



To validate the hash, use the provided script `hash256` :

[illegible]

**Mining Example** Now say we want to hit a lower target (higher difficulty). The current target can be calculated by converting the `nBits` field from the block header:

```
$ reverse_endian ffff7f20  
207fffff  
$ bits 207fffff  
7ffffff00000000000000000000000000000000000000000000000000000000000
```

Then, to change to a lower target, say `00ffff00`, we can change the `nBits` field to: `2000ffff`

```
$ reverse_endian 2000ffff
ffff0020
```

Now the header becomes:

[illegible]

Now, lets use `cpp_miner` to mine the block, we'll turn on verbose mode to see what's happening under the hood:

```
$ cpp_miner mine  
010000000000000000000000000000000000000000000000000000000000000000000000ba3edfd7a7b12b27ac72c3e67768f617fc  
-v  
Verbosity enabled. Level is 1  
target: 00ffff0000000000000000000000000000000000000000000000000000000000  
nonce: 02000001  
nonce: 02000002  
nonce: 02000003  
nonce: 02000004  
nonce: 02000005  
nonce: 02000006  
nonce: 02000007  
nonce: 02000008  
nonce: 02000009  
nonce: 0200000a  
nonce: 0200000b  
nonce: 0200000c  
nonce: 0200000d  
nonce: 0200000e  
nonce: 0200000f  
nonce: 02000010  
nonce: 02000011  
nonce: 02000012  
nonce: 02000013  
nonce: 02000014  
nonce: 02000015  
nonce: 02000016  
nonce: 02000017  
nonce: 02000018  
nonce: 02000019  
nonce: 0200001a  
nonce: 0200001b  
nonce: 0200001c
```

nonce: 0200001d  
nonce: 0200001e  
nonce: 0200001f  
nonce: 02000020  
nonce: 02000021  
nonce: 02000022  
nonce: 02000023  
nonce: 02000024  
nonce: 02000025  
nonce: 02000026  
nonce: 02000027  
nonce: 02000028  
nonce: 02000029  
nonce: 0200002a  
nonce: 0200002b  
nonce: 0200002c  
nonce: 0200002d  
nonce: 0200002e  
nonce: 0200002f  
nonce: 02000030  
nonce: 02000031  
nonce: 02000032  
nonce: 02000033  
nonce: 02000034  
nonce: 02000035  
nonce: 02000036  
nonce: 02000037  
nonce: 02000038  
nonce: 02000039  
nonce: 0200003a  
nonce: 0200003b  
nonce: 0200003c  
nonce: 0200003d  
nonce: 0200003e  
nonce: 0200003f  
nonce: 02000040  
nonce: 02000041  
nonce: 02000042  
nonce: 02000043  
nonce: 02000044  
nonce: 02000045  
nonce: 02000046  
nonce: 02000047  
nonce: 02000048  
nonce: 02000049  
nonce: 0200004a  
nonce: 0200004b  
nonce: 0200004c  
nonce: 0200004d  
nonce: 0200004e  
nonce: 0200004f  
nonce: 02000050  
nonce: 02000051  
nonce: 02000052  
nonce: 02000053  
nonce: 02000054  
nonce: 02000055  
nonce: 02000056  
nonce: 02000057  
nonce: 02000058  
nonce: 02000059  
nonce: 0200005a  
nonce: 0200005b  
nonce: 0200005c  
nonce: 0200005d  
nonce: 0200005e  
nonce: 0200005f  
nonce: 02000060  
nonce: 02000061  
nonce: 02000062

nonce: 02000063  
nonce: 02000064  
nonce: 02000065  
nonce: 02000066  
nonce: 02000067  
nonce: 02000068  
nonce: 02000069  
nonce: 0200006a  
nonce: 0200006b  
nonce: 0200006c  
nonce: 0200006d  
nonce: 0200006e  
nonce: 0200006f  
nonce: 02000070  
nonce: 02000071  
nonce: 02000072  
nonce: 02000073  
nonce: 02000074  
nonce: 02000075  
nonce: 02000076  
nonce: 02000077  
nonce: 02000078  
nonce: 02000079  
nonce: 0200007a  
nonce: 0200007b  
nonce: 0200007c  
nonce: 0200007d  
nonce: 0200007e  
nonce: 0200007f  
nonce: 02000080  
nonce: 02000081  
nonce: 02000082  
nonce: 02000083  
nonce: 02000084  
nonce: 02000085  
nonce: 02000086  
nonce: 02000087  
nonce: 02000088  
nonce: 02000089  
nonce: 0200008a  
nonce: 0200008b  
nonce: 0200008c  
nonce: 0200008d  
nonce: 0200008e  
nonce: 0200008f  
nonce: 02000090  
nonce: 02000091  
nonce: 02000092  
nonce: 02000093  
nonce: 02000094  
nonce: 02000095  
nonce: 02000096  
nonce: 02000097  
nonce: 02000098  
nonce: 02000099  
nonce: 0200009a  
nonce: 0200009b  
nonce: 0200009c  
nonce: 0200009d  
nonce: 0200009e  
nonce: 0200009f  
nonce: 020000a0  
nonce: 020000a1  
nonce: 020000a2  
nonce: 020000a3  
nonce: 020000a4  
nonce: 020000a5  
nonce: 020000a6  
nonce: 020000a7  
nonce: 020000a8

nonce: 020000a9  
nonce: 020000aa  
nonce: 020000ab  
nonce: 020000ac  
nonce: 020000ad  
nonce: 020000ae  
nonce: 020000af  
nonce: 020000b0  
nonce: 020000b1  
nonce: 020000b2  
nonce: 020000b3  
nonce: 020000b4  
nonce: 020000b5  
nonce: 020000b6  
nonce: 020000b7  
nonce: 020000b8  
nonce: 020000b9  
nonce: 020000ba  
nonce: 020000bb  
nonce: 020000bc  
nonce: 020000bd  
nonce: 020000be  
nonce: 020000bf  
nonce: 020000c0  
nonce: 020000c1  
nonce: 020000c2  
nonce: 020000c3  
nonce: 020000c4  
nonce: 020000c5  
nonce: 020000c6  
nonce: 020000c7  
nonce: 020000c8  
nonce: 020000c9  
nonce: 020000ca  
nonce: 020000cb  
nonce: 020000cc  
nonce: 020000cd  
nonce: 020000ce  
nonce: 020000cf  
nonce: 020000d0  
nonce: 020000d1  
nonce: 020000d2  
nonce: 020000d3  
nonce: 020000d4  
nonce: 020000d5  
nonce: 020000d6  
nonce: 020000d7  
nonce: 020000d8  
nonce: 020000d9  
nonce: 020000da  
nonce: 020000db  
nonce: 020000dc  
nonce: 020000dd  
nonce: 020000de  
nonce: 020000df  
nonce: 020000e0  
nonce: 020000e1  
nonce: 020000e2  
nonce: 020000e3  
nonce: 020000e4  
nonce: 020000e5  
nonce: 020000e6  
nonce: 020000e7  
nonce: 020000e8  
nonce: 020000e9  
nonce: 020000ea  
nonce: 020000eb  
nonce: 020000ec  
nonce: 020000ed  
nonce: 020000ee

block header:

```
nonce: 0x020000ef
```

..

And we finally found a valid block hash!