

### **What is Dr. Watson for Windows NT?**

Dr. Watson for Windows NT is an application error debugger, which is a program that detects application errors, diagnoses the error, and logs the diagnostic information.

The information obtained and logged by Dr. Watson for a computer running Windows NT is the information needed by technical-support groups to diagnose the application error. The DRWTSN32.LOG log file is created in the form of an electronic text file that can be delivered to support personnel by whatever method they prefer. You also have the option of creating a binary crash dump file that can be loaded into the Windows Debugger for debugging.

If an application error occurs, Dr. Watson for Windows NT will start automatically. To start it when no error occurs, to access the main dialog box, type DRWTSN32 at the command prompt or in the **Run** dialog box, (which can be accessed by clicking **Run** on the **Start** menu).

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{button ,AL("A\_INSTALLATION;A\_OPTIONS")} [Related Topics](#)

## Optional Behavior Controls

You can use the main dialog box to change the behavior of Dr. Watson for Windows NT. The data that you specify is stored in the system [Registry](#) under the key \\HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\DrWatson.

Click the following buttons for information about the dialog box:

- [Log File Path](#)
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- [Name of a Wave File for Sound Notification](#)
- [Number of Instructions to Disassemble](#)
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{button ,AL("A\_INSTALLATION;A\_LOGFILE")} [Related Topics](#)

**Log File Path**

The log file location must be a valid path on your local computer. The default path is the Windows directory. This path is where Dr. Watson for Windows NT will create the DRWTSN32.LOG log file containing the diagnostic information about application errors.

Be sure that the path specified is one to which all users have Read/Write privileges. If Dr. Watson for Windows NT cannot use the path specified when a log file is created, a **File Open** dialog box is presented for you to specify a new path.

### **Crash dump**

The crash dump file must be specified if you select the **Create Crash dump File** check box at the bottom of the dialog box. The default path is the Windows directory. The crash dump file is a binary file that can be loaded into the Windows Debugger.

Be sure that the path specified is one to which all users have Read/Write privileges. If Dr. Watson for Windows NT cannot use the path specified when a crash-dump file is created, a **File Open** dialog box is presented for you to specify a new path.

**Name of a Wave File for Sound Notification**

The wave-file name is used by Dr. Watson for Windows NT to play a sound when an application error occurs. The file name must have a .WAV extension and must conform to the Microsoft wave-file format. If you can play the wave file with Media Player, then the file is a valid wave file. This option is not available if you do not have a sound card.

**Number of Instructions to Disassemble**

Sets the maximum number that Dr. Watson for Windows NT will disassemble before and after the current program counter for each thread state dump.

### **Number of Application Errors to Save in the Event Log**

When Dr. Watson for Windows NT detects an application error, extensive diagnostic information is logged into the DRWTSN32.LOG log file. Dr. Watson for Windows NT also records an entry in the Windows NT Event Viewer's Application event log containing the application name, date, time, exception number, exception name, program counter, and function name at the current program counter. It also stores the complete diagnostic information that was logged for that error.

**Dump the Symbol Table**

This option determines whether or not Dr. Watson for Windows NT dumps the symbol table for each module. The symbol table dump contains the address and name for each symbol.

**Note**

- Be aware, though, that this option can cause your log file to become very large.



**Create a State Dump for Each Thread**

This option controls for how many threads Dr. Watson for Windows NT will dump state information. If this option is set, Dr. Watson for Windows NT logs a state dump for each thread in the application causing the error. Otherwise, Dr. Watson for Windows NT logs only the thread that caused the application error.

**Append to the Log File or Create a New Log File**

This option determines whether Dr. Watson for Windows NT appends diagnostic information to the end of the DRWTSN32.LOG log file or creates a new log file for each application error.

**Note**

- Be aware, though, that this option can cause your log file to become very large.

**Visual Notification**

This option determines whether or not Dr. Watson for Windows NT provides a message box with an **OK** button when an application error is detected. However, if you do not choose the **OK** button within 5 minutes, the box is removed.

**Sound Notification**

This option determines whether or not Dr. Watson for Windows NT plays a sound when an application error is detected. The sound played is either the .WAV file specified in the [wave file option](#) or two standard computer-generated beeps.

**Create Crash Dump File**

This option determines whether or not Dr. Watson for Windows NT creates a binary crash dump file that can later be loaded into the Windows Debugger for debugging. If you mark this checkbox you must also specify a filename for the crash dump file in the **Crash Dump** text box at the top of the dialog box.

**View**

This button displays the log-file information for the selected error.

**Clear**

This button clears all the error entries in the event log displayed in the **Application Errors** box and in Event Viewer.

**Application Errors**

This box displays all the application errors in the Dr. Watson for Windows NT event log and in Event Viewer.



**Registry**

The Registry is the Windows NT repository for system and application configuration information.

**event log**

The event log in Event Viewer is the Windows NT repository for system, security, and application event information.

**Windows directory**

The Windows directory is the directory into which Windows NT is installed.

**program counter**

The program counter is a computer register that contains the memory location for a thread's current point of execution.

## Log File Description

This topic provides a detailed description of the DRWTSN32.LOG log file that is generated when an application error occurs. The file will always start with the following line:

Application exception occurred:

That line is always followed by exception (error) information. The exception number listed corresponds to the exception generated by the system.

**Application exception occurred:** **Application that caused the error**  
App: **fault.exe (pid=141)**  
When: 6/16/1993 @ 15:24:48.15  
Exception number: **0000005 (access violation)**

### Exception or Error that happened

The next part of the log file contains system information about the user and the computer on which the application error occurred.

\*----> **System Information** <----\*  
Computer Name: WESWX86 **General System Information about**  
User Name: wesw **the computer on which the application**  
Number of Processors: 1 **error occurred.**  
Processor Type: Intel 486  
Windows Version: 3.10

This part of the log file contains the list of tasks that were running on the system at the time that the application error occurred.

\*----> **Task List** <----\*  
0 Idle.exe  
7 System.exe **Process Identifier**  
28 smss.exe  
20 csrss.exe  
13 winlogon.exe  
69 scryg.exe  
64 lsass.exe  
62 spoolss.exe  
48 EventLog.exe **Process Name**  
101 mcsmsvc.exe  
99 ubnbsvc.exe  
96 netdde.exe  
88 lmsvcs.exe  
78 clipsrv.exe  
74 MsgSvc.exe  
132 nddeagnt.exe  
126 126.exe  
105 progman.exe  
85 CLOCK.exe  
158 CMD.exe  
156 MSMAIL32.exe  
164 MAILSP32.exe  
110 WINHLP32.exe  
200 CMD.exe  
141 fault.exe  
185 drwtsn32.exe

This part of the log file contains the list of modules that the application loaded.

```

*----> Module List <----*
(00010000 - 00021000) fault.exe
(76e50000 - 76ea8000) C:\winnt\nt\system32\ntdll.dll
(77d50000 - 77da5000) C:\winnt\nt\system32\user32.dll
(77730000 - 777a0000) C:\winnt\nt\system32\kernel32.dll
(764f0000 - 76554000) C:\winnt\nt\system32\user32.dll
(77ae0000 - 77b33000) C:\winnt\nt\system32\gdi32.dll

```

Starting Address      Ending Address      Module Name

This next part of the log file contains the state dump for the thread ID that is listed. The state dump consists of a register dump, disassembly of the code surrounding the current program counter, a stack back trace, and a raw stack dump.

State Dump for Thread Id 0xbf

The following part of the log file contains the register dump portion of the state dump.

State Dump for Thread Id 0xbf

```

eax=00000000 ebx=7ffef000 ecx=00011277 edx=00152360 esi=002e00c8 edi=002e005c
eip=00011678 esp=0014eb88 ebp=0014eb94 iopl=0         nv up ei pl zr na po nc
cs=001b  ss=0023  ds=0023  es=0023  fs=0038  gs=0000             efl=00000246

```

Register Name      Register Value

This part of the log file contains the instruction disassembly portion of the state dump.

```

function: AccessViolation      Function Name
00011670 55      push    ebp      Address
00011671 8bec    mov    ebp,esp
00011673 53      push    ebx      Raw Machine Instruction
00011674 56      push    esi
00011675 57      push    edi
00011676 2bc0    sub    eax,eax
FAULT ->00011678 c70000000000    mov    dword ptr [eax],0x0    ds:00000000=????
0001167e 5f      pop    edi
0001167f 5e      pop    esi      Decoded Machine Instruction
00011680 5b      pop    ebx
00011681 c9      leave
00011682 c3      ret      Faulting Instruction

```

This part of the log file contains the stack back trace portion of the state dump.

\*----> Stack Back Trace <----\*

RetAddr	FramePtr	Param#1	Param#2	Param#3	Param#4	Function Name
00011678	0014eb94	002e005c	002e00c8	7ffef000	00000065	AccessViolation
000112cd	0014ebb0	000201e8	00000111	00000065	0048020a	MyWndProc
764f4876	0014ebb4	00000111	00000065	0048020a	764f4824	DispatchClientMessage
000201e8	0014ebec	002e00c8	002e005c	002e0000	7ffef000	<nosymbols>
76e53c0a	0014ec14	76509796	764f44f0	0014ec2c	02010001	CsrClientSendMessage
764f3d8d	0014ec1c	0014ec2c	02010001	002e0000	002e0094	CCSMakeCall
764f44f0	0014ec38	0048020a	00000202	00000000	002400d8	fnDWORD
765097ec	0014ec58	0048020a	00000202	00000000	002400d8	ButtonWndProcA
764fac68	0014ec70	76509796	0048020a	00000202	00000000	CallWindowProcAorW
764fbd6	0014ec8c	76509796	0048020a	00000202	00000000	CallWindowProcA
00011904	0014ecbc	0048020a	00000202	00000000	002400d8	ControlWndProc
764f4876	0014ecd0	0048020a	00000202	00000000	002400d8	DispatchClientMessage
764f4824	0014ec88	002e0074	002e0060	0014ed20	76e53c0a	__fnDWORD
76e53b44	0014ec18	002e0060	002e005c	002e0000	7ffef000	CsrpProcessCallbackRequest
76e53c0a	0014ed20	0014ef28	765050ec	0014ed40	0012ddfc	CsrClientSendMessage
764f3d8d	0014ed28	0014ed40	0012ddfc	013d63b5	00000000	CCSMakeCall
765050ec	0014ed4c	000201e8	0014ef0c	0012ddfc	013d63b5	IsDialogMessageA
00011246	0014ffa0	00000001	00150ba0	00151b00	0012ddfc	main
00011af8	0014fff0	7ffef000	00000000	00000052	00000100	mainCRTStartup

Return Address      Frame Pointer      First 4 Parameters

Function Name

This part of the log file contains the raw stack dump portion of the state dump.

This final part of the log file contains the symbol table.

\*----> Symbol Table <----\*

Module Name	Address	Function Name
fault.exe	00010000	_except_list
	00011000	main
	00011277	MyWndProc
	00011484	GetCommandLineArgs
	00011670	AccessViolation
	00011683	Breakpoint
	0001168f	PrivilegeFault
	0001169b	StackOverflow
	000116bc	DivideByZero
	000116db	OpcodeFault
	00011760	CreateDialogParamA
	00011766	CreateProcessA
	0001176c	DefWindowProcA
	00011772	DispatchMessageA
	00011778	GetCommandLineA
	0001177e	GetMessageA
	00011784	GetModuleHandleA
	0001178a	GetProcAddress
	00011790	GetStartupInfoA
	00011796	IsDialogMessageA
	0001179c	LoadCursorA
	000117a2	LoadIconA
	000117a8	LoadLibraryA
	000117ae	MessageBeep

## How to Set Up Dr. Watson for Windows NT

The Dr. Watson for Windows NT program (DRWTSN32.EXE) is preinstalled in your system directory, typically c:\...\system32, when Windows NT is set up. The default options are set the first time Dr. Watson for Windows NT runs, which can be either when an application error occurs or when you run it from the command prompt or in the **Run** dialog box (which can be accessed by clicking **Run** on the **Start** menu).

When an application error occurs in Windows NT, the system searches for an application-software exception (error) handler. If it does not find an exception handler, the system verifies that the application is not currently being debugged and considers the exception to be unhandled. The system then processes unhandled exceptions by looking in the Registry for an application-error debugger.

The system looks in \\HKEY\_LOCAL\_MACHINE\Software\Microsoft\Windows NT\CurrentVersion\AeDebug for the values named Debugger and Auto. The Debugger value shows the name of the debugger specified to analyze application errors. If the Debugger value is found, the system checks to see if the Auto value is set to zero or one.

If Auto is set to zero, the system generates a message box that advises you that an error has occurred in the application. If the Debugger value contains the name of a valid debugger (such as WinDbg or NTSD), the message box will have two buttons: **OK** and **Cancel**. If you choose the **OK** button, the application is terminated. If you choose the **Cancel** button, the debugger specified in the Debugger value is started. If the Debugger value is empty, the message box will have only an **OK** button and no debugger will start.

If Auto is set to one and a debugger is specified in the Debugger value, the system does not generate a message box before automatically starting the debugger.

When Windows NT is set up on your system, the Auto value is set by default to one and the Debugger value is set to DRWTSN32. This means that when an application error occurs, Dr. Watson for Windows NT will automatically diagnose the error and log the appropriate diagnostic information.

If you have been using a different application as your default debugger, and you want to use Dr. Watson instead, go to the command prompt and use the command **drwtsn32 -i** to start Dr. Watson. The **-i** switch causes the necessary changes to be made to the Registry.

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{button ,AL("A\_OPTIONS")} [Related Topics](#)



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