

MATLAB - BITWISE OPERATIONS

http://www.tutorialspoint.com/matlab/matlab_bitwise_operators.htm

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MATLAB provides various functions for bit-wise operations like 'bitwise and', 'bitwise or' and 'bitwise not' operations, shift operation, etc.

The following table shows the commonly used bitwise operations –

Function	Purpose
bitand <i>a, b</i>	Bit-wise AND of integers <i>a</i> and <i>b</i>
bitcmp <i>a</i>	Bit-wise complement of <i>a</i>
bitget <i>a, pos</i>	Get bit at specified position <i>pos</i> , in the integer array <i>a</i>
bitor <i>a, b</i>	Bit-wise OR of integers <i>a</i> and <i>b</i>
bitset <i>a, pos</i>	Set bit at specific location <i>pos</i> of <i>a</i>
bitshift <i>a, k</i>	Returns <i>a</i> shifted to the left by <i>k</i> bits, equivalent to multiplying by 2^k . Negative values of <i>k</i> correspond to shifting bits right or dividing by $2^{ k }$ and rounding to the nearest integer towards negative infinite. Any overflow bits are truncated.
bitxor <i>a, b</i>	Bit-wise XOR of integers <i>a</i> and <i>b</i>
swapbytes	Swap byte ordering

Example

Create a script file and type the following code –

```
a = 60; % 60 = 0011 1100
b = 13; % 13 = 0000 1101
c = bitand(a, b)      % 12 = 0000 1100
c = bitor(a, b)       % 61 = 0011 1101
c = bitxor(a, b)      % 49 = 0011 0001
c = bitshift(a, 2)    % 240 = 1111 0000 */
c = bitshift(a, -2)   % 15 = 0000 1111 */
```

When you run the file, it displays the following result –

```
c = 12
c = 61
c = 49
c = 240
c = 15
```

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