

# Basic Port Forwarding Instructions

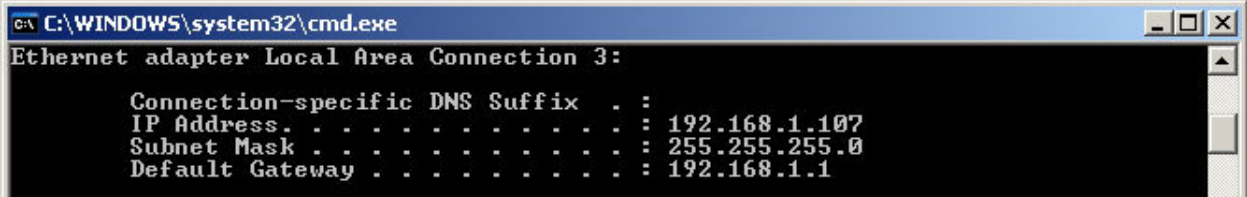
Although a firewall will block all requests from the outside world by default, there may be times when you actually want to allow external users into your network. For example, you want to access your DVR while away from your home or office. Because the default configuration of most firewalls blocks all external requests, you'll need to open things up using a feature known as port forwarding.

Remember that in almost all cases, your internal network will be configured to use private IP addresses. Because of this, you'll need to configure your firewall to take requests destined for your public or "real" IP address and forward them to the your DVR. For example, let's say that you have a DVR configured on a system with the IP address 192.168.1.50, a private address. In order to allow external users to access the DVR, you'll need to configure your firewall to "listen" for requests on the external IP address, and then forward them to the DVR at 192.168.1.50. Unfortunately, to make all this work, you need to know one additional piece of information – namely the port to which Web requests are made. Please reference the user's manual that comes with your DVR to find out which ports the DVR uses. Try to avoid using port 80 as your HTTP port as many ISPs do not allow you to run servers on this port.

When a user on the Internet needs to contact a DVR, the request is forwarded to the IP address of the DVR, and the port on which the DVR Web server is running. By default, all of our DVRs are configured to listen for requests on TCP port 88. So, what you would need to do in this case is tell the firewall that every time the public IP address receives a request destined for TCP port 88, it should forward the request to TCP port 88 on the Web server running on 192.168.1.50. The manner in which this is configured depends upon the firewall you are using. The instructions below provide details for configuring port forwarding on a hardware device, in this case a Linksys router – note that the exact steps will probably be different based on your hardware.

Example: Allow access to your internal DVR from the Internet using your Linksys router.

Step 1: Go to your START button in Windows and choose RUN. Type in "CMD" and press ENTER. A command prompt window will open. Type "ipconfig" and press ENTER. Take note of the information that is shown. Refer to the image below.



```
C:\WINDOWS\system32\cmd.exe
Ethernet adapter Local Area Connection 3:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 192.168.1.107
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1
```

You may see other entries that have an IP Address in this screen. However, only one will have a Default Gateway. This is the one to take note of.

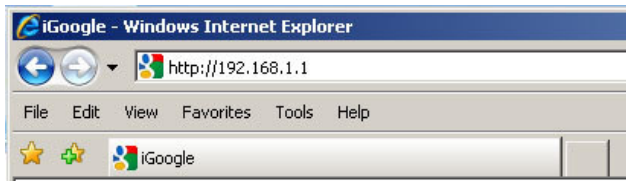
Here is a brief explanation of each item here:

**IP Address:** The first 3 sets of numbers of this sequence must be the same throughout your network. The last set of numbers must be unique to each device in your network. In this example 192.168.1.107 is the IP address of this computer. So, your DVR must be set to use an IP address of 192.168.1.xxx. The numbers you put in place of the xxx must be different from any other computer or device on your network.

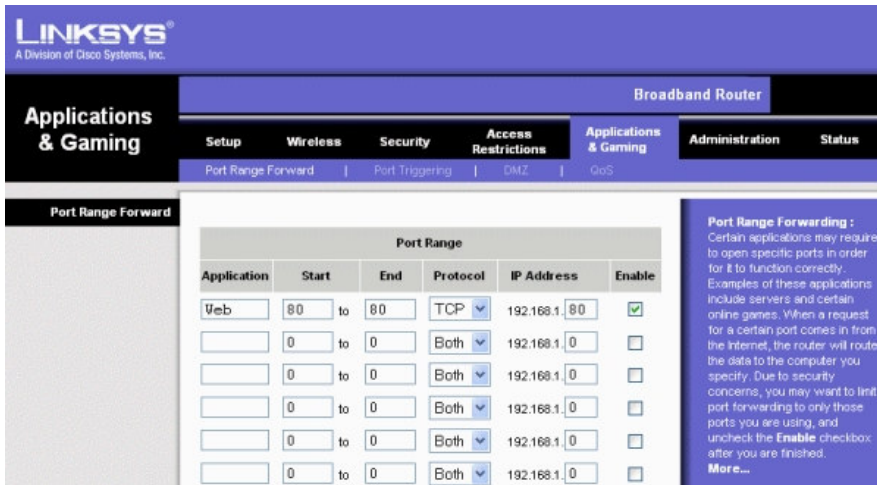
**Subnet Mask:** This number should be the same for all devices on your network. So, the DVR should be set to use a subnet mask of 255.255.255.0.

**Default Gateway:** This number is always the IP address of your router. The DVR in this example will use a Gateway address of 192.168.1.1. If the DVR has a place to input a DNS (not DDNS), you would use the same IP for the DNS. Also, take note of the Default gateway, as this is the address you will use to access your router.

Step 2: Open a web browser and access address <http://192.168.1.1>. If your Default Gateway is different, then use that address in place of this number to access the router configuration. Enter your router password and press Enter.



Step 3: Click the "Applications & Gaming" link near the top of the page.



Step 4: The application field is where you will give your port a name. This can be any name that you use to identify the port, i.e. DVR1, DVR2, etc. In the start and end field, you would put the port that is going to be forwarded. In this example, port 80 is used. In the protocol field, select "Both". In the IP Address field, you will put the IP address of the DVR. Check the Enable box. Repeat this step for each port that needs to be forwarded for you DVR. After you finish, press the button at the bottom of the screen labeled "Apply Settings".

Keep in mind that this example demonstrates the basics of port forwarding on a Linksys router. Information for forwarding ports through other brands of routers can be found at <http://www.portforward.com>. Although this site doesn't specifically show port forwarding for DVRs, it can still be useful to you.