Hot Line

A diagnostic utility for Windows 3.1
Shareware Version 1.1

Shareware User's Manual

Introduction

With the release of Microsoft Windows™ version 3.1, Windows has become a much more stable operating environment than ever before. One reason for the improved robustness of Windows is that "Sanity Checking" is now performed on any system call that a Windows Application might make. A system call is a request by an application to Windows, asking that some action be undertaken. If the parameters included in the system call are invalid, the request is ignored, and an error report is generated. Most users never get to see these reports, however, even though this information can be very useful to a Windows user trying to track down an errant program.

The purpose of Hot Line is to keep a record of the error messages generated by Windows, that you might peruse them to your delight or dismay. With Hot Line you can determine which applications that you use might be responsible for your memory leaks or General Protection Faults. Additionally, if you are a developer, you can use Hot Line as part of the debugging process for your applications. However, like any Shareware program, use of Hot Line beyond the trial period requires paid registration to me, the author. The trial period is three (3) weeks. There are some bonuses for users who register their copies of Hot Line. Read on to find out more.

DISCLAIMER OF WARRANTIES

HEATH HUNNICUTT DOES NOT WARRANT ANY PART OF THIS SOFTWARE OR MANUAL TO BE FREE FROM DEFECTS, FIT FOR ANY PARTICULAR PURPOSE, MERCHANTABLE, OR USEABLE. ANY DAMAGE OR LOSS RESULTING FROM THE USE OF MONITOR, WHETHER INTENTIONAL, ACCIDENTAL, CONSEQUENTIAL, SUBSEQUENTIAL, INCLUDING, BUT NOT LIMITED TO, LOSS OF INFORMATION, STOPAGE OF WORK, LOSS OF INCOME, DAMAGE TO PROPERTY, IS THE FAULT AND RESPONSIBILITY OF THE USER, WHO ASSUMES ALL LIABILITY FOR THE USE OF THIS PRODUCT.

IN NO EVENT SHALL HEATH HUNNICUTT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM THE USE OF THIS "UNREGISTERED" PRODUCT. IN NO EVENT SHALL HEATH HUNNICUTT BE FOUND LIABLE IN EXCESS OF $25.00 FOR DAMAGES RESULTING FROM USE OF THE REGISTERED VERSION OF THIS PRODUCT.

USE OF THIS SOFTWARE CONSTITUTES ACCEPTANCE OF THE TERMS OF THIS DISCLAIMER OF WARRANTIES.

How To Use Hot Line

The shareware version of Hot Line comes in one ZIP file, which contains the program and documentation. To install Hot Line on your computer, simply put all of the files into a directory of your choosing.

You will probably want to put the Hot Line icon in your StartUp group (after you register, of course...). If you don't know how to put it there, you probably shouldn't be using Hot Line. Remember to check the "Run Minimized" box under **File|Properties** in the Program Manager.

When Hot Line is running as an icon, it will usually display a red phone. If there are any error reports in the Hot Line window, the phone will begin flashing between green and red. When this happens, restore the Hot Line window and read about the latest error report. When you minimize Hot Line again, it will stop flashing until the next batch of new error reports arrives. You can also stop Hot Line from flashing when it is an icon by selecting "Stop Flashing" from the system menu.

Hot Line can be configured by using the **Options** menu selection. A dialog box will appear, with 2 major groups of selections. The group on the left is the **Record and Display** group. Any type of error that is selected here will be recorded by Hot Line, if it occurs. If you do not mark a particular type of error for recording, Hot Line will just ignore them if they occur. The group of selections on the right is the **Flash For** group. This group controls which error messages Hot Line will flash for. If you have selected a type of error message in **Record and Display**, you have the option of selecting it under **Flash For**. If a type of error message is disabled under **Record and Display**, the corresponding entry under **Flash For** will be disabled.

The information "Logged x of y Errors," which appears when the Hot Line window is restored or maximized, indicates that at least y internal errors have occurred, and Hot Line is able to display information regarding x of them. Usually, x and y will be equal. However, because of the way Windows' error notification system works, Hot Line has to temporarily buffer the error info before adding it to the display. If something is really going nuts under Windows, there may be too many errors for Hot Line to buffer, and some will be lost, causing x to be less than y. However, Hot Line's error buffer can hold up to 100 error reports, so if it can't keep up, you know that something has gone very wrong in one of your applications!

Also, you can select the **File|Clear** menu option to erase all the current error reports, thereby freeing up some memory, and uncluttering the Hot Line display. If you clear the error log, x will be reset to zero.

Each line in the Hot Line display indicates a logged error or user entry.

Black entries (which begin with "User Log:") are entered by you, the user, via the **Log|Add Entry** menu selection.

Green entries (which begin with "Warning:") indicate unexpected conditions which well-written applications should be able to handle. An example is when Windows is running low on memory and is not able to satisfy a request for more storage. Most commercial software packages properly handle these situations.

Yellow entries (which begin with "Parameters:") result from truly inapproprriate application behavior. While a well handled green "Warning" may be no trouble at all, yellow "Parameters" are usually a sign that all is not well with the offending program.

Purple entries (which begin with "Debug Output:") result from an application attempting to use a debugging terminal. A debugging terminal is a peice of special equipment used by some programmers while developing Windows programs. Programs that have been released to the public should not attempt to use debugging output. If a program tries to send output to a debugging terminal when one is not installed, the result will be a "System Error: Cannot write to device AUX:" message from Windows. Often, this type of error will lock Windows up, requiring a reboot. To avoid system crashes, select "Stop debugger output" under the **Options** menu.

For example, I have on my system a particular game (I'll call it 'THEGAME', to avoid any legal repurcusions.) that generates the message:

Parameters: THEGAME   Bad window handle (USER.RELEASEDC)

After each time this game is run, I have also noticed that System Resources as reported by Program Manager's **Help|About** dialog box decrease <u>permanently</u> by about 6%! After running the game 15 times, there is really nothing left to do but reboot. Without Hot Line, I probably wouldn't have pinned the blame on THEGAME for quite awhile. Of course, the programmer of THEGAME could have used Hot Line to track down this problem...

Whether a green "Warning" or yellow "Parameters" report has been logged, the word following the colon indicates the currently running program which caused the error report. In the example given above, this would be "THEGAME." An error message is given, such as "Bad window handle." Finally, the function that the program was trying to call is listed in parentheses. e.g., "(USER.RELEASEDC)" Sometimes things change too quickly when an error report comes in, and Hot Line may display a message such as "(Module segment not found.)" This indicates that Hot Line was unable to determine the function being called.

To summarize the example, then, a programmer could tell that THEGAME has passed an invalid or NULL window handle to ReleaseDC, thereby reducing the amount of free space on the GDI local heap. If THEGAME programmer had known this, he could have fixed it quite easily. A normal Windows user would not even need to have any programming knoweledge to recognize that the probable reason that System Resources kept dropping permanently is somehow related to THEGAME.

Technical Stuff

Hot Line uses the NotfiyRegister function to listen in to all the good stuff that it reports. Registration is called with the NF_NORMAL | NF_RIP flags. The callback function returns false, so that Dr. Watson™ or whatever will also receive the error reports, thinking that Hot Line didn't notice them. Hot Line does not allocate global memory at notification time. Hot Line does allocate global memory within WndProc.

Hot Line suspends operation under the following circumstances:
- Any call to GlobalAlloc(), GlobalLock(), or GlobalUnlock() causes "unexpected" results.
- Hot Line receives the WM_COMPACTING message.
- Hot Line itself generates an application error.
- There are more than 500 unread error messages or 3000 messages total.

When suspended, Hot Line will display the window title: "Hot Line: Shut down by System Trouble!"
To unsuspend Hot Line, first minimize, then restore it.

Hot Line automatically erases all error reports, and frees as much memory as possible when:
- Hot Line receives the WM_COMPACTING message, and it is already suspended due to a low memory condition.

Only a single instance of Hot Line may be running at any time.

Hot Line requires TOOLHELP.DLL and Windows version 3.1. TOOLHELP.DLL is included with Windows ver 3.1, and should be in your \WINDOWS\SYSTEM directory.

Trying it Out

The best way to see Hot Line in action is to run some of your lowest quality Windows applications and see the errors roll in. If you are lucky enough to have an error-free collection of programs, I have included a program called ERRORS.EXE which explicitly does things that should trigger error reports in Hot Line. If Hot Line does not report any problems with ERRORS.EXE, please drop me a line describing your system setup so that I can fine-tune Hot Line.

Contacing Me

Until Sept 20, write me at the ordering address given in the ordering section below. After Sept 25, 1992, my address will be:

> Heath I Hunnicutt
> 1-55 Caltech
> Pasadena, CA 91125

Call me at this phone number:

> (219) 375-3395.

Some family member there can give you my new phone number if I'm off at school.

Internet e-mail me at:

> heathh@cco.caltech.edu, heathh@tybalt.cco.caltech.edu,
> hihunn@ugcs.caltech.edu, hihunn@through.ugcs.caltech.edu.

Those are listed in order of DECREASING preference. Please try the heathh account first.

During the summer, e-mail will be checked only weekly. During the school year, it will be checked at 6-hour intervals.

From CompuServe, you can **try** to reach me at this address:
INTERNET: heathh@cco.caltech.edu.

Future Enhancements

I am currently working on the next version of Hot Line as you read this, and here are some of the features I plan to add in the future. Some of these features depend on how many registrations I receive. Don't see something you would like in the program? Send me a suggestion and I will try to put it in.

- The ability to "screen out" common errors.
- Time and date stamps on all the error messages.
- A way to "inspect" the error messages and see more info.
- On-line help via Windows Help.

Improvements in Version 1.1

The following changes have occured since version 1.0 was released.

- Meaningless hexadecimal digits are magically transmorgified into readable English function names like "ReleaseDC"
- The ability to manually add a comment to the error log has been added.
- It is now possible to control when Hot Line will begin flashing.
- The user can now clear the Hot Line display of all error messages.

The Registered Version of Hot Line

Hot Line is a Shareware program. This means that it is **not** free. You are allowed three (3) weeks to evaluate Hot Line to see if it meets your needs. If you continue to use the program after this evaluation period, you are must purchase a registered copy by sending the registration fee indicated below.

Registration offers a number of benefits. First, and foremost, it allows me to continue to support the program with additions, corrections, and enhancements. Without revenue from registration, the program will not evolve and become more useful. If you would like to see the program grow, your support in the form of registration will help.

The registered version of Hot Line (v1.0 or later) you will receive adds features to the shareware version. First, you will be entitled to free upgrades through version 2.0. In addition, the registered version records the time and date that each error message was recorded.

Additionally, registered users will receive copies of system utilities that are not available for download anywhere.

One utility displays **every** task that is currently running on your system, and allows you to "kill" it. Sound like a Task Manager™ clone? Think again -- Task Manager only lists those applications that display a Window. So if you run a program (like many screen savers, practical joke programs, and desktop menu utilities) that does not actually open a window, Windows won't let you shut it down. Furthermore, Task Manager merely "asks" applications to "please" exit. The included bonus utility <u>tells</u> them to terminate immediately.

A second utility, which is primarily intended for programmers, displays how much of an application's code is loaded in memory, and which segments in particular are being used.

Other utilities will be included as they become available, and when registered users receive upgrade diskettes, they will receive the latest set of utilities.

None of the utilities mentioned above are available without a prepaid, registered version of Hot Line.

Along with the registered version of Hot Line and utilities on disk you also get a notification of future updates. All of this is along with my eternal gratitude. To register the program, send $25.00 (IN residents add sales tax), along with your name, address, and phone number. Use the order form at the end of this document. Please send all registrations/comments/suggestions to:

Heath I Hunnicutt
re: Hot Line
4700 E 900 S
Warren, IN 46792

If you'd like, call first at (219) 375-3395 to get my latest address. I'll get your mail whether you do this or not, but it might be quicker for you to send it to me at school, if that is appropriate at the time.

Do not attempt to contact me through Public (software) Library.
PsL is only equipped to take your credit card order, and does not provide technical support, or any other sort of informational service.

THot Line Ordering Information

REGISTERED VERSION PRICING

Single User Registration $25 per copy

ORDERING INFORMATION

You can order from Public (software) Library with your Visa™, MasterCard™, American Express™, or Discover™ card by calling 800-242-4PsL (from overseas: 713-524-6394) or by FAX to 713-294-6398 or by CompuServe to 71355,430.

THESE NUMBERS ARE FOR ORDERING ONLY.

Heath Hunnicutt (that's me, the author) can **NOT** be reached at those numbers. To contact me for information about dealer pricing, volume discounts, site licensing, the status of shipment of the product, the latest version number or for technical information, or to discuss returns, call (219) 375-3395, or write to me at the address given below.

If you prefer to send a check or money order, please mail your order to:

Heath I Hunnicutt
re: Hot Line
4700 E 900 S
Warren, IN 46792

Name...

Company...

Address...

....

City.............................. State........ Zip.............

_____ copies at $25/copy....   _____
Shipping & Handling..............   _____
(US: $4.00, Europe: $8.00,
  Asia & Australia: $11.00)

Disk size: ___ 5-1/4" ___ 3-1/2"   TOTAL   _____

PAYMENT

_____ Personal Check _____ Company Check _____ Money Order
I cannot accept credit card orders. To order by credit card, see the instructions above.

International users: Payments must be made in US funds drawn against a US bank; or by Postal Money Orders.

Optional: In the **Help|About** dialog box, there is a 4-digit number in the lower right corner. What is the number on your unregistered copy of Hot Line? _____

Bug Report/Feature Suggestion

Please use this form to describe any problems that you may encounter with Hot Line, and also to suggest any features and enhancements that you would like to see incorporated into the program.

Problem: Hot Line Version:.........

....

....

....

....

System Configuration:

CPU Type.............   Memory ....K

Display.................   Resolution...........

Mode (Standard, Enhanced)...................................

Feature Suggestions..

....

....

....
===

Name...

Company...

Address..

....

City................................ State...... Zip............

Phone Number...

Mail to: **Heath I Hunnicutt**
                 re: Hot Line
                 4700 E 900 S
                 Warren, IN 46792

Do not attempt to contact me through Public (software) Library.
PsL is only equipped to take your credit card order, and does not provide technical
support, or any other sort of informational service.