How do you install the User Mode Process Dumper for diagnostics with WinCC and PCS 7?

User Mode Process Dumper

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Question

How do you install the User Mode Process Dumper for diagnostics with WinCC and PCS 7?

Answer

Follow the instructions and notes listed in this document for a detailed answer to the above question.

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1 Installing and Using the "User Mode Process Dumper"

 WARNING
 When you proceed as described below, there might be situations where performance is impaired as listed below:

 • Loss of performance
 • Loss of performance

 • Extremely high use of memory
 • Change of system timing

 • Inoperability of the plant
 The procedures should only be executed if recommended by the service staff.

1.1 Manual Starting of the "User Mode Process Dumper"

Table 1-1

No.			Procedure	e		
1.	Download the User Mode unpack the files in a new of	Process directory.	Dumper Version	<u>8.1</u> from the	e Microsoft	Internet site and
2.	Determine the Process ID Manager. (This is "script.e	(PID) of exe" in the	the process to be e example.)	e examined	in the Wind	dows Task
	📕 Windows Task Mana	ger				
	File Options View Hel					
		1				-
	Applications Processes	Perform	ance Networking	1		r
	Image Name	PID	User Name	CPU	Mem 🔺	
	sleventlogx.exe	700	SYSTEM	00	8	
	sldm_x.exe	604	SYSTEM	00	3	
	sidatabasehandle	2980	Administrator	00	4	
	simnetpnpman.exe	1080	SYSTEM	00	4	
	sim9sync.exe	584	SYSTEM	00	3	
	services.exe	776	SYSTEM	00	4	
	SDiagRT.exe	4112	Administrator	00	7	
	SCSMX.exe	460	SYSTEM	00	4	
	script.exe	4196	Administrator	00	10	
	scores7.exe	3972	SYSTEM	00	10	
	scorecfg.exe	964	SYSTEM	00	11	
	s7wnsmsx.exe	2064	SYSTEM	00	20	
	s7wnsmgx.exe	2876	Administrator	00	5	
	s7wnrmsx.exe	1224	SYSTEM	00	5	
	S/ub1stx.exe	2852	Administrator	00	3	
	S/TraceServiceX	388	SYSTEM	00	16	
	s/oiehsx.exe	320	SYSTEM	00	12	
	s/asysvx.exe	300	SYSTEM	00	2	
	Show processes fro	om all user	s	End Pro	icess	
	Processes: 77 CPU Us	age: 0%	Commit Ch	arge: 551M /	2445M	1.

No.	Procedure
	Note You can also use the process name instead of the Process ID.
3.	Under "Start > Run" you enter the "cmd" command to open a DOS box (command line interpreter).
	Run ? × Image: Type the name of a program, folder, document, or Internet resource, and Windows will open it for you. Open: Cmd OK Cancel Browse
4.	In the DOS box you select the path in which you have unpacked the files of the User Mode Process Dumper. Select the relevant folder for your operating system (ia64, x64 or x86) in which "userdump.exe" is located. Note After downloading the tool "User Mode Process Dumper Version 8.1" from the Microsoft web site and extracting all files from archive to a separate folder, you will find in this folder the file "ReadMe.htm". In this file is explained, from which folder (ia64, x64 or x86) you have to open the "userdump.exe" file, in condition to your operating system. C:\WINDUWS\system32\cmd.exe Microsoft Windows XP [Uersion 5.1.26001 (C: Copyright 1985-2001 Microsoft Corp. C:\Documents and Settings\Administrator>d: D:\\cd userdump\userdump\x86>

No.	Procedure
5.	Now use the "userdump 5420" command (see screenshot) to start "userdump.exe" specifying the Process ID of the process to be examined.
	🖾 C:\WINDOW5\system32\cmd.exe
	Microsoft Windows XP [Version 5.1.2600] (C) Copyright 1985-2001 Microsoft Corp.
	C:\Documents and Settings\Administrator>d:
	D:\>cd userdump\userdump\x86
	D:\Userdump\Userdump\x86\userdump 5420 User Mode Process Dumper \version 8.1.2929.5> Copyright (c> Microsoft Corp. All rights reserved. Dumping process 5420 (script.exe) to D:\Userdump\Userdump\x86\script.dmp The process was dumped successfully. D:\Userdump\Userdump\x86>_
6.	The dump file generated was saved in the same directory in which you unpacked the files of the User Mode Process Dumper.

1.2 Installing the "User Mode Process Dumper" for Automatic Monitoring

No.	Procedure
1.	Download the <u>User Mode Process Dumper Version 8.1</u> from the Microsoft Internet site and unpack the files in a new directory.
2.	Start the "setup.exe" of the User Mode Process Dumper from the folder corresponding to your operating system (ia64, x64 or x86). Click the "Next" button in the following window.
	Note After downloading the tool "User Mode Process Dumper Version 8.1" from the Microsoft web site and extracting all files from archive to a separate folder, you will find in this folder the file "ReadMe.htm". In this file is explained, from wich folder (ia64, x64 or x86) you have to open the "userdump.exe" file, in condition to your operating system.
	Welcome X
	Welcome to Setup for User Mode Process Dumper. Please select an action from the choices below.
	 Install (or upgrade) User Mode Process Dumper on this computer;
	C Bemove User Mode Process Dumper from this computer.
	Note: upgrading or removing User Mode Process Dumper may require your computer to be restarted for the changes to take effect.
	< <u>Back</u> <u>Next</u> Cancel

No.	Procedure
3.	In the "Terminate Mode" you select the "Disable "Dump on Process Termination" feature" option and click the "Next" button.
	Terminate Mode
	Please choose if you enable Exception Monitoring's "Dump on Process Termination" feature or not.
	C Enable "Dump on Process Termination" feature.
	Disable "Dump on Process Termination" feature.
	Note: If you enable this feature, userdump.sys hooks into the system's TerminateProcess function at boot time. You need to read the spec document carefully before you plan to use this feature. If you dont' understand this feature, please select "Disable".
	< <u>Back</u> <u>N</u> ext > Cancel
4.	Now, in the "Confirmation" window you click the "Finish" button to complete the installation.
	Confirmation X User Mode Process Dumper will now be installed. After Setup has completed successfully, you can configure the operation of User Mode Process Dump via the Process Dump Applet in the Control Panel. Click Finish to continue, or Back to return to the previous page to select a different action.
5.	Acknowledge the next message with "Yes" to open the configuration of the User Mode Process Dumper.
	User Mode Process Dumper Setup User Mode Process Dumper was installed successfully. You can use the Process Dumper applet in Control Panel to configure User Mode Process Dumper. Would you like Setup to take you there now? Yes No

No.	Procedure			
6.	In the "User Mode Process Dumper Properties" window you add a new entry via the "New" button.			
	User Mode Process Dumper Properties			
	Process Monitoring Hot Keys			
	This list shows applications to be monitored for exceptions and terminations.			
	Application to M., Custom R., Directory to Bugc., Kernel32.dll Terminate Kill			
	<u>N</u> ew <u>Bules</u> <u>B</u> emove <u>D</u> efault Settings			
	OK Cancel Apply			
7.	In the "Add Application to Monitor for Excepti" window you enter the name of the application that you wish to monitor in the "Application name:" field. Close the window with "OK".			
	Add Application to Monitor for Excepti X Application name: script.exe			
	OK Cancel			

No.	Procedure
8.	Now click the "Rules" button in the "User Mode Process Dumper Properties" window (see figure in Step 6) and in the "Process Monitoring Rules for script.exe" window you select the rules as illustrated in the screenshot below. Select the "Save Mode" according to your requirements. ("Overwrite" overwrites the generated file each time and with the "Cyclic saving (5 times)" option the first file is overwritten after five files.
	In the field "Exception Monitor select "Access Violations" only. Close the window with "OK".
	Process Monitoring Rules for script.exe
	C Use default rules
	• Use custom rules
	Exception Codes All Exceptions
	Access violation (c0000005) Datatype misalignment (80000002) Breakpoint (80000003) Single step (80000004) Array bounds exceeded (c000008c) Denormal operand (c000008d) Divide by zero (c000008e)
	Select <u>All</u> <u>Clear All</u> <u>Add</u> □ Bugcheck after dumping ☑ Ignore exceptions that occur inside Kernel32.dll □ Kill process after dumping MiniDump Type : ○ Complete C Small Save Mode ○ Overwrite ○ Cyclic saving(5 times)
	Exit Monitor
	MiniDump Type : C Complete C Small C None
	Switch the Dumper Switch the Dumper to 100000
	OK Cancel
	Note: You must restart the process concerned for the settings to become effective. In the case of "script.exe" you simply have to restart WinCC Runtime. If a dump is triggered, a small window is displayed temporarily in the top left-hand corner like this:
	Dumping process 331 (SCRIPT.EXE) to C:\siemens\wincc\diagnose\SCRIPT149.dmp

No.	Procedure
9.	To disable the monitoring of a process you open the "User Mode Process Dumper Properties" dialog via
	Start > Settings > Control Panel > Process Dumper.
	User Mode Process Dumper Properties
	Process Monitoring Hot Keys
	This list shows applications to be monitored for exceptions and terminations.
	Application to M Custom R Directory to Bugc Kernel32.dll Terminate Kill
	New Rules <u>R</u> emove <u>D</u> efault Settings
	OK Cancel Apply

1.3 Installing the "User Mode Process Dumper" with Hotkey

Table	1-3
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No.	Procedure	
1.	Carry out Steps 1 to 5 in Table 1-2 to install the User Mode Process Dumper and open the "User Mode Process Dumper Properties" window.	
	User Mode Process Dumper Properties	5
	Process Monitoring Hot Keys	
	This jist shows applications to be monitored for exceptions and terminations.	
	Application to M., Custom R., Directory to Bugc., Kernel32.dll., Terminate Kill	
	New Rules <u>B</u> emove <u>D</u> efault Settings	
	OK Cancel Apply	İ
	If you have already installed the User Mode Process Dumper, you can open the "User Mode Process Dumper Properties" window via "Start > Settings > Control Panel > Process Dumper".	_

No.	Procedure
2.	Switch to the "Hot Keys" tab and click the "New" button.
	User Mode Process Dumper Properties
	Process Monitoring Hot Keys
	This list shows associations between applications and hot keys.
	Hot Key Applications to Dump Directory to Dump All or Hang Kill Bugcheck
	New Edit
	OK Cancel Apply
2	
з.	For this you select a number or letter from the drop-down box ("1" in the example).
	Furthermore, you can specify the storage path and application name. (This is "script.exe" in the example.)
	Add New Hotkey
	Keystroke: 1
	Eolder where dump files should be placed: Files\Siemens\WinCC\diagnose Browse
	C Duran all Min22 processes (including acres eve)
	C Dump Win32 GUI applications that appear bung
	Specify target applications
	Application names:
	Scilptexe
	🗖 Kjil processes after dumping
	E Bugcheck after dumping
	OK Cancel

No.	Procedure
4.	Once you have installed the hotkey in this way, you can call creation of the dump using the key combination below.
	Press and hold Ctrl+Alt+Shift and enter the letters D U M P one after the other.
	Now release all the keys and click the hotkey just configured (Keystroke "1" in the example); the creation of the dump is started automatically.
	The dump is now in the path previously set.

1.4 Uninstalling the "User Mode Process Dumper"

Background for uninstalling the User Mode Process Dumper: As long as the tool in installed, the "Dr. Watson" is no longer triggered. You must uninstall the User Mode Process Dumper in order to restore the "Dr. Watson" tool.

Table 1-4

No.	Procedure
1.	Start the "setup.exe" of the User Mode Process Dumper again from the folder corresponding to your operating system (ia64, x64 or x86).
	Note After downloading the tool "User Mode Process Dumper Version 8.1" from the Microsoft web site and extracting all files from archive to a separate folder, you will find in this folder the file "ReadMe.htm". In this file is explained, from wich folder (ia64, x64 or x86) you have to open the "userdump.exe" file, in condition to your operating system.
2.	In the window that opens you select the "Remove User Mode Process Dumper from this computer" option.
	Welcome X Welcome to Setup for User Mode Process Dumper. Please select an action from the choices below. Install (or upgrade) User Mode Process Dumper on this computer. Image: Install (or upgrade) User Mode Process Dumper from this computer. Image: I

No.	Procedure
3.	Now, in the "Confirmation" window you click the "Finish" button to complete the uninstallation.
	Confirmation
	User Mode Process Dumper will now be removed from this computer.
	Click Finish to continue, or Back to return to the previous page to select a different action.
	< <u>Back</u> Cancel
4.	Upon completion of the uninstallation you acknowledge the next message with "Yes" to restart the computer.
	User Mode Process Dumper Setup Image: Setup must restart Windows to complete the removal of User Mode Process Dumper. Should Setup restart Windows now? Image: Yes
5.	Enter the command "drwtsn32 -i" in a DOS box just to make sure that the "Dr. Watson" tool is
	C:\WINDOWS\system32\cmd.exe Microsoft Windows XP [Uersion 5.1.2600] (C) Copyright 1985-2001 Microsoft Corp. C:\Documents and Settings\Administrator>drwtsn32 -i

No.	Procedure	,
6.	You get the message below to confirm that the "Dr. V the default application debugger.	Vatson" tool has been installed again as
	Dr. Watson Dr. Watson has been installed as the default OK	application debugger

2 Enabling and Using the "gflags" Tool

WARNING	When you proceed as described below, there might be situations whe performance is impaired as listed below:	
	Loss of performance	
	Extremely high use of memory	
	Change of system timing	
	Inoperability of the plant	
	The procedures should only be executed if recommended by the service staff.	

General

This option writes additional information in the user dump. (This enables and configures "PageHeaps" in the operating system.)

This information might be useful if you have memory swell or memory overflows on your system.

2.1 Enabling the "gflags" Tool

The Microsoft Support Tools must be installed in order to be able to use the "Global Flags Editor" (gflags.exe) utility. These are located in the "\Support\Tools" folder on your Windows CD.

Table 2-1

No.	Procedure
1.	Run the "Setup.exe" in the "\Support\Tools" folder and select "Complete" as the installation type.
	🖟 Windows Support Tools Setup Wizard
	Select An Installation Type
	You can choose to install all of the Windows Support Tools, or just a portion.
	Please select an installation type. Typical installation meets the needs of most users. Complete installation adds tools for server and network management.
	C Typical
	Complete
	Description Recommended if you are a server or network administrator.
	< Back Next > Cancel
2.	Under "Start > Run" you enter the "cmd" command to open a DOS box (command line interpreter).
	Run ? × Image: Type the name of a program, folder, document, or Internet resource, and Windows will open it for you. Open: Cmd OK Cancel Browse
3.	In the DOS box you select the path in which you have installed the Microsoft Support Tools and in which "gflags.exe" is located. (F:\Program Files\Support Tools in the example.)

No.	Procedure
4.	Now enter one of the commands below according to whether you want to enable or disable "gflags":
	The command for enabling "gflags" for the "script.exe": "gflags -p /enable script.exe /full"
	The command displaying the current settings of "gflags": "gflags -p"
	The command for disabling "gflags" for the "script.exe": "gflags -p /disable script.exe"
	The screenshot below shows how the commands given above are executed. In the first line "gflags" is enabled. In the second and third lines the change is queried.
	F:\Program Files\Support Tools>gflags -p /enable Script.exe /full
	F:\Program Files\Support Tools>gflags -p
	F:\Program Files\Support Tools>gflags -p /disable Script.exe
	F:\Program Files\Support Tools>gflags -p
	F:\Program Files\Support Tools>
	Note
	In the case of memory overwrites you need the "/full" parameter.
	In the case of memory usage you do not need the "/full" parameter.
5	Restart the computer new to apply the settings in the Registry. As of new the additional
5.	information is written in the dumps.
	Note
	It is mandatory to disable "gflags" after completing the examination.