**LAPORAN PROJECT UAP**

**PRAKTIKUM KOMUNIKASI DATA DAN JARINGAN KOMPUTER**



Disusun Oleh:

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**S1 ILMU KOMPUTER**

**JURUSAN ILMU KOMPUTER**

**FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM**

**UNIVERSITAS LAMPUNG**

**2019**

Pengertian Jaringann

Jaringan computer adalah sekumpulan peralatan computer yang dihubungkan agar dapat saling berkomunikasi dengan tujuan membagi sumber daya (seperti file dan printer).Agar jaringan dapat berfungsi dibutuhkan layanan-layanan yang dapat mengatur pembagian sumber daya.Dibutuhkan aturan- aturan (protocols) yang mengatur komunikasi dan layanan-layanan secara umum untuk seluruh sistem jaringan.

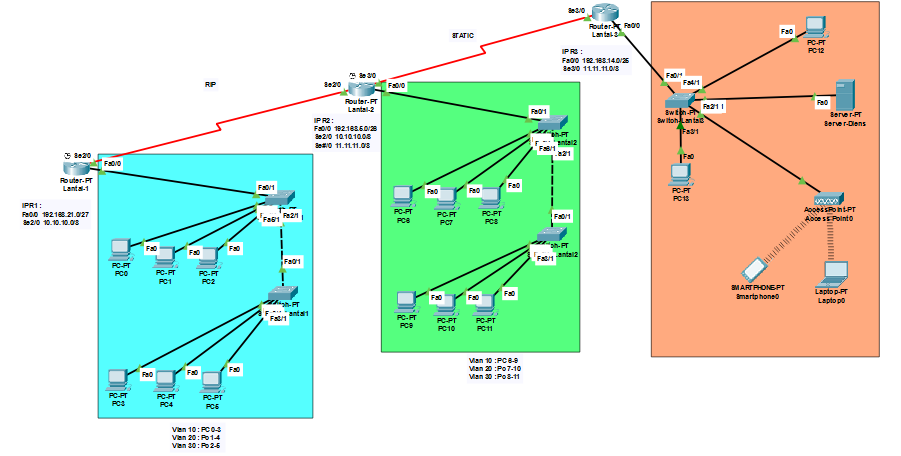
Manfaat jaringan secara umum

Komunikasi data adalah satu bagian dari ilmu komunikasi yang mengkhususkan diri pada penyampaian informasi yang berupa text dan gambar

Unsur pokok komunikasi data

Studi Kasus :

Workshop Diens (Design and Service) merupakan tempat pelatihan yang berfokus pada bidang design dan service pada komputer/laptop. Pada workshop ini memiliki 3 lantai Dan Terdapat 1 Server, disetiap lantainya memiliki ruangan workshop dan disetiap ruangan workshop terdapat router, switch, pc, laptop dan smartphone yang terhubung dengan WIFI,Disetiap lantai Masing-masing device akan dikonfigurasi terlebih dahulu oleh teknisi dari workshop diens, agar device yang telah dikonfigurasi dapat digunakan oleh peserta untuk melaksanakan workshop dan mempermudah mentor untuk monitoring hasil dari worshop tersebut.



Di atas ini adalah topologi jaringan yang ada pada workshop Diens

Device yang digunakan sebagai berikut :

* Router-PT = 3 pcs
* Switch-PT = 3 pcs
* Server-PT = 1 pcs
* AccessPoint-PT = 1 pcs
* PC-PT = 14
* Laptop-PT = 1 pcs
* Smartphone = 1 pcs

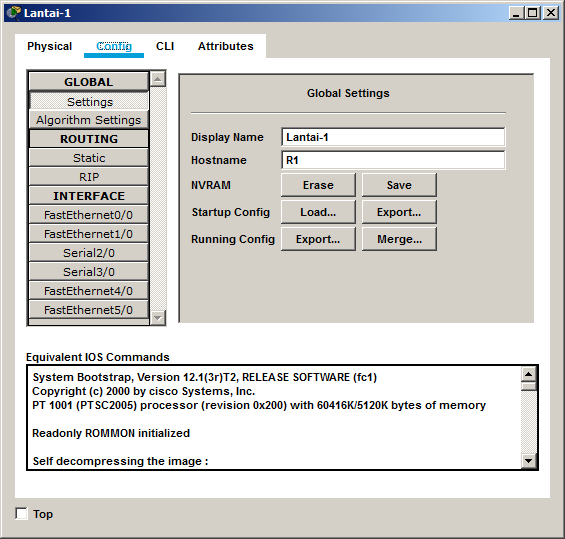
Kabel Yang di gunakan :

* Roter - Router = Kabel DCE
* Router – Switch = Kabel Straight
* Server – Switch = Kabel Straight
* Switch – Switch = Kabel Cross
* Switch – PC = Kabel Straight
* Switch – AccessPoint = Kabel Straight
* Laptop – AccessPoint = Wireless
* Smartphone – AccessPoint = Wireless

Proses Konfigurasi Router:

Lantai-1 :

Rubah Hostname Menjadi R1 Pada Router



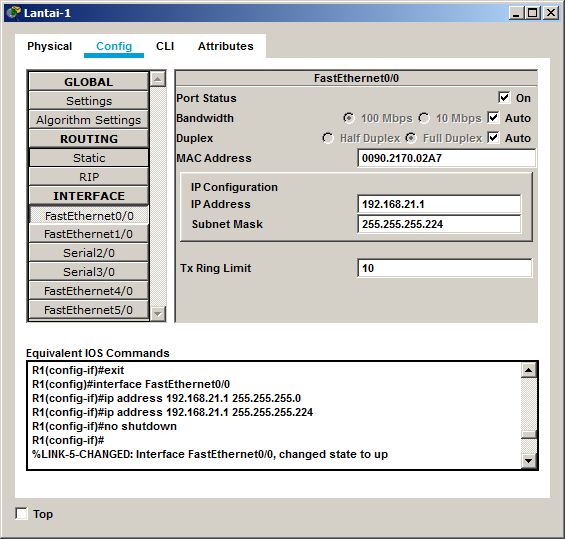
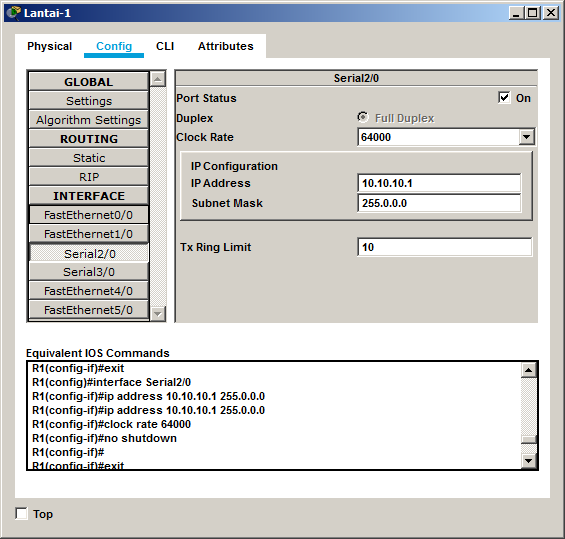
Router>enable

Router#configure terminal.

Router(config)#hostname R1

R1(config)#

Masukin IP pada Setiap Interface :

R1(config)#interface FastEthernet0/0

R1(config-if)#ip address 192.168.21.1 255.255.255.224

R1(config-if)#no shutdown

R1(config)#interface Serial2/0

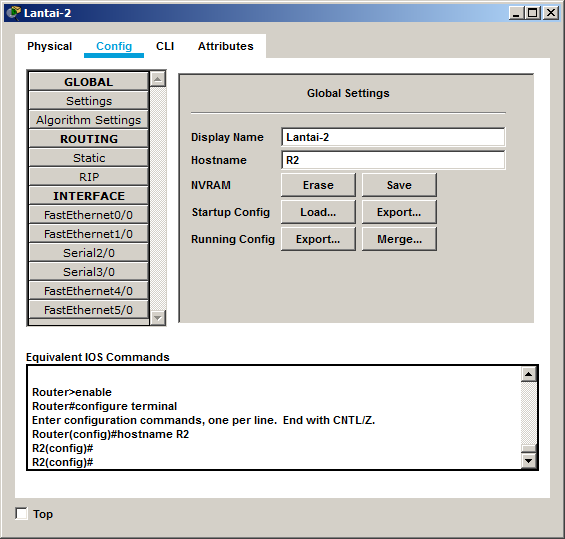
R1(config-if)#ip address 10.10.10.1 255.0.0.0

R1(config-if)#clock rate 64000

R1(config-if)#no shutdown

Lantai-2 :

Rubah Hostname Menjadi R2 Pada Router



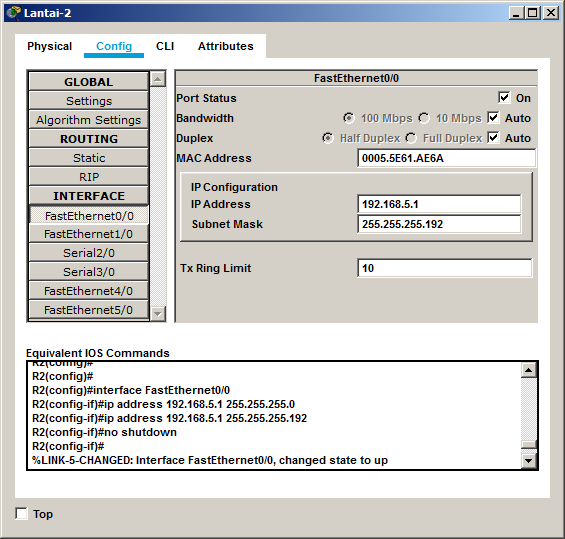
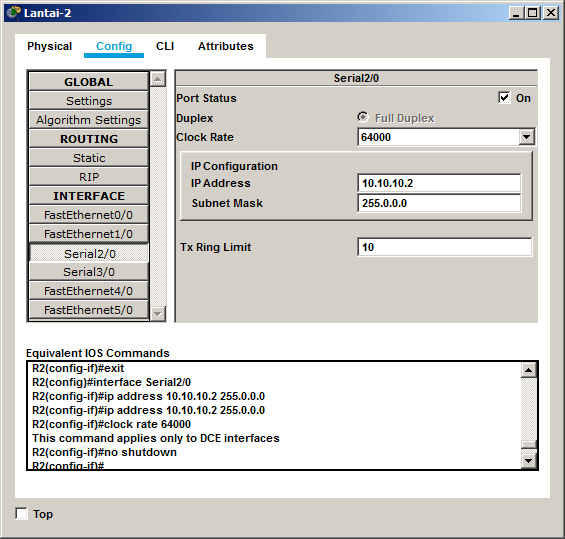
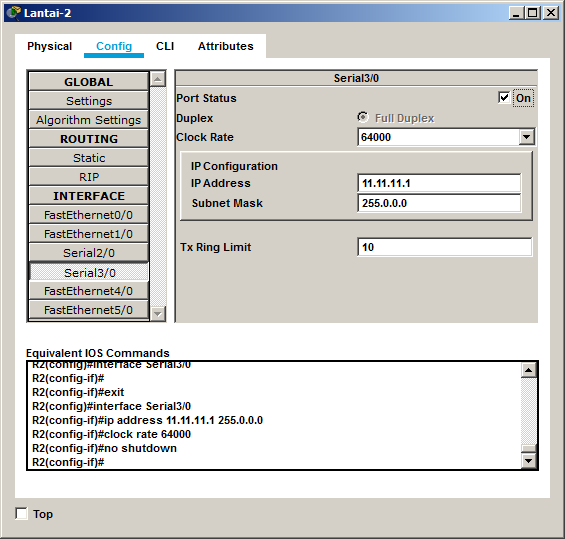
Router>enable

Router#configure terminal

Router(config)#hostname R2

R2(config)#

Masukin IP pada Setiap Interface :

R2(config)#interface FastEthernet0/0

R2(config-if)#ip address 192.168.5.1 255.255.255.192

R2(config-if)#no shutdown

R2(config)#interface Serial2/0

R2(config-if)#ip address 10.10.10.2 255.0.0.0

R2(config-if)#clock rate 64000

R2(config-if)#no shutdown

R2(config)#interface Serial3/0

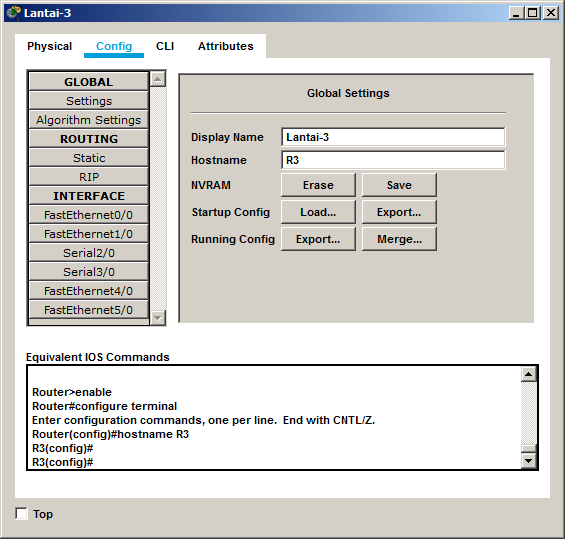
R2(config-if)#ip address 11.11.11.1 255.0.0.0

R2(config-if)#clock rate 64000

R2(config-if)#no shutdown

Lantai-3 :

Rubah Hostname Menjadi Lantai-3 Pada Router



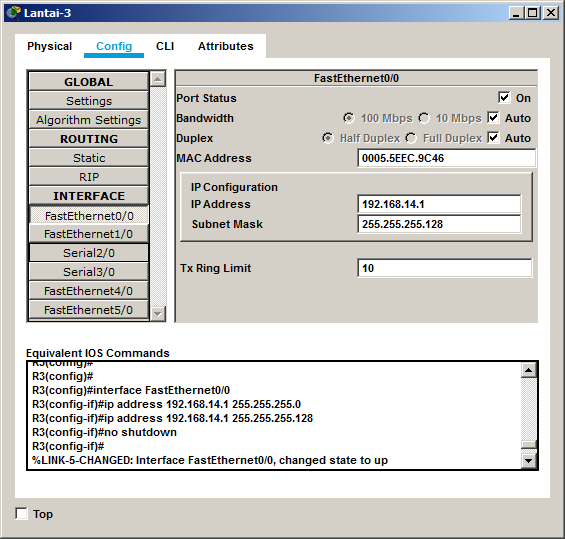
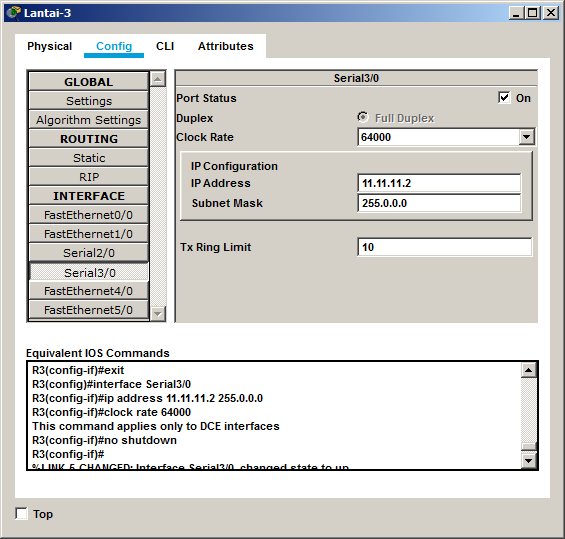
Router>enable

Router#configure terminal

Router(config)#hostname R3

R3(config)#

Masukin IP pada Setiap Interface :

R3(config)#interface FastEthernet0/0

R3(config-if)#ip address 192.168.14.1 255.255.255.128

R3(config-if)#no shutdown

R3(config)#interface Serial3/0

R3(config-if)#ip address 11.11.11.2 255.0.0.0

R3(config-if)#clock rate 64000

R3(config-if)#no shutdown

R3>en

R3#conf t

R3(config)#ip dhcp pool Diens

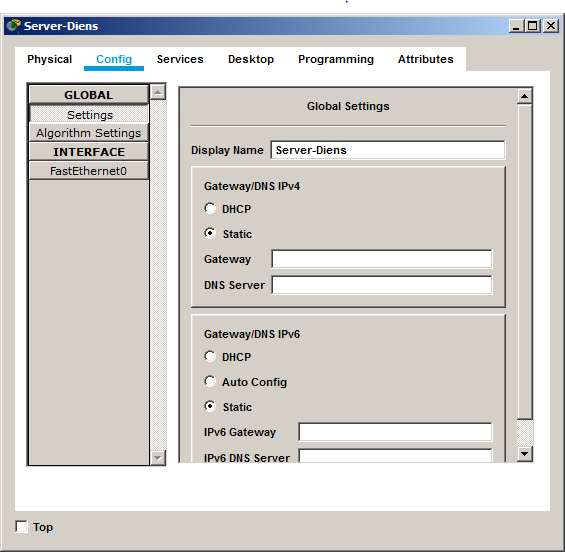
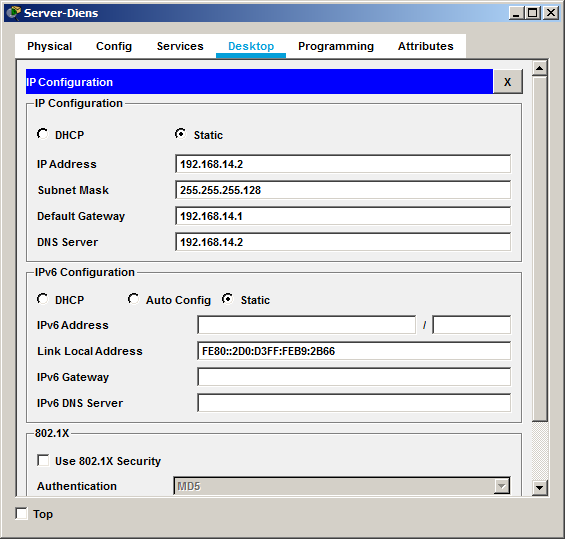
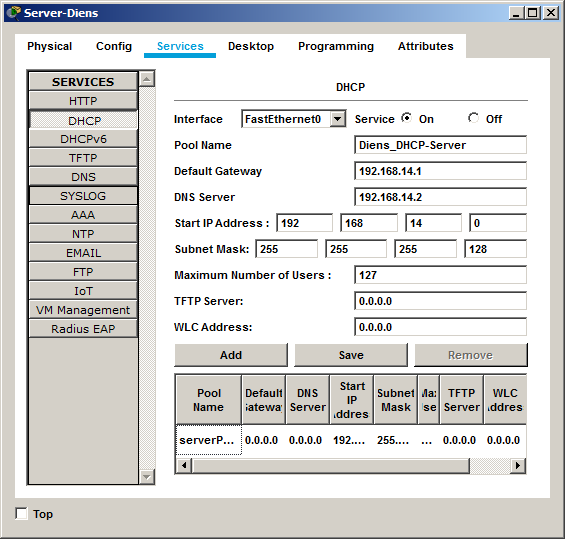
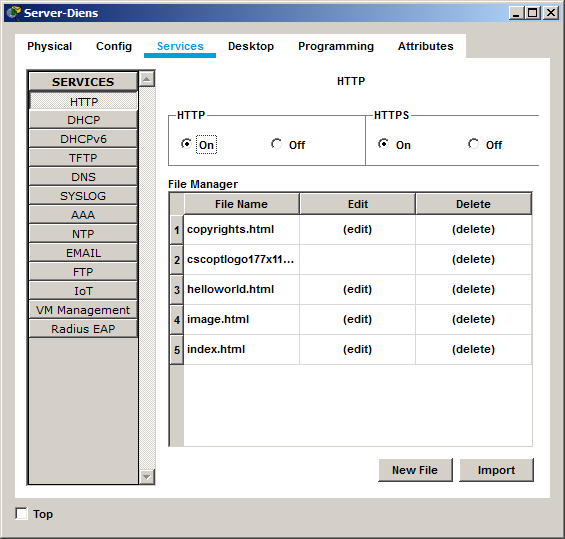
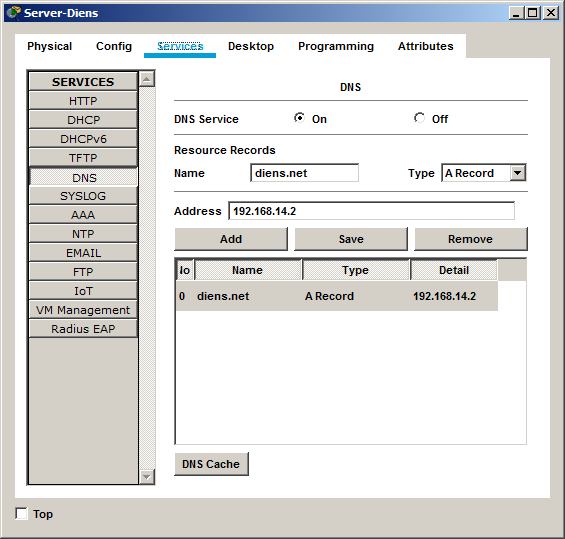
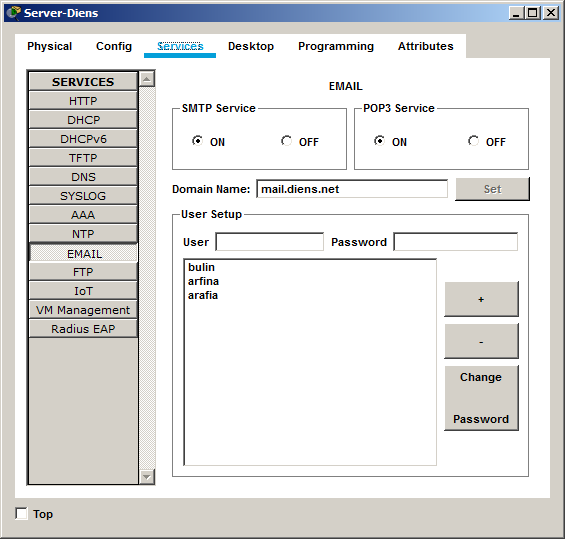
R3(dhcp-config)#default-router 192.168.14.1

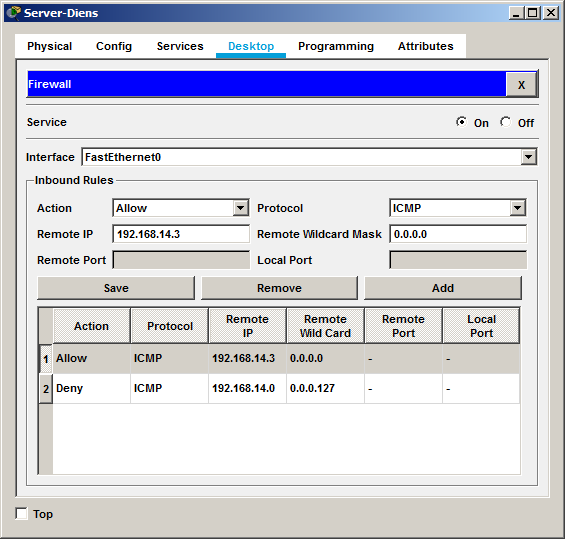
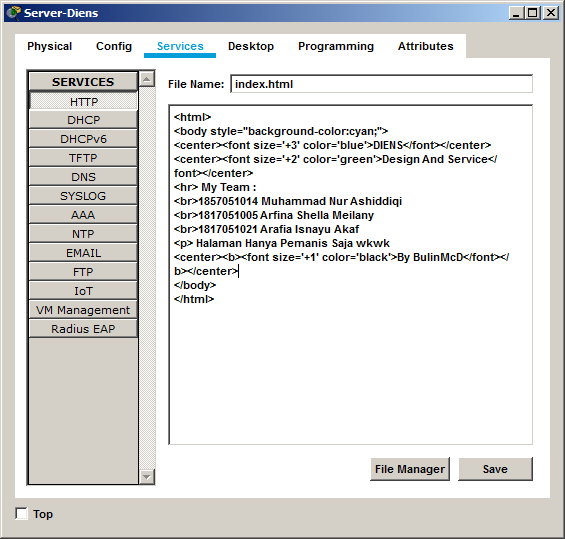
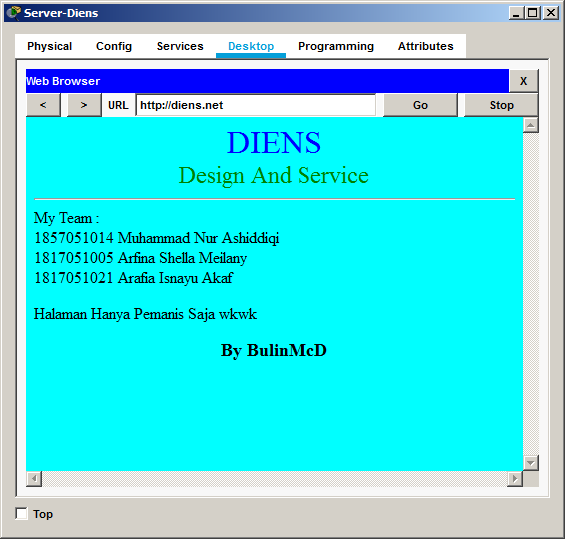
R3(dhcp-config)#network 192.168.14.0 255.255.255.128

R3(dhcp-config)#dns-server 192.168.14.2

R3(dhcp-config)#

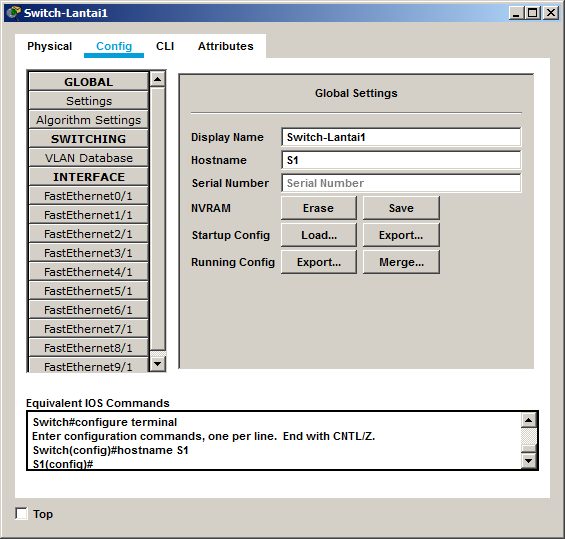
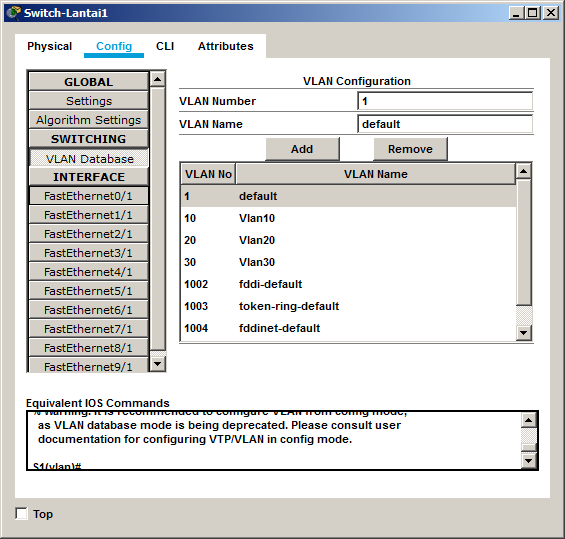
Proses Konfigurasi Server :

Proses Konfigurasi Switch :

Switch-Lantai1:

Switch>enable

Switch#configure terminal

Switch(config)#hostname S1

S1(config)#end

S1#vlan database

S1(vlan)#vlan 10 name Vlan10

VLAN 10 modified:

Name: Vlan10

S1(vlan)#vlan 20 name Vlan20

VLAN 20 modified:

Name: Vlan20

S1(config)#interface FastEthernet1/1

S1(config-if)#switchport mode trunk

S1(config-if)#exit

S1(config)#interface FastEthernet2/1

S1(config-if)#switchport mode trunk

S1(config)#interface FastEthernet3/1

S1(config-if)#exit

S1(config)#interface FastEthernet4/1

S1(config-if)#switchport access vlan 10

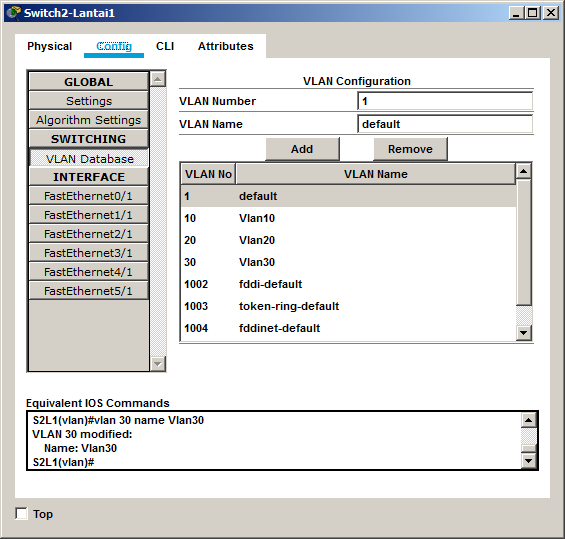
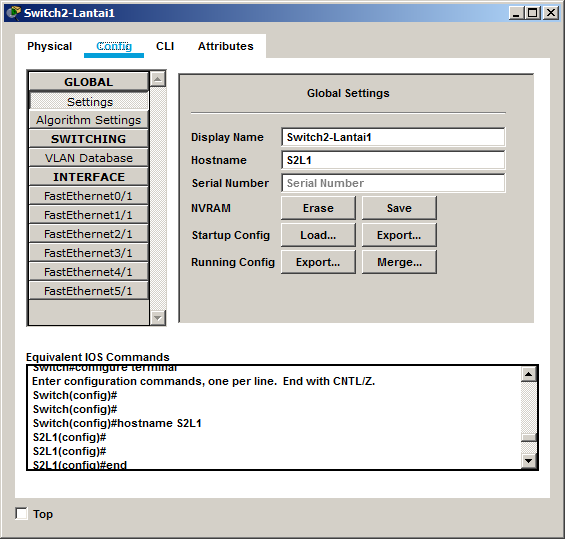
S1(config-if)#exit

S1(config)#interface FastEthernet5/1

S1(config-if)#switchport access vlan 20

S1(config-if)#exit

Switch2-Lantai1 :



Switch>enable

Switch#configure terminal

Switch(config)#hostname S2L1

S2L1(config)#end

S2L1#vlan database

S2L1(vlan)#vlan 10 name Vlan10

VLAN 10 modified:

Name: Vlan10

S2L1(vlan)#vlan 20 name Vlan20

VLAN 20 modified:

Name: Vlan20

S2L1(config)#interface FastEthernet0/1

S2L1(config-if)#switchport mode trunk

S2L1(config-if)#exit

S2L1(config)#interface FastEthernet1/1

S2L1(config-if)#exit

S2L1(config)#interface FastEthernet2/1

S2L1(config-if)#switchport access vlan 10

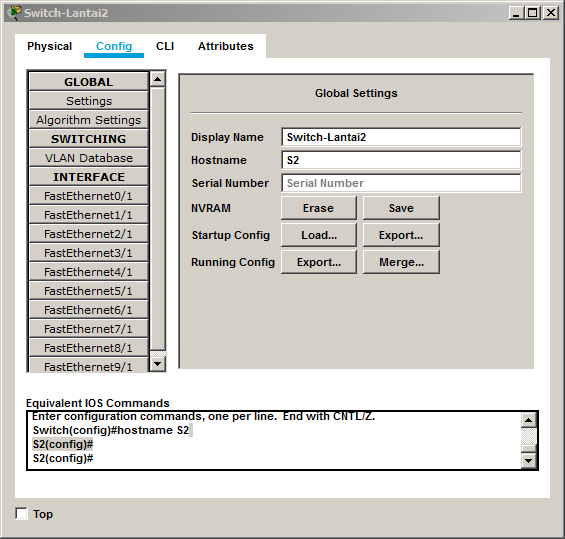
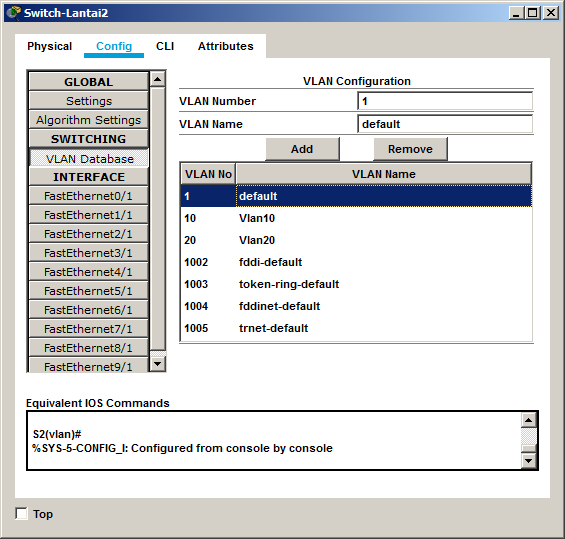
S2L1(config-if)#exit

S2L1(config)#interface FastEthernet3/1

S2L1(config-if)#switchport access vlan 20

S2L1(config-if)#exit

Switch-Lantai2:

Switch>enable

Switch#configure terminal

Switch(config)#hostname S2

S2(config)#end

S2#vlan database

S2(vlan)#vlan 10 name Vlan10

VLAN 10 modified:

Name: Vlan10

S2(vlan)#vlan 20 name Vlan20

VLAN 20 modified:

Name: Vlan20

S2(config)#interface FastEthernet2/1

S2(config-if)#switchport mode trunk

S2(config)#interface FastEthernet3/1

S2(config-if)#switchport mode trunk

S2(config-if)#exit

S2(config)#interface FastEthernet4/1

S2(config-if)#exit

S2(config)#interface FastEthernet5/1

S2(config-if)#switchport access vlan 10

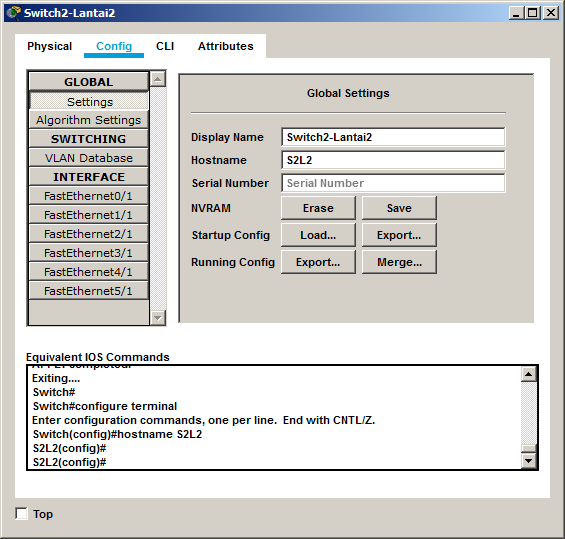
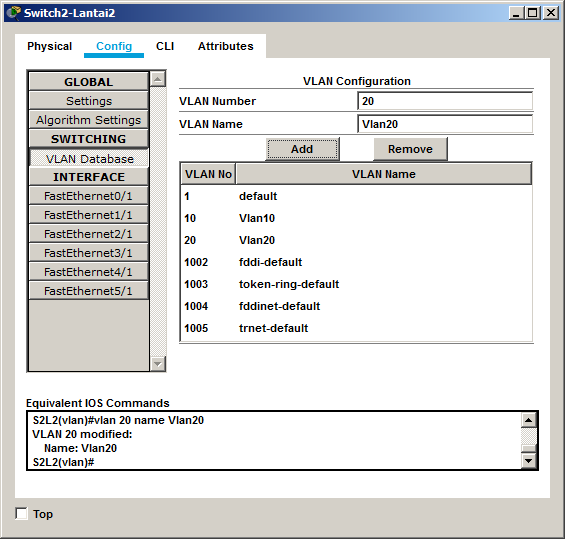
S2(config-if)#exit

S2(config)#interface FastEthernet6/1

S2(config-if)#switchport access vlan 20

S2(config-if)#exit

Switch2-Lantai2:

Switch>enable

Switch#configure terminal

Switch(config)#hostname S2L2

S2L2#vlan database

S2L2(vlan)#vlan 10 name Vlan10

VLAN 10 modified:

Name: Vlan10

S2L2(vlan)#vlan 20 name Vlan20

VLAN 20 modified:

Name: Vlan20

S2L2(vlan)#

S2L2(config)#interface FastEthernet0/1

S2L2(config-if)#switchport mode trunk

S2L2(config-if)#exit

S2L2(config)#interface FastEthernet1/1

S2L2(config-if)#exit

S2L2(config)#interface FastEthernet2/1

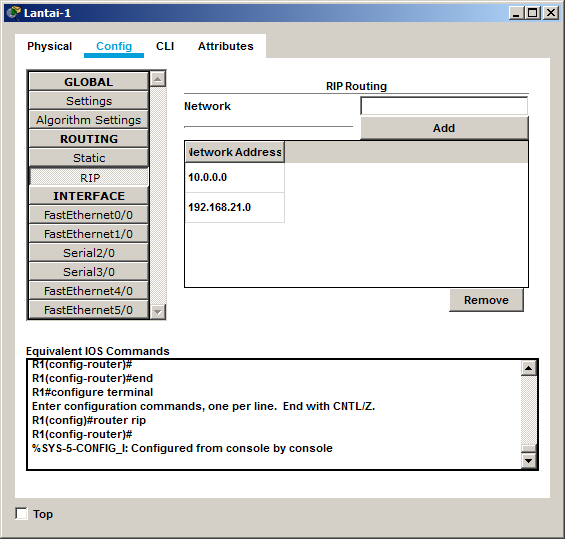
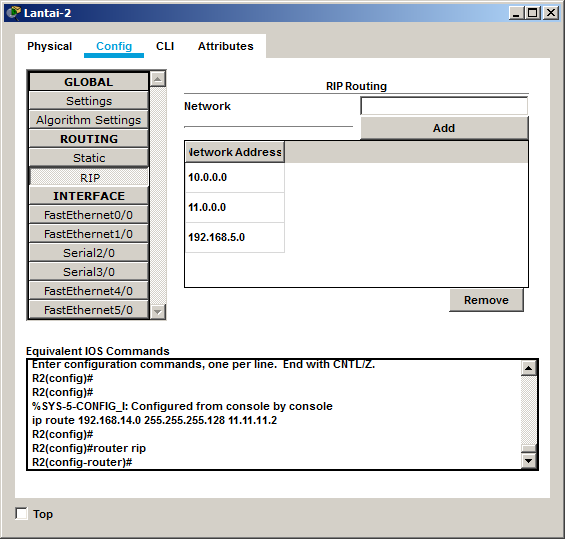
S2L2(config-if)#switchport access vlan 10

S2L2(config-if)#exit

S2L2(config)#interface FastEthernet3/1

S2L2(config-if)#switchport access vlan 20

Routing Dinamis Untuk Router 1 Dan 2

R1(config)#router rip

R1(config-router)#network 10.0.0.0

R1(config-router)#network 192.168.21.0

R1(config-router)#

R2(config)#router rip

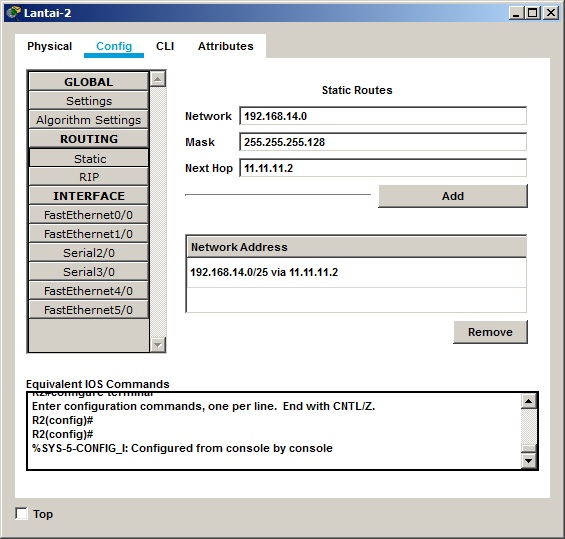
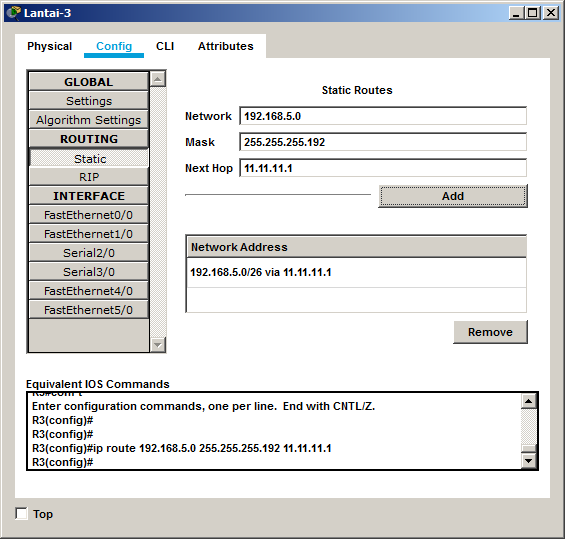
R2(config-router)#network 10.0.0.0

R2(config-router)#network 11.0.0.0 << Suapaya Lantai 3 Ke Lantai 1

R2(config-router)#network 192.168.5.0

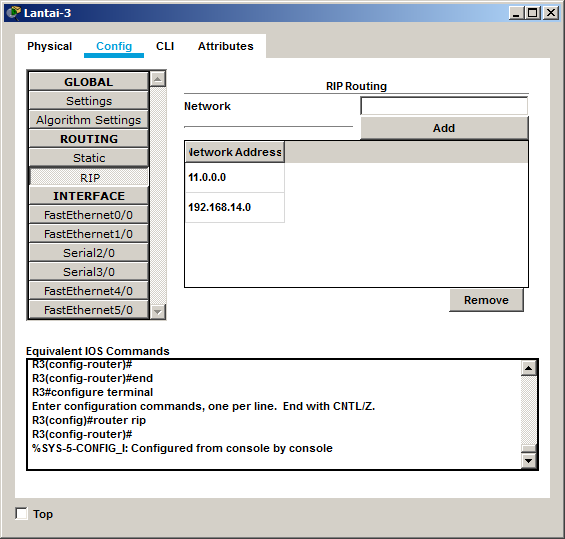
R2(config-router)#

Routing Statis Untuk Router 2 dan 3

R2(config)#ip route 192.168.14.0 255.255.255.128 11.11.11.2

R3(config)#ip route 192.168.5.0 255.255.255.192 11.11.11.1

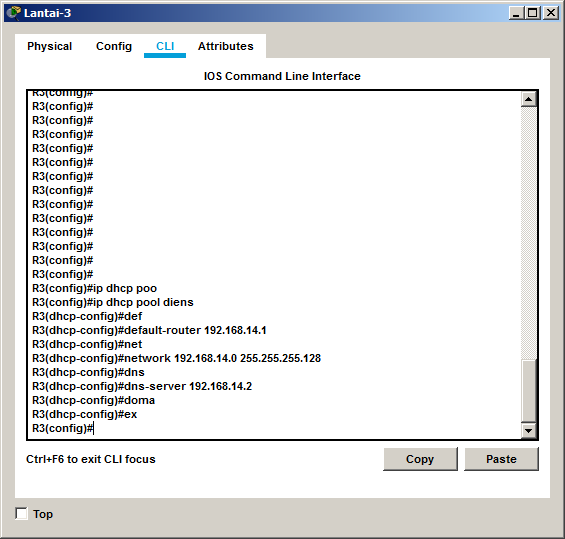


R3(config)#router rip

R3(config-router)#network 11.0.0.0

R3(config-router)#network 192.168.14.0

Membuat DHCP POOL dengan Router



R3(config)#ip dhcp pool diens

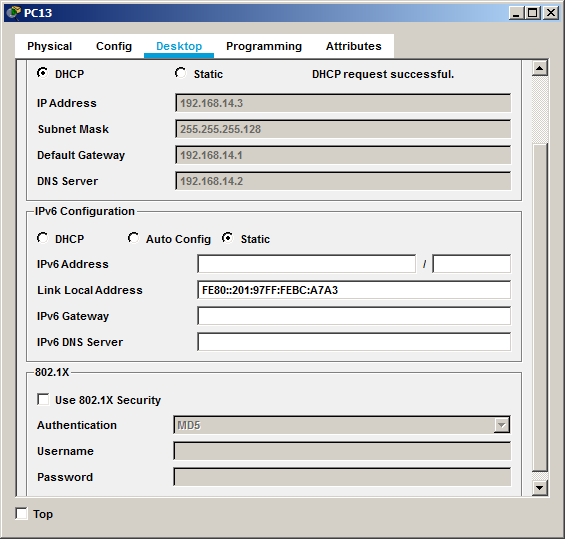
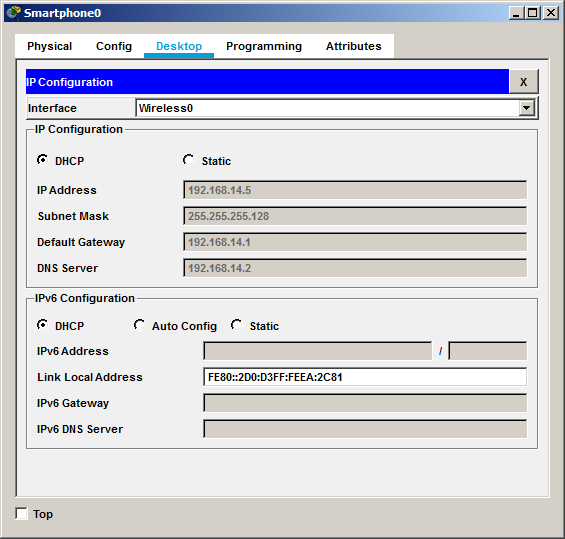
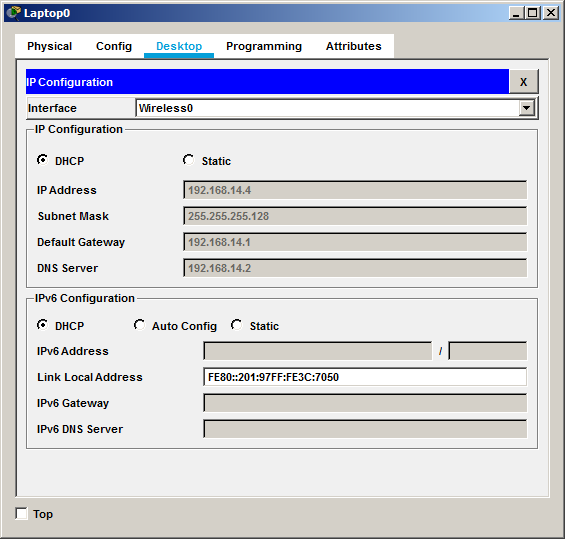
R3(dhcp-config)#default-router 192.168.14.1

R3(dhcp-config)#network 192.168.14.0 255.255.255.128

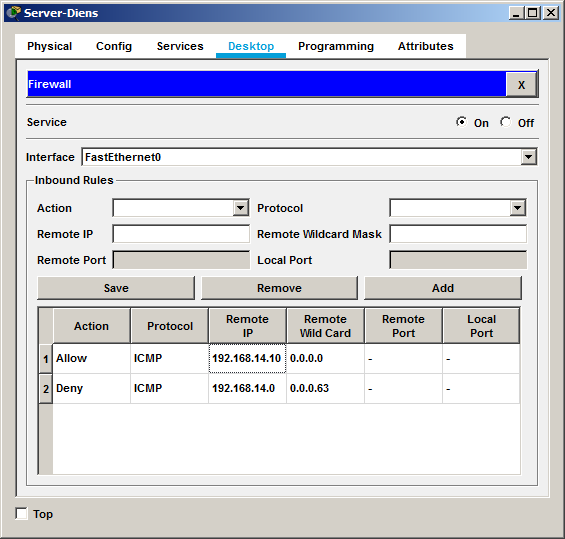
R3(dhcp-config)#dns-server 192.168.14.2

Proses Konfigurasi IP-DHCP Dan Hotspot

Untuk setiap Laptop atau perangkat yang terhubung ke Hotspot / Wireless Pada IP Configuration Kita Pilih Yang DHCP Agar Mendapatkan IP Address , Subnet Mask, Default Gateway , DNS Server Secara Otomatis Dari Router

Proses Konfigurasi Firewall :



Firewall Ini hanya IP yang Di Izinkan saja yang bisa mengakses atau memberi PING ke pada Server Diens

