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Machine language programs: Determining the length of code

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Security: Everyone

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In the case of a short machine language program, you just count the bytes to determine the length of code. This method is not practical for longer programs, though; for such programs, hexadecimal arithmetic is more useful. If you're familiar with hex digits (A = 10, B = 11, C = 12, D = 13, E = 14, F = 15), you can subtract hex locations, just like decimal numbers.

To discover the length of a longer machine language program, simply add 1 to the last location used by the machine language program, and then subtract from that the first location used by the program. For example, an ending address of \$0357 and a starting address of \$0300 would yield the calculation (\$0357 + \$0001) - \$0300, or a length of \$58:

last + 1	0	3	5	8
first	-	0	3	0
length		0	0	5

Likewise, the length of a program with an ending address of \$03AC and a starting address of \$031B is \$92:

last + 1	0	3	A	D
first	-	0	3	1
length		0	0	9

In each case above, the answer is the length of the machine language program, and you may use it in a BSAVE command:

BSAVE PROGRAM, A\$0300, L\$58

You'll find more extensive explanations of hexadecimal arithmetic in most introductory machine language books. Check with a local book store or Apple dealer to help you locate one.

Apple Technical Communications

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