e·quinux

VPN Configuration Guide

SonicWALL

SonicOS Enhanced

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Introduction

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

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

SonicWALL Configuration

The first part of this document will show you how to configure a VPN tunnel on a SonicWALL that has not yet been configured for VPN. The configuration described is just one example for such a setup. It is not the only known working configuration, and also may not be suitable for all situations. However, it is a configuration which quickly provides you with a ready-to-use VPN tunnel, and it is still flexible enough to be easily extended if your VPN requirements grow in the future.

Advanced Users While the instructions in this document describe how to set up VPN on your SonicWALL from scratch, they also apply if you are configuring VPN Tracker for your existing SonicWALL VPN setup. In this case, we recommend you follow the instructions to understand how the SonicWALL settings relate to the VPN Tracker settings, adapting the settings in VPN Tracker to your setup, if necessary.

VPN Tracker Configuration

In the second part, this document will show you how to configure VPN Tracker to easily connect to your newly created VPN tunnel.

Important Prerequisites

Your SonicWALL

This document applies to all SonicWALLs running SonicOS Enhanced. Separate documentation for SonicOS Standard is available at http://www.vpntracker.com/interop.

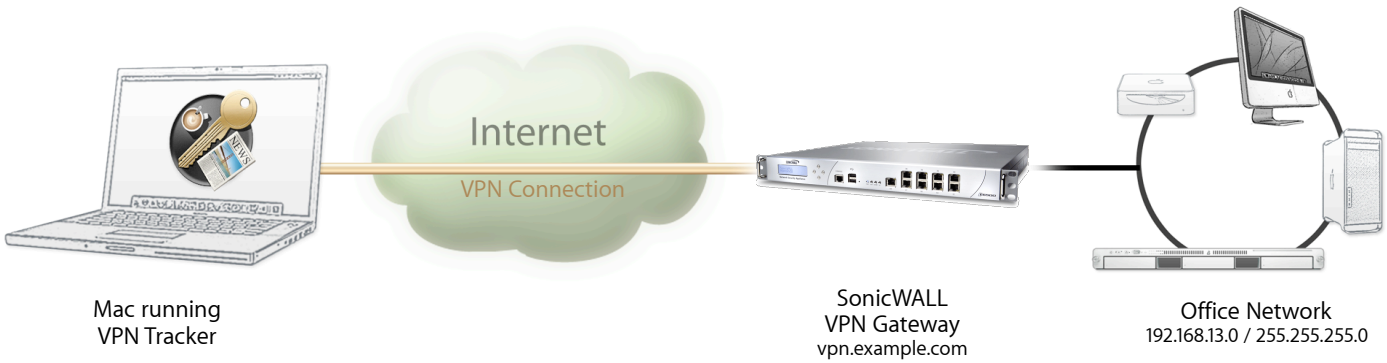
> **Tip** Your device may support **SonicWALL Simple Client Provisioning with VPN Tracker**. Please see the VPN Tracker website for an up-to-date list of supported devices and how to take advantage of this simple way of configuring your VPN Tracker.

Your Mac

- VPN Tracker runs on Mac OS X 10.4 or 10.5
- The configuration described in this guide requires VPN Tracker 5.2 or higher. Make sure to use a recent VPN Tracker version, if possible. The latest VPN Tracker release can always be obtained from http://www.vpntracker.com
- You will need one VPN Tracker Personal Edition license for each Mac running VPN Tracker

Scenario

In our example, we need to connect an employee's Mac to an office network. The following diagram illustrates this scenario:



This guide assumes that the Mac running VPN Tracker already has internet connectivity. The office's SonicWALL (the "VPN Gateway") is also already connected to the Internet and can be accessed through a static IP address or DNS host name. In our example setup, we will be using a host name: vpn.example.com.

The SonicWALL has a second network interface which is connected to the internal office network (LAN). In our example, the office network has the IP range 192.168.13.0/24 (which is the same as 192.168.13.0/255.255.255.0). This is the network that will be accessed from the employee's Mac through the VPN. It is called the "Remote Network" in VPN Tracker.

Terminology

A VPN connection is often called a "tunnel" (or "VPN tunnel"). Every VPN tunnel is established between two "endpoints". In our example one endpoint is VPN Tracker and the other endpoint is the VPN gateway.

Please note that for each endpoint, the settings on the other endpoint are considered to be "remote", while its own settings are considered to be "local". That means a "local" setting from VPN Tracker's perspective, is a "remote" setting from the VPN gateway's perspective, and vice versa.

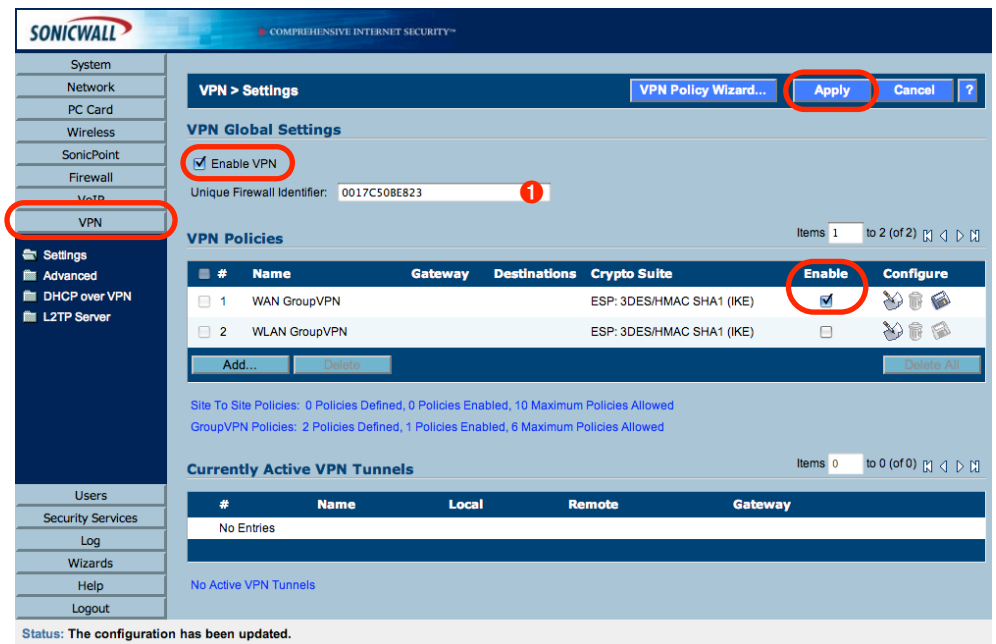
The sample configuration described in this guide is called a "Host to Network" configuration: A single computer, called a "Host" establishes a VPN tunnel to an entire "Network" behind the VPN gateway.

Task 1 – Configure your SonicWALL

This section describes how to set up your SonicWALL's VPN. If you do not yet have VPN configured and in use on your device, please proceed exactly as described in this section. If you already have VPN in use on your device, adapt the following steps to your specific situation, if necessary.

Note Make sure you have a current backup of your SonicWALL's configuration before making any changes.

Step 1 – Enable VPN on your SonicWALL



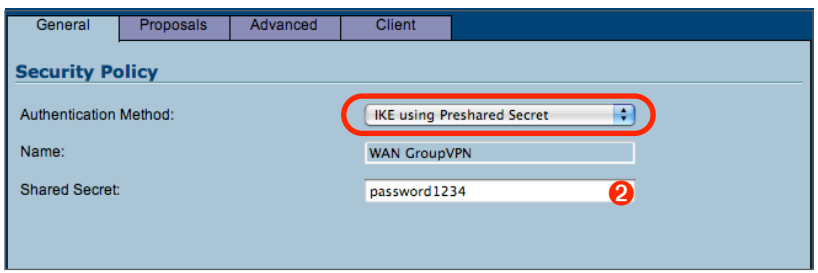
- Access your SonicWALL's administration interface
- Go to the "**VPN** " section
- Check the box "**Enable VPN**"
- Check the "**Enable**" box for the WAN Group VPN policy
- Write down your SonicWALL's **Unique Firewall Identifier** 1
- Click "Apply"

Note The Unique Firewall Identifier is case-sensitive. Make sure to write it down exactly as it appears on your SonicWALL.

Step 2 – Check your GroupVPN Policy Settings

To check the policy settings, click the "Configure" icon for the GroupVPN policy:

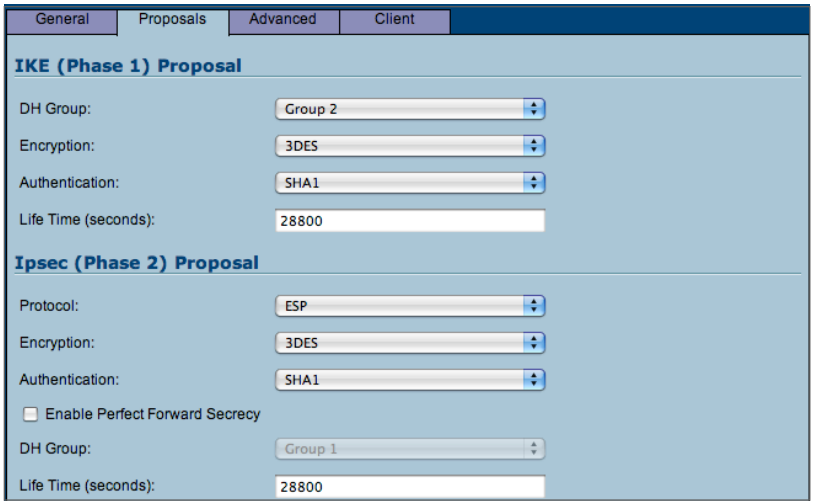
General Settings



- **Authentication Method**: Select "IKE using Preshared Secret"
- **Shared Secret**: Enter a password for the connection ❷

Note Throughout this guide, there are certain pieces of information that are needed later on for configuring VPN Tracker. This information is marked with red numbers to make it easier to reference it later.

Proposals Settings

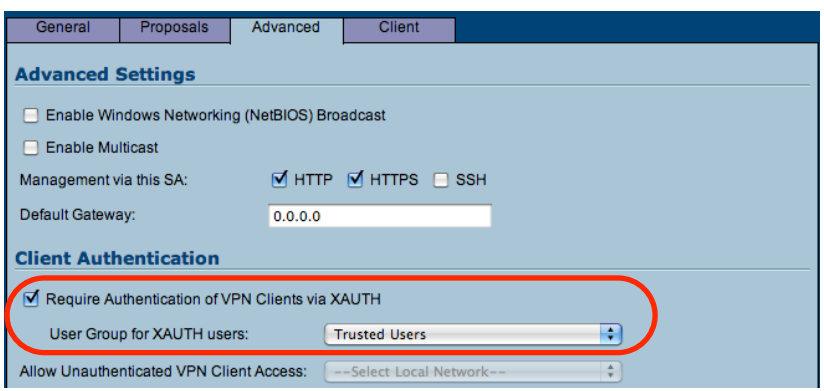


- Check that the proposal settings are exactly as shown in the screenshot

Advanced Users

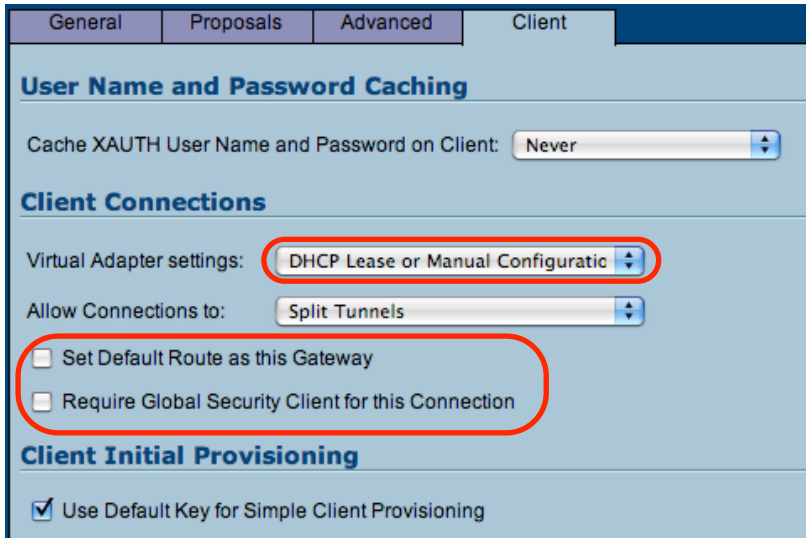
If required, it is possible to change these settings, however, we **strongly recommend** to initially set up the connection using these default settings. The proposals need to match exactly what is configured in VPN Tracker. If you do not use the defaults here, you will later have to modify the "Advanced" settings in VPN Tracker.

Advanced Settings



- Check the box "**Require Authentication of VPN Clients via XAUTH**"
- **User Group for XAUTH users**: Select "Trusted Users"

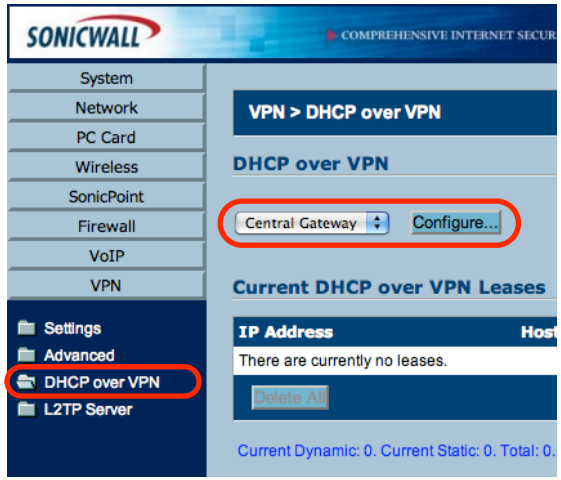
Client Settings



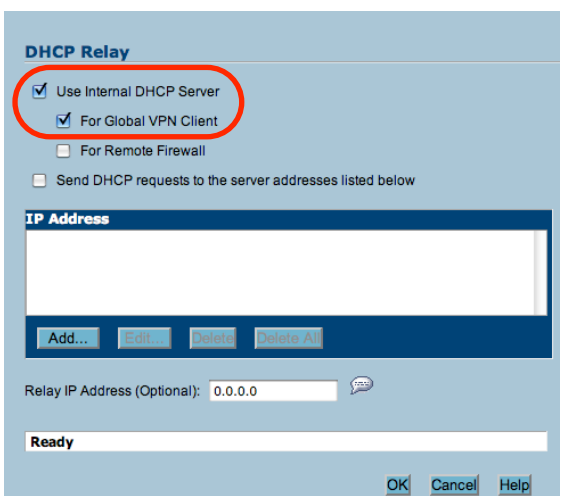
- **Virtual Adapter Settings**: Select "DHCP Lease or Manual Configuration" (it is also possible to set it to "DHCP Lease" only)
- Make sure the box "**Set Default Route as this Gateway**" is unchecked.
- Make sure "**Require Global Security Client for this Connection**" is unchecked
- Click "OK" to save any changes you made to the GroupVPN policy

Advanced Users If, for some reason, you require the **"Set Default Route as this Gateway"** option to be turned on, VPN Tracker will have to be configured for a "Host to Everywhere" connection.

Step 3 – Configure DHCP over VPN



- Go to the section "**VPN** > **DHCP over VPN**"
- Select **"Central Gateway"** from the popup list
- Click "Configure..."

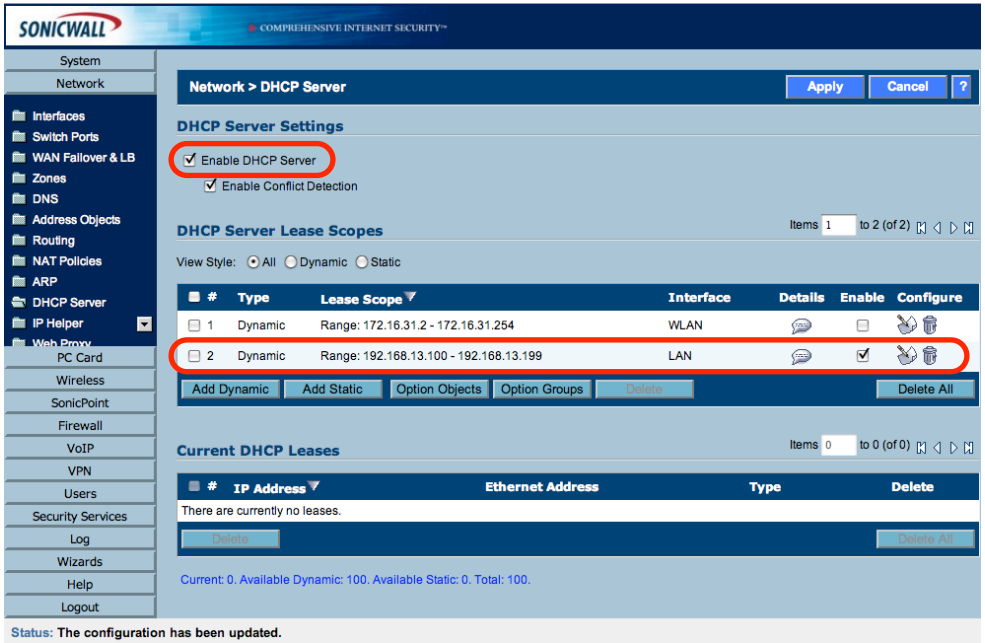


- Check the box "**Use Internal DHCP Server**"
- Check the box **"For Global VPN Client"**
- Click "OK"

Advanced Users

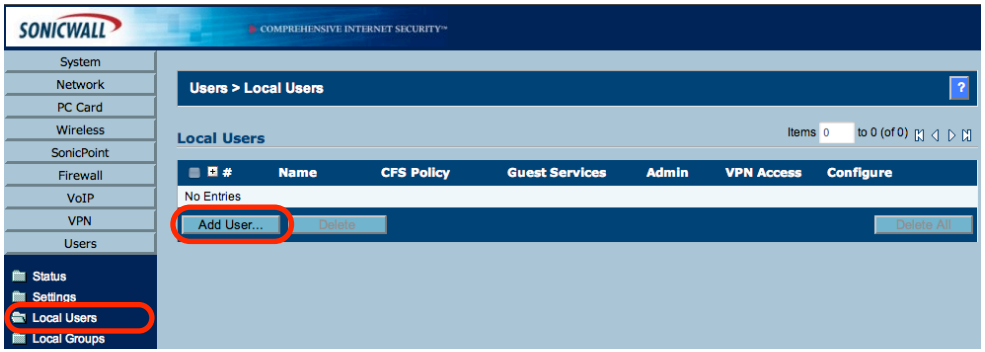
It is also possible to relay DHCP requests to an external DHCP server (e.g. a Mac running Mac OS X Server). When using an external DHCP server, "Step 4 – Check your DHCP Server Settings" is not required. It is important that the DHCP lease time is larger than the GroupVPN policy's phase 2 lifetime.

Step 4 – Check your DHCP Server Settings



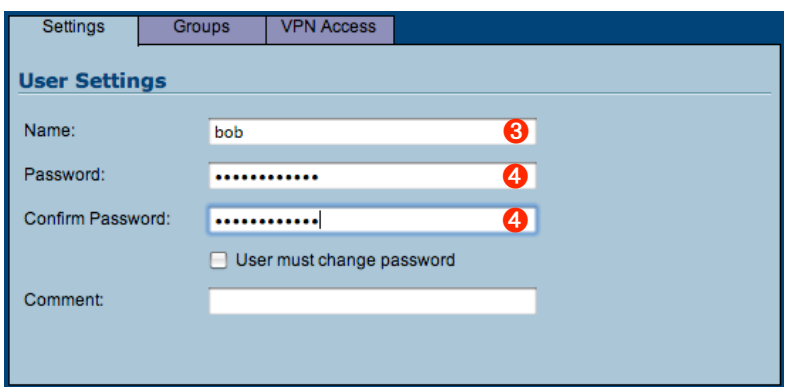
- Go to the section "**Network > DHCP Server**"
- Make sure the box "**Enable DHCP Server**" is checked
- Make sure you have a range of IP addresses defined and enabled for the LAN interface

Step 5 – Add a VPN User



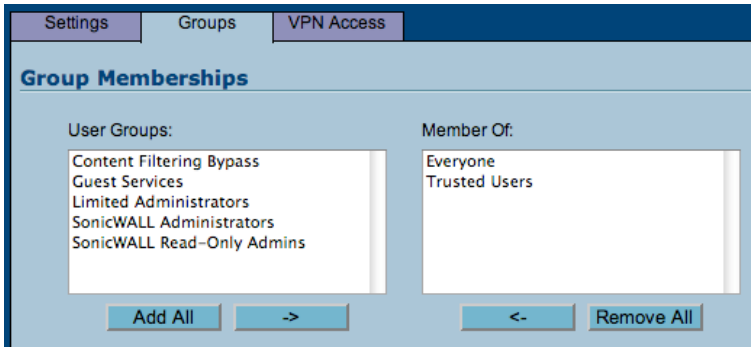
- Go to the section "**Users > Local Users**"
- Click "**Add User...**"

Settings



- **Name**: Enter a user name ❸
- **Password**: Enter a password ❹
- **Confirm Password**: Enter the same password again ❹

Groups

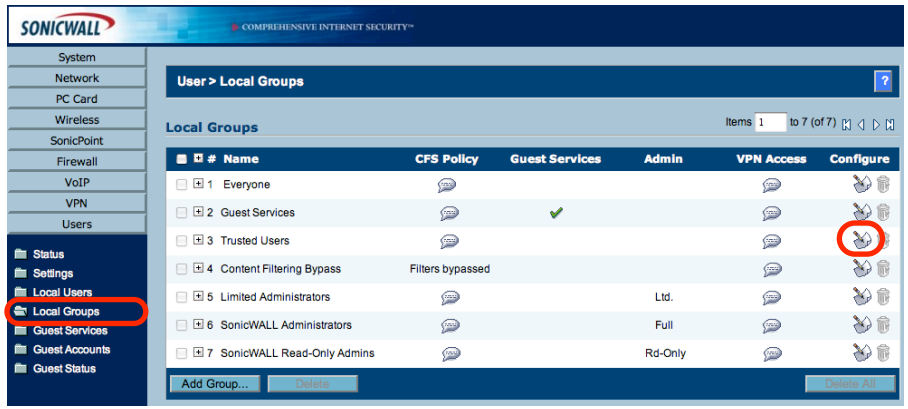


- Make sure the new user is a member of the "**Trusted Users**" group. This is the same group which you have earlier set as the group that XAUTH users are required to belong to
- Add the new user by clicking "OK"

Tip To add more users for your VPN connection later, simply repeat "Step 5 – Add a VPN User"

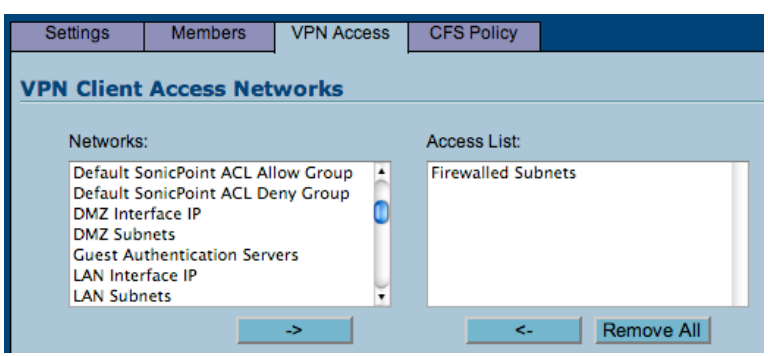
Step 6 - Configuring VPN Access Lists

The VPN Client Access Networks determine the networks that the user can access through VPN. It is possible to configure the VPN Access Control List individually for each user, or for the entire group. We will be configuring the VPN Access List for the entire "Trusted Users" group, to which the user added in " Step 5 – Add a VPN User" belongs.



- Go to the "**Users** > **Local Groups**" section on your SonicWALL
- Click the "Configure" button for the "**Trusted Users**" group

Tip If you would rather configure the VPN Access Control List for each individual user, simply edit each user's VPN Access settings instead of the group's.



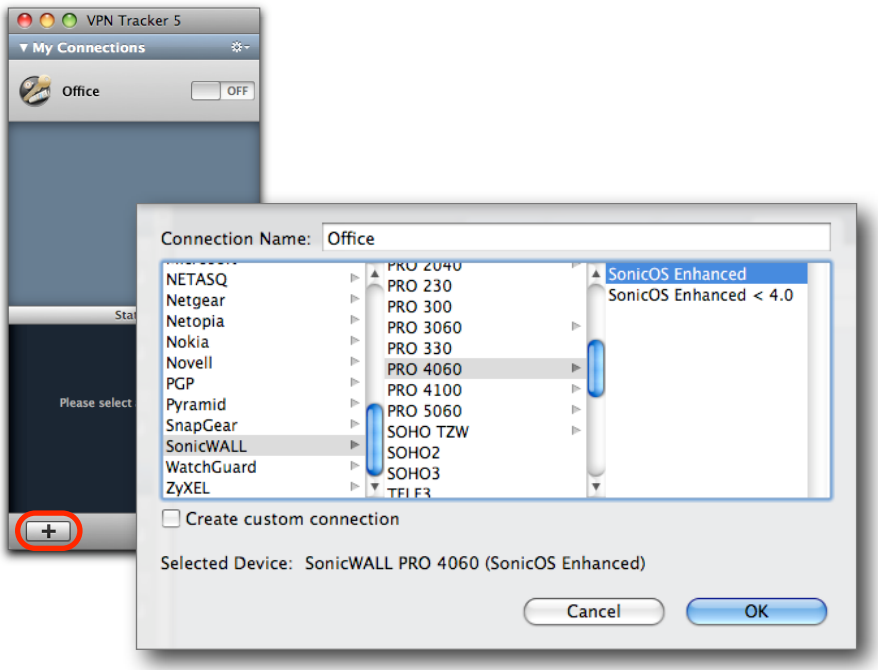
- **Access List**: Add the desired networks. In most cases, "**Firewalled Subnets**" will be a good choice
- Click "OK"

Tip If you do not know what a specific network object consists of, check the "Network > Address Objects" section of your SonicWALL.

Task 2 – Configure VPN Tracker

This section describes how to configure VPN Tracker to connect to your SonicWALL.

Step 1 - Create a New Connection



- Start VPN Tracker
- Click the "+" button in the main window

You will be asked to select a device profile for the new connection:

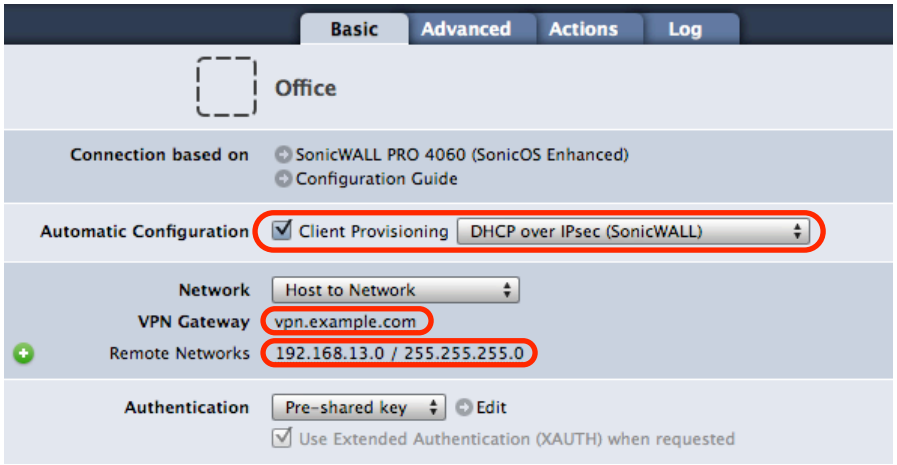
- Select "**SonicWALL**" from the list
- Select your device from the list of SonicWALL devices
- If your device has more than one SonicOS revision available, be sure to select the correct SonicOS revision
- **Connection Name**: Choose a name for your connection (e.g. "Office")
- Click "OK"

Step 2 – Configure the VPN Connection

To complete this step, you will need to know:

- your SonicWALL's public IP address or DNS host name
- the remote networks that you will access through the VPN tunnel

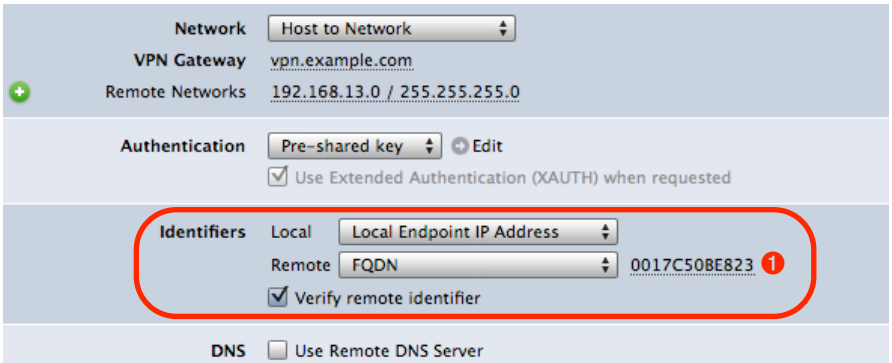
If you did not set up the SonicWALL yourself, the SonicWALL's administrator will be able to tell you its public IP address or host name, and the remote networks that you will access through the VPN tunnel.



- **Automatic Configuration**: Make sure "**Client Provisioning**" is enabled and set to "**DHCP over IPsec (SonicWALL)**"
- **VPN Gateway**: Enter your SonicWALL's public IP address or its host name (in this example, we are using the host name "vpn.example.com")
- **Remote Networks**: Enter the networks (including their correct network mask) that are being accessed through the VPN tunnel

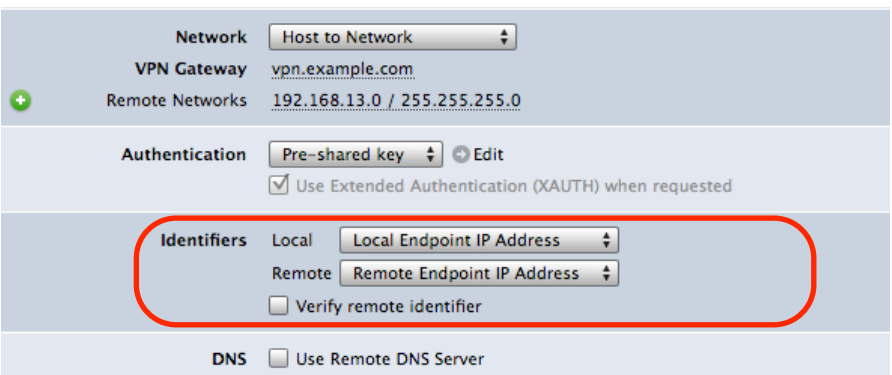
Note The remote network(s) configured in VPN Tracker must be identical to (or be a subset of) the networks permitted in the VPN Access List of your user/group. Otherwise the SonicWALL will not permit the VPN connection.

Step 3 – Configure the Identifiers



- **Local Identifier**: Make sure "Local Endpoint IP Address" is selected from the popup list
- **Remote Identifier**: Make sure "FQDN" [1] is selected from the popup list. Enter your SonicWALL's **Unique Firewall Identifier** in the text field ❶ (**see** below for a configuration that does not require the Unique Firewalll Identifier)
- Check the box "**Verify remote identifier**"

It is also possible not to verify the remote identifier. This method also works **if you do not know your SonicWALL's Unique Firewall Identifier**, or run into errors:



- **Local Identifier**: Make sure "Local Endpoint IP Address" is selected from the popup list
- **Remote Identifier**: Make sure "Remote Endpoint IP Address" is selected from the popup list
- Uncheck the box "**Verify remote identifier**"

[1] Some revisions of SonicOS use the "Email" type instead of "FQDN". If later on you receive an error message concerning the "identifier type", try changing the Remote Identifier to "Email" instead of "FQDN"

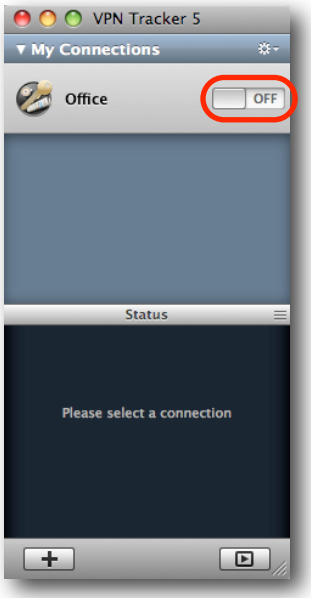
Task 3 – Test the VPN Connection

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

It's time to go out!

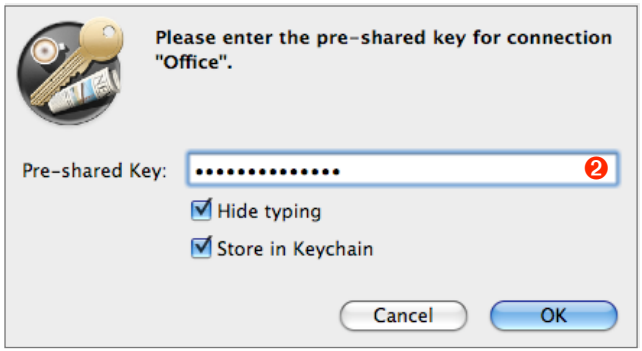
You will not be able to test and use your VPN connection from within the internal network that you want to connect to. In order to test your connection, you will need to connect from a different location. For example, if you are setting up a VPN connection to your office, test it from home. If you are setting up a VPN connection to your home network, test it from an Internet cafe, or go visit a friend.

Start your connection



- Connect to the Internet
- Make sure that your 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
- Slide the On/Off slider for the connection you have just configured to **On**

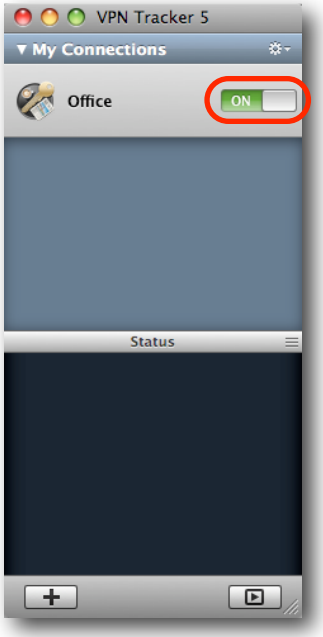
If you are prompted for your pre-shared key:



- **Pre-shared key**: Enter the pre-shared secret that you configured on the SonicWALL ❷. If you did not configure your SonicWALL yourself, your SonicWALL's administrator will be able to tell you the pre-shared key.
- Optionally, check the box **"Store in Keychain"** to save the password in your keychain so you are not asked for it again when connecting the next time
- Click "OK"

If you are prompted for your Extended Authentication (XAUTH) credentials:

- **User Name:** Enter the name of the user configured on the SonicWALL ❸
- **Password**: Enter the password for this user ❹
- If you did not configure your SonicWALL yourself, your SonicWALL's administrator will be able to tell you your user name and password.
- Optionally, check the box **"Store in Keychain"** to save the user name and password in your keychain so you are not asked for it again when connecting the next time
- Click "OK"



- If the slider goes back to **Off** after starting the connection, or after entering your pre-shared key or your XAUTH credentials, please read the **Troubleshooting** section of this document
- If the slider goes to **On** and turns green after a while, you have successfully established a connection

Congratulations!

Troubleshooting

In most cases, your connection should work fine if you follow the instructions above. If you cannot connect, please read on.

VPN Connection Fails to Establish

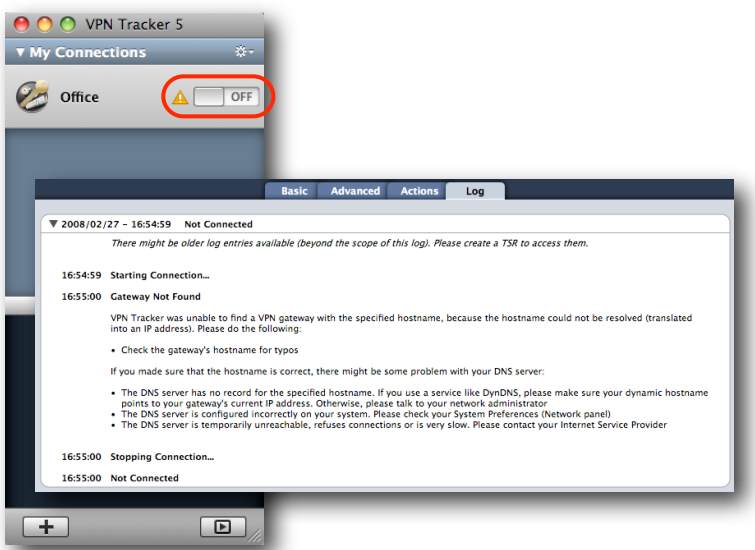
On/Off Slider goes back to "Off" right away

If the slider goes back to "Off" right away, please make sure you have entered all the required information. VPN Tracker will highlight fields that are missing information.

On/Off Slider goes back to "Off" after a while

If the connection ON/OFF slider goes back to "OFF" a while after attempting to start the connection, please go to the "Log" tab to get more information about the error (or click the warning triangle to be automatically taken to the "Log" tab).

Depending on the actual problem, VPN Tracker will display detailed suggestions for a solution.



Cannot Access Resources on the Remote Network

If the connection slider goes to ON and turns green, but you cannot access resources (servers, email, etc.) in the remote network, please check the following points.

Connect by IP address instead of host name

If you are not connecting to the resource by IP address (e.g. 192.168.13.42), but are using a host name (e.g. server.example.com), please try using the resource's IP address instead. If the connection works when using the IP address, but not when using a host name, please make sure that the DNS server configured on your Mac's is able to resolve this host name to an IP address, or configure a "Remote DNS" server in VPN Tracker.

Run the VPN Environment Manager

In many local networks your Mac will be behind a router that performs Network Address Translation (NAT). For a VPN connection to be established through such a router, VPN Tracker can use one of three different methods, but not all of them may be supported by your local router or your VPN gateway. In that case, your VPN connection may seem connected, but no connections to servers or other resources in the VPN are possible. VPN Tracker includes a tool to detect the right method for the local network:

- Stop all running VPN connections
- Select "Help > VPN Environment Manager"
- Click on "Continue"
- Wait until VPN Tracker has performed the tests
- Try to start the connection again

Tip You will only have to run the VPN Environment Manager once for each location that you are using VPN Tracker at.

Check if the IP address is part of the remote network

Please make sure that the IP address of the resource that you are connecting to is actually contained in the remote network(s). Also double-check the network mask that you have configured for the remote network(s) in VPN Tracker.

> **Tip** The network mask (e.g. 255.255.255.0) determines the size of a network. Some examples: The network 192.168.1.0/255.255.255.**0** contains **all** IP addresses starting with 192.168.1.x. The network 192.168.1.0/255.255.255.**255** contains only a single IP address, 192.168.1.0.

Further Questions?

You can find the latest news and compatibility information on our support and FAQ website:

http://www.equinux.com/support

If you need to contact equinux Technical Support

If you can't resolve your issue with the information available on our website or in this guide and would like to contact Technical Support through our website, please be sure to include at least the following information:

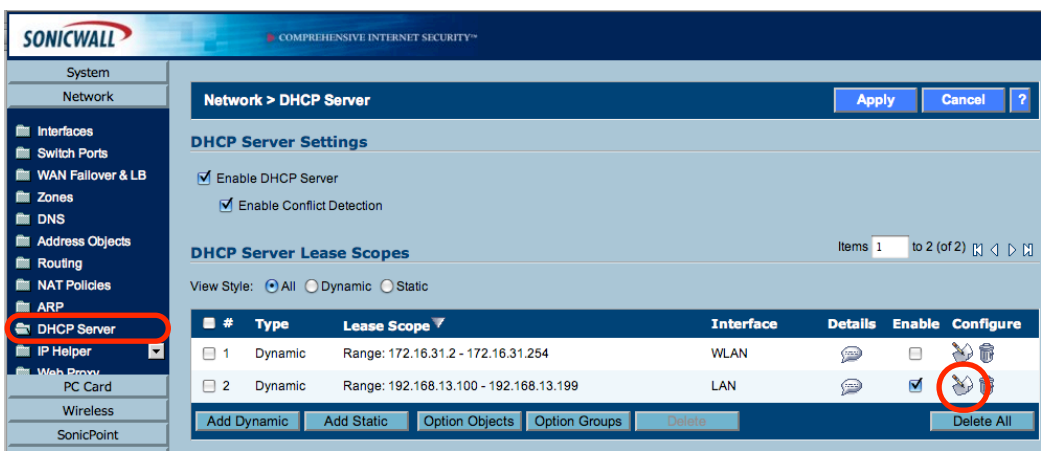
- The manufacturer and model and firmware revision of the VPN gateway
- A Technical Support Report from VPN Tracker (Help > Generate Technical Support Report)
- Screenshots of what you have configured on your VPN gateway, in particular all VPN settings
- A detailed description of the problem and the troubleshooting steps you have taken

Configuring Remote DNS

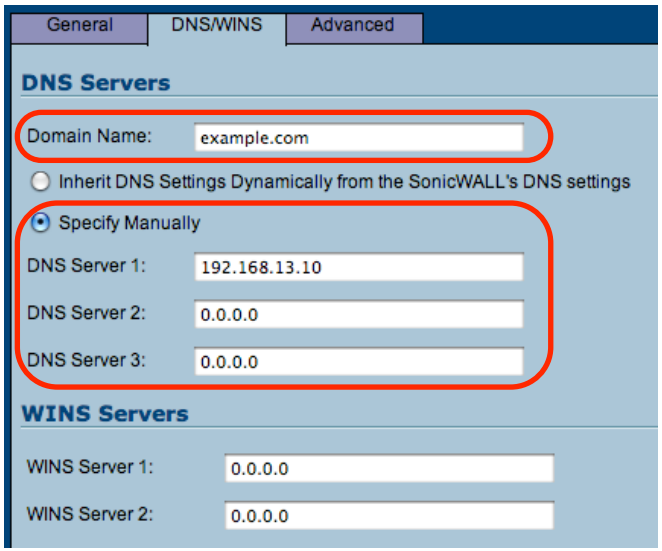
In many organizations, the host names of internal resources such as mail servers, internal websites, file servers etc. can only be looked up when using the internal name servers (DNS servers) of the organization. If you would like to access such resources by host names (e.g. intranet.example.com) instead of IP addresses, you should set up Remote DNS.

Distributing Remote DNS Settings through DHCP

We recommend setting up your SonicWALL to distribute the DNS settings to VPN Tracker through DHCP.

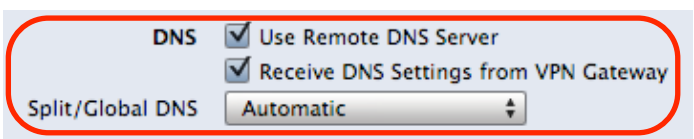


- Go to the section "**Network** > **DHCP Server**" on your SonicWALL
- Click the configuration button for the DHCP range configured for your LAN



- **Domain Name (optional)**: Entering a domain name here has two consequences:
  1. VPN Tracker will leave the Mac's DNS settings in place while the VPN is connected, and add the remote DNS server as an additional name server, so hosts in the specified domain can be looked up. **If you do not enter a domain name, make sure your remote DNS server can look up hosts on the Internet as well, as it will be the only name server used on the Mac while the VPN is active.**
  2. VPN Tracker will add the domain as a search domain to the Mac's DNS settings
- Check the box "**Specify Manually**" and enter your DNS server(s). The DNS server(s) must be part of the internal network(s) accessed through the VPN, or publicly accessible from the Internet.

In VPN Tracker, configure DNS as follows to receive the settings automatically from the SonicWALL:

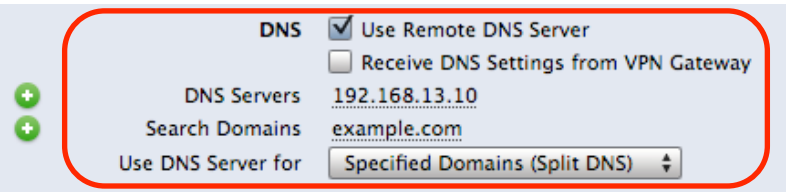


- Check the box "**Use Remote DNS Server**"
- Check the box "**Receive DNS Settings from Gateway**"
- Make sure **Split/Global DNS** is set to "Automatic"

Advanced Users	If your DNS server supplies information for multiple domains (possibly including reverse zones) set "**Split/Global DNS**" to "**Always use Global DNS**", or configure VPN Tracker's Remote DNS manually to include all search domains, as described on the following page.

Setting up Remote DNS Manually in VPN Tracker

If you cannot configure your SonicWALL to distribute DNS settings through DHCP, it is also possible to manually configure a remote DNS server in VPN Tracker:



- Check the box "**Use Remote DNS Server**"
- Uncheck the box "**Receive DNS Settings from Gateway**"
- **DNS Server**: The DNS server(s) must be part of the internal network(s) accessed through the VPN, or publicly accessible from the Internet
- **Search Domain(s) (required if "Split DNS" is used)**: Enter the domain(s) the DNS server applies to (e.g. if the DNS server can look up hosts that are part of "example.com", enter "example.com" here)
- **Use DNS Server for**:
  - Set this option to **"Specified Domains (Split DNS)"** to use the remote DNS server only for hosts in the given search domain(s) and keep the Mac's DNS settings in place while a VPN connection is active
  - Set this option to "**All Domains (Global DNS)**" to have VPN Tracker overwrite the Mac's DNS settings while the VPN is connected, and use the remote DNS server for all DNS lookups. If this option is used, make sure the remote DNS server can look up any host name on the Internet, not just hosts on the remote network in order to preserve normal Internet usage for the Mac