Assembly for Reverse Engeneering Cheat Sheet

by FFY00 via cheatography.com/51103/cs/14023/

General Registers

EAX	Accumulator
EBX	Base
ECX	Counter
EDX	Data

Pointer Registers

ESP	Stack Pointer, “top” of the current stack frame (lower memory)
EBP	Base Pointer, “bottom” of the current stack frame (higher memory)
EIP	Instruction Pointer, pointer to the next instruction to be executed by the CPU

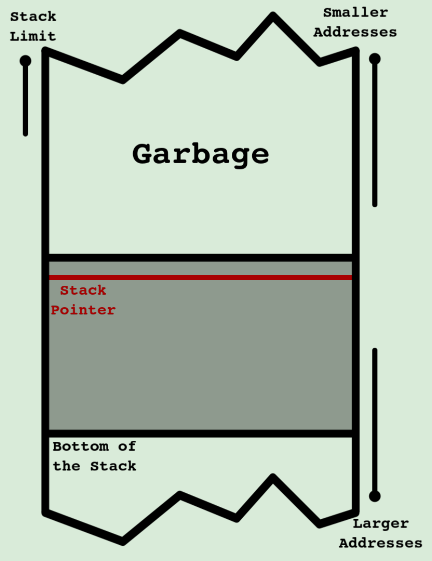
Index Registers

ESI	Source Index, it is used as source index for string operations
EDI	Destination Index, it is used as destination index for string operations

Flags Registers (EFLAGS)

ZF	Zero Flag, set when result of an operation equals zero
CF	Carry Flag, set when the result of an operation is too large/small
SF	Sign Flag, set when the result of an operation is negative

Stack



Stack is a LIFO-Storage (Last In First Out)

Moving Data

mov ebx, eax	Move the value in *EAX* to *EBX*
mov eax, 0xDEADBEEF	Move *0xDEADBEEF* into *EAX*
mov edx, DWORD PTR [0x41424344]	Move the 4-byte value at address *0x41424344* into *EDX*
mov ecx, DWORD PTR [edx]	Move the 4-byte value at the address in *EDX*, into *ECX*

Moving Data (cont)

mov eax, DWORD PTR [ecx+esi*8]	Move the value at the address *ECX+ESI*8* into *EAX*
mov bx, 0C3EEh	Sign bit of *BL* is now *1*: *BH == 1100 0011*, *BL == 1110 1110*
movsx ebx, bx	Load signed 16-bit value into 32-bit register and sign-extend
movzx dx, bl	Load unsigned 8-bit value into 16-bit register and zero-extend
lea edi, [esi+0Bh]	Add *11* to *ESI* and store the result in *EDI*

eax is the value stored in eax
[eax] is the value pointed to by eax

Data Types

BYTE	1 Byte (8 bits)
WORD	2 Bytes (16 bits)
DOUBLE WORD	4 Bytes (32 bits)
QUAD WORD	8 Bytes (64 bits)

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Frequent Instructions

mov	MOV is the instruction used for assignment. MOV can move data between a register and memory.
movsx	*move with Sign Extension*. The data is moved from a smaller register into a bigger register, and the sign is preserved.
movzx	*move with Zero Extension*. The data is moved from a smaller register into a bigger register, and the sign is ignored.
lea	Similar to MOV, except that math can be done on the original value before it is used. The *[* and *]* characters always surround the second parameter, but in this case they do **not indicate dereferencing**.

Frequent Instructions (cont)

push	Decrements the stack pointer by the size of the operand, then saves the operand to the new address. Equivalent to `sub esp, 4 | mov DWORD PTR [esp], ebx`
pop	Sets the operand to the value on the stack, then increments the stack pointer by the size of the operand. Equivalent to `mov ebx, DWORD PTR [esp] | add esp, 4`
cmp	Compares two operands and sets or unsets flags in the flags register based on the result.
test	Bitwise AND.
rep, repnz, repz	Repeat while Equal/Non Zero/Zero.