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Lectures On:
Networking Commands for Troubleshooting

Lectures By

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Networking Commands for Troubleshooting

- In networking there are various **commands** that can be used to check the connectivity of the **networking devices** and it is also required at time of **troubleshooting of devices.**
- We will be discussing few of the networking commands such as:
  - **color help,**
  - **ping**
  - **ipconfig ,**
  - **ipconfig/all ,**
  - **nslookup ,**
  - **tracert**

PowerShell vs. CMD: What's the Difference?

- PowerShell is a cross-platform Command-Line Interface (CLI) tool that replaced the Command Prompt (CMD) in Windows as of Windows 10 build 14971.
- While the Command Prompt remains an option within the operating system, PowerShell aims to improve the CLI experience in Windows by introducing improved scripting support and pipelines.

PowerShell vs. CMD: What's the Difference?

	PowerShell	CMD
First Release	2006	1987
Cross-Platform Compatibility	Windows, macOS, Linux	Windows
Language	Complex. Features cmdlets and command aliases	Simple. MS-DOS-based
Redirection Capabilities	Full range of redirection and piping capabilities	Basic input and output redirection
Output	Objects	Plain text
Scripting	.NET-framework-based (PS1 files), full-featured ISE	Batch scripting (BAT or CMD files), no ISE
Libraries	Full access to .NET libraries	No access
WMI Integration	Full	Limited
MS Online Connectivity	Built-in	No
Program Support	Extensive	Limited
Help	Via the `Get-Help` cmdlet	Via the `help` and `/?` commands

Why Use Commands?

Commands

- First press windows+R button.
- In the search option write cmd .
- Then your command prompt will get open.

Commands

- cd..(One Step Back Directory)
- dir (Files in Use Directory)
- cd FolderName (Folder Directory - Folder IN)
- Cd\ (Parent Directory)
- cd Desktop (Desktop Directory)
- mkdir FolderName (Create Folder)
- ren OldName NewName (Folder Rename Change)
- type nul> FileName (Create File)
- Del (Delete the File)
- Move (Move the File)

1. Color Help

- This command is used to **change the color** of the command prompt.
- It gives **various colors** and the user can change accordingly.
- You have to type ***color help*** and then choose from the appeared screen by starting the command with color **A or color 3.**
- It helps in making the command prompt **user friendly** and making the screen according to **user choice.**

2. ipconfig

- This networking commands is used to the **IP configuration details.**
- This command provides you the details like **IPv4 address ,Subnet Mask or Default Gateway.**
- **Subnet mask-** It can be understood as the **boundary** of our internet connection.
- **Default Gateway-** It is the address of the router to which our computer first hits when the device we want to connect is out of our local network.

3. ipconfig/all

- This command can be understood as the updated version of the **ipconfig command.**
- This command tells us the **physical address** of our device.
- It tells us various details of our computer such as **IPv4,IPv6 default Gateway ,subnet mask** ,also it tells to which devices our device is **connected** ,configuration details of the devices to which are devices are connected.
- It also tells us about the **DHCP(Dynamic Host Configuration Protocol)-**The main use of DHCP is to automatically assign IP addresses to our devices .

4. nslookup

- This command is use to transform the given searched **words** into their corresponding **IP addresses.**
- Such as if i search for **www.google.com** website then our browser don't search for **www.google.com.**
- It search's the **corresponding IP address** associated to the **www.google.com.**
- **www.nslookup.io**

What is a ping?

- **A ping (Packet Internet or Inter-Network Groper)** is a basic Internet program that allows a user to test and verify if a particular destination IP address exists and can accept requests in computer network administration.
- Ping is also used diagnostically to ensure that a host computer the user is trying to reach is operating.
- Any operating system (OS) with networking capability, including most embedded network administration software, can use ping.

5. ping

- Test network connectivity.
- Test network interface card.
- Test DNS name resolution issues.

ping

- Ping localhost - 127.0.0.1

6. tracert

- This command can be understood as trace root. Which tells that our computer reaches or hits which-which server for reaching the particular root.
- Here again we will search for www.google.com site and it tells us the path taken by our computer to reach the root server.
- It tells us in maximum of 30 hops (30 node to node delivery).
- We can search by giving the IP address and destination site name also.

7. Whois

- Whois performs the registration record for the domain name or IP address that you specify.
- Whois is a command-line utility used in Linux systems to retrieve information about domain names, IP addresses, and network devices registered with the Internet Corporation for Assigned Names and Numbers (ICANN).
- The data received by Whois consists of the name and contact information of the domain or IP address owner, the registration and expiration date, the domain registrar, and the server information.

- Whois command can be very useful for network administrators, web developers, and security professionals for achieving various tasks like checking network connectivity or troubleshooting.

7. Whois

- https://learn.microsoft.com/en-us/sysinternals/downloads/whois
- For Window:
  - Install Whois
  - Shift+Rigth Click
  - **./whois Domain**

Task List

- tasklist
  - PID – Process ID
  - Memory-

- taskkill /PID …..

Shut Down and Restart in System Bios

```
shutdown /r /fw /f /t 0
```

Some Other Small Comments:

- HOSTNAME
- getmac
- SYSTEMINFO
- net view
- net share

"Thank You"