

# WinDbg / SOS Cheat Sheet

## Environment

Attach to process	F6
Detach from a process	.detach
Break debuggee execution	Ctrl-Break
Continue debuggee execution	g
Exit WinDbg	q
Clear the screen	.cls

## Getting Help

Debuggee commands	?
Debugger commands	.help
Online help file	.hh command
Help on extension on top of chain	!help
Help on specific extension command	!help command

## Issuing Commands

Scroll through command history	[up], [down], [enter]
Paste into command window	[right-click]

## Examining the Unmanaged Environment

List loaded modules with full path	!mf
List loaded modules with last modified timestamp	!mt
List unmanaged threads	~
Select active thread	~thread_id s
View call stack	k
View thread CPU consumption	!runaway
Set a breakpoint	bp
Dump small memory image	.dump path
Dump large memory image	.dump /ma path

## Loading SOS

Load SOS for .NET 1.x	.load clr10\sos
Load SOS for .NET 2.0	.loadby sos mscorwks

## Examining the Managed Environment

Dump runtime type information	!dumpruntimetypes
View managed threads	!threads
View managed call stack	!clrstack
View combined managed / unmanaged callstack	!dumpstack
View function call arguments	!clrstack -p
View local variables	!clrstack -l
View object dump	!do address
View array dump	!da address
View object size (including children)	!objsize address
View heap usage by type	!dumpheap -stat
View heap usage filtered by type	!dumpheap -type type
View GC roots of object instance	!gcroot address
View managed sync blocks	!syncblk
View managed thinlocks (CLR 2.0)	!dumpheap -thinlock
View information on most recent exception	!printexception
Set a breakpoint	!bpmd module method