

How to setup your own HTTP server

It is easy to get a normal website.
It is accessible to get a site with a database.
It is interesting to know that it is simple to setup a web server at home.

There are a bunch of reasons why a home web server is useful. You may need a site that provides a live webcam, or a site that provides files generated on your computer. You may simply want your own webserver at home, no strings attached.

In this short document, I'll show how to setup your own HTTP server, your own custom WWW node on the net.



Things you should know about internet networking:

- ➔ A local network is how we call your home or office network, where one or many computers are connected to a router. The router is the doorway to the internet.
- ➔ Every computer on a network has an IP address. This also applies to devices like iPhones/iPods, printers, routers... On a local network the IP addresses often look like 192.169.0.100, these are called "internal addresses".
- ➔ The "external address" is the IP address given by the Internet Service Provider, it is a unique identifier that allows computers on the internet to connect together. The router on the local network receives this address and dispatches internet communications between the computers on the local network and the internet.
- ➔ The computers on the local network are protected by the firewall on the router; a computer from the internet cannot connect to a local computer unless the local one has contacted it first, or unless the firewall specifically allows incoming access from the internet to this local computer (this is usually called "Port Forwarding" in the firewall settings).
- ➔ An IP Port is virtual plug on a computer, each plug is identified by a number from 1 to 65535. When establishing a network connection, we need to specify the port number. Some ports number are pre-defined, for example port 80 is usually bound to http and is always set by default. However, it is possible to set a server to use any port number, in which case the client will have to overwrite the default behavior by specifying the correct port in the URL.

Using a web browser, entering a normal address will connect you to the default port 80
`http://www.myserver.com`
But specifying an alternate port is possible as long as the server has activated this port
`http://www.myserver.com:2000`

Step 1: Choose you server software

The most important thing when setting up a personal server is the software that will be providing the service, the rest is just configuration. Some famous software are Microsoft IIS and Apache, but you'll often find simpler web servers embedded in programs like our own [Spycam Lizard](#).

In the case of Spycam Lizard, installing the software is as simple as opening the installer. Since the http server is an optional feature, you'll need to start it by going to the Setting menu and check "Host a HTTP server on this computer". The default port is 80, you can change it if you want. Click on OK and the server will start. It really isn't a big deal, the server is silent and requires very little resources.

Some ISP block incoming connections to port 80 as a security measure. Using another port number may be necessary in this case.

When it is setup, you can test your server by connecting on it locally. Here is an address that you can enter in a web browser to loopback on your computer: **http://localhost**
You can also loopback by using the local IP address of the computer.

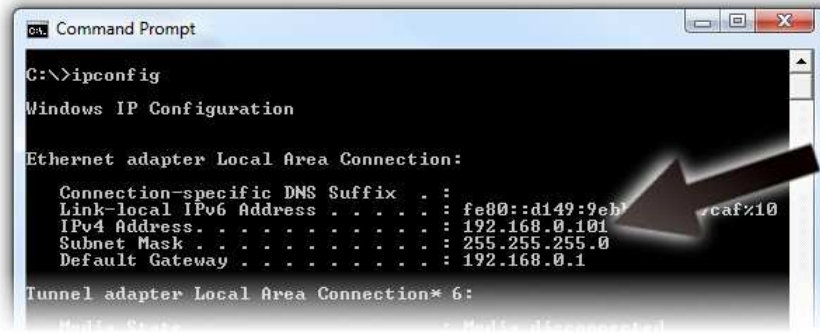
Some firewalls prevent you from using your external IP address from inside your local network. As a rule of thumb, use local IP addresses to connect to nearby computers, and use external IP addresses for connections over the internet.

How do I find what my computer's local IP address is?

If you have Spycam Lizard installed, go to the Settings menu, the local address will be written there.

If you do not have Spycam Lizard, follow these steps:

- Go to the Windows Start menu, then Programs, then Accessories
- Select the **Command Prompt** program. This will open a black text window.
- type **ipconfig** and press enter.
- You are looking for "IPv4 Address".



You may have many network adapters on a single computer, some of which may be un-used. If you are not sure which is the correct address, try them all.

Step 2: Open the firewall

When the server software is running, we need to make sure that it can accept incoming connections from the internet. There are 2 things to verify: software firewall and hardware firewall.

Software firewalls are optional. Since XP sp2, Windows comes with a software firewall, it is quite basic and can be deactivated. If you have an anti-virus or an internet security package, you might need to check it out to make sure it will allow your server to work correctly. It is likely that when you start the server, the software firewall will pop-up a dialog box asking you how to proceed about the security. Most of the time you simply need to grant permission for a software to access IP networking; make sure your http server software is in the "safe" list.

Hardware firewalls offer much better security by shielding local computers completely.

- Accessing the firewall on your router is usually done with a web browser by going to <http://192.168.0.1> or <http://192.168.1.1> (see your router's manual).
- You will need the user name and password to log in the router. On most routers, the default username is usually something like "Admin" with no password, if this is the case you should change the password yourself.
- Look for a page with "Port Forwarding" or "Redirection" features, sometimes in the Advanced Settings section. You are looking for a page where you can tell the firewall that any incoming connection to TCP port 80 (or other custom number) should be directed to a computer on your local network, so you'll need to specify the server's local IP address.

Unless you specified you want to use a static IP address for your computer on your local network, the router will usually allocates IP addresses with numbers in the order that the devices where turned on. This means that if you have many devices on your network, they may be assigned different local IP addresses than the last time they where used.

When this is done, your http server should be available to the world. Now all the world need is a link or a URL to find your server...

Step 3: Finding your server on the internet

The simplest way for someone on the internet to access your server is to enter your server's external IP address directly in their web browser. Here are a few ways that you find what is your external IP:

- Go on your router's Status page, it should be on there. You can usually access you router by going 192.168.0.1 or 192.168.1.1
- With a web browser, go to a site where they provide this info for you, for example ipchicken.com
- In Spycam Lizard, go to the Settings menu, there is a button that will query and provide you with the external IP.

How to get a domain name for your home computer

Every now and then your external IP address will be renewed, you never know exactly when. If you need a reliable way to access your computer despite this caveat, you should get a dynamic domain name. Here is how you do it: go to a dynamic domain provider like dyndns.com or no-ip.com, register for an account (some are free) and install the dynamic update client software they provide.

All is done and ready, your http server can now be used by people on the internet with normal web browser.

As a closing note, here is a description for the standard formatting of a URL:

`http://user:pass@myserver.no-ip.com:8000/subfolder/image.jpg?parameter`

1	2	3	4	5	6	7	8
---	---	---	---	---	---	---	---

1. Specifies that we want to connect to a site supporting the Hyper Text Transfer Protocol. This part makes it clear that we are requesting a website rather than entering a search term.
2. In case you need to login on the website, it is possible to include the login info in the URL this way.
3. This is called the sub-domain, we usually find WWW here but it can be anything allowed by the server software.
4. This is the actual domain name.
5. The port number on which to connect on the server. When using http, the default is 80 and does not need to be specified. However, if you are aware of an alternate port number that you can use, you can specify it in the URL this way.
6. The server usually has a folder/file structure that you can access. To get to a file, we need to enter it's path on the server.
7. The file to retrieve. Note that a "file" can be an abstract term, as some servers provide virtual files and PHP scripts that change and adapt to your session.
8. You rarely need to enter parameters yourself, they are usually added automatically when sending form data or navigating on a more complex site.

References

<http://www.spycamlizard.com> - Motion Detection software download site

Download a free copy of the Spycam Lizard software.

<http://www.dyndns.com> - Dynamic IP address provider

<http://www.no-ip.com> - Dynamic IP address provider

Bind a domain name to a home dynamic IP address.

