



How to Simplify Network Diagnostics Using Engineer's Toolset

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Unexpected Simplicity™

Network administrator's face many challenges on a daily basis. Today, one major challenge is the manual process of finding potential issues that affect critical IT infrastructure and then resolving the issue before problems arise. Diagnostics play an important role in maintaining high network availability by monitoring the performance of routers, switches, workstations, servers, or any other network device. But in a large network, it takes time and energy to manually retrieve and correlate data from each device. There are a number of third-party tools that monitor the entire network and aid in troubleshooting, but often you will find that you need a collection of tools to get the job done quickly and easily. Additionally, you need tools that deliver an advanced collection of monitoring, discovery, and diagnostics.

How to Make Network Diagnostic Tasks Easy

Network diagnostic tasks can vary from monitoring servers, routers, workstations, and other network devices to reporting on incidents like high network latency, packet loss, etc. This level of variation often leads network engineers to consider automating essential network diagnostic tasks. Reason being, it can be very difficult for administrators to perform such tasks manually. Some of these tasks include:

- How can I find real-time response rate and packet loss for network devices?
- How can I automate continuous network monitoring processes?
- How can I create a network latency profile for all network devices?
- How can I store latency results for future analysis and review?
- How can I view data in graphical charts for creating reports?
- How can I automate the process for exporting weekly diagnostic results?

Fortunately, many of these tasks can be accomplished using one of the over 60 monitoring, discovery, diagnostic, and Cisco® tools found in SolarWinds® Engineer's Toolset.

#1 How to Continuously Monitor Network Devices and Find Real-time Diagnostic Data

The Enhanced Ping Tool in SolarWinds Engineer's Toolset can be used to continuously monitor a number of servers, routers, workstations, and various other devices. It will also show real-time response time.

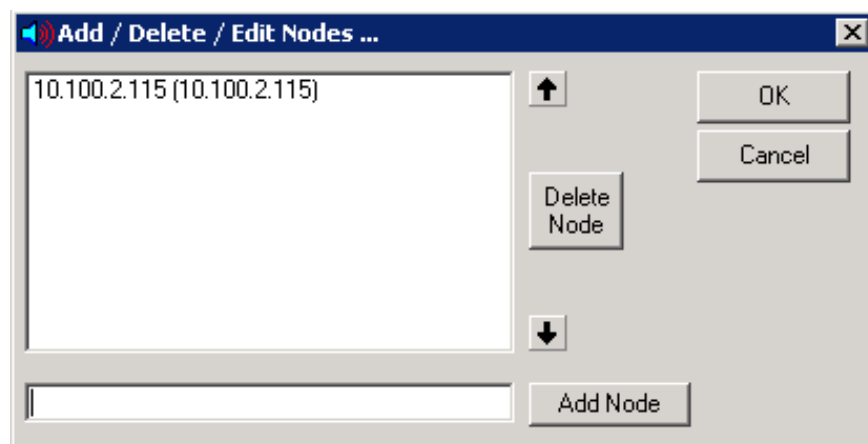
To begin pinging multiple devices:

Step 1: Click **Nodes > Edit Nodes**.

Step 2: Type the name of the node you want to ping, and then click **Add Node**.

Step 3: Repeat Step 2 until you have added all the devices you want to monitor with the Enhanced PING tool.

Step 4: Click **OK**.

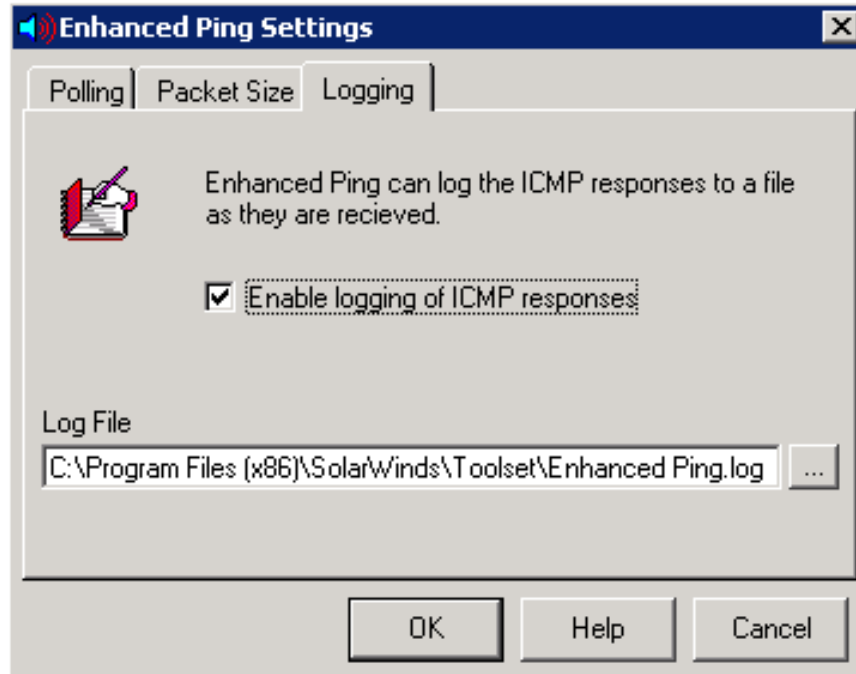


To log to a file:

The Enhanced Ping tool can log response times as they are collected. A new line will be added to the log file each time Enhanced Ping checks the response time of each node.

Step 1: Click **Nodes > Settings**, and then click the **Logging tab**.

Step 2: Check **Enable logging of ICMP responses**, then specify a destination and file name for the file in the Log File field.

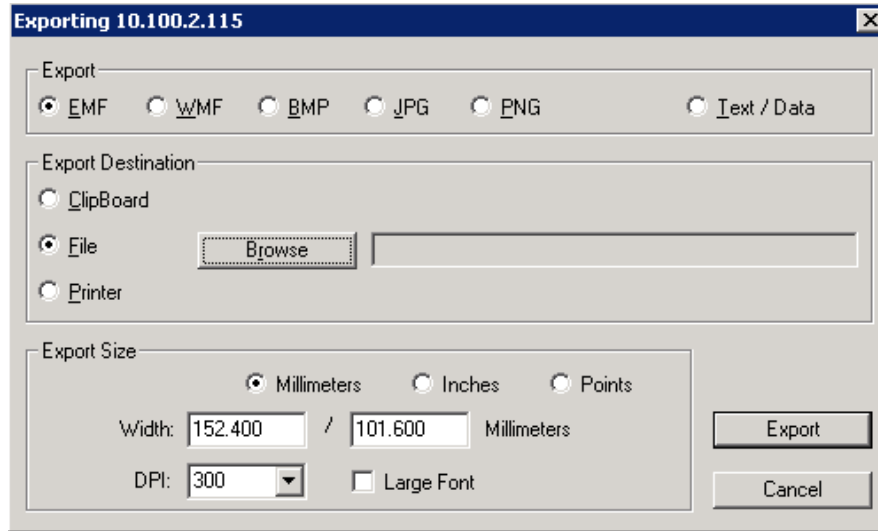


To export your results:

Using the export wizard, you are provided with a number of export options. You can export in any of the following formats—Windows® Metafile, BMP, JPG, PNG, and Text only, and any of the following destinations—Clipboard, File, and Printer. Export the object using the following width and height dimensions—no specific size, millimeters, inches, or points.

Step 1: Click **File > Export Wizard**.

Step 2: Specify the appropriate values, and then click **Export**.



To save or load a profile:

If you often monitor the same set of devices with the Enhanced Ping tool, you can save time by simply saving your profile. In addition, this will ensure you can quickly load the profile and immediately start monitoring, instead of building a device list each time you start the tool.

Step 1: Click **File > Save Profile** or **File > Save Profile As**. If you haven't previously saved this profile, you're prompted to provide a name and destination for the profile.

Step 2: Click **File > Load Profile**, select the profile you want to load, and then click Open.

You can print your current graph, by clicking **File > Print**.

Customizing the Graph

You can select a different chart type: Step Chart, Ribbon Chart, Area Chart, Vertical Bar Chart, and Horizontal Bar chart.

Step 1: Click **Chart**, and then select the chart type you want to view.

Step 2: Click **Chart > Response Time Table** to add a table of response times at the bottom of the chart.

Step 3: Click **Chart > Palette**, and then select a color scheme.

To modify the colors used in the foreground and background of the chart and to designate your statistics:

Click **Chart > Set Colors**.

To view a full set of the customization options: Click **Chart > Customize**, and then modify the chart.

Modifying Enhanced Ping Settings

Enhanced Ping allows you to modify ICMP polling intervals, ICMP timeout, packet time-to-live, and the data size & contents of the actual ICMP packet.

To modify settings:

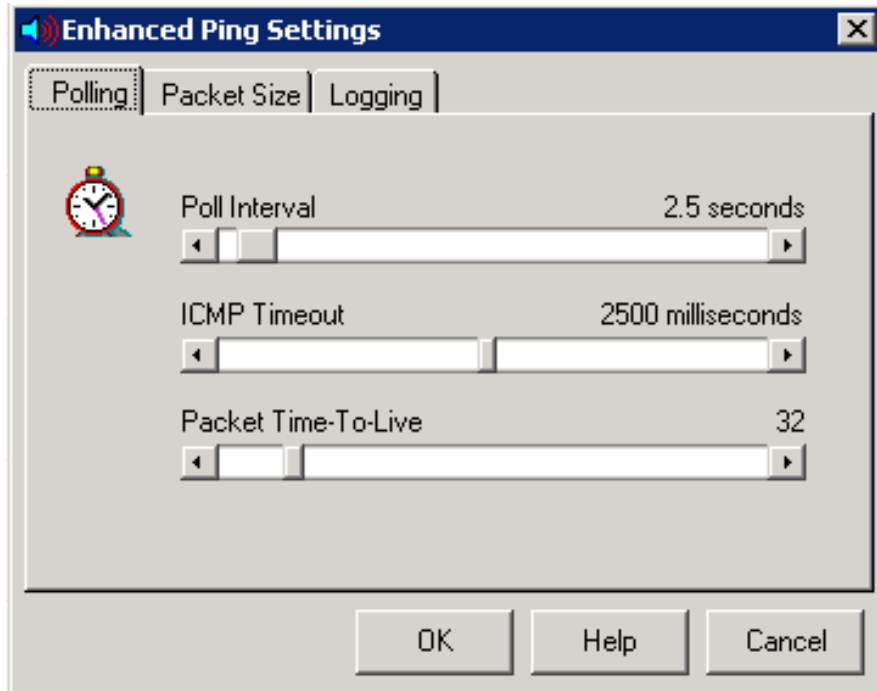
Step 1: Click **Nodes > Settings**.

Step 2: Click on the **Polling tab**, and then specify the appropriate values:

- *Poll Interval* – Allows you to change how often to check the response time of each node.
- *ICMP Timeout* – Designates the amount of time to wait for a PING response before assuming the IP address is no longer responding. If you expect devices to respond quickly and would like any delays over 300 milliseconds to be flagged as a problem, then set the PING Timeout to 300 milliseconds. Enhanced Ping will assume PING responses taking longer than 300 milliseconds as lost.
- *Packet Time-To-Live* – Allows you to specify the number of hops you allow during a trip to the specified IP address. With a setting of 32, your test could pass through 32 different routers before being thrown away by the network.

Step 3: Click on the **Packet Size tab**, and then specify the appropriate values:

- *Data portion of ICMP packet* – Allows you to specify the actual data included in the ICMP packet. You can type additional text in the window to increase the packet size or delete text to reduce the packet size. Most PING tests require only a small amount of data.

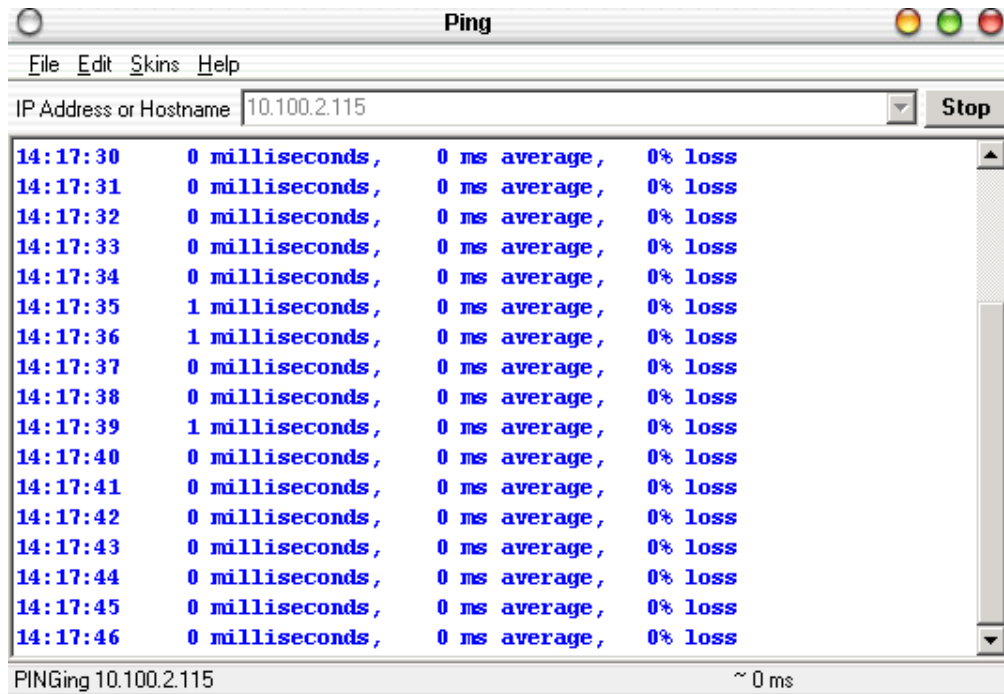


#2 How to View Current Response Time, Running Average Response Time, and Current Packet Loss

The Ping Tool in SolarWinds Engineer's Toolset provides an alternative to the operating system PING utility. Ping sends ICMP packets to a target IP address and measures the response time and packet loss.

To ping a device:

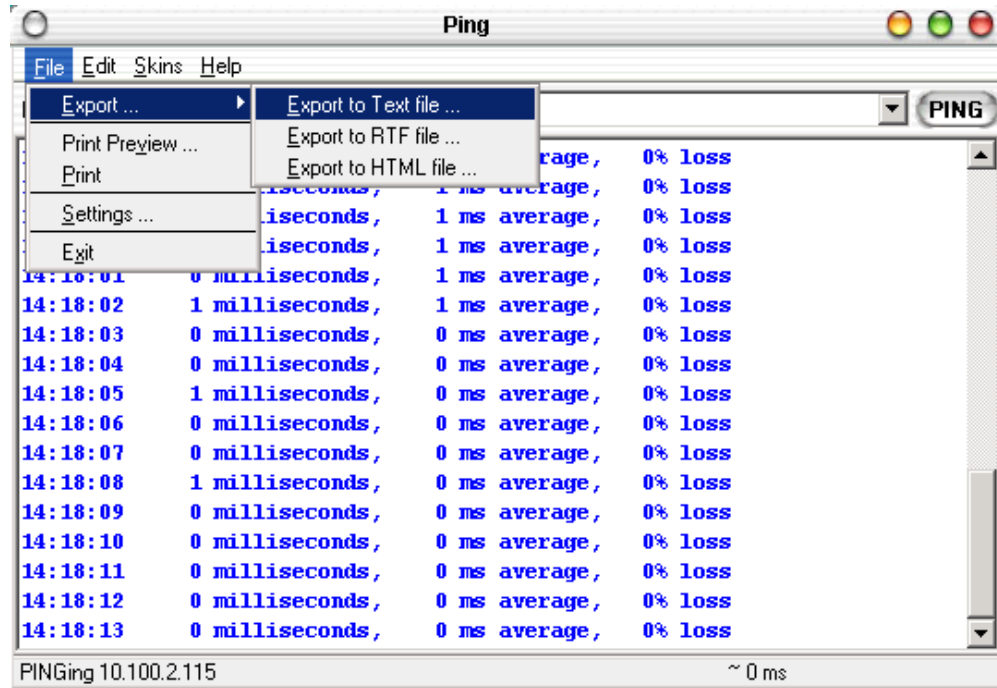
Type the hostname or IP address in the appropriate field, and click the **PING**.



To Export, Print, and Copy Sweeps:

After running a ping test, the Ping tool allows you to transfer that information to other tools through export, copy, and paste capabilities. You can also print discovered information.

Step 1: Click **File > Export**, then specify the name and path for the exported information. The SolarWinds version of the "Simple Ping" tool keeps a running response time log and allows exporting to HTML, RTF, and text files.



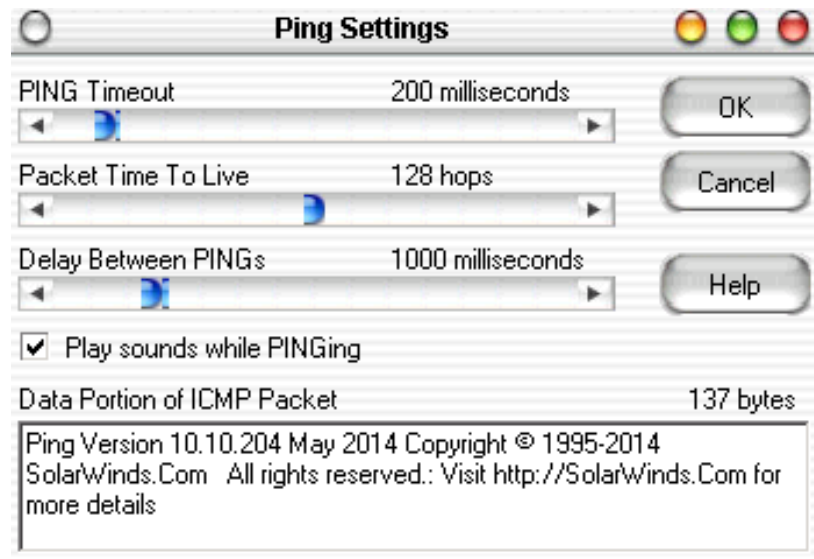
Step 2: Click **Edit > Copy**, this copies the entire result set to the clipboard. If you want to limit what's copied, select what you want to copy, and then click **Edit > Copy**.

Step 3: Click **File > Print**.

To modify Ping settings:

Ping settings allow you to set the timeout, time-to-live, delay, and data portion of the ICMP packet sent to the target device. You can also specify whether Ping plays sounds while working.

Click **File > Settings**, and then specify the appropriate values:



PING Timeout – Designates the maximum amount of time in milliseconds that PING will wait for a response from the target IP address. If the target IP address doesn't respond within the number of milliseconds set here, PING will assume it's down.

Packet Time-To-Live – Designates the number of hops you allow along the way to the specified address. With a setting of 32, your PING test could pass through up to 32 different routers on the way to the remote address before being thrown away by the network.

Delay Between PINGs – Designates the time in milliseconds between each successive PING to the target address. Setting this value very low will send a constant stream of Pings to the target IP address.

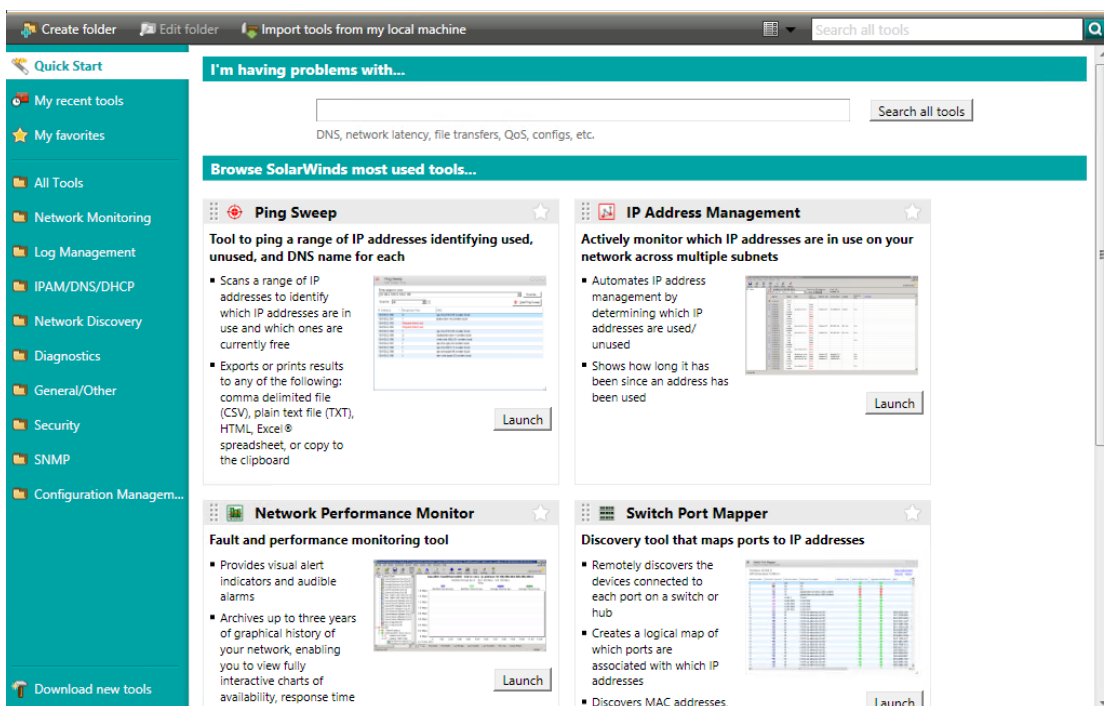
Data portion of ICMP packet – Allows you to specify the actual data included in the ICMP packet. You can type additional text in the window to increase the packet size or delete text to reduce the packet size. For most PING tests, only a small amount of data is needed.

With these many powerful tools, SolarWinds Engineer's Toolset provides the network administrator functionality that enables them to diagnose network problems by continuously monitoring devices in real time and displaying response rates in graphical charts.

Top 5 Reasons to Try SolarWinds Engineer's Toolset

Engineer's Toolset delivers an advanced collection of monitoring, discovery, diagnostic, and Cisco tools. Here are the top 5 reasons to use SolarWinds Engineer's Toolset:

- All the network tools you need in one complete package
- Monitoring tools include Real-Time Interface Monitor, SNMP Real-Time Graph, and more
- Diagnostic tools include Ping Sweep, DNS Analyzer, Trace Route, and more
- Network discovery tools include Port Scanner, Switch Port Mapper, Advanced Subnet Calculator, and more
- Cisco management tools include Real-time NetFlow Analyzer, Config Downloader, and more



SolarWinds Engineer's Toolset has more than 60 Network Tools that help you manage and perform your everyday network management related tasks at ease. More importantly, it provides the right tools to easily and effectively troubleshoot your network.

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[SolarWinds](#) (NYSE: SWI) provides powerful and affordable IT management software to customers worldwide. Focused exclusively on IT Pros, we strive to eliminate the complexity in IT management software that many have been forced to accept from traditional enterprise software vendors. SolarWinds delivers on this commitment with unexpected simplicity through products that are easy to find, buy, use, and maintain, while providing the power to address any IT management problem on any scale. Our solutions are rooted in our deep connection to our user base, which interacts in our online community, [thwack®](#), to solve problems, share technology and best practices, and directly participate in our product development process. Learn more at <http://www.solarwinds.com>.