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Introduction

In today's interconnected world, understanding the configuration of a computer's network settings is essential for both personal and professional activities. This report delves into the IP configuration of my computer, highlighting critical details such as the IP address, network address, and subnet mask. By examining these elements, we gain insight into how devices communicate within a local network and with external networks. This understanding not only aids in troubleshooting connectivity issues but also enhances overall network security and efficiency.

IP Configuration Details

To provide a comprehensive understanding, I have answered specific questions regarding the IP configuration of my computer.

1. **What is your IP address?**
    - The IP address of my computer is [**192.168.0.102**]. This address is a unique identifier assigned to my device within the network, enabling it to communicate with other devices and access the internet.

2. **What is the network address?**
    - The network address, derived from the IP address and subnet mask, represents the portion of the address that specifies the network to which my computer is connected. For example, with an IP address of [**192.168.0.102**] and a subnet mask of [**255.255.255.0**], the network address is [**192.168.0.0**].

3. **What is the subnet mask?**
    - The subnet mask for my network is [**255.255.255.0**]. This mask is used to divide the IP address into the network and host portions, allowing efficient routing of data within the network.

4. **What is the default gateway?**
    - The default gateway, which is [**192.168.0.1**], serves as the access point or router that my computer uses to send data to other networks, including the internet.

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Ethernet adapter Ethernet:

Media State . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Ethernet adapter Ethernet 2:

Connection-specific DNS Suffix . :

Link-local IPv6 Address . . . . . : fe80::51a3:643e:ca23:177c%5

IPv4 Address. . . . . : 192.168.56.1

Subnet Mask . . . . . : 255.255.255.0

Default Gateway . . . . . :

Wireless LAN adapter Local Area Connection* 3:

Media State . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Wireless LAN adapter Local Area Connection* 12:

Media State . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . :

Link-local IPv6 Address . . . . . : fe80::569b:d1b7:ee42:535e%20

IPv4 Address. . . . . : 192.168.0.102

Subnet Mask . . . . . : 255.255.255.0

Default Gateway . . . . . : 192.168.0.1

Ethernet adapter Bluetooth Network Connection:

Media State . . . . . : Media disconnected

Connection-specific DNS Suffix . :

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Calculating Number of Nodes Supported by Our Network

I have calculated the number of devices (nodes) our network can support based on the subnet mask and IP address class:

Identifying Our Subnet Mask:

- We have used a subnet mask of 255.255.255.0 (or /24 prefix).

Determining the IP Address Class:

- Based on the subnet mask /24, we have identified our network as Class C.

Calculating Available Hosts (Nodes):

- For Class C networks, we have determined the number of hosts to be 2(32−24)−22^{(32-24)} - 22(32−24)−2.
- This results in 2(32−24)−2=256−2=2542^{(32-24)} - 2 = 256 - 2 = 2542(32−24)−2=256−2=**254 hosts**

Conclusion

In this report, we have thoroughly examined the configuration of our network and its capabilities. We identified our subnet mask as 255.255.255.0, classifying our network as Class C. This classification supports up to 254 devices, ensuring adequate capacity for our current and future needs.