

SysGauge

SYSTEM MONITOR



User Manual

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1 SysGauge Product Overview

SysGauge is a system and performance monitoring utility allowing one to monitor the CPU usage, memory usage, network transfer rate, operating system performance, file system performance, the status and resource usage of running processes, USB performance, disk space usage, disk read activity, disk write activity, disk read transfer rate, disk write transfer rate, disk read IOPS and disk write IOPS for individual logical disks or all physical disks installed in the computer.

- CPU Usage Monitoring
- Memory Usage Monitoring
- Disk Activity Monitoring
- Network Activity Monitoring
- Network Filter Monitoring
- TCP and UDP Protocols Monitoring
- Operating System Status Monitoring
- Process Resource Usage Monitoring
- NAS Server Performance Monitoring
- Active Directory Monitoring
- iSCSI Target Monitoring
- SQL Server Monitoring
- IIS Server Monitoring
- Printer Monitoring

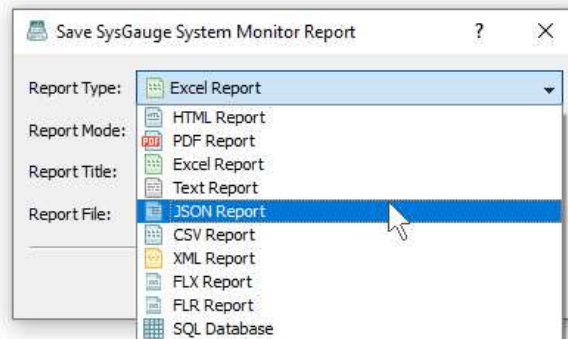
The SysGauge GUI application provides a single, customizable GUI module and a number of dedicated GUI modules especially designed for each specific monitoring task such as system status monitoring, CPU monitoring, memory monitoring, process monitoring, system status analysis, disk monitoring, NAS server monitoring and network monitoring. The monitor selector, which is located on the left-side of the SysGauge GUI application, allows one to add, edit and delete specific monitoring GUI modules.



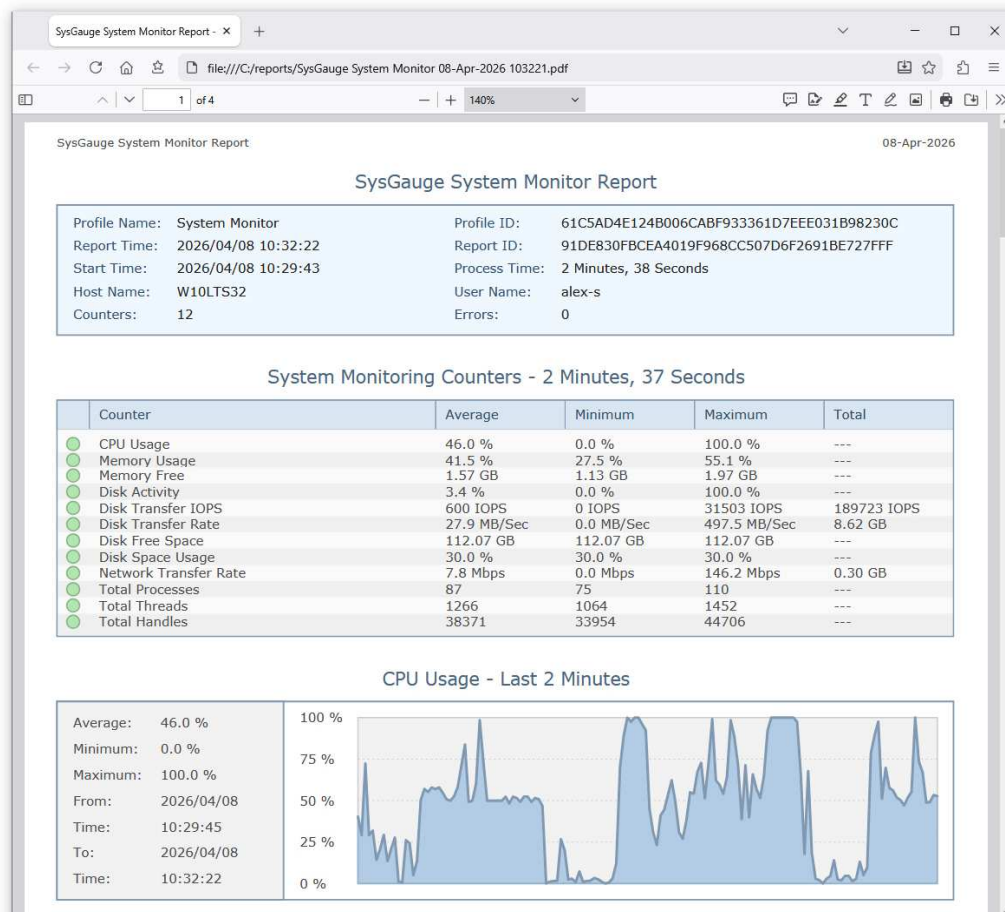
The user is provided with the ability to display various types of system monitoring charts, save system monitoring reports and export system monitoring results to a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. Advanced users and IT administrators are provided with the ability to periodically save system status reports, set user-specified limits for system monitoring counters and then show error or warning messages, play notification sounds or send E-Mail notifications when a system monitoring counter rises above or drops below the user-specified limit.

In addition to the ability to monitor the local computer, SysGauge allows one to connect to remote computers and monitor the CPU usage, memory usage, network transfer rate, disk space usage and disk activities via the network. The user is provided with the ability to specify the name or an IP address of the remote computer to connect to, select which types of system counters to monitor and specify how to display the system monitoring results.

One of the most useful capabilities of the SysGauge performance monitoring utility is the ability to save performance monitoring reports into a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a performance monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report file name and press the 'Save' button.



For example, a SysGauge PDF performance monitoring report starts with a summary table showing the report date and time, the name of the monitored computer and the name of user saved the performance monitoring report. The summary table is followed by a list of performance counters showing the average, minimum and maximum values for all performance monitoring counters.



The list of counters is followed by a list of line charts showing performance monitoring data for all counters. Finally, the list of line charts is followed by a list of tables showing the complete history of performance monitoring results for all counters.

In addition to the GUI application, SysGauge Pro and SysGauge Server product versions include a command line utility allowing one to perform different types of system monitoring operations from batch files and shell scripts. The SysGauge command line utility is located in the product 'bin' directory and it can be used to perform monitoring operations, save system monitoring reports and manage system monitoring profiles.

```

c:\Program Files\SysGauge Ultimate\bin>sysgaug -system_monitor -save_pdf_report d:\Reports\sysgaug_report.pdf

SysGauge v4.3.18

SysGauge - System Monitor - Started ...

19:05:12 - CPU 50.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:13 - CPU 53.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:14 - CPU 49.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:15 - CPU 53.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:16 - CPU 50.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:17 - CPU 46.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.7 %
19:05:18 - CPU 48.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:19 - CPU 47.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:20 - CPU 46.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.6 %
19:05:21 - CPU 47.0 % | Total Processes 60 | Total Threads 830 | Mem Usage 19.7 %
19:05:22 - CPU 50.0 % | Total Processes 60 | Total Threads 831 | Mem Usage 19.8 %

Monitoring Results:

CPU Usage - Average 49.0 % | Min 46.0 % | Max 53.0 %
Total Processes - Average 60 | Min 60 | Max 60
Total Threads - Average 830 | Min 830 | Max 831
Memory Usage - Average 19.6 % | Min 19.6 % | Max 19.8 %
Memory Free - Average 2.38 GB | Min 2.37 GB | Max 2.40 GB
Memory Used - Average 967.4 MB | Min 964.2 MB | Max 973.8 MB
Disk Transfer Rate - Average 14.0 MB/Sec | Min 2.4 MB/Sec | Max 65.2 MB/Sec
Network Transfer Rate - Average 0.0 MB/Sec | Min 0.0 MB/Sec | Max 0.0 MB/Sec

Save Report: D:\Reports\sysgaug_report.pdf

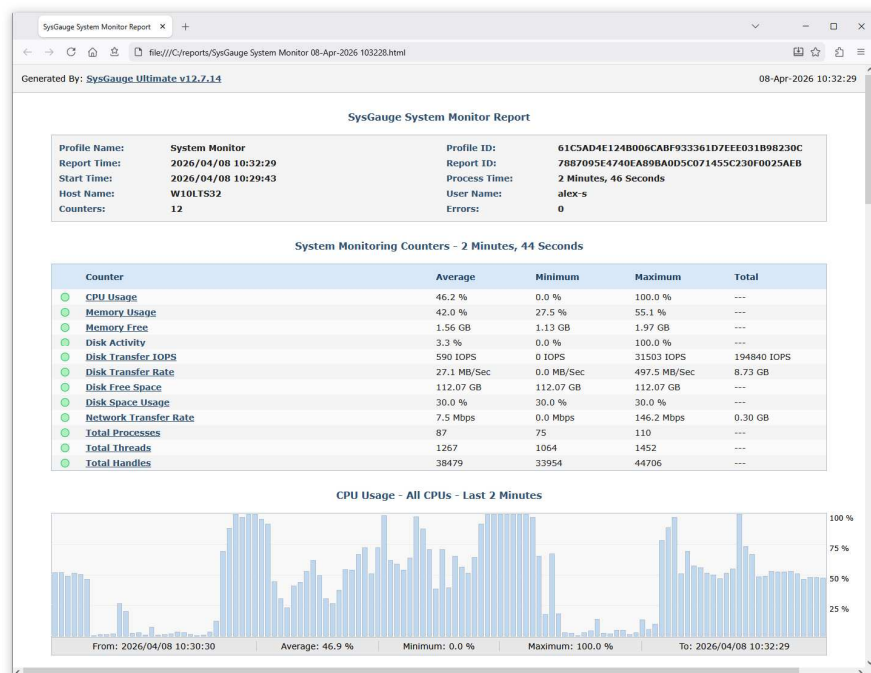
c:\Program Files\SysGauge Ultimate\bin>

```

In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

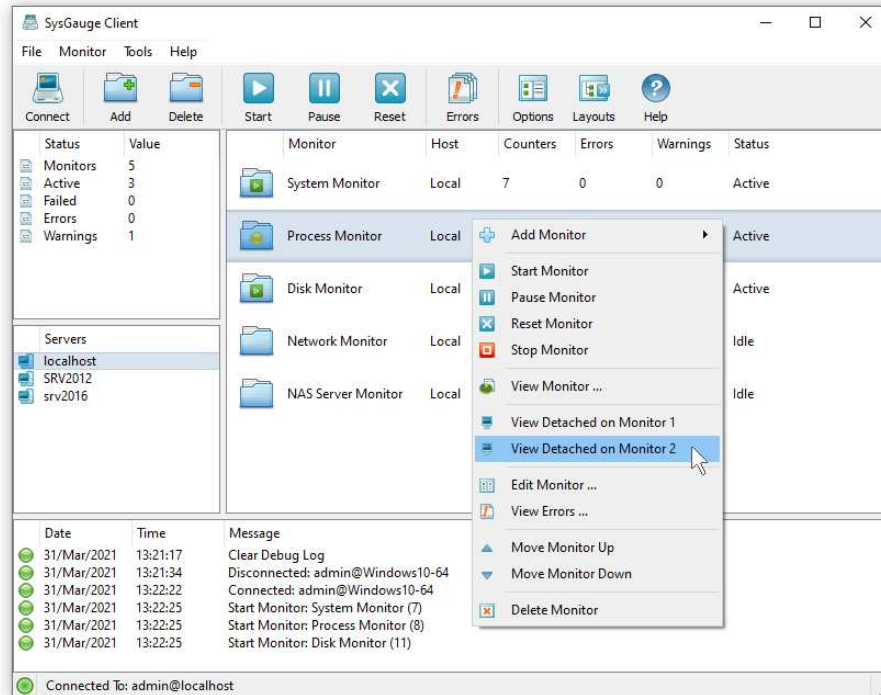
sysgaug -monitor -save_html_report <File Name or Directory>

The SysGauge command line utility will start the default system monitoring profile and continue the monitoring operation according to the user-specified period of time specified using the '**-time <Seconds>**' command line option or until the ECS keyboard key is pressed.

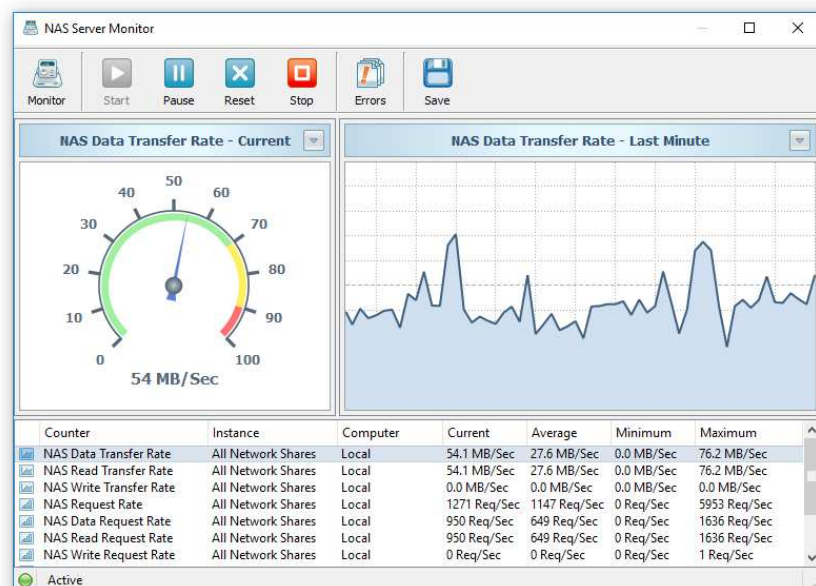


After the monitoring operation will be completed, the SysGauge command line utility will save a system monitoring report file according to the user-specified report format. In addition to the local monitoring operations, the command line utility allows one to monitor remote servers via the network using the '**-host <Host Name>**' command line option.

Finally, advanced users and IT administrators are provided with the SysGauge Server product version, which runs in the background as a service and allows one to perform a number of simultaneous monitoring operations. Once configured, SysGauge Server will continue to perform monitoring operations in a completely unattended mode, save reports and/or send E-Mail notifications if one or more monitoring counters will rise above or drop below user specified limits.



SysGauge Server provides the ability to display multiple, detached monitoring windows on different physical monitors allowing one to effectively utilize multi-monitor configurations and show as much information as possible in complicated multi-server environments.



SysGauge Server can be controlled locally or remotely via the network using the SysGauge client GUI application. In addition, the user is provided with the ability to automate the configuration and management of multiple SysGauge Servers using the SysGauge command line utility.

2 SysGauge Product Versions

Features	Free	Pro	Server
Maximum Number of Counters	10	100	500
Maximum Number of Monitors	10	100	500
Maximum Number of Profiles	10	100	500
System Monitor Module	✓	✓	✓
CPU Monitor Module	✓	✓	✓
Memory Monitor Module	✓	✓	✓
Process Monitor Module	✓	✓	✓
System Analysis Module	✓	✓	✓
Disk Monitor Module	✓	✓	✓
Network Monitor Module	✓	✓	✓
Printer Monitor Module	✓	✓	✓
Sound Error Notifications	✓	✓	✓
HTML and Text Reports	✓	✓	✓
PDF, Excel, CSV and JSON Reports	✗	✓	✓
E-Mail Error Notifications	✗	✓	✓
Periodic Status Reports	✗	✓	✓
Multi-Monitor Configurations	✗	✓	✓
SQL Database Reports	✗	✓	✓
Active Directory Monitor	✗	✓	✓
SQL Server Monitor	✗	✓	✓
NAS Server Monitor	✗	✓	✓
iSCSI Target Monitor	✗	✓	✓
IIS Server Monitor	✗	✓	✓
Command Line Utility	✗	✓	✓
Simultaneous Monitoring Operations	✗	✗	✓
Runs in the Background as a Service	✗	✗	✓
Monitor Multiple Servers via the Network	✗	✗	✓
Remote Control via the Network	✗	✗	✓
Compare Monitoring Reports	✗	✗	✓
Price	Free	\$125	\$250

* The free product version can be used for personal purposes only.

** Product features, prices and license terms are subject to change without notice.

3 Product Installation

SysGauge is available as a free download from our web site page and from a large number of software directories from around the world. To be sure you are getting the latest product version check here: <https://www.sysgauge.com>. SysGauge is especially designed to be as simple as possible. The installation procedure is very simple, requires no special knowledge and may be completed in less than 30 seconds. There is no need for any additional software. Just download the SysGauge installation package, run the setup program and you are done.



On the 'Welcome' screen press the 'Next' button. Read the end-user license agreement and press the 'I Agree' button if you agree with the license terms or the 'Cancel' button to stop the installation process.

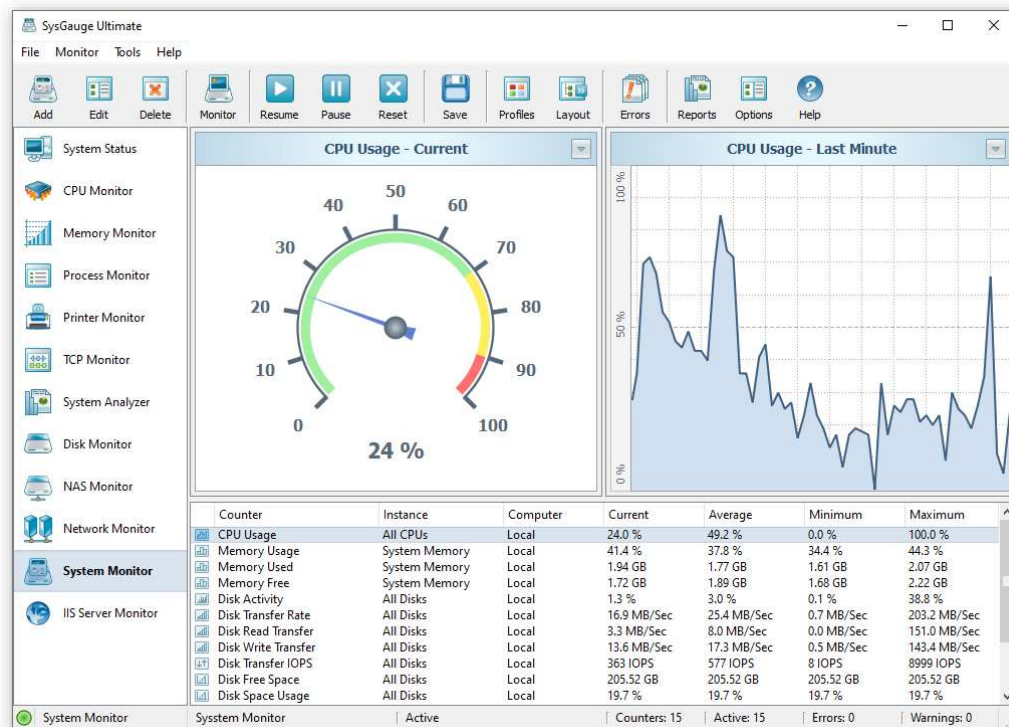


Select the destination directory, press the 'Install' button and wait for the installation process to complete. That's all you need to do to install the SysGauge system monitoring utility on your computer. In order to perform a silent product installation procedure, download the latest product version, open the command prompt window and type the following command:

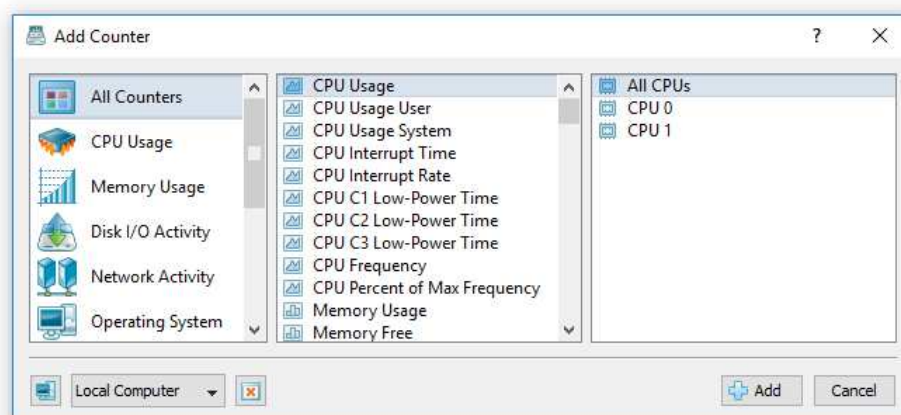
```
sysgauge_setup_vX.Y.Z.exe /S
```

4 System Monitor Module

The '**System Monitor**' GUI module allows one to perform various types of system monitoring operations using one or more pre-defined or user-custom system monitoring profiles. The system monitor provides the ability to add, edit or delete system monitoring counters, save various types of system monitoring reports, configure monitoring rules, actions and error E-Mail notifications.

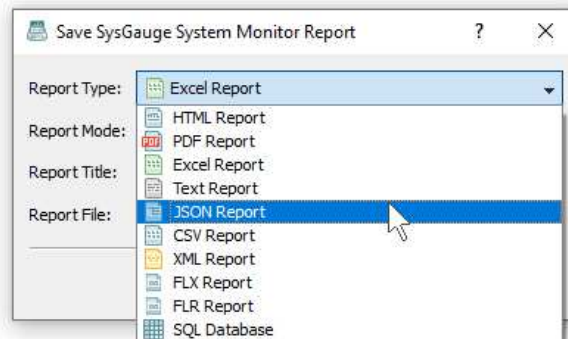


In order to add a new monitoring counter to the current system monitoring profile, press the 'Monitor' button located on the main toolbar, select an appropriate counter in the counter list and press the 'Add' button. In order to configure monitoring actions and error E-Mail notifications, select a monitoring counter in the counters view, press the right mouse button and select the 'Edit Counter' menu item.

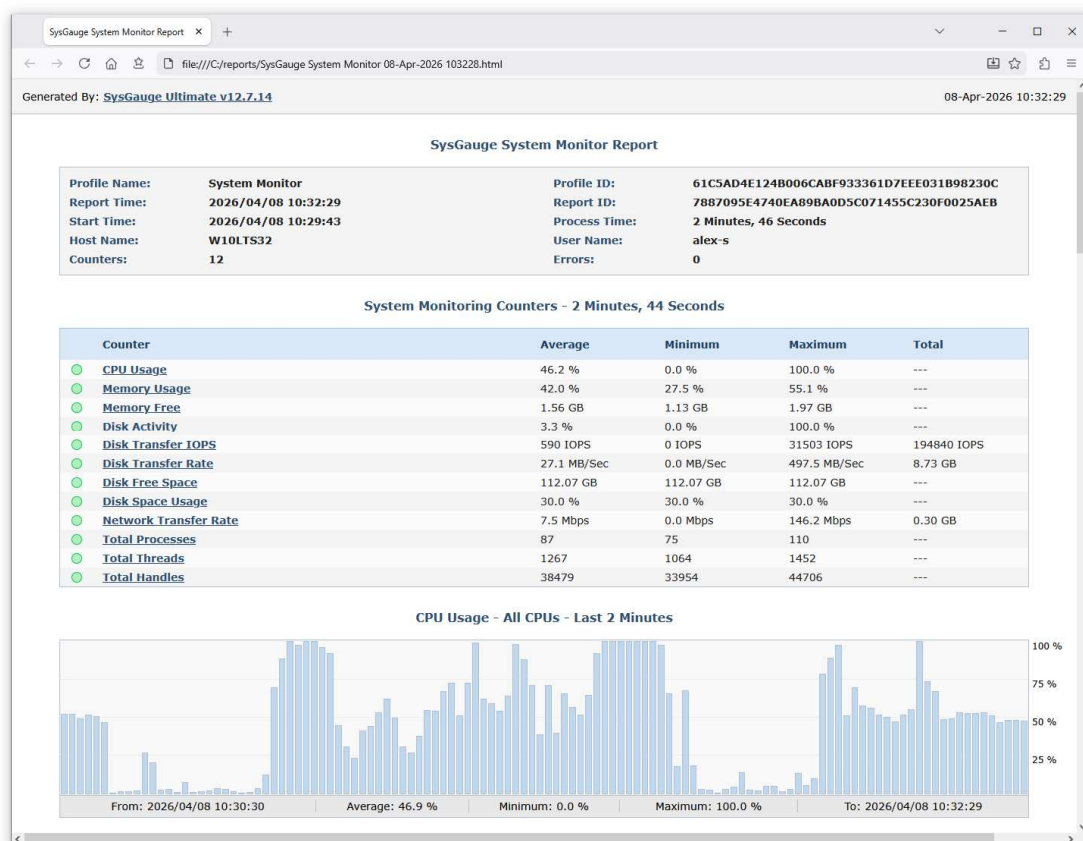


In addition to the local system monitoring operations, SysGauge allows one to monitor remote servers via the network. In order to add a remote monitoring counter, press the 'Connect' button located in the bottom-left corner of the 'Add Counter' dialog and specify a host name or an IP address of the remote server to connect to.

In addition, the user is provided with the ability to save system monitoring reports into a number of standard formats including HTML, PDF, Excel, text, CSV, JSON and XML. In order to save a system monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report file name and press the 'Save' button.



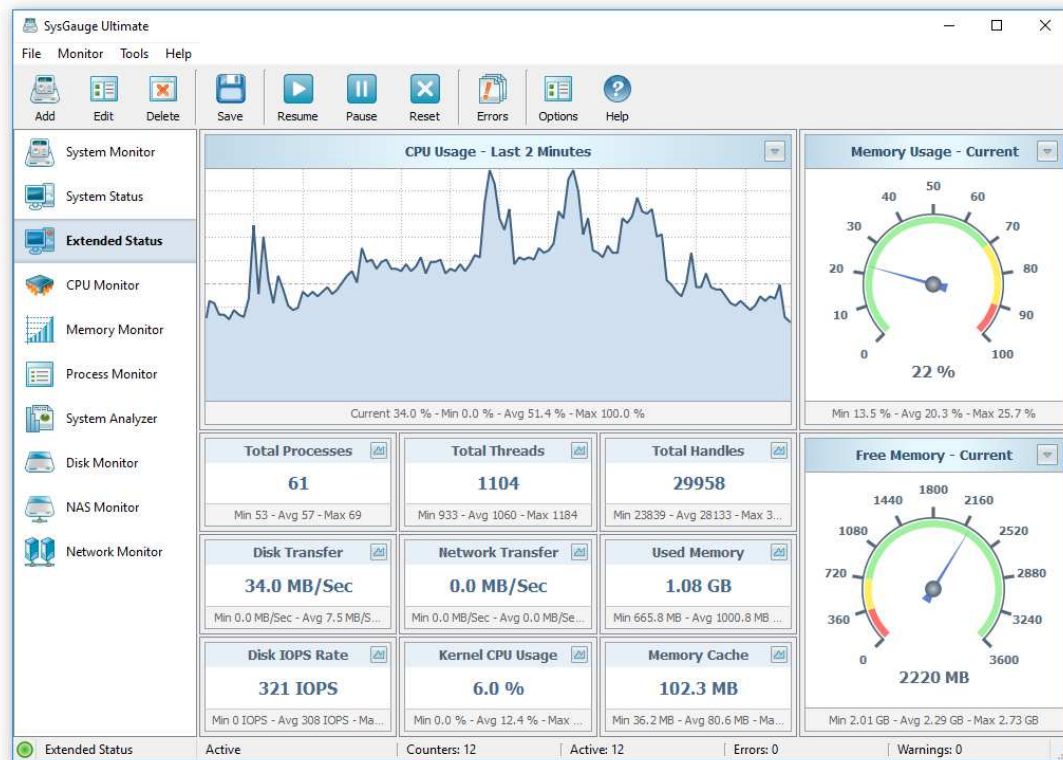
Finally, the 'Save Report' dialog provides the user with the ability to select one of the following report modes: Summary Report, Statistics Report and Full Report. In the 'Summary Report' mode, SysGauge will save a short report showing the list of system monitoring counters with the average, minimum and maximum values for each counter.



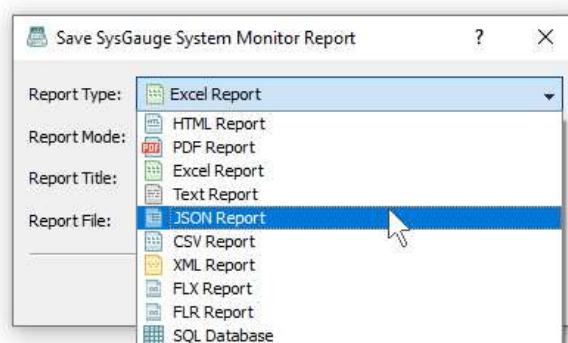
In the 'Statistics Report' mode, SysGauge will save the list of system monitoring counters and a data chart for each counter. In the 'Full Report' mode, SysGauge will save the list of system monitoring counters, a data chart for each counter and the entire monitoring data for all system monitoring counters.

5 System Status Monitor

The '**System Status**' GUI module is an advanced system status monitoring GUI module showing the CPU usage, memory usage, the total number of running processes, the total number of running threads, the total number of system handles, the amount of free system memory, the amount of used system memory, the size of the system cache, the disk transfer rate, the disk IOPS rate, the network transfer rate and the kernel CPU usage.

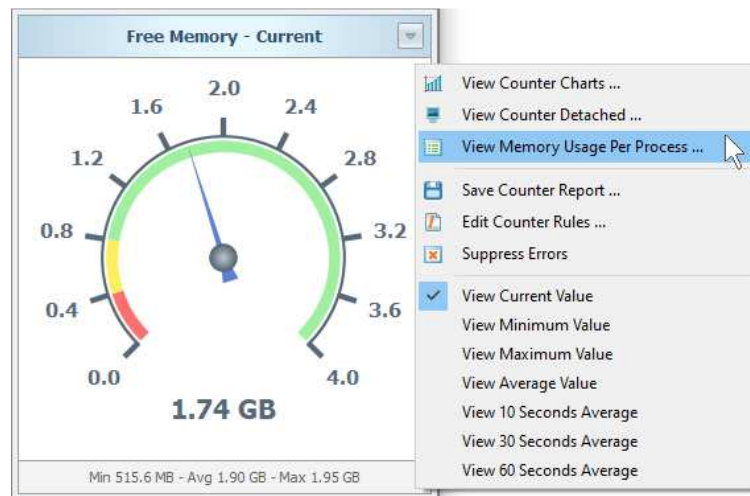


The CPU usage chart allows one to see the CPU usage for the last minute, last two minutes or last five minutes. The memory usage gauge allows one to see the current memory usage, the average memory usage or the maximum memory usage. In addition, all monitoring counters display the minimum, maximum and average values on the counter's status bar.



In addition, the user is provided with the ability to save system monitoring reports into a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a system monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report file name and press the 'Save' button.

One of the most useful features of the SysGauge status monitor is to display the CPU usage per process, memory usage per process, data I/O rate per process, the number of threads per process and the number of handles per process. For example, in order to display the memory usage per process, click the right mouse button over a memory usage counter and select the 'Memory Usage Per Process' menu item.



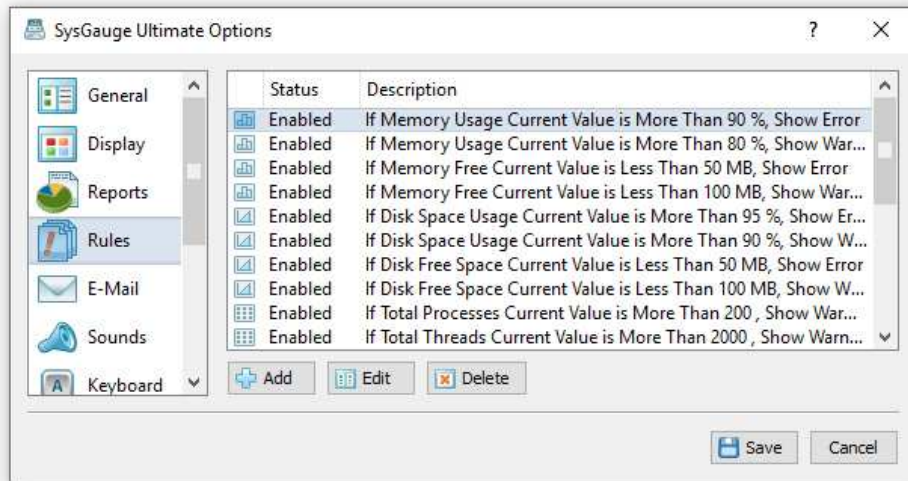
The memory usage per process dialog shows the list of currently running processes sorted by the amount of the used system memory. For each process, SysGauge displays the process name, the process user name, the number of processes instances and the combined memory usage for all process instances.

The screenshot shows the 'Memory Usage Per Process' dialog window. It contains a table with columns: Process, User, Instances, and Memory Usage. The processes are sorted by memory usage in descending order. At the bottom, there are fields for 'Processes: 50' and 'Instances: 147', and a 'Close' button.

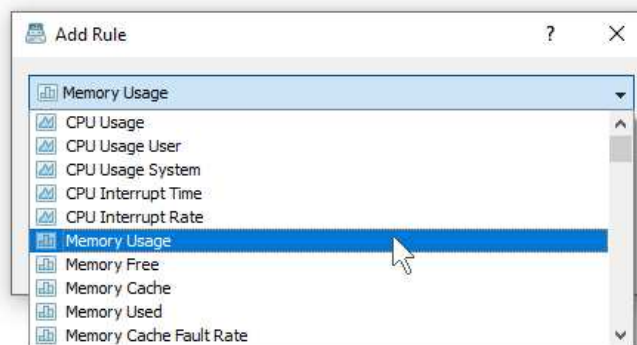
Process	User	Instances	Memory Usage
firefox	alex-s	20	1.48 GB
svchost	alex-s	71	825.9 MB
MsMpEng	---	1	237.5 MB
SearchUI	alex-s	1	149.5 MB
dwm	---	1	136.4 MB
explorer	alex-s	1	115.6 MB
RuntimeBroker	alex-s	5	114.5 MB
ShellExperienceHost	alex-s	1	89.1 MB
OneDrive	alex-s	1	85.5 MB
IGCCTray	alex-s	1	72.7 MB
LockApp	alex-s	1	62.9 MB
OneApp.IGCC.WinService	---	1	52.3 MB

In order to see extended information about a process, double click on a process item in the process list. SysGauge will display the extended process information dialog showing the list of all currently running process instances and allowing one to see detailed information about each process instance including the instance start time, process user name, executable file name, executable file owner, file creation date, file modification date, executable file version information, etc.

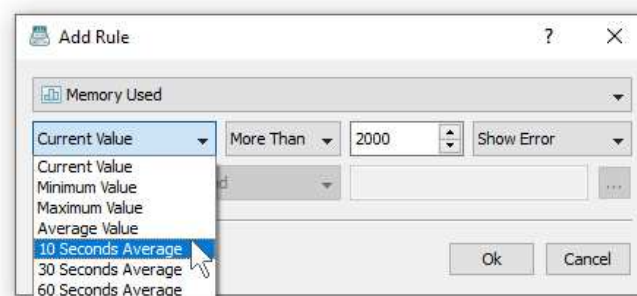
The SysGauge system monitor provides the user with the ability to define conditional system monitoring rules allowing one to automatically detect excessive system resource usage events and then play notification sounds, save HTML, PDF, Excel, CSV, JSON or XML system monitoring reports, send E-Mail notifications or execute custom actions according to user-specified rules and policies.



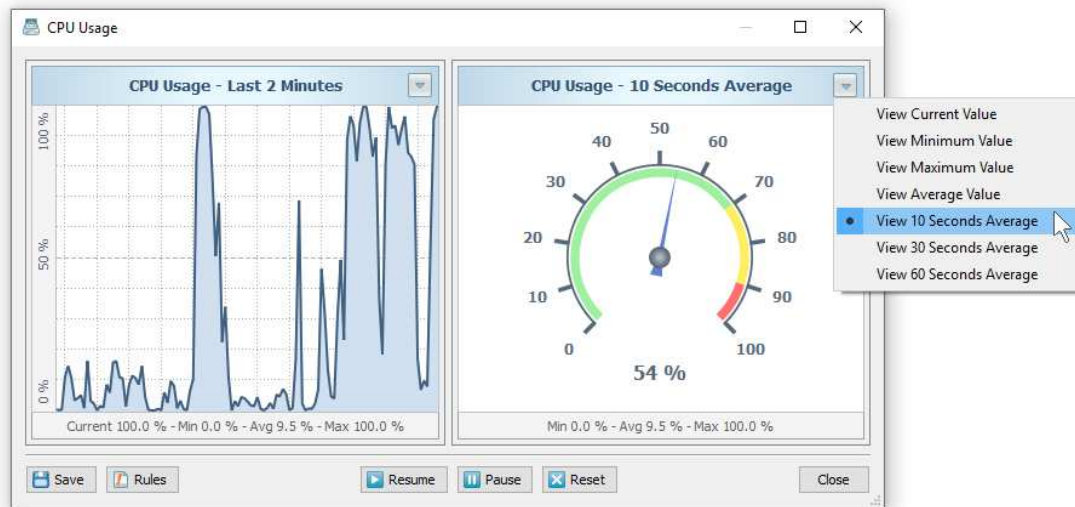
In order to add one or more system monitoring rules, open the 'Options' dialog, select the 'Rules' tab and press the 'Add' button. On the 'Add Rule' dialog select a system monitoring counter, specify a condition that should trigger the rule, select an action type and specify an action value if required.



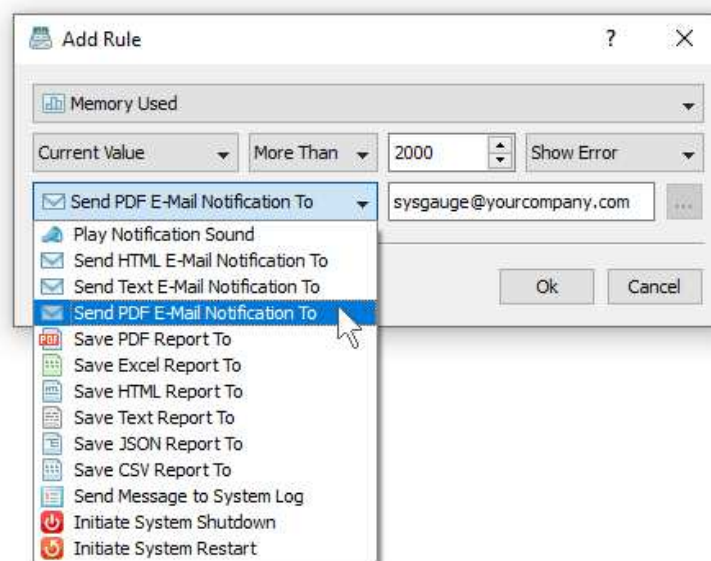
By default, the system monitoring rule will check the current value of the selected system monitoring counter, but sometimes there may be short spikes in the resource usage not representing the actual state of the system and it may be a good idea to filter these spikes using the last 10-seconds average value, last 30-seconds average value or last 60-seconds average value allowing one to focus on real problems and exclude not-representative spikes in the system resource usage.



In order to test the different types of system monitoring counter value types, double click on a system monitoring counter to open the monitoring counter dialog, press the tools button located in the top-right corner of the monitoring counter gauge and select an appropriate counter value type.



For example, in order to send an E-Mail notification when the amount of the used system memory rises above 2000 MB, select the 'Memory Used' counter type, set the rule condition to 'Current Value More Than 2000', select the 'E-Mail Notification' action type and enter a destination E-Mail address to send the notifications to.



In addition, select the 'E-Mail' tab and specify an SMTP E-Mail server to use to send E-Mail notifications. During the system monitoring operation, SysGauge will check the selected system monitoring counters and send E-Mail notifications when any of the selected system monitoring counters will rise above or drop below the user-specified limits.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the system status and save system monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -system_monitor -save_pdf_report <File Name or Directory>

This command will perform a simple system monitoring operation using basic system monitoring counters including the CPU usage, the memory usage, the amount of free memory, the amount of used memory, the total number of processes, the total number of threads, the disk transfer rate and the network transfer rate. In addition, after the monitoring operation will be completed, SysGauge will save a PDF system monitoring report to the specified file or directory.

Command Line Options:

-extended

This command line option adds to the monitoring operation extended system monitoring counters including the system-level CPU usage, the total number of handles, the size of the memory cache and the disk transfer IOPS.

-host <Remote Host Name or IP address>

This command line option allows one to monitor remote servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML system monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF system monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel system monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text system monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON system monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV system monitoring report.

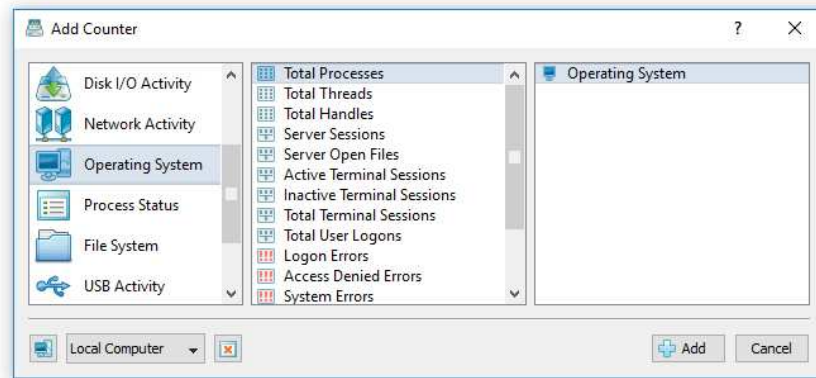
-save_xml_report <File Name or Directory>

This command line option saves an XML system monitoring report.

-save_to_database <Table Name>

This command line option saves monitoring results to the specified SQL database table.

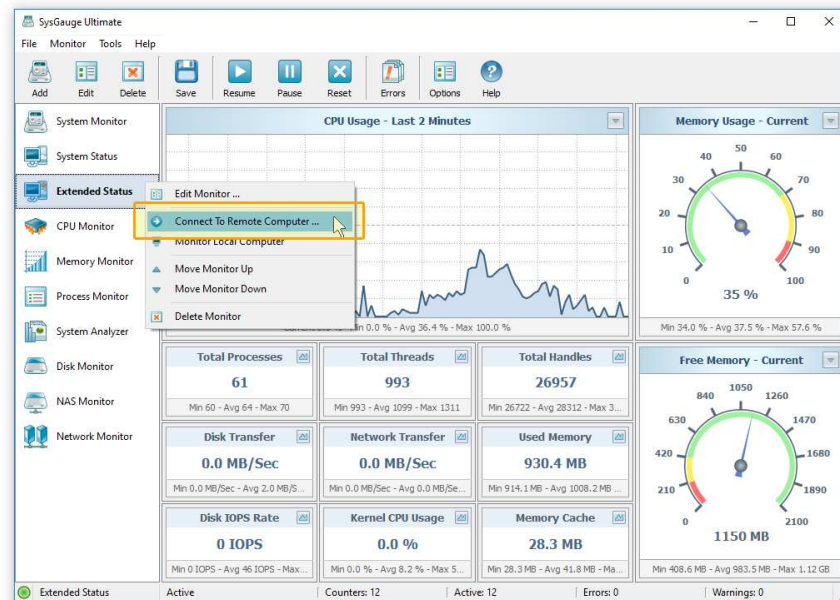
In addition to the dedicated system status monitor, the user can use the customizable '**System Monitor**' module to configure user-custom system monitoring profiles. In order to add an operating system status counter, press the 'Add' button located on the main toolbar, selected the 'Operating System' counters category in the left-side view and then select an appropriate operating system status counter in the middle view. In addition, in order to monitor the operating system status in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.



- **Total Processes** - this counter displays the total number of processes running in the computer at the time of data collection. Each running process represents a user application or a system program.
- **Total Threads** - this counter displays the total number of threads running in the computer at the time of data collection. A thread is the basic executable entity that can execute instructions in a processor.
- **Server Sessions** - this counter displays the number of server sessions in the computer at the time of data collection, which indicates the server activity.
- **Server Open Files** - this counter displays the number of files opened in the server at the time of data collection, which indicates the server activity.
- **Terminal Sessions** - this counter displays the number of active terminal sessions at the time of data collection.
- **Total User Logons** - this counter displays the total number of user logons since the last computer reboot including all interactive logons, network logons, service logons, successful logon and failed logons.
- **Logon Errors** - this counter displays the total number of failed logon attempts to the server, which can indicate whether password guessing programs are being used to crack the security on the server.
- **Access Denied Errors** - this counter displays the number of times file access operations failed with the 'Access Denied' error code, which can indicate whether somebody is randomly attempting to access files in hopes of getting at something that was not properly protected.
- **System Errors** - this counter displays the total number of times an internal server error was detected, which usually may indicate a problem with the server.
- **Processor Queue Length** - this counter displays the number of threads ready for execution at the time of data collection. Normally, a sustained processor queue of less than 10 threads per processor is acceptable, dependent of the workload.
- **Context Switch Rate** - this counter displays the combined rate at which all processors on the computer are switched from one thread to another, which is measured in thousands of switches per second. Context switches occur when a running thread voluntarily relinquishes the processor, is preempted by a higher priority ready thread or switches between the user mode and system execution mode.
- **System Call Rate** - this counter displays the combined rate of calls to the operating system service routines by all processes running on the computer, which is measured in thousands of calls per second. These operating system routines perform all of the basic scheduling and synchronization of activities on the computer and provide access to the memory management and disk I/O capabilities.

6 Remote Server Monitoring

The SysGauge system monitor allows one to monitor remote servers via the network. In order to connect to a remote server, press the right mouse button over a monitor item in the left-side view and select the 'Connect To Remote Computer' menu item. On the 'Connect' dialog, specify the host name or an IP address of the remote server to connect to and press the 'OK' button.

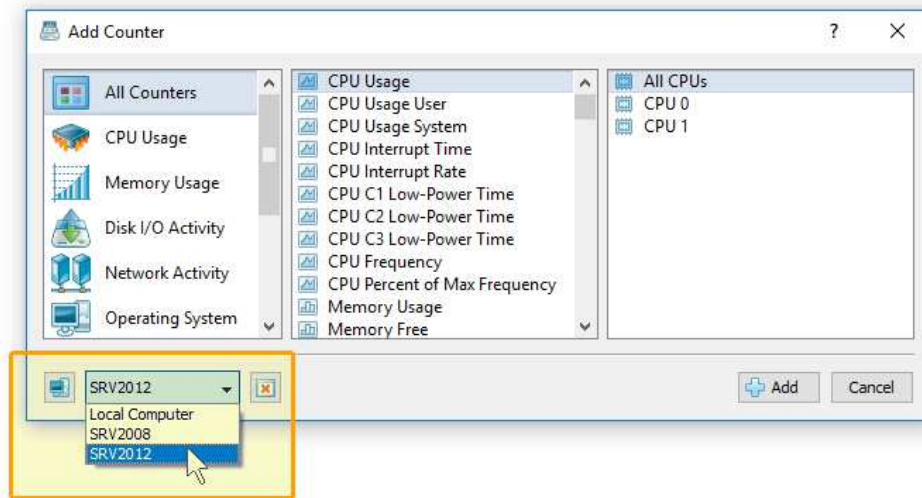


Once connected to a remote sever, SysGauge will display the remote server name under the monitor name in the left-side view and all system monitoring counters will display the status of the remote server. Each system monitor can be connected to a different remote server allowing one to monitor a number of remote servers via the network.

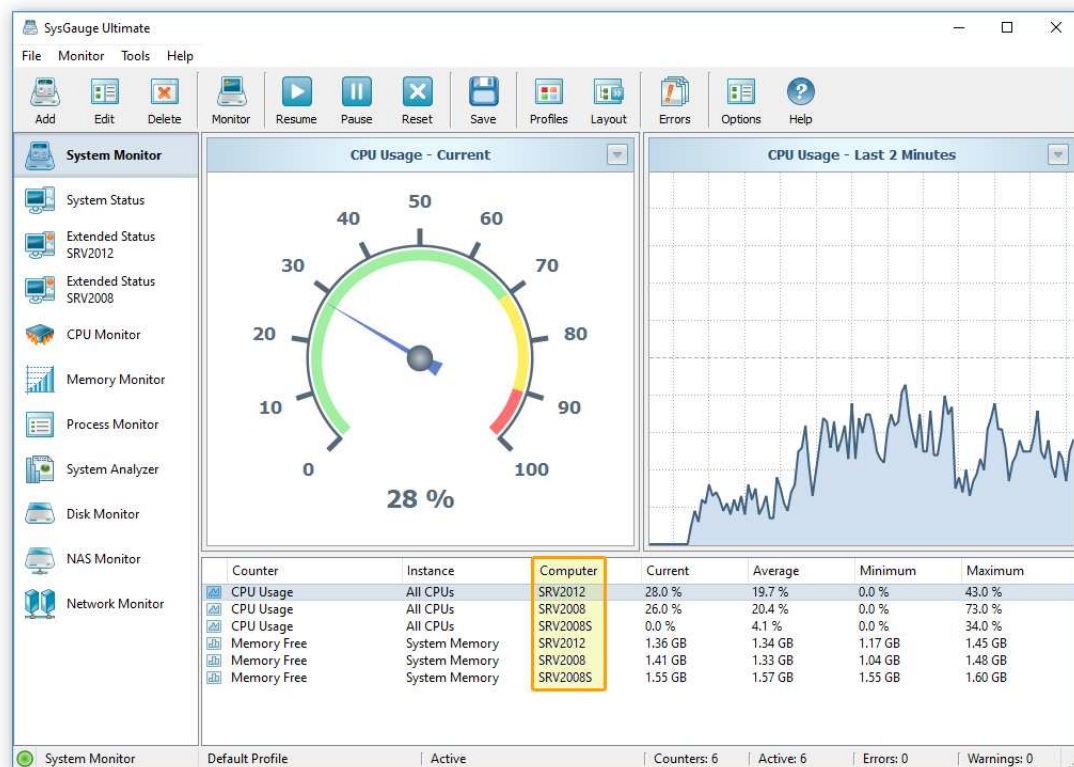


Another option is to use the SysGauge system monitoring module, which provides the ability to configure user-custom system monitoring profiles and allows one to specify a remote server name for each system monitoring counter individually.

In order to add a remote system monitoring counter, select the 'System Monitor' module in the left-side monitors view, press the 'Monitor' button located on the main toolbar, press the 'Connect' button located in the bottom-left corner of the 'Add Counter' dialog and specify the host name or an IP address of the remote server to connect to.

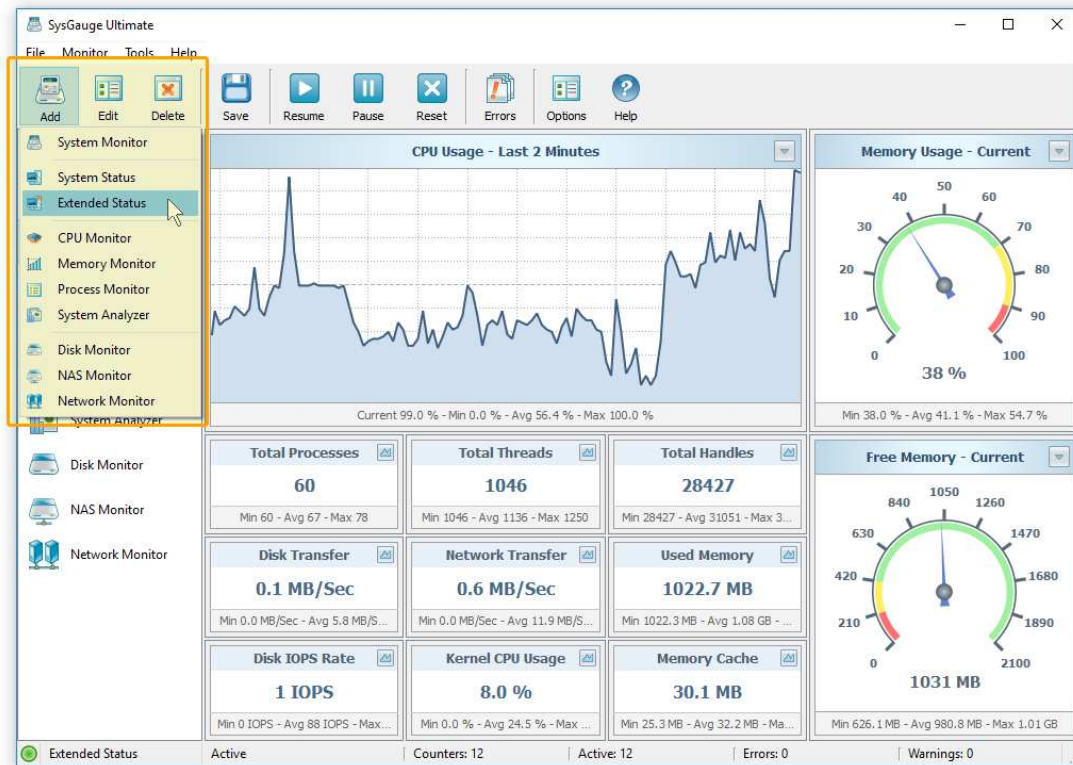


Once connected to the remote server, select an appropriate system monitoring counter and press the 'Add' button. In order to monitor a number of different servers via the network, add all the required remote system monitoring counters and for each counter specify an appropriate host name.

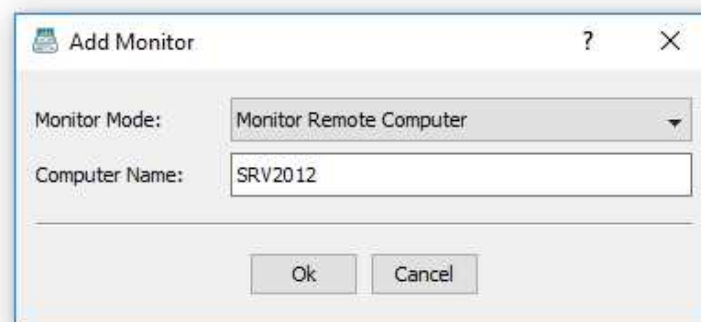


The SysGauge system monitoring module displays the currently active counter list in the counters view, which is located on the bottom-side of the SysGauge application window. For each system monitoring counter, the counters view shows the counter name, the counter instance, the counter remote server name, the current counter value, the average value, the maximum value and the minimum value.

Also, users are provided with the ability to configure a number of monitors of the same type connected to different servers via the network. For example, in order to add two extended system status monitors configured to monitor two different servers via the network, press the 'Add' button located in the top-right corner of the main toolbar and select the 'Extended Status' menu item.

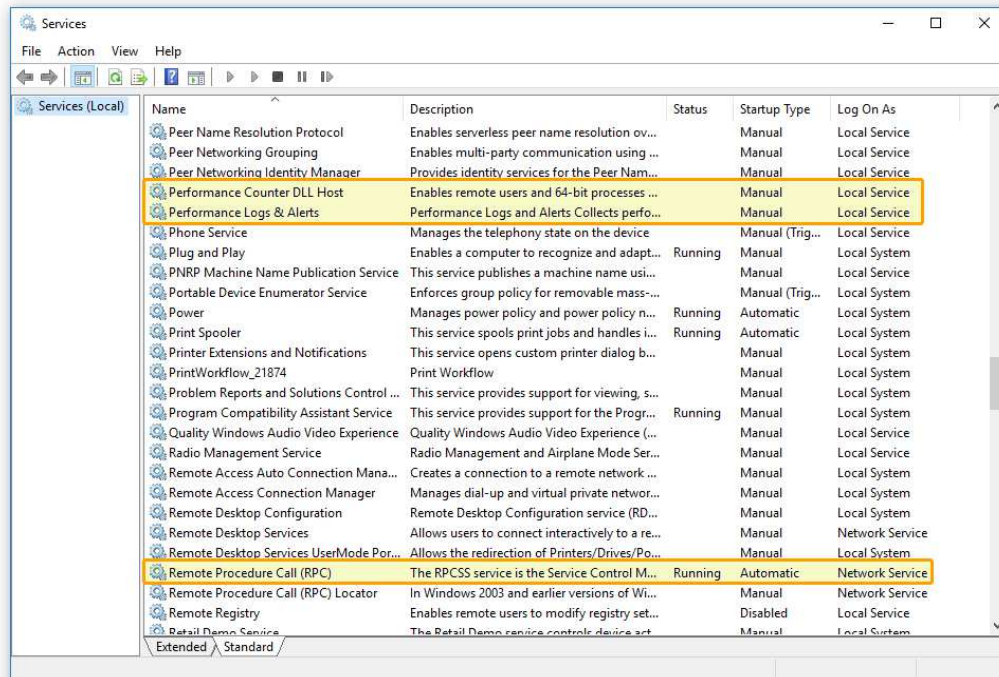


On the 'Add Monitor' dialog, set the monitor mode to 'Monitor Remote Computer', specify the host name or an IP address of the remote server to connect to and press the 'Ok' button. SysGauge will add a new system monitor to the product configuration, display the name of the remote server under the monitor name in the left-side view and all system monitoring counters will display the status of the remote server.

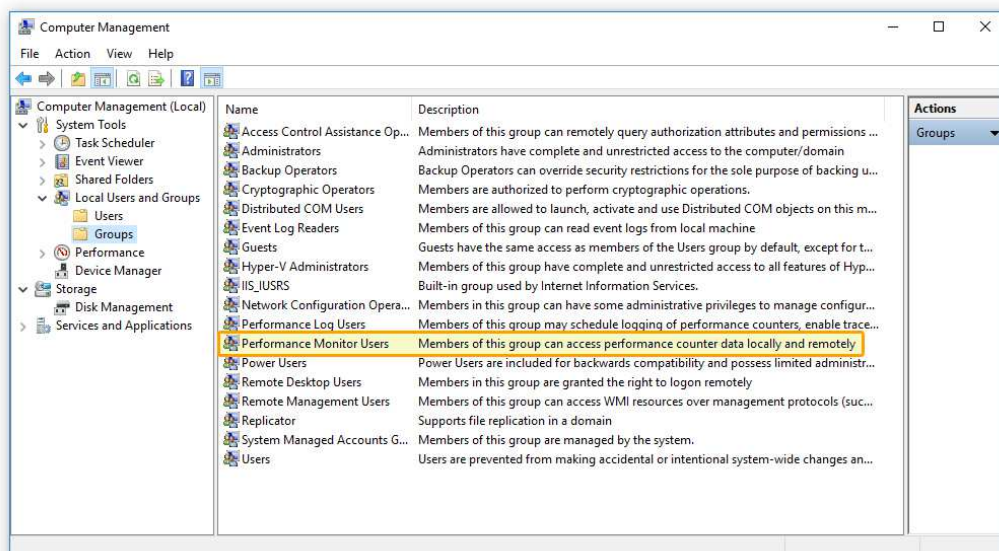


In order to change the position of a system monitor in the left-side monitors view, select the monitor item, press the right mouse button and select the 'Move Monitor Up' or 'Move Monitor' down menu item. In order to disconnect a monitor from the remote server and switch back to the local computer, select the monitor item in the left-side view, press the right mouse button and select the 'Monitor Local Computer' menu item. In order to remove a monitor from the product configuration, select the monitor item, press the right mouse button and select the 'Delete Monitor' menu item.

In order to be able to connect to a remote server via the network, the remote server should be properly configured. The exact server configuration depends on the version of the operating system installed on the server, but in most cases the remote server should have the 'Performance Counter DLL Host' service and the 'Remote Procedure Call (RPC)' service enabled. Also, the user account running the SysGauge application should be added to the 'Performance Monitor Users' group.



In order to enable services required for remote server monitoring, open the Windows control panel, open the 'Administrative Tools' folder and then open the 'Services' applet. On the 'Services' applet, enable the 'Performance Counter DLL Host' service and the 'Remote Procedure Call (RPC)' service.



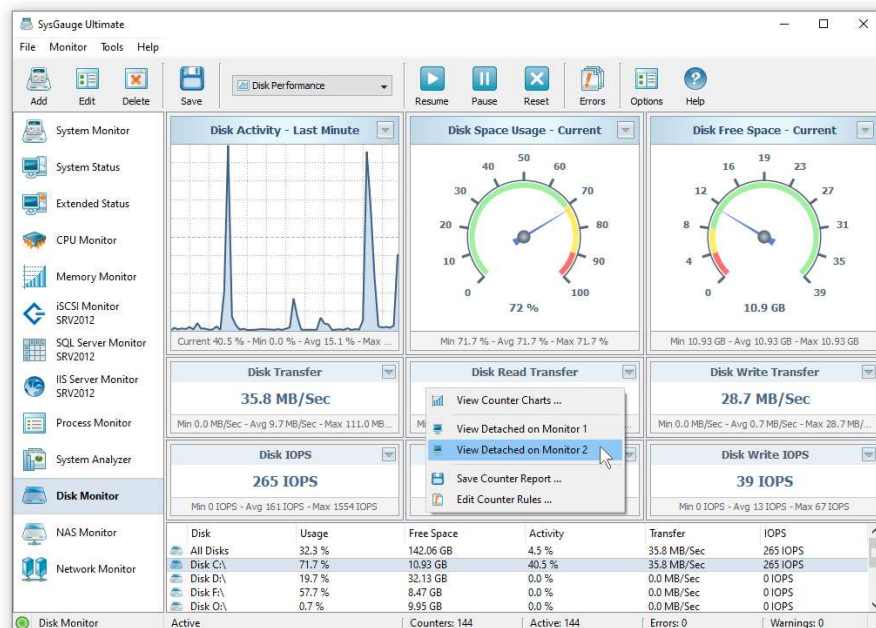
Once finished configuring the required Windows services, open the 'Computer Management' applet, open the 'Local Users and Groups' folder, open the 'Performance Monitor Users' group and add the user account running the SysGauge system monitoring application to the group.

7 Multi-Monitor Configurations

SysGauge Pro provides the ability to open a number of monitoring windows on an unlimited number of physical monitors allowing one to effectively utilize multi-monitoring configurations. In order to open a monitoring window on a separate physical monitor, press the right mouse button over a monitoring counter in the SysGauge GUI application and select the 'View Detached on Monitor X' menu item.



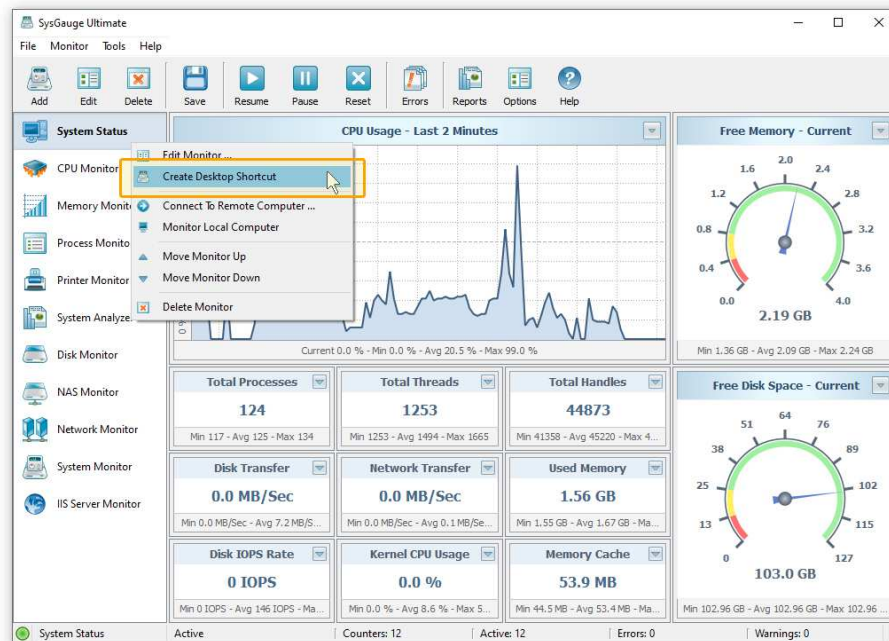
The SysGauge GUI application will open the selected monitoring counter in a separated window allowing one to position or maximize the selected monitoring window on any physical monitor connected to the computer.



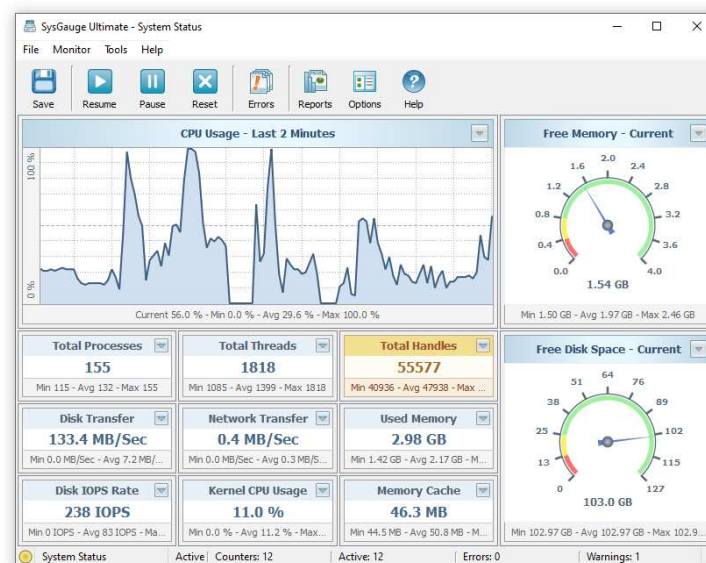
In addition, users are provided with the ability to display the status of different physical devices on different physical monitors. For example, the user can open a separate disk read transfer rate monitor for the disk 'C:' on the first physical monitor and a separate disk read transfer rate monitor for the disk 'D:' on the second physical monitor.

8 Simultaneous Monitoring Operations

SysGauge Pro allows one to perform multiple, simultaneous monitoring operations in separate SysGauge GUI applications with each one executing a different system monitor using a dedicated desktop shortcut. For example, in order to create a dedicated desktop shortcut for a system monitor, select the monitor in the left-side monitors view, press the right mouse button and select the 'Create Desktop Shortcut' menu item.



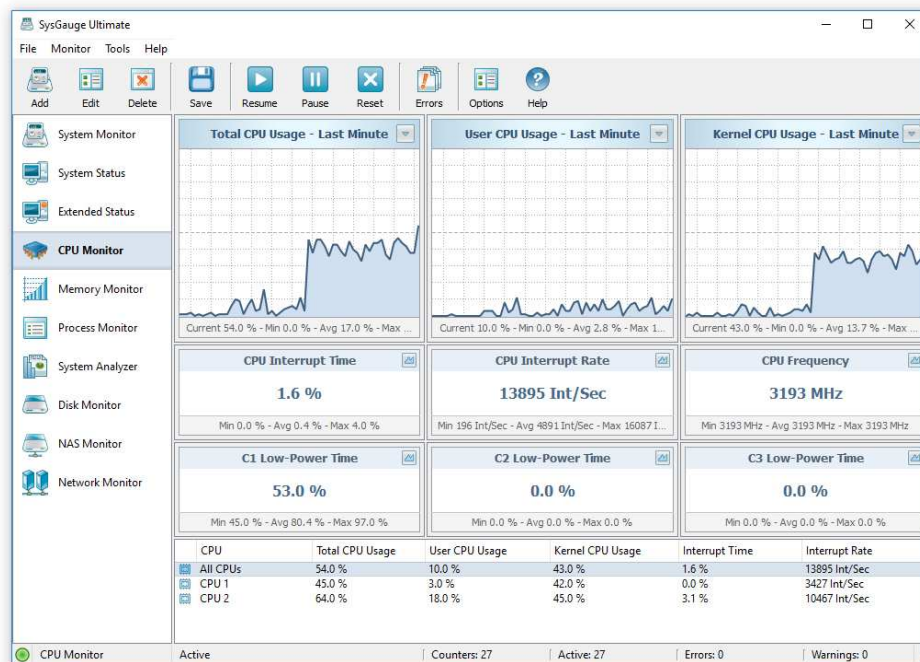
A desktop shortcut with the monitor name will appear on the desktop and in order to start this specific system monitor just click on the desktop shortcut. When a monitor is started using the dedicated desktop shortcut, the SysGauge GUI application will display a compact GUI interface showing only the components related to this specific monitor allowing one to focus on the relevant data.



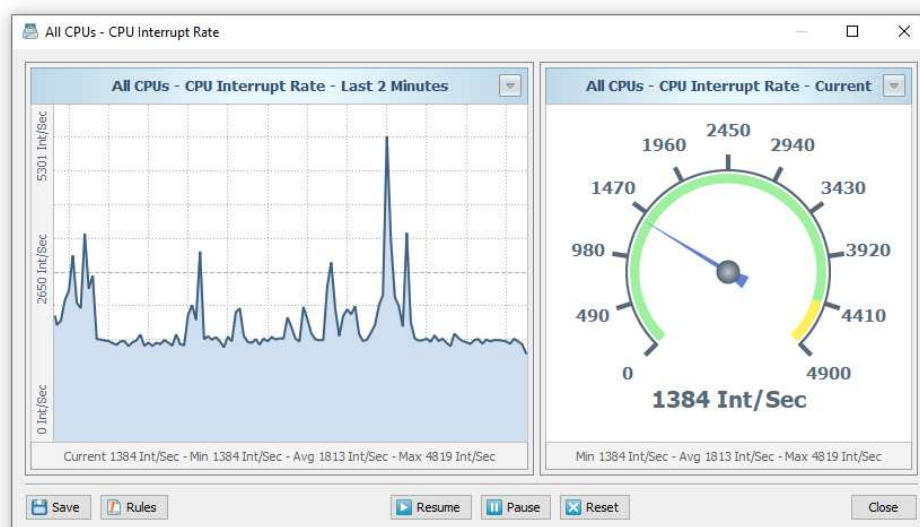
The user is provided with the ability to create dedicated desktop shortcuts for multiple different types of monitors, launch simultaneous monitoring operations and place different monitoring windows on multiple physical monitors allowing one to effectively utilize multi-monitor configurations.

9 CPU Monitor Module

The '**CPU Monitor**' GUI module is a dedicated CPU monitoring GUI module showing the total CPU usage, user CPU usage, kernel CPU usage, CPU interrupt time, CPU interrupt rate, the current CPU frequency, the C1 low-power state, C2 low-power state and C3 low-power state. The bottom part of the GUI module includes a list of CPUs in the monitored system and all the monitoring counters are showing the monitoring data for the currently selected CPU. In addition, the user is provided with the ability to display the aggregated monitoring data for all CPUs.



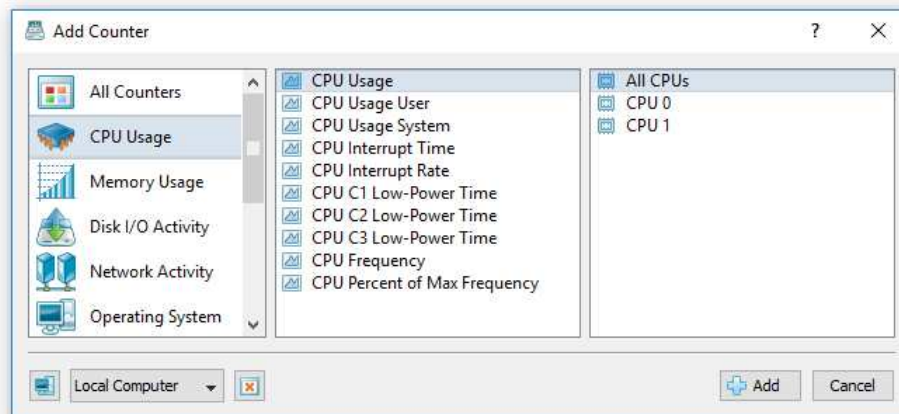
The CPU usage charts located on the top side of the GUI module allow one to display the monitoring data for the last minute, last 2 minutes or last 5 minutes. In addition, the user is provided with the ability to display data charts from all other counters by pressing on the 'Chart' button located in the top-right corner of each counter.



The data chart dialog provides the ability to view the monitoring data for the last minute, last 2 minutes or last 5 minutes. In addition, the user is provided with the ability export the counter's monitoring data, pause, resume and reset the monitor.

In addition to the dedicated CPU monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom CPU monitoring profiles.

In order to add a CPU usage counter, press the 'Monitor' button located on the main toolbar, selected the 'CPU Usage' counters category in the left-side view and then select an appropriate CPU usage counter in the middle view. By default, SysGauge will monitor all CPUs, but if required, the user can select a specific CPU to monitor in the right-side view. In addition, in order to monitor the CPU usage in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.



- **CPU Usage** - this counter is the primary indicator of the processor activity and it displays the average percentage of the processor busy time observed during the sample interval.
- **CPU Usage User** - this counter measures the percentage of elapsed time the processor spends in the user mode. User mode is a restricted processing mode designed for user applications, environment subsystems, and integral subsystems.
- **CPU Usage System** - this counter measures the percentage of elapsed time that the processor spent executing code in privileged mode. When a Windows system service is called, the service will often run in privileged mode to gain access to system-private data.
- **CPU Interrupt Time** - this counter measures the time the processor spends receiving and servicing hardware interrupts during sample intervals. This value is an indirect indicator of the activity of devices that generate interrupts, such as the system clock, the mouse, disk drivers, data communication lines, network interface cards and other peripheral devices. These devices normally interrupt the processor when they have completed a task or require attention. Normal thread execution is suspended during interrupts. Most system clocks interrupt the processor every 10 milliseconds, creating a background of interrupt activity. This counter displays the average busy time as a percentage of the sample time.
- **CPU Interrupt Rate** - this counter measures the average rate, in incidents per second, at which the processor received and serviced hardware interrupts. This value is an indirect indicator of the activity of devices that generate interrupts, such as the system clock, the mouse, disk drivers, data communication lines, network interface cards, and other peripheral devices. These devices normally interrupt the processor when they have completed a task or require attention. Normal thread execution is suspended. The system clock typically interrupts the processor every 10 milliseconds, creating a background of interrupt activity. This counter displays the difference between the values observed in the last two samples, divided by the duration of the sample interval.
- **CPU C1, C2, C3 Low-Power Time** - these counters show the percentage of time the CPU spent in one of these low-power states.
- **CPU Frequency** - this counter shows the current CPU frequency.
- **CPU Percent of Max Frequency** - this counter shows the current percentage of the maximum CPU frequency.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the CPU usage and save CPU usage monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -cpu_monitor -save_excel_report <File Name or Directory>

This command will perform a CPU usage monitoring operation using a number of CPU monitoring counters including the total CPU usage, the user-level CPU usage, the system-level CPU usage, the CPU interrupt time, the CPU interrupt rate, the C1, C2 and C3 low-power CPU states and the CPU frequency. In addition, after the monitoring operation will be completed, SysGauge will save an Excel CPU usage monitoring report to the specified file or directory.

Command Line Options:

-extended

By default, the CPU usage monitor reports the total CPU usage statistics for all CPUs in the monitored system. This command line option enables individual CPU usage monitoring counters for each CPU and the CPU usage monitoring results will include individual CPU usage statistics for each CPU or CPU core in the monitored system.

-host <Remote Host Name or IP address>

This option allows one to monitor the CPU usage in remote servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML CPU monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF CPU monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel CPU monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text CPU monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV CPU monitoring report.

-save_xml_report <File Name or Directory>

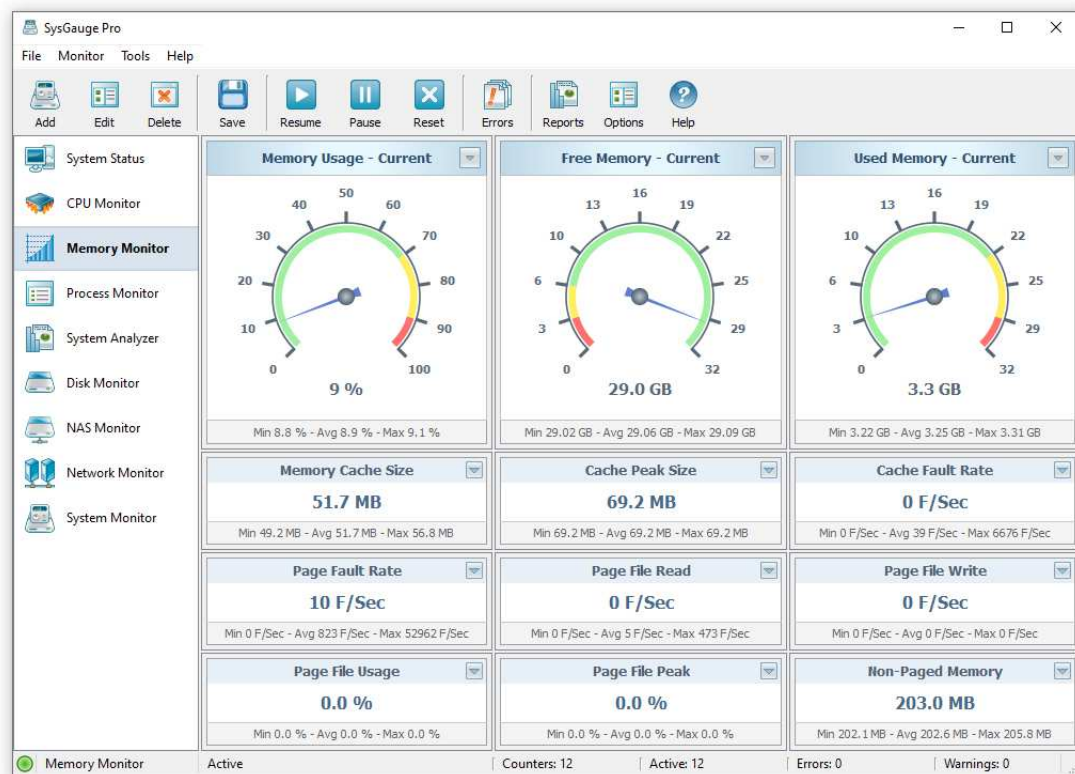
This command line option saves an XML CPU monitoring report.

-save_to_database <Table Name>

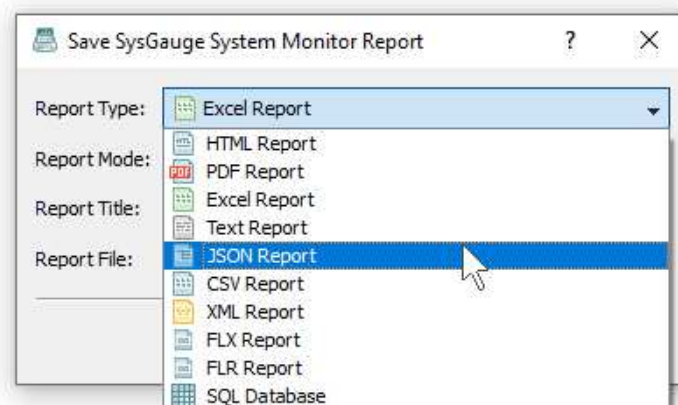
This command line option saves monitoring results to the specified SQL database table.

10 Memory Monitor Module

The '**Memory Monitor**' GUI module is a dedicated memory monitoring module showing the memory usage, the amount of free memory, the amount of used memory, the size of the memory cache, the cache peak size, the cache fault rate, the page file usage, the page file peak usage and the page fault rate.



All memory usage gauges, which are located on the top-side of the window, provide the ability to display the current value, average value or the maximum value. In addition, all memory usage counters, display the minimum, maximum and average value on the counter's status bar.



In addition, the user is provided with the ability to save system monitoring reports into a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a system monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report file name and press the 'Save' button.

In addition to the dedicated memory monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom memory monitoring profiles. In order to add a memory usage counter, press the 'Monitor' button located on the main toolbar, selected the 'Memory Usage' counters category in the left-side view and then select an appropriate memory usage counter in the middle view. In addition, in order to monitor the memory usage in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.

- **Memory Usage** - this counter measures the percentage of the used system memory by calculating the ratio of memory committed bytes to the memory commit limit. Committed memory is the physical memory in use for which space has been reserved in the paging file should it need to be written to disk. The commit limit is determined by the size of the paging file. If the paging file is enlarged, the commit limit increases, and the ratio is reduced.
- **Memory Free** - this counter measures the amount of physical memory, in Megabytes, immediately available for allocation to a process or for system use. It equals to the sum of memory assigned to the standby, free and zero page lists.
- **Memory Used** - this counter measures the amount of committed virtual memory, in Megabytes. Committed memory is the physical memory which has space reserved on the disk paging files.
- **Memory Cache** - this counter displays the total amount of the cached system memory in Megabytes by calculating the sum of the system cache resident memory, system driver resident memory, system code resident memory and paged pool resident memory.
- **Memory Cache Peak** - this counter shows the maximum number of bytes used by the file system cache since the system was last restarted. This might be larger than the current size of the memory cache.
- **Memory Cache Fault Rate** - this counter measures the rate at which faults occur when a page sought in the file system cache is not found and must be retrieved from elsewhere in memory or from the disk. The file system cache is an area of physical memory that stores recently used pages of data for applications. Cache activity is a reliable indicator of most application I/O operations.
- **Memory Page Fault Rate** - this counter measures the average number of pages faulted per second. It is measured in number of pages faulted per second because only one page is faulted in each fault operation, hence this is also equal to the number of page fault operations.
- **Memory Page Read Rate** - this counter measures the rate at which the disk was read to resolve hard page faults. It shows the number of read operations, without regard to the number of pages retrieved in each operation.
- **Memory Page Write Rate** - this counter measures the rate at which pages are written to disk to free up space in physical memory. Pages are written to disk only if they are changed while in physical memory, so they are likely to hold data, not code. This counter shows write operations, without regard to the number of pages written in each operation.
- **Memory Page File Usage** - this counter measures the current usage of all memory page files in percent.
- **Memory Page File Peak** - this counter measures the peak usage of all memory page files in percent.
- **Memory Nonpaged Pool Used** - this counter monitors the amount of system memory used from the non-paged memory pool. The non-paged memory pool is an area of system memory for objects that cannot be written to disk, but must remain in physical memory as long as they are allocated.
- **Memory Nonpaged Pool Used Allocs** - this counter monitors the number of allocations made from the non-paged memory pool. The non-paged memory pool is an area of system memory for objects that cannot be written to disk, but must remain in physical memory as long as they are allocated.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the system memory usage and save memory usage monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -memory_monitor -save_pdf_report <File Name or Directory>

This command will perform a memory usage monitoring operation using a number of memory monitoring counters including the memory usage, the amount of free memory, the amount of used memory, the size of the memory cache, the peak size of the memory cache, the memory cache fault rate, the memory page file usage, the memory page file peak size and the memory page file fault rate. In addition, after the monitoring operation will be completed, SysGauge will save a PDF memory usage monitoring report to the specified file or directory.

Command Line Options:

-host <Remote Host Name or IP address>

This option allows one to monitor the memory usage in remote servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML memory monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF memory monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel memory monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text memory monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV memory monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON memory monitoring report.

-save_xml_report <File Name or Directory>

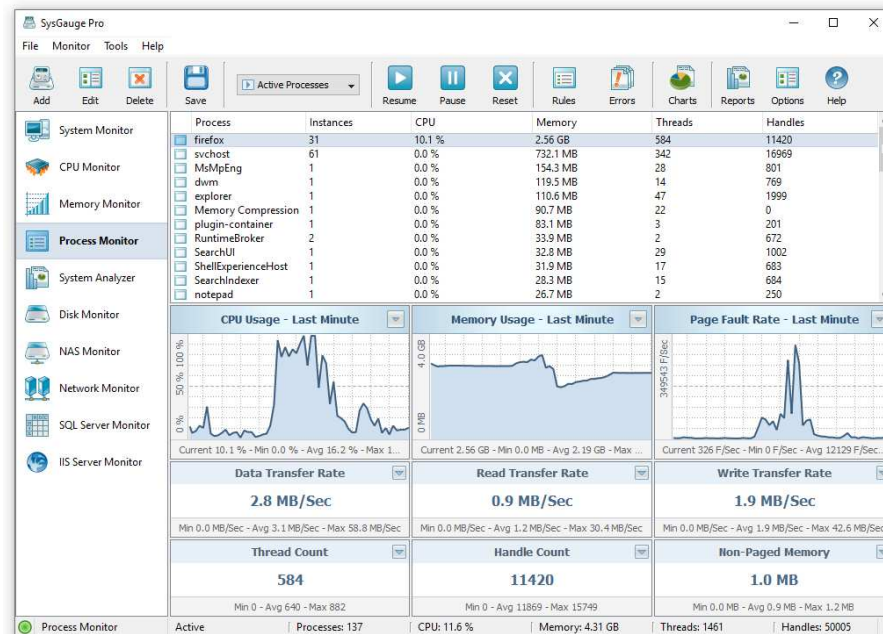
This command line option saves an XML memory monitoring report.

-save_to_database <Table Name>

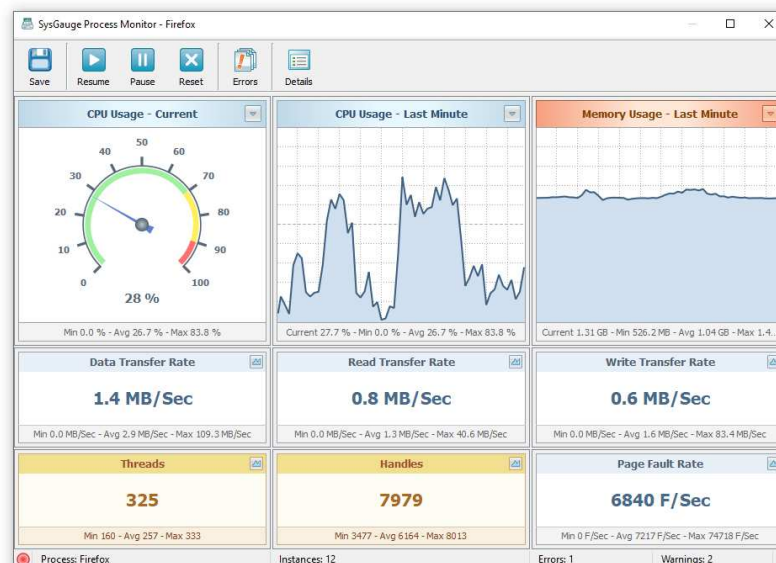
This command line option saves monitoring results to the specified SQL database table.

11 Process Monitor Module

The '**Process Monitor**' GUI module is a dedicated process monitoring module showing the list of currently running processes and displaying for each process the process CPU usage, the memory usage, the number of threads, the number of handles, the number of process instances, the process data transfer rate, the process read transfer rate, the process write transfer rate, the process page fault rate and the amount of non-paged memory allocated by each running process.

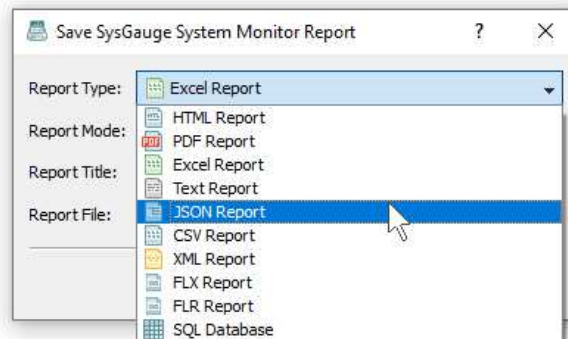


The top side of the process monitor displays the list of currently running processes and the bottom side of the window includes three data charts and a number of counters showing the monitoring data for the currently selected process. In order to open a detailed process monitoring dialog for a specific process, double click on the required process item in the list of currently running processes.



The process monitoring dialog shows the process CPU usage, the process memory usage, the process page-fault rate, the process data transfer rate, the process thread count, the process handle count and the amount of non-paged memory allocated by the process.

One of the most useful capabilities of the SysGauge process monitor is the ability to save process monitoring reports to a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a process monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format and report mode, enter a report file name and press the 'Save' button.



The SysGauge process monitoring report begins with a summary table showing the total number of processes, the total number of process instances, the total memory usage for all processes, the total number of threads for all processes and the total number of handles for all processes.

SysGauge Process Monitor Report - x

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160%

SysGauge Server v13.2.18

23-Jul-2026

SysGauge Process Monitor Report

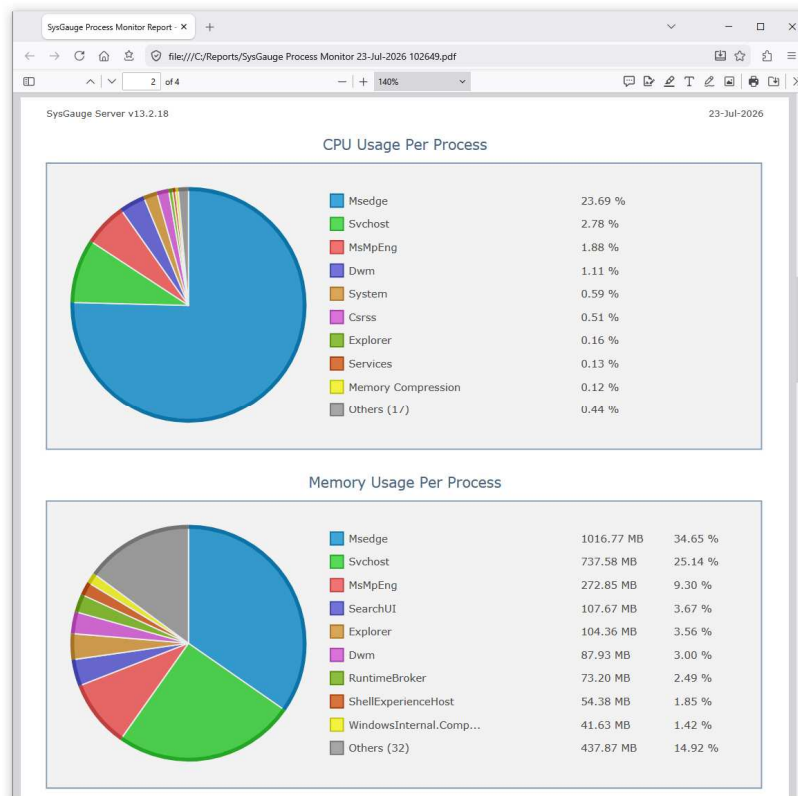
Start Time:	2026/07/23 10:21:41	Stop Time:	2026/07/23 10:26:48
Host Name:	W10LTS	User Name:	alex-s
Processes:	41	Instances:	142
Errors:	1	Warnings:	4
Total CPU:	31.4 %	Total Memory:	2.87 GB
Total Threads:	1329	Total Handles:	44115

41 Running Processes - 142 Process Instances

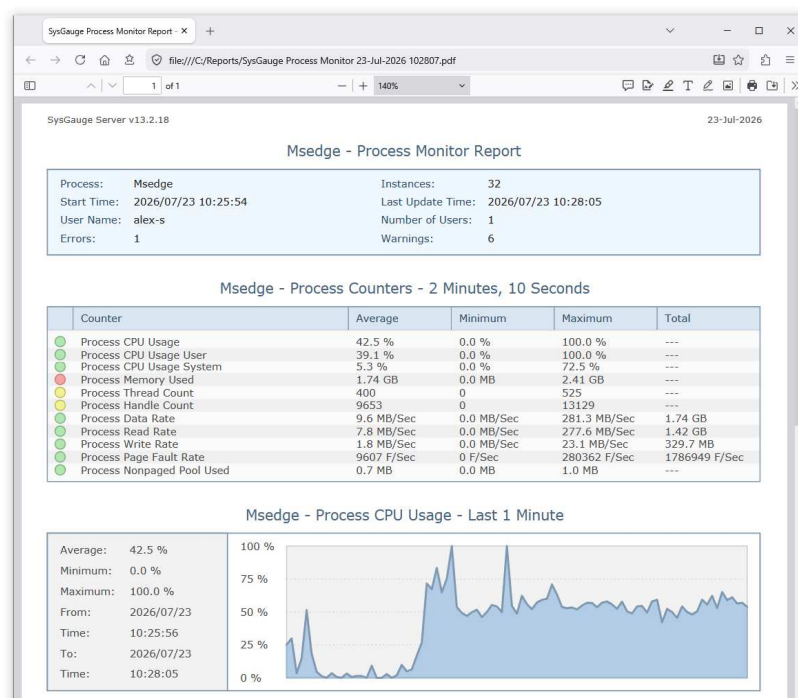
Process	Instances	CPU	Memory	Threads	Handles	Data	Status
Msedg	30	23.7 %	1016.8 MB	243	5643	13.7 MB/Sec	Normal
Svchost	67	2.8 %	737.6 MB	454	16719	1.4 MB/Sec	Normal
MsMpEng	1	1.9 %	272.8 MB	30	892	0.1 MB/Sec	Normal
Explorer	1	0.2 %	104.4 MB	59	2083	0.0 MB/Sec	Normal
Dwm	1	1.1 %	87.9 MB	14	772	0.0 MB/Sec	Normal
RuntimeBroker	4	0.0 %	73.2 MB	25	1226	0.0 MB/Sec	Normal
Memory Compression	1	0.1 %	21.8 MB	27	0	0.0 MB/Sec	Normal
SearchUI	1	0.1 %	107.7 MB	30	1009	0.0 MB/Sec	Normal
ShellExperienceHost	1	0.1 %	54.4 MB	23	726	0.0 MB/Sec	Normal
WindowsInternal.Comp...	1	0.0 %	41.6 MB	23	822	0.0 MB/Sec	Normal
LockApp	1	0.0 %	40.6 MB	13	536	0.0 MB/Sec	Normal
ApplicationFrameHost	1	0.0 %	25.0 MB	6	328	0.0 MB/Sec	Normal
Sihost	1	0.0 %	25.0 MB	12	587	0.0 MB/Sec	Normal
Dllhost	2	0.0 %	15.5 MB	12	316	0.0 MB/Sec	Normal
SmartScreen	1	0.0 %	22.1 MB	9	401	0.0 MB/Sec	Normal
MpDefenderCoreService	1	0.0 %	18.4 MB	12	478	0.0 MB/Sec	Normal
SearchIndexer	1	0.0 %	15.9 MB	16	654	0.0 MB/Sec	Normal
SecurityHealthService	1	0.0 %	15.5 MB	12	407	0.0 MB/Sec	Normal
Lsass	1	0.1 %	15.6 MB	9	1208	0.0 MB/Sec	Normal
Ctfmon	1	0.0 %	15.1 MB	9	418	0.0 MB/Sec	Normal
Fdmsrv	1	0.0 %	15.5 MB	14	411	0.0 MB/Sec	Normal
Spoolsv	1	0.0 %	14.6 MB	12	439	0.0 MB/Sec	Normal
Winlogon	1	0.0 %	13.5 MB	6	351	0.0 MB/Sec	Normal

The summary table is followed by the process list table showing summary information for each process including: the process status, the process name, the process instance count, the process CPU usage, the process memory usage, the process thread count and the process handle count.

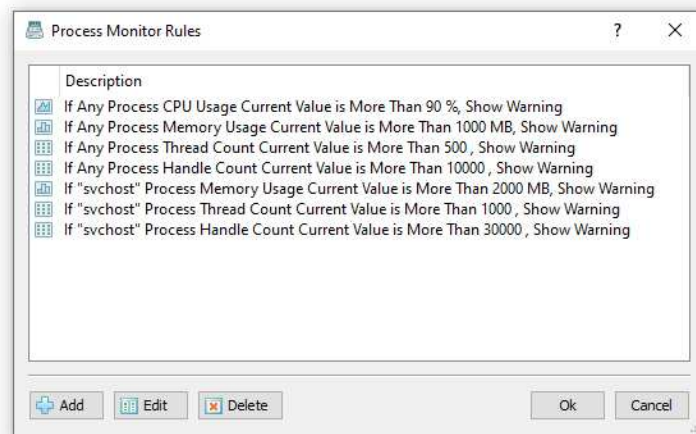
The process list table is followed by a number of pie charts showing the CPU usage per process, the memory usage per process, the number of threads per process and the number of handles per process, allowing one to easily identify processes consuming substantial amounts of system resources.



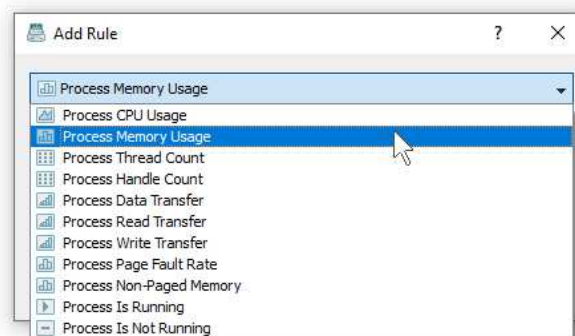
The statistical pie charts are followed by a number of tables showing detailed process information and history charts. For each running process, the report includes a summary table, a list of process monitoring counters with the average, minimum and maximum values for each monitoring counter and a number of charts showing the monitoring history.



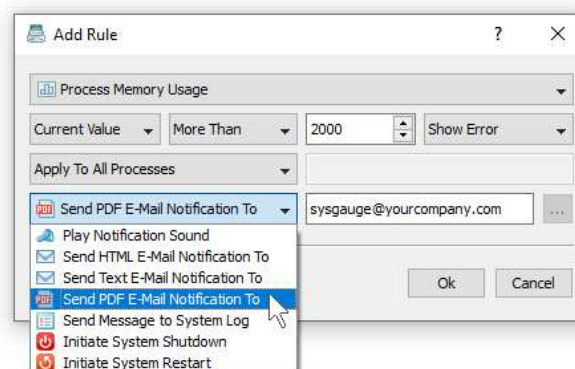
The SysGauge process monitor provides the user with the ability to define conditional process monitoring rules allowing one to automatically detect processes consuming excessive amounts of system resources and then play notification sounds, send E-Mail notifications or execute custom actions according to user-specified rules and policies.



In order to add one or more process monitoring rules, open the 'Options' dialog, select the 'Rules' tab and press the 'Add' button. On the 'Add Rule' dialog select a process monitoring counter, specify a condition that should trigger the rule, select an action type and specify an action value if required.

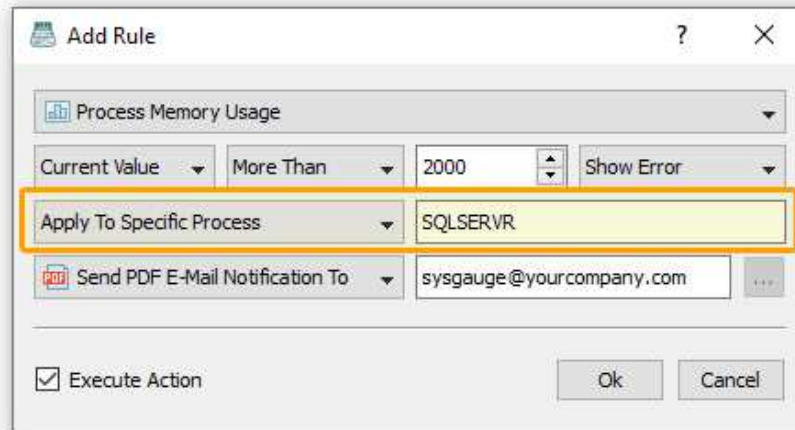


For example, in order to send an E-Mail notification for any process consuming more than 90 percent of the CPU time, select the 'Process CPU Usage' counter type, set the rule condition to 'Current Value More Than 90', select the 'E-Mail Notification' action type and enter an E-Mail address to send notifications to.

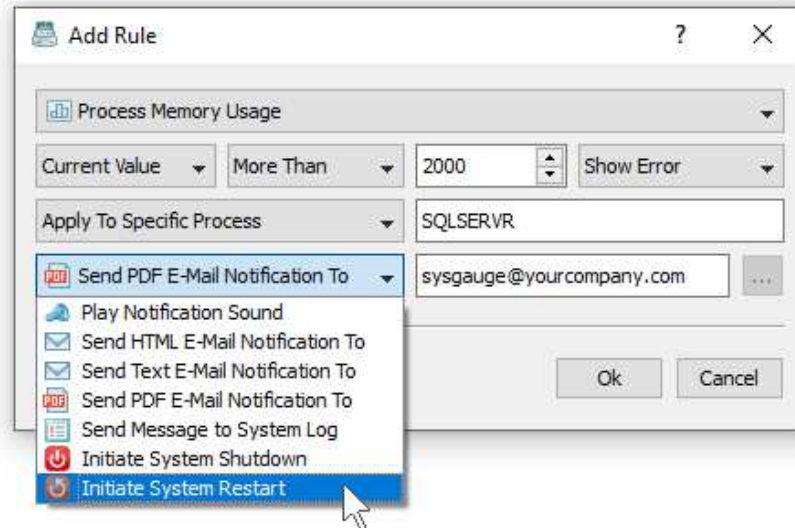


In addition, select the 'E-Mail' tab and specify an SMTP E-Mail server to use to send E-Mail notifications. During the process monitoring operation, SysGauge will check the selected process monitoring counters for each running process and send E-Mail notifications for all processes consuming more than the user-specified amount of system resources.

In addition to the global process monitoring rules, which are applied to all running processes, the user is provided with the ability to configure rules and policies for user-designated processes allowing one to automatically check if a process is running or not running and monitor the process CPU usage, process memory usage, number of threads, number of handles, process data transfer rate, process read transfer rate, process write transfer rate, process page fault rate and the amount of the process non-paged memory.



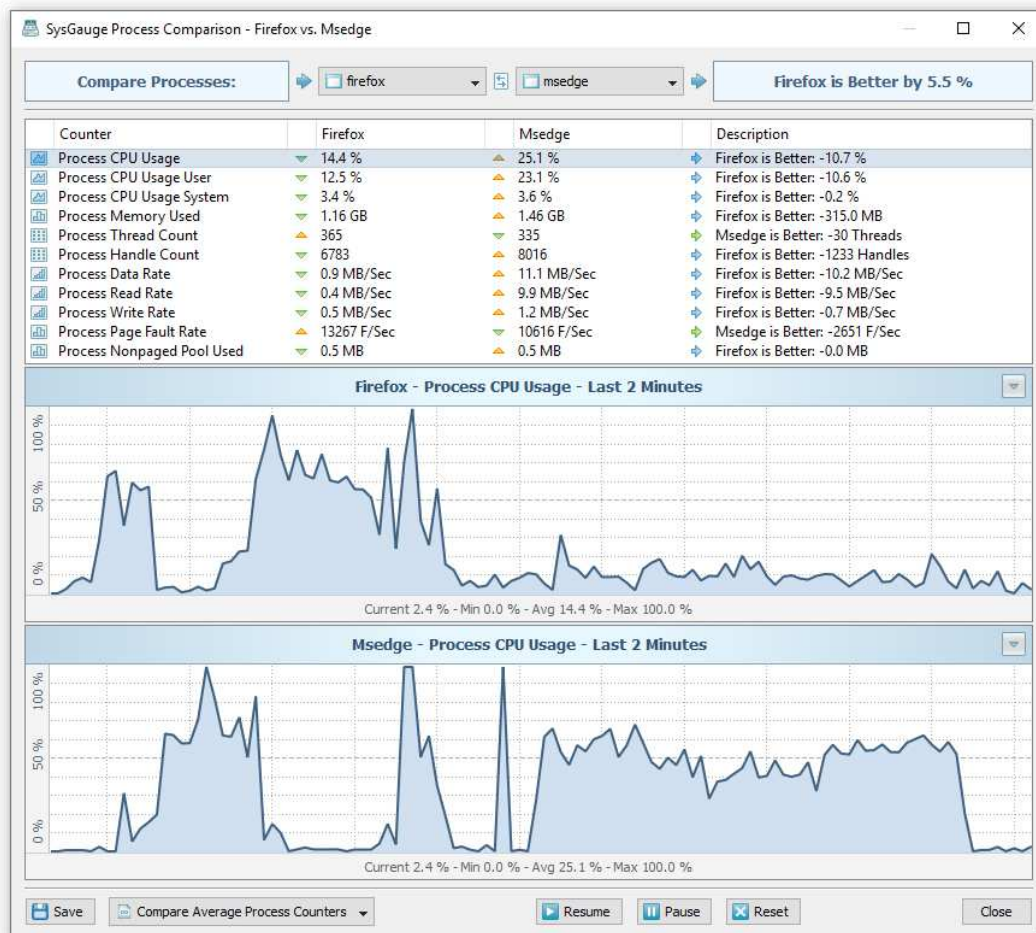
In order to add a process monitoring rule, select the 'Process Monitor' module on the left side-bar, press the 'Rules' button located on the main toolbar and press the 'Add' button. On the process rule dialog, specify the name of the process to apply the rule to, select the process monitoring rule type and specify a process monitoring condition. If required, enable process monitoring actions and select an appropriate process monitoring action type.



For example, the user is provided with the ability to play notification sounds, select E-Mail notifications, send messages to the system event log or restart the system if one or more user-designated processes are not running or consuming too much of the system resources.

Sometimes, it may be required to compare two running processes in order to understand which of the two processes consumes less system resources while performing the same operation. For example, there are many different web browser applications providing very similar sets of features, but consuming different amounts of system resources while performing exactly the same operation.

In order to compare two processes using the SysGauge process monitor, select a process item in the process view, press the right mouse button and select the 'Compare Process' menu item. On the 'Compare Process' dialog, use the process selection combo boxes to select a pair or processes to compare.

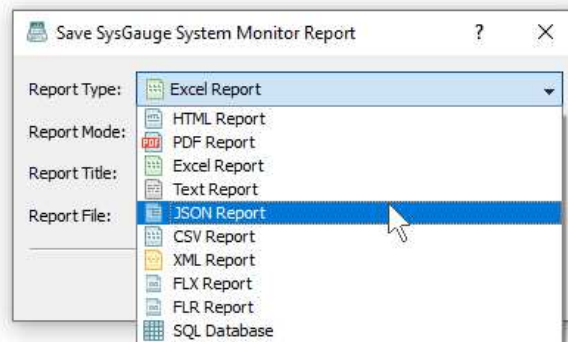


For each of the selected processes, SysGauge will monitor and compare the process CPU usage, the amount of system memory used by the process, the process thread count, the process handle count, the process data transfer rate, the process read transfer rate, the process write transfer rate, the process page fault rate and the amount of the non-paged memory used by the process.

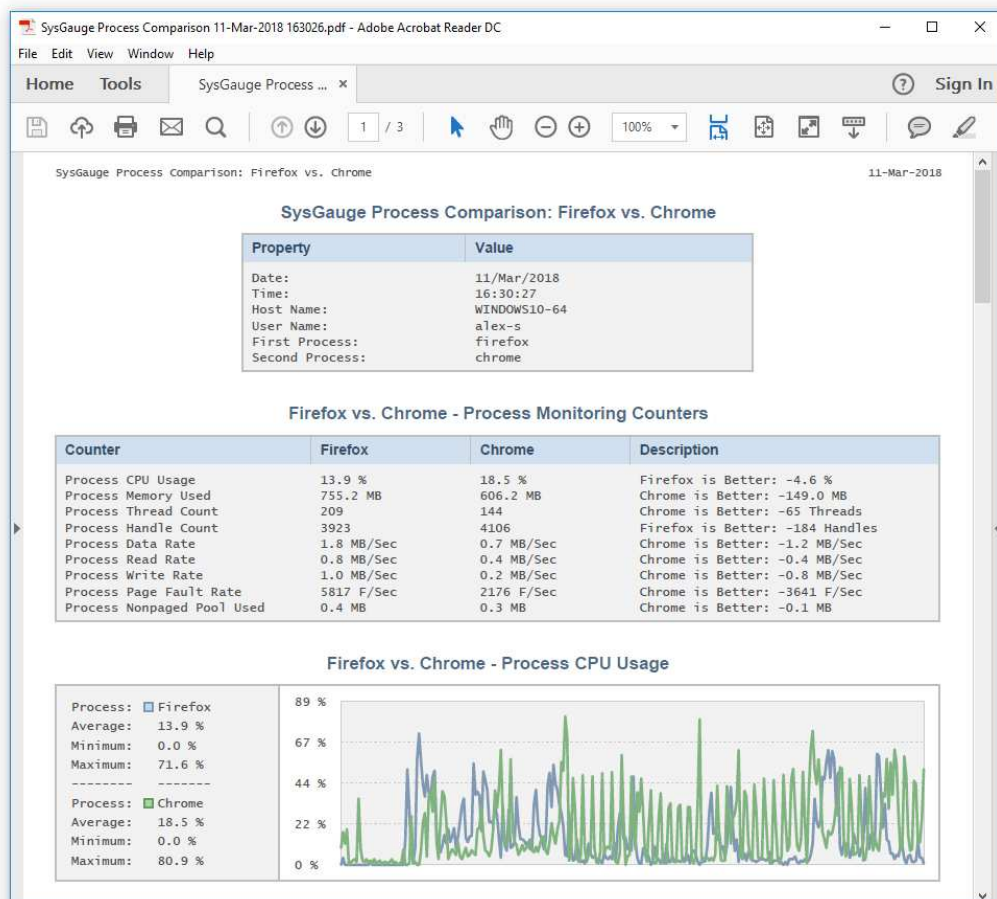
The top view of the process comparison dialog displays the list process monitoring counters for the compared processes and the differences between the compared processes. In addition, the process comparison dialog shows two data charts showing the process monitoring data for the compared processes according to the currently selected process monitoring counter.

By default, the process comparison dialog shows the differences between the current values of the process monitoring counters. In addition, the user is provided with the ability to compare the average values of the process monitoring counters allowing one to understand how much of the system resources the compared processes consume over time and under different usage scenarios. In order to switch to the average counter values, use the comparison mode combo box located in the bottom-left corner of the dialog.

The SysGauge process monitor provides the ability to save process comparison reports to a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a process comparison report, press the save button located in the bottom-left corner of the process comparison dialog.

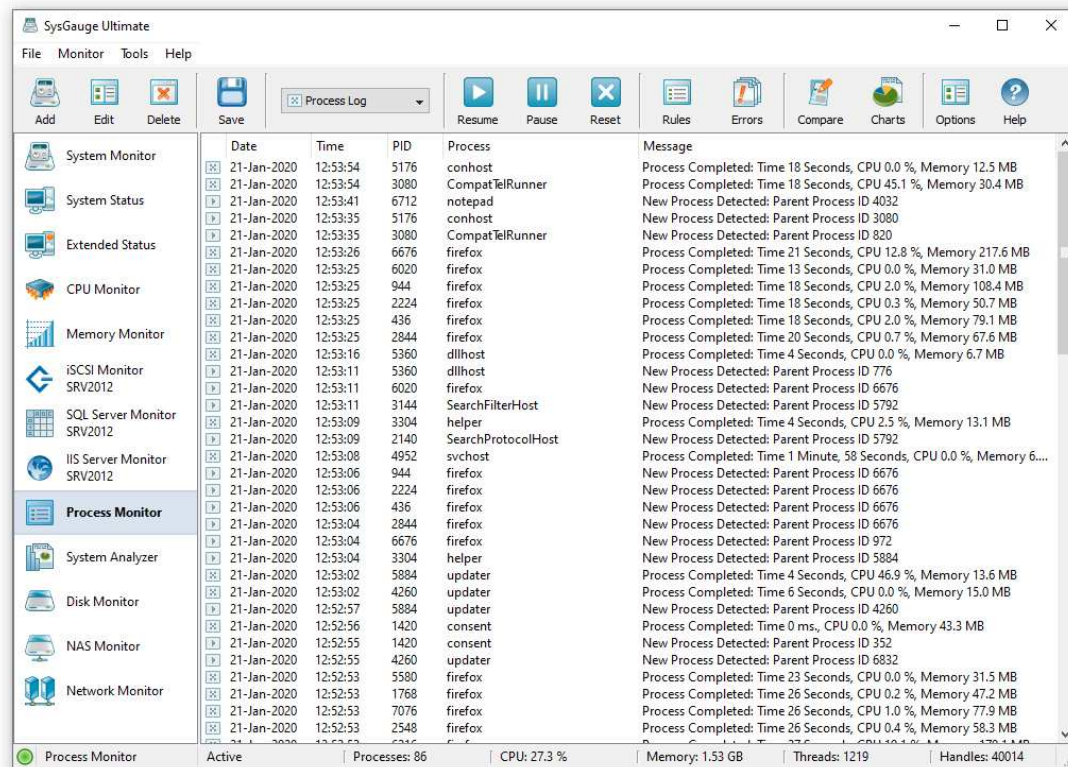


On the 'Save Report' dialog, select an appropriate report format, select a report mode, enter a report title, enter a report file name and press the 'Save' button. A SysGauge process comparison report begins with a summary table showing the report date and time, the report host name and the name of the user generated the report.

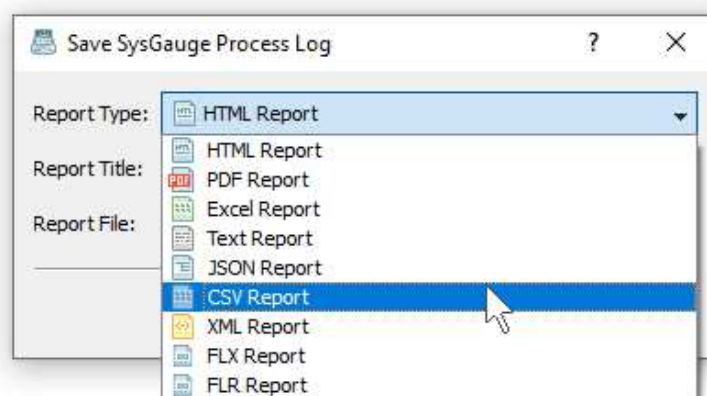


The summary table is followed by a table showing the list of process monitoring counters including the process CPU usage, process memory usage, thread count, handle count, data transfer rate, read transfer rate and write transfer rate for both processes. The list of process monitoring counters is followed by a number of comparison charts showing the difference between the processes for all process monitoring counters.

In order to enable users to identify which previously active processes used significant amounts of system resources, the SysGauge process monitor provides the process monitoring log showing the running time, CPU usage and memory usage for each completed process. In order to display the process monitoring log, set the process monitor display mode to 'Process Log'.

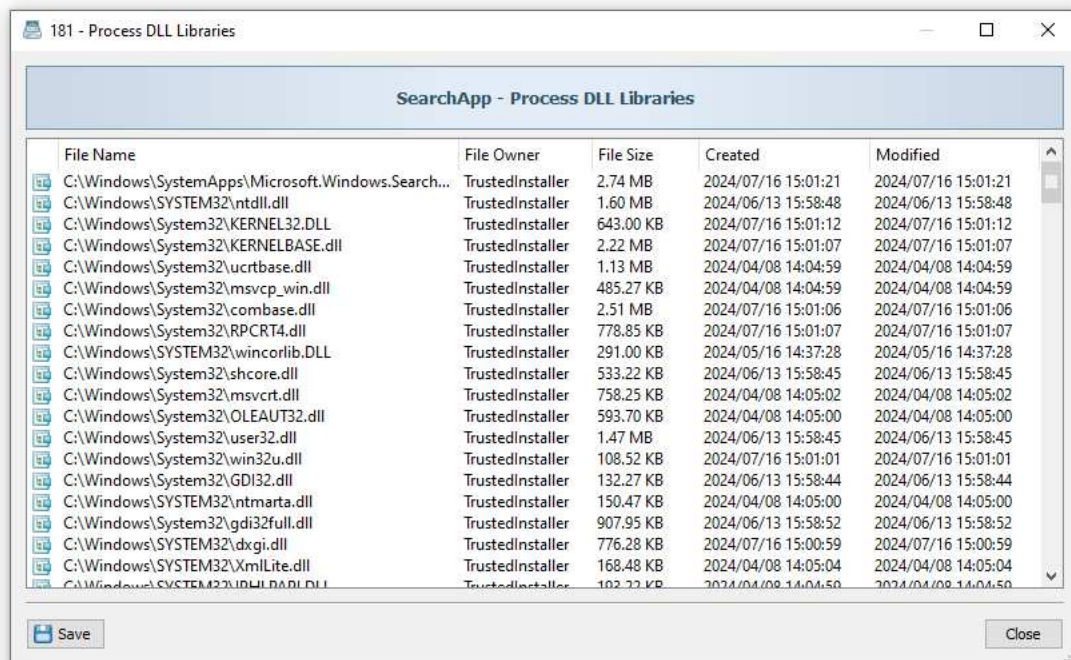


For each newly detected process, the process log shows the date and time, the process ID, process name and the parent process ID. For each completed process, the process log shows the completion date and time, the process ID, the process name, the process running time, the average CPU usage and the process memory usage.

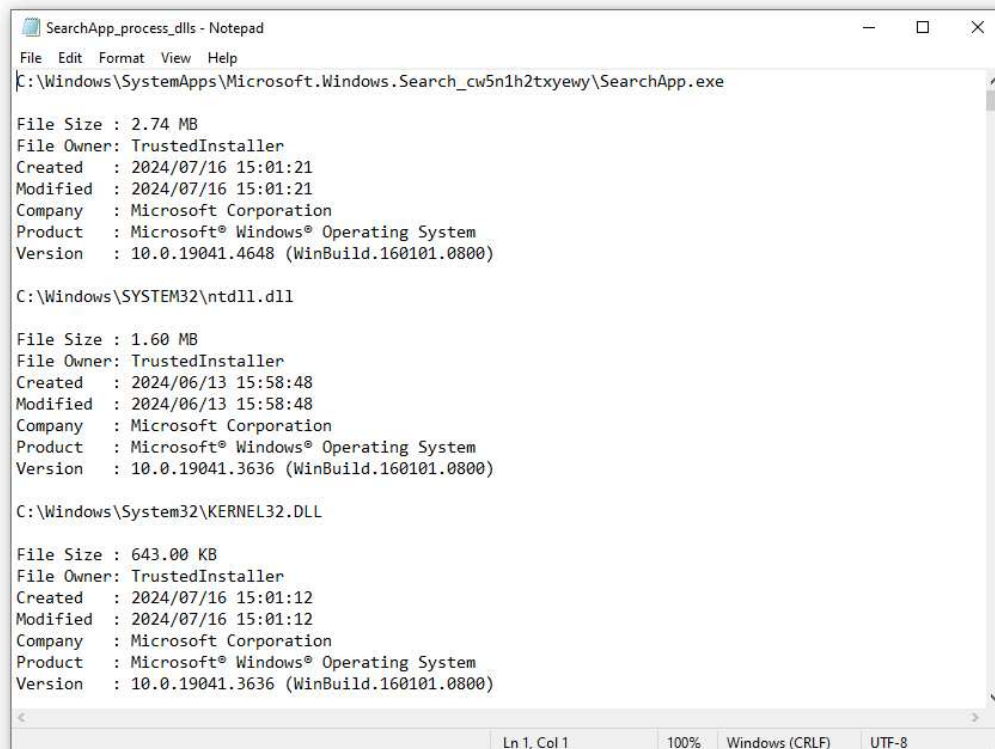


Finally, users are provided with the ability to save the process log to a number of different formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save the process log, press the 'Save' button located on the main toolbar, select an appropriate log format, enter a file name and press the 'Save' button.

In order to identify which DLL libraries are used by a process, select the process item in the process view, press the right mouse button and select the 'View Process DLL Libraries' menu item. For each DLL library, SysGauge shows the library name, the file owner, the file size, the file creation date and the file last modification date.



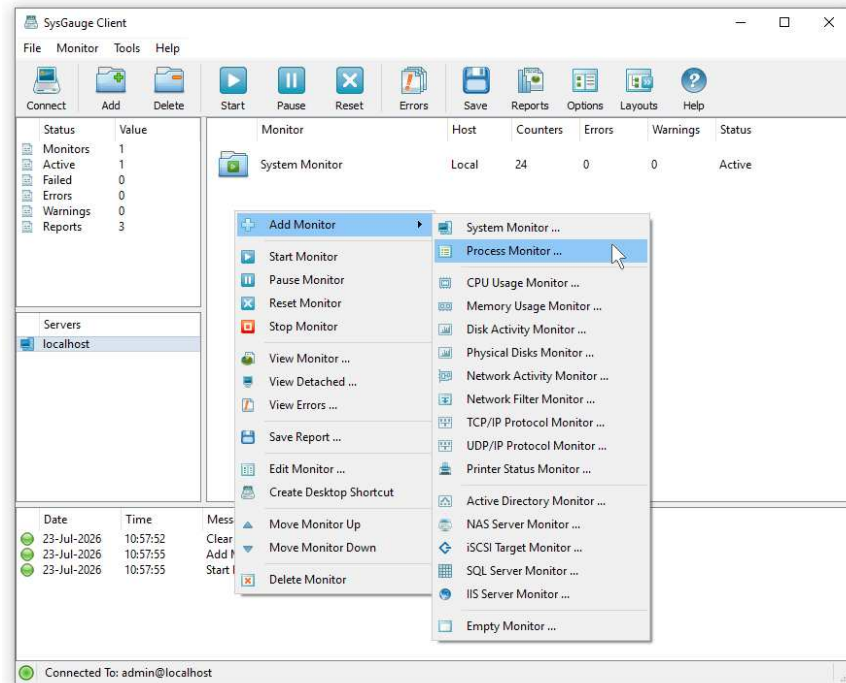
In order to save the list of DLL libraries to a text report file, press the 'Save' button located on the process DLL libraries dialog and specify the report file name. In addition to the information displayed on the process DLL libraries dialog, the report file shows the name of the software vendor company, the name of the software product the DLL library belongs to and the version of the DLL library file.



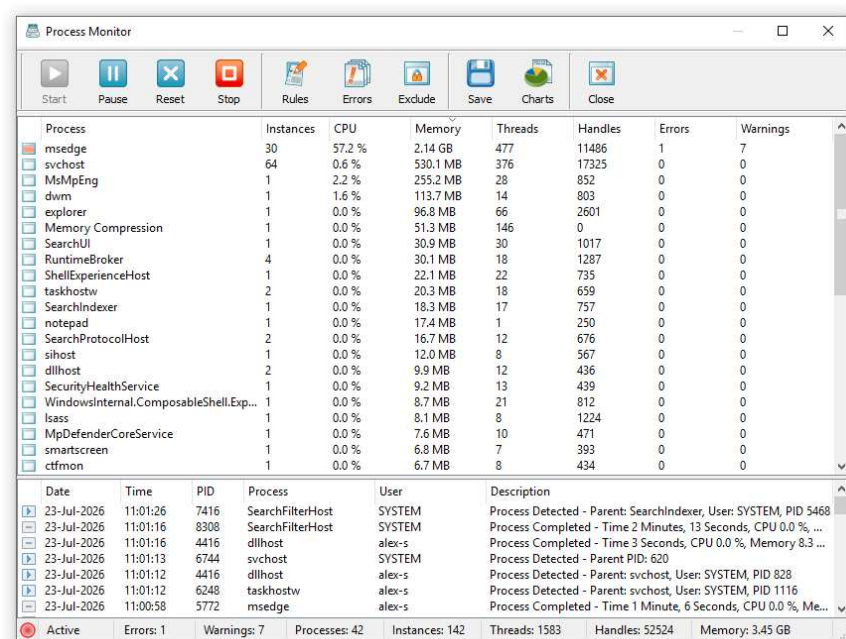
In addition to the dedicated process monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom process monitoring profiles. In order to add a process status counter, press the 'Add' button located on the main toolbar, selected the 'Process Status' counters category in the left-side view, select an appropriate process status counter in the middle view and then select the required process to monitor in the right-side view. In addition, in order to monitor the process status in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.

- **Process CPU Usage** - this counter shows the percentage of elapsed time that all threads of the selected process used the processor to execution instructions. An instruction is the basic unit of execution in a computer, a thread is the object that executes instructions, and a process is the object created when a program is run.
- **Process CPU Usage User** - this counter shows the percentage of elapsed time that all threads of the selected process spent executing code in the user mode. Applications, environment subsystems, and integral subsystems execute in user mode. Code executing in user mode cannot damage the integrity of the Windows executive, kernel, and device drivers.
- **Process CPU Usage System** - this counter shows the percentage of elapsed time that all threads of the selected process spent executing code in the system privileged mode.
- **Process Memory Used** - this counter shows the amount of the system memory in Megabytes used by the selected process.
- **Process Handle Count** - this counter displays the total number of handles currently open in the selected process. This number is equal to the sum of the handles currently open in each thread of the selected process.
- **Process Thread Count** - this counter displays the number of threads currently active in the selected process. An instruction is the basic unit of execution in a processor and a thread is the object that executes instructions. Every running process has at least one thread.
- **Process Control Rate** - this counter measures the rate in Megabytes per second at which the selected process is issuing I/O operations that do not involve data such as control operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Control IOPS** - this counter measures the rate in operations per second (IOPS) at which the selected process is issuing I/O operations that are neither read nor write operations (for example, a control function). This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Data Rate** - this counter measures the data rate in Megabytes per second at which the selected process is reading and writing data in I/O operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Data IOPS** - this counter measures the rate in operations per second at which the selected process is issuing read and write I/O operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Read Rate** - this counter measures the data read rate in Megabytes per second at which the selected process is reading data in I/O operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Read IOPS** - this counter measures the data read rate in operations per second at which the selected process is issuing read I/O operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Write Rate** - this counter measures the data write rate in Megabytes per second at which the selected process is writing data in I/O operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.
- **Process Write IOPS** - this counter measures the data write rate in operations per second at which the selected process is issuing write I/O operations. This counter measures all I/O activity generated by the process including file, network and device I/Os.

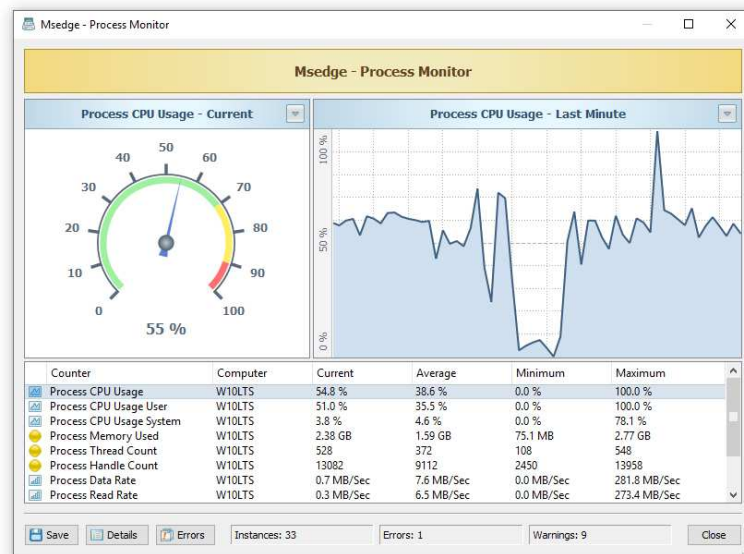
In addition to the SysGauge desktop product version, the user is provided with the SysGauge Server product version, which runs in the background as a Windows service and allows one to continuously monitor the running processes even when no users are logged into the computer. One of the major advantages of the SysGauge Server product version is the ability to perform multiple monitoring operations at the same time allowing one to monitor different components of the system such the SQL Database, NAS Server, IIS Server, Active Directory, etc. and/or monitor multiple servers via the network.



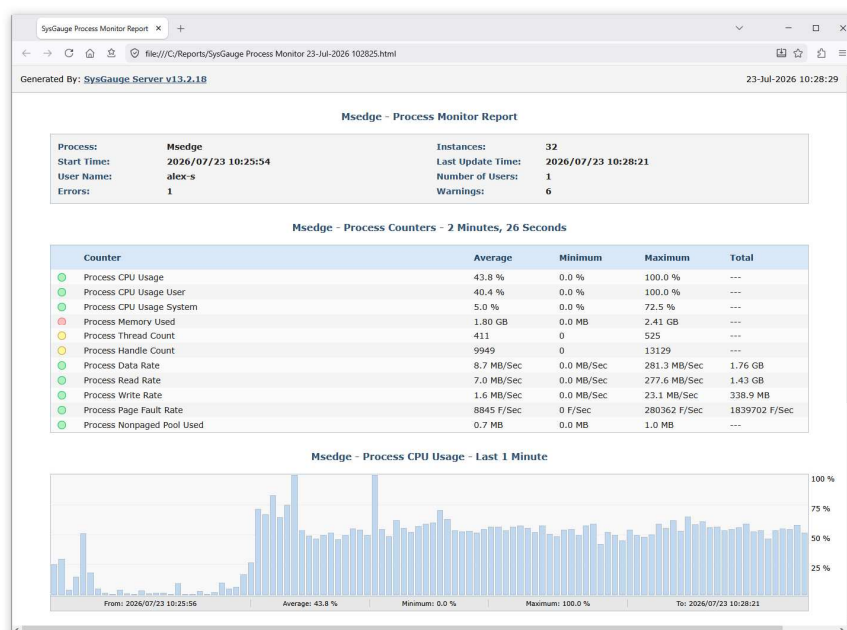
In order to add a process monitor using the SysGauge Server GUI application, press the right mouse button over the monitors view and select the 'Add Monitor – Process Monitor' menu item. The top view of the process monitor dialog shows the list of the currently running processes and the bottom view shows the process log listing the date and time of newly detected and completed processes including the process ID, process name, user name and a short description for each process log item.



In order to open a process, double-click on the process item in the process view. The process dialog's top status pane shows the process status, the middle view shows the gauge and the line chart for the currently selected process monitoring counter and the bottom view shows the list of all process monitoring counters allowing one to select what is displayed on the process monitor dialog's gauge and line chart.



In order to open a number of process monitor dialogs for multiple processes at the same time, select a process item in the process view, press the right mouse button and select the 'View Detached' menu item. The SysGauge Server GUI application will open a completely separated process monitoring dialog for the selected process allowing one to open a number of process monitoring dialogs for different processes and position the process monitoring dialogs on multiple physical displays.



In order to save a process monitoring report for the currently displayed process, press the 'Save' button located in the bottom-left corner of the process monitoring dialog, select an appropriate process monitoring report format and report mode and press the 'Save' button. For example, PDF and HTML process monitoring reports will display the process summary view followed by the list of process monitoring counters and then a line chart for each process monitoring counter.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the running processes and save process monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -process_monitor

This command will perform a process monitoring operation using a number of counters for each running process including the process CPU usage, the process memory usage, the process thread count, the process handle count, the process data transfer rate, the process read transfer rate, the process write transfer rate, the process memory page fault rate and the process non-paged memory size. Optionally, the user can save a process monitoring report into the PDF, HTML, Excel, CSV, text, JSON or XML report formats showing per-process resource usage statistics and all the details for all running processes.

```

c:\Program Files\SysGauge Pro\bin>sysgauge -process_monitor

SysGauge Pro v13.3.24

Process Monitor Started ...

13:16:58 - Processes 45/126, CPU 0.0 %, Memory 3444.3 MB, Threads 1241, Handles 45585
13:16:59 - Processes 45/126, CPU 24.0 %, Memory 3640.2 MB, Threads 1239, Handles 45572
13:17:00 - Processes 45/126, CPU 65.5 %, Memory 3297.5 MB, Threads 1242, Handles 45587
13:17:01 - Processes 45/126, CPU 65.5 %, Memory 3302.2 MB, Threads 1241, Handles 45585
13:17:02 - Processes 45/126, CPU 70.2 %, Memory 3303.0 MB, Threads 1251, Handles 45603
13:17:03 - Processes 45/127, CPU 64.5 %, Memory 3285.5 MB, Threads 1255, Handles 45669
13:17:04 - Processes 45/127, CPU 60.1 %, Memory 3287.6 MB, Threads 1271, Handles 45919

45 Running Processes:

firefox (14) ... CPU 55.6 % | Memory 1.36 GB | Threads 276 | Handles 5078 | Status - Normal
svchost (60) ... CPU 0.9 % | Memory 738.4 MB | Threads 332 | Handles 16789 | Status - Normal
MsMpEng (1) ... CPU 0.4 % | Memory 193.7 MB | Threads 29 | Handles 921 | Status - Normal
msedge (5) ... CPU 0.0 % | Memory 188.2 MB | Threads 93 | Handles 2193 | Status - Normal
dwm (1) ... CPU 0.0 % | Memory 98.2 MB | Threads 13 | Handles 715 | Status - Normal
explorer (1) ... CPU 0.0 % | Memory 94.7 MB | Threads 52 | Handles 1772 | Status - Normal
RuntimeBroker (4) ... CPU 0.0 % | Memory 77.0 MB | Threads 15 | Handles 1314 | Status - Normal
ShellExperienceHost (1) ... CPU 0.0 % | Memory 57.6 MB | Threads 16 | Handles 796 | Status - Normal
SearchUI (1) ... CPU 0.0 % | Memory 67.2 MB | Threads 27 | Handles 996 | Status - Normal
Memory Compression (1) ... CPU 0.8 % | Memory 42.7 MB | Threads 22 | Handles 0 | Status - Normal
notepad (1) ... CPU 0.0 % | Memory 26.7 MB | Threads 6 | Handles 256 | Status - Normal
ApplicationFrameHost (1) ... CPU 0.0 % | Memory 25.0 MB | Threads 4 | Handles 314 | Status - Normal
conhost (1) ... CPU 0.0 % | Memory 24.7 MB | Threads 5 | Handles 289 | Status - Normal
sihost (1) ... CPU 0.0 % | Memory 23.6 MB | Threads 10 | Handles 515 | Status - Normal
LockApp (1) ... CPU 0.0 % | Memory 24.2 MB | Threads 14 | Handles 544 | Status - Normal
smartScreen (1) ... CPU 0.0 % | Memory 21.0 MB | Threads 7 | Handles 424 | Status - Normal
MpDefenderCoreService (1) ... CPU 0.0 % | Memory 19.1 MB | Threads 11 | Handles 510 | Status - Normal
SearchIndexer (1) ... CPU 0.0 % | Memory 15.8 MB | Threads 14 | Handles 648 | Status - Normal
lsass (1) ... CPU 0.0 % | Memory 15.6 MB | Threads 8 | Handles 1215 | Status - Normal

```

In addition to the ability to monitor all running processes, the SysGauge command line utility allows one to monitor a single user-specified process and optionally save a process monitoring report into the PDF, HTML, Excel, CSV, text, JSON and XML report formats showing all the process details and resource usage charts. For example, in order to monitor the FireFox web browser process and save a PDF process monitoring report, type the following command:

sysgauge -process_monitor firefox -save_pdf_report [Dir Name or File Name]

If the specified process is not running at the time when the command is executed, the SysGauge command line utility will wait for the process and then start the process monitoring operation. In order to stop the running monitoring operation, press the 'ECS' key. Another way to terminate the process monitoring operation and optionally save a process monitoring report is to use the '-time' command line parameter and specify the maximum monitoring time in seconds.

Process Monitor Command Line Options:

-host <Remote Host Name or IP address>

This option allows one to monitor the running processes in remote servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML process monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF process monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel process monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text process monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV process monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON process monitoring report.

-save_xml_report <File Name or Directory>

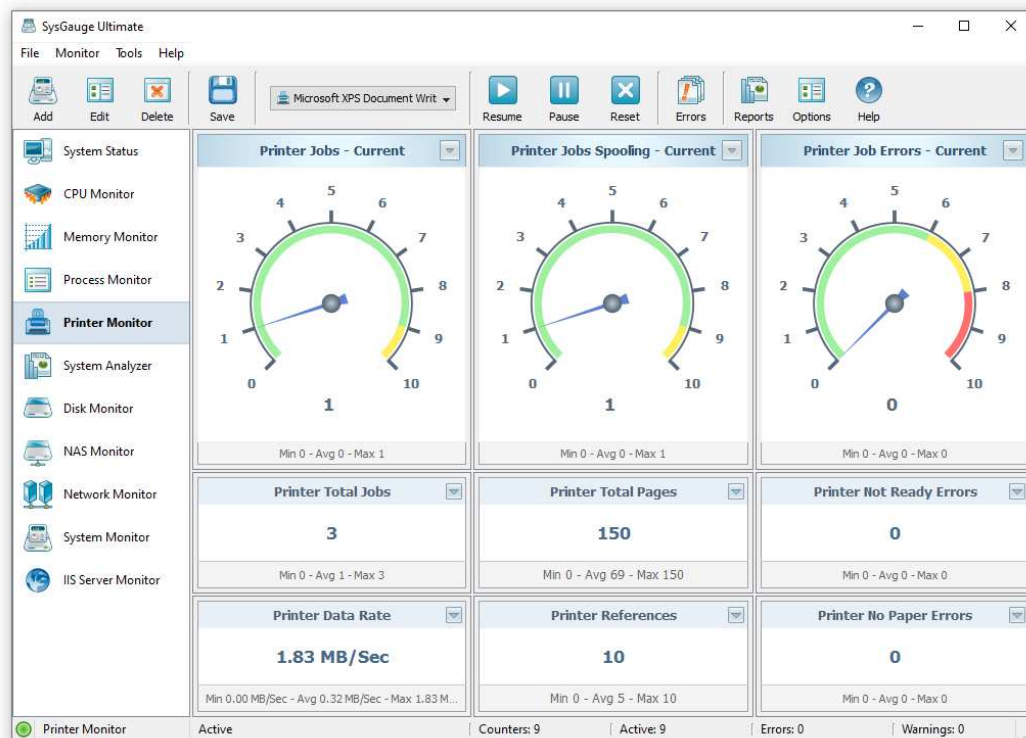
This command line option saves an XML process monitoring report.

-save_to_database <Table Name>

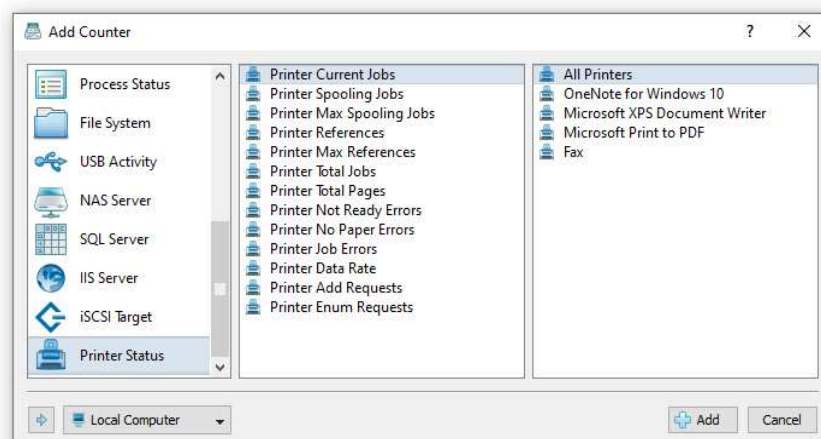
This command line option saves monitoring results to the specified SQL database table.

12 Printer Monitor Module

The 'Printer Monitor' GUI module is a dedicated printer monitor allowing one to monitor the current number of printer jobs, the number of spooling printer jobs, the total number of printed jobs, the total number of printed pages, the printer data rate, the number of error printer jobs, the number of printer not ready errors and the number of no paper errors.



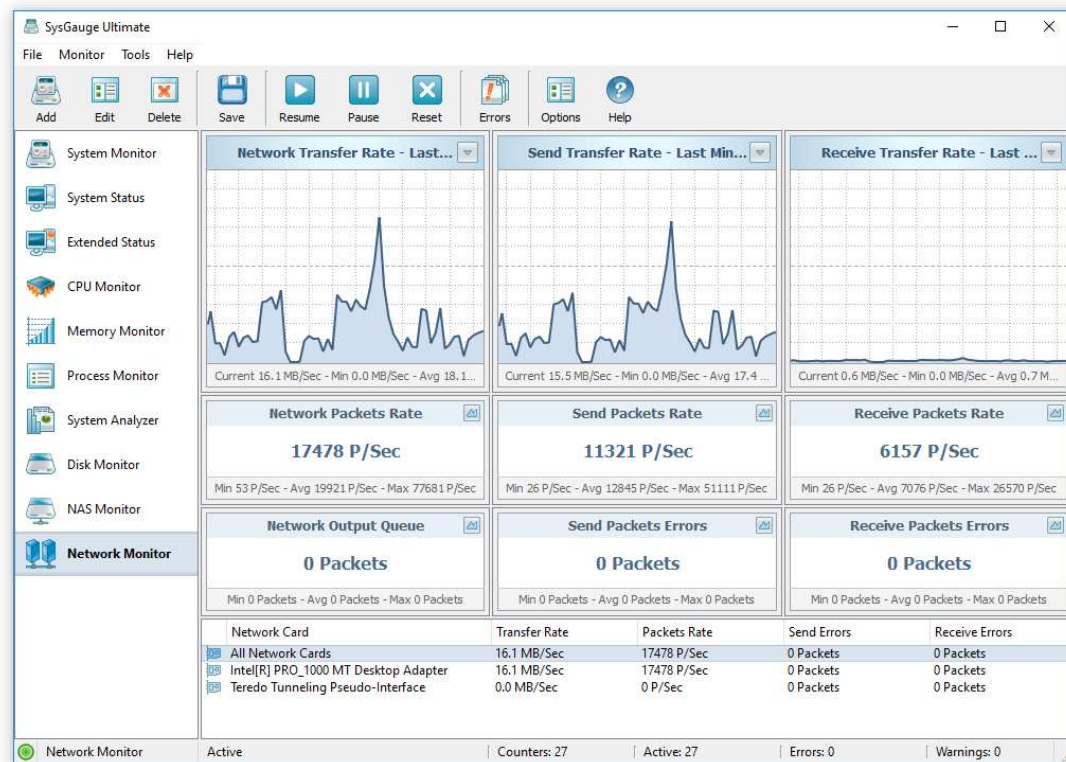
In order to add the printer monitor, press the 'Add' button located in the top-left corner of the main SysGauge GUI application and select the 'Printer Monitor' menu item. By default, the printer monitor monitors all printers installed in the computer. Also, the user is provided with the ability to select a specific printer to monitor by using the printer select combo-box located on the main toolbar.



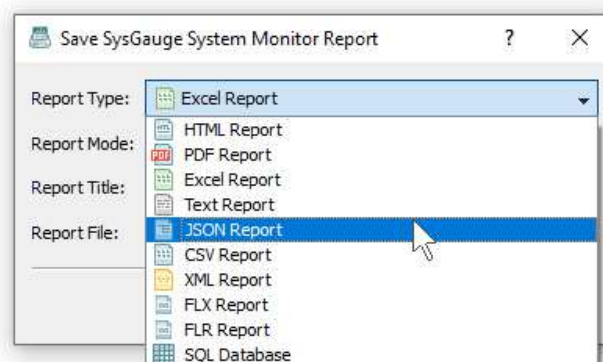
In addition to the dedicated printer monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom printer monitoring profiles. In order to create a custom printer monitoring profile, select the 'System Monitor' in the left-side monitors view, press the 'Monitor' button, select the 'Printer Status' in the counter type view and then add one or more printer monitoring counters.

13 Network Monitor Module

The '**Network Monitor**' GUI module is a dedicated network monitoring module showing the list of network interfaces in the computer and displaying the network transfer rate, the network send transfer rate, the network receive transfer rate, the network packets rate, the send packets rate, the receive packets rate, the network output queue length, the number of send packets errors and the number of receive packets errors for the currently selected network interface.



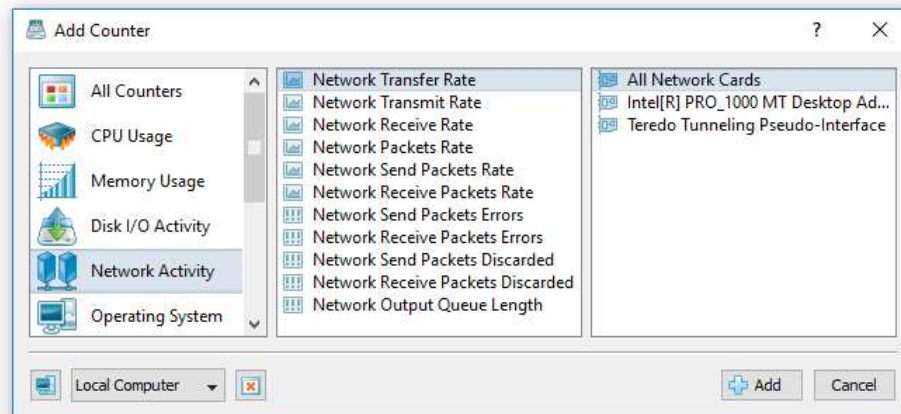
The network transfer rate charts, which are located on the top side of the window, allow one to display the monitoring data for the last minute, last 2 minutes or last 5 minutes. In addition, all network monitoring counters, display the minimum, maximum and average value on the counter's status bar.



In addition, the user is provided with the ability to save network monitoring reports into a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a network monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report file name and press the 'Save' button.

In addition to the dedicated network monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom network monitoring profiles.

In order to add a network activity counter, press the 'Monitor' button located on the main toolbar, selected the 'Network Activity' counters category in the left-side view and then select an appropriate network activity counter in the middle view. By default, SysGauge will monitor all network cards installed in the computer, but if required, the user can select a specific network card to monitor in the right-side view. In addition, in order to monitor the network activity in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.



- **Network Transfer Rate** - this counter measures the network transfer rate in Megabytes per second at which data is sent and received over the selected network adapter.
- **Network Transmit Rate** - this counter measures the network transfer rate in Megabytes per second at which data is sent over the selected network adapter.
- **Network Receive Rate** - this counter measures the network transfer rate in Megabytes per second at which data is received over the selected network adapter.
- **Network Packets Rate** - this counter measures the rate at which packets are sent and received on the selected network adapter.
- **Network Send Packets Rate** - this counter measures the rate at which packets are sent on the selected network adapter.
- **Network Receive Packets Rate** - this counter measures the rate at which packets are received on the selected network adapter.
- **Network Send Packets Errors** - this counter measures the number of outbound packets that could not be transmitted because of errors.
- **Network Receive Packets Errors** - this counter measures the number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
- **Network Send Packets Discarded** - this counter measures the number of outbound packets that were chosen to be discarded even though no errors had been detected to prevent transmission. One possible reason for discarding packets could be to free up the system memory.
- **Network Receive Packets Discarded** - this counter measures the number of inbound packets that were chosen to be discarded even though no errors had been detected to prevent their delivery to a higher-layer protocol. One possible reason for discarding packets could be to free up the system memory.
- **Network Output Queue Length** - this counter measures the number of network packets in the output packet queue. If the number of network packets in the output queue more than two, there are delays and the bottleneck should be found and eliminated, if possible.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the network activity and save network monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -network_monitor -save_pdf_report <File Name or Directory>

This command will perform a network monitoring operation using a number of network monitoring counters including the network transfer rate, network transmit rate, network receive rate, network packets rate, network send packets rate, network receive packets rate, network send packets errors, network receive packets errors and the network output queue length. In addition, after the monitoring operation will be completed, SysGauge will save a PDF network monitoring report to the specified file or directory.

Command Line Options:

-extended

By default, the network monitor reports the total network activity statistics for all network interface cards in the monitored server. This command line option enables individual network interface cards activity monitoring counters for each network card and the network activity monitoring results will include individual network cards statistics for each network interface card in the monitored server.

-host <Remote Host Name or IP address>

This option allows one to monitor the network activity in remote servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML network activity monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF network activity monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel network activity monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text network activity monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV network activity monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON network activity monitoring report.

-save_xml_report <File Name or Directory>

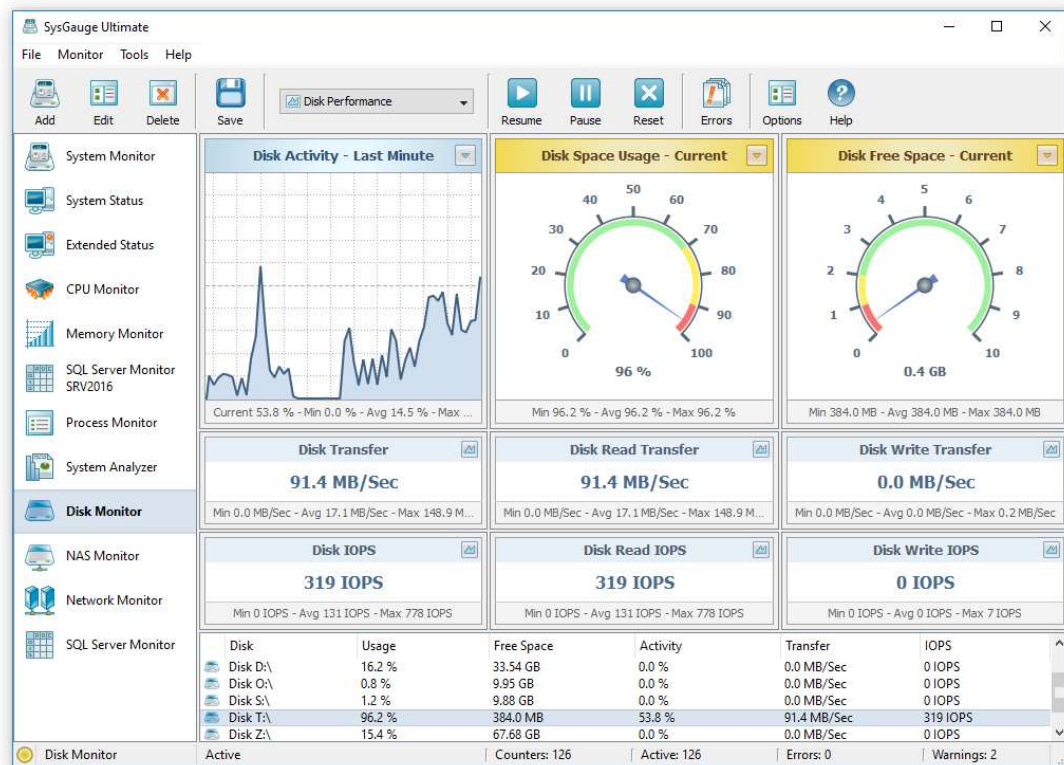
This command line option saves an XML network activity monitoring report.

-save_to_database <Table Name>

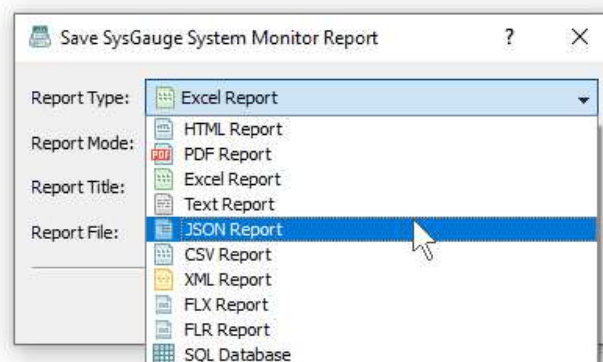
This command line option saves monitoring results to the specified SQL database table.

14 Disk Monitor Module

The '**Disk Monitor**' GUI module is a dedicated disk monitoring module showing the list of logical disks in the computer and displaying the disk activity, the disk space usage, the disk free space, the disk transfer rate, the disk read transfer rate, the disk write transfer rate, the disk IOPS rate, the disk read IOPS rate and the disk write IOPS rate for the currently selected logical disk.

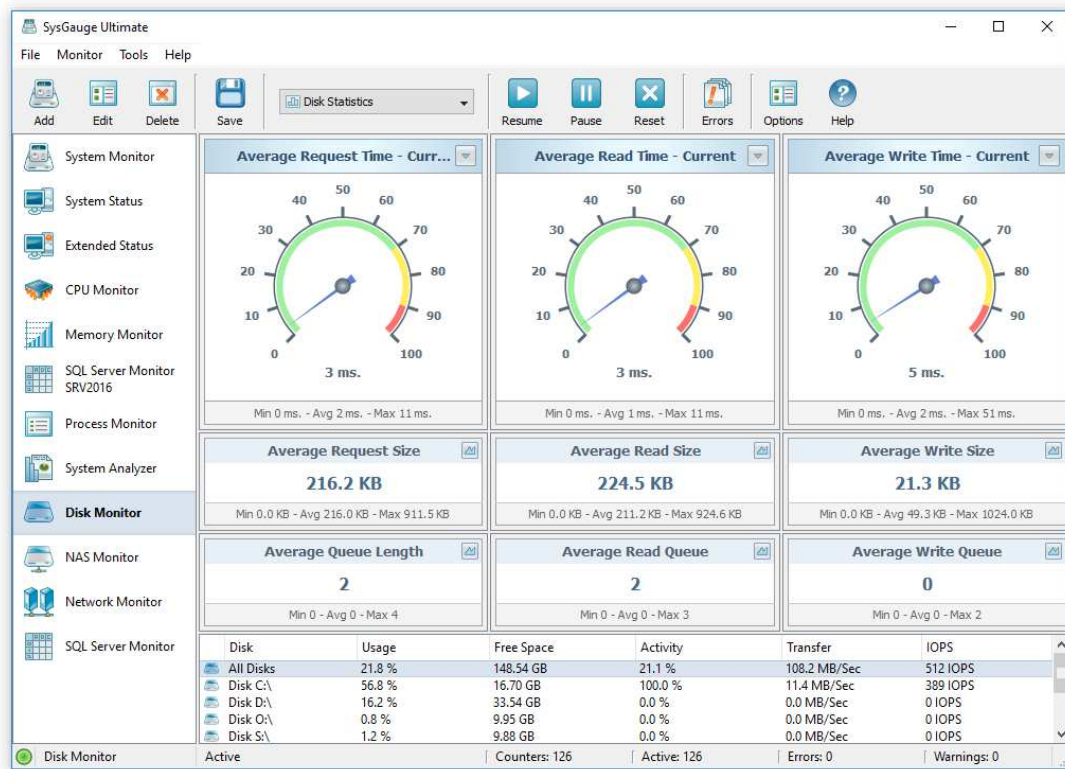


The disk activity chart allows one to display the monitoring data for the last minute, last 2 minutes or last 5 minutes. The disk space usage gauges, which are located on the top-side of the window, provide the ability to display the current value, average value or the maximum value. In addition, all disk monitoring counters, display the minimum, maximum and average value on the counter's status bar.

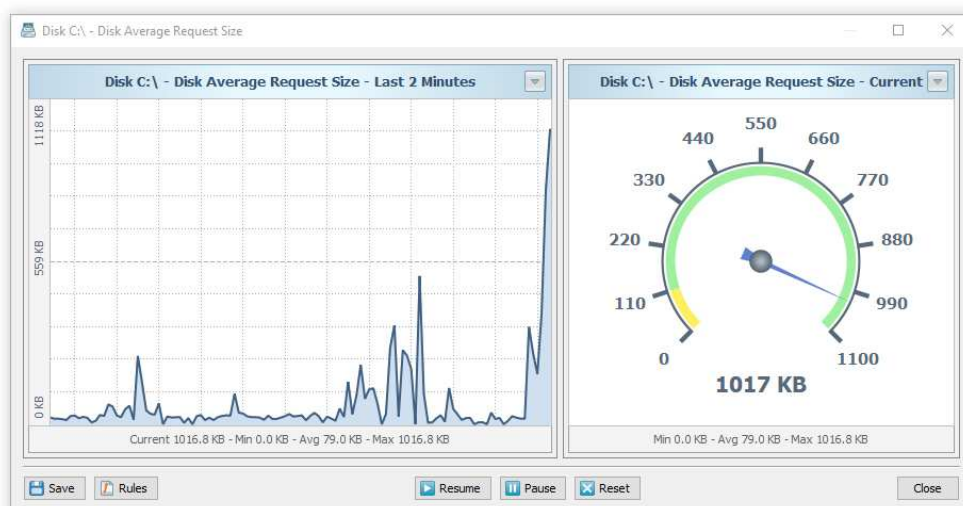


In addition, the user is provided with the ability to save disk monitoring reports into a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a disk monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report file name and press the 'Save' button.

The '**Disk Statistics**' module shows the average disk request time, average disk read time, average disk write time, average disk request size, average disk read size, average disk write size, average disk queue length, average disk read queue length and the average disk write queue length.

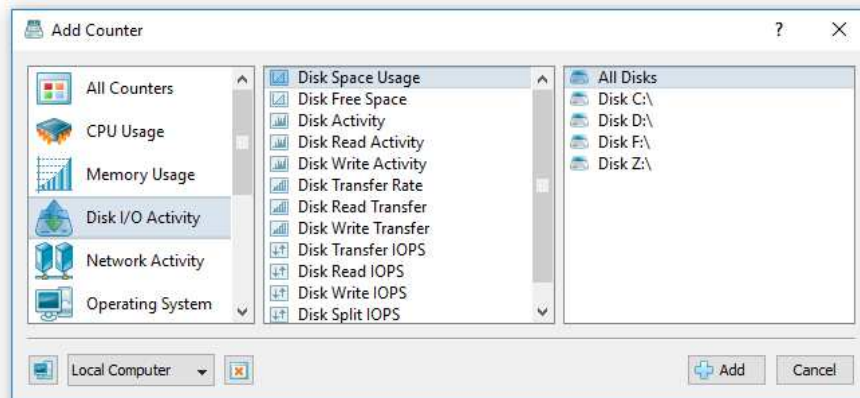


In order to open a history chart dialog for a disk monitoring counter, press the 'Chart' button located in the top-right corner of the required disk monitoring counter. The history chart dialog allows one to show the monitoring history for the last 1, 2 or 5 minutes. In order to change the history time-frame, press the 'History' button located in the top-right corner of the history chart dialog.



Advanced users are provided with the ability to access the raw disk monitoring data, save various types of monitoring reports and export the monitoring data to an SQL database. In order to access the raw monitoring data, press the 'Data' button located in the bottom-left corner of the history chart dialog.

In addition to the dedicated disk monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom disk monitoring profiles. In order to add a disk activity counter, press the 'Monitor' button located on the main toolbar, selected the 'Disk Activity' counters category in the left-side view and then select an appropriate disk activity counter in the middle view. By default, SysGauge will monitor all disks installed in the computer, but if required, the user can select a specific disk to monitor in the right-side view. In addition, in order to monitor the disk activity in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name or an IP address of the remote computer to monitor.



- **Disk Space Usage** - this counter measures the percentage of the used disk space.
- **Disk Free Space** - this counter measures the amount of the free disk space.
- **Disk Activity** - this counter measures the percentage of elapsed time that the selected disk drive was busy servicing read or write requests.
- **Disk Read Activity** - this counter measures the percentage of elapsed time that the selected disk drive was busy servicing read requests.
- **Disk Write Activity** - this counter measures the percentage of elapsed time that the selected disk drive was busy servicing write requests.
- **Disk Transfer Rate** - this counter measures the disk data transfer rate in Megabytes to or from the disk during write or read operations.
- **Disk Read Transfer** - this counter measures the disk data transfer rate in Megabytes from the disk during read operations.
- **Disk Write Transfer** - this counter measures the disk data transfer rate in Megabytes to the disk during write operations.
- **Disk Transfer IOPS** - this counter measures the rate of read and write operations per second (IOPS) on the selected disk.
- **Disk Read IOPS** - this counter measures the rate of read operations per second (IOPS) on the selected disk.
- **Disk Write IOPS** - this counter measures the rate of write operations per second (IOPS) on the selected disk.
- **Disk Split IOPS** - this counter measures the rate at which I/Os to the disk were split into multiple I/Os. A split I/O may result from requesting data of a size that is too large to fit into a single I/O or that the disk is fragmented.
- **Disk Average Request Size** - this counter measures the average disk I/O request size, which is displayed in KB.
- **Disk Average Read Request Size** - this counter measures the average disk read request size, which is displayed in KB.
- **Disk Average Write Request Size** - this counter measures the average disk write request size, which is displayed in KB.
- **Disk Average Request Time** - this counter measures the average disk I/O request time, which is displayed in milliseconds.
- **Disk Average Read Request Time** - this counter measures the average disk read request time, which is displayed in milliseconds.
- **Disk Average Write Request Time** - this counter measures the average disk write request time, which is displayed in milliseconds.
- **Disk Average Queue Length** - this counter measures the average disk queue length, which shows the average number of pending disk I/O requests.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the disk activity and save disk activity monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -disk_monitor -save_html_report <File Name or Directory>

This command will perform a disk activity monitoring operation using a number of disk monitoring counters including the disk activity, disk transfer rate, disk read transfer rate, disk write transfer rate, disk transfer IOPS, disk read transfer IOPS, disk write transfer IOPS, disk free space and disk space usage. In addition, after the monitoring operation will be completed, SysGauge will save an HTML disk activity monitoring report to the specified file or directory.

Command Line Options:

-extended

By default, the disk activity monitor reports the total disk activity statistics for all logical disks in the monitored system. This command line option enables individual disk activity monitoring counters for each logical disk and the disk activity monitoring results will include individual disk activity statistics for each logical disk in the monitored system.

-host <Remote Host Name or IP address>

This option allows one to monitor the disk activity in remote servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML disk activity monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF disk activity monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel disk activity monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text disk activity monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV disk activity monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON disk activity monitoring report.

-save_xml_report <File Name or Directory>

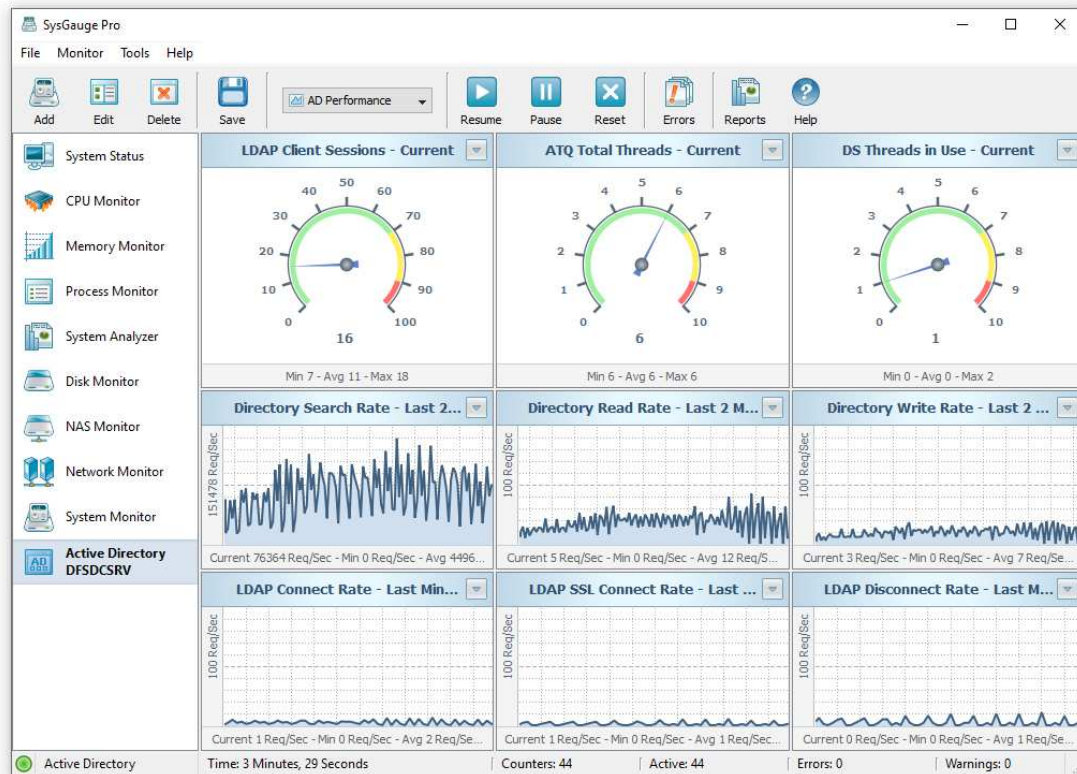
This command line option saves an XML disk activity monitoring report.

-save_to_database <Table Name>

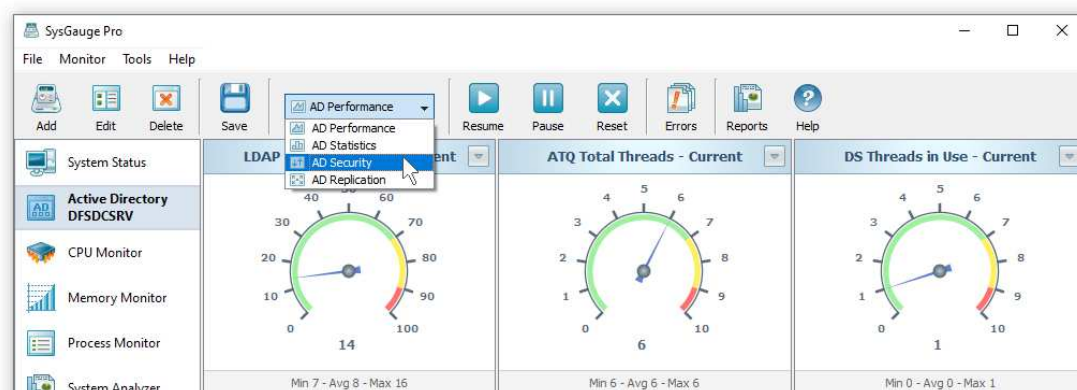
This command line option saves monitoring results to the specified SQL database table.

15 Active Directory Monitor

SysGauge Pro and SysGauge Server provide the ability to monitor the Windows Active Directory services locally or via the network. The SysGauge Active Directory monitor allows one to monitor the performance, health status, security and the replication status of the Windows Active Directory services using tens of different monitoring counters.

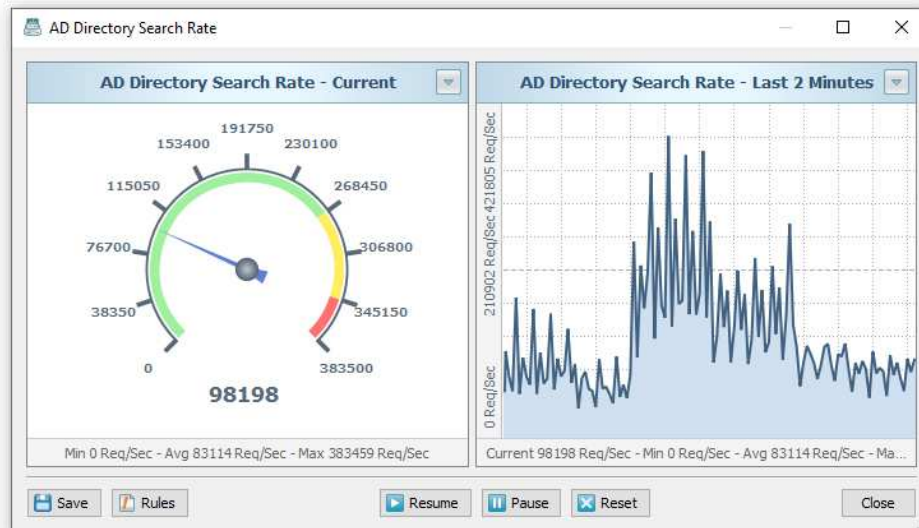


In order to add the Active Directory monitor, press the 'Add' button located in the top-left corner of the main SysGauge GUI application and select the 'Active Directory' menu item. If the Active Directory server should be monitored via the network, specify the remote server host name and add the user account running the SysGauge GUI application to the Performance Monitor Users Group with permissions to monitor the target Windows domain controller server.

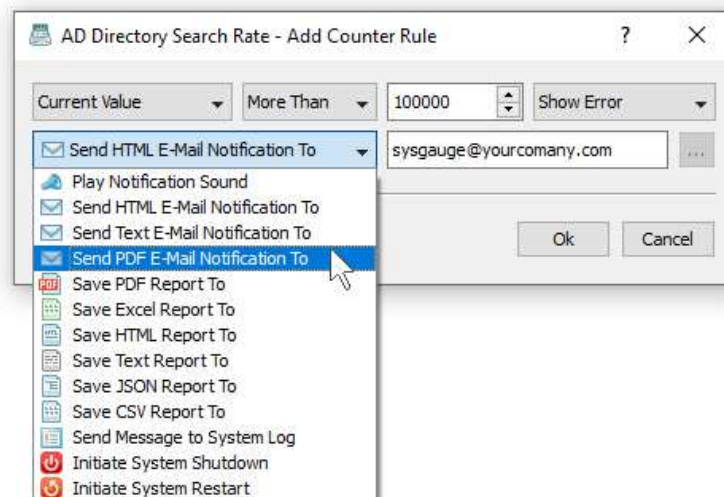


The SysGauge Active Directory monitor provides 4 different GUI layouts allowing one to monitor the performance, health status, security and the replication status of the Active directory services. In order to change the currently displayed Active Directory monitor GUI layout, use the layout selector located on the main toolbar.

The Active Directory monitor 'Performance' GUI layout shows the number of LDAP clients sessions gauge, the total number of ATQ threads gauge, the current number of DS threads gauge, the Active Directory search rate line chart, the Active Directory read rate line chart, the Active Directory write rate chart, the LDAP connect rate line chart, the LDAP SSL connect rate line chart and the LDAP disconnect rate chart.

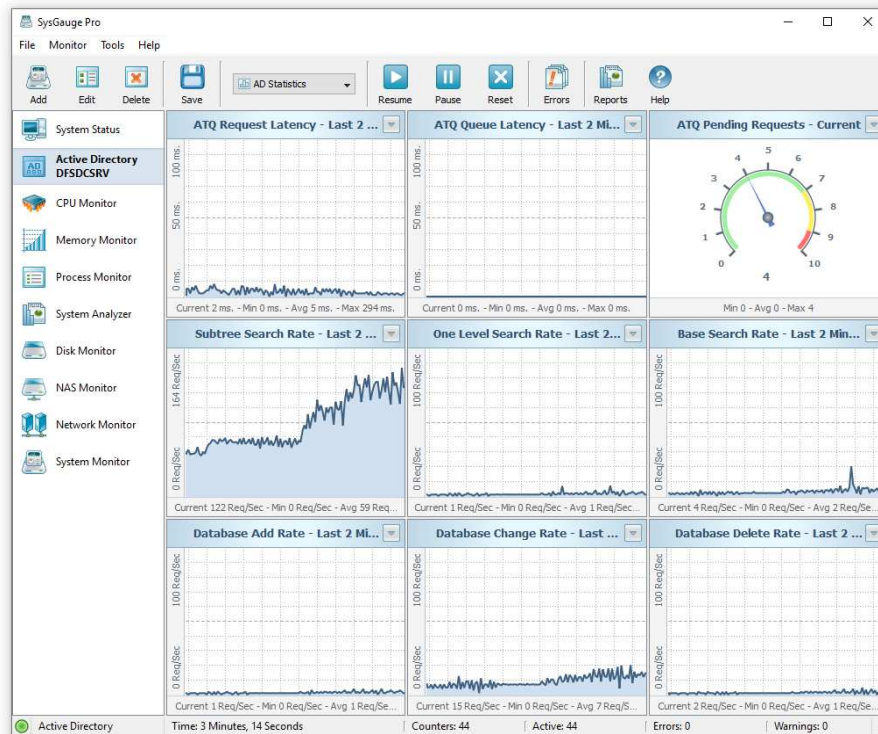


In order to see detailed information about a specific Active Directory monitoring counter, double-click on the counter in the SysGauge GUI application. For example, in order to see more details about the Active Directory search rate, double-click on the search rate counter in the AD Performance view and the SysGauge GUI application will open the Active Directory search rate counter dialog allowing one to save a monitoring report for this specific monitoring counter and/or define user-specific limits for this specific monitoring counter and show errors or send e-mail notifications if this specific counter rises above or drops below the user-specified limits.

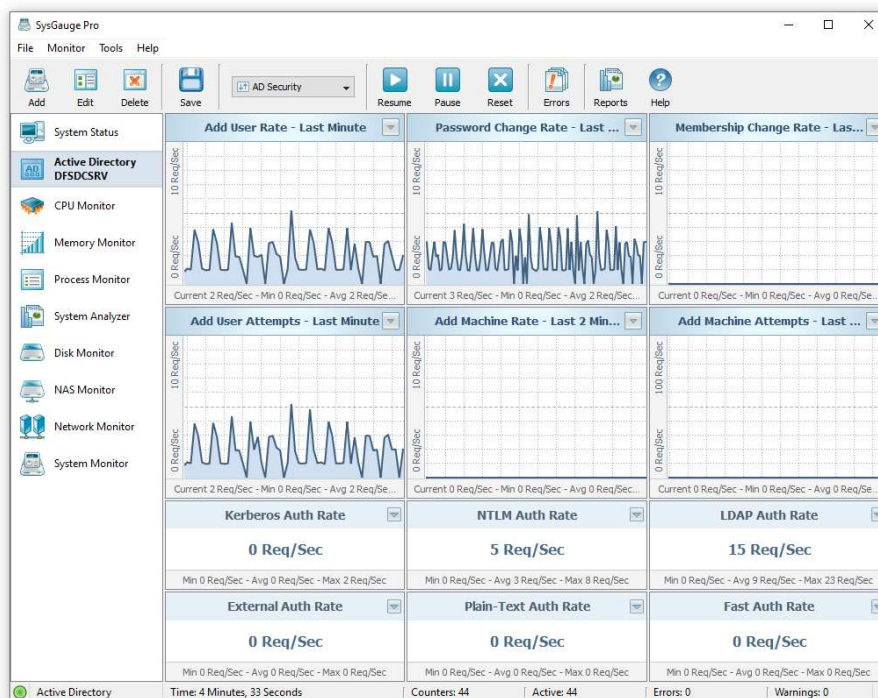


The user is provided with the ability to automatically execute a number of different types of actions depending on different values of the monitored counter. For example, if an Active Directory monitoring counter indicates a sub-optimal operation, the conditional rule may just set the counter to display a warning message and if a monitoring counter indicates a critical problem, the conditional rule may display a critical error message and send an error e-mail notification to an IT administrator.

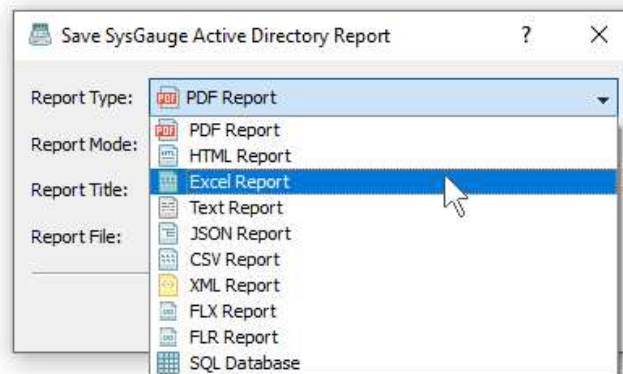
The Active Directory monitor 'Statistics' GUI layout shows the ATQ request latency, the ATQ queue latency, the number of pending ATQ requests, the directory service sub tree search rate, the directory service one level search rate, the directory service base search rate, the Active Directory database add rate, the Active Directory database change rate and the Active Directory database delete rate.



The Active Directory monitor 'Security' GUI layout shows the add user rate, the add user attempt rate, the password change rate, the membership change rate, the add machine rate, the add machine attempt rate, the Kerberos authentication rate, the NTLM authentication rate, the LDAP authentication rate, the external authentication rate, the plain-text authentication rate and the fast authentication rate.



SysGauge Pro and SysGauge Server provide the ability to save different types of Active Directory monitoring reports to a number of standard report formats including PDF, HTML, Excel, CSV, JSON, text and XML. In order to save an Active Directory report, press the 'Save' button located on the main toolbar and select an appropriate report format.



For example, a SysGauge PDF Active Directory monitoring report includes a report summary showing the report date and time, the monitoring process time, the monitoring report ID, the target host name, the user name, the number of monitoring counters and the number of monitoring errors.

SysGauge Active Directory Report - x +

file:///C:/Reports/SysGauge Active Directory 12-Jul-2026 172032.pdf

1 of 12 160%

SysGauge Pro v13.0.12 12-Jul-2026

SysGauge Active Directory Report

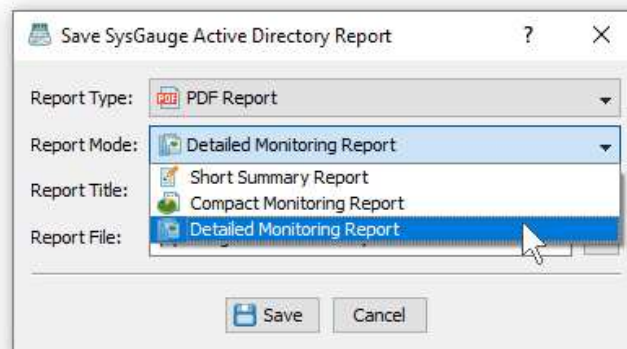
Profile Name:	Active Directory Monitor	Profile ID:	A48613ACD99AF9D74DDA0BE5C159B32489A5BA1D
Report Time:	2026/07/12 17:20:34	Report ID:	4E6A04E709E2248963DD06C18A68FE1FB9F313A2
Start Time:	2026/07/12 17:15:43	Process Time:	4 Minutes, 50 Seconds
Host Name:	DFSDCSRVS	User Name:	Administrator
Counters:	44	Errors:	0

Active Directory Counters - 4 Minutes, 50 Seconds

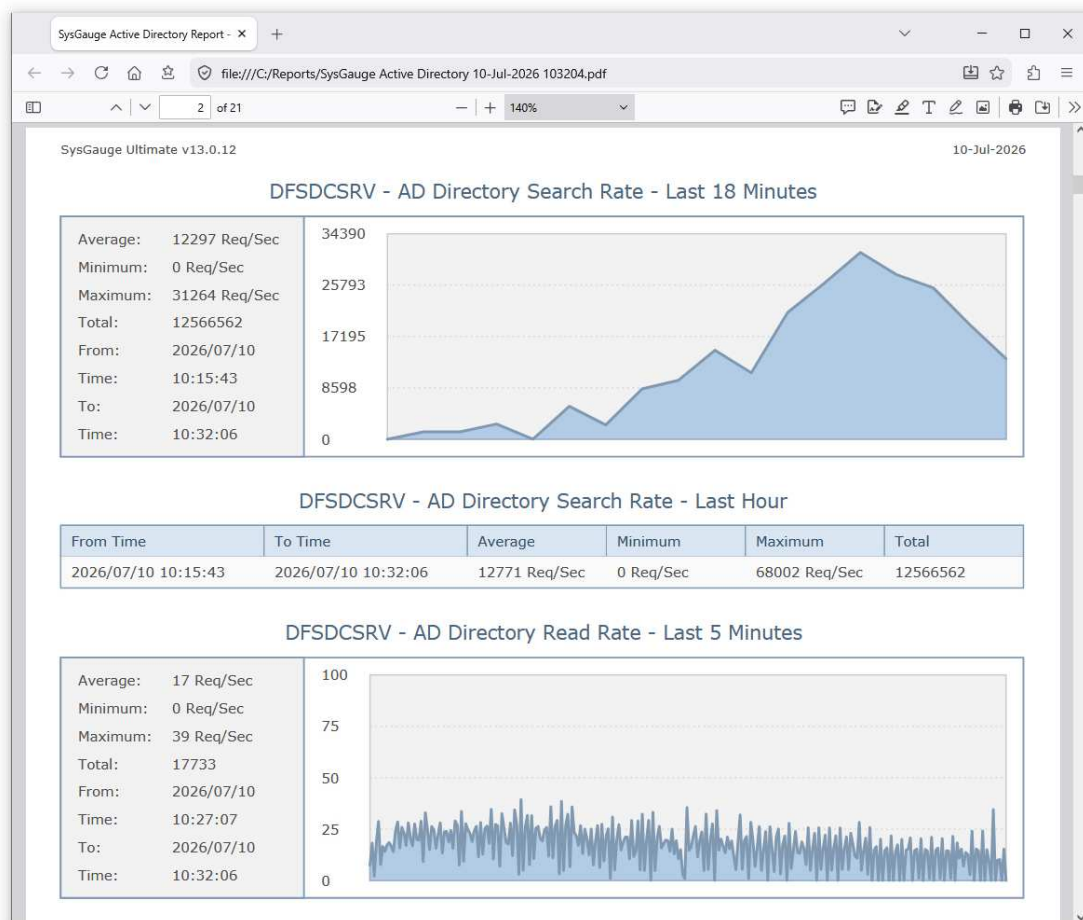
Counter	Average	Minimum	Maximum	Total
DFSDCSRVS - AD Directory Search Rate	47451 Req/Sec	0 Req/Sec	137707 Req/Sec	27616738
DFSDCSRVS - AD Directory Read Rate	13 Req/Sec	0 Req/Sec	43 Req/Sec	7535
DFSDCSRVS - AD Directory Write Rate	7 Req/Sec	0 Req/Sec	20 Req/Sec	3989
DFSDCSRVS - AD Database Add Rate	1 Req/Sec	0 Req/Sec	5 Req/Sec	446
DFSDCSRVS - AD Database Change Rate	5 Req/Sec	0 Req/Sec	18 Req/Sec	3104
DFSDCSRVS - AD Database Delete Rate	1 Req/Sec	0 Req/Sec	6 Req/Sec	439
DFSDCSRVS - AD LDAP Search Rate	50 Req/Sec	0 Req/Sec	112 Req/Sec	28911
DFSDCSRVS - AD LDAP Client Sessions	11	7	18	---
DFSDCSRVS - AD LDAP Authentication Latency	1 ms.	0 ms.	16 ms.	---
DFSDCSRVS - AD Tree Search Rate	47 Req/Sec	0 Req/Sec	101 Req/Sec	27457
DFSDCSRVS - AD Level Search Rate	1 Req/Sec	0 Req/Sec	6 Req/Sec	465
DFSDCSRVS - AD Base Search Rate	2 Req/Sec	0 Req/Sec	18 Req/Sec	976
DFSDCSRVS - AD LDAP Connect Rate	2 Req/Sec	0 Req/Sec	7 Req/Sec	908
DFSDCSRVS - AD LDAP SSL Connect Rate	1 Req/Sec	0 Req/Sec	5 Req/Sec	446
DFSDCSRVS - AD LDAP Disconnect Rate	2 Req/Sec	0 Req/Sec	11 Req/Sec	895
DFSDCSRVS - AD ATQ Total Threads	6	6	6	---
DFSDCSRVS - AD DS Threads in Use	0	0	2	---
DFSDCSRVS - AD Add User Rate	1 Req/Sec	0 Req/Sec	5 Req/Sec	446
DFSDCSRVS - AD Add User Attempt Rate	1 Req/Sec	0 Req/Sec	5 Req/Sec	446
DFSDCSRVS - AD Password Change Rate	1 Req/Sec	0 Req/Sec	6 Req/Sec	439
DFSDCSRVS - AD Membership Change Rate	0 Req/Sec	0 Req/Sec	0 Req/Sec	0
DFSDCSRVS - AD Add Computer Rate	0 Req/Sec	0 Req/Sec	0 Req/Sec	0

The report summary is followed by the monitoring counter list showing the counter status, counter name, average value, minimum value and the maximum value for each counter in the report. In addition, if the report was saved in the 'Compact' or 'Detailed' report modes, the report will include a line chart for each monitoring counter included in the report. Finally, if the report was saved in the 'Detailed' report mode, the report will include the raw monitoring data for each monitoring counter included in the report.

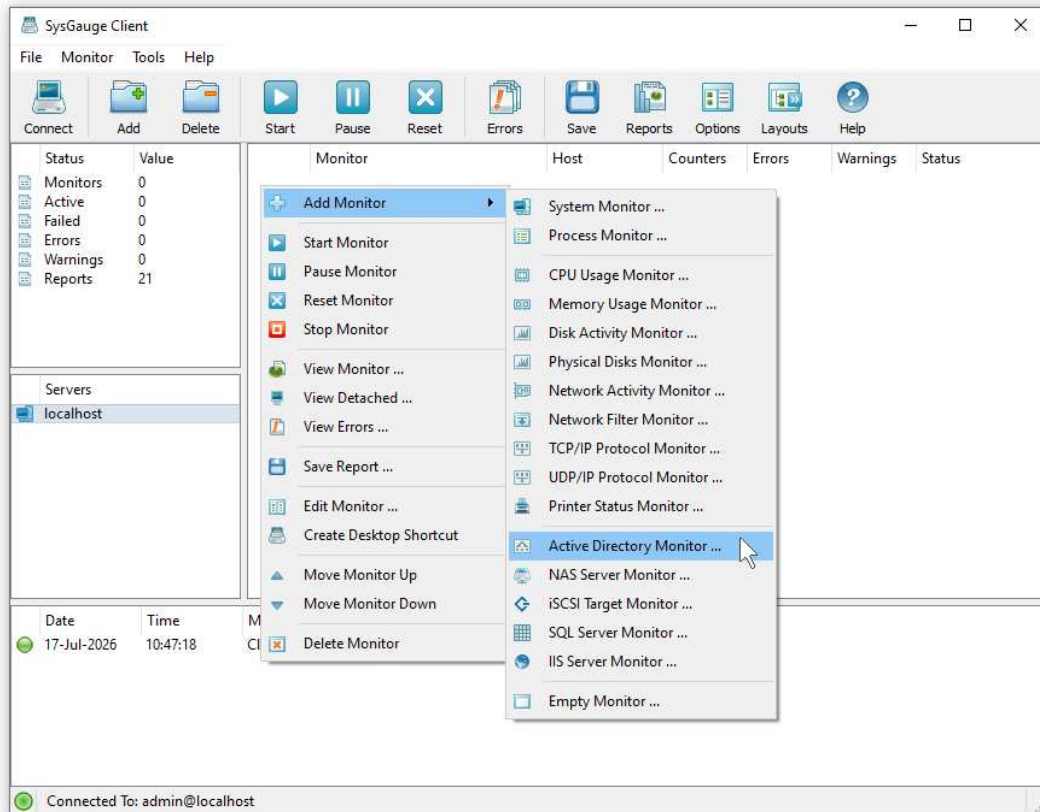
In order to select an appropriate Active Directory monitor report mode, use the 'Report Mode' selector located on the 'Save Report' dialog. The report mode allows one to select how much information is exported to the Active Directory monitoring report and it is applicable to the PDF, HTML, Excel, CSV, JSON, text and XML report formats.



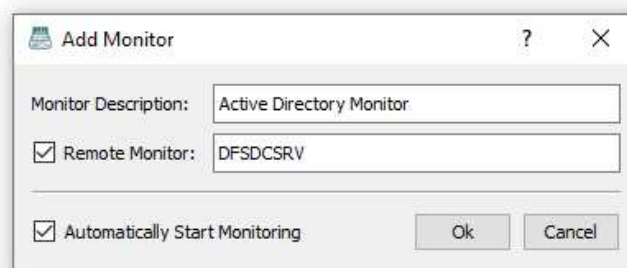
In the 'Short Summary Report' mode, the Active Directory report will include the report summary and the list of Active Directory monitoring counters. In the 'Compact Monitoring Report' mode, the Active Directory report will include the report summary, the list of Active Directory monitoring counters and a line chart for each monitoring counter included in the monitoring report. In the 'Detailed Monitoring Report' mode, the Active Directory report will include the report summary, the list of Active Directory monitoring counters, a line chart for each monitoring counter and the raw monitoring data for each monitoring counter included in the monitoring report.



SysGauge Server runs in the background as a Windows service and provides the user with the ability to monitor multiple DC servers via the network, automatically analyze the status of the Active Directory services, save status reports and send E-Mail notifications when one or more critical Active Directory issues are detected. In order to setup an Active Directory monitor, start the SysGauge Server GUI application, press the right mouse button over the monitors view and select the 'Add – Active Directory Monitor' menu item.

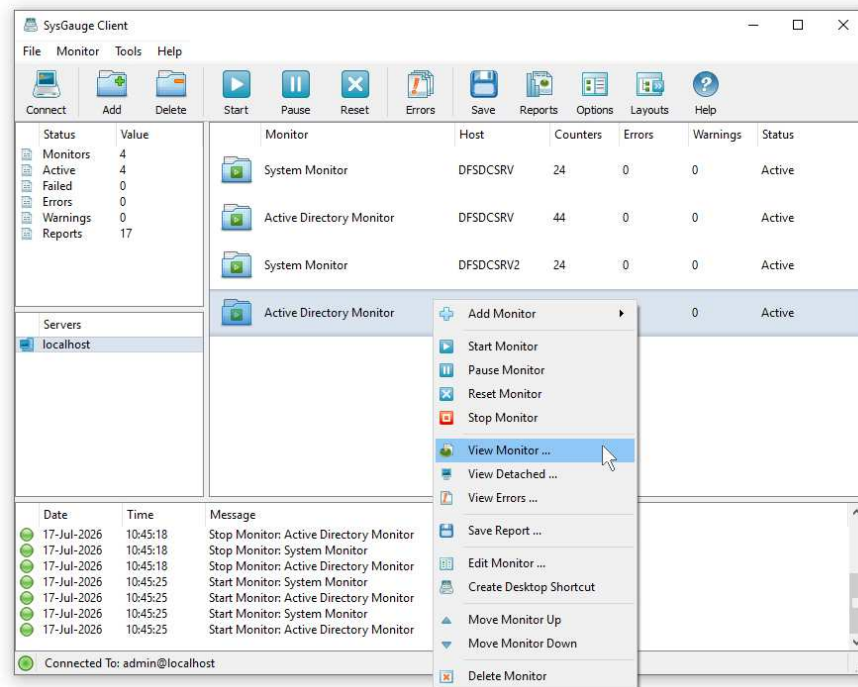


On the 'Add Monitor' dialog, specify a descriptive monitor name and select the 'Automatically Start Monitoring' option to automatically start the monitor when the DC server is started. If the DC server should be monitored via the network, select the 'Remote Monitor' option and specify the host name of the remote DC server.

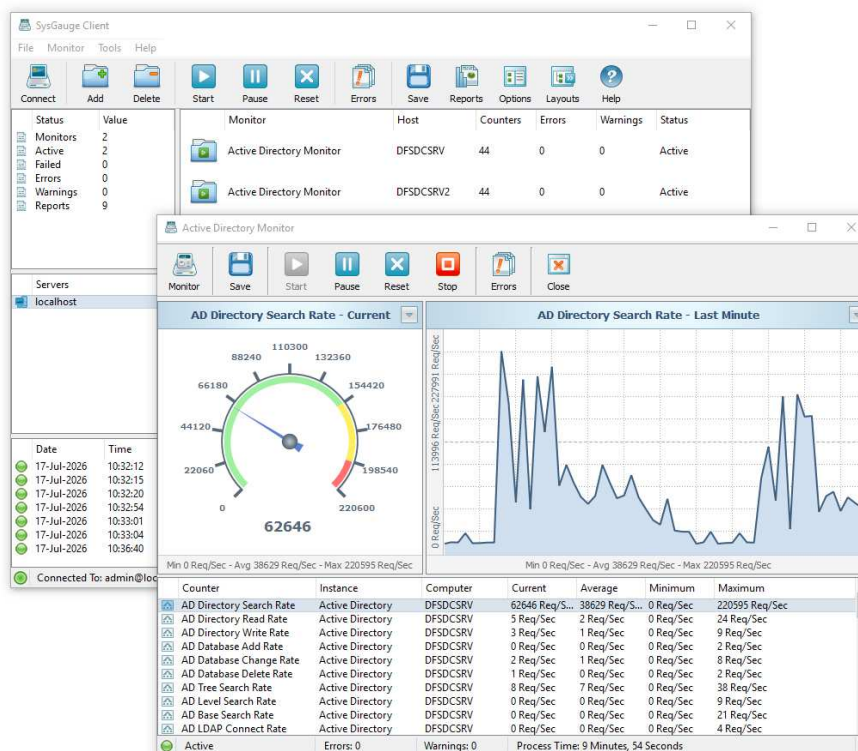


In addition, in order to enable the remote monitoring capabilities, the SysGauge service should be configured to run under a user account which is a member of the 'Performance Monitor Users' group with permissions to access the remote DC server.

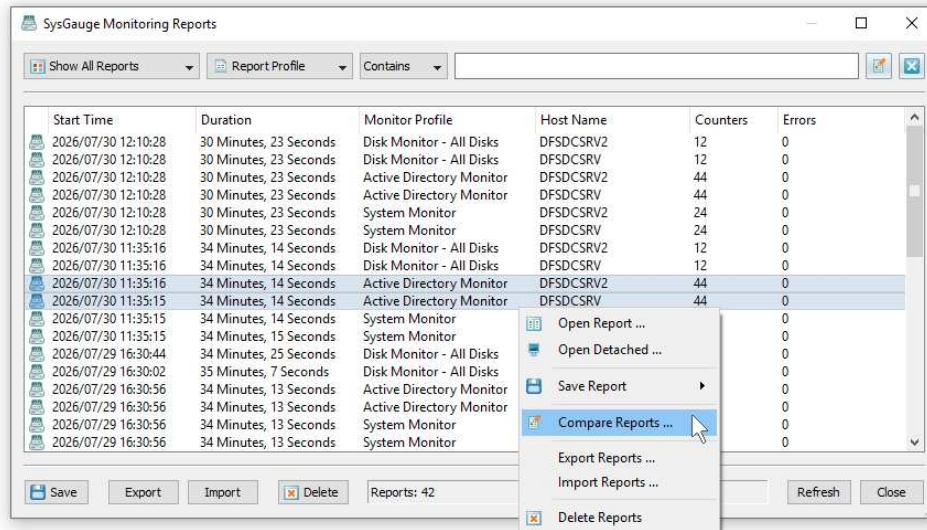
For example, if the user needs to monitor two DC servers via the network, a single SysGauge Server can be configured to monitor both DC servers using the following monitors: a general purpose system monitor for all the standard system monitoring counters such as the CPU usage, memory usage, disk activity, network activity, etc. for each remote DC server and a specialized Active Directory monitor for each server.



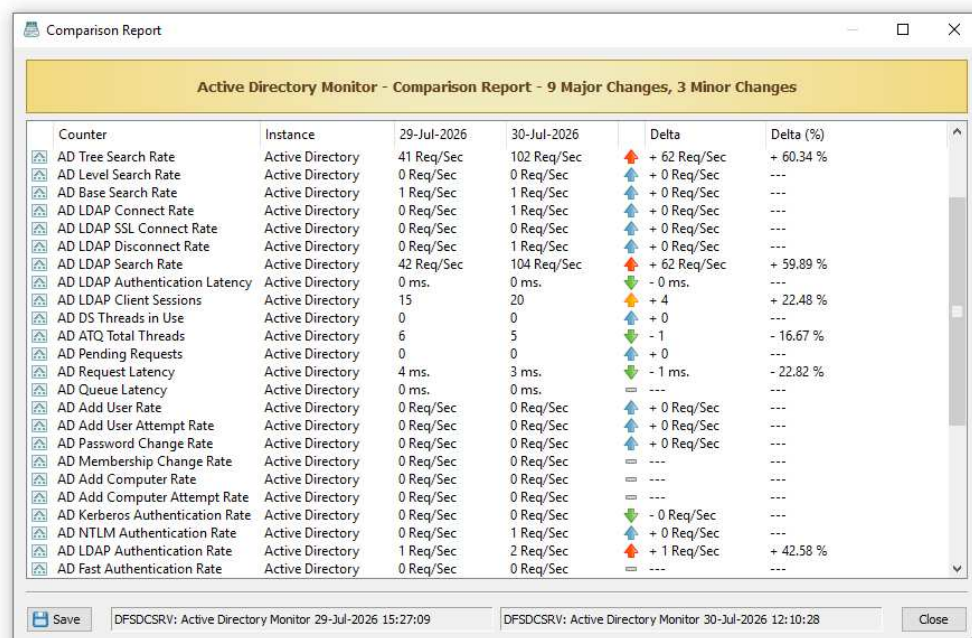
In order to open an Active Directory monitor, select the monitor item in the monitors view, press the right mouse button and select the 'View Monitor' menu item. In order to open multiple monitors at the same time, select the 'View Detached' menu item and the SysGauge Server GUI application will open the selected monitor in a separate application allowing one to display any number of monitors on multiple physical displays.



SysGauge Server provides the ability to compare Active Directory monitoring reports allowing one to easily identify critical changes between different Active Directory servers and/or compare the current status of an Active Directory server with the previous status of the same server. In order to compare two previously saved Active Directory monitoring reports, press the 'Reports' button located the main toolbar of the SysGauge Server GUI application, select the required Active Directory monitoring reports, press the right mouse button and select the 'Compare Reports' menu item.



The top status pane of the Active Directory monitoring comparison dialog shows the number of major changes and the number of minor changes between the compared monitoring reports. The middle view shows the list of Active Directory monitoring counters with average counter values from the compared reports, an absolute value delta between the average values and a percentage delta between the average values for each Active Directory monitoring counter.



The user is provided with the ability to save the Active Directory comparison reports into a number of standard report formats including PDF, HTML, Excel, CSV, text, JSON and XML. In order to save a comparison report, press the 'Save' button located in the bottom-left corner of the comparison dialog, select an appropriate report format, select a destination directory, enter a report file and press the 'Save' button.

In addition to the SysGauge GUI application and SysGauge Server, the user is provided with the ability to monitor the Active Directory services and save Active Directory monitoring reports using the SysGauge command line utility, which is located in the SysGauge Pro and SysGauge Server installation directory.

```

SysGauge Active Directory Status Report

Start Time      : 2026/07/16 17:07:47
Report Time     : 2026/07/16 17:18:24
Report ID      : 5AC639264B14F582CCDA55C06CA635933A5D0CD0
Process Time    : 10 Minutes, 36 Seconds
Profile Name    : Active Directory Monitor
Host Name      : DFSDCSRV
User Name      : Administrator
Counters       : 14
Errors         : 0

Active Directory Status Results:

AD Directory Search Rate - Average 386556 Req/Sec | Min 0 Req/Sec | Max 790042 Req/Sec
AD Directory Read Rate  - Average 21 Req/Sec   | Min 0 Req/Sec | Max 47 Req/Sec
AD Directory Write Rate - Average 11 Req/Sec  | Min 0 Req/Sec | Max 24 Req/Sec
AD Tree Search Rate     - Average 78 Req/Sec   | Min 0 Req/Sec | Max 131 Req/Sec
AD Level Search Rate    - Average 1 Req/Sec    | Min 0 Req/Sec | Max 8 Req/Sec
AD Base Search Rate     - Average 3 Req/Sec    | Min 0 Req/Sec | Max 23 Req/Sec
AD LDAP Search Rate     - Average 82 Req/Sec   | Min 0 Req/Sec | Max 146 Req/Sec
AD LDAP Authentication Latency - Average 0 ms. | Min 0 ms. | Max 16 ms.
AD LDAP Client Sessions - Average 15          | Min 7         | Max 22
AD ATQ Total Threads    - Average 8            | Min 8         | Max 8
AD DS Threads in Use    - Average 0            | Min 0         | Max 3
AD Kerberos Authentication Rate - Average 0 Req/Sec | Min 0 Req/Sec | Max 2 Req/Sec
AD NTLM Authentication Rate - Average 3 Req/Sec | Min 0 Req/Sec | Max 7 Req/Sec
AD LDAP Authentication Rate - Average 8 Req/Sec | Min 0 Req/Sec | Max 20 Req/Sec

Save Report:

C:\Users\Administrator\Documents\sysgauge_ad_status_monitor_20260716_171824.pdf

c:\Program Files\SysGauge Pro\bin>

```

The command line utility provides the following Active Directory monitoring commands:

sysgauge -ad_status

This command executes an essential Active Directory monitoring operation and includes the most critical Active Directory performance, security and status counters.

sysgauge -ad_performance

This command executes an Active Directory performance monitoring operation and includes the Active Directory performance monitoring counters.

sysgauge -ad_security

This command executes an Active Directory security monitoring operation and includes the Active Directory security monitoring counters.

sysgauge -ad_replication

This command executes an Active Directory replication monitoring operation and includes the Active Directory DRA monitoring counters.

sysgauge -ad_monitor

This command executes an extended Active Directory monitoring operation and includes an extensive set of Active Directory performance, security, status and replication monitoring counters.

Active Directory Command Line Options:

-host <Remote Host Name or IP address>

This option allows one to monitor a remote Active Directory server via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time in seconds, which is useful to automatically generate Active Directory status reports for specific time intervals.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML Active Directory monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF Active Directory monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel Active Directory monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text Active Directory monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV Active Directory monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON Active Directory monitoring report.

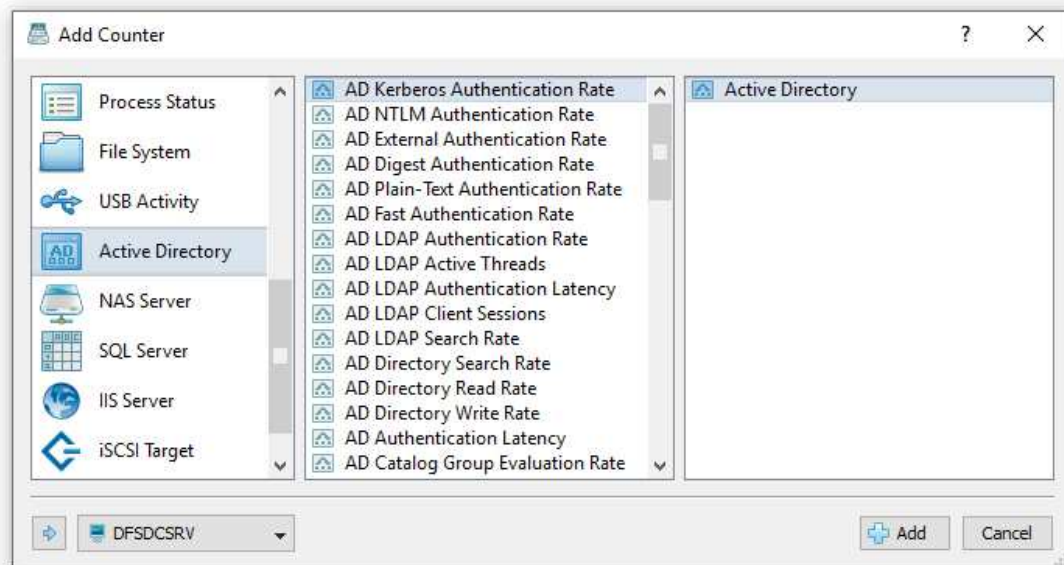
-save_xml_report <File Name or Directory>

This command line option saves an XML Active Directory monitoring report.

-save_to_database <Table Name>

This command line option saves monitoring results to the specified SQL database table.

In addition to the dedicated SysGauge Active Directory monitor and the SysGauge command line utility, the user is provided with the ability to create custom Active Directory monitoring profiles and/or add individual Active Directory monitoring counters to user-custom monitoring profiles.



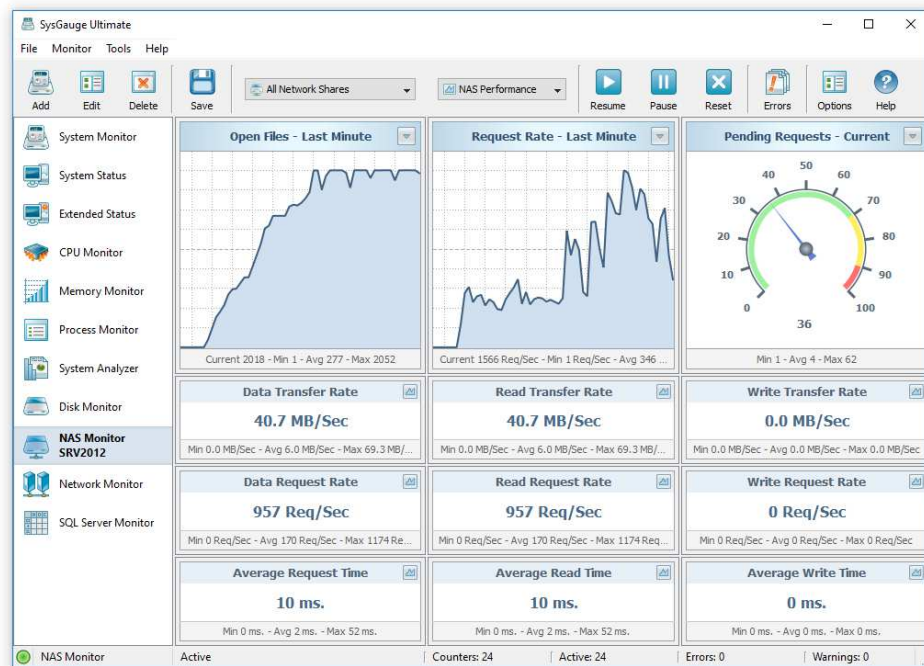
The default SysGauge Active Directory monitoring report includes the following Active Directory monitoring counters:

- **AD Directory Search Rate** – Measures the number of Active Directory search operations performed per second. Useful for evaluating overall directory query workload.
- **AD Directory Read Rate** – Measures the number of directory object read operations per second. Indicates how frequently clients retrieve object attributes.
- **AD Directory Write Rate** – Measures the number of directory write operations per second. Helps identify the rate of object modifications.
- **AD Database Add Rate** – Measures the number of new objects added to the Active Directory database per second.
- **AD Database Change Rate** – Measures the number of existing Active Directory objects modified per second.
- **AD Database Delete Rate** – Measures the number of Active Directory objects deleted per second.
- **AD LDAP Search Rate** – Measures the number of LDAP search requests processed per second. Useful for monitoring LDAP query activity.
- **AD LDAP Client Sessions** – Shows the number of currently active LDAP client connections to the domain controller.
- **AD LDAP Authentication Latency** – Measures the average time required to authenticate LDAP clients. Higher values may indicate authentication delays.
- **AD Tree Search Rate** – Measures the number of LDAP sub tree search operations per second, where the search traverses an entire sub tree beneath a base object.
- **AD Level Search Rate** – Measures the number of one-level LDAP search operations per second, where only immediate child objects are searched.
- **AD Base Search Rate** – Measures the number of LDAP base-object searches per second, where only a single object is queried.
- **AD LDAP Connect Rate** – Measures the rate of new LDAP client connections established per second.
- **AD LDAP SSL Connect Rate** – Measures the rate of secure (LDAPS) client connections established per second.
- **AD LDAP Disconnect Rate** – Measures the rate at which LDAP client sessions are disconnected.
- **AD ATQ Total Threads** – Shows the total number of Active Thread Queue (ATQ) worker threads available for processing LDAP and Active Directory requests.

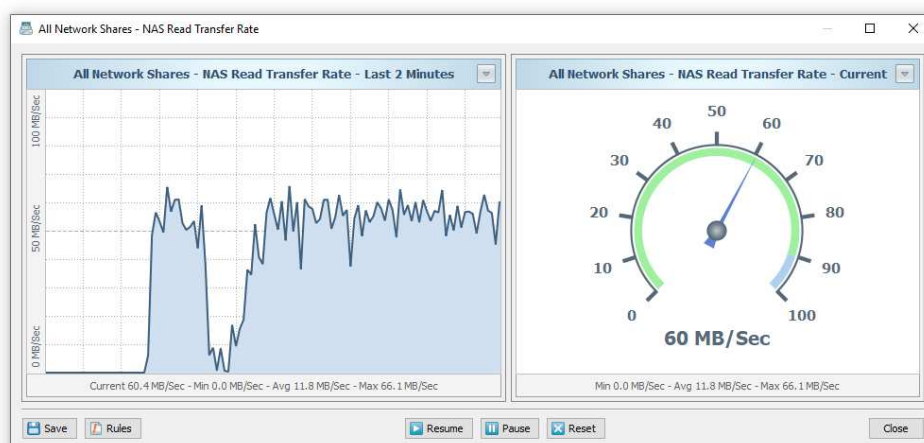
- **AD DS Threads in Use** – Shows the number of Active Directory Domain Services worker threads currently processing requests. Useful for detecting thread exhaustion.
- **AD Add User Rate** – Measures the rate of successfully created user accounts.
- **AD Add User Attempt Rate** – Measures the total number of user creation attempts, including both successful and failed attempts.
- **AD Password Change Rate** – Measures the number of password change operations performed per second.
- **AD Membership Change Rate** – Measures the rate of changes to group memberships, including users being added to or removed from groups.
- **AD Add Computer Rate** – Measures the rate of successfully created computer accounts.
- **AD Add Computer Attempt Rate** – Measures the total number of computer account creation attempts.
- **AD Kerberos Authentication Rate** – Measures the number of Kerberos authentication requests processed per second.
- **AD NTLM Authentication Rate** – Measures the number of NTLM authentication requests processed per second.
- **AD LDAP Authentication Rate** – Measures the number of LDAP bind authentication requests processed per second.
- **AD Fast Authentication Rate** – Measures the rate of Fast Concurrent Bind (Fast Bind) authentication requests, which perform authentication without retrieving full user information.
- **AD Plain-Text Authentication Rate** – Measures the number of LDAP simple-bind authentication requests using plain-text credentials (typically protected by SSL/TLS).
- **AD External Authentication Rate** – Measures the rate of authentication requests delegated to external authentication providers or trusted domains.
- **AD Authentication Latency** – Measures the average time required to complete Active Directory authentication requests.
- **AD Request Latency** – Measures the average time required to process Active Directory client requests from receipt to completion.
- **AD Queue Latency** – Measures the average time requests spend waiting in the processing queue before execution.
- **AD Pending Requests** – Shows the number of client requests currently waiting to be processed.
- **AD Enumeration Rate** – Measures the rate of directory enumeration operations, such as listing users, groups, computers, or other directory objects.
- **AD DRA Pending Requests** – Shows the number of Active Directory replication requests currently waiting to be processed by the Directory Replication Agent (DRA).
- **AD DRA Pending Operations** – Shows the number of replication operations queued for execution.
- **AD DRA Pending Syncs** – Shows the number of replication synchronization operations waiting to start.
- **AD DRA Sync Errors** – Shows the number of replication synchronization errors detected by the Directory Replication Agent.
- **AD DRA Inbound Transfer Rate** – Measures the volume of replication data received from replication partners per second.
- **AD DRA Outbound Transfer Rate** – Measures the volume of replication data transmitted to replication partners per second.
- **AD DRA Pending Inbound Updates** – Shows the number of inbound replication updates waiting to be applied to the local Active Directory database.
- **AD DRA Inbound Objects Applied** – Measures the rate at which replicated directory objects are successfully applied to the local database.
- **AD DRA Total Sync Requests** – Shows the total number of replication synchronization requests received by the Directory Replication Agent.
- **AD DRA Completed Sync Requests** – Shows the total number of replication synchronization requests successfully completed.

16 NAS Server Monitor

The '**NAS Monitor**' GUI module is a dedicated NAS server monitoring module showing the list of network shares in the NAS server and displaying the data transfer rate, the data request rate, the number of pending requests, the read transfer rate, the write transfer rate, the read request rate, the write request rate, the number of currently open files and the total number of opened files since the NAS server was started for the currently selected network share.

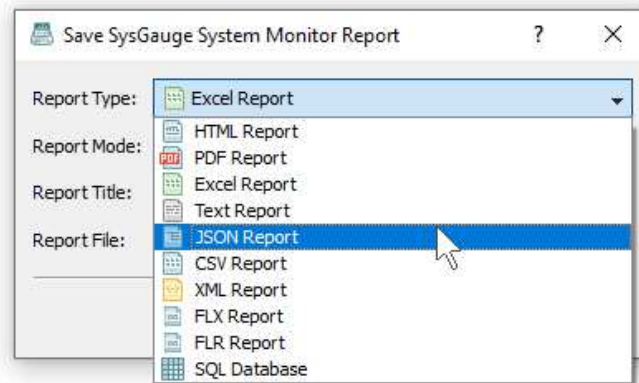


The data transfer and the data request rate charts located on the top side of the NAS monitor module allow one to display the monitoring data for the last minute, last 2 minutes or last 5 minutes. In addition, the user is provided with the ability to display data charts from all other counters by pressing on the 'Chart' button located in the top-right corner of each counter.

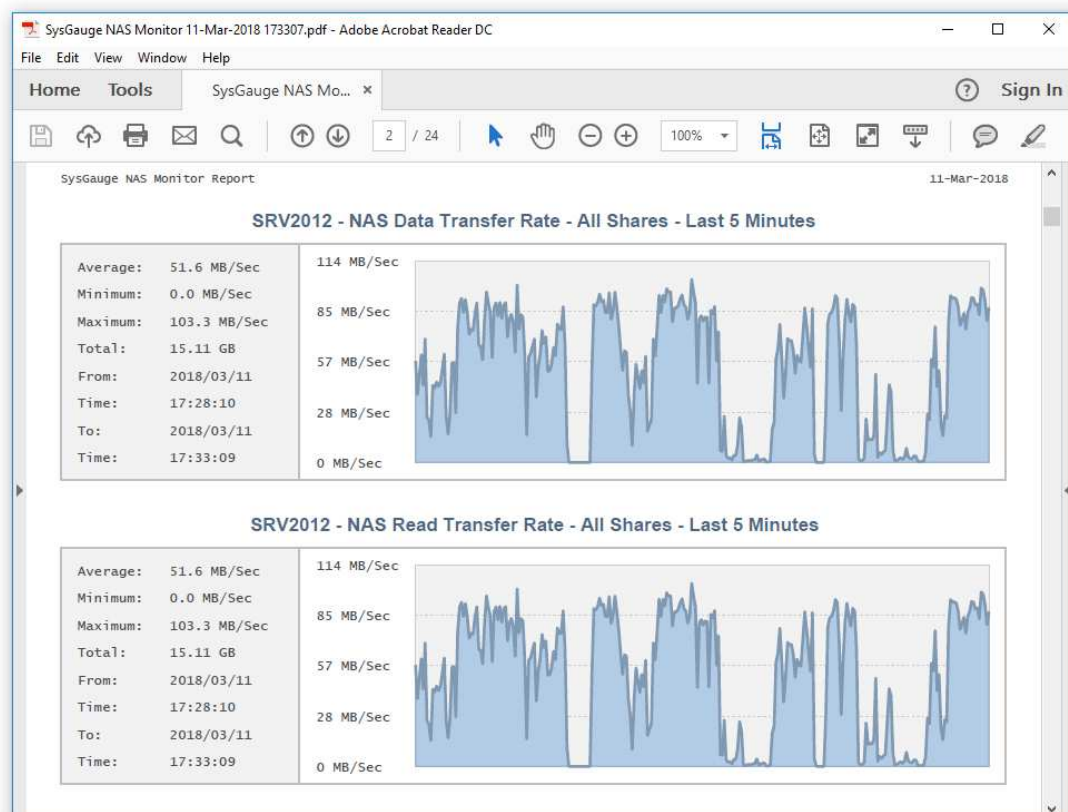


The data chart dialog provides the ability to view the monitoring data for the last minute, last 2 minutes or last 5 minutes. In addition, the user is provided with the ability export the counter's monitoring data, pause, resume and reset the monitor.

The SysGauge NAS performance monitor provides the user with the ability to save NAS performance monitoring reports to a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a NAS performance monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format and report mode, enter a report file name and press the 'Save' button.



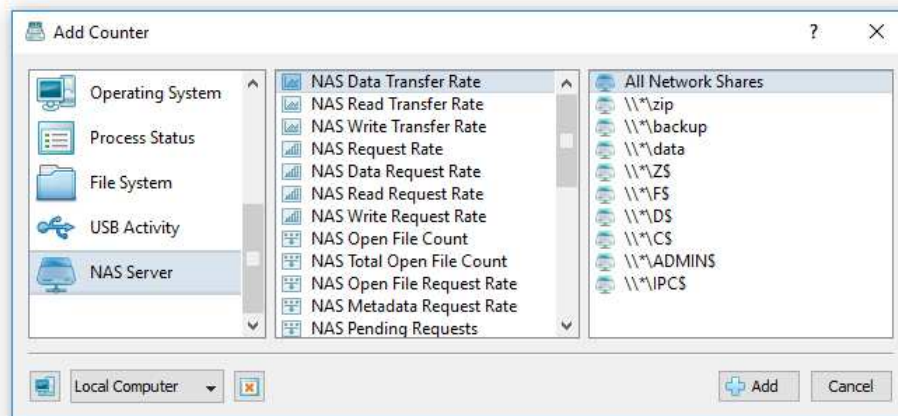
A SysGauge NAS performance monitoring report begins with a summary table showing the report date and time, the report host name and the name of the user generated the NAS performance monitoring report. The summary table is followed by the list of NAS performance monitoring counters showing the average, minimum and maximum values for each NAS performance monitoring counter.



The counter list is followed by a number of data charts showing the NAS performance monitoring data for each NAS performance monitoring counter. In addition, if selected by the user, the report may include NAS performance history statistics and full monitoring data for all NAS performance monitoring counters.

In addition to the dedicated NAS monitor module, the user can use the customizable '**System Monitor**' module to configure user-custom NAS server monitoring profiles.

In order to add a NAS performance monitoring counter, press the 'Monitor' button located on the main toolbar, selected the 'NAS Server' counters category in the left-side view, select an appropriate NAS performance monitoring counter in the middle view and then select the required network share in the right-side view. In addition, in order to monitor the performance of a remote NAS server via the network, press the 'Connect' button located in the bottom-left corner and specify the host name or an IP address of the remote server to monitor.



- **NAS Data Transfer Rate** - this counter measures the rate, in MB per second, at which data is being written to or read from this NAS server.
- **NAS Read Transfer Rate** - this counter measures the rate, in MB per second, at which data is being read from this NAS server.
- **NAS Write Transfer Rate** - this counter measures the rate, in MB per second, at which data is being written to this NAS server.
- **NAS Request Rate** - this counter measures the rate, in requests per second, at which read or write requests are received by this NAS server.
- **NAS Data Request Rate** - this counter measures the rate, in requests per second, at which data requests are received by this NAS server.
- **NAS Read Request Rate** - this counter measures the rate, in requests per second, at which read requests are received by this NAS server.
- **NAS Write Request Rate** - this counter measures the rate, in requests per second, at which write requests are received by this NAS server.
- **NAS Open File Count** - this counter shows the number of files that are currently open in this NAS server on behalf of its clients.
- **NAS Total Open File Count** - this counter shows the number of files that have been opened by the NAS file server on behalf of its clients since the server started.
- **NAS Open File Request Rate** - this counter measures the rate, in requests per second, at which files are being opened for the NAS server's clients.
- **NAS Metadata Request Rate** - this counter measures the rate, in requests per seconds, at which metadata requests are being sent to this NAS server.
- **NAS Pending Requests** - this counter shows the current number of requests are waiting to be processed by the NAS file server.
- **NAS Data Queue Length** - this counter shows the current number of read or write requests outstanding on this NAS server.
- **NAS Network Transfer Rate** - this counter measures the rate, in MB per second, at which data is being received and sent for requests related to this NAS server including the application data as well as the network protocol data.
- **NAS Network Received Rate** - this counter measures the rate, in MB per second, at which data is being received for requests related to this NAS server including the application data as well as the network protocol data.

- **NAS Network Sent Rate** - this counter measures the rate, in MB per second, at which data is being sent for requests related to this NAS server including the application data as well as the network protocol data.
- **NAS Average Request Size** - this counter shows the average size of data requests in KB.
- **NAS Average Read Request Size** - this counter shows the average size of read requests in KB.
- **NAS Average Write Request Size** - this counter shows the average size of write requests in KB.
- **NAS Average Data Queue Length** - this counter shows the average number of read and write requests that were queued by this NAS file server.
- **NAS Average Read Queue Length** - this counter shows the average number of read requests that were queued by this NAS file server.
- **NAS Average Write Queue Length** - this counter shows the average number of write requests that were queued by this NAS file server.
- **NAS Average Request Time** - this counter shows the average number of milliseconds that elapse between the time at which the NAS file server receives a request and the time at which the server sends the corresponding response.
- **NAS Average Data Request Time** - this counter shows the average number of milliseconds that elapse between the time at which the NAS file server receives a data request and the time at which the server sends the corresponding response.
- **NAS Average Read Request Time** - this counter shows the average number of milliseconds that elapse between the time at which the NAS file server receives a read request and the time at which the server sends the corresponding response.
- **NAS Average Write Request Time** - this counter shows the average number of milliseconds that elapse between the time at which the NAS file server receives a write request and the time at which the server sends the corresponding response.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the performance of NAS servers and save NAS monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote NAS servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

`sysgauge -nas_monitor -save_pdf_report <File Name or Directory>`

This command will perform a NAS performance monitoring operation using a number of NAS monitoring counters including the NAS data transfer rate, NAS read transfer rate, NAS write transfer rate, NAS data request rate, NAS read request rate, NAS write request rate, NAS pending requests, the current NAS open file count and the total number of open files since the NAS server was started. In addition, after the monitoring operation will be completed, SysGauge will save a PDF NAS performance monitoring report to the specified file or directory.

`sysgauge -show_nas_shares`

This command shows the list of network shares on the target NAS server.

Command Line Options:

`-extended`

By default, the NAS performance monitor reports the total NAS performance statistics for all network shares in the monitored NAS server. This command line option enables individual network shares performance monitoring counters for each network share and the NAS performance monitoring results will include individual network shares statistics for each network share in the monitored NAS server.

`-share <Share Name>`

This option allows one to monitor only the specified network share.

`-host <Remote Host Name or IP address>`

This option allows one to monitor the NAS performance in remote servers via the network.

`-time <Monitoring Time in Seconds>`

This command line option sets the maximum monitoring time.

`-silent`

This command line option enables silent operation, which is useful when saving reports.

`-save_html_report <File Name or Directory>`

This command line option saves an HTML NAS performance monitoring report.

`-save_pdf_report <File Name or Directory>`

This command line option saves a PDF NAS performance monitoring report.

`-save_excel_report <File Name or Directory>`

This command line option saves an Excel NAS performance monitoring report.

`-save_text_report <File Name or Directory>`

This command line option saves a text NAS performance monitoring report.

`-save_csv_report <File Name or Directory>`

This command line option saves a CSV NAS performance monitoring report.

`-save_json_report <File Name or Directory>`

This command line option saves a JSON NAS performance monitoring report.

`-save_xml_report <File Name or Directory>`

This command line option saves an XML NAS performance monitoring report.

`-save_to_database <Table Name>`

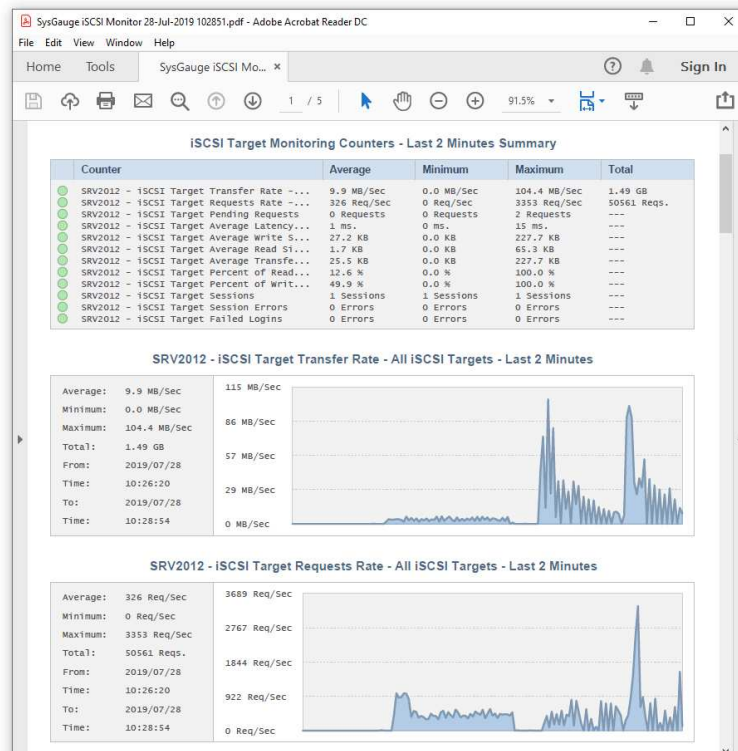
This command line option saves monitoring results to the specified SQL database table.

17 iSCSI Target Monitor

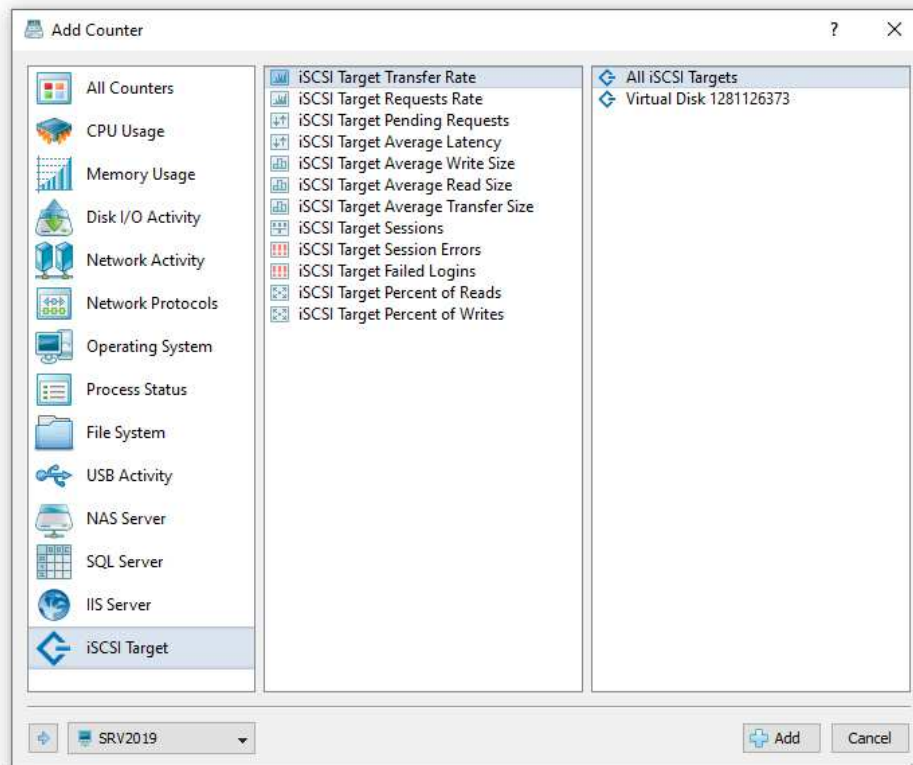
The SysGauge system monitor provides the ability to monitor iSCSI target storage devices allowing one to monitor the iSCSI transfer rate, iSCSI request rate, the number of pending iSCSI requests, percent of iSCSI read requests, percent of iSCSI write requests, average iSCSI request latency, average iSCSI read size, average iSCSI write size, number of iSCSI target sessions, number of iSCSI session errors and the number of failed iSCSI logins.



The SysGauge iSCSI monitor GUI module allows one to select which iSCSI target disk to monitor, display various types of monitoring history charts and save iSCSI monitoring reports into a number of formats including PDF, HTML, Microsoft Excel, XML, CSV and text. In addition, users are provided with the ability to export the raw monitoring data to an SQL database allowing one to analyze the data using external analysis tools.



In addition to the dedicated iSCSI target monitor GUI module, the user is provided with the customizable '**System Monitor**' module allowing one to configure custom iSCSI target monitoring profiles. In order to add an iSCSI target monitoring counter, press the 'Monitor' button located on the main toolbar, select the 'iSCSI Target' counters category in the left-side view and then select an appropriate iSCSI Target monitoring counter in the middle view. By default, SysGauge will monitor all iSCSI target disks, but if required, the user can select a specific iSCSI disk to monitor in the right-side view. In addition, in order to monitor a remote iSCSI target server via the network, press the 'Connect' button located in the bottom-left corner of the dialog and specify the host name or an IP address of the remote server to monitor.



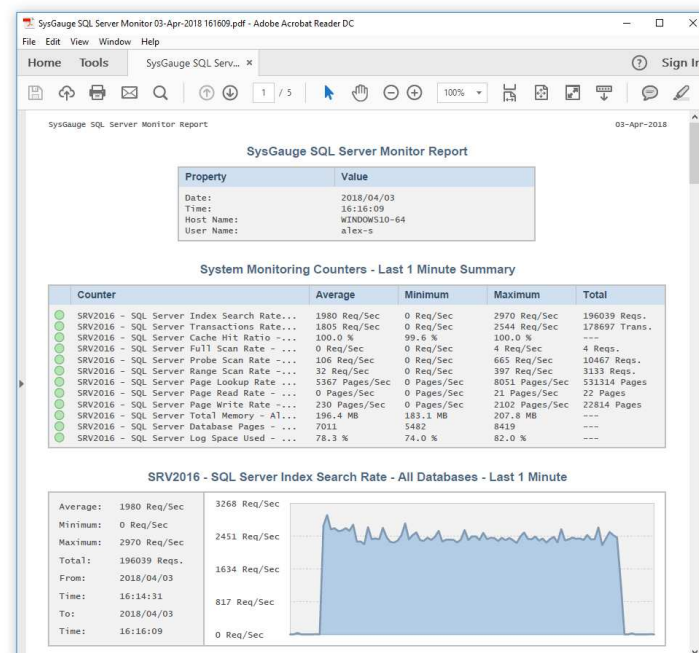
- **iSCSI Target Transfer Rate** - this counter monitors the iSCSI target data transfer rate, which is displayed in MB/Sec.
- **iSCSI Target Requests Rate** - this counter monitors the iSCSI target requests rate, which is displayed in requests per second.
- **iSCSI Target Pending Requests** - this counter monitors the number of pending iSCSI target requests.
- **iSCSI Target Average Latency** - this counter monitors the average iSCSI target requests latency, which is displayed in milliseconds.
- **iSCSI Target Average Write Size** - this counter monitors the average iSCSI target write request size, which is displayed in KB.
- **iSCSI Target Average Read Size** - this counter monitors the average iSCSI target read request size, which is displayed in KB.
- **iSCSI Target Average Transfer Size** - this counter monitors the average iSCSI target data transfer request size, which is displayed in KB.
- **iSCSI Target Sessions** - this counter monitors the number of active iSCSI target sessions.
- **iSCSI Target Session Errors** - this counter monitors the number of iSCSI Target session errors.
- **iSCSI Target Failed Logins** - this counter monitors the number of failed iSCSI target logins.
- **iSCSI Target Percent of Reads** - this counter monitors the percentage of iSCSI target read requests.
- **iSCSI Target Percent of Writes** - this counter monitors the percentage of iSCSI target write requests.

18 SQL Server Monitor

SysGauge Pro and SysGauge Server allow one to monitor one or more Microsoft SQL Servers locally or via the network. In order to add an SQL Server monitor press the 'Add' button located in the top-left corner of the window and select the 'SQL Server Monitor' menu item. The SQL Server monitor provides the ability to monitor the SQL index search rate, SQL transaction rate, SQL cache hit ratio, SQL full scan rate, SQL probe scan rate, SQL range scan rate, SQL page lookup rate, SQL page read rate, SQL page write rate, SQL total memory, SQL database page count and the amount of used SQL log space.

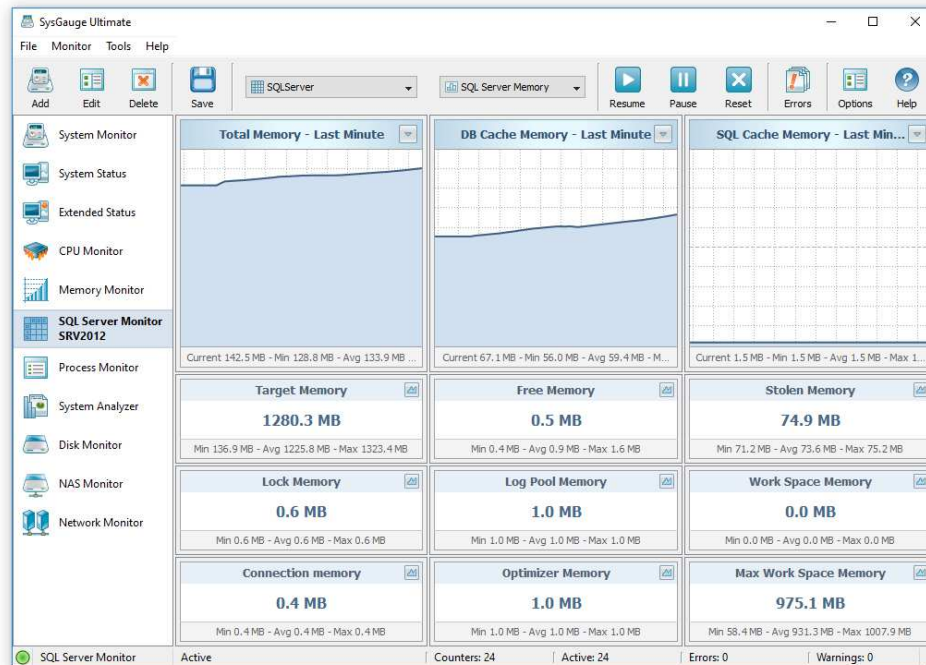


The user is provided with the ability to save SQL server monitoring reports into a number of standard formats including HTML, PDF, Excel, CSV, text and XML. In order to save an SQL server monitoring report, press the 'Save' button located on the main toolbar, select an appropriate report format, enter a report title and press the 'Save' button.

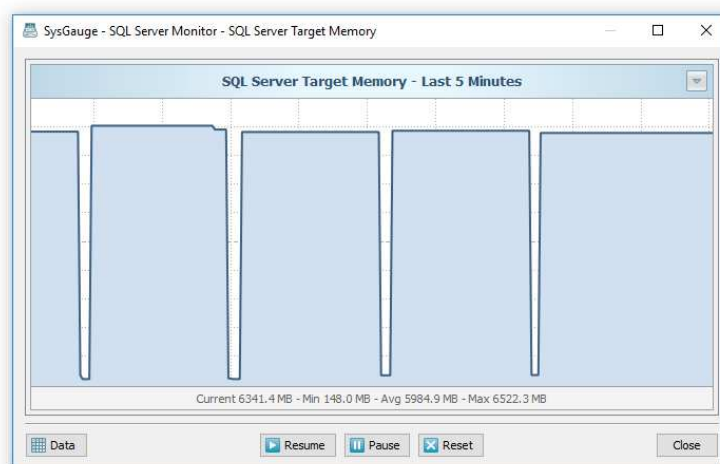


For example, a PDF report includes the list of SQL server monitoring counters showing the average, minimum and maximum values for each counter and a number of line charts showing how the performance of the monitored SQL server was changing over time.

The SysGauge SQL Server memory monitor GUI shows the SQL server total memory, the SQL Server cache memory, SQL Server target memory, SQL Server free memory, SQL Server stolen memory, SQL Server lock memory, SQL Server log pool memory, SQL Server granted work space memory, SQL Server maximum work space memory, SQL Server connection memory and the SQL Server optimizer memory.



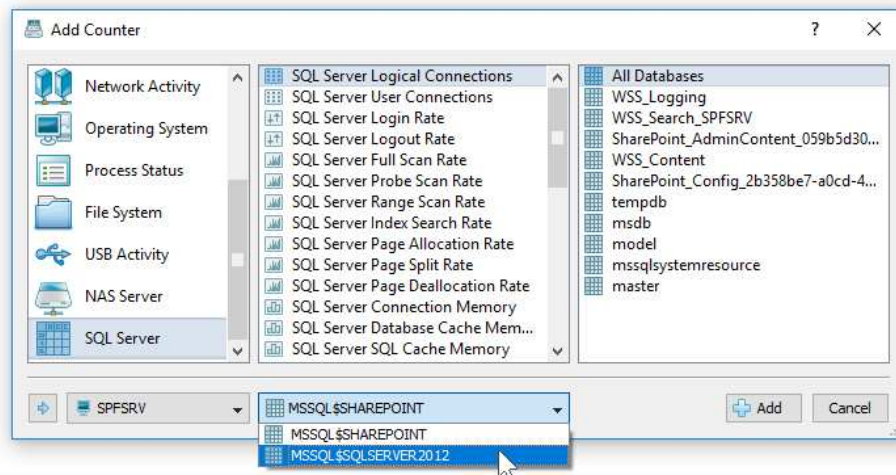
In order to open the history chart dialog for a specific SQL Server monitoring counter, press the 'Chart' button located in the top-right corner of the required counter. Under the history line chart, the history dialog shows the current counter value, the average counter value, the maximum counter value and the minimum counter value. In addition, the history dialog allows one to show the monitoring history for the last 1, 2 or 5 minutes.



The history dialog provides the ability to export the monitoring data to a number of standard formats including HTML, PDF, Excel, text, CSV and XML. In order to save the history monitoring data, press the 'Data' button located in the bottom-left corner of the history dialog, press the 'Save' button and select an appropriate report format.

In addition to the dedicated SQL Server monitor, the user can use the customizable '**System Monitor**' module to configure user-custom SQL Server monitoring profiles.

In order to add an SQL Server monitoring counter, press the 'Monitor' button located on the main toolbar, selected the 'SQL Server' counters category in the left-side view and then select an appropriate SQL Server monitoring counter in the middle view. By default, SysGauge will monitor all SQL databases in the target SQL Server, but if required, the user can select a specific SQL database to monitor in the right-side view. In addition, in order to monitor a remote SQL Server via the network, press the 'Connect' button located in the bottom-left corner and specify the host name or an IP address of the remote computer to monitor.



- **SQL Server Logical Connections** - this counter monitors the number of currently active logical SQL server connections.
- **SQL Server User Connections** - this counter monitors the number of currently active SQL Server user connections.
- **SQL Server Login Rate** - this counter monitors the SQL Server login rate, which is displayed in logins per second.
- **SQL Server Logout Rate** - this counter monitors the SQL Server logout rate, which is displayed in logouts per second.
- **SQL Server Full Scan Rate** - this counter monitors the rate of SQL Server scan operations, which is displayed in scans per second.
- **SQL Server Probe Scan Rate** - this counter monitors the rate of SQL Server probe scan operations, which is displayed in scans per second.
- **SQL Server Range Scan Rate** - this counter monitors the rate of SQL Server range scan operations, which is displayed in scans per second.
- **SQL Server Index Search Rate** - this counter monitors the rate of SQL Server index search operations, which is displayed in searches per second.
- **SQL Server Page Allocation Rate** - this counter monitors the rate of SQL Server database page allocations, which is displayed in pages per second.
- **SQL Server Page Split Rate** - this counter monitors the rate of SQL Server database page split operations, which is displayed in pages per second.
- **SQL Server Page Deallocation Rate** - this counter monitors the rate of SQL Server database page deallocations, which is displayed in pages per second.
- **SQL Server Connection Memory** - this counter monitors the amount of SQL Server connection memory, which is displayed in MB.
- **SQL Server Database Cache Memory** - this counter monitors the amount of SQL Server database cache memory, which is displayed in MB.
- **SQL Server SQL Cache Memory** - this counter monitors the amount of SQL Server SQL cache memory, which is displayed in MB.
- **SQL Server Lock Memory** - this counter monitors the amount of SQL Server lock memory, which is displayed in MB.
- **SQL Server Log Pool Memory** - this counter monitors the amount of SQL Server log pool memory, which is displayed in MB.

- **SQL Server Max Workspace Memory** - this counter monitors the amount of SQL Server max workspace memory, which is displayed in MB.
- **SQL Server Optimizer Memory** - this counter monitors the amount of SQL Server optimizer memory, which is displayed in MB.
- **SQL Server Free Memory** - this counter monitors the amount of SQL Server free memory, which is displayed in MB.
- **SQL Server Stolen Memory** - this counter monitors the amount of SQL Server stolen memory, which is displayed in MB.
- **SQL Server Target Memory** - this counter monitors the amount of SQL Server target memory, which is displayed in MB.
- **SQL Server Total Memory** - this counter monitors the amount of SQL Server total memory, which is displayed in MB.
- **SQL Server Background Write Rate** - this counter monitors the SQL Server background write rate, which is displayed in pages per second.
- **SQL Server Cache Hit Ratio** - this counter monitors the SQL Server database cache hit ratio, which is displayed in percents.
- **SQL Server Database Pages** - this counter monitors the number of SQL Server database pages.
- **SQL Server Page Lookup Rate** - this counter monitors the rate of SQL Server database page lookup operations, which is displayed in pages per second.
- **SQL Server Page Read Rate** - this counter monitors the rate of SQL Server database page read operations, which is displayed in pages per second.
- **SQL Server Page Write Rate** - this counter monitors the rate of SQL Server database page write operations, which is displayed in pages per second.
- **SQL Server Target Pages** - this counter monitors the number of SQL Server target database pages.
- **SQL Server Active Transactions** - this counter monitors the number of currently active SQL Server transactions.
- **SQL Server Data Files Size** - this counter monitors the size of SQL Server data files, which is displayed in MB.
- **SQL Server Log Space Used** - this counter monitors the amount of used SQL Server log space, which is displayed in percents.
- **SQL Server Transactions Rate** - this counter monitors the rate of SQL Server transactions, which is displayed in transactions per second.
- **SQL Server Write Transactions Rate** - this counter monitors the rate of SQL Server write transactions, which is displayed in transactions per second.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor one or more SQL Servers and save SQL Server monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local system or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -sql_monitor -save_pdf_report <File Name or Directory>

This command will perform an SQL Server monitoring operation using a number of SQL Server monitoring counters including the SQL Server transactions rate, cache hit ratio, index search rate, full scan rate, probe scan rate, range scan rate, page lookup rate, page read rate, page write rate, database pages, user connections, etc. In addition, after the monitoring operation will be completed, SysGauge will save a PDF SQL Server monitoring report to the specified file or directory.

Command Line Options:

-host <Remote Host Name or IP address>

This option allows one to monitor remote SQL servers via the network.

-sql_instance

Normally, the SQL Server monitor will try to connect to the default SQL Server instance. This command line option provides the ability to specify which SQL Server instance to monitor allowing one to monitor multiple SQL Server instances installed on the local computer or a number of remote computers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This option enables the silent operation mode.

-save_html_report <File Name or Directory>

This command line option saves an HTML SQL Server monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF SQL Server monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel SQL Server monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text SQL Server monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV SQL Server monitoring report.

-save_json_report <File Name or Directory>

This command line option saves a JSON SQL Server monitoring report.

-save_xml_report <File Name or Directory>

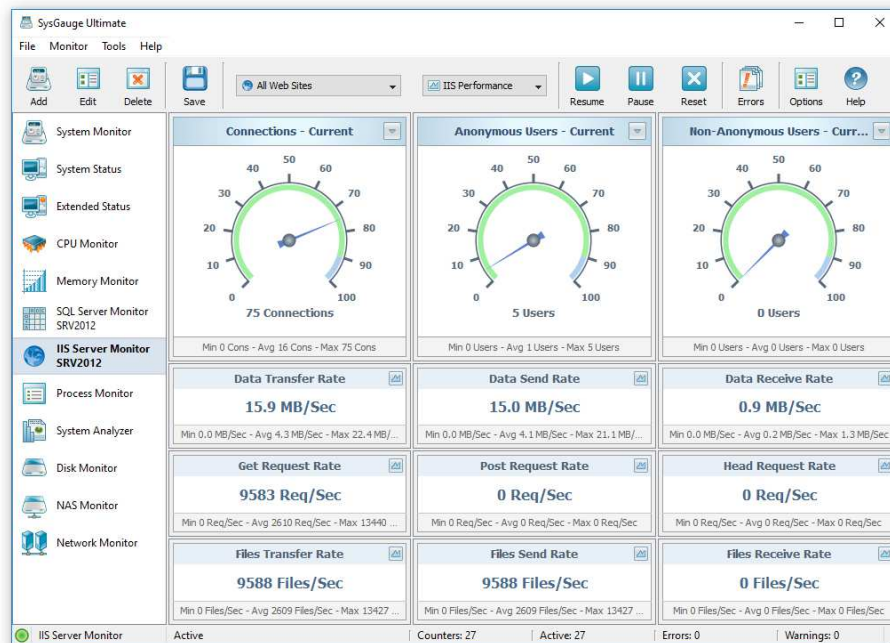
This command line option saves an XML SQL Server monitoring report.

-save_to_database <Table Name>

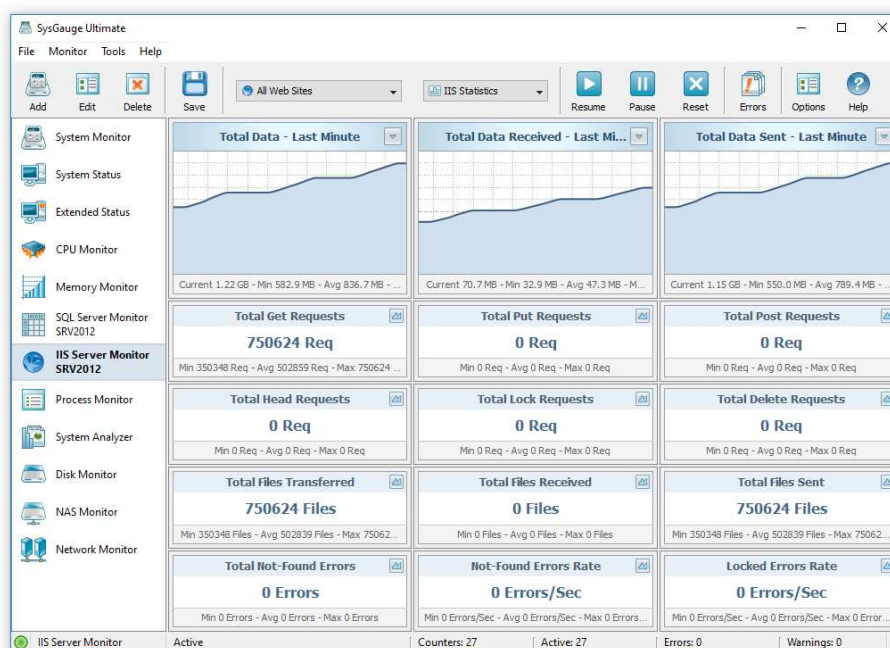
This command line option saves monitoring results to the specified SQL database table.

19 IIS Server Monitor

SysGauge Pro allows one to monitor one or more Microsoft IIS Servers locally or via the network. In order to add an IIS Server monitor press the 'Add' button located in the top-left corner of the window and select the 'IIS Server Monitor' menu item. The IIS Server monitor provides the IIS Server performance tab, the IIS Server statistics tab and allows one to select which web site to monitor.

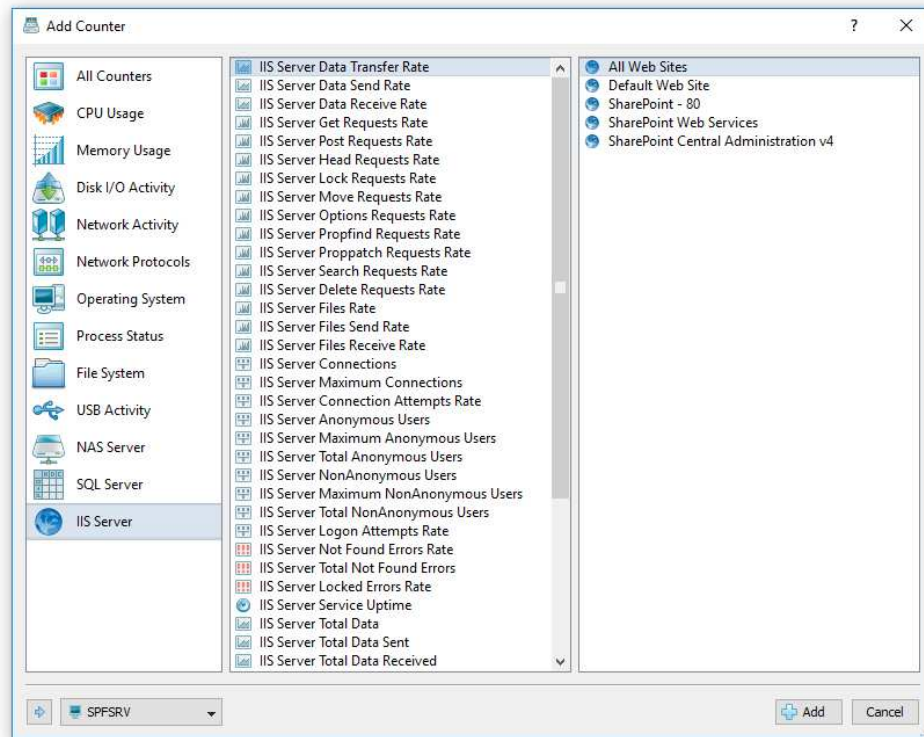


The IIS Server performance tab displays the current number of connections, the number of anonymous users, number of non-anonymous users, data transfer rate, HTTP requests rate and the files transfer rate.



The IIS Server statistics tab displays the total amount of transferred data, the total number of HTTP requests, the total number of transferred files, the total number of not-found errors, the not-found errors rate and the locked errors rate.

In addition to the dedicated IIS Server monitor, the user is provided with the customizable '**System Monitor**' module allowing one to configure custom IIS Server monitoring profiles. In order to add an IIS Server monitoring counter, press the 'Monitor' button located on the main toolbar, selected the 'IIS Server' counters category in the left-side view and then select an appropriate IIS Server monitoring counter in the middle view. By default, SysGauge will monitor all web sites on the target IIS Server, but if required, the user can select a specific web site to monitor in the right-side view. In addition, in order to monitor a remote IIS Server via the network, press the 'Connect' button located in the bottom-left corner and specify the host name or an IP address of the remote server to monitor.



- **IIS Server Data Transfer Rate** - this counter monitors the data transfer rate, which is displayed in MB/Sec
- **IIS Server Data Send Rate** - this counter monitors the data send rate, which is displayed in MB/Sec
- **IIS Server Data Receive Rate** - this counter monitors the data receive rate, which is displayed in MB/Sec
- **IIS Server Get Requests Rate** - this counter monitors the rate of HTTP GET requests, which is displayed in Requests/Sec
- **IIS Server Post Requests Rate** - this counter monitors the rate of HTTP POST requests, which is displayed in Requests/Sec
- **IIS Server Head Requests Rate** - this counter monitors the rate of HTTP HEAD requests, which is displayed in Requests/Sec
- **IIS Server Lock Requests Rate** - this counter monitors the rate of HTTP LOCK requests, which is displayed in Requests/Sec
- **IIS Server Move Requests Rate** - this counter monitors the rate of HTTP MOVE requests, which is displayed in Requests/Sec
- **IIS Server Options Requests Rate** - this counter monitors the rate of HTTP OPTIONS requests, which is displayed in Requests/Sec
- **IIS Server Propfind Requests Rate** - this counter monitors the rate of HTTP PROPFIND requests, which is displayed in Requests/Sec
- **IIS Server Proppatch Requests Rate** - this counter monitors the rate of HTTP PROPPATCH requests, which is displayed in Requests/Sec
- **IIS Server Search Requests Rate** - this counter monitors the rate of HTTP SEARCH requests, which is displayed in Requests/Sec
- **IIS Server Delete Requests Rate** - this counter monitors the rate of HTTP DELETE requests, which is displayed in Requests/Sec

- **IIS Server Files Rate** - this counter monitors the files transfer rate, which is displayed in Files/Sec
- **IIS Server Files Send Rate** - this counter monitors the files send rate, which is displayed in Files/Sec
- **IIS Server Files Receive Rate** - this counter monitors the files receive rate, which is displayed in Files/Sec
- **IIS Server Connections** - this counter monitors the current number of network connections
- **IIS Server Maximum Connections** - this counter monitors the maximum number of network connections.
- **IIS Server Connection Attempts Rate** - this counter monitors the rate of network connection attempts, which is displayed in Connections/Sec
- **IIS Server Anonymous Users** - this counter monitors the current number of anonymous users
- **IIS Server Maximum Anonymous Users** - this counter monitors the maximum number of anonymous users
- **IIS Server Total Anonymous Users** - this counter monitors the total number of anonymous users
- **IIS Server NonAnonymous Users** - this counter monitors the current number of non-anonymous users
- **IIS Server Maximum NonAnonymous Users** - this counter monitors the maximum number of non-anonymous users
- **IIS Server Total NonAnonymous Users** - this counter monitors the total number of non-anonymous users
- **IIS Server Logon Attempts Rate** - this counter monitors the rate of user logon attempts, which is displayed in Logons/Sec
- **IIS Server Not Found Errors Rate** - this counter monitors the rate of not-found errors, which is displayed in Errors/Sec
- **IIS Server Total Not Found Errors** - this counter monitors the total number of not-found errors
- **IIS Server Locked Rate** - this counter monitors the rate of locked errors, which is displayed in Errors/Sec
- **IIS Server Service Up Time** - this counter displays the time since the IIS Server was started
- **IIS Server Total Data** - this counter monitors the total amount of transferred data, which is displayed in MB
- **IIS Server Total Data Sent** - this counter monitors the total amount of sent data, which is displayed in MB
- **IIS Server Total Data Received** - this counter monitors the total amount of received data, which is displayed in MB
- **IIS Server Total Files** - this counter monitors the total number of transferred files
- **IIS Server Total Files Sent** - this counter monitors the total number of sent files
- **IIS Server Total Files Received** - this counter monitors the total number of received files
- **IIS Server Total Get Requests** - this counter monitors the total number of HTTP GET requests
- **IIS Server Total Put Requests** - this counter monitors the total number of HTTP PUT requests
- **IIS Server Total Post Requests** - this counter monitors the total number of HTTP POST requests
- **IIS Server Total Lock Requests** - this counter monitors the total number of HTTP LOCK requests
- **IIS Server Total Head Requests** - this counter monitors the total number of HTTP HEAD requests
- **IIS Server Total Move Requests** - this counter monitors the total number of HTTP MOVE requests
- **IIS Server Total Search Requests** - this counter monitors the total number of HTTP SEARCH requests
- **IIS Server Total Delete Requests** - this counter monitors the total number of HTTP DELETE requests
- **IIS Server Total Logon Attempts** - this counter monitors the total number of user logon attempts

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to monitor the performance of the IIS Server and save IIS Server monitoring reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to monitor the local or remote IIS servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -iis_monitor -save_pdf_report <File Name or Directory>

This command will perform an IIS Server performance monitoring operation using a number of IIS monitoring counters including the number of IIS Server connections, number of anonymous users, number of non-anonymous users, data transfer rate, data receive rate, data send rate, HTTP GET requests rate, HTTP POST requests rate, page-not-found errors rate and the total number of page-not-found errors. In addition, after the monitoring operation will be completed, SysGauge will save a PDF IIS Server performance monitoring report to the specified file or directory.

sysgauge -show_iis_sites

This command shows the list of web sites on the target IIS server.

Command Line Options:

-extended

By default, the IIS server monitor reports the total performance statistics for all web sites hosted on the monitored IIS server. This command line option enables individual web sites performance monitoring counters for each web site and the IIS server performance monitoring results will include individual web sites statistics for each web site hosted on the monitored IIS server.

-site <Site Name>

This option allows one to monitor only the specified web site.

-host <Remote Host Name or IP address>

This option allows one to monitor remote IIS servers via the network.

-time <Monitoring Time in Seconds>

This command line option sets the maximum monitoring time.

-silent

This command line option enables silent operation, which is useful when saving reports.

-save_html_report <File Name or Directory>

This command line option saves an HTML IIS server performance monitoring report.

-save_pdf_report <File Name or Directory>

This command line option saves a PDF IIS server performance monitoring report.

-save_excel_report <File Name or Directory>

This command line option saves an Excel IIS server performance monitoring report.

-save_text_report <File Name or Directory>

This command line option saves a text IIS server performance monitoring report.

-save_csv_report <File Name or Directory>

This command line option saves a CSV IIS server performance monitoring report.

-save_xml_report <File Name or Directory>

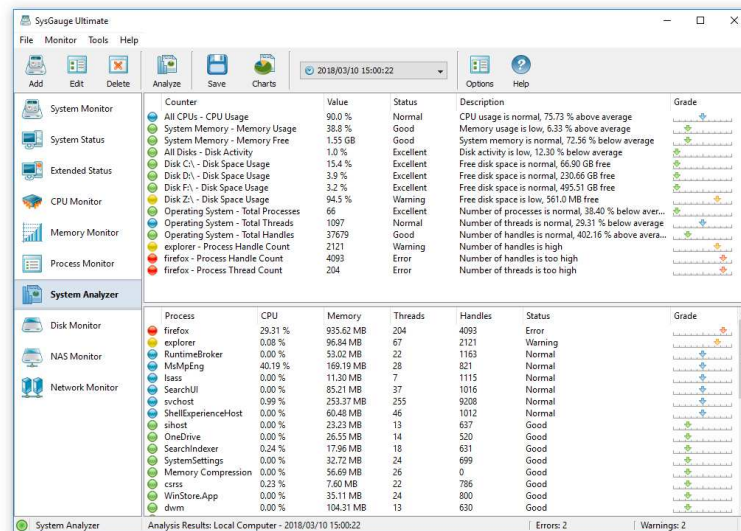
This command line option saves an XML IIS server performance monitoring report.

-save_to_database <Table Name>

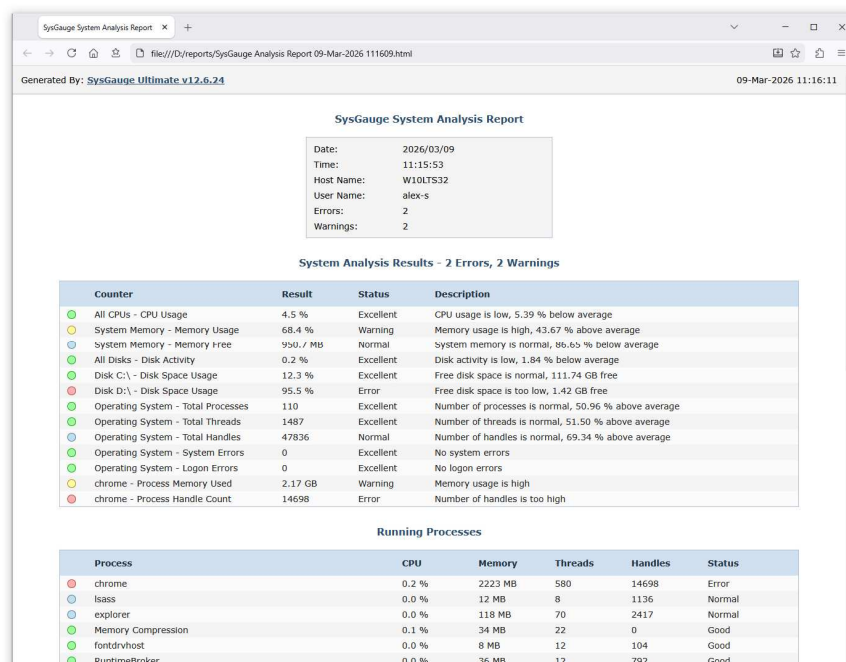
This command line option saves monitoring results to the specified SQL database table.

20 System Analysis Module

In order to allow users quickly check the current system status, SysGauge provides the 'System Analyzer' module allowing one to automatically analyze the current system resource usage, check all critical issues and show an easy-to-understand list of system analysis results.

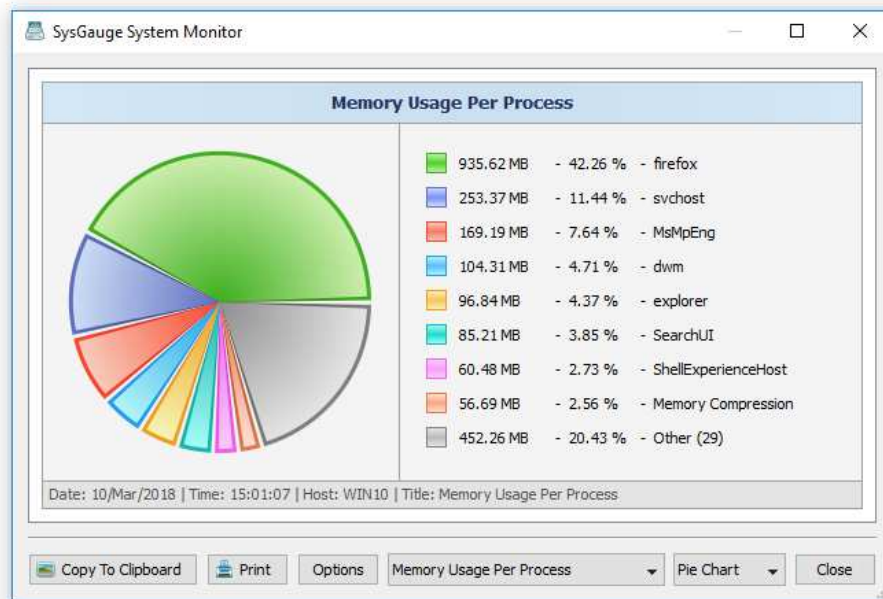


The system status analysis results list shows the CPU usage, the memory usage, the amount of the free memory, the disk activity for all disks, the disk space usage for all disks, the total number of running processes, the total number of running threads, the number of system errors and the number of logon errors. For each system status counter, SysGauge shows a status description which may be set to one of the following: Excellent, Good, Normal, Warning, Error or Critical.

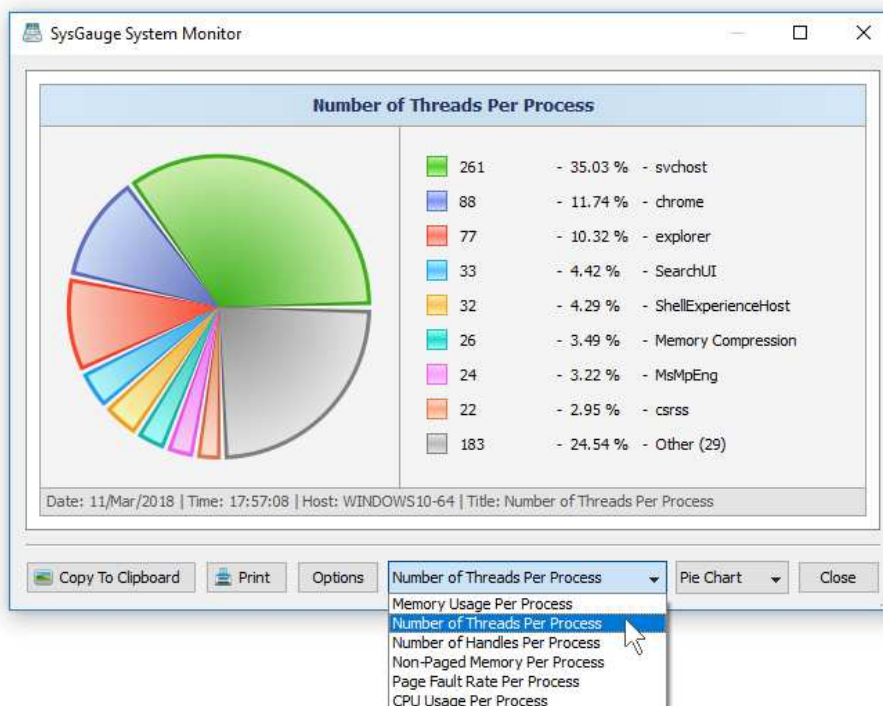


In addition, the user is provided with the ability to export the system status analysis results to the HTML, PDF, Excel, JSON and text formats. In order to export system analysis results to a report file, press the 'Save' button located on the system analysis results dialog, select an appropriate report format, enter a file name and press the 'Save' button.

The system analysis results window allows one to display different types of charts showing the CPU usage per process, the memory usage per process, the number of threads per process and the number of handles per process allowing one to easily identify processes using excessive amounts of the system resources.



In order to open the charts dialog, press the 'Charts' button located on the system status analysis results dialog. The charts dialog allows one to display different types of charts using the chart selector combo box, which is located on the bottom side of the charts dialog. For example, in order to display the number of threads per process, click the chart type selector and select the 'Number of Threads Per Process' item.



In addition, the charts dialog provides the ability to copy the currently displayed chart image to the clipboard, print the chart image, edit the chart's properties and switch between the 'Pie Chart' and 'Bars Chart' modes.

The SysGauge command line utility, which is available in SysGauge Pro and SysGauge Server product versions, provides the ability to perform the system analysis operations and save system analysis reports from batch files and shell scripts. The command line utility is located in the SysGauge 'bin' directory and it can be used to analyze the local or remote servers via the network. In the simplest case, open a command prompt window, go to the SysGauge 'bin' directory and type the following command:

sysgauge -analyze -save_pdf_report <File Name or Directory>

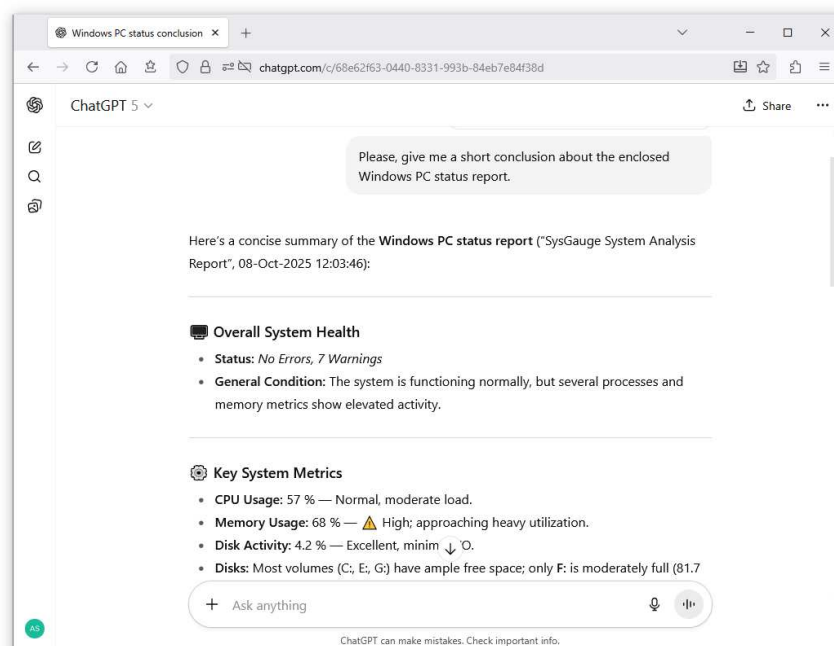
This command will perform a system status analysis operation and save a PDF analysis report to the specified file or directory. The system analysis report includes the system CPU usage, memory usage, disk space usage, the operating system status and the status of all running processes.

```

c:\Program Files\SysGauge Ultimate\bin>sysgauge -analyze -save_json_report -dir e:\reports
SysGauge v12.1.18
Operation Successfully Completed
...
All CPUs - CPU Usage ... 0.6 % - Excellent - CPU usage is low, 0.48 % below average
System Memory - Memory Usage ... 66.4 % - Warning - Memory usage is high, 42.30 % above average
System Memory - Memory Free ... 788.0 MB - Normal - System memory is normal, 89.62 % below average
All Disks - Disk Activity ... 0.0 % - Excellent - Disk activity is low, 1.84 % below average
Disk C:\ - Disk Space Usage ... 22.3 % - Excellent - Free disk space is normal, 99.85 GB free
Disk E:\ - Disk Space Usage ... 32.8 % - Excellent - Free disk space is normal, 86.00 GB free
Disk F:\ - Disk Space Usage ... 81.7 % - Normal - Free disk space is normal, 5.85 GB free
Disk G:\ - Disk Space Usage ... 22.3 % - Excellent - Free disk space is normal, 3.10 GB free
Operating System - Total Processes ... 108 - Excellent - Number of processes is normal, 46.91 % above average
Operating System - Total Threads ... 1352 - Excellent - Number of threads is normal, 37.55 % above average
Operating System - Total Handles ... 50424 - Warning - Number of handles is high, 77.24 % above average
ms-teams - Process Handle Count ... 2096 - Warning - Number of handles is high
msedgeview2 - Process Handle ... 2900 - Warning - Number of handles is high
msedgeview2 - Process Thread ... 120 - Warning - Number of threads is high
Running Processes
msedgeview2 ... CPU 0.0 % Memory 684 MB | Threads 120 | Handles 2900 - Warning
ms-teams ... CPU 0.0 % Memory 29 MB | Threads 84 | Handles 2096 - Warning
lsass ... CPU 0.0 % Memory 15 MB | Threads 10 | Handles 1493 - Normal
SearchApp ... CPU 0.0 % Memory 51 MB | Threads 29 | Handles 1152 - Normal
explorer ... CPU 0.0 % Memory 138 MB | Threads 69 | Handles 2879 - Normal
svchost ... CPU 0.0 % Memory 574 MB | Threads 365 | Handles 15915 - Normal
RuntimeBroker ... CPU 0.0 % Memory 107 MB | Threads 29 | Handles 1777 - Normal
shost ... CPU 0.0 % Memory 22 MB | Threads 13 | Handles 615 - Good
OneDrive ... CPU 0.0 % Memory 49 MB | Threads 24 | Handles 904 - Good
OneDrive.Sync.Service ... CPU 0.0 % Memory 4 MB | Threads 16 | Handles 508 - Good
spoolsv ... CPU 0.0 % Memory 20 MB | Threads 10 | Handles 540 - Good
WSHMgr ... CPU 0.3 % Memory 314 MB | Threads 28 | Handles 951 - Good
Memory Compression ... CPU 0.0 % Memory 30 MB | Threads 22 | Handles 0 - Good
WmiPrvSE ... CPU 0.0 % Memory 38 MB | Threads 14 | Handles 468 - Good
SearchIndexer ... CPU 0.0 % Memory 21 MB | Threads 20 | Handles 719 - Good
jvm ... CPU 0.0 % Memory 120 MB | Threads 15 | Handles 972 - Good
dllhost ... CPU 0.0 % Memory 23 MB | Threads 17 | Handles 583 - Good
csrss ... CPU 0.0 % Memory 8 MB | Threads 23 | Handles 913 - Good
ShellExperienceHost ... CPU 0.0 % Memory 42 MB | Threads 11 | Handles 575 - Good

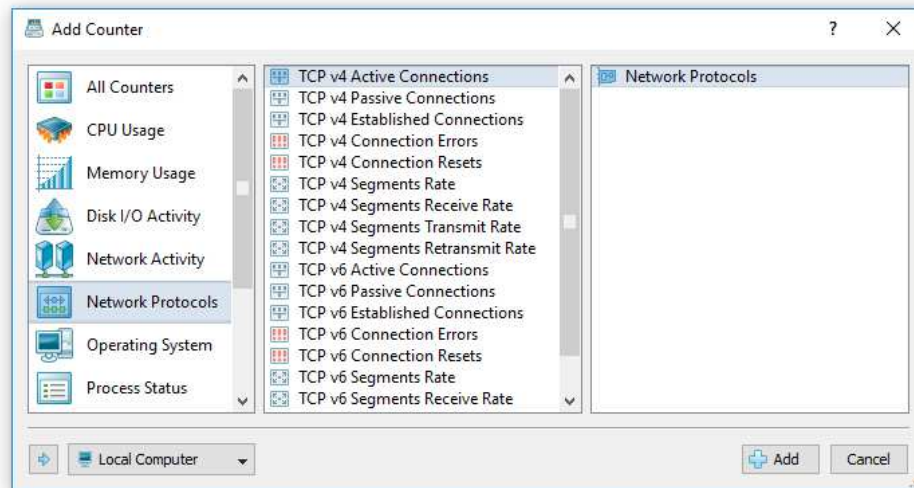
```

In addition, the user is provided with the ability to save the system analysis reports to the JSON report format allowing one to import the system analysis results to an AI platform and generate summary reports and various types of charts.



21 TCP/IP Protocol Monitoring Counters

SysGauge allows one to monitor the TCP/IP protocol activities including the number of active TCP/IP connections, the number of connection resets, the number of connection errors, the TCP/IP segments rate, etc. In order to add a TCP/IP monitoring counter, press the 'Monitor' button located on the main toolbar, selected the 'Network Protocols' counters category in the left-side view and then select an appropriate TCP/IP monitoring counter in the middle view.

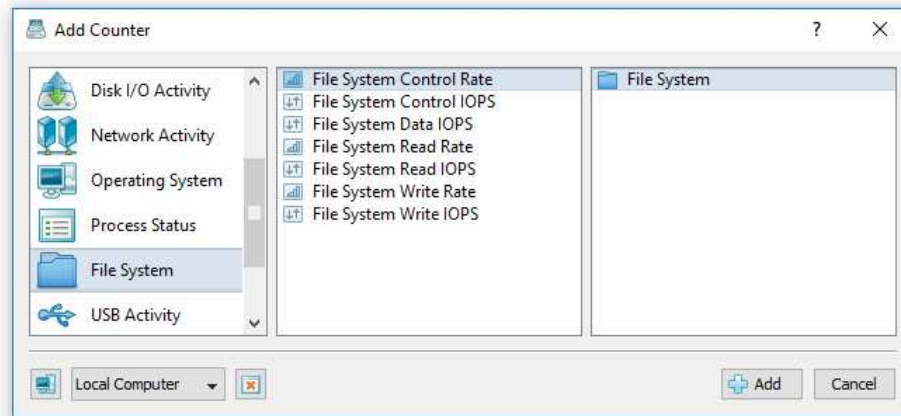


SysGauge provides two sets of TCP/IP monitoring counters with the first set of counters for the TCP/IP protocol version 4 and the second set of counters for the TCP/IP protocol version 6. In addition, in order to monitor the TCP/IP protocol activities in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.

- **TCP Active Connections** - this counter monitors the number of active TCP/IP connections.
- **TCP Passive Connections** - this counter monitors the number of passive TCP/IP connections.
- **TCP Established Connections** - this counter monitors the number of established TCP/IP connections.
- **TCP Connection Errors** - this counter monitors the number of failed TCP/IP connections.
- **TCP Connection Resets** - this counter monitors the number of TCP/IP connection resets.
- **TCP Segments Rate** - this counter monitors the number of TCP/IP segments rate, which is displayed in segments per second.
- **TCP Segments Receive Rate** - this counter monitors the number of TCP/IP segments receive rate, which is displayed in segments per second.
- **TCP Segments Transmit Rate** - this counter monitors the number of TCP/IP segments transmit rate, which is displayed in segments per second.
- **TCP Segments Retransmit Rate** - this counter monitors the number of TCP/IP segments retransmit rate, which is displayed in segments per second.

22 File System Monitoring Counters

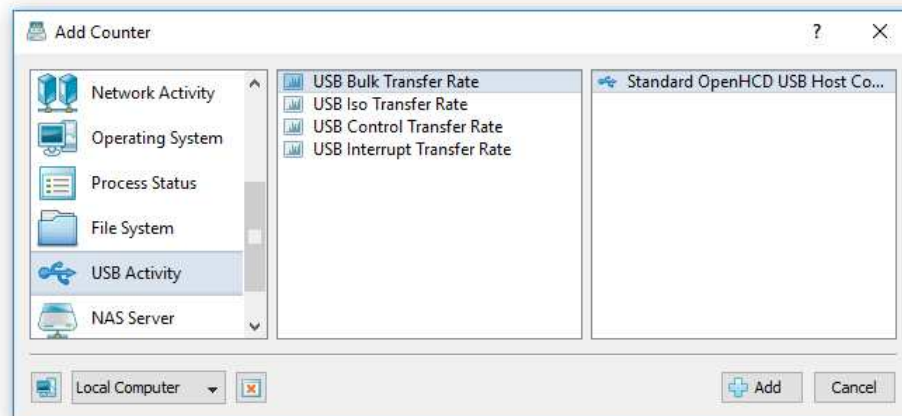
In order to add a file system counter, press the 'Monitor' button located on the main toolbar, selected the 'File System' counters category in the left-side view and then select an appropriate file system counter in the middle view. In addition, in order to monitor the file system in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.



- **File System Control Rate** - this counter measures the overall rate at which bytes are transferred for all file system operations that are neither reads nor writes, including file system control requests and requests for information about device characteristics or status, which is displayed in Megabytes per second.
- **File System Control IOPS** - this counter measures the combined rate of file system operations that are neither reads nor writes, such as file system control requests and requests for information about device characteristics or status, which is displayed as the number of operations per second.
- **File System Data IOPS** - this counter measures the combined rate of read and write operations on all logical disks on the computer, which is displayed as the number of operations per second.
- **File System Read Rate** - this counter measures the overall rate at which bytes are read to satisfy file system read requests to all devices on the computer, including reads from the file system cache, which is displayed in Megabytes per second.
- **File System Read IOPS** - this counter measures the combined rate of file system read requests to all devices on the computer, including requests to read from the file system cache, which is displayed as the number of operations per second.
- **File System Write Rate** - this counter measures the overall rate at which bytes are written to satisfy file system write requests to all devices on the computer, including writes to the file system cache, which is displayed in Megabytes per second.
- **File System Write IOPS** - this counter measures the combined rate of file system write requests to all devices on the computer, including requests to write to the file system cache, which is displayed as the number of operations per second.

23 USB Activity Monitoring Counters

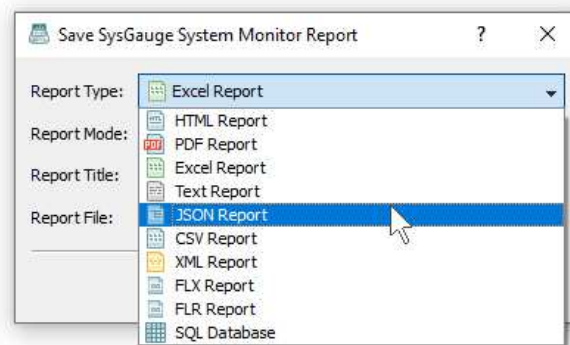
In order to add a USB activity counter, press the 'Add' button located on the main toolbar, selected the 'USB Activity' counters category in the left-side view, select an appropriate USB activity counter in the middle view and then select the required USB device to monitor in the right-side view. In addition, in order to monitor the USB activity in a remote computer via the network, press the 'Connect' button located in the bottom-left corner and specify the host name of the remote computer to monitor.



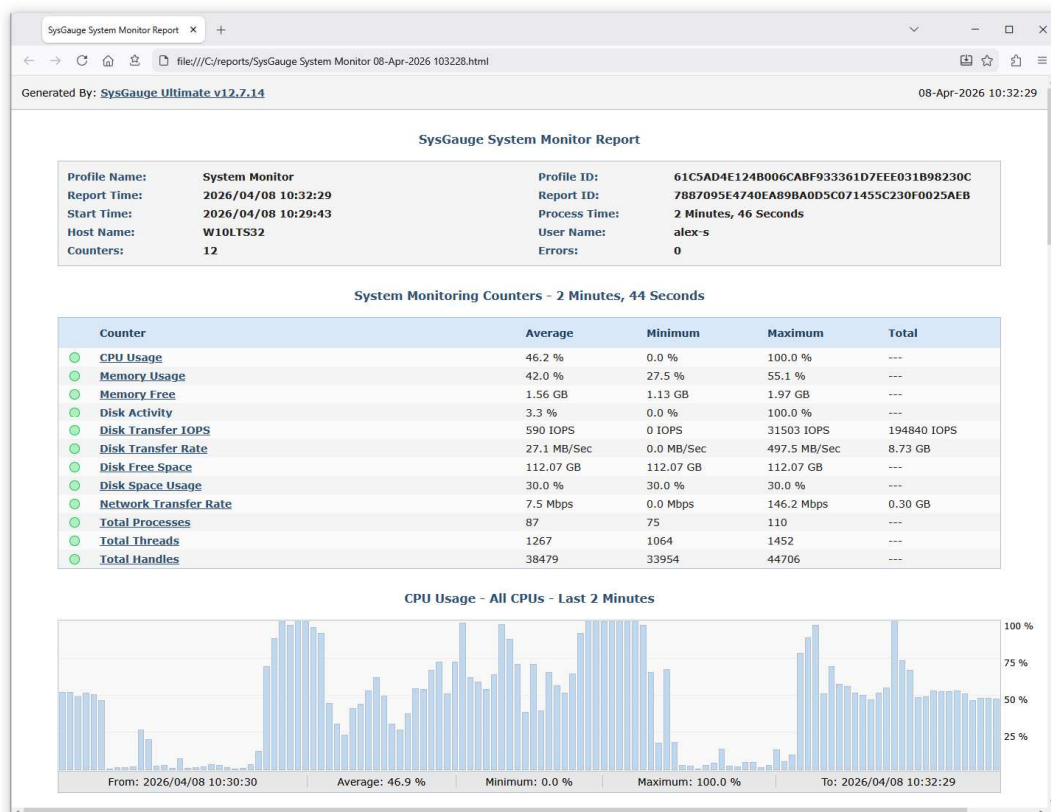
- **USB Bulk Transfer Rate** - this counter displays the USB bulk transfer rate for the selected USB device at the time of data collection, which is measured in Megabytes per second.
- **USB Iso Transfer Rate** - this counter displays the USB isochronous transfer rate for the selected USB device at the time of data collection, which is measured in Megabytes per second.
- **USB Control Transfer Rate** - this counter displays the USB control transfer rate for the selected USB device at the time of data collection, which is measured in Megabytes per second.
- **USB Interrupt Transfer Rate** - this counter displays the USB interrupt transfer rate for the selected USB device at the time of data collection, which is measured in Megabytes per second.

24 Saving System Monitoring Reports

SysGauge provides the ability to save system monitoring reports to a number of standard formats including HTML, PDF, Excel, text, JSON, CSV and XML. In order to save a system monitoring report, press the 'Save' button located on the main toolbar and select an appropriate report format.

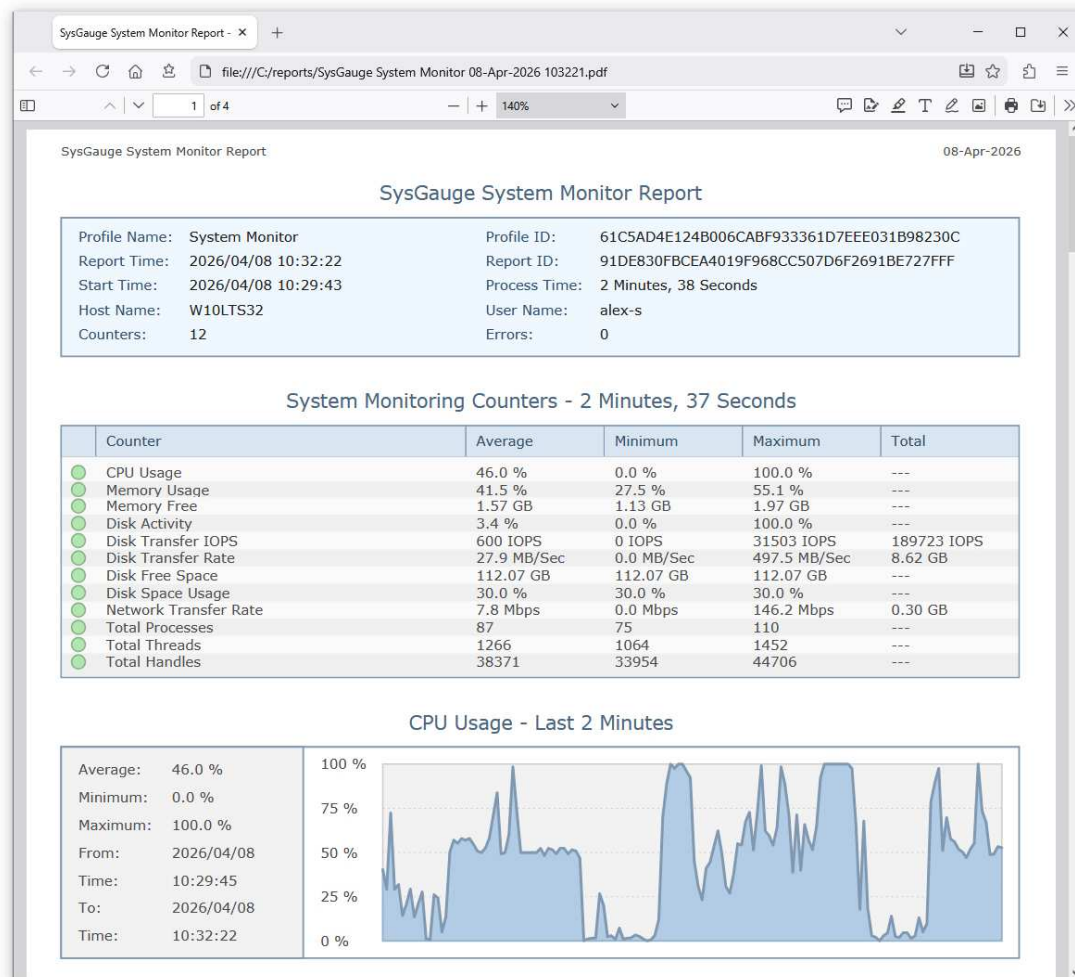


In addition, SysGauge allows one to select one of the following report modes: short summary report mode, monitoring history statistics report mode and complete monitoring data report mode. In the short summary report mode, SysGauge saves a list of system monitoring counters with basic statistical information for each system monitoring counter. Graphical report formats, such as HTML, PDF and Excel, also include a chart for each monitoring counter showing history statistics.



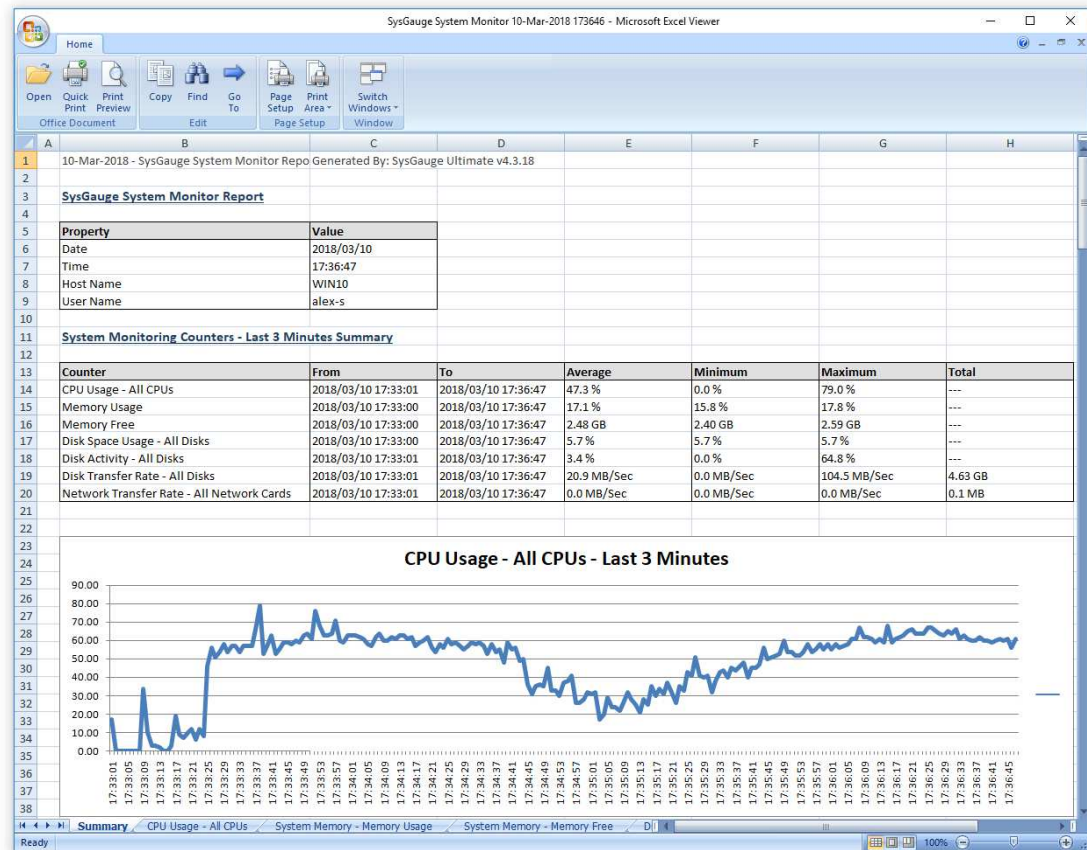
For example, a short summary HTML report, includes a summary table showing the date and time of the report, the name of the computer the report was generated on and the name of the user saved the system monitoring report. The summary table is followed by a list of system monitoring counters showing the average counter value, minimum value and the maximum value for each system monitoring counter. The list of counters is followed by a number of charts showing history statistics for each counter.

A PDF system monitoring report starts with a short summary table showing the date and time of the report, the name of the computer the report was generated on and the name of the user saved the report. The summary table is followed by a table showing the list of system monitoring counters. For each counter, the table shows the average counter value, the minimum value and the maximum value.



The list of monitoring counters is followed by a number of charts showing history statistics for each system monitoring counter included in the report. If the report mode was set to 'Save History Statistics', the report will include a number of additional tables showing history statistics for each system monitoring counter. If the report mode was set to 'Save Complete Monitoring Data', the report will include full monitoring data for each counter included in the system monitoring report.

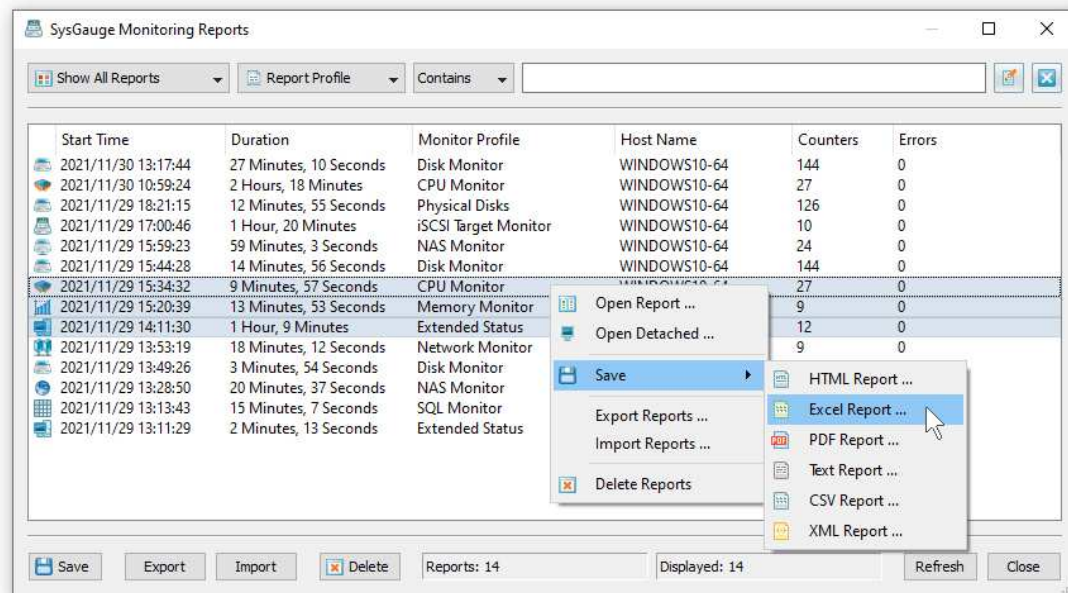
One of the most useful capabilities of the SysGauge system monitoring utility is the ability to save system monitoring reports into the Microsoft Excel format allowing one to analyze system monitoring data using external analysis tools.



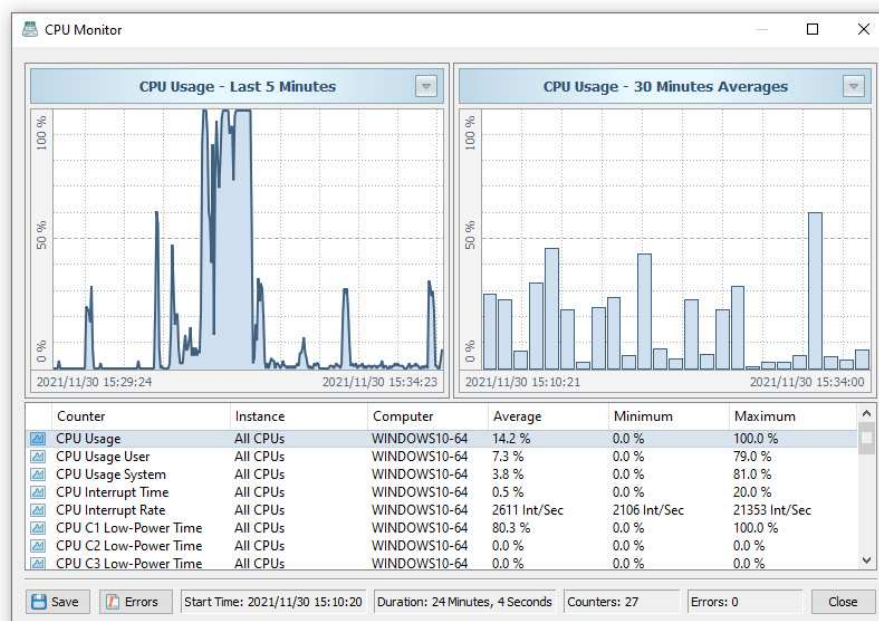
A SysGauge Excel report includes a summary worksheet showing the list of system monitoring counters and a number of line charts showing history statistics for each counter included in the report. In addition, in the extended report modes, an Excel report includes an individual worksheet for each system monitoring counter showing extended history statistics and monitoring data.

25 SysGauge Built-In Reports Database

SysGauge includes a built-in reports database allowing one to review and analyze previous monitoring operations. By default, SysGauge keeps in the reports database the last 100 monitoring reports. In order to open the built-in reports database, press the 'Reports' button located on the main toolbar.



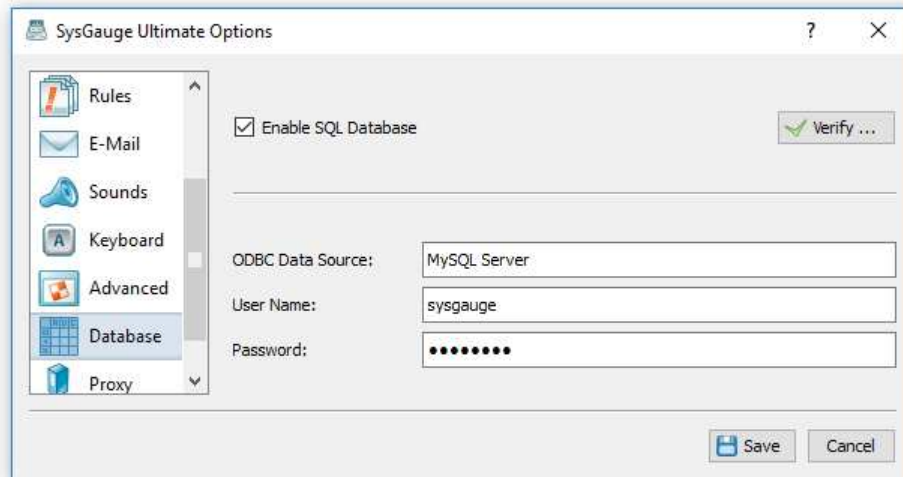
For each monitoring report, the reports database shows the start time, duration, the monitoring profile, the name of the monitored computer, the number of counter and the number of errors. In order to open a monitoring report, double-click on the report item in the reports dialog. In order to open a report on a different physical display, select the report item, press the right mouse button and select the 'Open Detached' menu item.



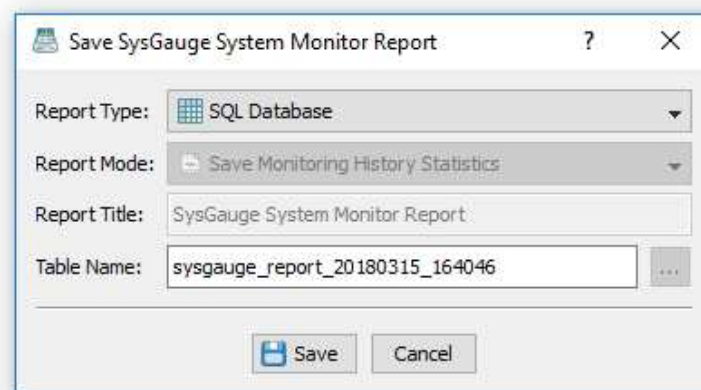
The report dialog shows the list of counters included in this specific monitoring operations, the left line chart shows the row monitoring data and the right line chart shows the history monitoring data according to the selected period of time.

26 Exporting Monitoring Results to SQL Database

In addition to various types of system monitoring reports, SysGauge Pro provides the ability to export system monitoring results to an SQL database allowing one to analyze monitoring results using external analysis tools such as Microsoft Excel. In order to enable the SQL database export capabilities, open the 'Options' button, select the 'Database' tab, select the 'Enable SQL Database' checkbox and specify an ODBC data source, user name and password to use to connect to the SQL database.

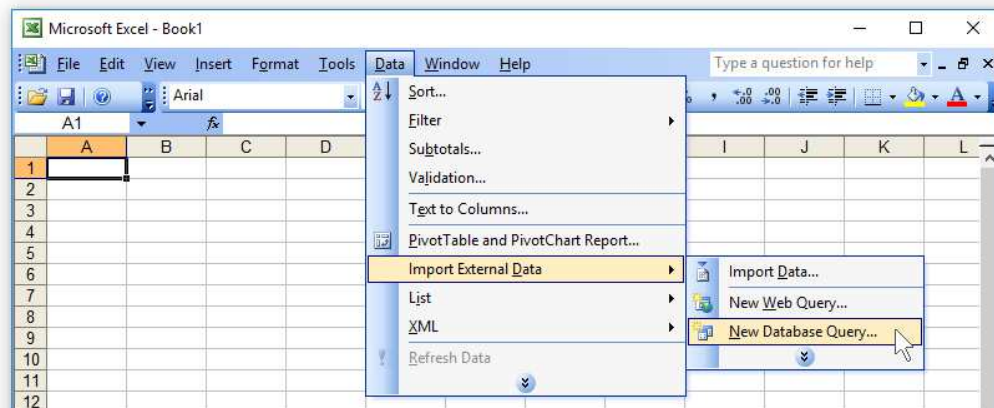


Once finished specifying all the required parameters, press the 'Verify' option to test the SQL database connection. Now, press the 'Save' button located on the main toolbar, select the 'SQL Database' report format, specify the name of the SQL database table to export monitoring results to and press the 'Save' button.

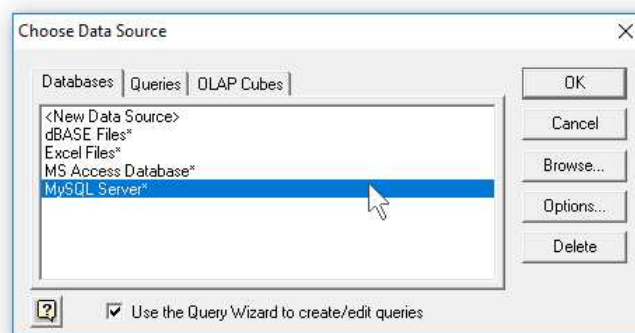


If there is no such table in the SQL database, SysGauge will create a new database table and then export system monitoring results to the newly created database table. If the database table already exists, SysGauge will add monitoring results to the existing table.

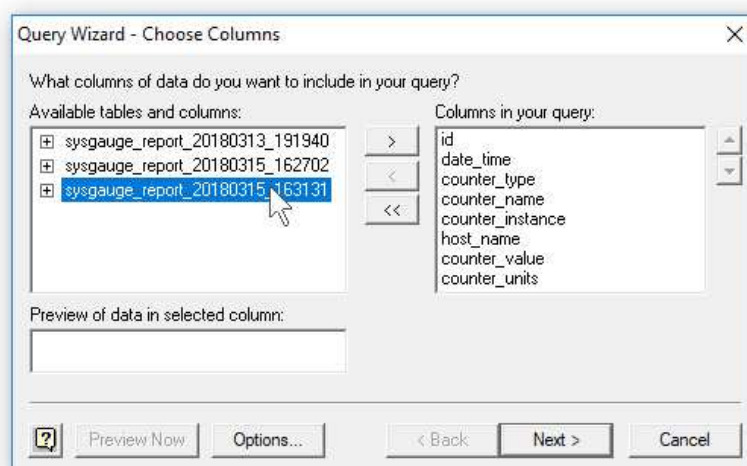
In order to import system monitoring results from the SQL database to Microsoft Excel, open the Microsoft Excel application select the menu 'Data - Import External Data - New Database Query'.



On the 'Choose Data Source' dialog, select the SQL database to import the monitoring data from and press the 'Ok' button. It is important to note that in order to be able to connect to a 64-Bit version of the SQL database using the 32-Bit version of Microsoft Excel, the user needs to install the 32-Bit version of the ODBC database connector and properly configure the ODBC data source in the Windows control panel.



On the 'Query Wizard' dialog, select a SysGauge database report to import data from and then add all the required database columns to be imported. Once finished selecting database columns press the 'Next' button, optionally filter and/or sort the imported data and finally press the 'Finish' button to import data to Microsoft Excel.



For each system monitoring result, SysGauge exports to the SQL database the following columns: the date and time of the monitoring result, the counter type, the counter name, the counter instance name, the counter host name, the counter value and the counter units description.

	A	B	C	D	E	F	G	H
	id	date_time	counter_type	counter_name	counter_instance	host_name	counter_value	counter_units
2	1	3/15/2018 16:31	1 CPU Usage	All CPUs	Windows10-64		21 %	
3	2	3/15/2018 16:31	1 CPU Usage	All CPUs	Windows10-64		15 %	
4	3	3/15/2018 16:31	1 CPU Usage	All CPUs	Windows10-64		5 %	
5	4	3/15/2018 16:31	1 CPU Usage	All CPUs	Windows10-64		11 %	
6	5	3/15/2018 16:31	1 CPU Usage	All CPUs	Windows10-64		12 %	
7	6	3/15/2018 16:31	1 CPU Usage	All CPUs	Windows10-64		19 %	
8	7	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		71.222 %	
9	8	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		71.222 %	
10	9	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		71.199 %	
11	10	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		71.014 %	
12	11	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		69.901 %	
13	12	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		69.958 %	
14	13	3/15/2018 16:31	4 Memory Usage	System Memory	Windows10-64		70.046 %	
15	14	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		441.515 MB	
16	15	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		438.226 MB	
17	16	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		440.613 MB	
18	17	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		441.542 MB	
19	18	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		463.613 MB	
20	19	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		472.636 MB	
21	20	3/15/2018 16:31	5 Memory Free	System Memory	Windows10-64		474.035 MB	
22	21	3/15/2018 16:31	7 Disk Activity	All Disks	Windows10-64		0.354 %	
23	22	3/15/2018 16:31	7 Disk Activity	All Disks	Windows10-64		0.34 %	
24	23	3/15/2018 16:31	7 Disk Activity	All Disks	Windows10-64		0.143 %	
25	24	3/15/2018 16:31	7 Disk Activity	All Disks	Windows10-64		0.982 %	
26	25	3/15/2018 16:31	7 Disk Activity	All Disks	Windows10-64		0.83 %	
27	26	3/15/2018 16:31	7 Disk Activity	All Disks	Windows10-64		0.692 %	
28	27	3/15/2018 16:31	16 Network Transfer Rate	All Network Cards	Windows10-64		0.003 MB/Sec	
29	28	3/15/2018 16:31	16 Network Transfer Rate	All Network Cards	Windows10-64		0.002 MB/Sec	
30	29	3/15/2018 16:31	16 Network Transfer Rate	All Network Cards	Windows10-64		0.003 MB/Sec	
31	30	3/15/2018 16:31	16 Network Transfer Rate	All Network Cards	Windows10-64		0.001 MB/Sec	

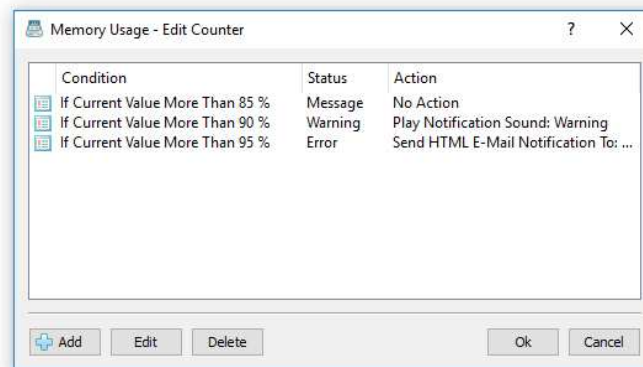
In addition to the ability to export system monitoring results manually using the SysGauge GUI application, the SysGauge command line utility allows one to automate system monitoring and database export operation using batch files and shell scripts. For example, in order to perform a process monitoring operation and then export all process monitoring results for all running processes to the SQL database, type the following command:

```
sysgauge -process_monitor -time <Seconds> -save_to_database <Table Name>
```

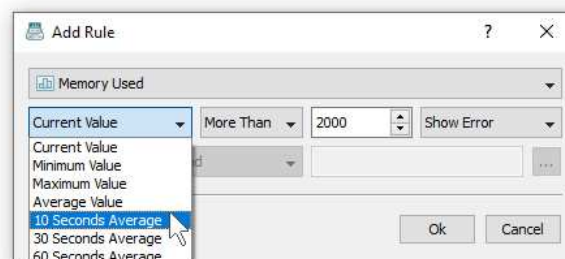
The command will monitor all the running processes during the specified period of time and then export process monitoring results for all running processes to the specified SQL database table. In general, the '**-save_to_database**' command line option is supported by all types of SysGauge system monitors and it can be used with the CPU monitor, memory monitor, system status monitor, disk monitor, NAS monitor, network monitor and process monitor.

27 Monitoring Actions and E-Mail Notifications

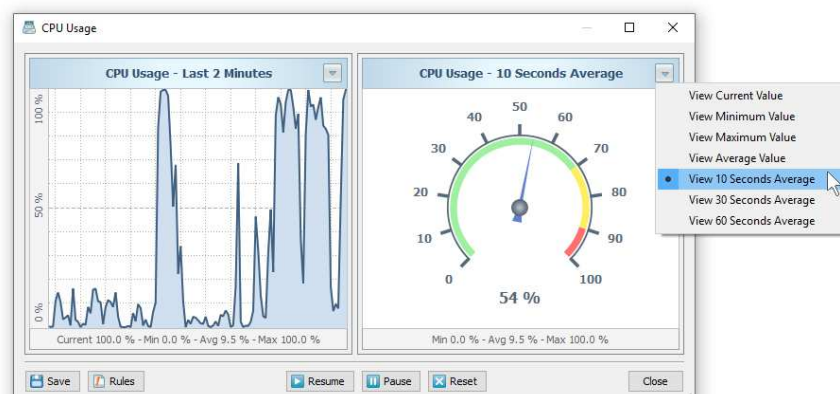
SysGauge provides the ability to specify a user-defined limit for each system monitoring counter and then play notification sounds, save system monitoring reports, send E-Mail notifications and/or execute user-custom commands when one or more system monitoring counters rise above or drop below user-specified limits. In order to specify one or more conditional actions for a system monitoring counter, select the counter in the counters view, press the right mouse button and select the 'Edit Counter' menu item. On the counter dialog, press the 'Add' button, select an appropriate action type and specify all the required parameters.



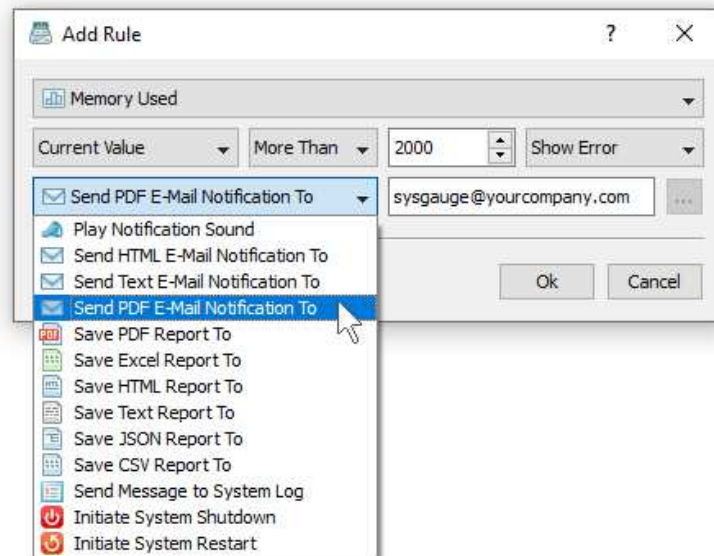
By default, the system monitoring rule will check the current value of the selected system monitoring counter, but sometimes there may be short spikes in the resource usage not representing the actual state of the system and it may be a good idea to filter these spikes using the last 10-seconds average value, last 30-seconds average value or last 60-seconds average value allowing one to focus on real problems and exclude not-representative spikes in the system resource usage.



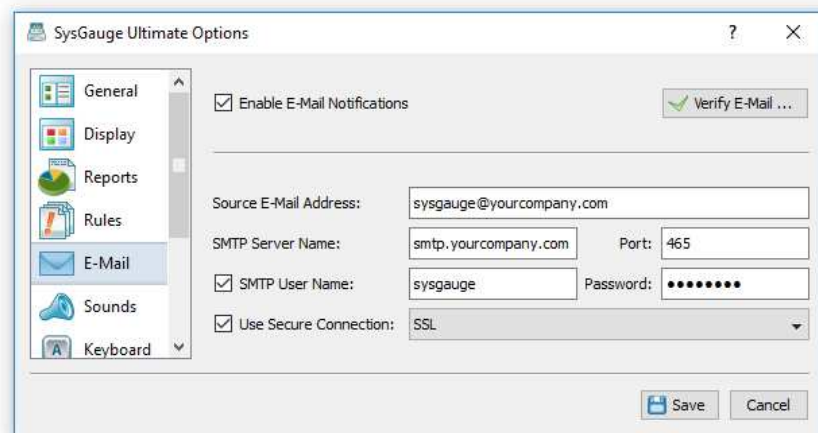
In order to test the different types of system monitoring counter value types, double click on a system monitoring counter to open the monitoring counter dialog, press the tools button located in the top-right corner of the monitoring counter gauge and select an appropriate counter value type.



For example, in order to send an E-Mail notification when the amount of the used system memory rises above 2000 MB, select the 'Memory Used' counter type, set the rule condition to 'Current Value More Than 2000', select the 'E-Mail Notification' action type and enter a destination E-Mail address to send the notifications to.

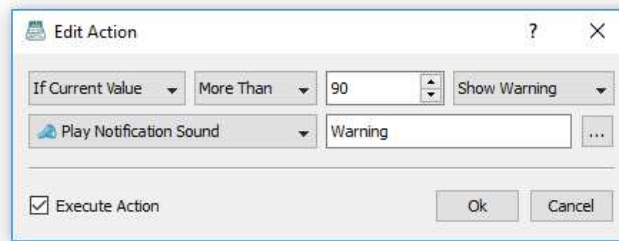


For example, in order to send an E-Mail notification, set the action type to 'Send E-Mail Notification' and enter a destination E-Mail address. In addition, the user needs to configure an SMTP server to use to send notifications on the options dialog 'E-Mail' tab.

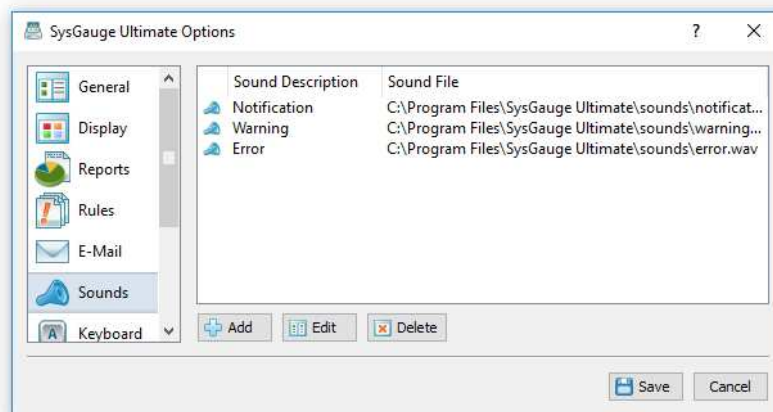


In addition, open the SysGauge main options dialog, select the 'E-Mail' tab, enable E-Mail notifications and specify a source E-Mail address, which will be used for all e-mail notifications sent by SysGauge, the SMTP server host name, port number, SMTP user name, SMTP password and security protocol. Once finished configuring the SMTP server, press the 'Verify E-Mail' button to test the SMTP server configuration.

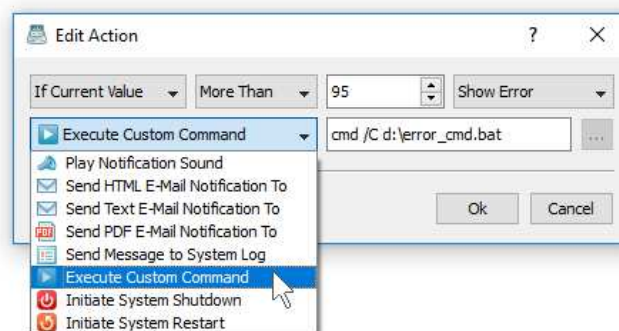
In order to play a notification sound, set the action type to 'Play Notification Sound' and select an appropriate sound file to play. In addition, the user is provided with the ability to customize notification sounds on the main options dialog 'Sounds' tab.



In order to customize notification sounds, press the 'Options' button located on the main toolbar, select the 'Sounds' tab and press the 'Add' button to add a custom sound file. Once finished configuring custom sound files, open the system monitoring counter dialog, click on a conditional action and select an appropriate notification sound.



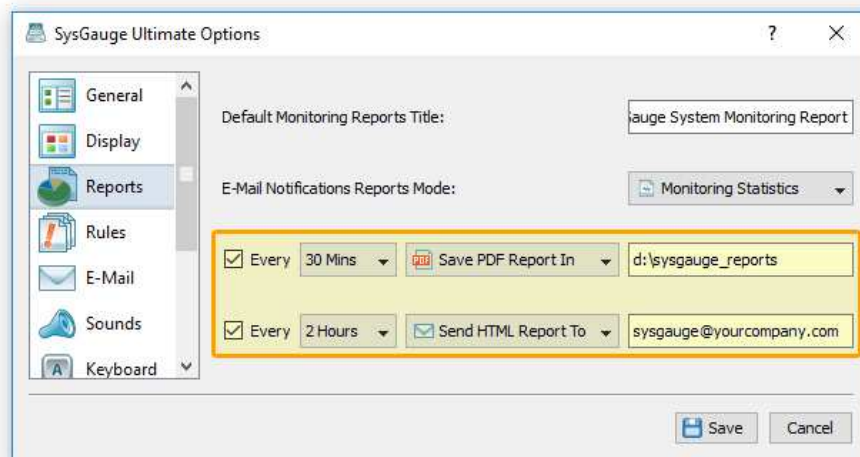
In addition, the user is provided with the ability to execute custom commands or batch files when a system monitoring counter rises above or drops below user specified values. In order to configure a custom command, open the counter actions dialog, add a new action, set the action type to 'Execute Custom Command' and specify a command or batch file to execute.



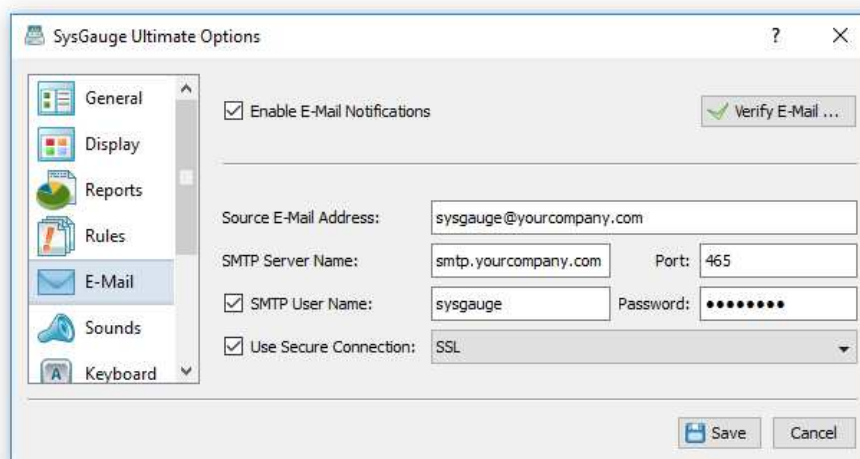
Finally, SysGauge allows one to automatically shutdown or restart the computer when one or more critical system monitoring counters rise above or drop below user-specified limits. An automatic system restart may be useful as a preventive measure to free polluted system memory and triggered using one of the system memory usage counters or process memory usage counters. An automatic system shutdown may be required to prevent potential damage or data corruption, which may occur due to a critical lack of system resources such as the system memory or free disk space.

28 Periodic Status Reports and Status Notifications

One of the most useful features of the SysGauge system monitoring utility is the ability to save periodic status reports and/or send periodic status E-Mail notifications optionally with an attached system monitoring report including up to 24 hours of system monitoring history. In order to enable periodic status reports, open the main options dialog, select the 'Save Report' option, set an appropriate time interval, select an appropriate report file format (HTML, PDF, Excel, Text, CSV or XML) and specify a directory to save system monitoring reports in.



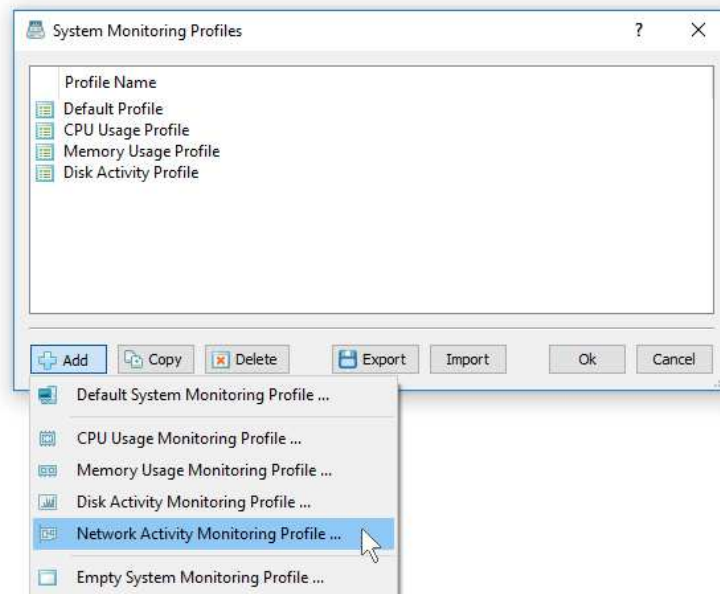
In order to enable periodic status notifications, select the 'Send Report' option, set an appropriate time interval, select an appropriate E-Mail notification format (HTML, PDF, Excel, Text, CSV or XML) and specify a destination E-Mail address to send status notifications to. An HTML status notification includes a short system monitoring summary and up to 24 hours of history statistics for all configured system monitoring counters. All other status notifications formats include a short HTML summary and an attached system monitoring report file with up to 24 hours of system monitoring history.



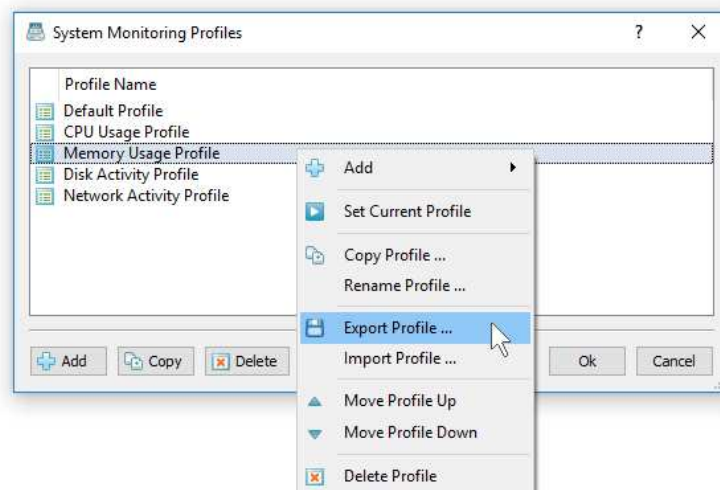
In addition, in order to be able to send status E-Mail notifications, the user needs to configure an SMTP server to use to send notifications on the options dialog 'E-Mail' tab. Open the options dialog, select the 'E-Mail' tab, enable E-Mail notifications and specify the source E-Mail address, the SMTP server name and port number, the SMTP user name and password. Optionally, select one of the supported encrypted communication options.

29 Managing System Monitoring Profiles

The 'System Monitor' module allows one to configure a number of system monitoring profiles and then switch between profiles according to user-specific needs. In order to open the 'System Monitoring Profiles' dialog, select the 'System Monitor' module and press the 'Profiles' button located on the main toolbar.



On the 'Profiles' dialog, press the 'Add' button and select an appropriate type of the system monitoring profile to add. Alternatively, add an empty system monitoring profile and then use the SysGauge GUI application to customize the system monitoring profile for the user-specific needs and requirements.

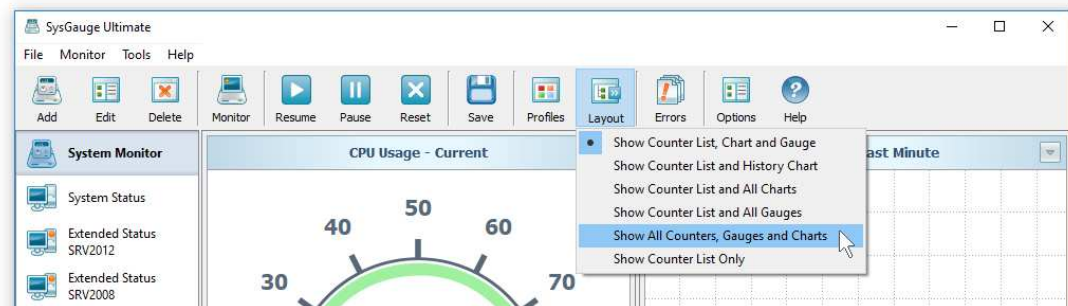


In addition, the user is provided with the ability to export system monitoring profiles to the XML format and then use the SysGauge command line utility to load previously exported XML profiles to perform various types of system monitoring operations from batch files and shell scripts. In order to export a system monitoring profile to the XML format, select the required profile in the 'Profiles' dialog, press the right mouse button and select the 'Export Profile' menu item. Now, in order to perform a monitoring operation using the exported XML profile file, type the following command:

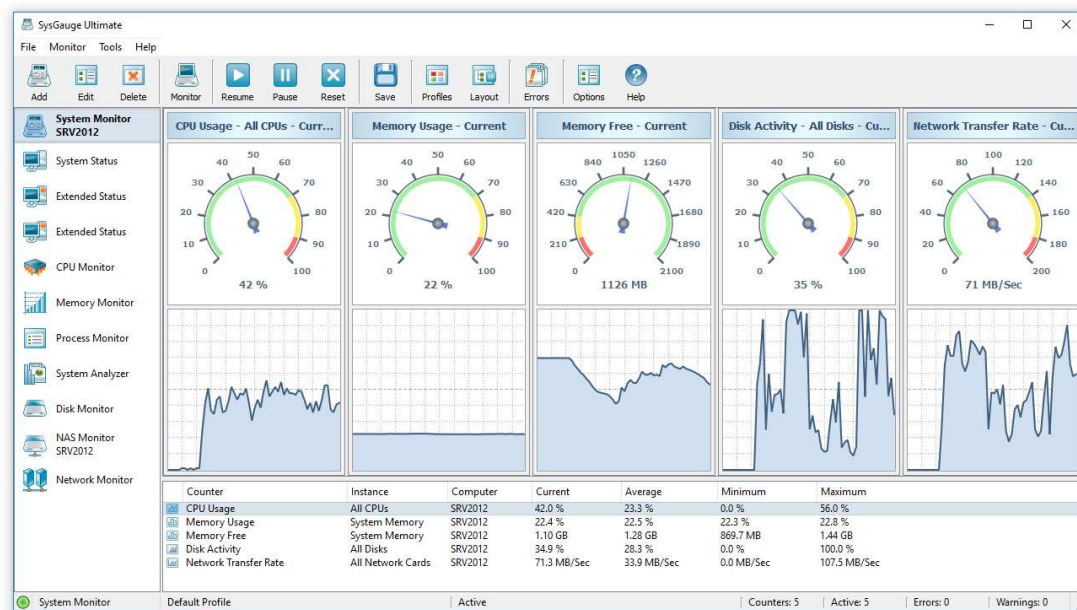
sysgauge -monitor <XML Profile File>

30 SysGauge GUI Layouts

The SysGauge GUI application provides a number of user-selectable GUI layouts allowing one to customize the GUI application for user-specific needs and preferences. In order to change the GUI layout, press the 'Layout' button located on the main toolbar and select and appropriate menu item.



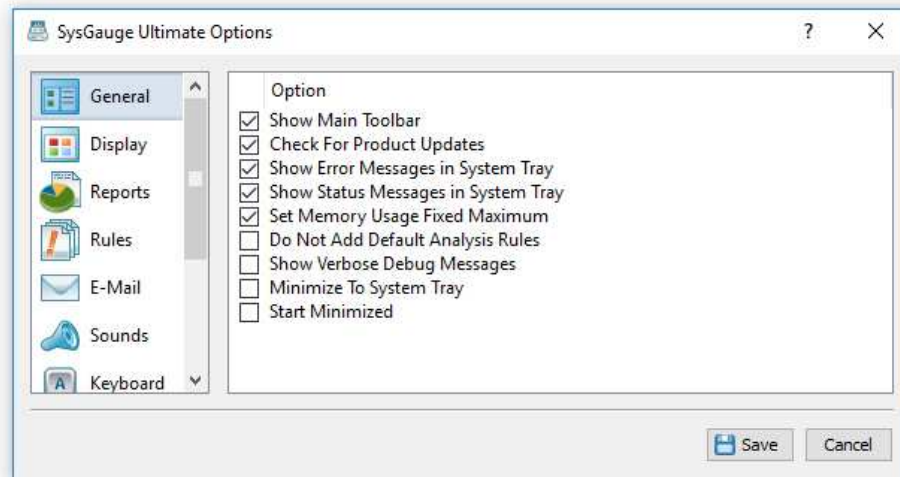
The default GUI layout shows the counter list in the bottom view, the current counter gauge on the left side of the top view and the current counter history chart on the right side of the top view. The 'History Chart' layout shows the counter list in the bottom view and the current counter history chart in the top view. The 'Charts' layout shows the counter list in the bottom view and all history charts in the top view.



The 'Gauges' layout shows the counter list in the bottom view and all gauges in the top view. The 'Combo' layout shows the counter list in the bottom view and combined gauges and history charts for all counters in the top view. Finally, the 'List' layout shows only the counter list.

31 SysGauge Configuration Options

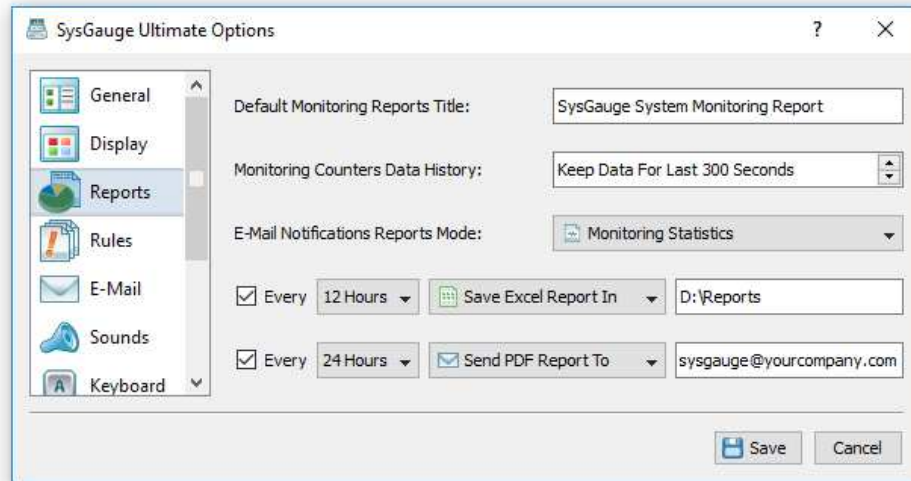
The SysGauge system monitor provides a large number of configuration options allowing one to configure and customize the product for user-specific needs and preferences. In order to open the SysGauge options dialog, press the 'Options' button located on the main toolbar.



The '**General**' tab provides the ability to control the following options:

- **Show Main Toolbar** - enables/disables the main toolbar.
- **Check For Product Updates** - when this option is enabled, SysGauge will automatically check for new product versions during the program startup.
- **Show Error Messages in System Tray** - when this option is enabled and the SysGauge GUI application is minimized in the system tray, SysGauge will display error messages in the system tray area.
- **Show Warning Messages in System Tray** - when this option is enabled and the SysGauge GUI application is minimized in the system tray, SysGauge will display warning messages in the system tray area.
- **Set Memory Usage Fixed Maximum** - when this option is enabled, SysGauge will set the total available system memory as the maximum value for all memory usage counters.
- **Show Verbose Debug Messages** - this option enables extensive debug messages, which may be useful when investigating abnormal behavior.
- **Minimize To System Tray** - when this option is enabled, the SysGauge main GUI application will minimize to a system tray icon, allowing one to control the system monitoring process via the SysGauge system tray menu.
- **Start Minimized** - when this option is enabled, the SysGauge main GUI application will start minimized as an icon in the system tray area.

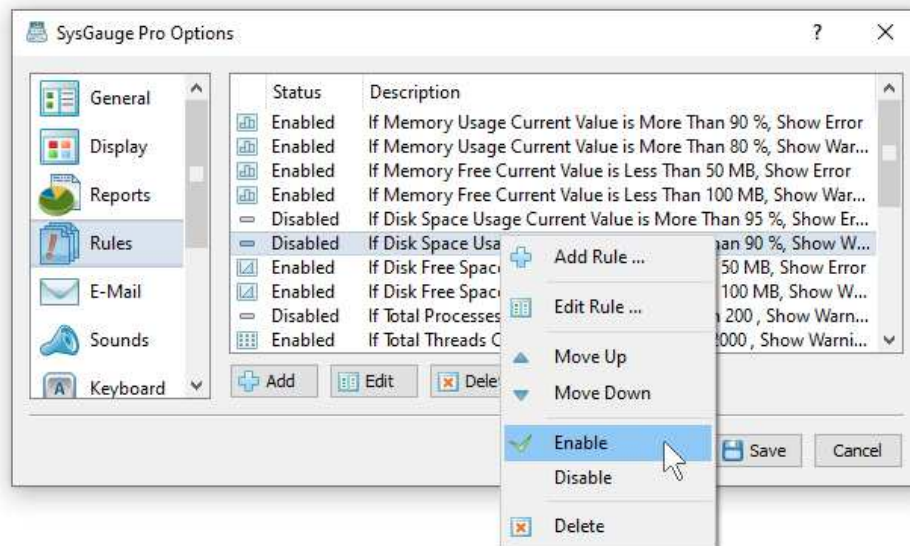
The '**Reports**' tab allows one to control a number of reports generation options including the default monitoring report title, the system monitoring counters history length, the monitoring reports mode for e-mail notifications, the format of reports included in e-mail notifications and provides the ability to automatically generate system monitoring reports in a user-specified directory.



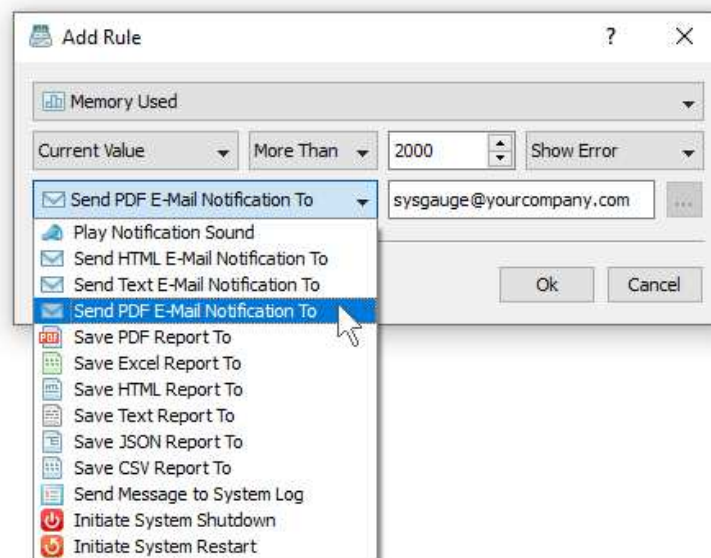
The '**Reports**' tab provides the ability to control the following configuration options:

- **Default Monitoring Reports Title** - this option provides the ability to specify a default report title for all types of system monitoring reports.
- **Monitoring Counters Data History** - this option provides the ability to control how much of the system monitoring data is kept in the system memory and saved in all types of system monitoring reports.
- **E-Mail Notifications Reports Mode** - this option allows one to control the reports generation mode for all types of reports included in E-Mail notifications.
- **Periodic Reports Generation** - this options provides the ability to periodically generate system monitoring reports in a user-specified directory.
- **Periodic Status E-Mail Notifications** - this option allows one to specify an e-mail address to send system monitoring status reports according to the user-specified time interval.

The '**Rules**' tab provides the ability to configure conditional rules for specific system monitoring counters allowing one to show errors, play sounds, save system monitoring reports and/or send E-Mail notifications when one or more system monitoring counters rise above or drop below user specified limits.

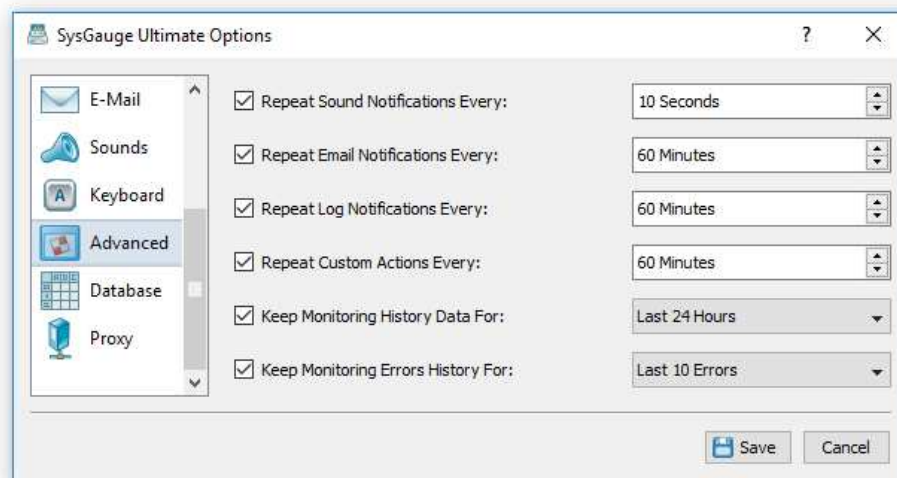


In order to add a new system monitoring rule, press the 'Add' button located on the options dialog 'Rules' tab. On the 'Add Rule' dialog, select the monitoring counter type, select an operator and specify a counter value. If required, enable a monitoring action to be executed when the monitoring counter rises above or drops below the specified value and select an action type.



The specified rules are evaluated in the same order as listed in the rules view. In order to elevate the priority of a system monitoring rule, select the rule in the rules view, press the right mouse button and select the 'Move Up' menu item. In order to reduce the priority of a rule, select the rule in the rules view, press the right mouse button and select the 'Move Down' menu item. In order to temporary disable one or more system monitoring rules, select the rules in the rules view, press the right mouse button and select the 'Disable' menu item.

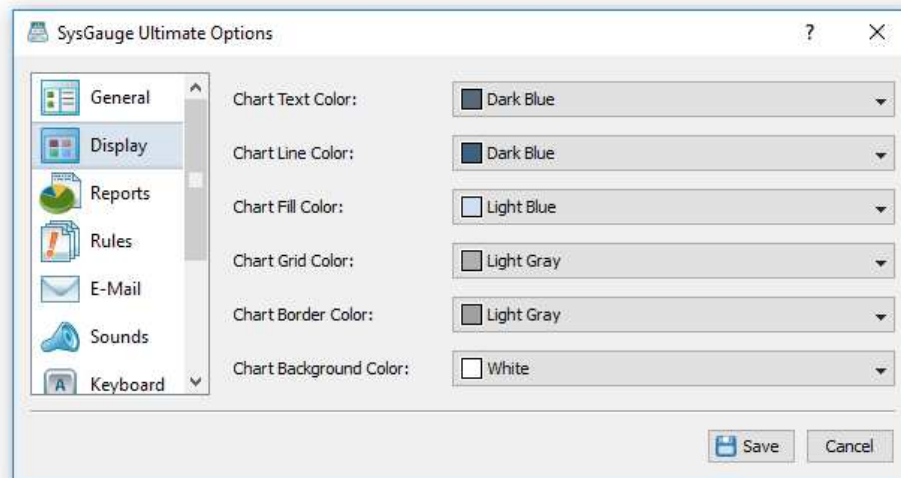
The '**Advanced**' tab provides a number of advanced configuration options allowing one to configure periodic status report generation, periodic status E-Mail notifications and customize system monitoring error actions.



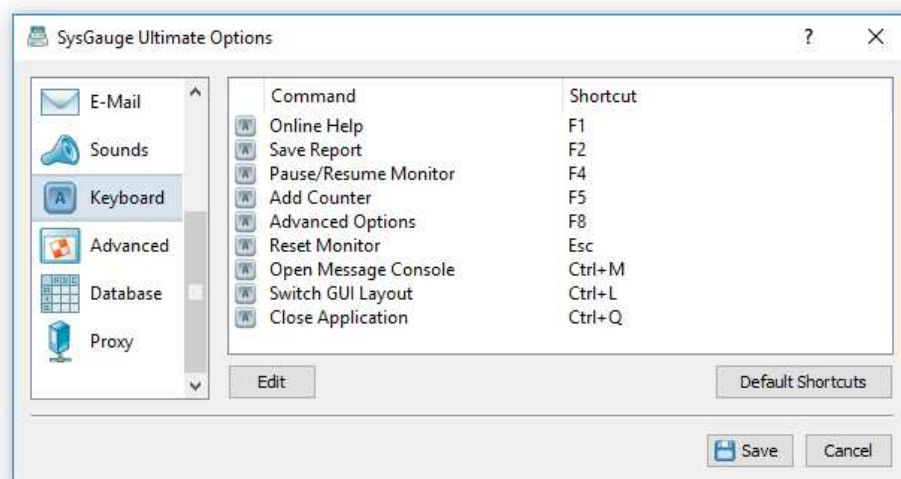
The '**Advanced**' tab provides the ability to control the following configuration options:

- **Repeat Sound Notifications** - this option provides the ability to control how frequently to repeat sound notifications when SysGauge continuously detects a system monitoring error.
- **Repeat E-Mail Notifications** - this option provides the ability to control how frequently to repeat E-Mail notifications when SysGauge continuously detects a system monitoring error.
- **Repeat Log Notifications** - this option provides the ability to control how frequently to repeat system log notifications when SysGauge continuously detects a system monitoring error.
- **Repeat Custom Actions** - this option provides the ability to control how frequently to repeat custom error actions when SysGauge continuously detects a system monitoring error.
- **Keep Monitoring History Data** - this option allows one to set for how long to keep the system monitoring data while the system monitor is active.
- **Periodic Status Reports** - this option allows one to periodically save system status reports in a user-specified directory.
- **Periodic Status Notifications** - this option allows one to periodically send status E-Mail notifications to a user-specified E-Mail address.

The '**Display**' tab provides the ability to customize various chart and gauge colors including the chart text color, chart line color, chart fill color, chart grid color, chart border color and chart background color.

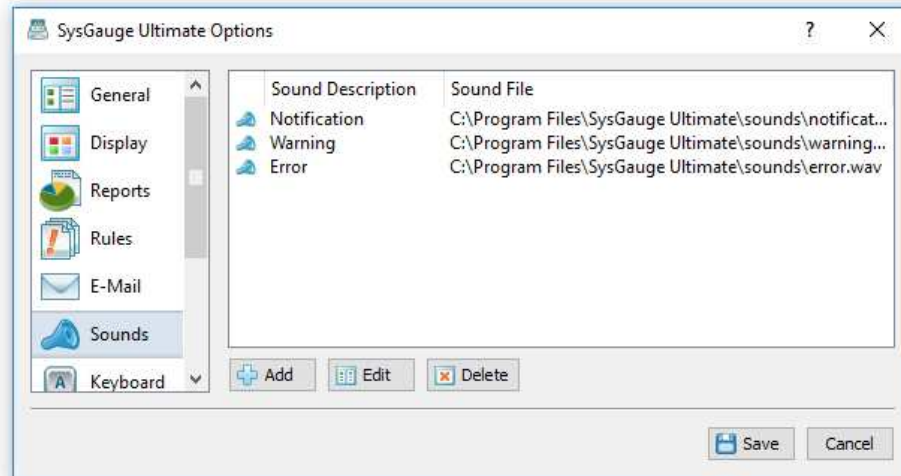


The '**Shortcuts**' tab allows one to customize keyboard shortcuts for the following keyboard commands:

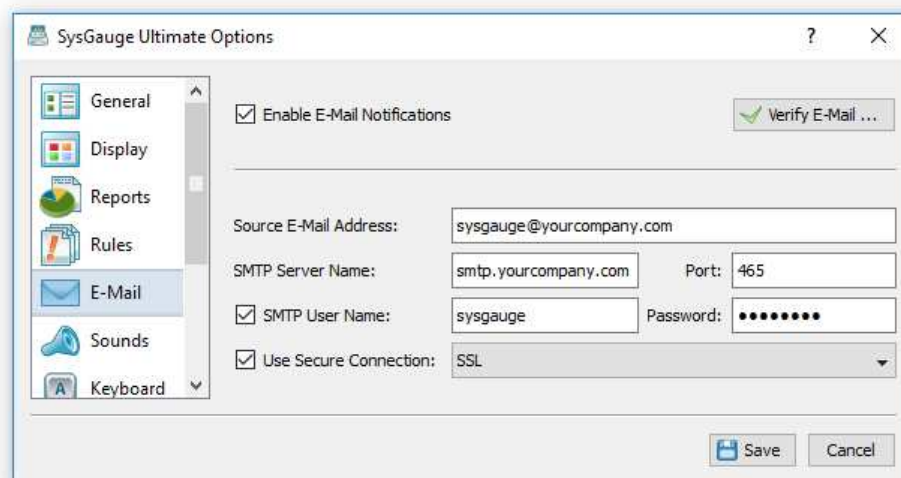


- **Online Help** - this keyboard shortcut opens the online help window.
- **Save Report** - this keyboard shortcut saves a system monitoring report.
- **Pause/Resume Monitor** - this keyboard shortcut pauses or resumes the system monitor.
- **Advanced Options** - this keyboard shortcut opens the SysGauge options dialog.
- **Reset Monitor** - this keyboard shortcut resets the system monitor and clears all system monitoring data, which is useful when starting a new monitoring session.
- **Open Message Console** - this keyboard shortcut opens the debug message console.
- **Switch GUI Layout** - this keyboard shortcut switches the SysGauge GUI application to the next GUI layout.
- **Close Application** - this keyboard shortcut closes the SysGauge GUI application.

The '**Sounds**' tab allows one configure custom sounds used for sound error and warning notifications. In order to add a new notification sound, press the 'Add' button and select a sound file. In order to change a sound file, select the required sound item in the list and press the 'Edit' button. In order to delete a sound file, select the required sound item and press the 'Delete' button.



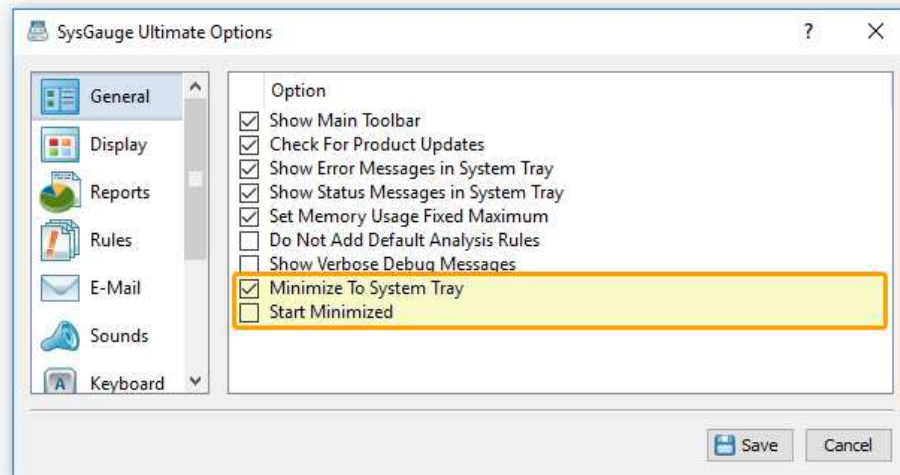
The '**E-Mail**' tab provides the ability to configure an SMTP server to use to send E-Mail error and warning notifications. First of all, enable E-Mail notifications and then specify a source E-Mail address, SMTP server name, port number, SMTP user name and SMTP password.



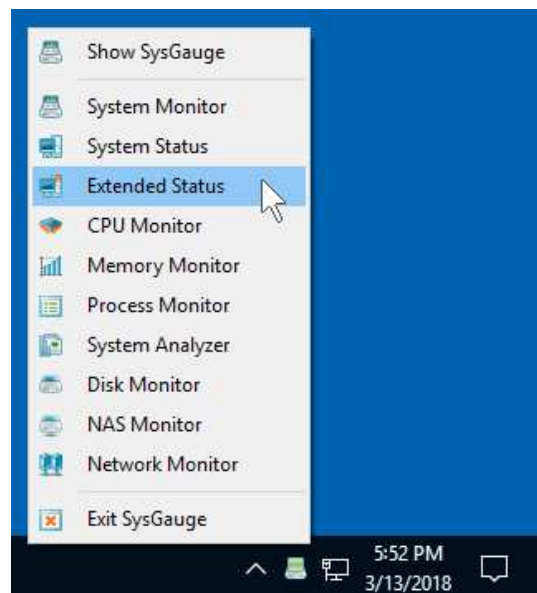
If required, enable the secure connection mode and select an appropriate secure connection protocol to be used to send E-Mail notifications. Once finished configuring the SMTP server options, press the 'Verify' button to check the SMTP server configuration.

32 Using SysGauge System Tray Menu

The SysGauge system monitor allows one to display the current monitoring status and control the monitoring process via a Windows system tray icon, which may be displayed in the bottom-right corner of the Windows task bar. In order to enable the SysGauge system tray icon, open the 'Options' dialog, select the 'General' tab and enable the 'Minimize To System Tray' option.



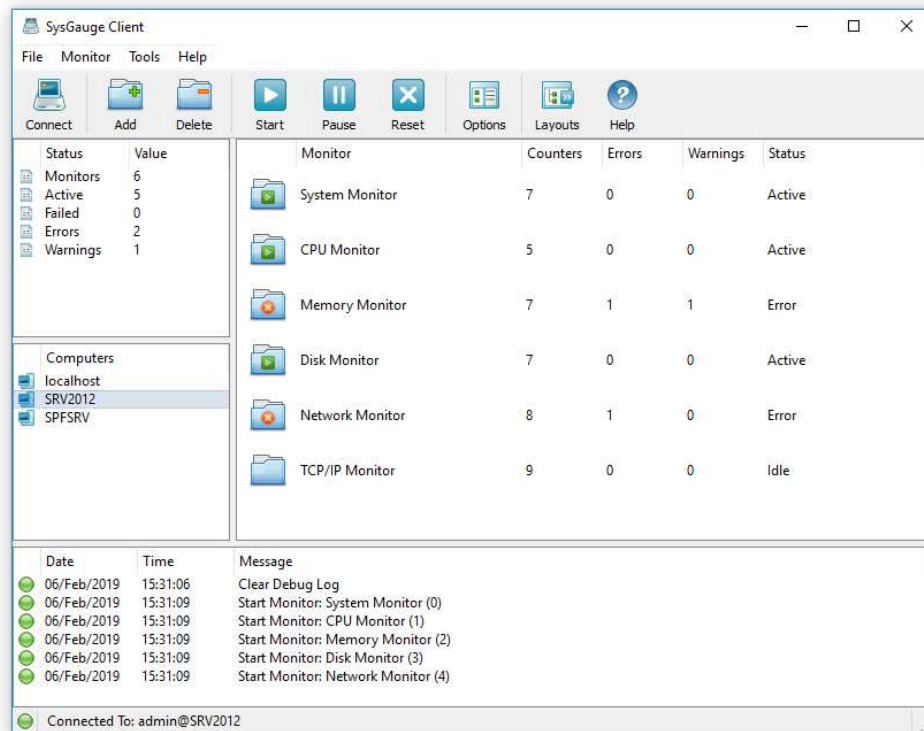
When this option is enabled and the SysGauge main GUI window is minimized, the SysGauge system tray icon will be displayed in the bottom-right corner of the Windows task bar. The SysGauge system tray icon continuously indicates the current system monitoring status. A green icon means that the monitor is active and there are no errors or warnings. When a yellow icon is displayed, it means that one or more system monitoring warnings detected. When a red icon is displayed, it means that one or more system monitoring errors detected.



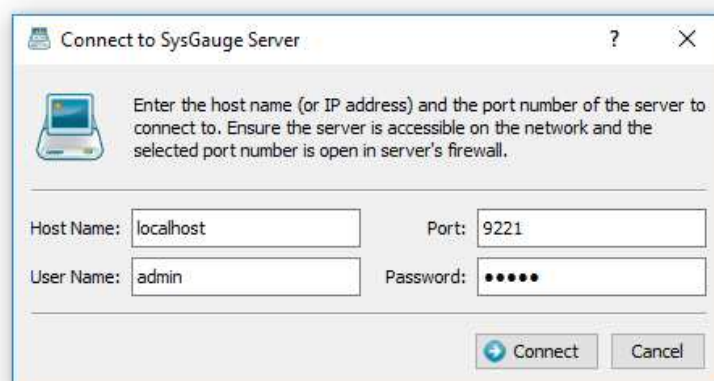
In addition, the SysGauge system tray icon provides a system tray menu allowing one to control the SysGauge GUI application. In order to display the SysGauge system tray menu, press the right mouse button over the SysGauge system tray icon. Select the 'Show SysGauge' menu item to display the SysGauge GUI application window. Select a system monitor menu item to switch to the selected system monitor and open the SysGauge GUI application. Select the 'Exit SysGauge' menu item to close the SysGauge GUI application.

33 SysGauge Server

Advanced users and IT administrators are provided with a server-based product version, which runs in the background as a service. SysGauge Server includes a client GUI application allowing one to connect to a server via the network, configure system monitoring counters, review system monitoring results, save various types of system monitoring reports and analyze the status of the target server.

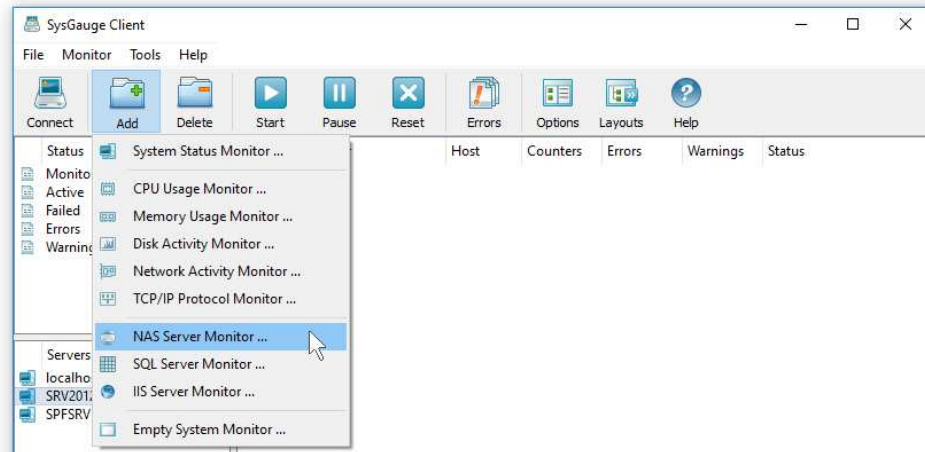


In order to connect to a SysGauge server, install the SysGauge Server setup package on the target server, open the SysGauge client GUI application, press the 'Connect' button located on the main toolbar, enter the server host name or an IP address, enter a SysGauge user name and password (default is admin/admin) and press the 'Connect' button. When connecting to a remote server via the network, make sure that the SysGauge server TCP/IP port (default 9221) is open in the server's firewall.

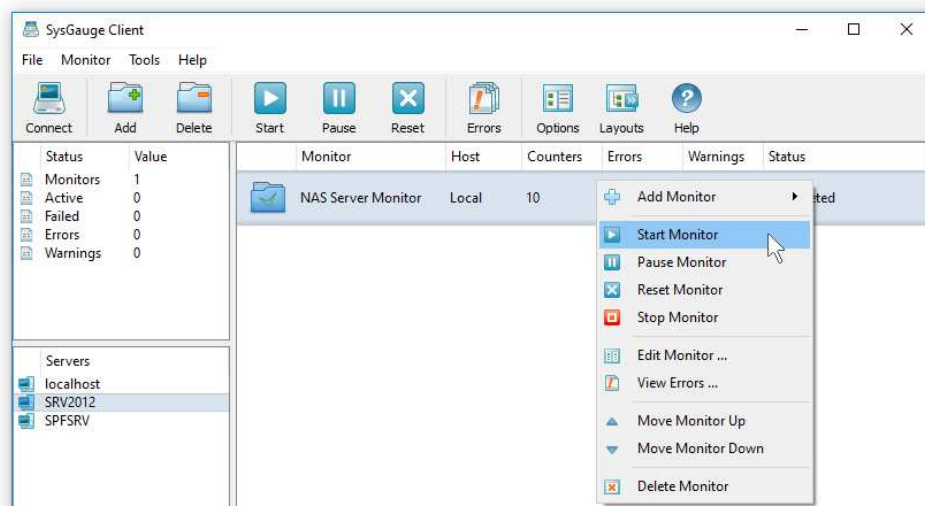


The SysGauge client GUI application provides a rich set of system monitoring features are capabilities allowing one to configure system monitoring counters, setup conditional E-Mail notifications and periodic system status reports, review system monitoring results and save various types of system monitoring reports.

SysGauge Server allows one to setup multiple system monitors with each one configured to perform different types of monitoring operations or monitor multiple computers via the network. In order to add a new monitor, press the 'Add' button located on the main toolbar and select an appropriate monitor type. The user is provided with a number of pre-defined types of monitors intended for different purposes. In addition, SysGauge allows to customize automatically generated monitoring profiles and create user-custom monitoring profiles from scratch.

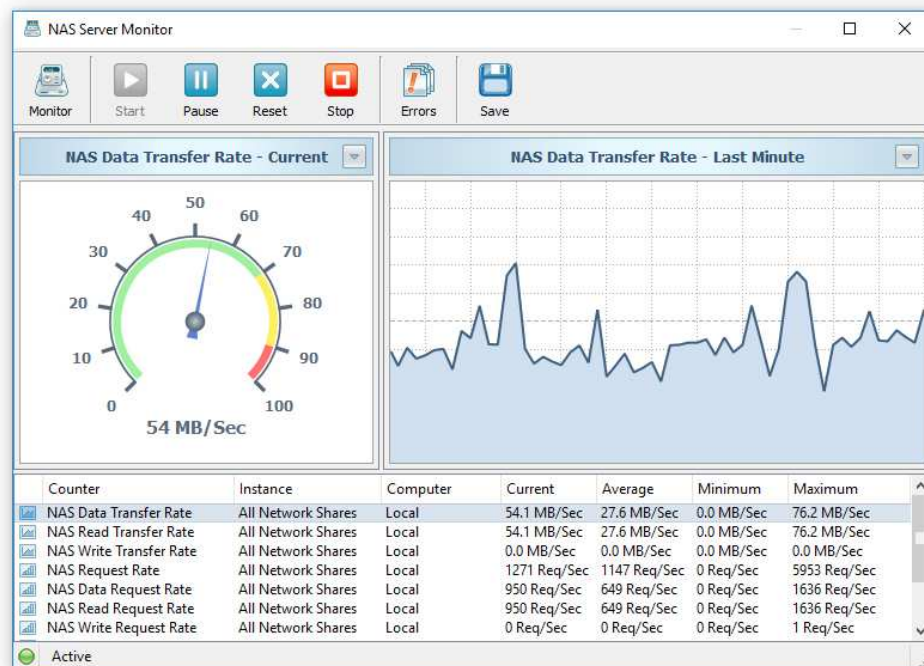


For example, in order to add a NAS Server monitor, press the 'Add' button located on the main toolbar and select the 'NAS Server Monitor' menu item. On the 'Add Monitor' dialog enter a monitor description, press the 'Ok' button and the newly added monitor will appear in the monitors view. Now, in order to start the monitor, select the monitor item in the monitors view, press the right mouse button and select the 'Start Monitor' menu item.

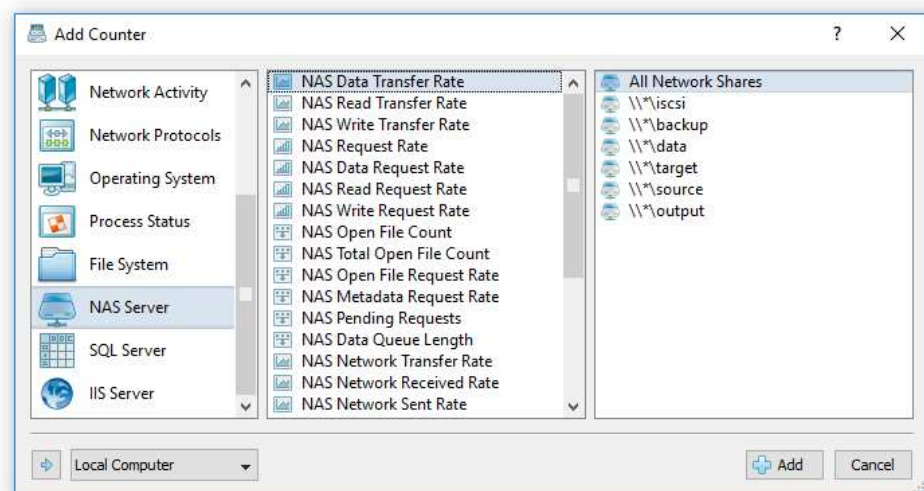


For each configured monitor, SysGauge shows the monitor description, the target host name, the number of monitoring counters, the number of monitoring errors, the number of monitoring warnings and the monitoring status. In order to view monitoring errors, select the monitor item in the monitors view, press the right mouse button and select the 'View Errors' menu item. In order to stop one or more monitors, select all the required monitors in the monitors view, press the right mouse button and select the 'Stop Monitor' menu item.

In order to view the monitoring results, double click on the required monitor item in the monitors view. SysGauge Server will display the monitor dialog showing the list of configured monitoring counters. Click on a monitoring counter to display the current counter value and the monitoring history chart of the selected monitoring counter.

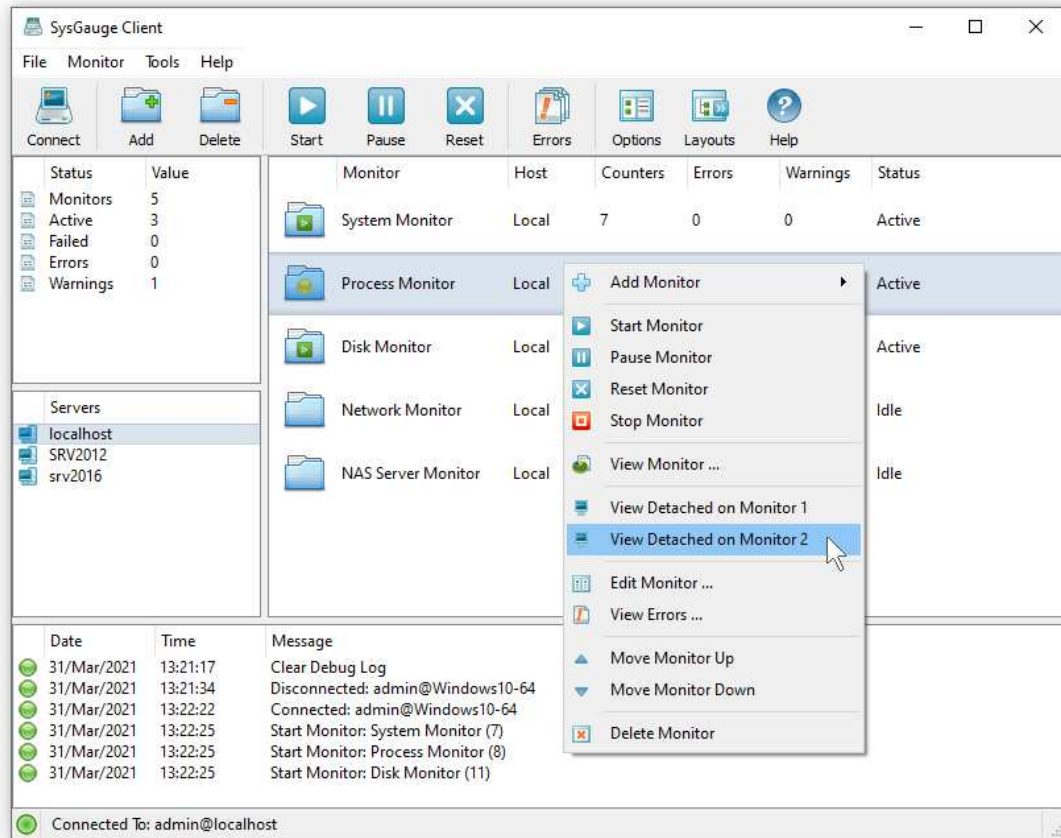


In order to configure a monitoring counter, select the required counter in the counters view, press the right mouse button and select the 'Edit Counter' menu item. The counter dialog provides the ability to configure the target host name, the performance counter instance and the performance counter units. In addition, the counter dialog allows one to configure one or more conditional actions to be executed and/or e-mail notifications to be sent when the counter value raises above or drops below a user specified value.



In order to add one or more counters to the monitor, press the 'Monitor' button located in the top-left corner of the monitor dialog. In the left view of the 'Add Counter' dialog, select the counter category, in the middle view, select the counter type, optionally select a counter instance in the right view and then press the 'Add' button.

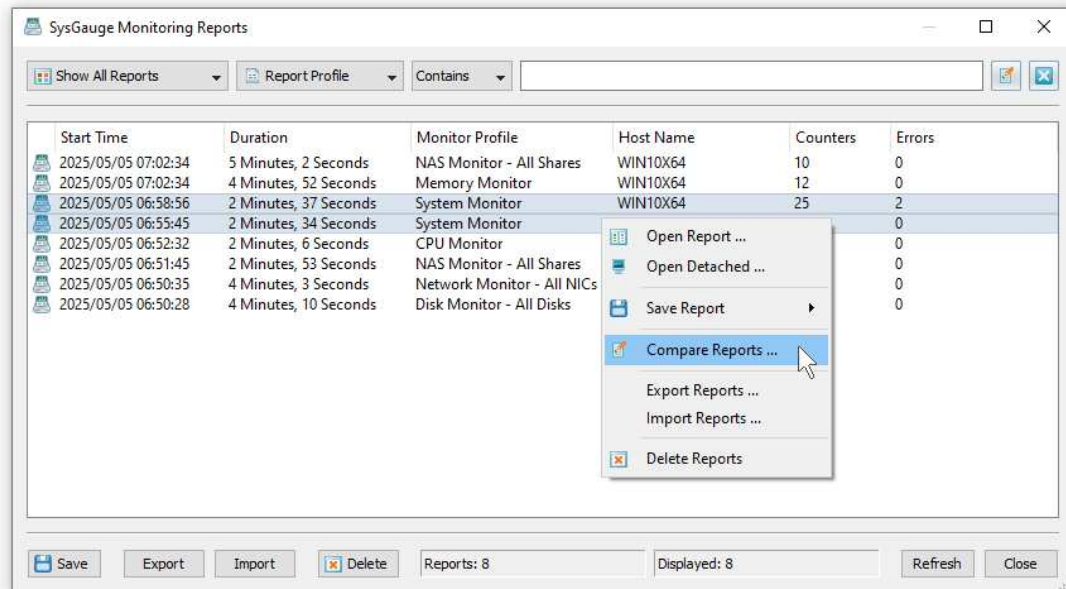
SysGauge Server provides the ability to open multiple monitoring windows on an unlimited number of physical monitors connected to the computer allowing one to effectively utilize multi-monitor configurations. In order to open a monitoring window on a separate physical monitor, select a monitor in the SysGauge client GUI application, press the right mouse button and select the 'View Detached on Monitor X' menu item.



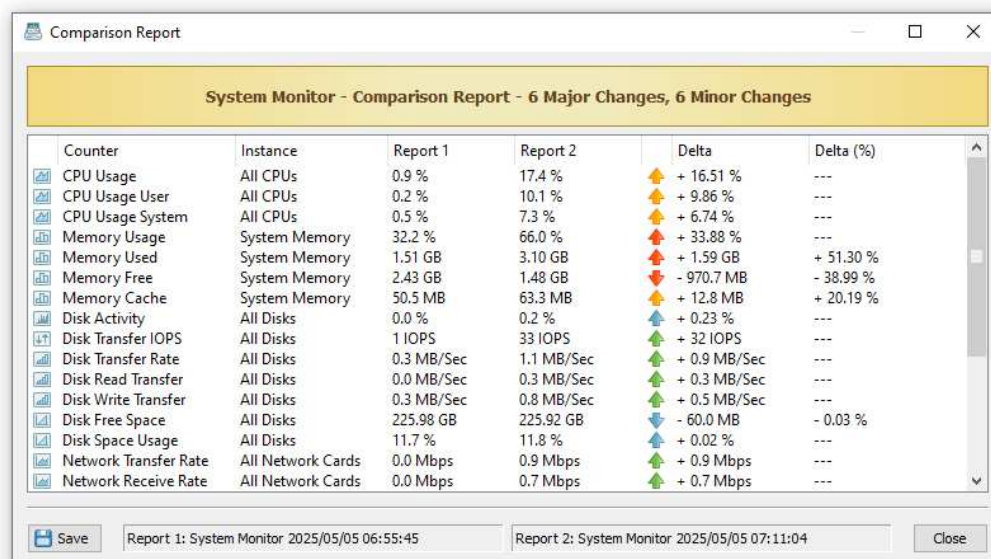
The SysGauge client GUI application will open the selected monitor in a completely separated window allowing one to position or maximize the selected monitoring window on any physical monitor connected to the computer. The user can open a number of monitoring windows on an unlimited number of physical monitors and then minimize or close the SysGauge client GUI application to free the display space for other applications.

34 Comparing System Monitoring Reports

By default, SysGauge Server saves a monitoring report for each completed monitoring operation. In order to access previously saved monitoring reports, press the 'Reports' button located on the main toolbar. For each monitoring report, the reports dialog shows the start date and time, the duration of the monitoring operation, the name of the monitoring profile, the hostname of the monitored computer, the number of the monitoring counters and the number of monitoring errors.



In order to open a previously saved monitoring report, double-click on the report item in the monitoring reports dialog. In order to compare two monitoring reports, select the reports in the reports view, press the right mouse button and select the 'Compare Reports' menu item.



The comparison results dialog shows the monitoring counters from both monitoring reports, absolute value deltas and relative percentage deltas. In addition, the user is provided with the ability to export the comparison results to a number of standard formats such as Microsoft Excel, PDF, HTML, text and CSV.

35 SysGauge Command Line Utility

In addition to the main GUI application, SysGauge Pro and SysGauge Server product versions provide a command line utility allowing one to perform system monitoring operations, save various types of system monitoring reports, automatically analyze the system status and save system status analysis reports. The SysGauge command line utility is located in the product **'bin'** directory.

Command Line Syntax:

sysgauge -monitor [-profile <Profile Name>]

This command starts a system monitoring operation using the specified system monitoring profile. If the profile name is not specified, SysGauge will use the default system monitoring profile.

sysgauge -monitor <XML Profile File>

This command starts a system monitoring operation using a previously exported XML profile file. In order to export a system monitoring profile to the XML format, select the 'System Monitor' module, press the 'Profiles' button, select the required system monitoring profile, press the right mouse button and select the 'Export Profile' menu item. In order to monitor using a customized system monitoring profile, create a new system monitoring profile in the 'Profiles' dialog, double click on the profile to activate the profile, customize the profile according to user-specific needs, export the customized profile to the XML format and then use the command line utility to perform custom monitoring operations.

sysgauge -system_monitor [-extended]

This command performs a simple system monitoring operation using basic system monitoring counters including the CPU usage, the memory usage, the amount of free memory, the amount of used memory, the total number of processes, the total number of threads, the disk transfer rate and the network transfer rate. When the **'extended'** command line option is specified, SysGauge will add to the monitoring operation extended system monitoring counters including the system-level CPU usage, the total number of handles, the size of the memory cache and the disk transfer IOPS.

sysgauge -cpu_monitor [-extended]

This command performs a CPU usage monitoring operation using a number of CPU monitoring counters including the total CPU usage, the user-level CPU usage, the system-level CPU usage, the CPU interrupt time, the CPU interrupt rate, the C1, C2 and C3 low-power CPU states and the CPU frequency. By default, the CPU usage monitor reports the total CPU usage statistics for all CPUs in the monitored system. When the **'extended'** command line option is specified, SysGauge enables individual CPU usage monitoring counters for each CPU and the CPU usage monitoring results will include individual CPU usage statistics for each CPU or CPU core in the monitored system.

sysgauge -memory_monitor

This command performs a memory usage monitoring operation using a number of memory monitoring counters including the memory usage, the amount of free memory, the amount of used memory, the size of the memory cache, the peak size of the memory cache, the memory cache fault rate, the memory page file usage, the memory page file peak size and the memory page file fault rate.

sysgauge -process_monitor

This command performs a process monitoring operation using a number of counters for each running process including the process CPU usage, the process memory usage, the process thread count, the process handle count, the process data transfer rate, the process read transfer rate, the process write transfer rate, the process memory page fault rate and the process non-paged memory size.

sysgauge -disk_monitor [-extended]

This command performs a disk activity monitoring operation using a number of disk monitoring counters including the disk activity, disk transfer rate, disk read transfer rate, disk write transfer rate, disk transfer IOPS, disk read transfer IOPS, disk write transfer IOPS, disk free space and disk space usage. By default, the disk activity monitor reports the total disk activity statistics for all logical disks in the monitored system. When the '**extended**' command line option is specified, SysGauge enables individual disk activity monitoring counters for each logical disk and the disk activity monitoring results will include individual disk activity statistics for each logical disk in the monitored system.

sysgauge -nas_monitor [-extended]

This command performs a NAS performance monitoring operation using a number of NAS monitoring counters including the NAS data transfer rate, NAS read transfer rate, NAS write transfer rate, NAS data request rate, NAS read request rate, NAS write request rate, NAS pending requests, the current NAS open file count and the total number of open files since the NAS server was started. By default, the NAS performance monitor reports the total NAS performance statistics for all network shares in the monitored NAS server. When the '**extended**' command line option is specified, SysGauge enables individual network shares performance monitoring counters for each network share and the NAS performance monitoring results will include individual network shares statistics for each network share in the monitored NAS server.

sysgauge -network_monitor [-extended]

This command performs a network monitoring operation using a number of network monitoring counters including the network transfer rate, network transmit rate, network receive rate, network packets rate, network send packets rate, network receive packets rate, network send packets errors, network receive packets errors and the network output queue length. By default, the network monitor reports the total network activity statistics for all network interface cards in the monitored server. When the '**extended**' command line option is specified, SysGauge enables individual network cards activity monitoring counters for each network card and the network activity monitoring results will include individual network cards statistics for each network interface card in the monitored server.

sysgauge -analyze

This command performs an automated system status analysis operation.

Optional Parameters:**-host <Host Name>**

This command line option specifies the host name of the remote computer to monitor.

-time <Seconds>

This command line option specifies the maximum monitoring time in seconds.

-silent

This command line option disables the command output, which is useful for silent generation of system monitoring reports.

-save_html_report [<Dir Name> or <File Name>]

This command line option saves an HTML system monitoring report.

-save_excel_report [<Dir Name> or <File Name>]

This command line option saves an Excel system monitoring report.

-save_text_report [<Dir Name> or <File Name>]

This command line option saves a text system monitoring report.

-save_pdf_report [<Dir Name> or <File Name>]

This command line option saves a PDF system monitoring report.

-save_json_report [<Dir Name> or <File Name>]

This command line option saves a JSON system monitoring report.

-save_csv_report [<Dir Name> or <File Name>]

This command line option saves a CSV system monitoring report.

-save_xml_report [<Dir Name> or <File Name>]

This command line option saves an XML system monitoring report.

-save_to_database <Table Name>

This command line option saves monitoring results to the specified SQL database table.

Profile Management Commands:**sysgauge -show_profiles**

This command shows configured system monitoring profiles.

sysgauge -show_profile <Profile Name>

This command shows the specified system monitoring profile.

sysgauge -add_profile <Profile Name> [-mode <Profile Mode>]

This command adds a new system monitoring profile.

The profile mode may be set to one of the following values:

- **DEFAULT** - adds a default system monitoring profile.
- **CPU** - adds a CPU usage monitoring profile.
- **MEMORY** - adds a memory usage monitoring profile.
- **DISK** - adds a disk activity monitoring profile.
- **NETWORK** - adds a network activity monitoring profile.
- **EMPTY** - adds an empty system monitoring profile.

sysgauge -copy_profile <Profile Name> -to <Copy Profile Name>

This command copies the specified system monitoring profile.

sysgauge -rename_profile <Profile Name> -to <New Profile Name>

This command renames the specified system monitoring profile.

sysgauge -delete_profile <Profile Name>

This command deletes the specified system monitoring profile.

Counter Management Commands:**sysgauge -show_supported_counters**

This command shows all supported system monitoring counters.

sysgauge -show_counter_instances [-computer <Computer Name>]

This command shows a list of instances for the specified system monitoring counter.

**sysgauge -add_counter <Counter Name> -profile <Profile Name>
[-instance <Counter Instance> -computer <Computer Name>]**

This command adds a system monitoring counter to the specified profile.

**sysgauge -delete_counter <Counter Name> -profile <Profile Name>
[-id <Counter ID>]**

This command deletes a system monitoring counter from the specified profile.

Product Registration:**sysgauge -register -key <Unlock Key> -customer <Customer Name>**

This command registers the product using the provided unlock key and customer name.

SysGauge Server Commands:**sysgauge -server_show_monitors**

This command shows system monitors configured in the SysGauge Server.

sysgauge -server_add_monitor [-description <Description> -type <Monitor Type> -profile <File Name>]

This command adds a new monitor to the SysGauge Server.

The monitor type can be set to one of the following values:

- **SYSTEM** - adds a default system monitor
- **CPU** - adds an extended CPU monitor
- **MEMORY** - adds an extended memory monitor
- **DISK** - adds an extended disk monitor
- **NETWORK** - adds an extended network monitor

sysgauge -server_set_monitor_description -id <Monitor ID> -description <Monitor Description>

This command sets the monitor description.

sysgauge -server_set_monitor_profile -id <Monitor ID> -profile <XML File Name>

This command sets the monitor profile according to the specified XML file.

sysgauge -server_start_monitor -id <Monitor ID>

This command starts the specified monitor.

sysgauge -server_stop_monitor -id <Monitor ID>

This command stops the specified monitor.

sysgauge -server_show_monitor_counters -id <Monitor ID>

Shows monitoring counters for the specified monitor.

sysgauge -server_save_monitor_report -id <Monitor ID>

Saves one or more system monitoring reports for the specified monitor.

- **-html <File Name>** - Saves an HTML system monitoring report.
- **-pdf <File Name>** - Saves a PDF system monitoring report.
- **-excel <File Name>** - Saves an Excel system monitoring report.
- **-text <File Name>** - Saves a text system monitoring report.
- **-json <File Name>** - Saves a JSON system monitoring report.
- **-xml <File Name>** - Saves an XML system monitoring report.
- **-csv <File Name>** - Saves a CSV system monitoring report.
- **-database <Table Name>** - Saves monitoring results to an SQL database.

sysgauge -server_delete_monitor -id <Monitor ID>

This command deletes the specified monitor.

sysgauge -server_delete_all_monitors

This command deletes all configured monitors.

sysgauge -server_export_config

This command exports the product configuration.

sysgauge -server_import_config <File Name>

This command imports the product configuration.

sysgauge -server_set_max_counter_data <Max Counter Data>

This command sets the maximum counter data length.

sysgauge -server_about

This command shows information about the SysGauge Server.

sysgauge -server_show_debug_log

This command shows the SysGauge Server debug log.

sysgauge -server_clear_debug_log

This command clears the SysGauge Server debug log.

sysgauge -server_register -customer <CustomerName> -key <Unlock Key>

This command registers the SysGauge Server.

**sysgauge -server_export_product_id -Directory <Dir Name>
-customer <CustomerName> -key <Unlock Key>**

This command exports the SysGauge Server product ID file.

sysgauge -server_import_unlock_file <File Name>

This command imports the SysGauge Server unlock file.

SysGauge Server Commands Optional Parameters:

- host <Host Name>** - specifies the host name of the remote server to connect to.
- port <Port Number>** - specifies the TCP/IP port of the remote server to connect to.
- user <User Name>** - specifies the SysGauge user name to login to the remote server.
- password <Password>** - specifies the SysGauge password to login to the server.

36 Supported Operating Systems and System Requirements

Supported Operating Systems

- Windows XP
- Windows Vista
- Windows 7
- Windows 8
- Windows 8.1
- Windows 10
- Windows 11
- Server 2003
- Server 2008
- Server 2008 R2
- Server 2012
- Server 2012 R2
- Server 2016
- Server 2019
- Server 2022
- Server 2025

Minimal System Requirements

- Supported Operating System
- 2 GHz or better CPU
- 512 MB of system memory
- 25 MB of free disk space

Recommended System Configuration

- Supported Operating System
- 2+ GHz dual-core CPU
- 1 GB of system memory
- 50 MB of free disk space

SysGauge Server System Configuration

- Supported Operating System
- 2+ GHz dual-core CPU
- 2 GB of system memory
- 100 MB of free disk space