

TENON'S ITOOLS INSTALL GUIDE



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TABLE OF CONTENTS

CHAPTER 1

Introduction: Tenon's iTools . . .	1
Serious Tools For The Internet	1

CHAPTER 2

Installing Tenon's iTools	3
Installing Mac OS X	3
Configuring Mac OS X	3
Network Control Panel:	3
Sharing Control Panel:	5
Software Update Control Panel:	5
Installing Tenon's iTools:	6
New Installation	6
Installing From a Download	6
Installing from CD	8
What Gets Installed	8
Post-Install	8
<i>Setting the Admin Password</i>	9
<i>Entering Your License number</i>	9

CHAPTER 3

Tenon's iTools Quick Start	11
Quick Start	11
DNS	12
Are you going to use Tenon's iTools built-in DNS?	12
<i>"Dot" Notation</i>	12
<i>New Primary Zone</i>	12
<i>Entering Name Servers for the zone</i>	13
If you will not be using iTools for your DNS services.	14
Virtual Hosts.	15

APPENDIX A

Working With NAT	17
NAT: Definition	17
DNS	17
Internal DNS Service	17
External DNS Configuration	17
Virtual Hosting.	18
<i>UnChecking the Lookup IP Check Box</i>	18
<i>Adding Virtual Hosts as their Internal IPs</i>	18
Port Mapping	19

APPENDIX B



Mac OS X User Privileges	21
Creating a Root User	21
The ftpguest Group.	22

INTRODUCTION: TENON'S iTOOLS

SERIOUS TOOLS FOR THE INTERNET

Tenon's iTools is a family of professional-quality, high-performance tools essential to internet web service under Mac OS X.

Apple's new operating system environment with true pre-emption and protected memory, combined with the power of G4 processors and the strength and ease-of-use of Tenon's iTools, have the potential to make the Macintosh a world-class platform for web content delivery.

Tenon's iTools includes an Apache web server, a domain name server (DNS), a multihoming file transfer capability (FTP), and a powerful Sherlock-savvy search engine. In addition, Tenon's iTools supports WEBmail, an anytime, anywhere, web-based mail package.

Tenon's iTools extends the internet software that ships with Mac OS X by including newer versions of key protocol implementations which add functionality and close security holes. Tenon's iTools enhances open source packages by augmenting key internet services with a point and click interface to make configuration and maintenance easy and error-proof. Tenon's iTools user interface and built-in functionality makes the transition to Mac OS X an easy step for Macintosh webmasters. At the same time, Tenon's iTools performance, combined with Apple's G4 power, is attracting UNIX and NT webmasters to Apple's new OS.

Because we know that creating a world-class web server involves more than simply being able to deliver content quickly and reliably, we've bundled Tenon's iTools with demos of a variety of third party web applications and open source web development tools. These tools are in separately installable packages, ready to use. They extend Tenon's iTools with turnkey eCommerce solutions, dynamic web page creation tools, Java servlet support and Java Server Pages, Active Server Pages, and SQL databases.

eCommerce on Mac OS X is further supported by Tenon's iTools SSL (Secure Socket Layer). Tenon's iTools includes SSL 3.0, a state-of-the-art implementation to support the secure exchange of data between Tenon's iTools and any SSL-enabled web browser. It supports such advanced features as streamlined handshaking for faster round-trip times, multiple key exchange and encryption algorithms, and support of hardware tokens in the form of Fortezza cards, as a first step toward cryptographically-

INTRODUCTION: TENON'S ITOOLS*Serious Tools For The Internet*

capable "smart cards". Tenon's iTools SSL also supports Netscape Server Certificates to accomodate corporate and military intranets that use internal certificates.

Tenon's iTools includes the latest Apache build, extended with Squid caching, to provide a full-featured, high-performance, easy-to-use web and caching proxy server. Apache, the most popular server on the internet, is being used today to serve over 18 million web sites. Tenon's iTools is the easiest-to-use Apache in the world, on a platform that is well-known for its elegant user interface, and is now being heralded for its power and strength.

Welcome to a new era in Macintosh web service. Tenon's iTools: fast, reliable, secure. Serious tools for the Internet.



INSTALLING TENON'S ITOOLS

Tenon's iTools extends and enhances Apple's built-in web server with an updated version of the Apache web server, a caching-proxy service, an enhanced FTP server, a point and click browser-based configuration service, and other features.

INSTALLING MAC OS X

Apple and Tenon both recommend using the HFS+ disk format for use with Mac OS X.

Make sure that you install the BSD Subsystem included in the Mac OS X installer.

CONFIGURING MAC OS X

Tenon's family of Mac OS X networking applications requires a properly set-up network configuration. Each Mac OS X 10.1 system must be pre-configured, using the Network and Sharing Control Panels, with an IP address, a domain name, and an IP address for a Domain Name Server. If you are unfamiliar with these terms, please contact your system administrator or Internet Service Provider.

Network Control Panel:

Apple Menu --> System Preferences... --> Network

In most cases, the correct settings in the Network Preferences will be:

Location: Automatic

Show: Built-in ethernet

And in the **TCP/IP** tab:

Configure: Manually

If not already set up, enter an **IP Address, Subnet Mask, Router, DNS Address,** and **Search Domains** for this machine.

INSTALLING TENON'S ITOOLS*Configuring Mac OS X*

An example of a proper configuration is:

IP Address: xxx.xxx.xxx.123

Subnet Mask: 255.255.255.0

Domain Name Servers: xxx.xxx.xxx.2

Router: xxx.xxx.xxx.1

Search Domains: your-domain.com

Again, contact your ISP or System Administrator for the actual values.

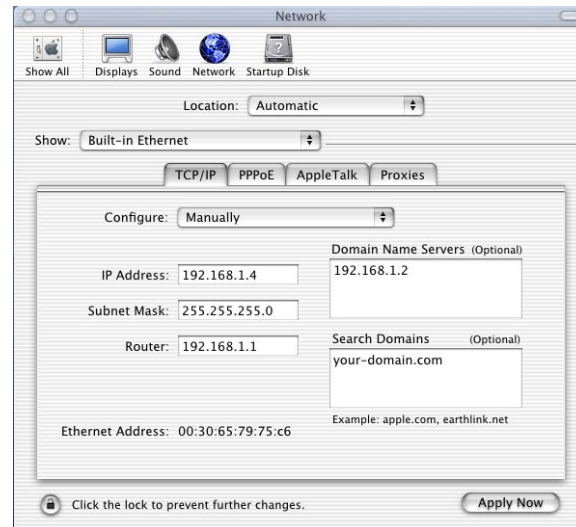


Figure 1: Network Control Panel

Sharing Control Panel:

Apple Menu --> System Preferences... --> Sharing --> File & Web Tab

There are several choices in the Sharing Control panel which turn on various services. These will control services in Tenon's iTools as well.

Web Sharing = http

FTP = ftp

remote login = ssh



Figure 2: Sharing Control Panel

For security reasons, it is recommended that you turn on only those services that you are actually going to use.

Software Update Control Panel:

Apple Menu --> System Preferences... --> Software Update

It is a good idea to set **Update Software:** to **Manually** to avoid updating over Tenon's iTools software.

INSTALLING TENON'S ITOOLS:

New Installation

After completing the system and network requirements as outlined above, proceed with the install. Follow the instructions below for installation. See Chapter , “Tenon’s iTools Quick Start,” after installation is complete.

INSTALLING FROM A DOWNLOAD

Tenon’s iTools can be found at:

<http://www.tenon.com/products/itools-osx/>

Check Tenon’s website regularly for updates.¹

The download file will appear on the desktop or in your designated downloads folder. If it hasn’t automatically expanded, drop the “.gz” file on StuffIt Expander 6.01 (or later), or use an alternate method to expand the archive.

The expanded archive consists of a folder named iTools, which contains a file named “iTools.mpkg”. You may find it convenient to move this folder to a different location, and/or to add the original download archive to the folder as a backup for future use.

Double-click on the “iTools.mpkg” file to launch the installer.

1. Subscribe to Tenon’s iTools mailing list for automatic notification about updates and technical discussions about the software. http://www.tenon.com/mail_list/



You will need to authenticate yourself as an Admin user by clicking on the small padlock button. Proceed through the installation process, step-by-step, including configuring a base host name for the server.

Figure 3: Installer Authentication

Installation includes a dialog to enter the default host name for your server.

This dialog box may not be the frontmost window in some cases. If you see it behind the other install window, bring it forward to enter the default host name for this server. After you finish entering your hostname, click **Done** to continue the install.

The last step of the install process, Optimizing System Performance, takes a few minutes; so be patient. Quit the installer when it has completed the process. At this point, Tenon's iTools Apache web server will be running. You shouldn't need to reboot.



Figure 4: Configure Server Hostname

INSTALLING TENON'S ITOOLS

Installing from CD

Entering the configured host name in a web browser should now display a default page. If your DNS is not set up properly, you can also enter:

`http://127.0.0.1`

in a web browser on the server.

INSTALLING FROM CD

The Tenon's iTOLS CD contains a ".pkg" or ".mpkg" file. That file is equivalent to the expanded archive file from a download. Follow install instructions above for the download ".mpkg" file.

WHAT GETS INSTALLED

Applications --> iTOLS.app

Library --> Receipts --> iTOLS.pkg

Library --> WebServer --> Assorted files.

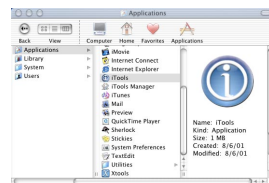
Your website's files will reside in folders and sub-folders within the "WebSites" folder.

/etc/httpd/ --> A modified "apache.conf" file.

The original Mac OS X apache.conf file is backed up during the install process.

POST-INSTALL

There are a few things you should do immediately after installation to ensure that your server runs properly..



When you start up your Mac, the servers that are set to be on are automatically launched and run as invisible background apps. In addition to the servers themselves, Tenon's iTOLS package includes a "front-end" application, called "iTOLS.app". It can be found in the Applications folder; double-click to launch it.

Figure 5: iTOLS Application

Make sure that the web server is running by checking the **WebServer** menu item in the **Admin** menu of the iTools application. If the web server will not start, please contact Tenon Technical Support for assistance.

For new installations, a web server administration account is automatically created when Tenon's iTools is installed with username "admin" and password "admin".

For security reasons, you are strongly advised to change the default Admin username and password before proceeding further.

SETTING THE ADMIN PASSWORD

Pull down the **Admin** menu and select **Set Admin Password**. Enter a new username and password for Tenon's iTools administration server. This username and password is used only by Tenon's iTools. It need not exist in the system password database nor does Tenon's iTools enter it into the system password database.



Figure 6: Admin Password Dialog Box

ENTERING YOUR LICENSE NUMBER

Tenon's iTools license can be entered or changed in either the Tenon's iTools application or in a terminal window. To enter or change the license with Tenon's iTools application, pull down the **Admin** menu and select **Change License**.



Figure 7: License Dialog Box

TENON'S ITOOLS QUICK START

QUICK START

This chapter will give a brief introduction to Tenon's iTools Administration server, and will walk you, step-by-step, through the process of setting up a virtual host. This configuration will be done using the browser-based Admin server. Later chapters contain more detailed information about the extensive configuration options available with Tenon's iTools.

If you have not already done so, please choose and set a safe admin password for your server. Connect to the Admin server with your web browser, by entering:

http://host.your-domain.com/itools_admin

or

http://127.0.0.1/itools_admin

from the server itself.



Figure 8: Admin Authenticaion

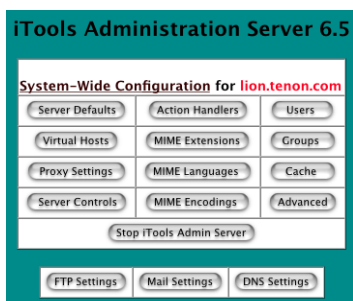


Figure 9: Admin Server Home Page

This is the home page for Tenon's iTools's browser-based administration. Each button takes you to other pages with configuration options. Later chapters in the manual have details about each settings panel.

When setting up virtual hosts it is important to have valid DNS entries either in Tenon's iTools DNS or another DNS server. Our examples will be for a server whose primary hostname is "lion.tenon.com".

DNS

Are you going to use Tenon's iTools built-in DNS?

If yes, and you are familiar with setting up a DNS server, read this section before proceeding. If you are new to running a DNS server, or feel uncertain about the DNS portion of Tenon's iTools, please read the full chapter on DNS before proceeding.

Click on the **DNS Settings** button on the Admin home page. The figure below shows the DNS zone list after adding an example primary zone.

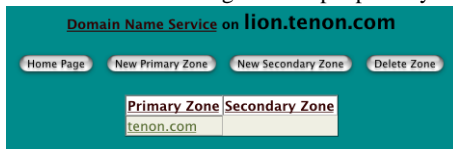


Figure 10: DNS Admin Page

“DOT” NOTATION

The use of “dots” becomes very important in DNS records. By not adding a dot or a period to the end of a host name, we are letting the server append the zone name to complete the host name. Adding a dot to the end would tell the DNS server not to append the zone name. You will want to add a dot to the end of any host name that is not in your zone. Examples of this concept are provided later in this section.

NEW PRIMARY ZONE

To set up a new primary zone for a domain name you have registered, click on **New Primary Zone**. This displays a page where you configure the **Start of Authority** record. The figure to the right shows appropriate entries for the new primary zone named “tenon.com”.

It is very important to enter correct information in this section.

Authoritative NS	Hostmaster
ns1	dnmaster

Figure 11: New Primary Zone: Start of Authority

Enter the authoritative name server for this zone; in most cases that will be the primary DNS server for the domain. Enter the email address for the contact person for the DNS records or website. The default values for Refresh, Retry, Expire and Time-to-live should be fine in most cases.

In the example above, the values entered are:

Domain Name: tenon.com

Authoritative NS: ns1

Hostmaster: dnsmaster

Since we have not added dots to the last two records, they will be expanded with the zone name by the server when these records are requested. They effectively become:

Authoritative NS: ns1.tenon.com

Hostmaster: dnsmaster.tenon.com

Notice that you do not need to use an “@” sign in the Hostmaster’s email address.

Click the **Save Zone** to save the values.

ENTERING NAME SERVERS FOR THE ZONE

From the zone list, click on the zone name for which you wish to add name servers, for example “tenon.com”.

To the right is an example of a default entry. If the Authoritative NS is set to “ns1” then the default name server entry will be that host name + the zone name. All of these settings may be deleted or edited if necessary.



Figure 12: Default Name Server

Clicking **New Name Server** allows you to enter each name server for the zone one at a time. You should enter the same name servers that were entered when you registered your domain name (if registered). If the name server is a host already configured in your DNS, choose it from the pop-up menu. If not, enter the host name in the box at the bottom. Be sure to add a period if the name server is not in your zone.

<-- You will not need to change this entry.

<--Choose the name from this menu if the name server is already entered in the DNS.

<--Enter name server here if it is not in DNS. This example shows an ISP's name server.

Figure 13: Adding a new Name Server

Here is an example of the “tenon.com” zone with three name servers configured.

Domain Name	Name Server
tenon.com	ns1.tenon.com
	ns1.sysci.com
	ns2.sysci.com

Figure 14: Zone Configured with three Name Servers

If you will not be using iTools for your DNS services...

Before you proceed, make sure that you have contacted your DNS service provider with the host names and IP addresses that you will be using with your domain name. Running DNS services ‘in-house’ on Tenon’s iTools software can increase the flexibility of your DNS and avoid later difficulties.

VIRTUAL HOSTS

Once DNS is set up correctly, it's a simple matter to add virtual hosts. If you are using Network Address Translation (NAT), please refer to Appendix , "Working With NAT."

Go to the Admin Server home page, and click **Virtual Hosts**. The host you entered during the installation process will already be configured. Additional hosts can be added here as well.

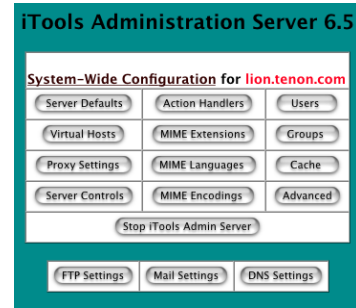


Figure 15: Virtual Host Table

Directive	Value
VirtualHost	lion.tenon.com 192.83.246.73:81
SSLSecurity <small>Certificate</small>	<input type="radio"/> On <input checked="" type="radio"/> Off
DocumentRoot	/Library/WebServer/Documents
ServerAdmin	support@tenon.com
ServerName	lion.tenon.com
ServerAlias	127.0.0.1 localhost localhost.tenon.com 192.83.246.73
ServerPath	
DirectoryIndex	index.html
HostnameLookups <small>Inherited</small>	<input type="radio"/> On <input checked="" type="radio"/> Off
SSLCertificateFile	
SSLCertificateKeyFile	
Virtual FTP Folder	

Starting from the Virtual Host Table, click on **Virtual Host Config** for the host you want to configure.

For now, the important thing is to make sure that the **DirectoryIndex** field contains the name of the index file for your web site.

Note the **DocumentRoot** setting. This is where the web pages go for this host.

Figure 16: Virtual Host

Configuration

If you make changes to the virtual host configuration, make sure to click **Save Virtual Host Config** when you are finished.

The **Folder Contents** button for each virtual host takes you to a page where you see all files and folders that are assigned to that host.



Figure 17: Folder Contents

From there, you can click on **Access Controls** to go to a page where you can define who is allowed access to various files and folders, as well as MIME and action handler overrides. This is discussed in full in later chapters.



Figure 18: Access Controls

For now, you're all set! Your first virtual host is up and running and can be accessed with a web browser. Remember, clicking on any brown underlined link in the admin server will bring up more help documentation.

WORKING WITH NAT

NAT: DEFINITION

An abbreviation for Network Address Translation, NAT is an Internet standard (RFC 1631) that enables a local-area network (LAN) to use one set of IP addresses for internal traffic and a second set of addresses, or a single address, for external traffic. A NAT router located where the LAN meets the Internet makes all necessary IP address translations.

NAT serves several purposes:

- Reduce the demand for real IP address blocks which are limited.
- Provides a type of firewall by hiding internal IP addresses
- Enables a company to use more internal IP addresses. Since they're used internally only, there's no possibility of conflict with IP addresses used by other companies and organizations.

Generally, the internal addresses used in NAT are in the class C block of 192.164.1. Since DNS lookups on the host names of servers should return the external IP address, iTools may be unable to properly configure virtual hosts in the traditional manner.

DNS

Internal DNS Service

You may decide that you want to set up DNS service to allow computers inside your LAN to contact each other using host names rather than their internal IP addresses. This requires adding a primary zone (it does not need to be registered) to Tenon's iTools that includes host names for all of the machines on your LAN. Each machine in the LAN should then be configured to use your server as its main DNS or name server.

External DNS Configuration

When configuring your DNS server for public use, it is important to remember to add hosts using the external IP addresses by which they will be contacted from the

outside. This is due to the fact that no users outside of your LAN will be able to contact your servers using their internal IP addresses. Additionally, depending on the configuration of your router, users inside of your LAN may be unable to contact your server using its external IP address or host name.

All of these factors need to be kept in mind while configuring your Tenon's iTools DNS service.

VIRTUAL HOSTING

Tenon's iTools uses DNS lookups to configure virtual hosts for web service. Since the IP address that is looked up may not match the real IP address of the server, it is necessary to follow one of the following ways of adding your virtual hosts. Either of these methods may also be used to add virtual hosts without DNS entries on a server not using NAT.

UNCHECKING THE LOOKUP IP CHECK BOX

When adding virtual hosts in the Virtual Host Table of Tenon's iTools admin server, users may uncheck the **Lookup IP** checkbox to prevent Tenon's iTools from adding a virtual host with its IP address. This is useful for NAT because adding the external IP address to the server could conflict with the router configuration, and also prevent virtual hosting from working correctly.

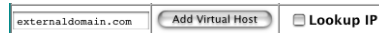


Figure 1: UnChecking the Lookup IP check box

By unchecking the **Lookup IP** checkbox, the virtual host is added with a wildcard (“*”) IP address. This allows Apache to accept connections for that virtual host on any IP address.

ADDING VIRTUAL HOSTS AS THEIR INTERNAL IPs

Users may also decide to add a virtual host to a specific IP address even though the DNS points to another IP address. To do so, enter in the IP address that will be added and click **Add Virtual Host**. This will add the virtual host and IP address if not already configured. Once it is added, click the **VirtualHost Config** button for that virtual host. Then the **ServerName** field may be changed to any host name you want it to be. You will get “DNS mismatch” errors using this method, but it allows for extremely flexible configuration for Tenon's iTools.

PORT MAPPING

Since NAT requires the use of mapping a port to a specific host, it is important to make sure that ports are configured correctly for the services you will be using. These ports may also be used to configure any firewall or router.

Service	Name	Port #
ftp	File Transfer Protocol	20, 21
ssh	Secure Shell (remote login)	22
http	HyperText Transfer Protocol (Web)	80
admin	Tenon's iTools admin server	84
nameserver	DNS server	42

MAC OS X USER PRIVILEGES

CREATING A ROOT USER

It may be necessary to add a “root” user to your server in order to take advantage of all of the features in Tenon’s iTools application. This root account will make other administration tasks easier as well.

To create a root user, open:

Applications --> Utilities --> NetInfo Manager

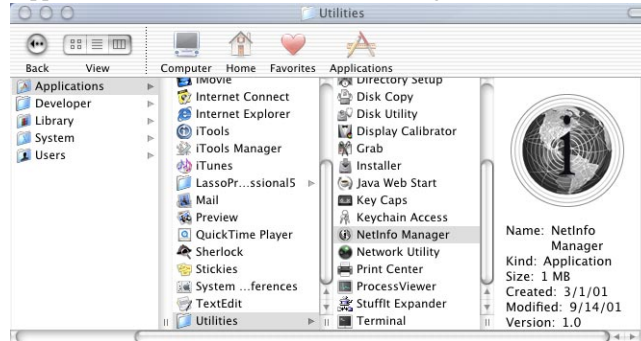


Figure 2: NetInfo Manager

Once launched, you will need to authenticate yourself as an Admin user by clicking on the small padlock button at the bottom of the main window.

Enter your Admin Username and Password, then click **OK**.



Figure 3: NetInfo Manager Authentication

Next, select the menu item:

Domain menu --> Security --> Enable Root User...

You will get an error dialog:



Figure 4: NetInfo Alert

Click **OK**. You will then get a dialog box to set the root user password.



Figure 5: Setting the Root Password

At the prompt enter your desired password, then confirm it.

For security reasons, it is advisable that your root password be a different password than ones used for other purposes, such as standard OS X admin users or email accounts.

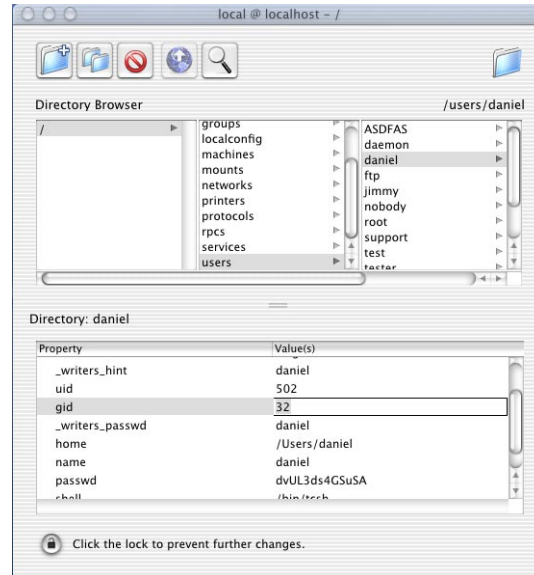
Quit the NetInfo Manager application.

THE FTPGUEST GROUP

To allow admin users to drag and drop files into your WebSites directory using the Finder, it is necessary that they be added to the “ftpguest” group.

NetInfo Manager is a very powerful tool for system configuration. Do not edit or remove any values that you are unfamiliar with.

Open the NetInfo Manager application and authenticate following the instructions in “Creating a Root User.” You will not need to enable the root user for these instructions.



After you are authenticated, open the admin user you want to edit inside of the **users** folder of the NetInfo browser.

At the bottom of the window you should see the configuration values for the user you selected. Double-click on the value for **gid**; it should currently be set to “20”. Enter in the number “32” to replace the previous value. This number is the group id of the ftpguest group.

Figure 6: NetInfo Manager - Group ID

Save your settings and confirm that you want to save.

Since this user is still in the Admin group, they will have all their admin privileges. Their new default group id (gid) is now ftpguest which will allow them to place items in the WebSites folder and the folders of your virtual hosts.

Quit the NetInfo Manager.

You may want to re-boot the server to make sure that your new user settings are applied.

