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1. Introduction

Watchdog service is a system check package for developers. It consists of a service running in the background of windows and a dll. Using this dll the developer can start a watchdog timer. If the watchdog does not receive the reset trigger within a selectable timeout period, it will reset the computer. The dll gives the developer an easy interface to start / stop the watchdog timer and to reset the timer value. Multiple watchdog timers can be constructed without any problem. Useful if you want to make critical applications and want to handle pc lockups and crashes. Includes all software you need and a demo application (compiled and source) in VC++ 6.0.

Main features:

- Any number of different watchdog timers (use it in multiple applications)
- Timeout from 0 to 4.294.967.295 ms (1193 hours)
- Easy enable / disable of timer
- Reset can be forced, or normal

2. Installing the software

Put all files from the zip archive in one directory (e.g. c:\watchsrv). First step is to install the watchdog service. Open a command prompt box. Type the following:

```
cd \  
cd watchsrv  
watchsrv -install
```

You should see the message "Watchdog Service installed". If not, check if the watchsrv.exe is in the directory. Do this by typing the dir command.

To start the service, either reboot your system or go to the services control panel. In the service control panel, you will see all installed services. Select the 'Watchdog Service' and press start. After one of these 2 steps, the service will be up and running (you can check this in the same service control panel. If you see Started next to Watchdog Service, then the service is running).

The watchdog service is now installed and running on your system. To test the system, run the sample.exe application. A dialog box will appear. Start a new watchdog counter by selecting 'Start watchdog with 2s timeout and start watchdog reset'. This will create a watchdog timer that will reset after 2 seconds if not triggered. Also, we will start to trigger (or reset if you will) the watchdog every second. If you get an 'Failed to create new watchdog timer' error, you will need to reinstall the watchdog service. Two new options will be available. You can either 'Stop the watchdog and triggering'. This will delete the newly created watchdog timer. Or you can 'Stop watchdog reset'. This will stop the triggering of the watchdog. CAUTION: if you select this option, your pc will reboot after 2 seconds (as it should). If all this works fine, then you know the watchdog service is installed correctly.

3. The Application Program Interface (API)

The API is a dynamic-link library (DLL) that provides functions to access the watchdog service. Use these functions in your application to start / stop and reset watchdog timers.

3.1 Command reference:

StartWatchdogTimer

This function will create a new watchdog timer.

```
HANDLE StartWatchdogTimer(DWORD dwTime, BOOL bForce)
```

Parameters:

dwTime: timeout value in ms

bForce: FALSE will reboot normally (asking programs to exit before rebooting), TRUE will force all programs to close before rebooting. We advice to use TRUE only if the FALSE option doesn't result in a reboot. Using TRUE can result on loss of data.

Return Values:

If the function succeeds, a valid handle will be returned to address the created watchdog timer in the future. If it failed, an INVALID_HANDLE_VALUE is returned.

ResetWatchdogTimer

This function will reset the watchdog timer previously created

```
BOOL ResetWatchdogTimer(HANDLE hWatchdog)
```

Parameters:

hWatchdog: handle returned by the StartWatchdogTimer API function.

Return Values:

TRUE if watchdog timer reset was successful. FALSE if the watchdog timer has not been reset.

StopWatchdogTimer

This function will destroy a watchdog timer

```
BOOL StopWatchdogTimer(HANDLE hWatchdog)
```

Parameters:

hWatchdog: handle returned by the StartWatchdogTimer API function.

Return Values:

TRUE if watchdog timer was destroyed. FALSE if the watchdog timer has not been destroyed.

An example of these API's is available in the package. It's a MSVC++ 6.0 package using MFC. You can find the API calls in the SampleDlg.cpp file. This example shows how you can easily import the watchdog service functions in your own applications. The dll containing these API's is loaded in the program.

4. Distributing the Watchdog Service software

If you want to use the watchdog service system on another pc / in your application's setup, you need 2 files: watchsrv.exe and wtchctrl.dll. Include those 2 files in your setup and make sure you run 'watchsrv -install' at the end of your setup. All commercially available setup builders include options to run commands at certain points in the setup. Put the dll where your executable is, or in the windows system(32) dir if you want the dll to be available for other applications. In your uninstall, remember to run 'watchsrv -remove' before deleting all watchdog service files. Only remove the watchdog service if it is no longer needed by the system.

5. Autologon

A common way to have applications start up automatically is to put them into the startup folder. However, these applications are only started after a user logs in. You probably don't want users to log in every time the watchdog service has rebooted your system due to a system failure or application crash. To solve this, you can use a program that will automatically log on to the windows system. These programs are widely available on the net, and most of them are free. You can also do the following procedures:

For NT:

<http://support.microsoft.com/support/kb/articles/Q97/5/97.ASP>

For 2000 / XP:

<http://support.microsoft.com/support/kb/articles/Q310/5/84.ASP>

System requirements:

P75 or higher

Windows NT/2000

8 MB free memory

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