# IPNetTunerX ReadMe

copyright ©2002-2007 Sustainable Softworks, Inc.
Product Page: <http://www.sustworks.com/site/prod_iptx_overview.html>
12 Dec, 2007


# README CONTENTS

1.  Introduction
2.  Features
3.  System Requirements
4.  Companion Applications
5.  Installation and Removal
6.  How To Get Started
7.  Version History
8.  Registration and Licensing
9. Thank You!   (contact information)

This ReadMe file is available under the Help menu of the IPNetTunerX application, so there is no need to save a separate copy on your hard drive.
---

# 1.   Introduction

It is often possible to improve the performance of your Internet connection by 20% or more simply by using the right parameters for your connection. "IPNetTunerX" is a modest application that allows you to optimize TCP/IP network performance under Mac OS X by tuning internal TCP/IP parameters to match your network environment. IPNetTunerX supports over 50 adjustable parameters including the TCP Window Size, Time Out intervals, Maximum Segment Size, and MTU.

You can save your settings in IPNetTunerX settings documents and invoke them each time you login or when chaning network locations.

As with all of our Macintosh software products, IPNetTunerX features a fully functional 21 day trial period. Once you are certain that our software is right for the job, a registration key can be purchased for $30 (see our registration page for educational and bundled package discounts).
---

# 2.   Features

* Full on the fly access to BSD networking tuneable parameters.

* Outstanding compatibility, does not modify any networking files.
* Experiment with confidence, easily restores factory default settings.
* Built-in tools allow you to see TCP/IP in action and verify correct tuning.
* "Quit after restoring settings" allows you to restore your settings transparently upon login.
* 21-day free trial.

Compared to other (free) unix tools, IPNetTunerX offers the following advantages:

(1) It allows you to view and adjust more parameters from a single convenient application including interface MTU to accommodate more network situations such as dialup or Ethernet behind a PPPoE router.

(2) You can easily switch between different settings documents for different locations.

(3) It includes tools that let you see how TCP/IP is working in the real world so you can actually measure and optimize performance instead of just guessing. The Link Rate tool calculates the bandwidth-delay product to help you optimize the TCP Window size.   The TCP Rate tool allows you to see the pattern of data transfer including duplicate and retransmit data.
---

# 3.   IPNetTunerX System requirements

   Version 1.1.8 Requires Mac OS X 10.1 or later.
   Version 1.5 Requires Mac OS X 10.3.9 (Panther) or later (Universal Binary).
---

# 4. Companion Applications

Whether you decide to purchase IPNetTunerX or not, we also have other software that can enhance your Mac's networking capabilities.   Like IPNetTunerX, they all include a 21 day free trial.

IPNetMonitorX (IPNMX) provides a suite of integrated Internet tools which allows you to see how well TCP/IP is working on the fly.   Perfect for tuning with IPNetTunerX.

IPNetRouterX provides Internet sharing including NAT with inbound port mapping, DHCP server, firewall,   bandwidth allocation, and bandwidth accounting.   Using IPNetRouterX you can share a single Internet connection with one or more other IP capable computers (including Windows boxes) from a single Macintosh or create an AirPort wireless gateway.

IPNetSentryX provides a flexible firewall/intrusion detector.

Sometimes tuning TCP/IP isn't enough.   Network performance problems related to congestion are often better addressed by packet shaping or bandwidth allocation as provided in IPNetSentryX and IPNetRouterX.

You can download any of these software packages from our website: <http://www.sustworks.com/site/downloads.html>


# 5.   Installation and Removal

To install the software, simply drag a copy to your hard drive. The first time IPNetTunerX is run it will ask you to authenticate to complete the installation process.

Under unix operating systems including Mac OS X, certain operations require special permission or privileges to prevent unauthorized users from disrupting or spying on other users.   While well intentioned, these conventions are often inappropriate for a "personal" computer where a single user owns and administers the system.   Among the operations that require such privileges are modifying an interface MTU or TCP/IP parameters.

IPNetTunerX takes the personal computer view that the user should normally be in control of their computer, so tries to minimize the disruption of asking the user to prove they are authorized to perform the requested operation.

To modify an interface MTU, IPNetTunerX includes a tiny server application named "ConfigMTU" that must run as suid root. When IPNetTunerX is first run after being copied to a new location, it checks to see if the ConfigMTU tool is present and set to suid root.   The same process is repeated for "ConfigSysctl" and "OpenICMP". If any of these tools are not authorized, IPNetTunerX asks you to authenticate so it can configure them to run as suid root. You might think of this as completing the installation process.   From that point on, no further authentication is necessary to perform any of the restricted operations IPNetTunerX supports.

Normally allowing small programs to execute as root is not a problem unless the program seeks to compromise your system or is exploited by another program to carry out such an attack.   The best defense against such exploits at this time is to only run software from reputable developers.   IPNetTunerX takes advantage of Leopard Code signing to alert you of any unintended modifications to the software.

To remove the software, drag the IPNetTunerX application to the trash.   If you saved any settings as a login item, you can press "Remove Login Item", or manually remove it using the Accounts preference panel under the Login Items tab.   To restore any settings you might have changed, you can press "Apply Defaults" or restart your system.   If you wish to remove the supporting files installed with the software, you may drag /Library/Application Support/IPNetTunerX to the trash as well.   This may ask you to authenticate since some of the helper tools have been configured to allow privileged operations and are "owned" by root.


# 6.   How to Get Started

The "Tuner Presets" under the Basic tab can be tried instantly to see if they improve the performance of your network.   Just select a preset and press Apply.   If you find a tuner preset that helps, you can restore these settings each time you login by pressing "Save as login item".   You can also save any changes you make (under the File menu) and restore them at a later time.

If you select "Quit after restoring settings", the IPNetTunerX application will quit automatically when launched from the corresponding document.   To prevent the application from quitting, launch the application first, and then open your settings document.

Trouble Shooting Tip:   If your tuner settings don't appear to work as a "login" or "startup" item, check the list of startup items (/Library/Startup Items) for possible conflicts with other networking items, and review the "system.log" in the Console application to see what IPNetTunerX did.

If none of the Tuner Presets result in a noticable performance improvement, there are several possibilities: (1) Your Internet link is already operating at close to maximum performance so no tuning is necessary; (2) There is a more subtle interraction between your Mac and networking environment not addressed by these examples.   To understand the settings files and their contents, some knowledge of TCP/IP tuning is required.

To see all the parameters you can tune, click on the "Advanced" tab and use the Up/Down arrow keys to step through all of the parameters.   To see only those parameters that are currently active, check the "Step to next non default setting" checkbox. The popup menus in the upper left can also be used to select a parameter. The upper menu selects a group of parameters, and the indented menu below it lists the corresponding parameters from that group. The large text view in the middle of the window provides a brief identifying description of each parameter.

To change a parameter value, enter a new value in the text field to the right of the parameter popup and press Apply. The Current value and Default value are shown for reference immediately below the input field. You can confirm your changes by examining the "Current" value along with the status information in the lower left corner of the window. You can restore all parameters to their default values by pressing "Load Defaults".

IPNetTunerX "settings documents" are text files formatted as an XML property list (or plist) so you can also examine them using a standard text editor.

The general approach to network tuning is to measure the actual performance using tools such as those included with IPNetTunerX   or IPNetMonitorX and then compare this with the expected performance based on the type of network connection used.   If you are getting above 80% of your theoretical maximum   throughput, tuning is probably unnecessary. If not, it is worth doing some detective work to understand what if any tuning problems are slowing your network and how to address them.

A good place to start is with the Link Rate and TCP Rate tools provided by reading the corresponding help text.   Don't be afraid to experiment with various parameters.   If performance suffers, just press "Load Defaults" or restart your Mac and all parameters will be reset to their defaults. IPNetTunerX does not modify any network parameters except in RAM (temporary memory).

It is difficult for us to tell you which parameters to tune without measuring the actual characteristics of your network.

There's lots more information about TCP/IP network tuning available from our website at:
<http://www.sustworks.com/site/prod_iptx_help/html/NetworkTuningHelp.html>
---

# 7.   IPNetTunerX Version History

See "Release Notes" under IPNetTunerX Help for version history including the latest features and additions. ---

# 8.   Registration and Licensing

IPNetTunerX is commercial software subject to the terms of the accompanying License Agreement. You may use a demo version of the software during a single trial period of up to 21 days. You must then register

the software if you wish to continue using it beyond the trial period.

Notice the trial is designed to expire after 21 days.   If the software reports it has expired the first time you launch it, this usually means someone ran a previous version of the program on your computer.   Please contact us directly for information on how to reset the trial period.

Once you have downloaded the application, you can register it on-line at <http://sustworks.com/site/reg.html>

A "registration key" that unlocks the trial period will be sent to you by email once your registration information is received. You can simply copy the text of this Email message to the clipboard (as if you were going to paste it into another application) and then launch the IPNetTunerX application, or paste into the "registration key" field of the registration window or demo startup dialog.  Your program is now registered. Thank You!

Pricing
Single User $30
Upgrade from IPNetTuner classic $15
Site License $1200 (unlimited users within 100 miles of your site)

# 9.   Thank You!

We hope you find our IPNetTunerX software useful and look forward to your comments and suggestions.

support help              <http://www.sustworks.com/site/sup.html>

registration issues       <mailto:admin@sustworks.com>

other questions               <mailto:info@sustworks.com>

or mail us at:

Sustainable Softworks
13 Fieldside DR
Cumberland, RI 02864 USA

[End of ReadMe]