

<https://learningnetwork.cisco.com/thread/32136>

### ***What does ip subnet-zero command do?***

Hello Denis-

Lets consider this class A network, with a custom mask:

50.0.0.0/10

Possible subnets are:

```
50.0000 0000.x.x (first subnet)
50.0100 0000.x.x
50.1000 0000.x.x
50.1100 0000.x.x (last subnet)
```

A long time ago, it was not allowed to use the all 00 (the first subnet above, also called "subnet zero") subnet, as the subnet bits were all zeros. In that same thinking, it was not allowed to assign (or use) a subnet where all the subnet bits were all 1's, such as the last subnet above.

The "subnet-zero" command really should be called:

"Go ahead and use the all zeros and all ones subnets (first and last)" but I suppose that would have been too big of a command.

The subnet-zero would allow 4 subnets above to be used instead of just 2. This command is the default on current IOS, and doesn't need to be added to the configuration.

Here is an example. Without the use of the subnet-zero, it won't allow us to assign an IP address in the first subnet (subnet zero):

```
R1(config)#no ip subnet-zero
```

```
R1(config)#int loopback 1
```

```
R1(config-if)#ip address 50.0.0.1 255.192.0.0  
Bad mask /10 for address 50.0.0.1
```

If we add the subnet-zero command back into the configuration, now it allows an IP address to be assigned from that subnet:

```
R1(config)#ip subnet-zero
```

```
R1(config)#int loopback 1
```

```
R1(config-if)#ip address 50.0.0.1 255.192.0.0
```

Best wishes, Keith