Basic commands for Windbg – breakpoints Part 7 – Events and Exceptions

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Exceptions and Events

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- More or less behave like an out of the box or build in breakpoints.
  - Both stop the execution of program and give the control to debugger and debugger can decide what is next like in the case of a breakpoint.
- Exceptions are mostly dictated by CPU.
  - Mostly some kind problem like division by zero.
  - Majority default action by the debugger is break in to the debugger just like a break point.
- Event mostly OS specific.
  - Mostly some specific actions in the OS like loading a binary.
  - Majority default action by the debugger is ignore.

- As a matter of fact a breakpoint itself is an exception.

Note: More details when we discuss Structured Exception handling.

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Exceptions Example

- Access violation
- Integer division by zero
- Illegal instruction
- Stack overflow
- Common Language Runtime exception

Events Example

- Process creation
- Process exit
- Thread creation
- Thread exit
- Load module

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sx* set exception

- Command to control the behavior of the debugger when it encounters exceptions or events.

- Windbg has a very user friendly UI equivalent for this command.

Different ways to handle.

Command	Status name	Description
sxe	Break (Enabled)	When this exception occurs, the target immediately breaks into the debugger before any other error handlers are activated. This kind of handling is called *first chance* handling.
sxd	Second chance break (Disabled)	The debugger does not break for a first-chance exception of this type (although a message is displayed). If other error handlers do not address this exception, execution stops and the target breaks into the debugger. This kind of handling is called *second chance* handling.
sxn	Output (Notify)	When this exception occurs, the target application does not break into the debugger at all. However, a message is displayed that notifies the user of this exception.
sxi	Ignore	When this exception occurs, the target application does not break into the debugger at all, and no message is displayed.

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Demo

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Thank you