All Tech Notes, Tech Alerts and KBCD documents and software are provided "as is" without warranty of any kind. See the Terms of Use for more information.

Topic#: 002501 Created: October 2010 Updated: April 2012

Introduction

Use the Debug Diagnostic Tool (DebugDiag) for troubleshooting issues such as hangs, slow performance, memory leaks or fragmentation, and crashes in any user-mode process. The tool includes additional debugging scripts for Internet Information Services (IIS) applications, web data access components, COM+ and related Microsoft technologies.

Note: This application supports 32-bit (x86) systems. For 64-bit procedure, see Tech Note 793 Capturing a Memory Dump File Using the Microsoft® Debug Diagnostic Tool (64bit).

This Tech Note provides instruction for creating a Memory Dump for a designated issue type.

Application Versions

• DebugDiag 1.2 (x86)

Generating Memory Dumps

To use **DebugDiag** effectively, you need to first identify what kind of issue you are troubleshooting (e.g. a crash, hang, slow performance, or memory and handle usage). This step will aid in configuring the tool appropriately to get the right data, then to identify the root cause of the problem in order to resolve it

Preparing the Environment

1. Download the DebugDiag.msi file. Do not download the x64 version. For this Tech Note, we use DebugDiag.msi (1.2).

Duick det	ails	
Quick det	GIIS	
Version: Language:	1.2 English	Date published: 7/14/2011
iles in this de	ownload	
he links in this sect	ion correspond to files a	vailable for this download. Download the files appropriate for you
he links in this sect	ion correspond to files a	vailable for this download. Download the files appropriate for you.
he links in this sect File name DebugDiagx64.msi	ion correspond to files a	vailable for this download. Download the files appropriate for you. Size DOWNLOAD

FIGURE 1: MICROSOFT DEBUG DIAGNOSTIC TOOL DOWNLOAD (11.7 MB)

- 2. After it's downloaded, double-click the .msi file and install the Debug Diagnostic tool.
- 3. Open DebugDiag 1.2 (x86) from the Start menu.
- 4. When the Select Rule Type window appears, click the Crash or IIS Hang option as appropriate, then click Next (Figure 2 below).



FIGURE 2: SELECT RULE TYPE

5. In the Select Target Type window click the A specific process option, then click Next (Figure 3 below).



FIGURE 3: SELECT TARGET TYPE

- 6. Sort the target list by **Process Name** and find the process you need to troubleshoot. Click a process in the list to highlight it (Figure 4 below).
- 7. Make sure that the This process instance only option is NOT checked, then click Next.

Note: For this example, view.exe was crashing. However, the DebugDiag tool can be used for any process.

Se	elect Target				×
Γ	Select a process				
L.	Process Name	Process ID	32-Bit	Session ID	Process Ide 🔺
L	YahooAUService	2220	Yes	0	NT AUTHC =
L.	WmiPrvSE.exe	3868	Yes	0	NT AUTHC
i .	WmiPrvSE.exe	4524	Yes	0	NT AUTHC
Ŀ	wlcomm.exe	5888	Yes	1	CORP\BIN
Ŀ	WINWORD.EXE	7120	Yes	1	CORP\BIN
	winlogon.exe	496	Yes	1	NT AUTHC
	wininit.exe	404	Yes	0	NT AUTHC
	VsTskMgr.exe	2008	Yes	0	NT AUTHC
	vpc.exe	4892	Yes	1	CORP\BIN
	VMWindow.exe	4852	Yes	1	CORP\BIN
	view.exe	3884	Yes	1	CORP\BIN
Ŀ	V CAST Backup	2960	Yes	1	CORP\BIN +
Ŀ	۰ III				4
	Selected Process	view.exe			
	This process insta	, ince only			
		< <u>B</u> ack	<u>N</u> ext >	Cancel	Help

FIGURE 4: SELECT A TARGET PROCESS

8. Advanced Configuration is optional, so if you do not need it click **Next** without configuring anything (Figure 5 below).

Advanced Configuration (Optional)				
Explanation Optional configuration for exceptions, breakpoints and maximum userdump limit.				
Unconfigured First Chance Exceptions				
Action type for unconfigured first chance exceptions:				
Action limit for unconfigured first chance exceptions: 0				
Maximum Userdump Limit				
This setting is used to limit the number of userdumps created by this rule.				
Maximum number of userdumps created by this rule: 10				
Advanced Settings				
Exceptions Breakpoints Events PageHeap Flags				
< <u>B</u> ack <u>N</u> ext > Cancel Help				

FIGURE 5: Advanced Configuration (Optional)

Optional Configuration Details

The following settings are optional but provide an extra level of control for configuring your dump file. For this example, you can set a few breakpoints from the **Advanced Configuration** dialog box.

If you want to skip Advanced Configuration details, go to Step 11 below.

- 1. Click **Exceptions** (Figure 5 above). The **Exception Configuration** window appears (Figure 6 below).
- 2. Click Add Exception (Figure 6 below).

Fi	rst Chance Exceptio	on Configuration		×
	Exception Code	Exception Name	Action Type	Action Limit
	Add Exception	Edit Exception, . ,	<u>R</u> emove Exception	Save & Close

FIGURE 6: FIRST CHANCE EXCEPTION CONFIGURATION

- 3. For this example, select the exception code COOO0005 Access Violation.
- 4. Keep the Action Type set to Log Stack Trace and change the Action Limit to 0. This setting indicates no limit on the number of callstacks to output to the log file whenever there is an access violation within the process.

C	onfigure Exception	- and the second			x
	Select a common exc exception name	eption from the list or type	in th	e exception code and an optional	
	Exception Code	Exception Name	*	Exception Code (hex)	
	E0434352	CLR (.NET) 4.0 Exceptior		C0000005	
1.	E0434F4D	CLR (.NET) 1.0 - 3.5 Exc		1	_
	80000002	Datatype Misalignment		Optional Exception Name	
	80000003	Breakpoint Exception		Access Violation	
	C0000005	Access Violation			
	C0000006	In Page Error			
	C0000017	Not Enough Qouta	=		
	C000001D	Illegal Instruction			
	C000008C	Array Bounds Exceeded			
	C00008D	Floating-Point Denormal			
	C000008E	Floating-Point Division By			
	C00008F	Visual Basic / Floating-Po		Action Type	
	C0000090	Floating-Point Invalid Op		Les Stady Trace	
	C0000091	Floating-Point Over now		Log Stack Trace	
	C0000093	Floating-Point Underflow		Action Limit	
	C0000094	Integer Division By Zero			
	C0000095	Integer Overflow		I	° ⊡
	C0000096	Privileged Instruction	÷		
	4			OK Cancel	
			_		

FIGURE 7: SELECT AN EXCEPTION

5. Click **OK**. The Exception Code appears in the Configuration panel.

Fi	rst Chance Exceptio	n Configuration		×
	Exception Code C0000005	Exception Name Access Violation	Action Type Log Stack Trace	Action Limit 0
	Add Exception	Edit Exception	Remove Exception	Save & Close

FIGURE 8: EXCEPTION CODE PANEL

- 6. Click Save & Close.
- 7. Click the **Breakpoints** button near the bottom of the dialog box (Figure 5 above). The **Configure Breakpoint** dialog box appears.
- 8. Click Add Breakpoint (Figure 9 below).

C	onfigure Breakpoints						×
	Breakpoint Expression		Actio	n Type	Action Limi	t	
L							
L							
L							
L							
	J1		- 1				
L	Add Breakpoint	Edit Breakpoint		Remove Brea	akpoint	<u>S</u> ave &	Close

FIGURE 9: CONFIGURE BREAKPOINTS DIALOG BOX

For example, if you select **mscorwks!AppDomain::OnUnhandledException** in the list, then select **Full Userdump** from the **Action Type** list and set an Action Limit of **1** (Figure 10 below).

0		
Unset Expression		Is Managed?
Ntal!/2w1erminateProcess ComSycs1ComSycsExceptionEilter		No
mscorwks!AppDomain::OnUnhandledEx	ception	No
mscorlib.dll!System.Threading.Thread.S	tart	Yes
System,Web.dll!System,Web.HttpAppli	cation.RaiseOnError	Yes
reakpoint Expression mscorwks!AppDomain::OnUnhandledEx	ception	
reakpoint Expression mscorwks!AppDomain::OnUnhandledEx This is a managed (.NET) breakpoint	ception	
reakpoint Expression mscorwks!AppDomain::OnUnhandledEx This is a managed (.NET) breakpoint	ception	
reakpoint Expression mscorwks!AppDomain::OnUnhandledEx This is a managed (.NET) breakpoint tion ction Type	ception Action Limit	
reakpoint Expression mscorwks!AppDomain::OnUnhandledEx This is a managed (.NET) breakpoint tion ction Type	ception Action Limit	

FIGURE 10: CONFIGURE BREAKPOINT

9. Click **OK**. The entry appears in the **Breakpoint Expression** panel (Figure 11 below).

Co	onfigure Breakpoints	-		×
Γ		1		
	Breakpoint Expression	Action Type	Action Limit	
	mscorwks!AppDomain::OnUnhandled	Create Full Use	1	
1.1				
1.1				
1.1	Add Prophosipt	Bomous Pro	akapaiat Caus	. Class
		Kentove bre		actiose

FIGURE 11: BREAKPOINT EXPRESSION

- 10. Click Save & Close.
- 11. On the Advanced Configuration dialog box click Next. (Figure 5 above).
- 12. Set the path for the dump file (Figure 12 below).

Select Dump Location And Rule Name (Optional)
Rule Name
Crash rule for all instances of view.exe
Userdump Location
C:\Program Files\DebugDiag\Logs\Crash rule for all instances of view.exe
< <u>B</u> ack <u>N</u> ext > Cancel Help

FIGURE 12: SET THE DUMP FILE PATH

14. Click Next, then click Activate the Rule and Finish (Figure 13 below).



FIGURE 13: ACTIVATE THE RULE AND FINISH CONFIGURATION

You now have attached DebugDiag to the process. If there are any access violations in this process you get a callstack of that failure in the log file that is created in that event. If the process shuts down for any reason you will get a full user dump of that process.

You can close the DebugDiag window since the debugger uses a service to help with the debugging. When you open DebugDiag again it displays a list of rules that are running and how many dumps it has collected thus far.

Review the Help Files for the DebugDiag Tool. They are very helpful and include lots of screenshots to illustrate. The help file is installed at: C:\Program Files\DebugDiag\DebugDiag.chm.

B. Shah

Tech Notes are published occasionally by Wonderware Technical Support. Publisher: Invensys Systems, Inc., 26561 Rancho Parkway South, Lake Forest, CA 92630. There is also technical information on our software products at Wonderware Technical Support.

For technical support questions, send an e-mail to support@wonderware.com.

Back to top

©2012 Invensys Systems, Inc. All rights reserved. No part of the material protected by this copyright may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, broadcasting, or by anyinformation storage and retrieval system, without permission in writing from Invensys Systems, Inc. Terms of Use.