed is attempted to be run under Windows NT, an error message will be displayed and the program terminated. This application is not designed for use under Windows NT.
- **Important Note:** If your computer is also setup with an ethernet adapter and is connected to a network, you may find that the global values (all settings other than the MTU setting) cause inefficient network performance on your local network. In this case, uncheck the PTMU... settings, and set the RWIN and Default MSS settings to blank or 0 to remove their entries in the registry. If you are **not** attached to a local network, then your dialup networking throughput **will** benefit from using these settings.

