



VERSION 1.2
AGUSTUS, 2024

PRAKTIKUM JARINGAN KOMPUTER

MODUL 1 TUGAS PRAKTIKUM – IP ADDRESSING & SUBNETTING

TIM PENYUSUN:

MAHAR FAIQURAHMAN, S.KOM, M.T

MUHAMMAD CALVIN KRISDIANTO

ZUMRO'ATUL AFIFAH

PRESENTED BY: LAB - INFORMATIKA
UNIVERSITAS MUHAMMADIYAH MALANG

[JARINGAN KOMPUTER]

PERSIAPAN MATERI

- IPv4
 - Subnet Mask
 - Prefix Length
 - Logical AND
 - Variable Length Subnet Masking (VLSM)
-

TUJUAN

- Mahasiswa mampu memahami struktur dari IPv4 termasuk network portion, the host portion, dan subnet mask.
 - Mahasiswa mampu memahami dan mengimplementasikan prefix length.
 - Mahasiswa mampu memahami menghitung IPv4 subnet untuk a /24 prefix.
 - Mahasiswa mampu memahami dan mengimplementasikan VLSM.
-

TARGET MODUL

- Menjelaskan struktur dari IPv4.
 - Melakukan perhitungan subnet mask menggunakan prefix length.
 - Menjelaskan perhitungan IPv4 subnet untuk a /24 prefix.
 - Menjelaskan dan mengimplementasikan VLSM.
-

PERSIAPAN SOFTWARE/APLIKASI

- Komputer/Laptop
 - Sistem operasi Windows/ Linux/ Mac OS
 - Simulator Packet Tracer
-

DEMO PRAKTIKUM

Download file Packet Tracer pada link di bawah ini :

<https://bit.ly/Jarkom2024UMM>

Praktikum dilakukan pada File Packet Tracer dengan mengikuti petunjuk yang sudah disediakan.

Petunjuk pengerjaan praktikum juga dapat dilihat pada perintah dibawah. Praktikum akan dilaksanakan secara **live configuration**, yang akan dilakukan secara **real time** pada saat jam praktikum dilaksanakan.

/24 menjadi /28 dikarenakan
/24=2^8 = 256 IP (Tidak Efisien)
/28=2^4 = 16 IP (6 untuk customer router, 2 lagi untuk net&broad address dan sisannya cadangan)
Serial gunakan /30 S&G menggunakan /28 karena ingin konsisten saja
Gigabit gunakan /28

Jadi tolong dipersiapkan dan dipelajari dengan sungguh-sungguh agar tidak menghambat kelancaran jalannya praktikum. Terimakasih.

Design And Implement A VlsM Addressing Scheme

Addressing Table

Network : 192.168.203.(angka awal)
Usable IP :
RouterG0 = 192.168.203.1-14
RouterG1 = 192.168.203.17-30
RouterS0 = 192.168.203.33-46
Broadcast = 192.168.203.(angka terakhir)

Device	Interface	IP Address	Subnet Mask	Default Gateway
	G0/0	192.168.203.17	255.255.255.240/28	N/A
Customer Router-01	G0/1	192.168.203.33	255.255.255.240/28	N/A
	S0/0/0	192.168.203.1	255.255.255.252/30	N/A
Custom Router-02	G0/0	192.168.203.18	255.255.255.240/28	N/A
	G0/1	192.168.203.34	255.255.255.240/28	N/A
	S0/0/0	192.168.203.2	255.255.255.252/30	N/A
Switch LAN-A	VLAN 1	192.168.203.18	255.255.255.240/28	192.168.203.17
Switch LAN-B	VLAN 1	192.168.203.34	255.255.255.240/28	192.168.203.33
Switch LAN-C	VLAN 1	192.168.203.17	255.255.255.240/28	192.168.203.18
Switch LAN-D	VLAN 1	192.168.203.33	255.255.255.240/28	192.168.203.34
PC-A	NIC	192.168.203.19	255.255.255.240/28	192.168.203.17
PC-B	NIC	192.168.203.35	255.255.255.240/28	192.168.203.33
PC-C	NIC	192.168.203.21	255.255.255.240/28	192.168.203.18
PC-D	NIC	192.168.203.37	255.255.255.240/28	192.168.203.34

Objectives

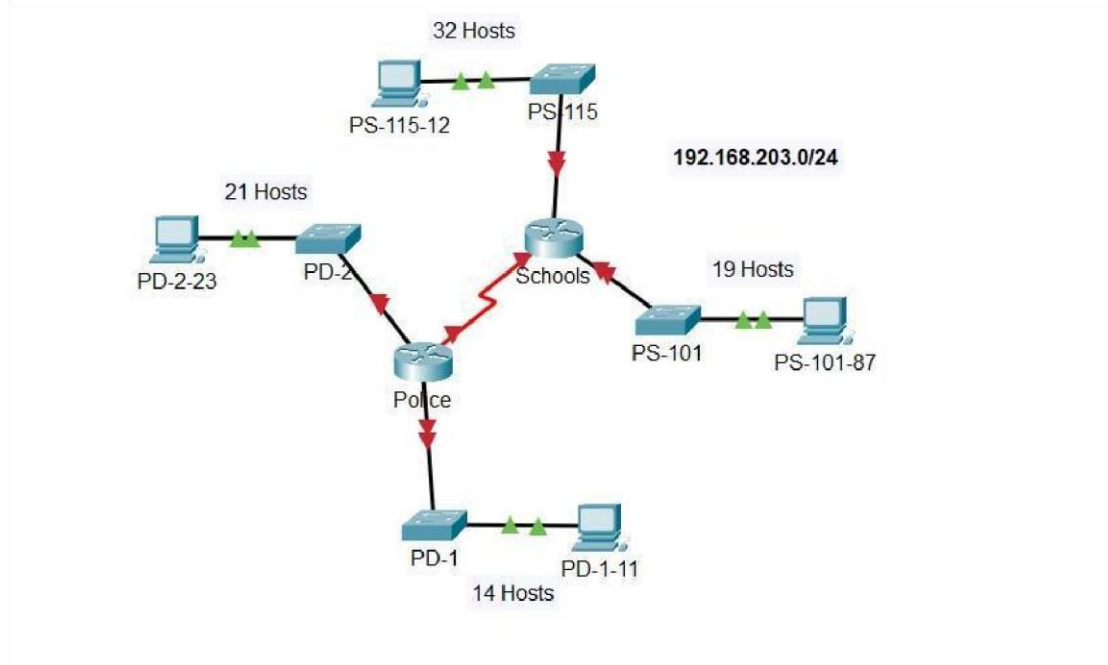
In this lab you will design a VLSM addressing scheme given a network address and host requirements. You will configure addressing on routers, switches, and network hosts.

- Design a VLSM IP addressing scheme given requirements.
- Configure addressing on network devices and hosts.
- Verify IP connectivity.
- Troubleshoot connectivity issues as required.

Background / Scenario

You have been asked to design, implement, and test an addressing scheme for a customer. The customer has given you the network address that is suitable for the network, the topology, and the host requirements. You will implement and test your design.

Instructions



You have been given the network address by your customer. The host address requirements are:

Requirements

Host Requirements:

LAN	Number of Addresses Required

Design Requirements

- Create the addressing design. Follow guidelines provided in the curriculum regarding the order of the subnets.
- The subnets should be contiguous. There should be no unused address space between subnets.
- Provide the most efficient subnet possible for the point-to-point link between the routers.

- Document your design in a table such as the one below.

Subnet Description	Number of Hosts Needed	Network Address/CIDR		First Usable Host Address	Broadcast Address

Configuration Requirements

Note: You will configure addressing on **all** devices and hosts in the network.

- Assign the first usable IP addresses in the appropriate subnets to [[R1Name]] for the two LAN links and the WAN link.
- Assign the first usable IP addresses in the appropriate subnets to [[R2Name]] for the two LANs links. Assign the last usable IP address for the WAN link.
- Assign the second usable IP addresses in the appropriate subnets to the switches.
- The switch management interface should be reachable from hosts on all of the LANs.
- Assign the last usable IP addresses in the appropriate subnets to the hosts.

If the addressing design and implementation are correct, all hosts and devices should be reachable over the network.

RUBRIK PENILAIAN

Pemahaman Materi	20%
Aktivitas Lab	20%
Tugas Praktikum	60%