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Both **PRTG** and **SmokePing** are popular network monitoring tools, but they have different focuses and features. Below is a comparison of their **pros** and **cons** to help you choose the right tool based on your needs.

## PRTG Network Monitor



### Pros:

1. **Comprehensive Monitoring:**
  - PRTG is a full-featured network monitoring tool that supports a wide range of monitoring protocols (SNMP, WMI, HTTP, FTP, etc.), not just latency, packet loss, and jitter. It can monitor devices, services, servers, traffic, and applications.
  - It provides **multi-protocol support**, making it versatile for monitoring all types of network devices and services.
2. **User-Friendly Interface:**
  - PRTG features an intuitive web-based interface with customizable dashboards and visualizations.
  - It provides real-time views of the network, and the interface is easy to navigate for both beginners and advanced users.
3. **Alerts and Notifications:**
  - PRTG has powerful **alerting and notification** capabilities. You can set thresholds for various parameters and receive alerts via email, SMS, or push notifications when these thresholds are exceeded.

- Supports integration with third-party notification systems.
- 4. **Scalability:**
  - PRTG can scale from small to large enterprise environments. It supports distributed monitoring, allowing you to monitor remote locations and large networks efficiently.
- 5. **Reporting:**
  - PRTG offers detailed **reporting** capabilities, which is useful for analyzing historical data, monitoring trends, and complying with network performance regulations.
  - You can create reports based on custom timeframes and parameters.
- 6. **Free Version Available:**
  - PRTG offers a **free version** that supports up to 100 sensors, making it suitable for small networks or testing purposes.

## Cons:

1. **Cost:**
  - The full version of PRTG can become quite expensive if you need to monitor a large number of devices. The pricing is based on the number of sensors, and the costs can grow quickly as the network expands.
2. **Complexity:**
  - While the interface is user-friendly, PRTG's wide range of features can be overwhelming for new users. Setting up more complex sensors or configurations might require some technical knowledge.
3. **Resource-Intensive:**
  - PRTG can be resource-intensive, especially when monitoring large networks or using a large number of sensors. This may require significant system resources (CPU, memory).

# SmokePing



## Pros:

1. **Specialized for Latency, Jitter, and Packet Loss:**
  - SmokePing is designed specifically to measure and visualize network latency, jitter, and packet loss. If your primary goal is to monitor network performance and stability in terms of these three metrics, SmokePing excels in this area.
2. **Historical Data:**
  - SmokePing offers long-term storage of **historical data**. The detailed graphical representation allows you to analyze network performance over days, weeks, or even months. This is useful for spotting trends and intermittent issues.
3. **Simple Setup:**
  - Setting up SmokePing is relatively easy compared to full-featured network monitoring tools. It focuses on the core tasks of measuring network performance, and its installation and configuration are straightforward.
4. **Low Resource Usage:**
  - SmokePing is generally lightweight and has lower system resource requirements compared to PRTG, making it a good choice for small-scale monitoring or environments with limited resources.
5. **Free and Open Source:**
  - SmokePing is open-source and free to use, making it an attractive option for smaller organizations or those on a tight budget. You can customize it as needed, and there's no need to pay for licenses.
6. **Graphical Visualization:**
  - SmokePing provides clear, graphical representations of **latency**, **jitter**, and **packet loss**, making it easy to interpret network performance over time.

## Cons:

### 1. Limited Monitoring Scope:

- SmokePing is specialized for **latency**, **jitter**, and **packet loss** monitoring. It doesn't offer the same breadth of network monitoring features as PRTG. If you need to monitor things like bandwidth usage, device status, or application performance, SmokePing is not sufficient.

### 2. No Built-In Alerts or Notifications:

- SmokePing lacks the advanced **alerting** features available in PRTG. While you can configure external scripts to send notifications, it doesn't offer native, built-in alerting and threshold-based notifications.

### 3. Lack of Multi-Protocol Support:

- SmokePing primarily focuses on **ICMP ping** (and optionally traceroute) and does not support multiple monitoring protocols like SNMP or WMI, which limits its ability to monitor different types of network devices.

### 4. No Centralized Dashboard:

- SmokePing does not offer a **centralized dashboard** like PRTG. While it has a web interface for viewing graphs, it is not as sophisticated or feature-rich as PRTG's dashboards.

### 5. Basic Reporting:

- SmokePing does not provide as advanced reporting features as PRTG. You would need to rely on external tools or scripts to generate comprehensive reports.

## Comparison Summary

Feature	PRTG	SmokePing
Scope	Comprehensive network monitoring (latency, bandwidth, devices, services, etc.)	Specialized in latency, jitter, and packet loss
Setup	Easy for basic use, but complex for large setups	Simple setup for latency monitoring
Alerting & Notifications	Advanced, customizable alerts for all metrics	No built-in alerts (requires scripts)
Graphical Visualization	Advanced, customizable dashboards and reports	Simple graphical visualizations for latency and packet loss

Feature	PRTG	SmokePing
<b>Historical Data</b>	Detailed reporting and historical data analysis	Strong historical data and long-term trend analysis
<b>Resource Usage</b>	Resource-intensive for large networks	Lightweight and low resource usage
<b>Scalability</b>	Scalable for large networks and enterprise environments	Best for small to medium-sized networks
<b>Cost</b>	Free version for up to 100 sensors, but pricing increases with more sensors	Free and open-source
<b>Protocols Supported</b>	Multi-protocol support (SNMP, HTTP, WMI, etc.)	Primarily ping and traceroute
<b>Reporting</b>	Advanced and customizable reports	Basic, manual reporting

## Which to Choose?

- **PRTG:** Ideal if you need a **comprehensive network monitoring solution** that covers all aspects of your network (latency, bandwidth, servers, applications, etc.). It's best suited for enterprises or networks where multiple types of monitoring are required.
- **SmokePing:** Best if your primary focus is **latency, packet loss, and jitter**, and you need an easy-to-set-up, lightweight tool for monitoring these metrics over time. SmokePing is great for smaller setups or when you're specifically focused on network performance troubleshooting.

If your network requires advanced features or you need to monitor various types of devices and services, **PRTG** is likely the better choice. However, if your goal is more focused on detailed network latency analysis over time, **SmokePing** might be the simpler, more efficient tool for the job

# Free Network Monitoring Tools

There are several free network monitoring tools available that focus on latency, packet loss, and jitter. Below is a list of some of the best options for monitoring these aspects of network performance:

## 1. Nagios Core

- **Overview:** Nagios Core is a powerful, open-source monitoring solution widely used for network and system monitoring. While it can monitor a wide range of network parameters, it is highly extensible with plugins to track **latency**, **packet loss**, and **jitter**.
- **Pros:**
  - Highly customizable.
  - Large community support and plugins for specific use cases.
- **Cons:**
  - The learning curve can be steep.
  - Requires manual configuration for advanced features like monitoring latency, packet loss, and jitter.
- **Website:** [Nagios Core](#)

## 2. Zabbix

- **Overview:** Zabbix is an open-source monitoring platform that provides comprehensive monitoring for **latency**, **packet loss**, **jitter**, and much more. It allows users to track network performance metrics and generate alerts when thresholds are exceeded.
- **Pros:**
  - Scalable and flexible.
  - Provides detailed visualizations and reports.
  - Supports SNMP, ICMP, and other monitoring protocols.
- **Cons:**
  - May require more time for setup and configuration compared to simpler tools.
- **Website:** [Zabbix](#)

## 3. PingPlotter

- **Overview:** PingPlotter is a network troubleshooting tool that helps monitor latency, **packet loss**, and **jitter**. It is primarily known for its ability to visualize the path between a source and a target, with performance metrics displayed in real-time.
- **Pros:**
  - Easy-to-understand graphical interface.
  - Good for diagnosing latency, jitter, and packet loss issues.
- **Cons:**



- Free version is limited in terms of features and monitoring targets.
  - May not scale well for large networks.
- **Website:** [PingPlotter](#)

#### 4. LibreNMS

- **Overview:** LibreNMS is an open-source network monitoring system that supports a wide range of devices and protocols, including monitoring **latency**, **packet loss**, and **jitter**. It can send alerts, collect performance data, and create visual graphs.
- **Pros:**
  - SNMP-based monitoring for various network devices.
  - Great for visualizing network performance metrics.
  - Auto-discovery and customizable alerts.
- **Cons:**
  - Can require significant configuration for full functionality.
- **Website:** [LibreNMS](#)

#### 5. NetFlow Analyzer (Free Version)

- **Overview:** NetFlow Analyzer (by ManageEngine) is a tool that can analyze **NetFlow**, **sFlow**, and **IPFIX** traffic. It provides detailed insights into **latency**, **packet loss**, and **jitter** based on flow data from network devices.
- **Pros:**
  - Provides detailed insights into network traffic and performance.
  - Can detect latency and packet loss patterns in real-time.
- **Cons:**
  - The free version has limitations on the number of monitored devices.
- **Website:** [NetFlow Analyzer](#)

#### 6. Cacti

- **Overview:** Cacti is a network graphing tool that uses **RRDTool** for storing and visualizing performance metrics like **latency**, **packet loss**, and **jitter**. It can monitor network devices using SNMP and create custom graphs to display network performance over time.
- **Pros:**
  - Highly customizable graphs for performance metrics.
  - Can monitor multiple devices and services
- **Cons:**

- Can be complex to set up, especially for new users.
  - Requires plugins to measure latency, packet loss, and jitter specifically.
- **Website:** [Cacti](#)

## 7. Iperf (and JPerf)

- **Overview:** **Iperf** is a command-line tool used for network performance testing, primarily focused on **latency**, **packet loss**, and **jitter**. It helps assess the network bandwidth between two systems, making it useful for network performance troubleshooting.
- **Pros:**
  - Extremely lightweight and simple.
  - Highly accurate for measuring latency, packet loss, and jitter.
- **Cons:**
  - Requires manual setup between two devices (a server and a client).
  - Does not provide real-time monitoring or alerting.
- **Website:** [Iperf](#)
- **JPerf (GUI for Iperf):** [JPerf](#)

## 8. Wireshark

- **Overview:** Wireshark is a widely-used packet analyzer tool. While it's primarily designed for deep packet inspection, it can be used to analyze **latency**, **packet loss**, and **jitter** by inspecting captured network packets.
- **Pros:**
  - Very detailed packet-level analysis.
  - Allows for in-depth analysis of network traffic and troubleshooting.
- **Cons:**
  - Requires technical knowledge to analyze traffic.
  - Not specifically designed for continuous monitoring but can be used for troubleshooting specific issues.
- **Website:** [Wireshark](#)

## 9. PRTG Network Monitor (Free Version)

- **Overview:** While PRTG's full version is paid, it also offers a free version that supports **100 sensors** (devices or metrics). It includes sensors for monitoring **latency**, **packet loss**, and **jitter** through **ping sensors**.
- **Pros:**
  - Easy setup and user-friendly interface.

- Comprehensive monitoring capabilities.
  - Free for small networks (100 sensors).
- **Cons:**
  - Limited to 100 sensors in the free version, making it unsuitable for large networks.
- **Website:** [PRTG Free Version](#)

## 10. MTR (My Traceroute)

- **Overview:** MTR combines the functionality of **ping** and **traceroute** into a single tool, providing real-time network performance metrics like **latency**, **packet loss**, and **jitter** along the path to a destination.
- **Pros:**
  - Simple, command-line tool that provides detailed diagnostics.
  - Shows both latency and packet loss information in real-time.
- **Cons:**
  - Requires manual setup and doesn't provide long-term monitoring.
- **Website:** [MTR](#)

## Conclusion

Here's a quick summary of the tools:

- **Best for Visualizing Latency/Packet Loss/Jitter:** **PingPlotter**, **Zabbix**, **LibreNMS**, **Cacti**, **PRTG** (free version)
- **Best for Command-Line Tools:** **Iperf**, **MTR**, **Wireshark**
- **Best for Open-Source Solutions:** **Nagios Core**, **Zabbix**, **LibreNMS**
- **Best for Flow Analysis:** **NetFlow Analyzer**

You can choose the tool that best suits your network size, monitoring requirements, and whether you prefer an open-source solution or a more feature-rich paid tool with a free version.

## Setup on Docker

### Create Network:

*docker network create smokeping*

## Run SmokePing:

```
docker run -d --name=smokeping --restart=always --network=smokeping -p 8080:80 -v /opt/smokeping/data:/data -v /opt/smokeping/config:/config linuxserver/smokeping
```

## Find container id:

```
docker ps
```

## Go to inside container:

```
docker exec -it -u root < container_id > bash
```

Run this command

```
root@< container_id >:/# ls
```

```
app build_version config defaults docker-mods home lib  media opt  proc run  srv tmp  
var
```

```
bin command  data  dev  etc  init lsiopy mnt  package root sbin sys usr
```

```
root@< container_id >:/# cd config
```

```
root@< container_id >:/config# ls
```

```
Alerts  General  Probes Targets  pathnames smokeping_secrets
```

```
Database Presentation Slaves httpd.conf site-confs ssmtp.conf
```

```
root@< container_id >:/config# cat Targets
```

Update Targets file like below,

```
++ NAAS
```

```
menu = NAAS
```

```
title = NAAS (naas.fiberathome.net)
```

*host = naas.fiberathome.net*

Restart the container

*docker restart < container\_id >*