

# Make Your Own Web Server

To turn your computer into a Web server, you must have some knowledge of computer hardware, software, networking, server setup and the Internet. You also need to have a good computer with a high-speed Internet connection. This article describes how to use your PC as a Web server while also covering some basics

## ADEEB RAZA

This project was tested on a PC with Microsoft Windows XP Professional Second Edition operating system. For setup, you need to follow the steps given below:

1. Installation of operating software
2. Installation of motherboard drivers
3. ADSL modem and Internet configuration
4. Setting up of local host
5. Making your webpage (index.htm)
6. Port forwarding
7. Publishing of your webpage on the Internet
8. Setting up of DNS and domain name
9. Checking of your own Web server

## Installation

**Operating software.** To install Microsoft Windows XP Professional Second Edition in your computer, insert the CD in your CD drive and follow instructions on the screen. Microsoft Windows XP will install in your computer within 36 minutes depending on your PC's configuration.

**Motherboard drivers.** Insert the motherboard drivers' CD in your CD drive. It will run automatically. Otherwise, click 'Setup' file in the CD folder and follow instructions on the screen. Confirm that chipset, graphics card driver, LAN card driver, sound system driver and other important drivers of your computer have been installed successfully.

## ADSL modem and Internet configuration

Connect an ADSL modem with Internet telephone line through RJ45 connector and cable provided with the modem to your computer through RJ45-LAN socket. Now configure Internet connection as following:

1. Open Internet browser and type server IP as <http://192.168.1.1> while configuring DSL router.
2. Type 'admin' in the user name and password space, then click 'ok' as shown in Fig. 1.
3. Click 'Configuration.' You will get a screen as shown in Fig. 2. Click 'Internet Connection.'
4. Click 'Edit' as shown in Fig. 3.
5. Click 'Next' three times and then type service name, broadband user name, password, etc as shown in Fig. 4.
6. Click 'Next,' then save the settings. Close and reboot your computer.

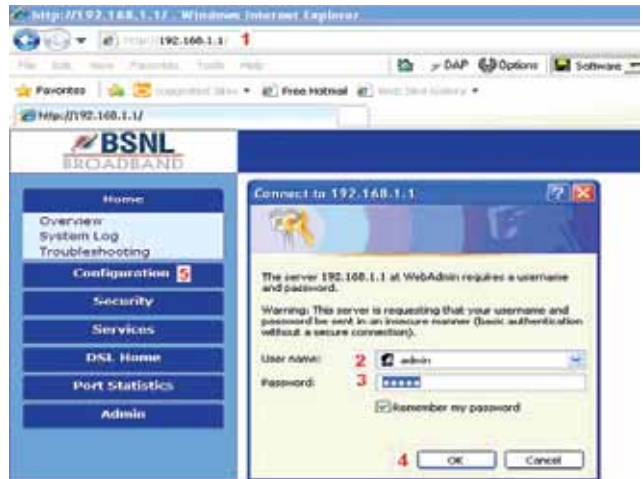


Fig. 1: ADSL modem configuration login



Fig. 2: Configuration window

7. Now check whether the Internet is running on your computer.
8. Open Internet browser and type Web address '<http://www.google.co.in>'
9. If Google website is seen on the screen, Internet connection is working properly on your computer.

## Making localhost

For setting up localhost, you can use either Internet Information Services (IIS) or Apache HTTP Server. Here we have used Internet Information Services, which is available with

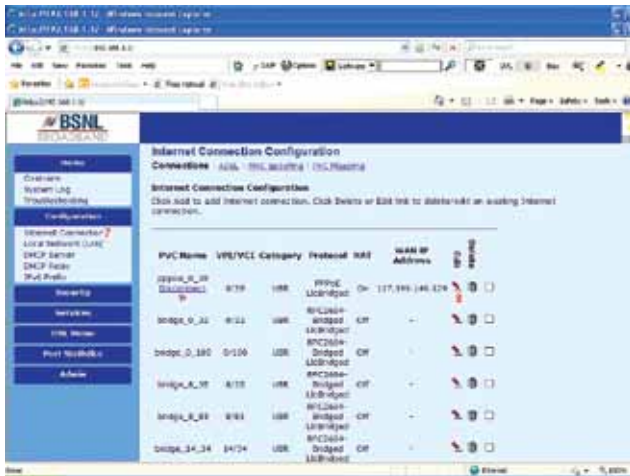


Fig. 3: Internet connection configuration

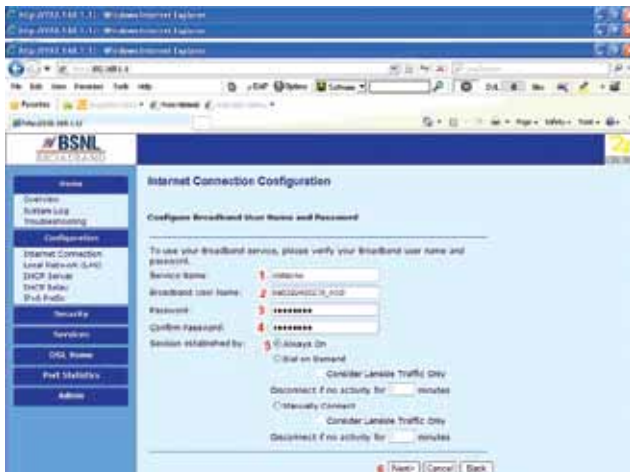


Fig. 4: Internet connection edit window



Fig. 5: Windows XP installation menu

Windows components.”

2. You will get a ‘Windows Components Wizard’ window as shown in



Fig. 6: Windows Components Wizard window

Microsoft Windows XP Professional. Proceed as follows:

1. Insert Windows XP CD in your CD Drive. You will get a menu as shown in Fig. 5. Click “Install optional Windows components” in Fig. 5. Click “Install optional Windows components” in Fig. 5. Click “Install optional Windows components” in Fig. 5. Click “Install optional Windows components” in Fig. 5.

3. Tick ‘Internet Information Services (IIS)’ to set up localhost.

4. Click ‘Next’ to begin installation.

5. After IIS installation, you will see folder ‘inetpub’

## Basics

**Types of computers.** Computers can be classified by size, function, operational principle, etc. Here we briefly discuss only three types of computers commonly used and relevant to the project.

**Industrial computers.** These are preprogrammed to run and control machines automatically with great care and accuracy. Examples include water jet cutting machines, CAD/CAM machines and CNC machines.

**Personal computers.** Personal computers (PCs) are designed for use by only one person at a time. These computers are used by individuals to work quickly with great accuracy as per their requirements. Different types of software are used to perform tasks like desktop publication, design, Internet browsing, e-mail, chat, programming, entertainment and gaming, etc. PCs are available in the forms of desktops, laptops, notebooks, etc with different configurations, shapes and sizes.

**Servers.** These computers provide services to client machines in a computer network. They have larger storage capacities and powerful processors. Programs running on them serve client requests and allocate resources like memory and time to client machines. Usually, servers are very large in size, as these have large processors and many hard drives. They are designed to be fail-safe and resistant to crash.

**Computer hardware.** Computer hardware includes system unit, monitor, keyboard and mouse. The system unit is the main part of a computer. It looks like a box but inside it you will find central processing unit (CPU), power supply unit, motherboard, memories (ROM and RAM), sound and LAN card controller devices, etc. On its rear and front panel you can see connectors for COM ports, parallel port, USB ports, keyboard, mouse, etc.

**Computer software.** Computer software can be divided into three parts: system software, application software and programming software.

**System software.** System software is a computer software designed to operate the computer hardware, to provide basic functionality, and to provide a platform for running application software. System software includes device drivers, operating systems (Windows, XP, Vista, Linux, etc), servers, utilities, etc.

**Application software.** It is a set of programs that allows the computer to perform a specific data processing job for the user. Examples include Microsoft Office, Mozilla Firefox, Page Maker, Coral Draw, AutoCAD and Tally.

**Programming software.** BASIC, C/C++, Visual C, Visual Basic, etc come under this category and are also known as programming language software.

Programming software is also used to develop dynamic link library for an electronic device to interface with your computer.

Note that without installation of proper driver for each device connected to your computer, your device will not work properly.

\*For more detail, you may also read ‘Computer Networking for SOHOs’ article published in EFY March 2007 or visit the website <http://areptone.com/articles/>

in the root directory of your computer’s ‘C’ drive. Click ‘inetpub.’ You will get another folder named ‘wwwroot.’ This is your localhost.

## Making your webpage (index.htm)

To make your webpage, you can use Microsoft Frontpage or any other html editor. Here you can also use Notepad:

1. Click “Start/All Programs/Accessories,” then ‘Note-

pad' and type the following code:

```
<html>
<head>
<meta http-equiv="Content-Type"
content="text/html; charset=iso-8859-1">
<meta name="GENERATOR" content="Microsoft FrontPage
Express 2.0">
<title>ELECTRONICS FOR YOU</title>
</head>
<body>
<p align="center">&nbsp;</p>
<p align="center" style="text-align:center"><strong>
<span style="font-size:28.0pt;
mso-bidi-font-size:36.0pt;font-family:Arial;color:red">
ELECTRONICS
FOR YOU</span><span style="font-size:28.0pt;
mso-bidi-font-size:12.0pt;font-family:Arial;color:red">
<o:p></o:p></span></strong></p>
<p align="center" style="text-align:center"><span style=
"font-size:24.0pt;
mso-bidi-font-size:36.0pt;font-family:Arial">Welcome you
to a technical session on</span><span style=
"font-size:24.0pt;mso-bidi-font-size:12.0pt;
font-family:Arial"><o:p></o:p></span></p>
<p align="center" style="text-align:center"><b>
<span style="font-size:24.0pt;font-family:Arial;
color:red">MAKE YOUR OWN WEB
SERVER</span><span style="font-family:Arial;
color:red"><o:p></o:p></span></b></p>
<p align="center" style="text-align:center"><span style=
"font-size:24.0pt;font-family:Arial">By EFY LAB</span>
<span style="font-family:Arial"><o:p></o:p></span></p>
<p align="center" style="text-align:center">
<span style="font-size:18.0pt;
font-family:Arial">For more details, you can
visit our website</span><span style="font-family:
Arial"><o:p></o:p></span></p>
<p align="center" style="text-align:center">
<span style="font-family:Arial"><a
href="http://www.efymag.com/index.asp?id=12"><span style=
"font-size:18.0pt">http://www.efymag.com/index.asp?id=12
</span><o:p></o:p></span></a></p>
<p align="center">&nbsp;</p>
</body>
</html>
```

2. After typing the above 'htm' code on Notepad, save the file as 'index.htm.'

3. Copy this file and paste in the localhost folder 'wwwroot.'

4. Check your localhost and webpage by opening the Internet browser and typing 'http://localhost/' in the address bar.

5. You will see your webpage open on your local computer like other webpages on the Internet. This confirms that your localhost and webpage both are working properly on

the local computer. It will not work on the Internet because DNS, Windows firewall and Internet Explorer block all the ports to safeguard your PC. Among common ports, Web server is available on port 80, FTP server on port 21, SMTP on port 25 and Pop3 on port 110.

## Port forwarding

As Windows firewall and Internet Explorer block all ports, first of all, you have to open port 80 (Web server port) for your project and then forward it for the Internet. For port forwarding, configure as follows: network connection configuration, DSL router configuration and Windows firewall enabling.

**Network connection configuration.** 1. Click 'Start→Run,' then type 'cmd' and click 'ok.'

2. On command prompt, type "ipconfig/all



Fig. 7: IP address

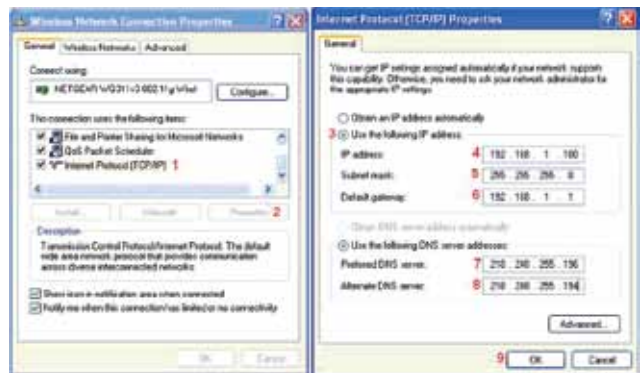


Fig. 8: Internet protocol properties

C:\>ipconfig/all" and note the details of IP address (192.168.1.100), subnet mask (255.255.255.0), default gateway (192.168.1.1), DNS server (218.248.255.196) and alternate DNS server (218.248.255.194) as shown in Fig. 7.

3. Click "Start→Control Panel→Network Connections," then open 'Properties.' Select Internet protocol TCP/IP, then click 'Properties' and enter the data as shown in Fig. 8.

**DSL router configuration.** 1. Open Internet browser and type server IP as 'http://192.168.1.1' for configuration of DSL router (Fig. 9).

2. Click 'Security,' then 'Port Forwarding' option.

3. Type 'admin' for both username and password, then click 'ok.'





Fig. 9: DSL router configuration



Fig. 12: Virtual server configuration



Fig. 10: Port forwarding



Fig. 11: Port forwarding configuration

4. Click 'Add.' You will get a form as shown in Fig. 10.
5. Select 'User Defined' option and type 'EFY.'
6. Enter 'Forward to Internal Host IP Address' as '192.168.1.100.'

7. Select 'TCP' in 'Protocol/Type.'

8. Type '80' in 'Port Start' and 'Port End' as shown in Fig. 10.

9. Click 'Apply.' Now check whether your entry is alright, as shown in Fig. 11.

10. Click 'Virtual Server.'

11. Select 'Forwarded to the DMZ Host' as shown in Fig. 12.



Fig. 13: Exception window

12. Type in 'IP address of DMZ host' as '192.168.1.100'

13. Click 'Apply.'

14. Save all the settings in 'DSL Router Configuration' and close it. Now open Internet browser and type 'http://www.google.co.in' in the address space. If you get Google website, it means your configuration up to here is okay. Otherwise, repeat the above steps again.

**Windows firewall enabling.** 1. Click "Start→Control Panel→Network Connections," then open 'Network Connections Properties.'

2. Click 'Advance→Settings→Exceptions.' You will get a screen as shown in Fig. 13.

3. Select 'HTTP,' then click "Add Port."

4. Type name as 'HTTP' and port number as '80,' then tick 'TCP' and click 'ok.' This completes all the settings.

## Publishing your webpage on the Internet

Publishing of your webpage on the Internet means your localhost and webpage are accessible by other users through the Internet on their computers. Therefore you have to send the IP address of your computer to them for browsing of your webpage on their PCs.

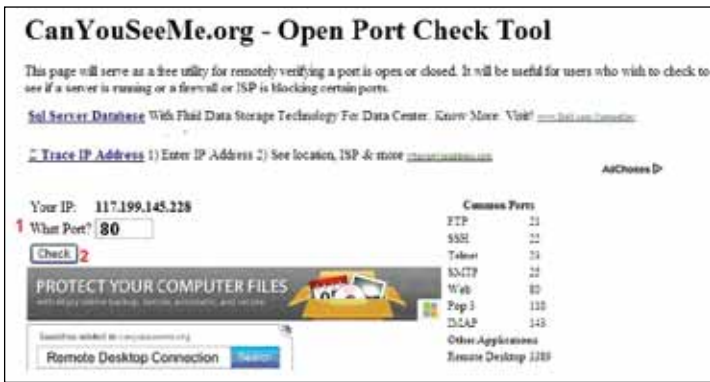


Fig. 14: Tool for Web server checking



Fig. 15: Success

Finding out the IP address of your computer is very simple. Open Internet browser and type 'http://www.whereismyip.com/'. In reply, you will get your IP address on your computer screen; for example, 'http://17.199.145.228' is the IP address of our PC.

Note that your IP address changes frequently, especially when your computer reboots. To overcome this prob-

lem, you have to use static IP address by purchasing it from your Internet provider. You can also use any of the Dynamic DNS Services freely available on the Internet. Some of them are DNSdynamic, DNSEXIT and NO-IP. For more details, visit respective websites 'http://www.dnsdynamic.org/', 'http://www.dnsexit.com/' and 'http://www.no-ip.com/'. We have used DNSEXit Service and automatic IP Updater software of DNSEXit for this project.

## Set up DNS and domain name

You can also give a name of your Web server with login on free DNS Service. For this, proceed as follows:

1. Open the website of DNSEXIT by typing 'http://www.dnsexit.com/'
2. Click 'Sign Up' option to open an account, then login with your user ID and password.
3. Click 'login,' then see free second-level domains. Click 'Setup DNS,' then click 'DNS Express' and type your domain name as 'efywebserver.' Uncheck the box "IP address is dynamic," then click "Create DNS" followed by "Verify DNS."

Now click 'Dyn DNS Clients,' download Windows IP Updater 2.0 and install it in your computer. After installation, reboot your computer. You will see IP Updater running automatically and your Web server working.

## Checking of your Web server

To check your Web server and webpage on the Internet, you can use 'Open Port Check Tool.' Open Internet browser and type Web address 'http://www.canyouseeme.org/'. You will get a screen as shown in Fig. 14. Click 'Check.' You will get another screen with 'Success' as shown in Fig. 15. This shows that your Web server is running fine. In case of any error, check and repeat the above procedure.

**EFY note.** We have used BSNL's broadband ADSL modem type B2 AN1020-20. For other ADSL modem, read its user manual for configuration of port forwarding, DMZ and virtual server. ●

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