IP Configuration in Windows: A Comprehensive Guide

In today's interconnected world, IP configuration plays a crucial role in establishing network connectivity and communication between devices. This article aims to provide a comprehensive guide on IP configuration in the Windows environment, highlighting its importance and offering practical examples and solutions.

IP configuration refers to the process of assigning IP addresses, subnet masks, default gateways, and DNS servers to network interfaces. These configurations enable devices to communicate with each other over a network, whether it's a local network or the internet. In the Windows environment, IP configuration can be done using various methods, including the Command Prompt (CMD) and PowerShell.

Examples:

1. Configuring IP Address Using CMD: To configure the IP address of a network interface using CMD in Windows, follow these steps:

   - Open the Command Prompt by pressing Win + R, typing "cmd", and hitting Enter.
   - Use the "ipconfig" command to view the current IP configuration of all network interfaces.
   - Identify the network interface for which you want to configure the IP address.
   - Use the "netsh" command followed by the appropriate parameters to configure the IP address, subnet mask, default gateway, and DNS server. For example:

   ```
   netsh interface ipv4 set address name="Ethernet" static 192.168
   .1.100 255.255.255.0 192.168.1.1
   ```

2. Configuring IP Address Using PowerShell: To configure the IP address of a network interface using PowerShell in Windows, follow these steps:

   - Open PowerShell by pressing Win + X and selecting "Windows PowerShell."
   - Use the "Get-NetAdapter" command to list all network adapters and identify the one you want to configure.
   - Use the "Set-NetIPAddress" command followed by the appropriate parameters to configure the IP address, subnet mask, and default gateway. For example:

   ```
   Set-NetIPAddress -InterfaceAlias "Ethernet" -IPAddress 192.168.
   1.100 -PrefixLength 24 -DefaultGateway 192.168.1.1
   ```