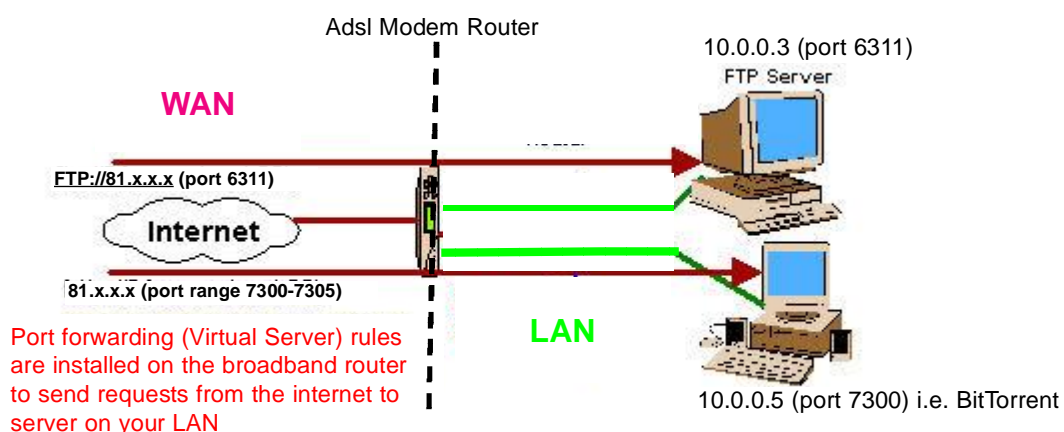


## Explaining DMZ's and Port Forwarding for home networking, broadband routers, and NAT connection sharing

First some definitions (greatly simplified)

**Ports:** Applications running on TCP/IP open connections to other computers using something called ports. Ports allow multiple applications to reside on a single computer - all talking TCP/IP. Ports are another set of numbers AFTER the standard IP address. Applications often hide these port numbers to reduce the complexity of TCP/IP. Example: web services (HTTP) reside on port 80 by default. To reach this web site, you could type <http://www.webserver.com:80> into your browser. The 80 is the default port number for the HTTP protocol so typing it is not necessary. There are 65535 available ports. Please go to page 4 to view a list of some 'well known ports'.

**Port Forwarding:** A broadband router or other NAT application (like ICS) creates a firewall between your internal network and the internet. A firewall keeps unwanted traffic from the internet away from your LAN computers. A 'tunnel' can be created through your firewall so that the computers on the Internet can communicate to one of the computers on your LAN on a single port. This is handy for running web servers, game servers, ftp servers, or even video conferencing. This is called port forwarding. One of your computers could run a web server (port 80) while another computer could run an FTP server (port 21) - both on the same IP address.



### Virtual Server Configuration

ID	Public Port - Start	Public Port - End	Private Port	Port Type	Host IP Address	
1	6311	6311	6311	TCP	10.0.0.3	Delete This Setting
2	7300	7305	7300	TCP	10.0.0.5	Delete This Setting

3    9001    9002    9001     TCP    10.0.0.7      UDP

Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.  
The maximum number of entries above is 20. The maximum number of mapped ports is 20

Port Range on the Wan side

Server IP address

Whatever port your software/application specified

### Miscellaneous Configuration

WAN side HTTP server

Disabled

You probably don't need to be able to perform router admin from the Internet

FTP server

Disabled

You only need the FTP server running when you want to upload new firmware.

TFTP server

Disabled

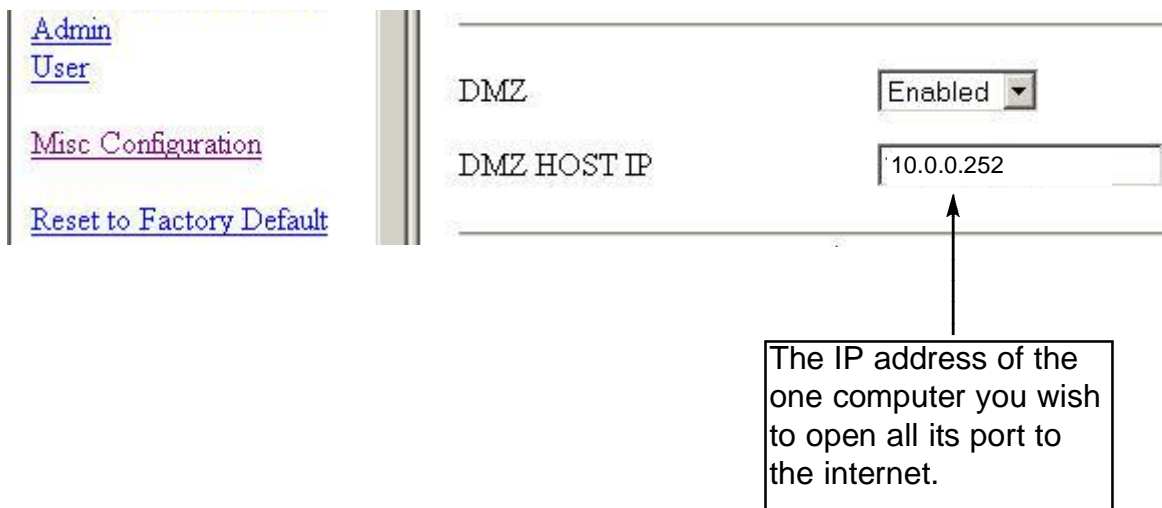
HTTP server port

82

This is the port the router admin server listens to. If the WAN side HTTP server is switched on, it shouldn't be the same port as any virtual server.

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**DMZ:** This is a feature that is included on this routers but is not in Internet sharing software. A DMZ allows a single computer on your LAN to expose ALL of its ports to the Internet. When doing this, the exposed computer is no longer 'behind' the firewall. So beware!



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### Port Forwarding vs DMZ

A DMZ is far easier to set up than port forwarding but exposes your entire computer to the Internet. Sometimes TCP/IP applications require very specialized IP configurations that are difficult to set up or are not supported by your router. In this case, placing your computer in the DMZ is the only way to get the application working. Placing a computer in the DMZ should be considered 'temporary' because your firewall is no longer able to provide any security to it.

Port forwarding can sometimes be difficult to configure, but provides a relatively safe way of running a server from behind a firewall. Since only a single port (or small series of ports) is exposed to the Internet, the computer is easier to secure. Additionally, port forwarding allows you to run multiple kinds of servers from different computers on your lan. (Please see the above diagrams)

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Below is a list of ports used for many applications and games. This is a list of the most common configurations needed to use the applications from behind a NAT based sharing device like a CABLE/DSL ROUTER or Microsoft ICS. As you can see, most applications work fine without configuration when making an outgoing connection. All applications need some kind of port forwarding when you need to act as a server to take incoming connections.

This is a GENERAL guideline. The only way to tell if a particular application will work with your router is to test it.

Application	Outgoing	Incomming	Notes
HTTP		80	
SSL (secure Socket Layer)		443	
FTP		21	
Telnet		23	
IMAP		143	
SIMAP		933	IMAP thru SSL
SSL/POP2:		995	POP3 thru SSL
POP3		110	
SMTP		25	
SSH		22	
FINGER		79	
IDENT		103	
NNTP		119	Network News Transfer Protocol
GOPHER		70	
NTP (time protocol)		123	
PPTP (Microsoft VPN)		1723	
Carbon Copy 32		1023-1680	
CITRIX		1494	
CU-SeeMe		7648	Version: Cornell 1.1
CU SeeMe		1748, 24032	Version: White Pine 3.1.2
CU SeeMe		1748, 24032	Version: White Pine 4.0 (Pro)
Direct Connect		375-425	
ICQ	DMZ	DMZ	Place computer in DMZ. Not required for outgoing chat.
LapLink		1547	
Lotus Notes		1352	
NetMeeting		1720, 1503	Some new routers can support NetMeeting servers by port forwarding. Check your doc's or try it.
PC Anywhere		22, 5631-5632	
Real Player		DMZ	Support varies
Remote Anything		3996-4000	
Shiva VPN	2233	2233	
Virtual Network Computing - VNC		5500, 5800, 5900	
VDO Live		DMZ	
Bootstrap		67	Server
Bootstrap		68	Client
Netbios		137	Name Service
Netbios		138	Datagram Service
Netbios		139	Session Service
SUN Remote Procedure Call		111	

## Changing the Timezone on the Router

Using Misc config ensure that FTP is enabled on the router

Login to the router via FTP and use FTP to download the following files (you should use a FTP Client/Server Application such as CuteFTP or WS\_FTP95 L):

- CONFIG.REG
- FACTORY.REG

Alter the [Class\Protocol\SntpClient] section in both files as follows:

```
[Class\Protocol\SntpClient]
"Server"="129.6.15.29"          <===== this is probably 0.0.0.0 in you
original file
"ServerIndex"=dword:00000000
"TimeZone"=dword:00000016     <===== this is probably 00000001 in
you original file
"DaylightSavingTime"=dword:00000000
"Timeout"=dword:00000708
```

Save both files and use FTP to place them back to the router. Next do a power off/on to reboot the router **DO NOT USE THE WEB INTERFACE TO REBOOT THE ROUTER!**

Disable FTP on router for security once finished (normal reboot from webpage should now work OK)

The timeserver IP address can be any one you know works, but you must be sure it wont change or the router will not be able to set the time!

See the table below for a list of the ID values. Please note that the table lists the IDs in decimal (base-10) and the value in the files is in hexadecimal (base-16). Please refer to the table (on page 6) for the decimal and hexadecimal values required.

If you do have any problems press the reset to revert to factory default settings.

ID

DEC HEX

TimeZone

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0	00	TIME_ZONE_ENEWETAK_KWAJALEIN,	/* -12 for GMT */
1	01	TIME_ZONE_MIDWAY_ISLAND,	/* -11 for GMT */
2	02	TIME_ZONE_HAWAII,	/* -10 for GMT */
3	03	TIME_ZONE_ALASKA,	/* -9 for GMT */
4	04	TIME_ZONE_PACIFIC,	/* -8 for GMT */
5	05	TIME_ZONE_ARIZONA,	/* -7 for GMT */
6	06	TIME_ZONE_MOUNTAIN,	/* -7 for GMT */
7	07	TIME_ZONE_CENTRAL,	/* -6 for GMT */
8	08	TIME_ZONE_MEXICO_CITY,	/* -6 for GMT */
9	09	TIME_ZONE_SASKATCHEWAN,	/* -6 for GMT */
10	0A	TIME_ZONE_BOGOTA,	/* -5 for GMT */
11	0B	TIME_ZONE_EASTERN,	/* -5 for GMT */
12	0C	TIME_ZONE_INDIANA,	/* -5 for GMT */
13	0D	TIME_ZONE_ATLANTIC,	/* -4 for GMT */
14	0E	TIME_ZONE_CARACAS,	/* -4 for GMT */
15	0F	TIME_ZONE_SANTIAGO,	/* -4 for GMT */
16	10	TIME_ZONE_NEWFOUNDLAND,	/* -3 for GMT */
17	11	TIME_ZONE_BRASILIA,	/* -3 for GMT */
18	12	TIME_ZONE_BUENOS,	/* -3 for GMT */
19	13	TIME_ZONE_MID_ATLANTIC,	/* -2 for GMT */
20	14	TIME_ZONE_AZORES,	/* -1 for GMT */
21	15	TIME_ZONE_CASABLANCA,	/* 0 for GMT */
22	16	TIME_ZONE_GREENWICH_MEAN_TIME_DUBLIN,	/* 0 for GMT */
23	17	TIME_ZONE_GREENWICH_MEAN_TIME_LISBON,	/* 0 for MT */
24	18	TIME_ZONE_AMSTERDAM,	/* +1 for GMT */
25	19	TIME_ZONE_STOCKHOIM,	/* +1 for GMT */
26	1A	TIME_ZONE_BRATISLAVA,	/* +1 for GMT */
27	1B	TIME_ZONE_PRAGUE,	/* +1 for GMT */
28	1C	TIME_ZONE_PARIS,	/* +1 for GMT */
29	1D	TIME_ZONE_SOFIJA,	/* +1 for GMT */
30	1E	TIME_ZONE_ATHENS,	/* +2 for GMT */
31	1F	TIME_ZONE_BUCHAREST,	/* +2 for GMT */
32	20	TIME_ZONE_CAIRO,	/* +2 for GMT */
33	21	TIME_ZONE_HARARE,	/* +2 for GMT */
34	22	TIME_ZONE_HELSINKI,	/* +2 for GMT */
35	23	TIME_ZONE_ISRAEL,	/* +2 for GMT */
36	24	TIME_ZONE_BAGHDAD,	/* +3 for GMT */
37	25	TIME_ZONE_MOSCOW,	/* +3 for GMT */
38	26	TIME_ZONE_TEHRAN,	/* +3 for GMT */
39	27	TIME_ZONE_ABU_DHABI,	/* +4 for GMT */

40	28	TIME_ZONE_VOGOGRAD,	/* +4 for GMT */
41	29	TIME_ZONE_ISLAMABAD,	/* +5 for GMT */
42	2A	TIME_ZONE_ALMATY,	/* +6 for GMT */
43	2B	TIME_ZONE_BANGKOK,	/* +7 for GMT */
44	2C	TIME_ZONE_BEIJING,	/* +8 for GMT */
45	2D	TIME_ZONE_TAIPEI,	/* +8 for GMT */
46	2E	TIME_ZONE_TOKYO,	/* +9 for GMT */
47	2F	TIME_ZONE_BRISBANE,	/* +10 for GMT */
48	30	TIME_ZONE_CANBERRA,	/* +10 for GMT */
49	31	TIME_ZONE_GUAM,	/* +10 for GMT */
50	32	TIME_ZONE_HOBART,	/* +10 for GMT */
51	33	TIME_ZONE_MAGADAN,	/* +11 for GMT */
52	34	TIME_ZONE_FIJI,	/* +12 for GMT */
53	35	TIME_ZONE_WELLINGTON,	/* +12 for GMT */
54	36	TIME_ZONE_END	