

Gateway Detect User's Manual



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1 Introduction

The Gateway Detect application was created to allow customers that utilize multiple network connections the ability to view which network is in use by displaying a representative picture (icon) of the current connection.

The Gateway Detect application can be quite helpful in “multi-homed” networks where per minute or per megabit charges apply, such as systems utilizing satellites.

2 Start-Up

Start the Gateway Detect application by either double clicking the icon on the desktop, or by selecting the Start button, All Programs->SafeEnv->GatewayDetect and select the Gateway Detect short-cut link.

When the application is started a small information box will be displayed indicating the network currently being used (see Figure 1 – Wi-Fi Network example). Note the image in this figure maybe different than the being displayed based on the configured network environment.



Figure 1 Gateway Detect Main Dialog

To configure the application to a networking environment select the “Setup” button on the dialog. The application will display the Configuration Dialog as displayed below in Figure 2.

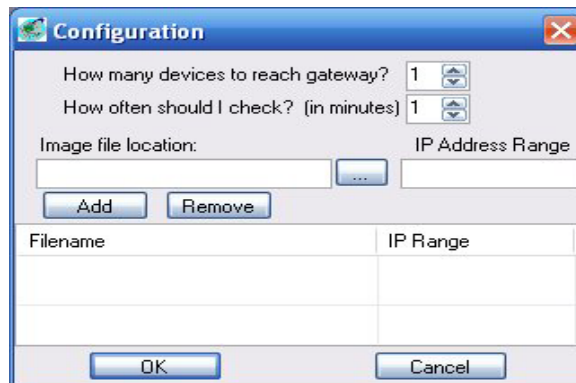


Figure 2 Configuration Dialog

Use this dialog to a) indicate how many devices are between the computer system and the networking device that routes out to the Internet, b) set the desired time interval for the application to check the networking route out to the Internet and c) specify which image to display based on the IP address range matched with the Internet Gateway device.

a. How Many Devices to Reach the Gateway?

The specification of the number of devices is similar to that of networking terms for *hops*. For example, in the figures below, the green icon represents the device that routes the networking traffic out to the Internet. Figure 3 shows the laptop is one device away from the Internet Gateway device over a wireless connection. In Figure 4 the laptop is connected over a wireless connection to an access point which in turn is physically cabled to the Internet Gateway device, therefore it is two devices away. So from these examples the configuration in Figure 3 would enter a value of 1 in the entry field and for Figure 4 the entry would be 2.



Figure 3 Network Diagram 1 Hop

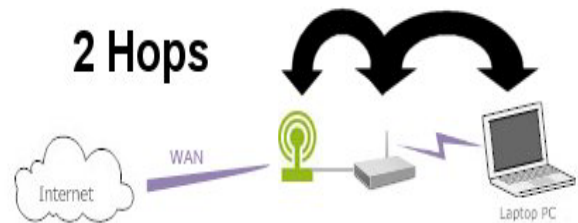


Figure 4 Network Diagram 2 Hops

Another means of determining the number of devices between the computer system and the Internet Gateway is through the use of the Windows *tracert* command. To use this command, the network's IP address must be known.

- Start the utility by bringing up a Windows Command Prompt - select the Start button and choose "Run..."
- In the Open field type in "cmd" and press OK.
- At the command prompt type in the following to see the help information for the *tracert* command: **tracert /?** as seen in Figure 5.
- Run the *tracert* command to determine the hops out to the Internet, again knowledge of the networking equipment is needed.
- At the command prompt type: **tracert -h 5 www.safeenv.com** and press enter.

The resulting display indicates the path data took to get out of and/or through your network. This command also the path data takes to navigate through the Internet. See Figure 6 for an example of the output.

```

C:\WINDOWS\system32\cmd.exe
C:\>tracert /?
Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout] target_name
Options:
  -d          Do not resolve addresses to hostnames.
  -h maximum_hops  Maximum number of hops to search for target.
  -j host-list  Loose source route along host-list.
  -w timeout    Wait timeout milliseconds for each reply.
C:\>

```

Figure 5: Tracrt Help

```

C:\WINDOWS\system32\cmd.exe
Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout] target_name
Options:
  -d          Do not resolve addresses to hostnames.
  -h maximum_hops  Maximum number of hops to search for target.
  -j host-list  Loose source route along host-list.
  -w timeout    Wait timeout milliseconds for each reply.
C:\>tracert -h 5 www.safeenv.com
Tracing route to safeenv.com [208.109.78.72]
over a maximum of 5 hops:
  0  <1 ms  <1 ms  <1 ms  192.168.2.1
  1  <1 ms  <1 ms  <1 ms  mygateway1.Motorola [192.168.15.1]
  2   9 ms   8 ms   8 ms  10.234.192.1
  3   9 ms   8 ms  12 ms  gig2-4.pldlca1-swt1.socal.rr.com [76.167.11.131]
  4  10 ms  10 ms   9 ms  cpe-76-167-11-69.socal.res.rr.com [76.167.11.69]
Trace complete.
C:\>

```

Figure 6: Tracert www.safeenv.com

In this networking environment example the third hop is the Internet Gateway device, thus the number of devices away (hops) would be set to three (3).

b. Desired Time Interval to Check Routing

The application by default will check the Internet Gateway once every minute, but it can be configured to longer intervals if desired. Modify the value by selecting either the up or down arrows to increment or decrement the value.

c. Image File Location and IP Address

Add the image file location by selecting the browse button "...". The "Open" dialog box (as shown in Figure 7) will open. Navigate to the location of the image. The application will attempt to stretch or shrink any image into the area available on the display, but the preferred size is 170 x 60 pixels. Once the image file is located select it and press the Open button.

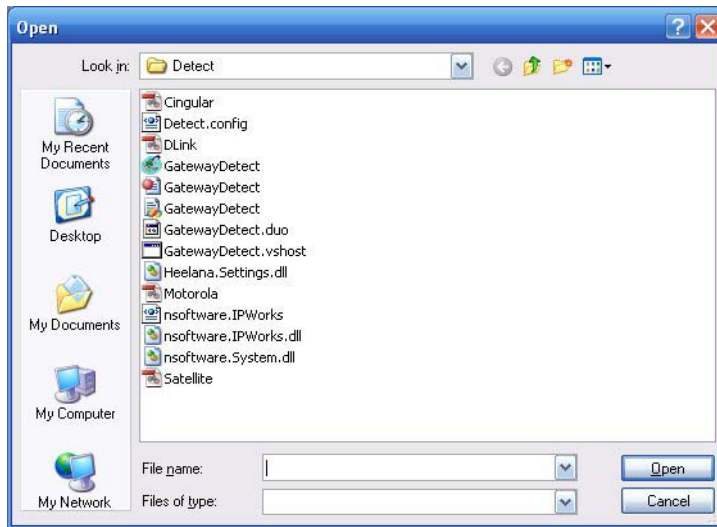


Figure 7 Open Dialog

Next, specify the IP address range that is expected from the Internet Service Provider. Going back to the example, the third device shows an IP address of 10.234.2.1, so in the Configuration dialog enter in the following “10.*.*” and press the “Add” button. The entry is added to the end of the list. The asterisk is used as a wildcard for the application to accept any number in that octet of the IP address. The application can be configured to a specific address as well, but most Internet Service Providers supply an address from a DHCP Server, so the use of wildcards broadens the functionality.

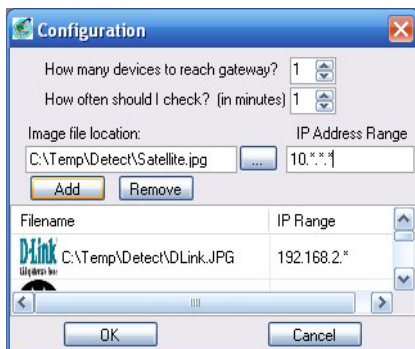


Figure 8 Add Entry to List

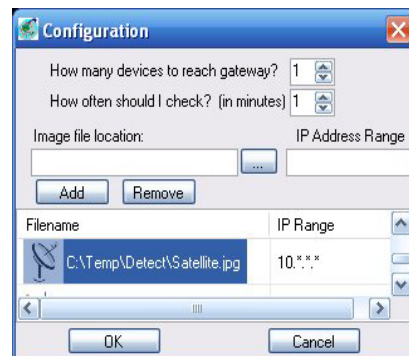


Figure 9 Entry Added

In instances where multiple networks are used (multi-home) additional information is needed about these networks (such as satellite and cellular). The application needs to have another entry added in to account for that IP address. Select another image file and specify the expected IP address range. For example assume that the secondary WAN interface will provide an IP address such as, 76.18.23.1, enter in 76.*.* to account for that ISP. When the device switches between the secondary and primary WAN interfaces the application will automatically determine which interface outbound network traffic uses.

To remove an entry from the list, scroll to the item to remove and select it with the mouse. The item will highlight and then press the Remove button as highlighted in Figure 10.



Figure 10 Remove an Entry

Once all entries are entered into the list press the OK button to go back to the Gateway Detect main dialog.

Once the application is configured it will automatically check at the specified interval to determine the WAN interface route. As an option, the application may be manually forced to check its route on demand by clicking the image. Placing the mouse over the image area changes the cursor to a hand that indicates it is clickable as shown here in Figure 11.

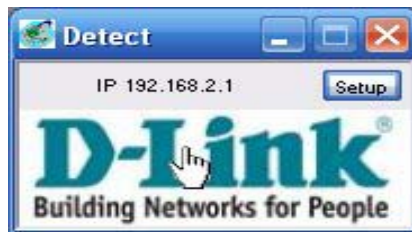


Figure 11 Manual Check

The application includes diagnostics to help troubleshoot network problems. The following figures below indicate an error. In Figure 12 the application has determined the IP address of the Internet Gateway device, however, it doesn't match up to any of the IP address ranges specified in the Configuration dialog. To fix this, modify the entries to account for the IP address found for the Internet Gateway device.

In Figure 13 the application was unable to determine a route to the Internet. This may signal that the Internet Gateway has lost its connection. Once the connection has been restored the application will determine its route within its next few check intervals. If you know that the connection has been restored you can always force the application to check its route as described above.



Figure 12 Not in list



Figure 13 Unable to reach Internet

3 About Box

The application also supplies an “About” dialog for the user to get a description of the application and to obtain contact information for Safe Environment Engineering. To display the about dialog, select the system menu from the application's icon, see Figure 14 - Gateway Detect System Menu. Then select the menu item at the bottom for About Gateway Detect as depicted in Figure 15 - Choose About Gateway Detect.



Figure 14 Gateway Detect System Menu



Figure 15 Choose About Gateway Detect

The application will display the About dialog, as shown here in Figure 16 - About Dialog.



Figure 16 About Dialog