

# VPN Configuration Guide

Netgear FVS338 / FVX538 / FVS124G

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# Introduction

This document describes how VPN Tracker can be used to establish a connection between a Macintosh running Mac OS X and a Netgear VPN router.

The Netgear gateway is configured as a router connecting a company LAN to the Internet.

This paper is only a supplement to, not a replacement for, the instructions that have been included with your Netgear. Please be sure to read those instructions and understand them before starting.

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# Prerequisites

First you have to make sure to use a recent Netgear firmware version. The latest release for your Netgear firewall can be obtained from <http://www.netgear.com/>

For the Netgear FVS124G Router, firmware version 1.1.33 has been used.

For the Netgear FVS338/FVX538 devices, firmware version 1.6.48 has been used.

**Please note:** Firmware versions prior to 1.6.48 are having some issues in conjunction with VPN Tracker. According to the Netgear support pages, you should restore the factory defaults, when upgrading from a previous firmware version with this model.

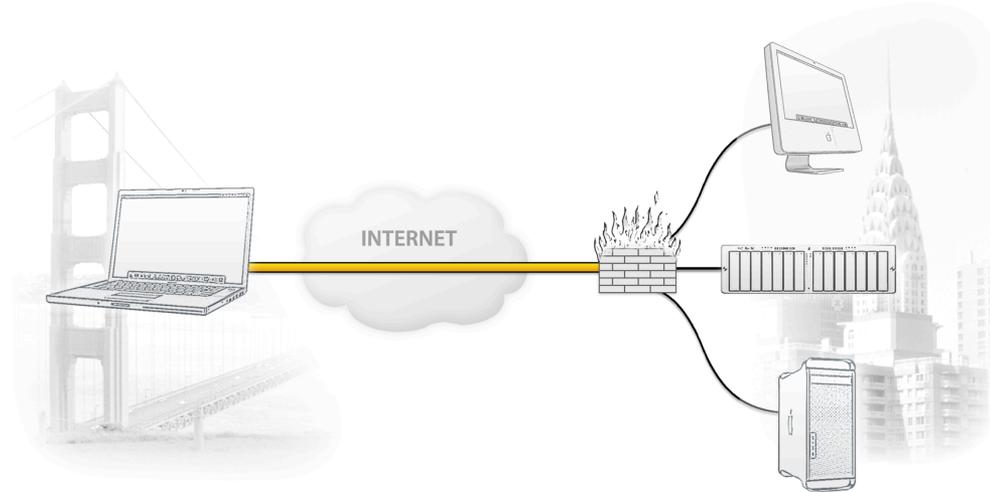
Please note: VPN Tracker has been only been tested with the Netgear and the above firmware version.

You will need one VPN Tracker Personal Edition license for each Mac connecting to the Netgear router.

We recommend one VPN Tracker Professional Edition for the administrator's Mac in order to export configuration files to the clients. VPN Tracker is compatible with Mac OS X version 10.2.5+, 10.3 and 10.4.1+

# Scenario

In our example, we need to connect an employee's Mac Book in San Francisco to an office in New York. The following diagram illustrates this scenario:



The MacBook is directly connected to the Internet and has a public IP address, assigned by an ISP.

The office's VPN gateway is also connected to the Internet and can be accessed via a static IP address. The VPN gateway also has a second interface which is connected to the internal office network. In our example, the office network has the IP range 192.168.1.0/24.

A VPN tunnel will be established between the public interfaces in San Francisco and New York. Once the VPN tunnel is up, San Francisco can access the office network behind the VPN gateway.

Please note that the connection from a MacBook at home to an office network is just one possible scenario. The instructions also apply to connections from a desktop computer or notebook in your office to a VPN gateway at home or at another office. Please adapt the term "office network", which is used throughout this manual, to your scenario.

# Task 1 – Configure your Netgear router

This section describes the configuration of your Netgear VPN router.

**TIP** When setting up a VPN, you'll have to handle a couple of parameters. Those parameters are marked with red dots with little numbers in it. Throughout the setup we will point back to those parameters.

# Step 1 - Create a new IKE Policy

**NETGEAR Business Router**  
**NETGEAR ProSafe VPN Firewall VFX538**  
**settings**

**WAN Setup**  
WAN1 ISP  
WAN2 ISP  
Mode  
Options  
Dynamic DNS  
Traffic Meter

**Security**  
Groups and Hosts  
Source MAC Filter  
Block Sites  
Rules  
Services  
Schedule  
Logs and E-mail

**VPN**  
VPN Wizard  
VPN Status  
IKE Policies  
VPN Policies  
CAs  
Certificates  
CRL  
Mode Config

**Management**  
Router Status  
Set Password  
Remote Management  
SNMP  
Diagnostics  
Settings Backup  
Router Upgrade

### IKE Policy Configuration

**General**  
Policy Name: vpntracker  
Direction/Type: Responder  
Exchange Mode: Aggressive Mode

**Local**  
Select Local Gateway: WAN 1  WAN 2   
Local Identity Type: Fully Qualified Domain Name **1**  
Local Identity Data: netgear.local

**Remote**  
Remote Host Configuration Record: None  
Remote Identity Type: Fully Qualified Domain Name **2**  
Remote Identity Data: vpntracker.local

**IKE SA Parameters**  
Encryption Algorithm: 3DES  
Authentication Algorithm: SHA-1  
Authentication Method: Pre-shared Key **3**  
secretkey  
RSA Signature (Requires Certificate)

Diffie-Hellman (DH) Group: Group 2 (1024 Bit)  
SA Life Time: 3600 (secs)

**XAUTHENTICATION**  
 IPSec Host  Edge Device  None

Back Apply Cancel

### IKE Policy Configuration Help

IKE provides automatic management of the Keys used in IPsec, and is used for "Auto" IPsec VPN policies. This screen is used to create or edit an IKE Policy.

**General**  
This section has general information about this IKE policy.

**Policy Name** - Enter an appropriate name to help you manage the IKE policies. This name is also used by remote VPN clients as part of the identity string in making client connections to the router.

**Direction/Type** - This setting is used when determining if the IKE policy matches the current traffic. Select the desired option.

- Initiator - Outgoing connections are allowed, but incoming connections will be blocked.
- Responder - Incoming connections are allowed, but outgoing connections will be blocked.
- Both Directions - Both incoming and outgoing connections are allowed.

**Exchange Mode** - Options are "Main Mode" and "Aggressive Mode".

- Main Mode is slower but more secure.
- Aggressive mode is faster but less secure.
- This setting must match the setting used on the remote VPN endpoint. Not all VPN endpoints support both modes.

**Local**  
Local Identity is used to identify this device to the remote VPN endpoint.

**Local Identity Type**  
Select the desired option to match the "Remote Identity Type" setting on the remote VPN endpoint.

- WAN IP Address - your Internet IP address.
- Fully Qualified Domain Name - your domain name.
- Fully Qualified User Name - your name, E-mail address, or other ID.
- DER ASN.1 DN - the binary DER encoding of your ASN.1 X.500 Distinguished Name

**Local Identity Data**

- ▶ **Policy Name:** Enter an arbitrary name (e.g. vpntracker)
- ▶ **Direction/Type:** Select Responder
- ▶ **Exchange Mode:** Select Aggressive Mode
- ▶ **Local Identity Type:** Select Fully Qualified Domain Name
- ▶ **Local Identity Data:** Enter an arbitrary identifier (e.g. netgear.local) **1**
- ▶ **Remote Identity Type:** Select Fully Qualified Domain Name
- ▶ **Remote Identity Data:** Enter an arbitrary identifier (e.g. vpntracker.local) **2**
- ▶ **Pre-shared Key:** Enter an arbitrary key (e.g secretkey) **3**

## Step 2 - Create a new VPN Policy

NETGEAR Business Router

NETGEAR ProSafe VPN Firewall FX538

### settings

**VPN - Auto Policy**

**General**

Policy Name: vpntracker

IKE policy: vpntracker

Remote VPN Endpoint

Address Type: IP Address

Address Data: 0.0.0.0

SA Life Time: 3600 (Seconds)

0 (Kbytes)

PFS Key Group: Group 1 (768 Bits)

IPsec PFS

**Traffic Selector**

Local IP

Subnet address: [dropdown]

Start IP address: 192 . 168 . 1 . 0

Finish IP address: 0 . 0 . 0 . 0

Subnet Mask: 255 . 255 . 255 . 0

Remote IP

Single address: [dropdown]

Start IP address: 10 . 1 . 2 . 3

Finish IP address: 0 . 0 . 0 . 0

Subnet Mask: 0 . 0 . 0 . 0

**AH Configuration**

Enable Authentication

Authentication Algorithm: SHA-1

**ESP Configuration**

Enable Encryption

Encryption Algorithm: 3DES

Enable Authentication

Authentication Algorithm: SHA-1

NETBIOS Enable

Back Apply Cancel

**VPN Auto Policy Help**

This screen allows you to define or edit an "Auto" VPN policy.

An "Auto" VPN policy uses the IKE (Internet Key Protocol) to exchange and negotiate parameters for the IPsec SA (Security Association). Because of this negotiation, it is not necessary for all settings on this VPN Gateway to match the settings on the remote VPN endpoint. Where settings must match, this is indicated.

**General**

These settings identify this policy and determine its major characteristics.

**Name**

Enter a unique name to identify this policy. This name is not supplied to the remote VPN endpoint. It is used only to help you manage the policies.

**IKE policy**

The existing IKE policies are presented in a drop-down list.

The required IKE policy must be created BEFORE the VPN policy.

Select the desired IKE policy.

**IKE Keep Alive**

Enable this to ensure a VPN tunnel is re-established quickly if the connection is lost. If enabled, you must enter the Ping IP Address.

This address will be "pinged" to test the connection; it must be associated with the remote endpoint. Either the WAN or a LAN address can be used; a LAN address is preferable.

**Remote VPN Endpoint**

Select the desired option (IP address or Domain Name) and enter the address of the remote VPN Gateway/Server or client you wish to connect to.

Note: The remote VPN endpoint must have this VPN Gateway's address entered as its "Remote VPN Endpoint".

**SA Life Time**

This determines the time interval before the SA (Security Association) expires. It will automatically be re-established (if necessary.) While using a short time

- ▶ **Policy Name:** Enter an arbitrary name (e.g. vpntracker)
- ▶ **IKE policy:** Select your previously created IKE policy (e.g. vpntracker)
- ▶ **Remote VPN Endpoint:**
  - **Address Type:** Select IP Address
  - **Address Data:** Enter 0.0.0.0
- ▶ **Local IP:** Subnet address
- ▶ **Start IP address:** Enter the network address of the Netgear LAN (e.g. 192.168.1.0)
- ▶ **Subnet Mask:** Enter 255.255.255.0
- ▶ **Remote IP:** Select Single address
- ▶ **Start IP address:** Enter a virtual IP address for the VPN Tracker client (e.g. 10.1.2.3)
- ▶ **ESP Configuration -> Enable Encryption:** 3DES
- ▶ **ESP Configuration -> Enable Authentication:** SHA1

# Task 2 – Configure VPN Tracker

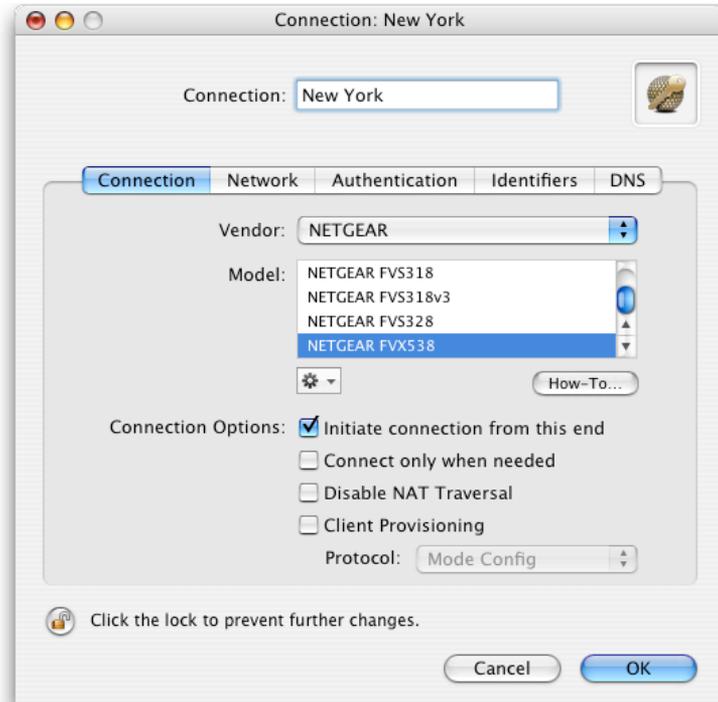
This section describes the configuration of VPN Tracker for your Netgear router.

## Step 1 - Create a new Connection



► Click on “New” in the VPN Tracker main window.

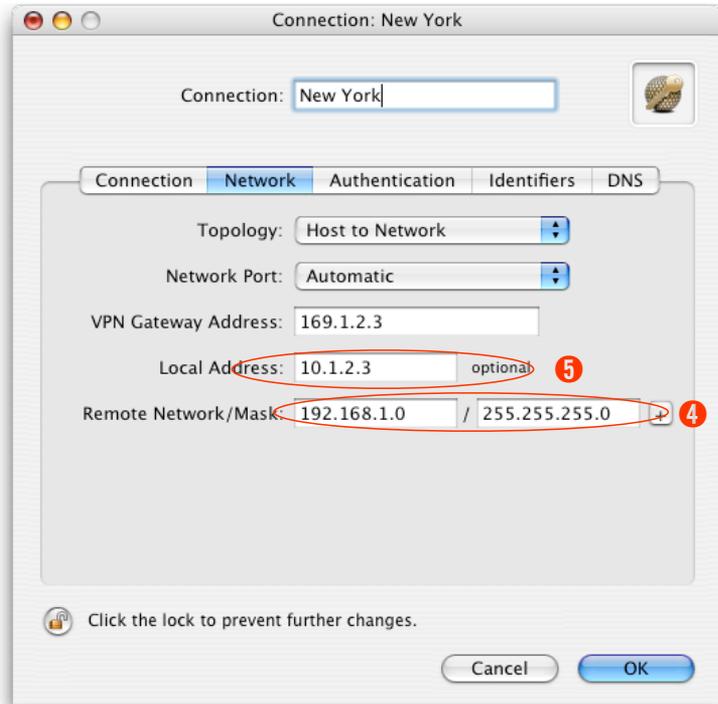
## Step 2 - Connection Settings



- ▶ Select the vendor (**Netgear**)
- ▶ Select your VPN router model (e.g. **Netgear FVX538**)
- ▶ Make sure to enable "Initiate connection from this end"

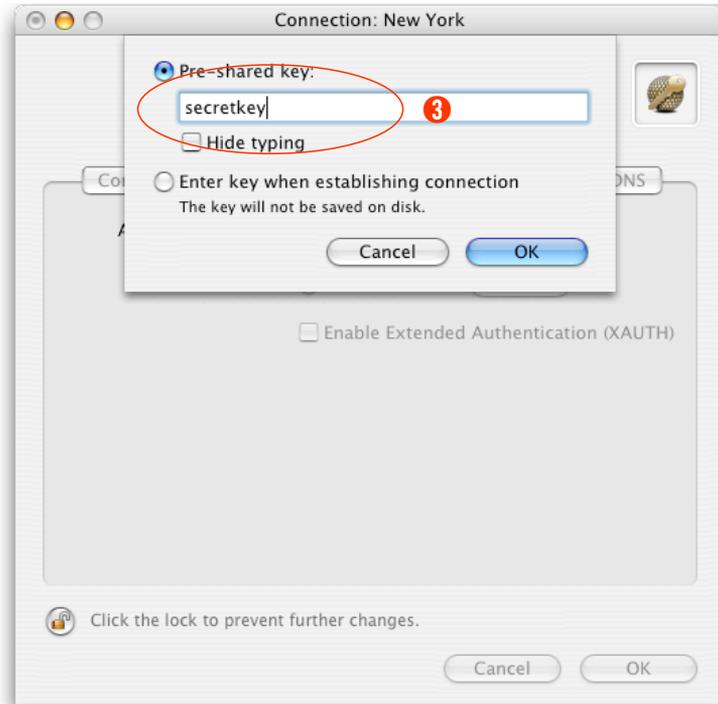
**TIP** The pre-defined VPN Tracker connection for the Netgear router is based on the default settings for your Netgear VPN router. If you or the administrator changed any of the settings while configuring the device, you might have to adjust the connection type in VPN Tracker by double-clicking the model.

## Step 3 - Network Settings



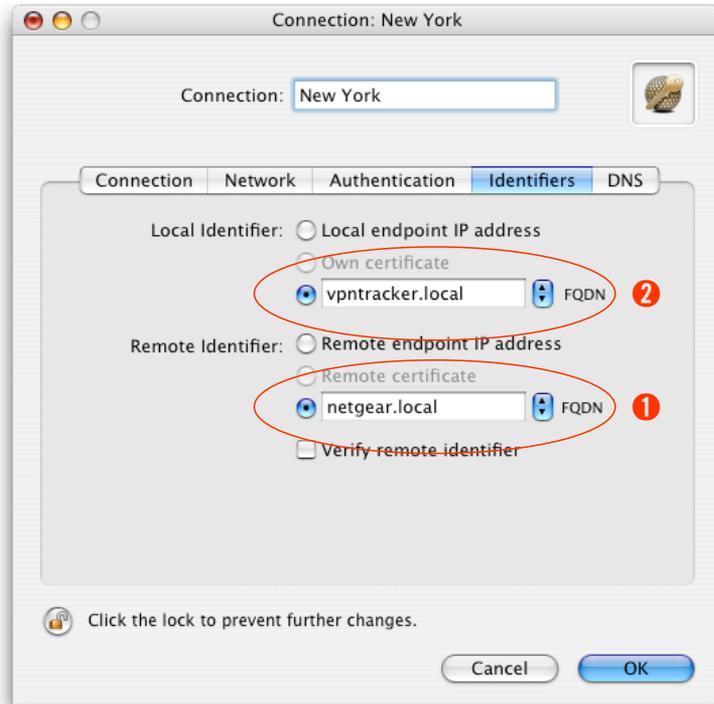
- ▶ **VPN Server Address:** Enter the public IP address of your VPN Gateway (e.g. 169.1.2.3)
- ▶ **Local Address:** Enter the virtual IP address you've chosen for the VPN Tracker client (e.g. 10.1.2.3) **5**
- ▶ **Remote Network/Mask:** Enter network address and netmask of your office (Netgear) network. **4**

## Step 4 - Authentication Settings



- ▶ *Pre-shared key*: Enter the Pre-shared key you've used earlier when configuring the Netgear router. 3

## Step 5 - Identifiers Settings



- ▶ **Local Identifier:** Enter the remote identity data you've used when configuring the Netgear. (e.g. `vpntracker.local`) **2**
- ▶ **Remote Identifier:** Enter the local identity data you've used when configuring the Netgear. (e.g. `netgear.local`) **1**

**TIP** Please note, that the identifiers are switched in the VPN Tracker configuration. The local identifier in VPN Tracker corresponds to the remote identity data on your Netgear router and vice versa.

# Task 3 - Check the VPN connection

This section explains how to start and test your VPN connection.

## It's time to go out!

You will not be able to test and use your VPN connection from within your office network. In order to test your connection, you'll need to connect from a different location. That's why it's now time to go out. Take your MacBook Pro and have a coffee at your favorite Internet cafe or go visit a friend.

## Test your connection

To test if everything is setup correctly please follow the steps below:

- ▶ Get access to the Internet
- ▶ Make sure the Internet connection is working; open your Internet browser and try to connect to <http://www.equinux.com>
- ▶ Start VPN Tracker if it's not already running



- ▶ Select the connection you configured for your Netgear device
- ▶ Hit the **Start VPN** button



- ▶ If the light turns red after a few seconds, then please read the **Troubleshooting** section on the next page
- ▶ If the light turns green, that means you've successfully established a connection

**Congratulations! You did it!**

# Troubleshooting

## I don't get a green light in the VPN Tracker main window

- ▶ Make sure that your computer is not connected directly to the office network you want to connect to.
- ▶ Make sure, that the **Identifier** and the **Pre-shared key** you've entered in the router configuration match the settings you entered in VPN Tracker.
- ▶ Verify that the **public IP address** you entered in VPN Tracker matches the public IP address of your router.
- ▶ Download our sample configuration and connect to our test device at <http://www.vpntracker.com/connectiontest/>
  - If the test connection cannot be established: Make sure, that the internet connection is working and verify that your local router is not blocking any connection attempts.
  - If the test connection is established successfully: Your internet connection is working and does not block VPN connections. Please check the VPN log file of your Netgear for error messages.
- ▶ If you're still having issues with your connection, please create some screenshots of your settings on both ends, gather the log files and send them over to our support team via <http://www.equinux.com/us/products/vpntracker/contactus.html>.

# What's next?

This section explains how to use your VPN connection.

## Introduction

As the VPN connection has now been established, you should be able to access most of the resources in your office network.

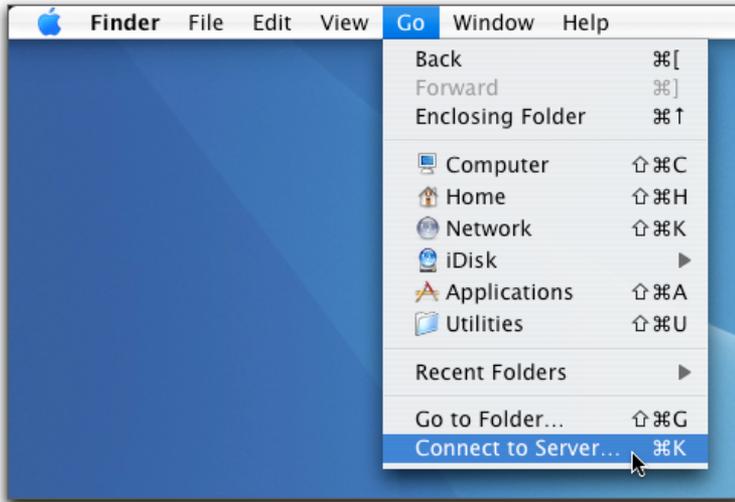
## Known Limitations

There are some limitations of a VPN connection compared to a direct connection to a office network.

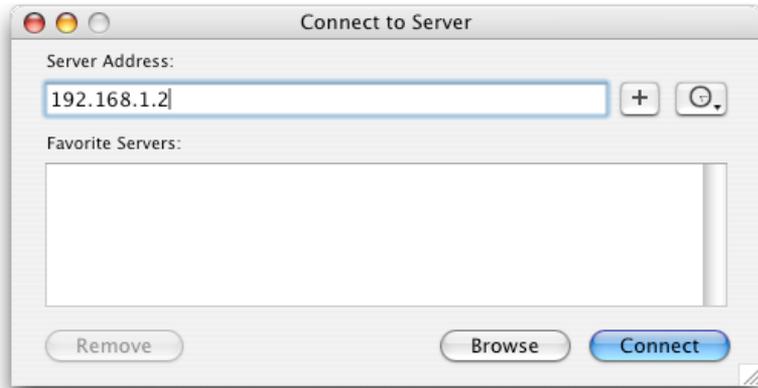
- ▶ **Bonjour:** As Bonjour Chat is not supported over a VPN tunnel, you'll need to use iChat server in order to chat remotely.
- ▶ **Browsing the network:** You can't "browse" the remote network as you're normally used to. You need to connect to each machine manually, as described on the next page.

## Accessing Files

To access files in your office network, just follow the steps below:



- ▶ Go to the **Finder** application
- ▶ In the menu bar, click on **Go->Connect To Server...**



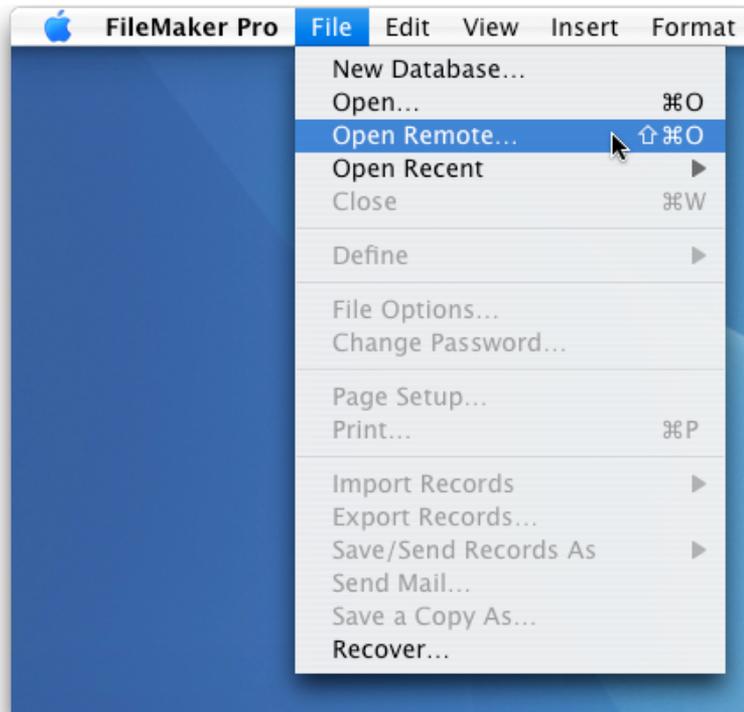
- ▶ Enter the IP address of the machine you want to connect to. In our example network this would be the IP address **192.168.1.2**
- ▶ Click on the **Connect** button
- ▶ Enter your **Username** and **Password** to access the files

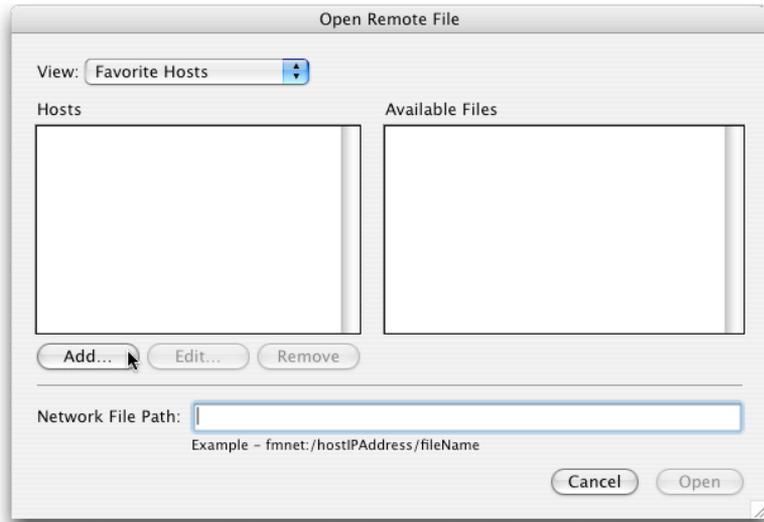
**TIP** When connecting to a Windows fileserver, you'll need to prefix the IP address with "*smb://*"; e.g. "*smb://192.168.1.2*".

## Accessing a FileMaker Database

To access a database available in your office network, just follow the steps below:

- ▶ Start the **FileMaker** application
- ▶ In the menu bar, click on **File->Open Remote...**





► Click on the **Add...** button

**Edit Favorite Host**

Favorite Settings

Host's Internet Address:   
(Example - host.domain.com or 192.168.10.0)

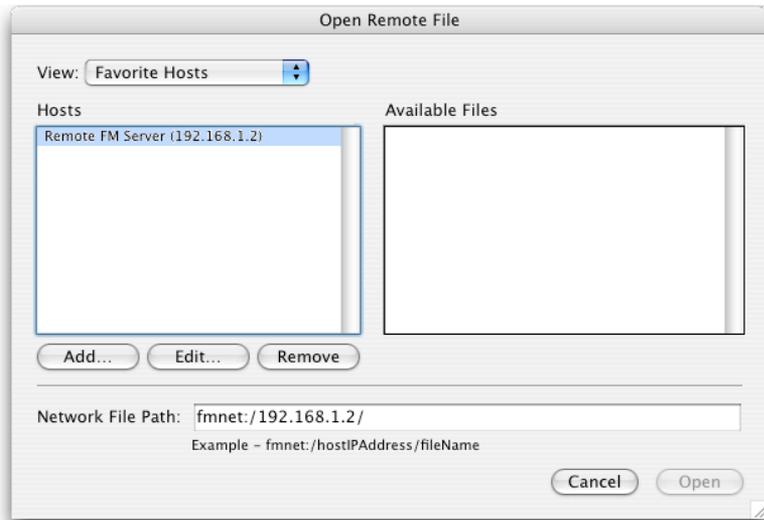
Favorite Host's Name:   
(optional)

File Settings

Show all available files for this host  
 Show only these files

Enter one file name per line, separated by a carriage return

- ▶ Enter the **IP address** of the FileMaker server machine
- ▶ Enter a hostname for this machine (optional)
- ▶ Click on the **Save** button



- ▶ Select a database from the list of **Available Files** and click **Open**
- ▶ You are now able to access your FileMaker databases as usual

# Acquire more Licenses

If two or more people need to access your office network via VPN, then you need to acquire more VPN Tracker licenses.

To get more licenses, please contact your reseller and inquire about „VPN Tracker Personal Edition“.

Or point your browser to <http://store.equinux.com> and buy additional VPN Tracker Personal Edition Licenses online.