StartWatch User Guide

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Overview

StartWatch is intended to help people who want to run multiple programs in a 24x7 environment, and do so in a manner that requires as little human intervention as possible. StartWatch performs two related goals. The first is to start a number of programs in a coordinated manner. The second is to monitor the programs that were started, and optionally, correct problems such as hung or crashed programs.

Major Features

- Easy to configure StartWatch to automatically run when Windows starts.

- Coordinated startup of programs based on time delay, successful start of another program, or availability of a TCP/IP service.

- Option to start programs in minimized state.

- Monitors the state of the programs started by StartWatch.

- Monitors the availability of user defined TCP/IP ports.

- Can automatically detect and optionally restart hung (non-responsive) programs.

- Can automatically detect and optionally restart programs that have crashed or been inadvertently closed.

- Can automatically detect and restart programs whose memory use exceeds a user specified threshold. This can help prevent programs with memory leaks from taking the whole system down.

- Can automatically detect and restart programs that begin hogging all the CPU.

- Can close programs when the program or TCP/IP service on which their start depended goes down.

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- Can restart programs when the program or TCP/IP service on which their start depended comes back up.

- StartWatch runs as a "system tray" program for minimum visual intrusion.

- Written to consume minimal CPU time and system resources.

The startup and port monitoring features of StartWatch as well as monitoring and restart of a single program are freeware. The monitoring and restart of more than one program requires an inexpensive registration. A 30 day trial key can be obtained to try the full monitoring before registering.

Startup Sequence

The term "Startup Sequence" is an important concept to understand since it describes the heart of what StartWatch does. The Startup Sequence is the process starting programs in the order configured by the user, and performing the port and program monitoring necessary to accomplish that. For registered users, and during the trial period, StartWatch begins monitoring each program after it's started. StartWatch begins the Start Sequence by beginning to monitor the ports, and running all the programs configured to start when StartWatch starts (after a delay if configured by the user). After this, the remaining programs are started after the port or program they depend on becomes available or has started.

After a program has been started, program monitoring begins.

Installation & Configuration

StartWatch itself is simple to install and configure. It makes only minimal use of the registry, relying instead on a configuration file in the StartWatch folder. Configuration settings are maintained separately for each user account on the computer.

Installation

StartWatch is distributed as a single executable installation file. When you run the installation program, it will guide you through the installation process. You pick a directory, StartWatch files are installed there, and a folder entry is created in your Start/Programs menu.

Future versions of StartWatch may be installed over your existing installation. Your previous configuration will be preserved. There is no need to uninstall the previous version first.

Configuration

Before using the features of StartWatch, you should use the Options window to set it up for your needs. To open the Options window, click on the Options menu after running StartWatch.

Figure 1 StartWatch Options, General options page

The Options window has four tabs across the top. Clicking on each tab will display a different page of options. At the bottom of the window, below the page area are two buttons that are always displayed. Clicking on these buttons applies to the entire Options window, including all of the tab pages.

OK Button
> This button is visible regardless of which options page is displayed. Click the Ok button to apply and save the options changes you've made on all four of the options pages, and close the window.

Cancel Button
> This button is visible regardless of which options page is displayed. Click the Cancel button to ignore all options changes you've made on the four options pages, and close the window.

General Options Page

You can set the basic StartWatch options using the General Options page.

Run StartWatch when Windows Starts
> Turn this option if you want StartWatch to automatically start when Windows first starts up. StartWatch will make the Windows registry entry needed to make this happen. If you've set up

Windows user accounts with passwords on your computer, then StartWatch will run when after the user logs in.

Automatically begin startup sequence when StartWatch runs

Turn this option on if you want StartWatch to automatically begin the startup of the programs as soon as it starts. When you are first setting up and configuring StartWatch, I recommend you leave this turned off. After you have configured the start sequence to your satisfaction you can turn this option on. You can use this option, combined with the option above for running StartWatch at windows startup to achieve fully automatic startup of StartWatch and all the programs it's configured to start.

Automatically close StartWatch after all programs have been started

If you are only using StartWatch for it startup capability, and don't wish to use the monitoring features, you can use this option to have StartWatch close after it has successfully started all the programs you've configured it to start.

Minimize StartWatch to tray when run

Turn this option on if you want StartWatch to minimize itself immediately after it starts. StartWatch is a "tray program". When it's running, it displays its icon in the Windows notification area (also known as the "system tray"). When it's minimized, its button on the Windows task bar disappears, and only the tray icon remains. You can restore the main window by right clicking on the tray icon and using the pop-up menu that appears.

StartWatch stays on top when not minimized

Turn this option on if you want StartWatch to remain fully visible, even when it is not the selected application. This option has no effect while StartWatch is minimized to the tray.

Port Monitors Options Page

You can define the TCP/IP ports you wish to monitor using the Port Monitors page. These ports, and whether or not connections can be made to them, can be used to control the startup of programs. These TCP/IP ports can be on the local machine, or remote machines. For instance, SoftWx makes a program called VirtualVP that opens several TCP/IP ports for serving weather data. These ports are only opened after VirtualVP has completed its initialization and is ready to serve data. You can configure StartWatch to start the weather programs that connect to VirtualVP only after VirtualVP begins accepting connections on any of these ports. This is much more reliable than a simple time delay since the amount of time VirtualVP requires to initialize can vary.

Another example would be defining a port monitor for some reliable site on the Internet. This port monitor can then be used as an indicator of whether the computer is connected to the Internet or not. The startup of programs could be made dependent on this port monitor being up. You could even configure StartWatch to close programs that depend on an Internet connection when the port monitor indicates the connection has gone down, and restart them when it comes back up.
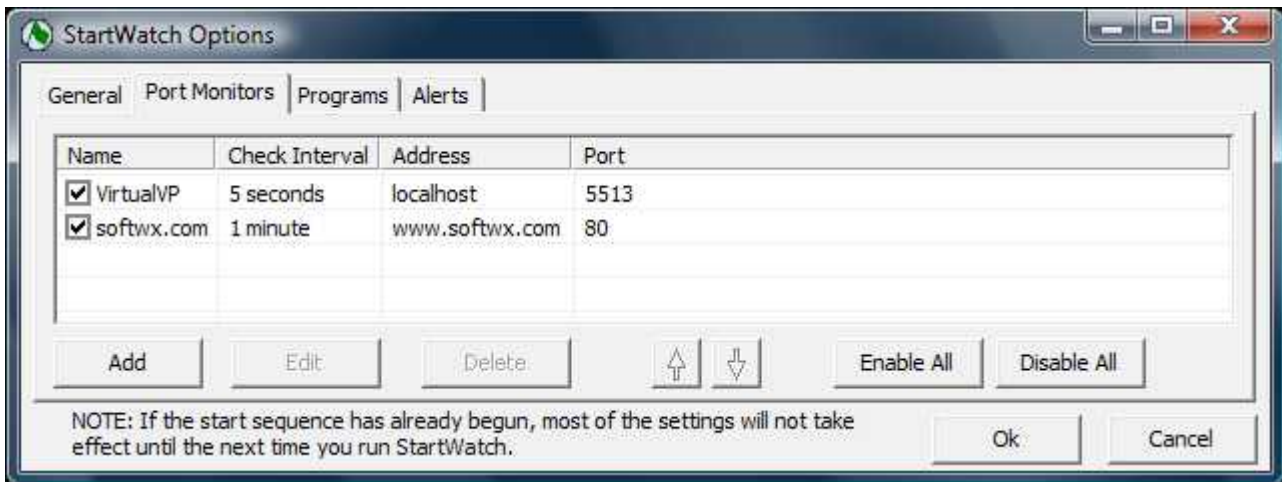
Figure 2 StartWatch Options, Port Monitors options page

Port Monitor List

The Port Monitor List shows the port monitors you've defined. The checkbox by each row indicates whether that port monitor is currently enabled for use and monitoring. You can click on a checkbox to toggle the check mark on and off. If you want to temporarily exclude a port monitor from being used, you can uncheck that row. This is better than deleting the row, because you don't lose the port monitor definition, and can easily use it again in the future.

Add Button

Click this button to open the Port Monitor Options window described below so you can enter the details of a new Port Monitor.

Edit Button

Click this button to open the Port Monitor Options window described below so you can edit the details of the selected Port Monitor. This button is only available when one of the Port Monitors is selected in the list.

Delete Button

Click this button to delete the selected port monitor definition. This button is only available when one of the Port Monitors is selected in the list.

Up and Down Arrow Buttons

You can use these buttons to change the order of the Port Monitor list. The up arrow button moves the selected Port Monitor up one row. The down arrow button moves it down one row. These buttons are only available when one of the Port Monitors is selected in the list.

Enable All Button

Click this button to enable all the Port Monitors.

Disable All Button

Click this button to disable all the Port Monitors.

Port Monitor Options Window

Use the Port Monitor Options window to define the TCP/IP ports you wish to monitor. This window is displayed after clicking the Add or Edit button on the Port Monitor page of the Options window.
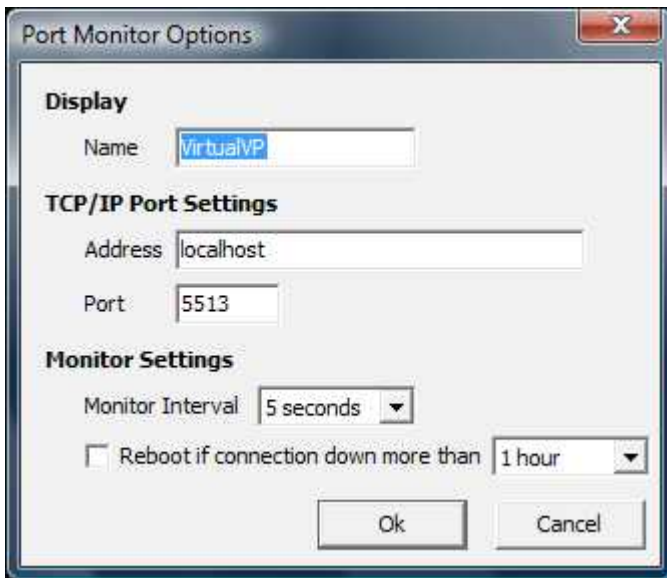

Figure 3 Port Monitor Options window

Name
You can enter any name you want to describe the port you're defining.

Address
Enter the IP address of the server whose port you want to monitor. The address can be a host name such as "localhost" or "www.mysite.com", or a fully formed address such as "192.168.0.10".

Port
Enter the port number of the TCP/IP service you want to monitor. The number should be in the range 0-65535.

Monitor Interval
Choose the time interval StartWatch should use to check the port for availability (i.e. check if the port is accepting connection requests). Use a fast interval for quickest detection of the service going down or use a slower interval to reduce the demand on StartWatch and the server being checked.

Reboot if connection down more than...
Turn this option on if you want StartWatch to reboot the computer when the port goes down for a specified amount of time. The drop down list to the right of the checkbox lets you specify how long the port must be down before StartWatch reboots. If you have this option turned on, and a port going down triggers a reboot, StartWatch will display a window for 10 seconds giving the user the opportunity to abort the reboot.

Ok Button
Click the Ok button to apply the changes and close the window.

Cancel Button
Click the Cancel button to ignore any changes you've made and close the window.

Program Options Page

The Program Options page displays, and lets you modify the list of programs StartWatch will start and monitor.
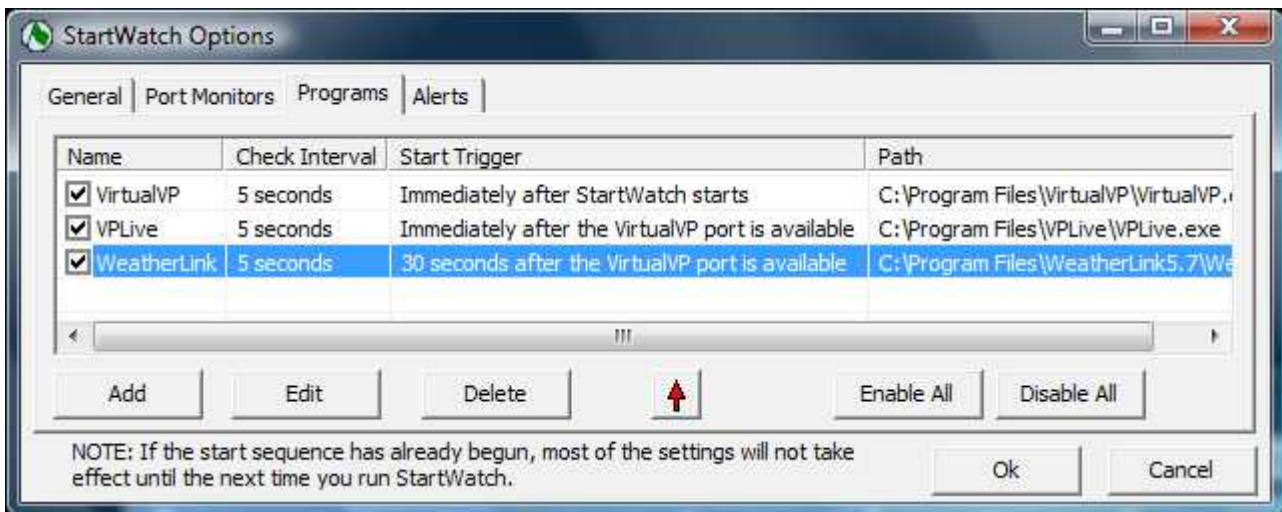

Figure 4 StartWatch Options, Programs page

Programs List
The Programs List shows the programs you've defined for automated startup and monitoring by StartWatch. The checkbox by each row indicates whether that program is currently enabled for startup and monitoring. You can click on a checkbox to toggle the check mark on and off. If you want to temporarily exclude a program from being included in the startup sequence, you can uncheck that row. This is better than deleting the row, because you don't lose the program definition and can easily use it again in the future.

Add Button
Click this button to open the Program Options window described below so you can enter the details of a new Program.

Edit Button
Click this button to open the Program Options window described below so you can edit the details of the selected Program. This button is only available when one of the Programs is selected in the list.

Delete Button
Click this button to delete the selected Program definition. This button is only available when one of the Programs is selected in the list.

Up and Down Arrow Buttons
You can use these buttons to change the order of the Programs list. The up arrow button moves the selected Program up one row. The down arrow button moves it down one row. These buttons are only available when one of the Programs is selected in the list. Changing the order of the list does not affect the startup sequence. It only changes the order in which the programs will be displayed in the main StartWatch window.

Enable All Button
Click this button to enable all the Programs.

Disable All Button
Click this button to disable all the Programs.

Program Options Window

Use the Program Options window to define the programs you wish to startup and monitor. This window is displayed after clicking the Add or Edit button on the Programs page of the Options window.
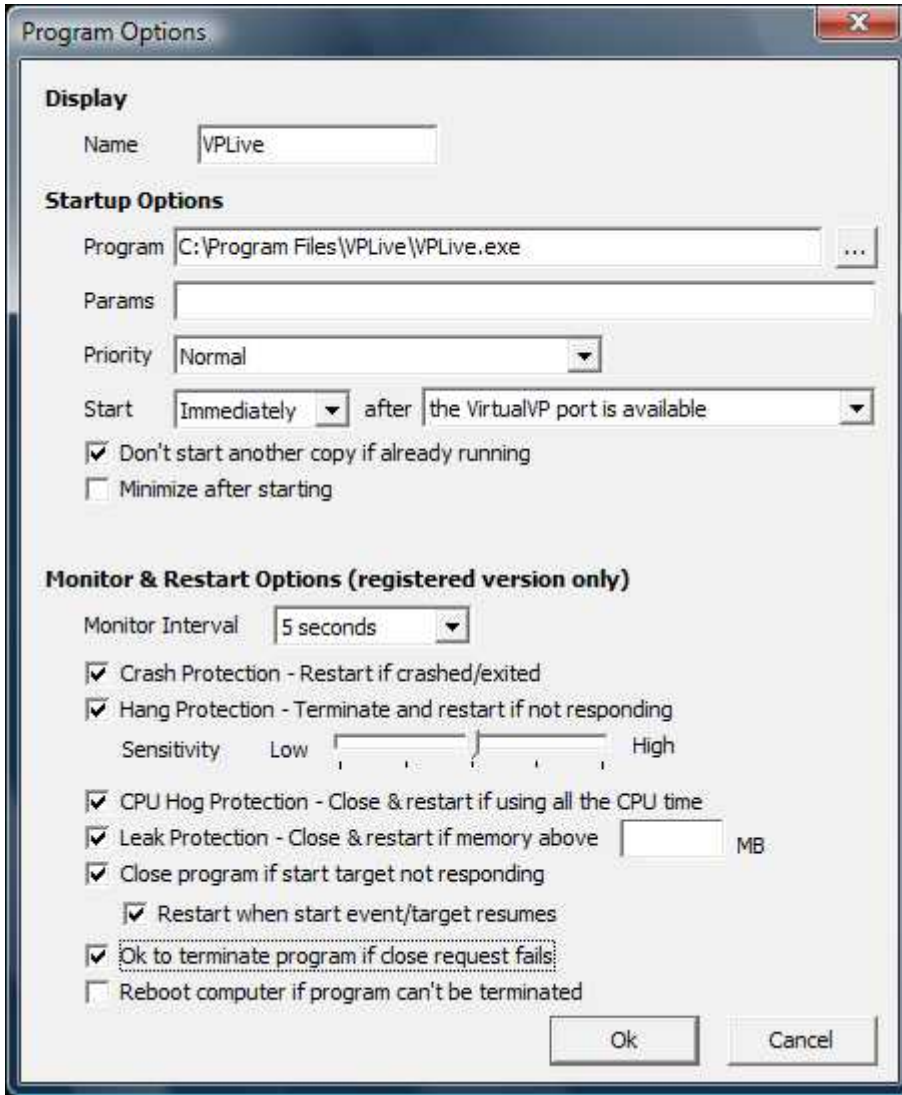

Figure 5 Program Options window

Name

You can enter any name you want to describe the Program you're defining.

Program

Enter the path and file name of the executable program file you want StartWatch to run in the startup sequence. You can click on the "..." button to the right of the program entry area to pop up a window that will let you navigate and select the program.

Params
Some programs accept "command line" parameters or options. Everything you enter here will be passed along to the program when StartWatch runs it.

Priority
You can change the initial Windows priority assigned to the program when it's run using this drop down list. Only advanced users who know the impact of changing priorities should change this value. Changing the priority unnecessarily can negatively affect your computer's performance.

Start / After
You can choose the event that triggers the start up of the program by StartWatch using these two drop down lists. The first drop down list lets you chose a delay so that StartWatch waits for a time after the event before running the program. You can also choose "Immediately" if you don't want any delay. The second drop down list lets you choose the event that triggers the program start. One choice that is always present is "StartWatch Starts". This event is triggered as soon as the StartWatch startup sequence begins. Other choices will appear if you have configured other Programs or Port Monitors. These let you have the start event be the successful start up of another program or the availability of a TCP/IP port that's ready to accept connections.

Don't start another copy if already running
If you only want one instance of the program running at one time, and it's possible the program could already be running when StartWatch begins the startup sequence, you can turn this option on to prevent StartWatch from starting a second copy. When this option is turned on, StartWatch will first search to see if there is a copy of the program already running. If there is, then StartWatch will begin monitoring that copy instead of starting a new one.

Minimize after starting
Turn this option on if you want StartWatch to automatically minimize the program when it's run. If the program has a "minimize on start" feature of its own, it is better to use that. This is because StartWatch's request to start the program in a minimized state may not always be acted on by the program, or the program may restore itself as part of its initialization.

Program Specific Options
For some specific programs StartWatch will display special options below the "Minimize after starting" option. Which options appear, or whether they even appear at all is dependent on the program selected in the Program field where the path and program file name were entered. The purpose of these options are to automatically provide simulated user input to place the program in a desired start or have the program begin some operation after it's started. Currently the only program that has a special option defined for it is WeatherLink by Davis Instruments. In that case you can turn on an option for StartWatch to simulate pressing the button that puts WeatherLink into "Bulletin" mode where it displays live weather data.

I welcome StartWatch users to suggest special options for other programs. If the program and option may be of general interest to other StartWatch users I may add the option to StartWatch. If you'd like this feature for a program you use that is not of general interest, contact support@softwx.com about custom programming options.

Monitor Interval

Choose the time interval StartWatch should use to check the program to see if it's crashed or hung. Use a fast interval for quickest detection of the program going down or use a slower interval to reduce the demand on StartWatch and the computer it's running on.

Crash Protection - Restart if crashed/exited

Turn this option on if you want StartWatch to restart the program if it detects the program has crashed, has exited, or has inadvertently been closed.

Hang Protection - Terminate and restart if not responding

For most programs, StartWatch can determine if the program has "hung". A hung program is one whose user interface has stopped responding to events such as user input. Turn this option on if you want StartWatch to terminate and then restart the program if it becomes hung. Because of the many different ways programs can be written, there will be some programs that StartWatch will incorrectly identify as hung. An example would be a program that by design spends an extended period of time performing some operation, during which it does not accept user input. For these programs it is best to disable the hang detection feature of StartWatch. There are also some programs that may sometimes hang, but still provide enough limited response to user input that it does not appear hung to StartWatch.

You can adjust the sensitivity of StartWatch's hang detection using the Sensitivity slider control. Setting a lower sensitivity means that a program will have to seem hung for a longer period of time before StartWatch considers it hung. Setting a higher sensitivity means that StartWatch will consider the program hung after a much shorter period of time. If you have a program that has periods of busy time where StartWatch incorrectly treats it as hung, you should lower the sensitivity. If you have a program that does not have periods of time where it appears hung, and you want StartWatch to detect a hang as quickly as possible, then set the sensitivity higher. You may need to experiment with this setting, but for most programs the default setting will work fine.

CPU Hog Protection - Close & restart if using all the CPU time

Sometimes for various reasons a program will get in a state where it begins consuming nearly all the available CPU time. This can bring your computer to its knees and negatively affect the performance of other programs and even windows itself. In most cases this behavior is not intended or by design. Very often it is caused by a program bug, or the program getting in an abnormal state. Enable this option if you want StartWatch to look for this situation, and if it occurs, close and restart the program. If you also have the "Ok to terminate" option (described below) turned on, then StartWatch will terminate the program if it does not honor the request to close. If it is normal for the program to enter extended periods of time of intense CPU usage, then you may want to skip this option for that program.

Leak Protection - Close & restart if memory above X MB

This option provides some protection from programs having memory leaks. Rather than have a leaky program continue to consume memory until the performance of your computer is compromised, you can turn this option on and enter a maximum memory limit. StartWatch will monitor the program's memory usage, and if it exceeds the maximum amount you've specified, then StartWatch will attempt to close the program and restart it. If you also have the "Ok to terminate" option (described below) turned on, then StartWatch will terminate the program if it

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does not honor the request to close. This memory feature will not work on Win9x operating systems.

Close program if start target not responding

Turn this option on if you want StartWatch to close the program when the program or port its start depended on becomes unresponsive. For programs this could be because the program has hung, crashed or been closed. For ports this would be because the port stops accepting connections. Use this option when the program is entirely dependent upon the other program or port being present, and could malfunction or produce erroneous results without it.

If the start target is a program, and it has its options set to restart automatically if it hangs or closes, then using this option for the dependent programs may not be a good choice if it takes little time for the target to be restarted. Whether it is or isn't a good choice depends on the nature of the programs. If the dependent programs aren't negatively affected by the target being restarted, then it would be better not to close the dependent programs. But if the dependent programs will lose some connection to the target, then having the dependent programs close and then restart after the target comes back up would be a good choice. You'll have to determine which mix of options are best for your particular circumstances.

Restart when start event/target resumes

This option works in hand with the "Close program if start target not responding" option. If you've turned that option on, and StartWatch has closed the program because its target stopped responding, StartWatch will restart the program when the target becomes available again if you've turned this option on.

Ok to terminate the program if close request fails

This option works in hand with the option that close the program if a memory limit is exceeded, it hogs the CPU, or the start target goes down. If you've turned on any of those options, and StartWatch has detected it needs to close the program, it initially tries a polite method of closing the program similar to you clicking the Close button in the upper right corner. Usually this will cause the program to exit gracefully. Sometimes a program may ignore StartWatch's request that it close. If you turn this option on, then StartWatch can forcefully terminate the program if the program ignores the close request.

Reboot computer if program can't be terminated

Sometimes, if a program hangs while interacting with certain hardware drivers, there is no way to terminate the program without resorting to unorthodox methods that can make windows unstable. Turn this reboot option on if you want StartWatch to reboot the computer if it tries the normal methods of terminating the program, but they are all unsuccessful. If you have this option turned on, and a failed program termination triggers a reboot, StartWatch will display a window for 10 seconds giving the user the opportunity to abort the reboot.

Ok Button

Clicking the Ok button will apply the changes and then close the window.

Cancel Button

Clicking the Cancel button will ignore any changes you've made and close the window.

Alert Options Page

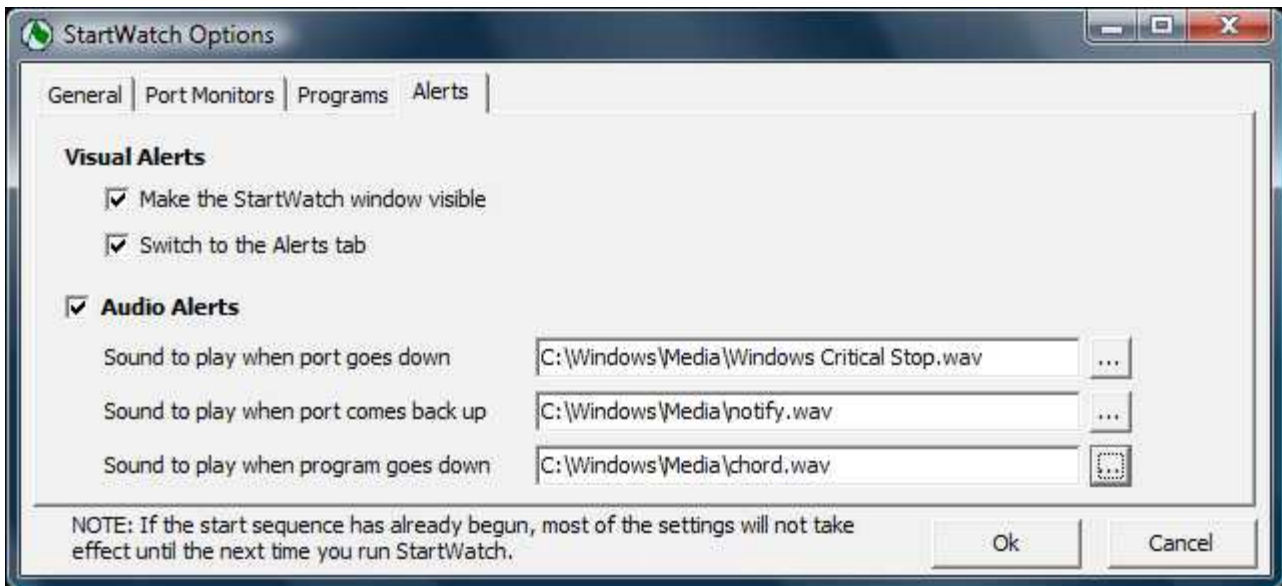The Alert Options page displays, and lets you modify the various ways StartWatch can notify you of important events.

Figure 6 StartWatch Options, Alerts page

Make the StartWatch window visible
> If you enable this option, StartWatch will display it's window on the Windows desktop when an alert occurs. It does this by coming out from behind other windows obscuring it, or by restoring the window if StartWatch is minimized.

Switch to the Alerts tab
> If you enable this option, StartWatch will switch its main window display from the Status page to the Alerts page when an alert occurs.

Audio Alerts
> Turn on this option if you want to enable audio (sound) alerts. If the option is turned on, then you will be able to select the sounds you want played under the different circumstances. Windows standard sound files are usually in the media folder of your Windows directory.

Sound to play when port goes down
> Choose the sound file you want windows to play whenever a monitored port goes down.

Sound to play when port comes back up
> Choose the sound file you want windows to play whenever a monitored port that had gone down comes back up.

Sound to play when program goes down

Choose the sound file you want windows to play whenever a monitored program goes down (crashes or hangs for example).

Chapter

3

Using StartWatch

Once you get the program configured and running, it should just do its job without requiring you to interact with it very often. This section describes the main display appearance, menus, and information on using StartWatch.

Main Window

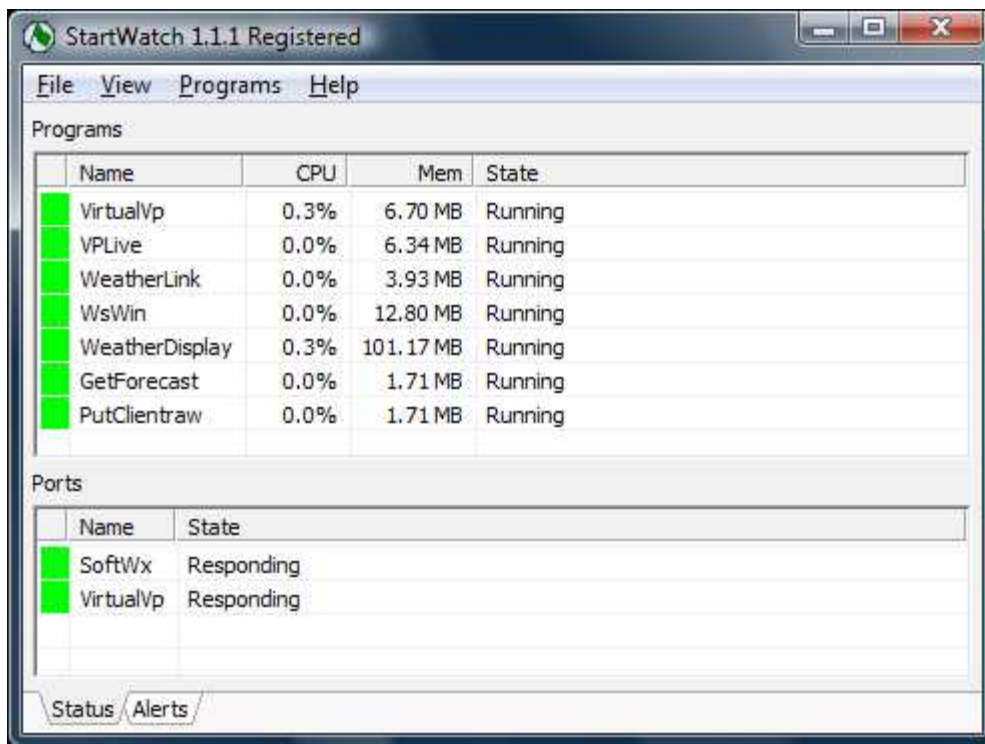The purpose of the main window is to display the status of the ports and programs StartWatch is monitoring.

Figure 7 StartWatch's main window, Status page

The main window can display either the Status page or the Alerts page. You can change which page is displayed using the tab control in the bottom left hand corner of the main windows.

Status Page

The Status page displays the state of the programs and ports you've configured StartWatch to monitor. The first column shows a colored area as a quick status indicator. The colors have the following meanings:

■ The program or port has been closed and/or is not being monitored.

■ StartWatch is waiting for the trigger event so it can start the program.

■ The trigger event has occurred, and StartWatch is waiting for the delay to expire before starting the program.

■ StartWatch has started the program, but the program has not begun responding yet (i.e. it's still initializing).

■ The program or port is up and responding.

■ The program or port has stopped responding and StartWatch is verifying whether it has gone down or not.

■ The program or port is no longer responding, and is assumed to have gone down.

■ StartWatch is closing the program.

The other columns in the Status page display the name, memory usage, CPU usage, and a description of the program or port's state. Memory and CPU information is only displayed for programs, not ports.

The memory usage column shows the memory used by the program. Don't expect this value to match the "Mem Usage" column in Windows' TaskManager (which is not as useful for measuring the memory allocated by a program, and so is not as useful for noticing memory leaks). The value StartWatch displays is more akin to the "VM Size" column in TaskManager, which is not displayed in the default TaskManager configuration. The value displayed by StartWatch is useful for noticing memory leak situations since it is the amount of memory allocated by the program. This is what StartWatch uses for determining if a program's memory usage has grown so much that it needs to be closed and restarted. The memory display feature does not work on Win9x and older operating systems.

The CPU usage column shows the percent of the available CPU time the program is using. This value may not exactly match what is displayed in TaskManager. This is because the time boundaries and length used to calculate the usage will not be identical.

If you right click on a program in this program list, a pop-up menu will display. See the menu section later in this chapter for an explanation of the menu options.

Alerts Page

The Alerts page displays important alerts for the user. Since StartWatch's goal is to run unobtrusively, it does not use pop-up windows to display alert conditions. All alerts can be viewed on the Alerts page.
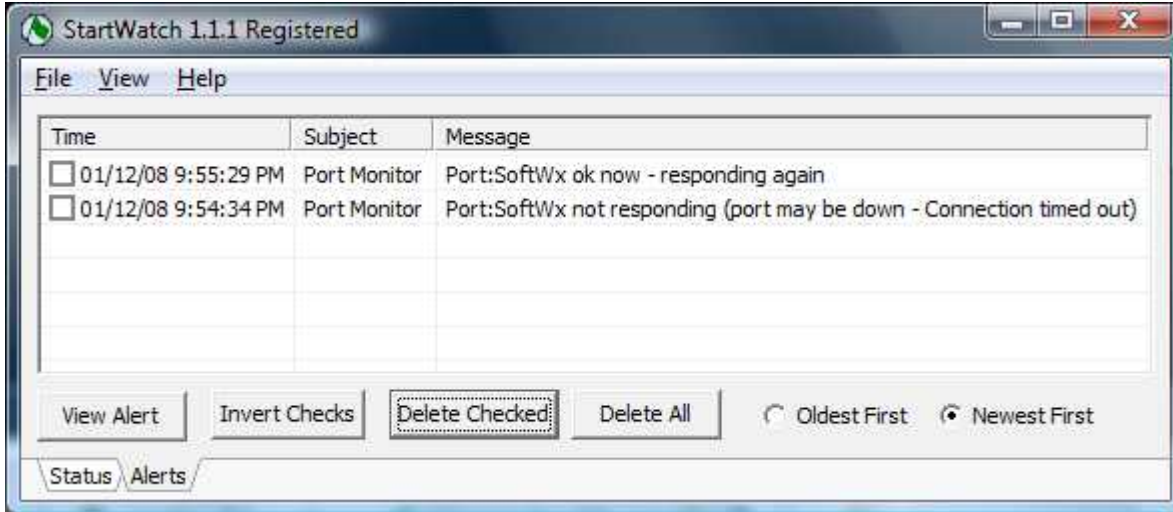

Figure 8 StartWatch Main Window, Alerts page

If the message text is too long to see in its entirety, you can click on a row and press the View Alert button, or simply double click on a row. This will pop up a window showing the entire text.

Each row has a check box that is used to mark rows you want to delete. You can toggle all rows to checked or unchecked using the Invert Checks button. Use the Delete Checked button to delete all the rows by which you've put a check mark. The Delete All button will delete all the alerts regardless of whether they are checked or not.

The alerts are ordered by date. You can use the Oldest First/Newest First radio buttons to controls whether the most recent entries appear at the top of the list or the bottom.

Menus

Main Window Menu

The main window has a menu bar near the top of the window for controlling StartWatch.

File / Exit
 Click on Exit to close StartWatch. If StartWatch is actively monitoring any programs, you will be asked if you want StartWatch to also close them all or not. This window will also let you cancel exiting StartWatch.

File / Stay Open
 This menu is only visible if you've configured StartWatch to automatically exit after it has started all the programs. Click on Stay Open to stop the automatic exit from happening. This is useful if you need StartWatch to stay open so you can do addition things such as open the Options window.

View / Status

Click on Status to switch to the Status page of the main window. This is the same as clicking on the Status tab control in the bottom left corner of the main window.

View / Alerts

Click on Alerts to switch to the Alerts page of the main window. This is the same as clicking on the Alerts tab control in the bottom left corner of the main window.

View / Activity Log

Click on Activity Log to open the Activity Log window. The log is a diagnostic tool that records important events the program has encountered, including unexpected occurrences that may indicate a bug in StartWatch. These are written to a file called log.txt in the StartWatch folder. Clicking on Activity Log opens this file in a Notepad window. Bugs should be reported to support@softwx.com, and remember to attach your log.txt file with your message.

View / Update Speed

Important changes are displayed on the Status page when they occur, but some information is updated at periodic intervals. Use the Update Speed menu to change the update interval. A good default value is 5 seconds. If you have an older computer and you want to minimize the amount of CPU used by StartWatch, you can set the Update Speed to something less frequent. If you have a very fast computer with CPU to spare, there is no harm in setting StartWatch to its fastest update speed.

View / Options...

Click on the Options menu to display the window used to configure StartWatch. Refer to Chapter 2 for a detailed explanation of configuring StartWatch.

View / Import Options...

Click on the Import Options menu to import StartWatch option settings from a file. A window will be displayed allowing you to select the configuration file whose settings you wish to import. Note that this will overwrite your current option settings. Import Options can be used to share StartWatch configuration settings among multiple user accounts.

View / Export Options...

Click on the Export Options menu to export your StartWatch configuration settings to a file. The file that is created can be imported by other user accounts. Export Options can be used to share StartWatch configuration settings among multiple user accounts.

Programs / Begin Startup Sequence

Click on Begin Startup Sequence to initiate the startup sequence. This is not available if the startup sequence has already begun.

Programs / Stop Monitoring Programs

Click on Stop Monitoring Programs to make StartWatch end all monitoring of the programs. This can be useful while configuring StartWatch and testing your configuration.

Programs / Close All Programs

Click on Close All Programs to stop monitoring and try to close all the programs started and monitored by StartWatch. StartWatch only "asks" the programs to close, similar to the user pressing the close button in the upper right hand corner of the program's main window.

This is the polite way to close all the programs. It does not guarantee all the programs will abide by the request. They may pop up a window such as "Do you wan to save…", or be in a state where they ignore the request completely. If you want to force the programs to close, use the Close/Kill All Programs menu.

Programs / Close/Kill All Programs

Click on Close/Kill All Programs to stop monitoring and close all the programs started and monitored by StartWatch. StartWatch first "asks" each program to close. If any programs remain open after a brief period of time, then those programs are forcefully terminated. Be aware that terminating programs like this can cause loss of data because the program might be stopped right in the middle of it doing something.

Programs / Monitor Running Program

If you haven't begun the Startup Sequence or the selected program is not being monitored, you can begin the monitoring of the program currently selected in the Programs list. When you click on Monitor Running Program, StartWatch will look through all the programs currently running on your computer looking for one matching the selected program. If the program is found to be running, StartWatch will begin monitoring it. StartWatch will not start the program if it's not already running.

Programs / Start New Program

If you haven't begun the Startup Sequence, or the selected program is not being monitored, you can have StartWatch run the program currently selected in the Programs list. When you click on Start New Program, StartWatch will start the program, even if the program is already running.

Programs / Stop Monitoring Program

Click on Stop Monitoring Program to stop monitoring the program currently selected in the Programs list. Only monitoring will stop. The program will not be closed.

Programs / Close Program

Click on Close Program to stop monitoring and try to close the program currently selected in the Programs list. StartWatch only "asks" the program to close, similar to the user pressing the close button in the upper right hand corner of the program's main window. This is the polite way to close a program. It does not guarantee the program will abide by the request. It may pop up a window such as "Do you wan to save…", or be in a state where it ignores the request completely. If you want to force the program to close, use the Close/Kill Program menu.

Programs / Close/Kill Program

Click on Close/Kill Program to stop monitoring and close the program currently selected in the Programs list. StartWatch first "asks" the program to close. If the program remains open after a brief period of time, it is forcefully terminated. Be aware that terminating programs like this can cause loss of data because the program might be stopped right in the middle of it doing something.

Programs / Program Statistics

Click on Program Statistics to display more detailed statistics about the program currently selected in the Programs list.
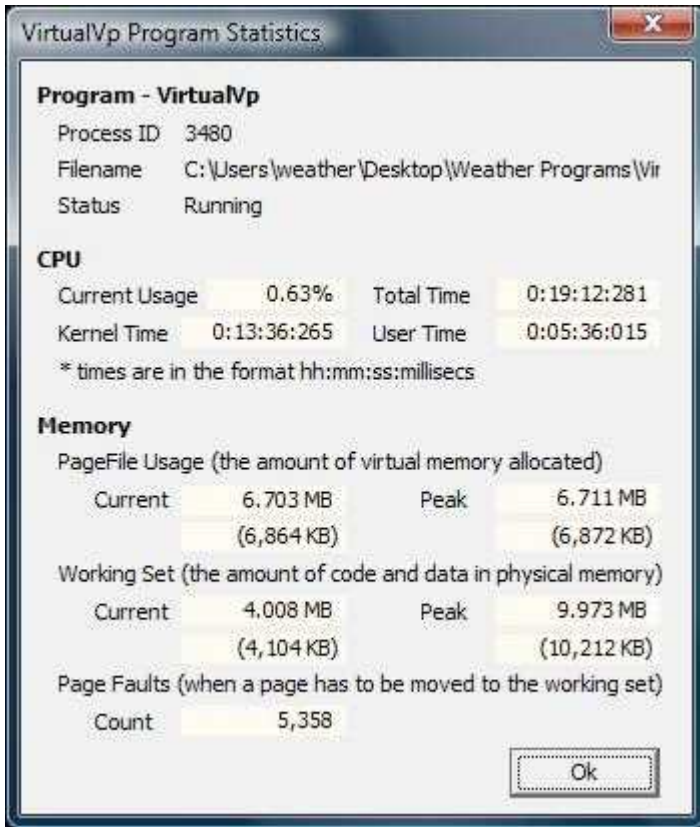

Figure 9 Program Statistics window

The Program Statistics window will be displayed showing detailed information on the attributes StartWatch monitors.

The CPU section displays the program's current CPU usage as a percentage of the CPU time available, and also the actual amount of CPU time used since the program started. Even if StartWatch started monitoring a program that was already running, the CPU times are since the program started, not since StartWatch started monitoring it.

The Memory section displays details of the program's memory usage. The Current values are the memory use values as of the last time StartWatch checked it. The Peak values are the highest memory use values seen since StartWatch began monitoring the program.

PageFile Usage displays the amount of virtual memory allocated by the program. This is the best indicator of actual memory usage of the program. If a program has a memory leak, the PageFile usage will steadily increase.

Working Set memory is the portion of the program's total memory (both code and data) that happens to be residing in physical memory. This is the memory value displayed by default in TaskManager. But it is not a good indicator for detecting memory leaks because the Working Set size is determined by Windows and is affected by many factors such as how often the

program accesses different portions of its memory, how many other programs are running, how much memory they are using, and even whether a program is minimized or not.

The Page Faults section displays a count of the page faults that have occurred for the program since it started. A page fault is when a chunk of memory the program needs to access is not currently in the working set. When a fault occurs, Windows adds that memory to the working set so the program can access it. Sometimes that memory happens to already be sitting in memory (but not in the working set). That is a soft fault and takes very little time to resolve. When Windows has to get the chunk of memory off the disk (from the program's exe file or the virtual memory page file) that is a hard fault. Hard faults take much longer to resolve. By much longer, I mean in terms of computer time. In human time it is still resolved very quickly. These page faults are a normal part of Windows memory management. They are not errors or malfunctions.

Forgive me for getting a little off the topic of StartManager, but since the Statistics window displays nitty gritty memory details that may be misunderstood by some; I feel I should add the following warning. Software utilities that claim to be memory managers that free up your memory or reduce memory usage are often just making dubious claims. They can even negatively impact Windows performance. This is because they often achieve their "results" by forcing programs to have smaller working sets. But what that means is that of the memory programs use is just forced out of physical memory. This may temporarily make things look great in TaskManager (lots of free memory), but actually it's just hampering Windows' already capable memory management. Brute forcing memory out of all the working sets just results in an increase in the page faults as Windows has to pull the memory back into physical memory as soon as it's need by the programs. The bottom line is that free memory is unutilized memory. There is nothing wrong with Windows utilizing all the memory that's available. It's there to be used. As memory gets tight, Windows will adjust the working sets as needed based on many factors.

Help/User Guide
  This opens this User Guide. The User Guide is a PDF file, so you will need Adobe Acrobat Reader or another PDF viewer such as the excellent Foxit Reader.

Help/Release Notes
  This opens a window showing the release notes. This includes notes on your version of StartWatch, known issues, and a revision log.

Help/Make SoftWx Support file
  Choosing this causes StartWatch to combine the various configuration, alert, and log files into a single file. If you have a problem with StartWatch, you can use this menu to create a single file to send to SoftWx support. The file will make troubleshooting the problem go more quickly.

Help/Register
  This opens a dialog window that allows you to enter registration information. If you purchase StartWatch, you will be sent a serial number and a registration key. After you enter those values in the Registration dialog, and the values are verified, your StartWatch will change from being a 30 day trial version to being a registered copy. Then you will be able to enjoy the use of StartWatch's program monitoring features beyond the trial period.

Help/Check for Updates
  Choosing this causes StartWatch to query the SoftWx website to see if there is a newer version of StartWatch available. You need to be connected to the Internet for this feature to work.

Help/About StartWatch
  This opens the StartWatch about box. This window displays version, support and copyright information.

Program List Pop-up Menu

When you right click on a row in the list of programs on the Status page of the main StartWatch window, a pop-up menu will appear. This menu contains actions that apply to an individual program. These actions also appear in the main window's menu under the Programs menu.

Monitor Running Copy
  This performs the same action as the Programs / Monitor Running Program menu described earlier in this chapter.

Start New Copy
  This performs the same action as the Programs / Start New Program menu described earlier in this chapter.

Stop Monitoring
  This performs the same action as the Programs / Stop Monitoring Program menu described earlier in this chapter.

Close
  This performs the same action as the Programs / Close Program menu described earlier in this chapter.

Close/Kill
  This performs the same action as the Programs / Close/Kill Program menu described earlier in this chapter.

Statistics
  This performs the same action as the Programs / Program Statistics menu described earlier in this chapter.

Tray Icon Pop-up Menu

When you right click on the StartWatch icon in the Windows notification area (aka the system tray), a pop-up menu will appear.

Show StartWatch Window
  Clicking on Show StartWatch Window displays the main StartWatch window. If the window was minimized, it is restored. If the window was obscured by other windows, it is brought to the front of the stack.

Exit
  This performs the same action as the File / Exit menu described earlier in this chapter.

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Support

Product support can be obtained by contacting SoftWx support. The email address is support@softwx.com

Thank you for using SoftWx products.