Lewis Joseph Feik
Cisco I lab 1
Invalid IP address

Case A: Network address (all host bits = 0)

3. ***Try a network address***

- *In **IP Address**, type: 192.168.100.0*
- *Leave the default **Subnet Mask** (255.255.255.0) as is.*
- *Press **Enter**.*
- ***Expected message:** invalid because the IP + mask combination uses the **network address** (all host bits are 0).*
- *Click **OK**.*

Why it's invalid: With /24 (255.255.255.0), the host portion is the last octet. .0 means every host bit is 0 → network ID.

Case B: Subnet network address for /28

4. ***Try a /28 subnet's network ID***

- *In **IP Address**, type: 192.168.100.16*
- *In **Subnet Mask**, type: 255.255.255.240 (that's /28)*
- *Press **Enter**.*
- ***Expected message:** invalid because this is the **network ID** of the /28 subnet (block size 16 → 16,32,48…).*
- *Click **OK**.*

Why it's invalid: /28 leaves 4 host bits; .16 in the last octet is 00010000—the host 4 bits are all 0 → network address.

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Case C: Broadcast address (all host bits = 1) for /24

5. ***Try a /24 broadcast***

- *In **IP Address**, type: 192.168.100.255*
- *(Mask 255.255.255.0)*
- *Press **Enter**.*
- ***Expected message:** invalid because it's the **broadcast address** (all host bits are 1).*
- *Click **OK**.*

Case D: Broadcast address for /27

6. ***Try a /27 broadcast***

- *In **IP Address**, type: 192.168.100.63*
- *In **Subnet Mask**, type: 255.255.255.224 (that's /27)*
- *Press **Enter**.*
- ***Expected message:** invalid because it's the **broadcast address** of the 192.168.100.32/27 subnet (range .32–.63).*
- *Click **OK**.*

Why it's invalid: /27 leaves 5 host bits; .63 is 00111111—host bits all 1 → broadcast.

(Optional) Verify with a valid host example

7. ***Enter a valid host to confirm***

- *For /28 (255.255.255.240), try:*
    - ***IP Address:** 192.168.100.17 (valid host in .16–.31)*

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- *For /27 (255.255.255.224), try:*
    - ***IP Address:** 192.168.100.33 (valid host in .32–.63)*
- *Press **Enter**—no error should appear.*

8. ***Close Packet Tracer** when finished.*

Quick mental shortcuts (so you can spot invalids fast)

- ***Block size** = 256 − last mask octet*
    - */28 → 256 − 240 = 16 → subnets at .0, .16, .32, .48, …*
    - */27 → 256 − 224 = 32 → subnets at .0, .32, .64, .96, …*
- *In each subnet:*
    - ***Network** = first address in the block*
    - ***Broadcast** = last address in the block*
    - ***Valid hosts** = everything in between*