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? (Command Help)

? (Evaluate Expression)

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a (Assemble)

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al (List Aliases)

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ba (Break on Access)

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bp, bu, bm (Set Breakpoint)

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c (Compare Memory)

d, da, db, dc, dd, dD, df, dp, dq, du, dw, dW, dyb, dyd (Display Memory)

dda, ddp, ddu, dpa, dpp, dpu, dqa, dqp, dqu (Display Referenced Memory)

dds, dps, dqs (Display Words and Symbols)

dg (Display Selector)

dl (Display Linked List)

ds, dS (Display String)

dt (Display Type)

dtx (Display Type - Extended Debugger Object Model Information)

dv (Display Local Variables)

dx (Display Debugger Object Model Expression)

e, ea, eb, ed, eD, ef, ep, eq, eu, ew, eza, ezu (Enter Values)

f, fp (Fill Memory)

g (Go)

gc (Go from Conditional Breakpoint)

gh (Go with Exception Handled)

gn, gN (Go with Exception Not Handled)

gu (Go Up)

ib, iw, id (Input from Port)

j (Execute If - Else)

k, kb, kc, kd, kp, kP, kv (Display Stack Backtrace)

l+, l- (Set Source Options)

ld (Load Symbols)

lm (List Loaded Modules)

ln (List Nearest Symbols)

ls, lsa (List Source Lines)

lsc (List Current Source)

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m (Move Memory)

n (Set Number Base)

ob, ow, od (Output to Port)

p (Step)

pa (Step to Address)

pc (Step to Next Call)

pct (Step to Next Call or Return)

ph (Step to Next Branching Instruction)

pt (Step to Next Return)

q, qq (Quit)

qd (Quit and Detach)

r (Registers)

rdmsr (Read MSR)

rm (Register Mask)

s (Search Memory)

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sq (Set Quiet Mode)

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sx, sxd, sxe, sxi, sxn, sxr, sx- (Set Exceptions)

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tct (Trace to Next Call or Return)

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.copysym (Copy Symbol Files)

.cordll (Control CLR Debugging)

.crash (Force System Crash)

.create (Create Process)

.createdir (Set Created Process Directory)

.cxr (Display Context Record)

.dbgdbg (Debug Current Debugger)

.detach (Detach from Process)

.dml_flow (Unassemble with Links)

.dml_start (Display DML Starting Point)

.dump (Create Dump File)

.dumpcab (Create Dump File CAB)

.dvalloc (Allocate Memory)

.dvfree (Free Memory)

.echo (Echo Comment)

.echocpunum (Show CPU Number)

.echotime (Show Current Time)

.echotimestamps (Show Time Stamps)

.ecxr (Display Exception Context Record)

.effmach (Effective Machine)

.enable_long_status (Enable Long Integer Display)

.enable_unicode (Enable Unicode Display)

.endpsrv (End Process Server)

.endsrv (End Debugging Server)

.enumtag (Enumerate Secondary Callback Data)

.event_code (Display Event Code)

.eventlog (Display Recent Events)

.exepath (Set Executable Path)

.expr (Choose Expression Evaluator)

.exptr (Display Exception Pointers)

.exr (Display Exception Record)

.excr (Display Exception Context Record)

.extmatch (Display All Matching Extensions)

.extpath (Set Extension Path)

.f+, .f- (Shift Local Context)

.fiber (Set Fiber Context)

.fiximports (Fix Target Module Imports)

.flash_on_break (Flash on Break)

.fnent (Display Function Data)

.fnret (Display Function Return Value)

.force_radix_output (Use Radix for Integers)

.force_tb (Forcibly Allow Branch Tracing)

.formats (Show Number Formats)

.fpo (Control FPO Overrides)

.frame (Set Local Context)

.help (Meta-Command Help)

.hh (Open HTML Help File)

.hideinjectedcode (Hide Injected Code)

.holdmem (Hold and Compare Memory)

.idle_cmd (Set Idle Command)

.ignore_missing_pages (Suppress Missing Page Errors)

.inline (Toggle Inline Function Debugging)

.imgscan (Find Image Headers)

.jdinfo (Use JIT_DEBUG_INFO)

.kdfiles (Set Driver Replacement Map)

.kdtargetmac (Display Target MAC Address)

.kframes (Set Stack Length)

.kill (Kill Process)

.lastevent (Display Last Event)

.lines (Toggle Source Line Support)

.load, .loadby (Load Extension DLL)

.locale (Set Locale)

.logappend (Append Log File)

.logclose (Close Log File)

.logfile (Display Log File Status)

.logopen (Open Log File)

.netsyms (Disable Network Symbol Loading)

.netuse (Control Network Connections)

.noshell (Prohibit Shell Commands)

.noversion (Disable Version Checking)

.ocommand (Expect Commands from Target)

.nvload (NatVis Load)

.nvlist (NatVis List)

.nvunload (NatVis Unload)

.nvunloadall (NatVis Unload All)

.ofilter (Filter Target Output)

.open (Open Source File)

.opendump (Open Dump File)

.outmask (Control Output Mask)

.pagein (Page In Memory)

.pcmd (Set Prompt Command)

.pop (Restore Debugger State)

.prefer_dml (Prefer Debugger Markup Language)

.process (Set Process Context)

.prompt_allow (Control Prompt Display)

.push (Save Debugger State)

.quit_lock (Prevent Accidental Quit)

.readmem (Read Memory from File)

.reboot (Reboot Target Computer)

.record_branches (Enable Branch Recording)

.reload (Reload Module)

.remote (Create Remote.exe Server)

.remote_exit (Exit Debugging Client)

.restart (Restart Target Application)

.restart (Restart Kernel Connection)

.rrestart (Register for Restart)

.scroll_prefs (Control Source Scrolling Preferences)

.scriptdebug (Debug JavaScript)

.scriptlist (List Loaded Scripts)

.scriptload (Load Script)

.scriptproviders (List Script Providers)

.scriptrun (Run Script)

.scriptunload (Unload Script)

.secure (Activate Secure Mode)

.send_file (Send File)

.server (Create Debugging Server)

.servers (List Debugging Servers)

.setdll (Set Default Extension DLL)

.shell (Command Shell)

.settings (Set Debug Settings)

.show_read_failures

.show_sym_failures

.sleep (Pause Debugger)

.sound_notify (Use Notification Sound)

.srcfix, .lsrcfix (Use Source Server)

.srcnoisy (Noisy Source Loading)

.srcpath, .lsrcpath (Set Source Path)

.step_filter (Set Step Filter)

.suspend_ui (Suspend WinDbg Interface)

.symfix (Set Symbol Store Path)

.symopt (Set Symbol Options)

.sympath (Set Symbol Path)

.thread (Set Register Context)

.time (Display System Time)

.tlist (List Process IDs)

.trap (Display Trap Frame)

.tss (Display Task State Segment)

.ttime (Display Thread Times)

.typeopt (Set Type Options)
.unload (Unload Extension DLL)
.unloadall (Unload All Extension DLLs)
.urestart (Unregister for Restart)
.wake (Wake Debugger)
.write_cmd_hist (Write Command History)
.writemem (Write Memory to File)
.wtitle (Set Window Title)
Control Keys
CTRL+\ (Debug Current Debugger)
CTRL+ALT+\ (Debug Current Debugger)
CTRL+A (Toggle Baud Rate)
CTRL+B (Quit Local Debugger)
CTRL+C (Break)
CTRL+D (Toggle Debug Info)
CTRL+F (Break to KD)
CTRL+K (Change Post-Reboot Break State)
CTRL+P (Debug Current Debugger)
CTRL+R (Re-synchronize)
CTRL+V (Toggle Verbose Mode)
CTRL+W (Show Debugger Version)
General Extension Commands
!acl
!address
!analyze
!asd
!atom
!bitcount
!blackboxbsd
!blackboxscm
!chksym
!chkimg

!cppexr

!cpuid

!cs

!cxr

!dh

!dlls

!dml_proc

!dumpfa

!elog_str

!envvar

!error

!exchain

!exr

!findxmldata

!for_each_frame

!for_each_function

!for_each_local

!for_each_module

!for_each_register

!gflag

!gle

!gs

!handle

!heap

!help

!homedir

!hstring

!hstring2

!htrace

!imggp

!imgreloc

!kuser

!list
!lmi
!mui
!net_send
!objа
!owner
!peb
!rebase
!rtlavl
!sd
!sid
!slist
!std_map
!stl
!str
!sym
!symsrv
!teb
!tls
!token
!tp
!triage
!ustr
!version
!winrterr
Kernel-Mode Extension Commands
!ahcache
!alignmentfaults
!analyzebugcheck
!apc
!apicerr
!arbinst

!arbiter

!ate

!bcb

!blockeddrv

!bpid

!btb

!bth

!bugdump

!bushnd

!ca

!callback

!calldata

!can_write_kdump

!cbreg

!cchelp

!chklowmem

!cmreslist

!cpuinfo

!db, !dc, !dd, !dp, !dq, !du, !dw

!dbgprint

!dblink

!dcr

!dcs

!deadlock

!defwrites

!devext

!devhandles

!devnode

!devobj

!devstack

!dflink

!diskspace

!dma

!dpa

!dpcs

!driveinfo

!drivers

!drvobj

!dskheap

!eb, !ed

!ecb, !ecd, !ecw

!ecs

!errlog

!errpkt

!errrec

!exca

!filecache

!filelock

!fileobj

!filetime

!finddata

!findfilelockowner

!findthreads

!for_each_process

!for_each_thread

!fpsearch

!frozen

!fwver

!fxdevice

!gbl

!gentable

!hidppd

!ib, !id, !iw

!icpleak

!idt

!ih

!ihs

!ioresdes

!ioctldecode

!ioreslist

!iovirp

!ipi

!irp

!irpfind

!irpzone

!irql

!isainfo

!isr

!ivt

!job

!kb, !kv

!loadermemorylist

!lockedpages

!locks (!kdext*.locks)

!logonsession

!lookaside

!lpc

!mca

!memlist

!memusage

!mps

!mtrr

!npx

!ob, !od, !ow

!object

!obtrace

!openmaps

!pars

!pat

!pci

!pciir

!pcitree

!pcm

!pcr

!pcrs

!pfn

!pmc

!pmssa

!powertriage

!pnpevent

!pocaps

!pool

!poolfind

!poolused

!poolval

!popolicy

!pplookaside

!ppmidle

!ppmidleaccounting

!ppmidlepolicy

!ppmlpscenarios

!ppmperf

!ppmperfpolicy

!ppmsettings

!ppmstate

!prcb

!process

!processfields

!processirps

!psp

!pte

!pte2va

!ptov

!qlocks

!ready

!reg

!regkcb

!rellist

!ruleinfo

!running

!scm

!search

!searchpte

!sel

!session

!smt

!sprocess

!srb

!stacks

!swd

!sysinfo

!sysptes

!thread

!threadfields

!time

!timer

!tokenfields

!trap

!tss

!tz

!tzinfo
!ubc
!ubd
!ube
!ubl
!ubp
!urb
!vad
!vad_reload
!validatelist
!verifier
!vm
!vpb
!vpdd
!vtop
!wdmaud
!whattime
!whatperftime
!whea
!wsle
!zombies
User-Mode Extension Commands
!avrf
!critsec
!dp (!ntsdexts.dp)
!dreg
!dt
!evlog
!findstack
!gatom
!igrep
!locks (!ntsdexts.locks)

!mapped_file
!runaway
!threadtoken
!uniqstack
!vadump
!vprot
Specialized Extension Commands
Storage Kernel Debugger Extensions
!storagekd.storadapter
!storagekd.storclass
!storagekd.storhelp
!storagekd.storlogirp
!storagekd.storloglist
!storagekd.storlogsrb
!storagekd.storsrb
!storagekd.storunit
Bluetooth Extensions (Bthkd.dll)
!bthkd.bthdevinfo
!bthkd.bthenuminfo
!bthkd.bthinfo
!bthkd.bthhelp
!bthkd.bthtree
!bthkd.bthusbtransfer
!bthkd.dibflags
!bthkd.hcicmd
!bthkd.hciinterface
!bthkd.l2capinterface
!bthkd.rfcomminfo
!bthkd.rfcommconnection
!bthkd.rfcommchannel
!bthkd.sdpinterface
!bthkd.scointerface

!bthkd.sdpnode
!bthkd.sdpstream
GPIO Extensions
!gpiokd.help
!gpiokd.bankinfo
!gpiokd.clientlist
!gpiokd.gpioext
!gpiokd.pininfo
!gpiokd.pinisrvec
!gpiokd.pintable
USB 3.0 Extensions
USB 3.0 Data Structures
!usb3kd.help
!usb3kd.device_info
!usb3kd.device_info_from_pdo
!usb3kd.dsf
!usb3kd.hub_info
!usb3kd.hub_info_from_fdo
!usb3kd.port_info
!usb3kd.ucx_device
!usb3kd.ucx_endpoint
!usb3kd.ucx_controller
!usb3kd.ucx_controller_list
!usb3kd.usbanalyze
!usb3kd.usbdstatus
!usb3kd.usb_tree
!usb3kd.urb
!usb3kd.xhci_capability
!usb3kd.xhci_commandring
!usb3kd.xhci_deviceslots
!usb3kd.xhci_dumpall
!usb3kd.xhci_eventring

!usb3kd.xhci_findowner

!usb3kd.xhci_info

!usb3kd.xhci_registers

!usb3kd.xhci_resourceusage

!usb3kd.xhci_trb

!usb3kd.xhci_transferring

USB 2.0 Debugger Extensions

!usbkd.usbhelp

!usbkd._ehcidd

!usbkd._ehciep

!usbkd._ehciframe

!usbkd._ehciqh

!usbkd._ehciregs

!usbkd._ehcisitd

!usbkd._ehcistq

!usbkd._ehcitd

!usbkd._ehcitfer

!usbkd._ehciitd

!usbkd.doesdumphaveusbdata

!usbkd.isthisdumpasyncissue

!usbkd.urbfunc

!usbkd.usb2

!usbkd.usb2tree

!usbkd.usbchain

!usbkd.usbdevobj

!usbkd.usbdpc

!usbkd.ehci_info_from_fdo

!usbkd.usbdevh

!usbkd.usbep

!usbkd.usbfaildata

!usbkd.usbhcdext

!usbkd.usbdstatus

!usbkd.usbhcdhccontext
!usbkd.usbhcdlist
!usbkd.usbhcdlistlogs
!usbkd.usbhcdlog
!usbkd.usbhcdlogex
!usbkd.usbhcdpnp
!usbkd.usbhcdpow
!usbkd.hub2_info_from_fdo
!usbkd.usbhuberr
!usbkd.usbhubext
!usbkd.usbhubinfo
!usbkd.usbhublog
!usbkd.usbhubmddevext
!usbkd.usbhubmdpd
!usbkd.usbhubpd
!usbkd.usbhubs
!usbkd.usblist
!usbkd.usbpo
!usbkd.usbpdos
!usbkd.usbpdoxls
!usbkd.usbpnp
!usbkd.usbportisasyncadv
!usbkd.usbportmdportlog
!usbkd.usbportmddcontext
!usbkd.usbportmddevext
!usbkd.usbtriage
!usbkd.usbtt
!usbkd.usbtx
!usbkd.usbusb2ep
!usbkd.usbusb2tt
!usbkd.usbver
RCDRKD Extensions

!rcdrkd.rcdrhelp

!rcdrkd.rcdrcrashdump

!rcdrkd.rcdrlogdump

!rcdrkd.rcdrloglist

!rcdrkd.rcdrlogsave

!rcdrkd.rcdrsearchpath

!rcdrkd.rcdrsettraceprefix

!rcdrkd.rcdrtmffile

!rcdrkd.rcdrtraceprtdebug

HID Extensions

!hidkd.help

!hidkd.hidfdo

!hidkd.hidpdo

!hidkd.hidtree

!hidkd.hidppd

!hidkd.hidrd

Logger Extensions (Logexts.dll)

!logexts.help

!logexts.logb

!logexts.logc

!logexts.logd

!logexts.loge

!logexts.logi

!logexts.logm

!logexts.logo

NDIS Extensions (Ndiskd.dll)

!ndiskd.help

!ndiskd.netadapter

!ndiskd.minidriver

!ndiskd.rcvqueue

!ndiskd.protocol

!ndiskd.mopen

!ndiskd.filter

!ndiskd.filterdriver

!ndiskd.nbl

!ndiskd.nb

!ndiskd.nblpool

!ndiskd.nbpool

!ndiskd.pendingnbls

!ndiskd.nbllog

!ndiskd.cxadapter

!ndiskd.netqueue

!ndiskd.netrb

!ndiskd.netpacket

!ndiskd.netpacketfragment

!ndiskd.oid

!ndiskd.interfaces

!ndiskd.ifprovider

!ndiskd.ifstacktable

!ndiskd.compartments

!ndiskd.pkt

!ndiskd.pktpools

!ndiskd.findpacket

!ndiskd.vc

!ndiskd.af

!ndiskd.ndisref

!ndiskd.ndisevent

!ndiskd.ndisstack

!ndiskd.wdiadapter

!ndiskd.wdiminidriver

!ndiskd.nwadapter

!ndiskd.ndisrwlock

!ndiskd.ndisslot

!ndiskd.ndis

- !ndiskd.dbglevel
- !ndiskd.dbgsystems
- !ndiskd.ndiskdversion
- !ndiskd.netreport

RPC Extensions (Rpcexts.dll)

- !rpcexts.checkrpcsym
- !rpcexts.eeinfo
- !rpcexts.eerecord
- !rpcexts.getcallinfo
- !rpcexts.getclientcallinfo
- !rpcexts.getdbgcell
- !rpcexts.getendpointinfo
- !rpcexts.getthreadinfo
- !rpcexts.help
- !rpcexts.rpcreadstack
- !rpcexts.rpctime
- !rpcexts.thread

ACPI Extensions (Acpikd.dll and Kdexts.dll)

- !acpicache
- !acpiinf
- !acpiirqarb
- !acpikd.help
- !amli ?
- !amli bc
- !amli bd
- !amli be
- !amli bl
- !amli bp
- !amli cl
- !amli debugger
- !amli dh
- !amli dl

!amli dns
!amli do
!amli ds
!amli find
!amli lc
!amli ln
!amli r
!amli set
!amli u
!facs
!fadt
!mapic
!nsobj
!nstree
!rsdt
Graphics Driver Extensions (Gdikdx.dll)
!gdikdx.verifier
Kernel Streaming Extensions (Ks.dll)
!ks.help
!ks.kshelp
!ks.pchelp
!ks.allstreams
!ks.automation
!ks.devhdr
!ks.dhdr
!ks.dump
!ks.dumpbag
!ks.dumpcircuit
!ks.dumplog
!ks.dumpqueue
!ks.enumdevobj
!ks.enumdrvobj

!ks.eval
!ks.findlive
!ks.forcedump
!ks.graph
!ks.libexts
!ks.objhdr
!ks.ohdr
!ks.pciaudio
!ks.pciks
!ks.shdr
!ks.topology
SCSI Miniport Extensions (Scsikd.dll and Minipkd.dll)
!scsikd.help
!scsikd.classext
!scsikd.scsiext
!scsikd.srbdata
!minipkd.help
!minipkd.adapter
!minipkd.adapters
!minipkd.exports
!minipkd.lun
!minipkd.portconfig
!minipkd.req
!minipkd.srb
Windows Driver Framework Extensions (Wdfkd.dll)
!wdfkd.help
!wdfkd.wdfchildlist
!wdfkd.wdfcollection
!wdfkd.wdfcommonbuffer
!wdfkd.wdfcrashdump
!wdfkd.wdfdevext
!wdfkd.wdfdevice

!wdfkd.wdfdeviceinterrupts

!wdfkd.wdfdevicequeues

!wdfkd.wdfdmaenabler

!wdfkd.wdfdmaenablers

!wdfkd.wdfdmatransaction

!wdfkd.wdfdriverinfo

!wdfkd.wdfextendwatchdog

!wdfkd.wdffindobjects

!wdfkd.wdfforwardprogress

!wdfkd.wdfgetdriver

!wdfkd.wdfhandle

!wdfkd.wdfhelp

!wdfkd.wdfinterrupt

!wdfkd.wdfiotarget

!wdfkd.wdfldr

!wdfkd.wdflogdump

!wdfkd.wdflogsave

!wdfkd.wdfmemory

!wdfkd.wdfobject

!wdfkd.wdfopenhandles

!wdfkd.wdfpool

!wdfkd.wdfpooltracker

!wdfkd.wdfpoolusage

!wdfkd.wdfqueue

!wdfkd.wdfrequest

!wdfkd.wdfsearchpath

!wdfkd.wdfsettraceprefix

!wdfkd.wdfsetdriver

!wdfkd.wdfspinlock

!wdfkd.wdftagtracker

!wdfkd.wdftmffile

!wdfkd.wdftraceprtdebug

!wdfkd.wdfumdevstack
!wdfkd.wdfumdevstacks
!wdfkd.wdfumdownirp
!wdfkd.wdfumfile
!wdfkd.wdfumirp
!wdfkd.wdfumirps
!wdfkd_wdfumtriage
!wdfkd.wdfusbdevice
!wdfkd.wdfusbinterface
!wdfkd.wdfusbpipe
!wdfkd.wdfwmi
User-Mode Driver Framework Extensions (Wudfext.dll)
!wudfext.help
!wudfext.umdevstack
!wudfext.umdevstacks
!wudfext.umfile
!wudfext.umirp
!wudfext.umirps
!wudfext.wudfdevice
!wudfext.wudfdevicequeues
!wudfext.wudfdownkmirp
!wudfext.wudfdriverinfo
!wudfext.wudfdumpobjects
!wudfext.wudffile
!wudfext.wudffilehandletarget
!wudfext.wudfiotarget
!wudfext.wudfobject
!wudfext.wudfqueue
!wudfext.wudfrefhist
!wudfext.wudfrequest
!wudfext.wudfusbinterface
!wudfext.wudfusbpipe

!wudfext.wudfusbtarget
WMI Tracing Extensions (Wmitrace.dll)
!wmitrace.disable
!wmitrace.dumpmini
!wmitrace.dumpminievent
!wmitrace.dynamicprint
!wmitrace.enable
!wmitrace.eventlogdump
!wmitrace.help
!wmitrace.logdump
!wmitrace.logger
!wmitrace.logsave
!wmitrace.searchpath
!wmitrace.setprefix
!wmitrace.start
!wmitrace.stop
!wmitrace.strdump
!wmitrace.tfp
!wmitrace.tmffile
!wmitrace.traceoperation
OEM Support Extensions (kdex2x86.dll)
SieExtPub.dll
Debugger-Related APIs
Symbol Server API
The dbgeng.h Header File
The wdbgexts.h Header File
Debugger Error and Warning Messages
dbgerr001: PEB is Paged Out
dbgerr002: Bad Pointer
dbgerr003: Mismatched Symbols
dbgerr004: Page Not Present in Dump File
dbgerr005: Private Symbols Required

Stack Unwind Information Not Available
No Header Information Available
WinDbg Graphical Interface Features
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File | Attach to a Process
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File | Connect to Remote Session
File | Connect to Remote Stub
File | Kernel Debug
File | Symbol File Path
File | Source File Path
File | Image File Path
File | Open Workspace
File | Save Workspace
File | Save Workspace As
File | Clear Workspace
File | Delete Workspaces
File | Open Workspace in File
File | Save Workspace to File
File | Map Network Drive
File | Disconnect Network Drive
File | Recent Files
File | Exit
Edit Menu
Edit | Cut
Edit | Copy
Edit | Paste
Edit | Select All
Edit | Write Window Text to File

Edit | Add to Command Output
Edit | Clear Command Output
Edit | Evaluate Selection
Edit | Display Selected Type
Edit | Find
Edit | Find Next
Edit | Go to Address
Edit | Go to Line
Edit | Go to Current Instruction
Edit | Set Current Instruction
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View | Verbose Output
View | Show Version
View | Toolbar
View | Status Bar
View | Font
View | Options
View | Source language file extensions
View | WinDbg Command Line
Debug Menu

- Debug | Go
- Debug | Go Unhandled Exception
- Debug | Go Handled Exception
- Debug | Restart
- Debug | Stop Debugging
- Debug | Detach Debuggee
- Debug | Break
- Debug | Step Into
- Debug | Step Over
- Debug | Step Out
- Debug | Run to Cursor
- Debug | Source Mode
- Debug | Resolve Unqualified Symbols
- Debug | Event Filters
- Debug | Modules
- Debug | Kernel Connection | Cycle Baud Rate
- Debug | Kernel Connection | Cycle Initial Break
- Debug | Kernel Connection | Resynchronize

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- Window | Close All Source Windows
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Toolbar Buttons
Keyboard Shortcuts