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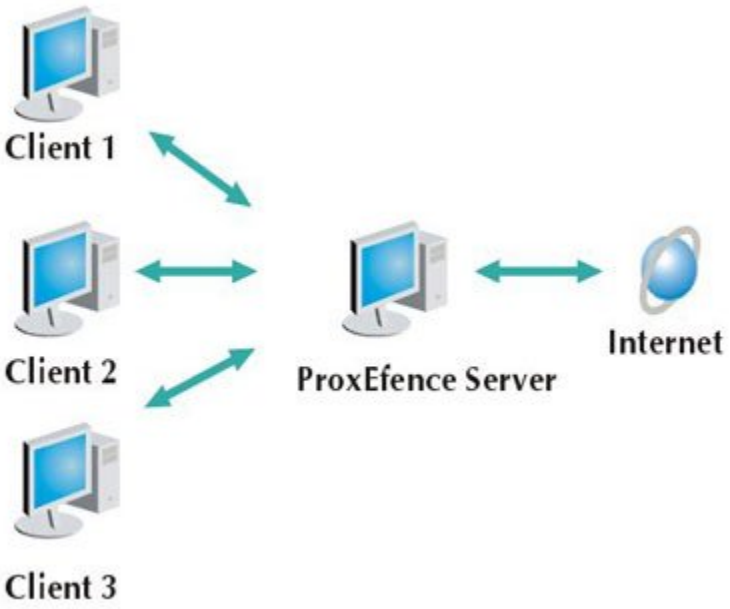
Network Installation Guide

Example LAN (Local Area Network)

All computers (clients) on the local network connect to ProxEfence computer (host) with a Hub or a Switch.



ProxEfence Server (Host):
IP Address: 192.168.0.1
Subnet Mask: 255.255.255.0
Gateway: (Blank)
DNS: (Blank)

Client 1 (Workstation):
IP Address: 192.168.0.2
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.1
DNS: 192.168.0.1

Client 2 (Workstation):
IP Address: 192.168.0.3
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.1
DNS: 192.168.0.1

Client 3 (Workstation):
IP Address: 192.168.0.4
Subnet Mask: 255.255.255.0
Gateway: 192.168.0.1
DNS: 192.168.0.1

Using a Crossover Cable

You can connect two computers together without a Hub or a Switch by utilizing a "Crossover Cable".

ProxEfence Server (Host):
IP Address: 192.168.0.1

Client (Workstation):
IP Address: 192.168.0.2

Subnet Mask: 255.255.255.0	Subnet Mask: 255.255.255.0
Gateway: (Blank)	Gateway: 192.168.0.1
DNS: (Blank)	DNS: 192.168.0.1

Note: *You do not have to use the IP Address scheme on this document. You can use whatever private non routable IP Address scheme you wish:*

10.0.0.0 - 10.255.255.255
172.16.0.0 - 172.31.255.255
192.168.0.0 - 192.168.255.255

Step 1 – System Requirements

All computers must be networked with TCP/IP protocol installed.

Host PC:
Microsoft Windows 2003/XP/Vista
Any Pentium II PC or higher
256 Mb RAM
Approximately 40 Mb free disk space
Connection to Internet or local Network

Client PC(s):
Any PC, Windows, Mac or UNIX/Linux based system

Step 2 - Configuring the Local Network Interface

The computer on which ProxEfence Server will be installed should have a network interface that connects it to the rest of the LAN.
From this interface, ProxEfence is usually plugged into a hub or switch with all of the other computers on the local network.

1. Open the network connection properties by accessing the Windows control panel and selecting the **Network and Dial up connections** icon.

2. Double click on the **Local Area Connection** icon that is the network interface for the LAN.

3. This will bring up the **Local Connection Status** dialog, click on the **Properties** button.

4. In the **Local Connection's Properties** window select **Internet (TCP/IP)** and click the **Properties** button.

Note: *You can confirm that this is the correct interface to configure as the actual physical name of the adapter is listed at the top of the Local Connection Properties window.*

5. On the **TCP/IP properties** window select **Use following IP address** and enter in an IP address that is in the same range used by the rest of the machines your local network. This should be a private class IP address such as 192.168.0.1 (examples only). To read more about IP addresses click here.

6. Fill in the appropriate **Subnet mask**. If using the 192.168.*.* private IP address range then the default is usually 255.255.255.0.

7. Leave the **Default Gateway** setting blank.

8. Leave the **Preferred DNS Server** setting blank.

9. No other configuration is required for this network interface.

10. Click **OK** through the open properties screens to save the changes.

Step 3 - Configure the Internet Connection

Suppose that the Internet connection is located on the ProxEfence Server itself.

It will fall into one of two categories either:

1. **Dial on demand**
   These types of Internet connections dial up via a phone line to the Internet as required. (Usually triggered by a program when trying to browse the Web or send Email, or triggered manually through a dial up profile). They include Dial up modems, ISDN, DSL modems, some Satellite connections.

   A dialup profile (details for connecting to the ISP) is created for these type connections in the Operating system when the hardware is first installed.

   These types of connections do not have a IP address until they dial the Internet and are assigned one by an ISP.

   No adjustment to these types of Internet connection is required, however it is important to make sure that the dialup profile can connect successfully to the Internet before installing ProxEfence.

2. **Online all the time**
   These types of Internet connections are considered to be connected to the Internet all the time.

   Usually they are a network interface card that has a public class IP address (and other details) assigned to it by the Internet Service Provider providing connectivity. They can include Internet connections such as T1, Fibre, Frame Relay, or DSL interfaces.

   As such they do not have an associated dial up profile in Windows, but will appear as a Network connection in the networking and dial up connections in the control panel.

   Since these types of connections have the details provided by the ISP they should not need to be adjusted before the installation of ProxEfence.

Step 4 – Configuring Your Client Computers

1. Open the network connection properties by accessing the Windows control panel and selecting the **Network and Dial up connections** icon.

2. Double click on the **Local Area Connection** icon that is the network interface connected to network.

3. This will bring up the **Local Connection Status** dialog, click on the **Properties** button.

4. In the **Local Connection's Properties** window select **Internet (TCP/IP)** and click the **Properties** button.

Note: *You can confirm that this is the correct interface to configure as the actual physical name of the adapter is listed at the top of the Local Connection Properties window.*

5. On the **TCP/IP properties** window select **Use following IP address** and enter in an IP address that is in the same range used by the ProxEfence Server (for example, 192.168.0.2).

6. Fill in the appropriate **Subnet mask**. This will be the same as is used by the ProxEfence Server's LAN IP Address (for example, 255.255.255.0).

7. Select the **Default Gateway** and enter the LAN IP address of the ProxEfence Server (for example, 192.168.0.1).

8. Select the **Preferred DNS server** option and enter the LAN IP Address of the ProxEfence Server (for example, 192.168.0.1) or a third party DNS server on the LAN.

9. No other configuration is required for this network interface.

10. Click **OK** through the open properties screens to save the changes.

Appendix

Testing TCP/IP

Ping is a popular utility that is installed as part of the TCP/IP protocol suite. It is used as a quick and easy method of finding out whether or not another computer is online and responding.

When you "ping" another computer's IP address (or by domain name), you are effectively sending out the message "Are you there?" (this consists of four ICMP packets).

If the computer is online and able to respond, it will then send a reply consisting of the same four ICMP packets.

If you try and use the ping command and it fails, you can use Event Viewer to check the event log and look for problems reported by Setup or the Internet Protocol (TCP/IP) service.

Testing TCP/IP on the Local Computer

You can test whether the TCP/IP installed on a computer is working properly by 'pinging' the loopback address on your computer. You do this by typing ping 127.0.0.1 at the command prompt. If ping fails, verify that the computer has TCP/IP was installed and configured correctly.

Pinging Across the Network

(a) 'Pinging' the ProxEfence server

At the command line type (replacing 192.168.0.1 with the IP of your ProxEfence server):

ping 192.168.0.1

The response should be:

Pinging [192.168.0.1] with 32 bytes of data
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

This is a confirmation that TCP/IP is working properly between client machine and the ProxEfence Server. This result should be the same from any computer on the network. If this is the case, you can then move on to configuring TCP/IP settings for either the ProxEfence server or the client computer.

Some Networking Terms

DNS

DNS stands for Domain Name System. DNS is the protocol used to convert host names (computer locations such as URL's (www.cerber.us), Domains (softforyou.com) into IP addresses to make locating and accessing sites easier in TCP/IP communications.

Gateway

In a TCP/IP network, the Gateway (also called Default Gateway) is the IP address of the computer that allows data to leave the network for a remote location (or a network that uses a differnet IP address range). Generally the Gateway will have two differnet network interfaces to each of the differnet networks it is connected to.

IP Address

On a TCP/IP network each machine has a unique address to identify its location and the network itself. This is called an IP address. This is the same for all computers that are connected to the Internet (which in simple terms just a large network).

IP addresses are made up of 4 sections of numbers, each ranging from 1 to 255.(each section is referred to as an octet). e.g. 192.168.0.1.

- **Private Class IP Addresses** A range of IP addresses, that can only be used for TCP/IP communication in private networks that are not connected directly to the Internet.

  The ranges of IP addresses designated as Private are:

  10.0.0.0 - 10.255.255.255
  172.16.0.0 - 172.31.255.255
  192.168.0.0 - 192.168.255.255

- **Public Class Ip Addresses** When a computer has an interface connected to the Internet, this interface needs to use a Public IP address to communicate across the Internet. Public IP addresses are considered to be all of the remaining IP addresses that are not part of the designated Private class IP range mentioned above.

Ipconfig

A small utility installed with all versions of Windows operating system to help identify what IP address details are currently being used by each network interface. It is usually run from a command prompt. (refer to the Windows Help File for specific usage).

ISP

Internet Service Provider. This is the organization or company that provides the connectivity to the Internet through your Internet connection. ISP's will allocate your Internet connection an IP address so that it becomes a location on the Internet when you computer connects.

Internet

The Internet is a collection of networks that are connected together worldwide using the TCP/IP protocol. The Internet provides the connectivity and structure for the World Wide Web which is the most common use for the Internet.

Localhost

This is a special IP address reserved in TCP/IP which is what a Operating System will internally use to refer to itself. All machines that have TCP/IP installed will use the local host address in this way. The localhost address is always 127.0.0.1

Network Interface Card (NIC)

Also known as, NIC, network card, network connection, or simply as an interface. This is the card/hardware located in the computer that is used to communicate with other computers. This can include Modems and External internet connections (such as Cable, DSL modems, ISDN etc).

Ping

A useful utility included with Windows that lets you test TCP/IP connectivity around your network. (Please refer to the Windows Help File for specific usage).

Ports

When ever you use a TCP/IP based application such as a web browser to request a page from a Web server

application on a remote machine, the two programs need to be able to communicate with each other. Part of this process involves the applications opening up a port (communication channel) and using this to communicate. This is commonly referred to as an application port.

There is a well defined list of ports that applications will use for communication depending on what type of protocol the applications use to communicate. In the situation of the web browser making a request to a Web server (application) it will use port 80 (the defined port for the HTTP protocol) to communicate with the Web server.

Other well known application ports are FTP (21), SMTP (25), Pop3 (110).

Proxy
Proxy usually means to act on behalf of something else. ProxEfence is an example of a Proxy server in the fact that it handles Internet requests on behalf of clients.

The benefit of having a ProxEfence Proxy Server is that all client Internet connections are handled simultaneously at a single place (ProxEfence Server) and through the one Internet connection. So all of the client connections appear to originate from only one Public IP Address on the Internet. This makes it more secure for both the clients and their network.

Workgroup
Also known as a peer to peer network, each computer in a workgroup is responsible for its own resources and security. Users are verified against a local user database on the machine they are logging into (as opposed to logging into a user database on a domain controller in a domain scenario).

Router
A router is a piece of hardware or a computer that joins two differently addressed networks. With a network interface addressed to each network, the router will act as a go between the two different networks. Routers are often referred to as a Gateway for this reason.

Subnet
A subnet is a method of dividing a network into groups of computers who share a similar IP address range.

A subnet mask is used in conjunction with an IP address to distinguish which part of the IP address identifies the subnet (network) that it belongs to and which part of the IP address identifies the actual computer.

Subnet masks can be a very complex topic to understand but put simply the each of the 4 sections of a subnet mask relate to the corresponding (section) octet in the IP address.

255.255.255.0 - subnet mask example.

Generally the 255 numbers in the subnet mask identify the part of the address that network the computer belongs to (which are fixed and don’t change), and any other number entry indicates the section (octet) in the IP addresses that identifies the computer itself, which changes from computer to computer.

TCP/IP
TCP/IP stands for Transmission Control Protocol/Internet Protocol.

TCP/IP commonly refers to a suite of protocols (rules and standards) used for establishing and maintaining communication in modern networks (including all communication on the Internet). TCP/IP is usually installed by default in most machines that run Windows 98 or above.

URL
URL stands for Uniform Resource Locator. URLs are a standard format for describing where a resource is located on the Internet. e.g. a Web URL reads as http://www.softforyou.com/index.html. This is the address of site you would normally enter into your browser when surfing the Web.