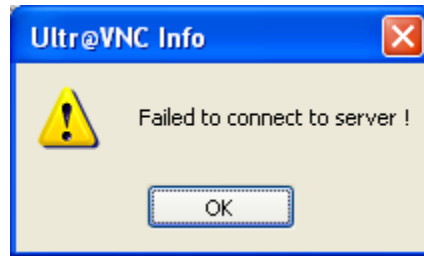


Debug “Failed to connect to server!”

Version 2

To many of the first time visitors to the forums, the following screenshot may look all too familiar.



There are many causes for this error and unfortunately this is all the information available to the viewer so it isn't possible for the developers to display a more specific error message. Microsoft offers a port query utility that can be used to help isolate exactly where the connection is failing. From Microsoft's site: "PortQry.exe is a command-line utility that you can use to help troubleshoot TCP/IP connectivity issues. PortQry.exe runs on Windows 2000-based computers, on Windows XP-based computers, and on Windows Server 2003-based computers. The utility reports the port status of TCP and UDP ports on a computer that you select."

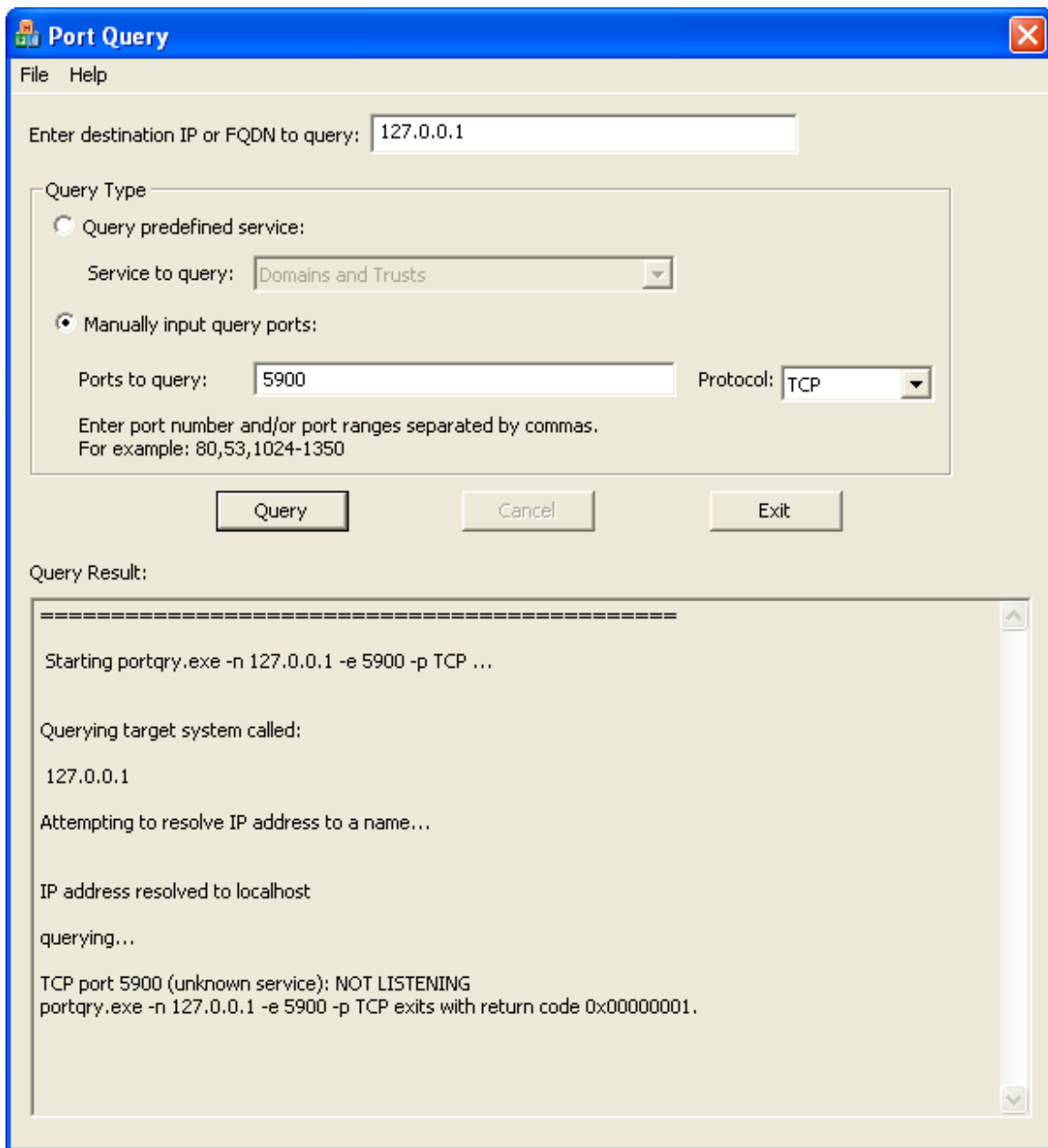
Microsoft also offers a front end to the command line utility called PortQueryUI which I'll be using for debugging. Download PortQueryUI from Microsoft at <http://www.microsoft.com/downloads/details.aspx?familyid=8355E537-1EA6-4569-AABB-F248F4BD91D0&displaylang=en>. The download is a self-extracting executable so when you run it, it will prompt you for a path for extraction. We'll just be scratching the surface of what PortQry can be used for, but there's a great two part How To at <http://www.windowsecurity.com/articles/Mastering-PortQryexe-Part1.html> and at <http://www.windowsecurity.com/articles/Mastering-PortQryexe-Part2.html> if you'd like further details.

Is the UltraVNC Server started and listening on the port you think it is?

Ok, let's start at the beginning on the machine you are trying to access from a remote location. UltraVNC installation procedures are presented at <http://www.uvnc.com/install/installation.html> and I'll be assuming that you've looked there first. This question can be answered either by connecting the UltraVNC Viewer to the UltraVNC Server in Loopback mode or using PortQueryUI.

If you've successfully connected the UltraVNC Viewer to the UltraVNC Server in Loopback mode you can skip to the next question. However, since this is a debug procedure using this tool, start the Port Query User Interface by clicking *Start • Run • Browse* then navigate to the location of the **PortQueryUI.exe** executable, select it, click *Open*, and press **<Enter>**.


The default *Enter destination IP or FQDN to query:* is the local machine, **127.0.0.1** which is what we want so leave that alone. The default *Query Type* is **Query predefined service:**, but we are only verifying that the UltraVNC server is running and that it's listening on the port we think so change it to **Manually input query ports:**, set *Ports to query:* to **5900** or the port you've set the server to listen to (for the remainder of the procedure I'll refer to port 5900 so substitute your port if using a different one for the rest of the document) and leave the *Protocol:* set to its default **TCP** then click *Query*.

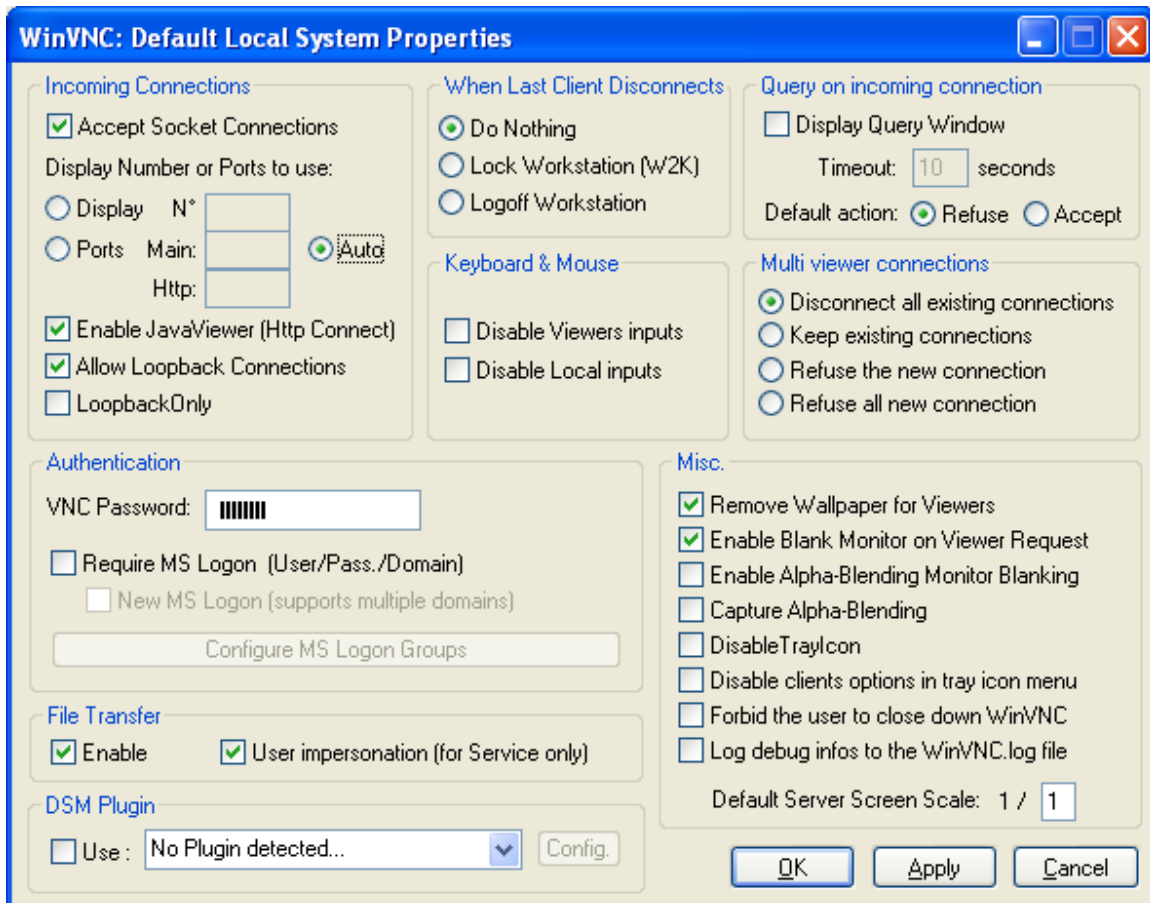


The results are displayed in the *Query Result:* area. I won't bother explaining the entire display (refer to the references if you can't understand it), but what we're looking for is the **TCP port 5900** status. In this case, I've shown the results with my UltraVNC Server not started so the results are that it is **NOT LISTENING**. This would also be the result if my server were listening on a different port.

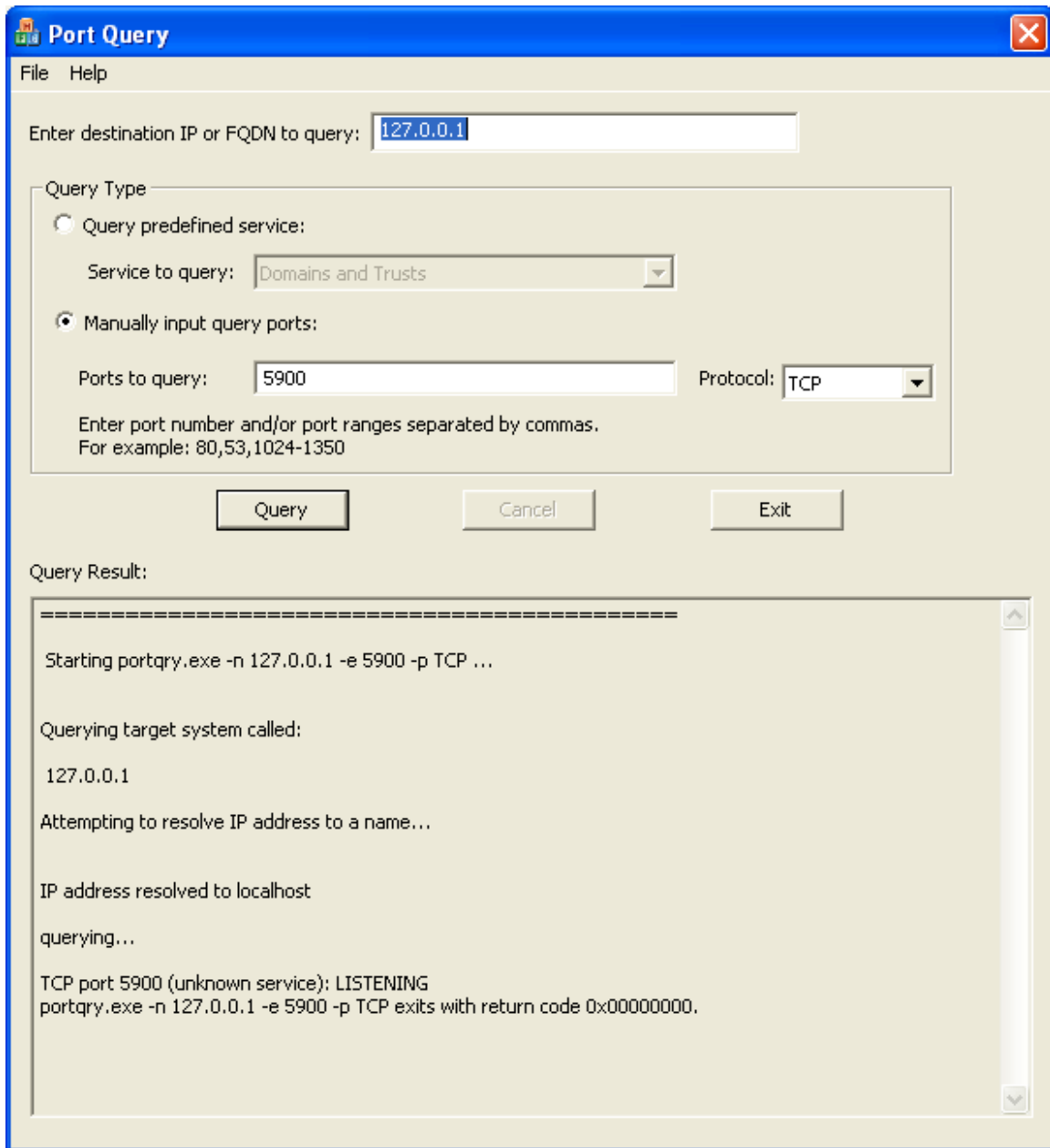
If **NOT LISTENING**, and you installed the UltraVNC server as a service, check to see that it has been started. Click *Start • Run*, type **services.msc**, and press **<Enter>**. In the list of services you should see **VNC Server** and its *Status* should be **Started** and its *Startup Type* should be **Automatic**.

If **NOT LISTENING**, and if you didn't install the UltraVNC server as a service, ensure that you manually started it.

If **NOT LISTENING**, and the server is running verify that it is listening on the port you think. Double-click on the server's eyeball icon, , to open the administrative properties. Verify that the *Main:* port under *Incoming Connections* is set to **5900** or that **Auto** is selected which will also cause the server to listen on port **5900**.



Once the UltraVNC server is running and listening on the port we expect, rerun the PortQueryUI query and you should get the following result.



TCP port 5900 status is **LISTENING** after the server is running and set to port 5900. Verify by connecting the UltraVNC Viewer to the UltraVNC Server in Loopback mode.

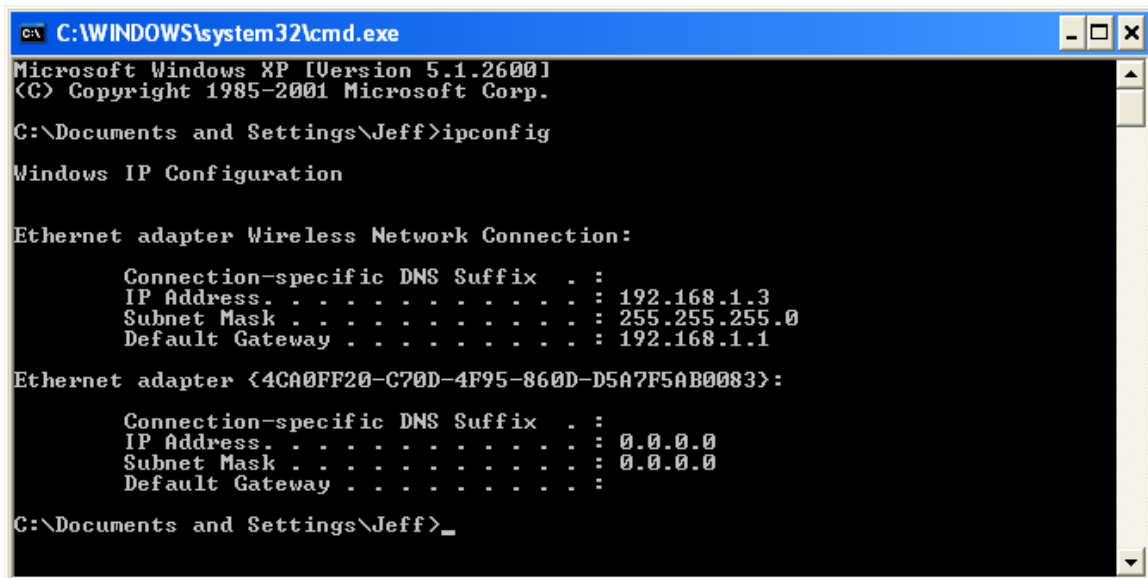
Is connection being blocked by your security software?

This is the reason why 90% of the UltraVNC users receive the failed to connect error. Unfortunately, answering this question requires having more than one machine on your private network. If I figure out a way to do it with a single PC, I'll update the procedures. If you don't have another machine inside your LAN, then proceed to the next question where we'll try to answer this question as part of answering the next question.

Download PortQueryUI from Microsoft at

<http://www.microsoft.com/downloads/details.aspx?familyid=8355E537-1EA6-4569-AABB-F248F4BD91D0&displaylang=en> on another machine inside your private network. The download is a self-extracting executable so when you run it, it will prompt you for a path for extraction. Start the Port Query User Interface by clicking *Start • Run • Browse* then navigate to the location of the **PortQueryUI.exe** executable, select it, click *Open*, and press **<Enter>**.

Since we're communicating over the LAN, we need to change the default *Enter destination IP or FQDN to query:* to the private IP address of the machine you are trying to access from a remote location. In my case, that's **192.168.1.3**. You can obtain the private IP address using **ipconfig** on the machine running the server as shown in the following screenshot. You get a command prompt by clicking *Start • Run*, type **cmd**, and press **<Enter>**.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Jeff>ipconfig

Windows IP Configuration

Ethernet adapter Wireless Network Connection:

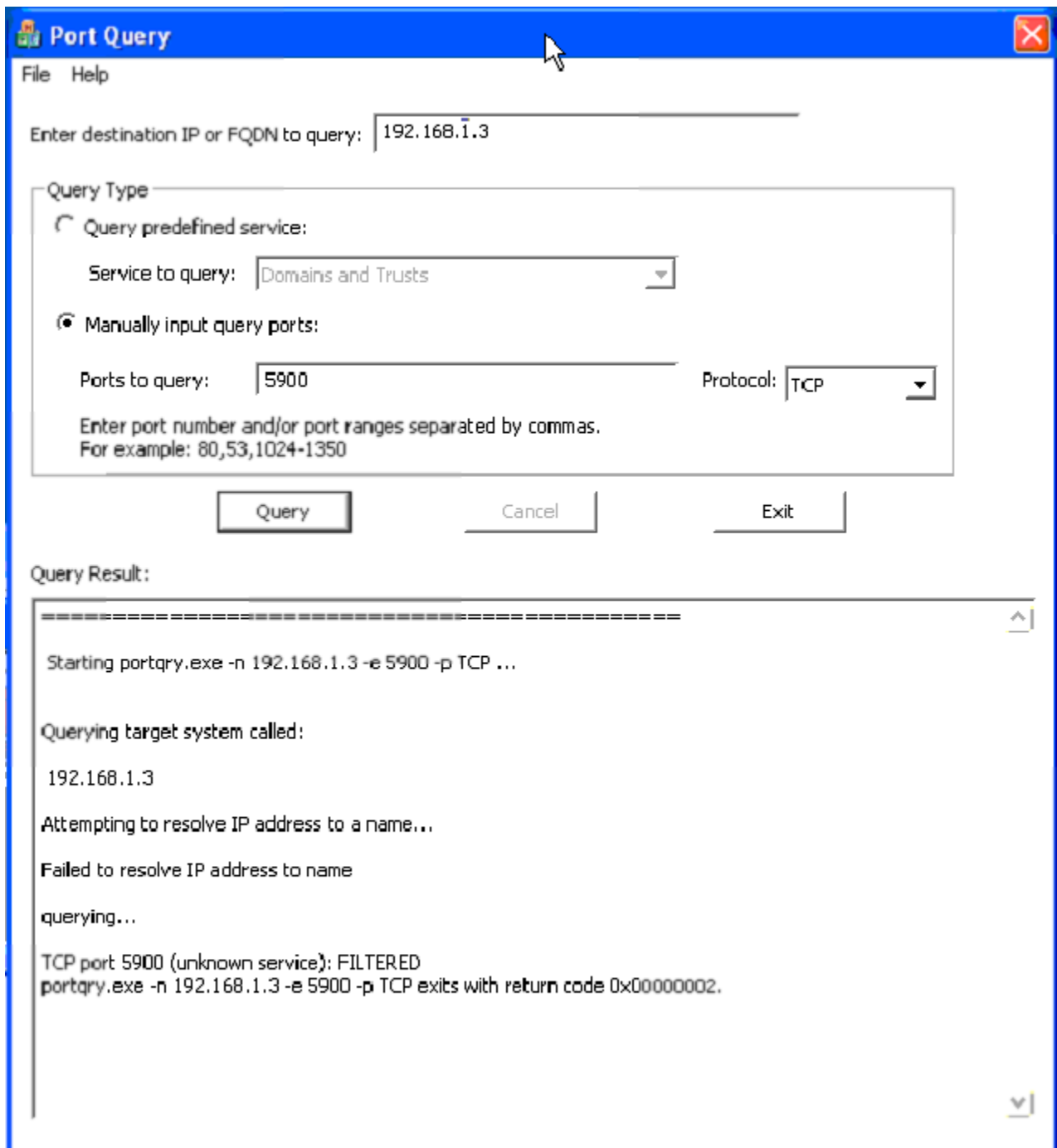
    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 192.168.1.3
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter {4CA0FF20-C70D-4F95-860D-D5A7F5AB0083}:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . : 

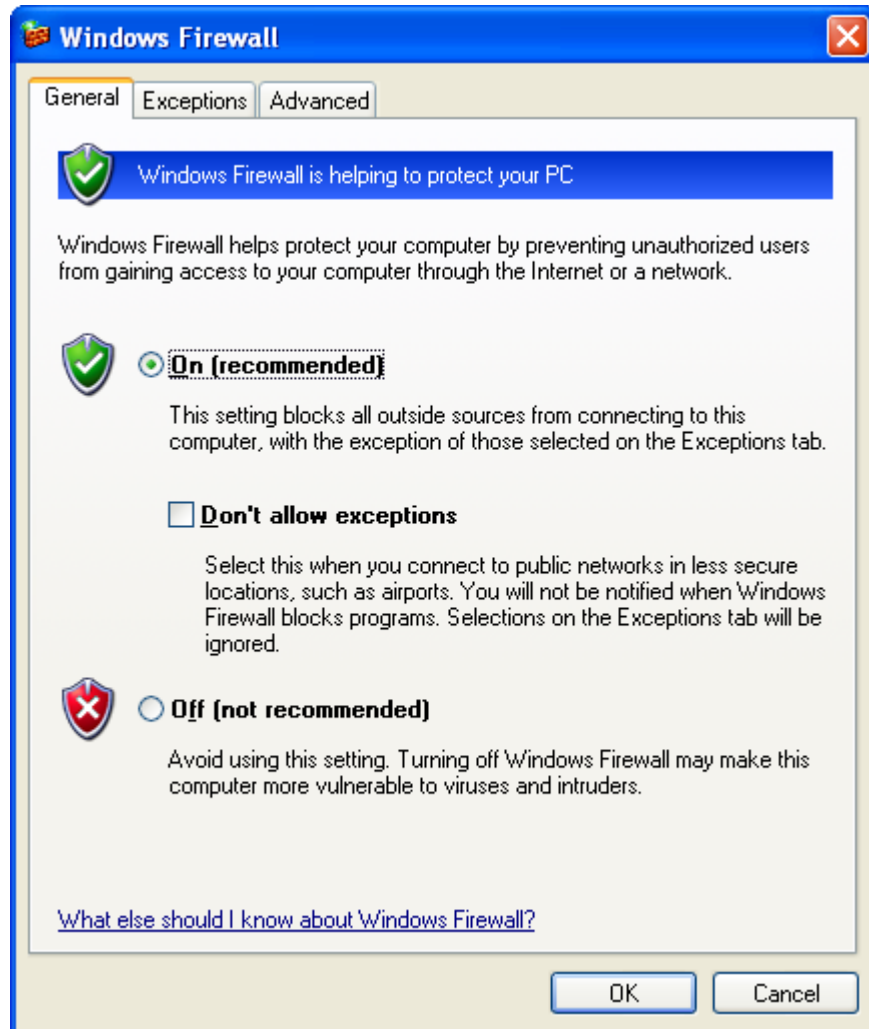
C:\Documents and Settings\Jeff>_
```

The default *Query Type* is **Query predefined service:**, but we are only verifying that security software is not preventing the connection so change it to **Manually input query ports:**, set *Ports to query:* to **5900** and leave the *Protocol:* set to its default **TCP** then click *Query*.

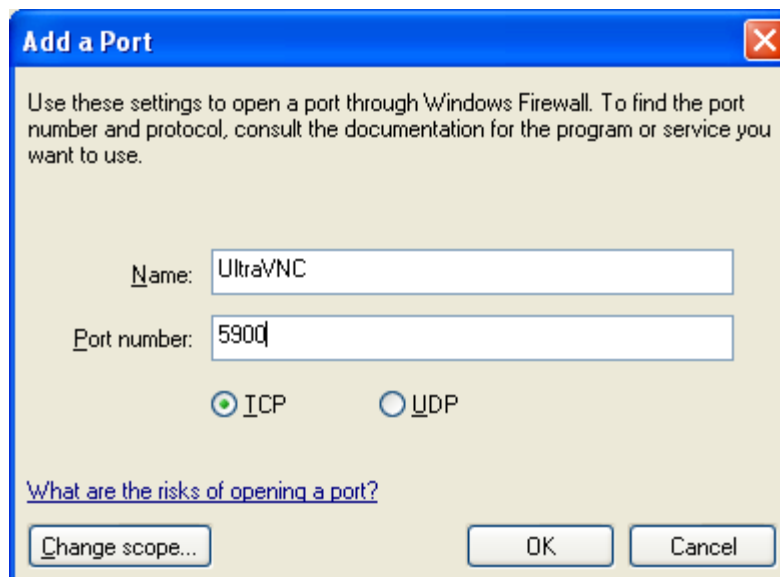


The results are displayed in the *Query Result:* area. What we're looking for is the **TCP port 5900** status. In this case, I've shown the results with the Windows firewall turned on without exceptions on the machine running the server so the results are that it is **FILTERED**. This indicates that PortQry did not receive a response from the port.

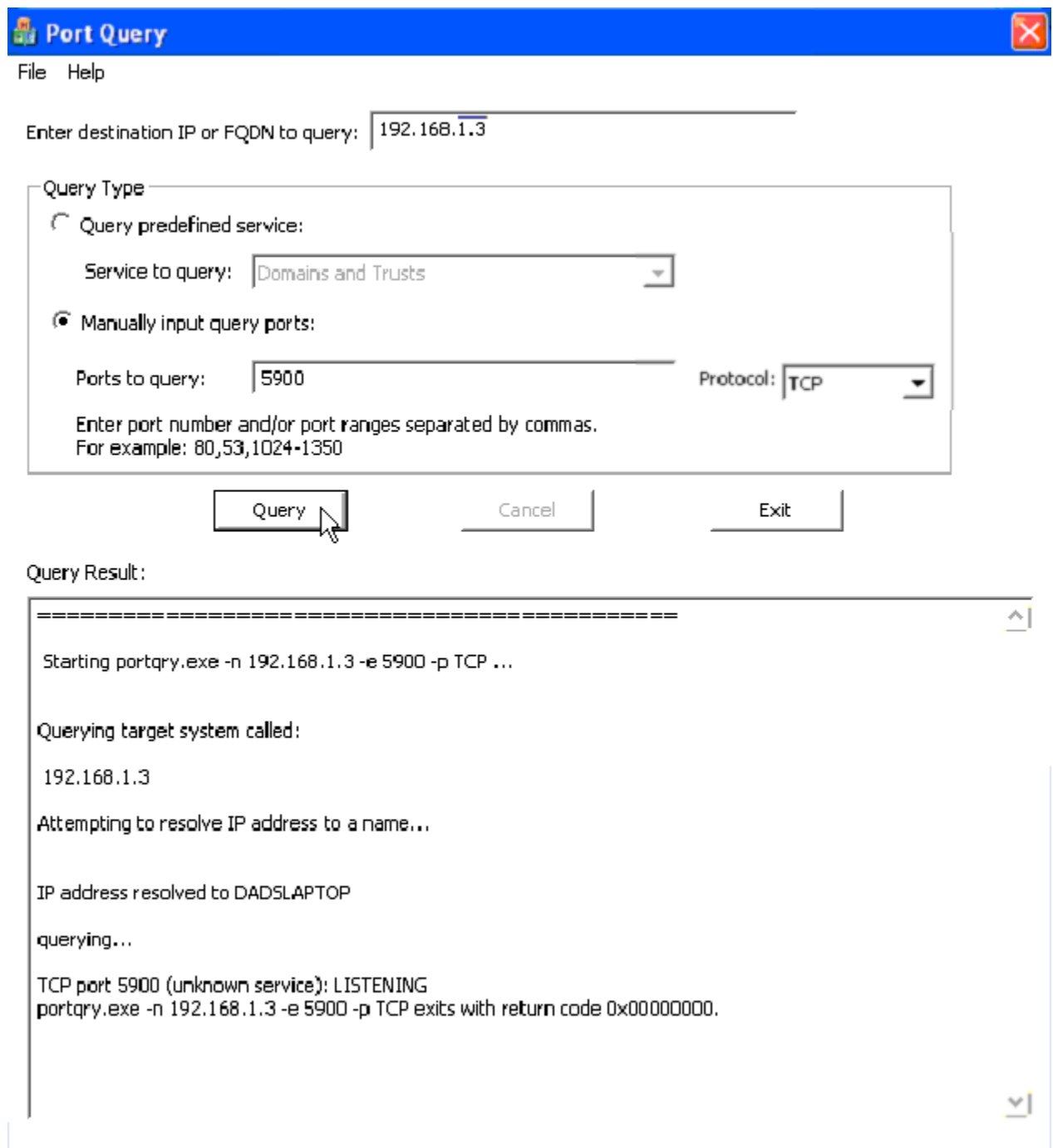
If **FILTERED**, then the VNC connection may be being blocked by your security software. To look at the status of the Windows firewall, click *Start • Run*, type **firewall.cpl**, and press **<Enter>**. If the firewall is on as shown in the following screenshot, you need to create an exception for the connection.



Click *Exceptions* • *Add Port* and add a TCP exception for the VNC traffic as shown in the following screenshot then click *OK*.



There are too many different security software choices to cover them all here, but this should give you an idea of what you need to do. Once you allow an exception for the UltraVNC traffic, rerun the PortQueryUI query and you should get the following result.



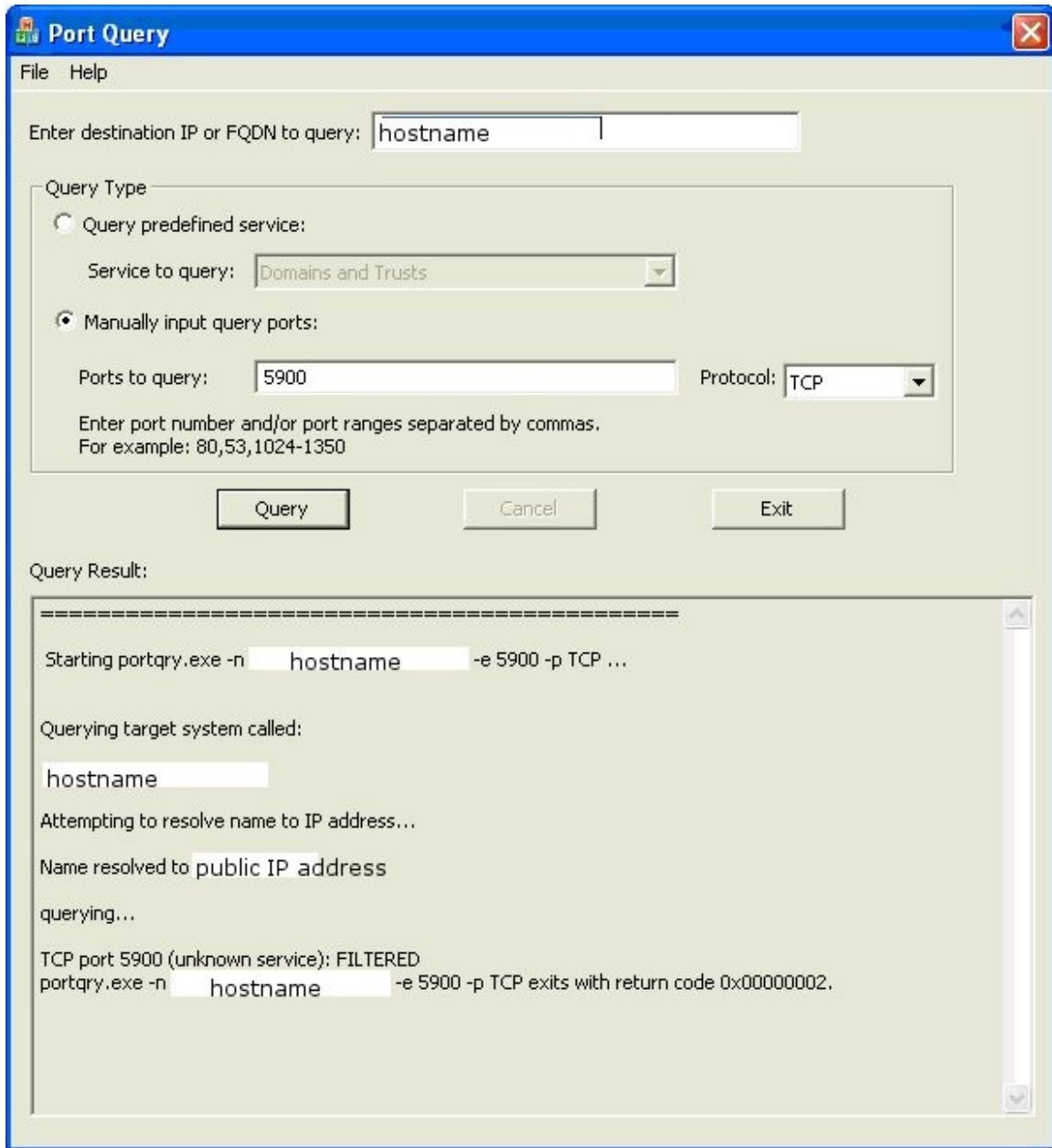
TCP port 5900 status is **LISTENING** after adding port exception.

Is connection being blocked by your router?

Hopefully you've been able to confirm that the connection isn't being blocked by your security software in the previous section, but if not we should be able to confirm that here. Move back to the PC you're having trouble accessing remotely. You'll need to identify your public IP address assigned by your internet service provider or DynDNS host name. You can see your public IP address by visiting <http://whatsmyip.org/>, but since most ISPs assign a dynamic IP address, I recommend signing up for a free account at <http://www.dyndns.com/>. This will allow you to create a host name that will resolve to your dynamic public IP address.

Start the Port Query User Interface by clicking *Start • Run • Browse* then navigate to the location of the **PortQueryUI.exe** executable, select it, click *Open*, and press **<Enter>**.

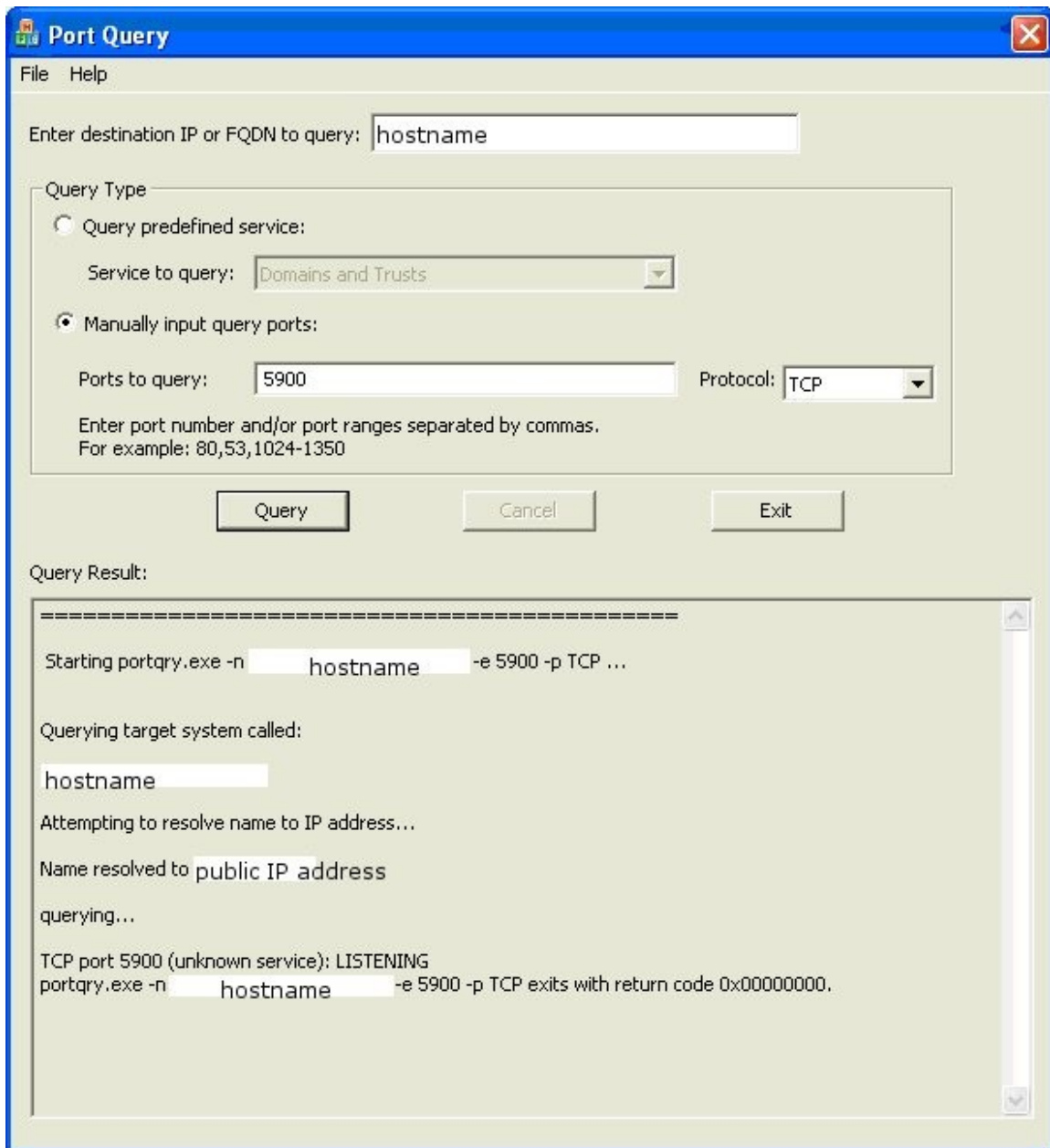
Since we're communicating over the WAN, we need to change the default *Enter destination IP or FQDN to query:* to the public IP address assigned by your ISP or DynDNS host name. The default *Query Type* is **Query predefined service:**, but we are only verifying that router is not preventing the connection so change it to **Manually input query ports:**, set *Ports to query:* to **5900** and leave the *Protocol:* set to its default **TCP** then click *Query*.



The results are displayed in the *Query Result:* area. What we're looking for is the **TCP port 5900** status. In this case, I've shown the results without port forwarding port 5900 on my router so the results are that it is **FILTERED**. This indicates that PortQry did not receive a response from the port.

If **FILTERED**, then the VNC connection may be being blocked by your router or your security software if you weren't able to eliminate that as a possibility in the last step (if that's the case, refer to the **If FILTERED** section under the security software question above). There are too many router types for me to cover them all here so see <http://portforward.com/routers.htm> for instruction on how to port forward using the router you have. You want to port forward port 5900 TCP traffic to the private IP address of the

machine you are trying to access from a remote location. Once port forwarding is set up properly, rerun the PortQueryUI query and you should get the following result.



TCP port 5900 status is **LISTENING** after adding port forwarding.

Not all routers allow for a connection using the public IP address from inside the LAN. As a result, it is possible that a **FILTERED** response may be received even when configured properly. If you've followed the PortForward instructions carefully and still receive the **FILTERED** response, you can also check your port forward setup by using the following link: <https://www.grc.com/x/portprobe=5900>. This uses the Gibson Research Corporation's ShieldsUP! Utility. ShieldsUP! returns a *Status* of **Stealth** when it does not receive a response from the port. The VNC connection may be being blocked by your router or your security software if you weren't able to eliminate that as a

possibility in the last step (if that's the case, refer to the If **FILTERED** section under the security software question above). ShieldsUP! returns a *Status* of **OPEN!** when it receives a response from the port so the router has been properly configured. ShieldsUP! returns a *Status* of **Closed** when the port has been forwarded to a PC, but the UltraVNC server software is not currently listening on that PC.

Is connection being blocked by the firewall or proxy at the remote location?

At this point we're sure that everything is set up properly at home so if you still have problems connecting, then the only other possibility is something on the network of the PC running the UltraVNC viewer.

It may be possible to resolve this by modifying the port from the default 5900. Some corporate firewalls only allow internet traffic on a very small number of ports so you may be limited to ports 80 and 443. In addition, some corporate firewalls require all outgoing traffic to be routed through a proxy. Tunneling the VNC traffic through a secure shell as described in <http://forum.ultravnc.info/viewtopic.php?t=5890> is another possible means of getting rid of the dreaded "Failed to connect to server!" error.