19101020
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Problem Statement : Design following diagram.

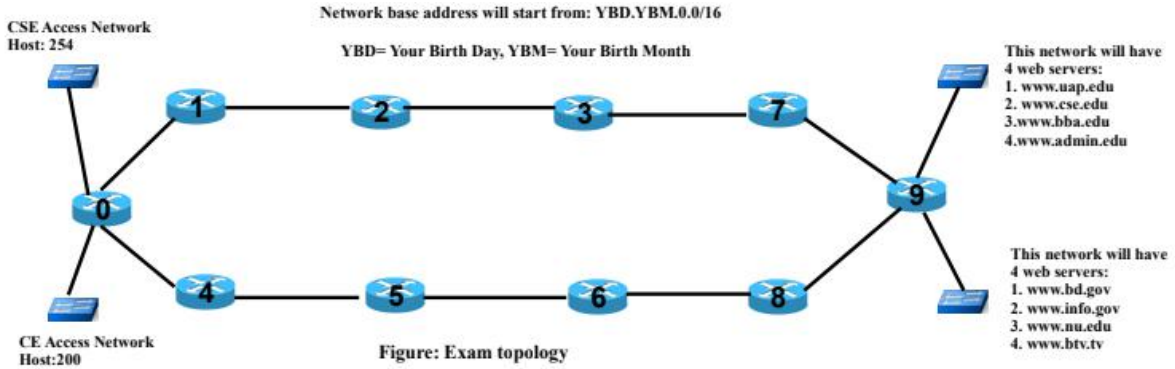


Figure: Exam topology

IP Calculation:

Birthday: 02/01/2000

Given IP: 2.1.0.0/16

Subnetmask: 255.255.0.0

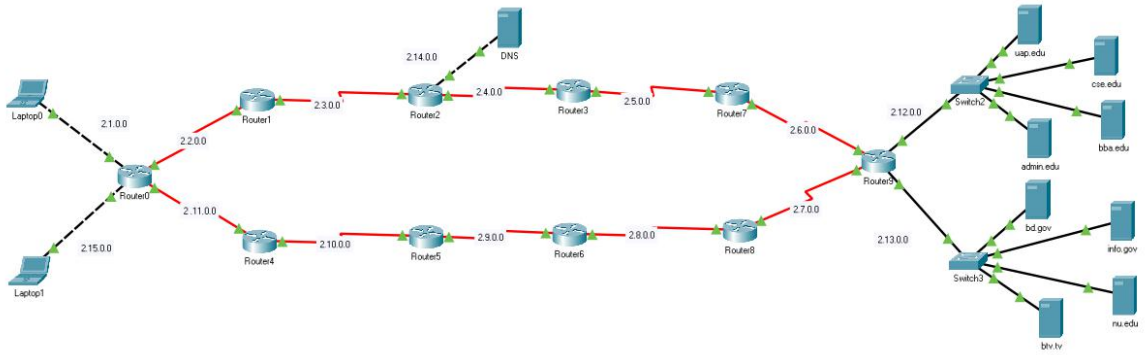
Starting IP: 2.1.0.0

Total number of network: 15

Ip addresses: **2.1.0.0** to **2.15.0.0**

Serial	Network Name	Network Add	Subnet Mask	First Host	Last Hope	Broadcust Add
1	Network-1	2.12.0.0/16	255.255.0.0	2.12.0.1	2.12.255.254	2.12.255.255
2	Network-2	2.13.0.0/16	255.255.0.0	2.13.0.1	2.13.255.254	2.13.255.255
3	CSE Network	2.1.0.0/16	255.255.0.0	2.1.0.1	2.1.255.254	2.1.255.255
4	CE Network	2.15.0.0/16	255.255.0.0	2.15.0.1	2.15.255.254	2.15.255.255
5	DNS	2.14.0.0/16	255.255.0.0	2.14.0.1	2.14.255.254	2.14.255.255
6	R0-R1	2.2.0.0/16	255.255.0.0	2.2.0.2	2.2.255.254	2.2.255.255
7	R1-R2	2.3.0.0/16	255.255.0.0	2.3.0.3	2.3.255.254	2.3.255.255
8	R2-R3	2.4.0.0/16	255.255.0.0	2.4.0.4	2.4.255.254	2.4.255.255
9	R3-R7	2.5.0.0/16	255.255.0.0	2.5.0.5	2.5.255.254	2.5.255.255
10	R7-R9	2.6.0.0/16	255.255.0.0	2.6.0.6	2.6.255.254	2.6.255.255
11	R9-R8	2.7.0.0/16	255.255.0.0	2.7.0.7	2.7.255.254	2.7.255.255
12	R8-R6	2.8.0.0/16	255.255.0.0	2.8.0.8	2.8.255.254	2.8.255.255
13	R6-R5	2.9.0.0/16	255.255.0.0	2.9.0.9	2.9.255.254	2.9.255.255
14	R5-R4	2.10.0.0/16	255.255.0.0	2.10.0.1	2.10.255.254	2.10.255.255
15	R4-R0	2.11.0.0/16	255.255.0.0	2.11.0.1	2.11.255.254	2.11.255.255

Now we will note down necessary information IP-addresses and use it for network setup.



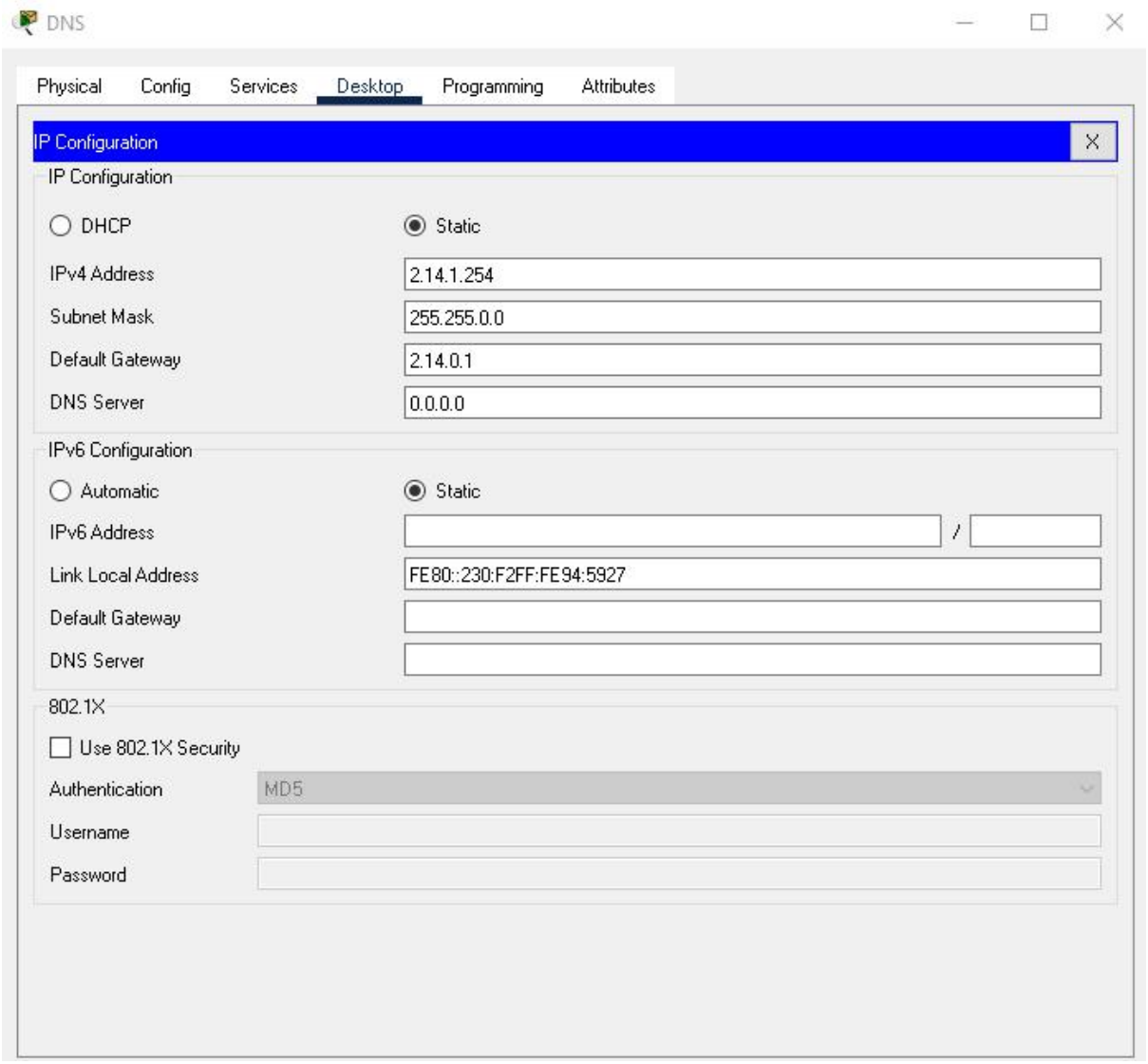
	Device	Name	Address	Default Getway	DNS Server
SERVER	DNS SERVER	used for dns	2.14.1.254	2.14.0.1	--
	UAP	www.uap.edu	2.12.0.254	2.12.0.1	
	CSE	www.cse.edu	2.12.1.254	2.12.0.1	--
	BBA	www.bba.edu	2.12.2.254	2.12.0.1	
	ADMIN	www.admin.edu	2.12.3.254	2.12.0.1	--
	BD GOV	www.bd.gov	2.13.4.254	2.13.0.1	
	INFO GOV	www.info.gov	2.13.5.254	2.13.0.1	--
	NU	www.nu.edu	2.13.6.254	2.13.0.1	--
	BTV	www.btv.tv	2.13.7.254	2.13.0.1	--
PC	Laptop 0	--	2.1.0.254	2.15.0.1	2.14.1.254
	Laptop 1	--	2.15.0.200	2.15.0.1	2.14.1.254

Server Setup :

Select server[uap, cse, bba, admin, bd.gov, info.gov, nu, btv.tv].

Go to Desktop > IP Configuration.

Insert IPv4 address and Default Gateway according to the note.



And we are done for server setup.

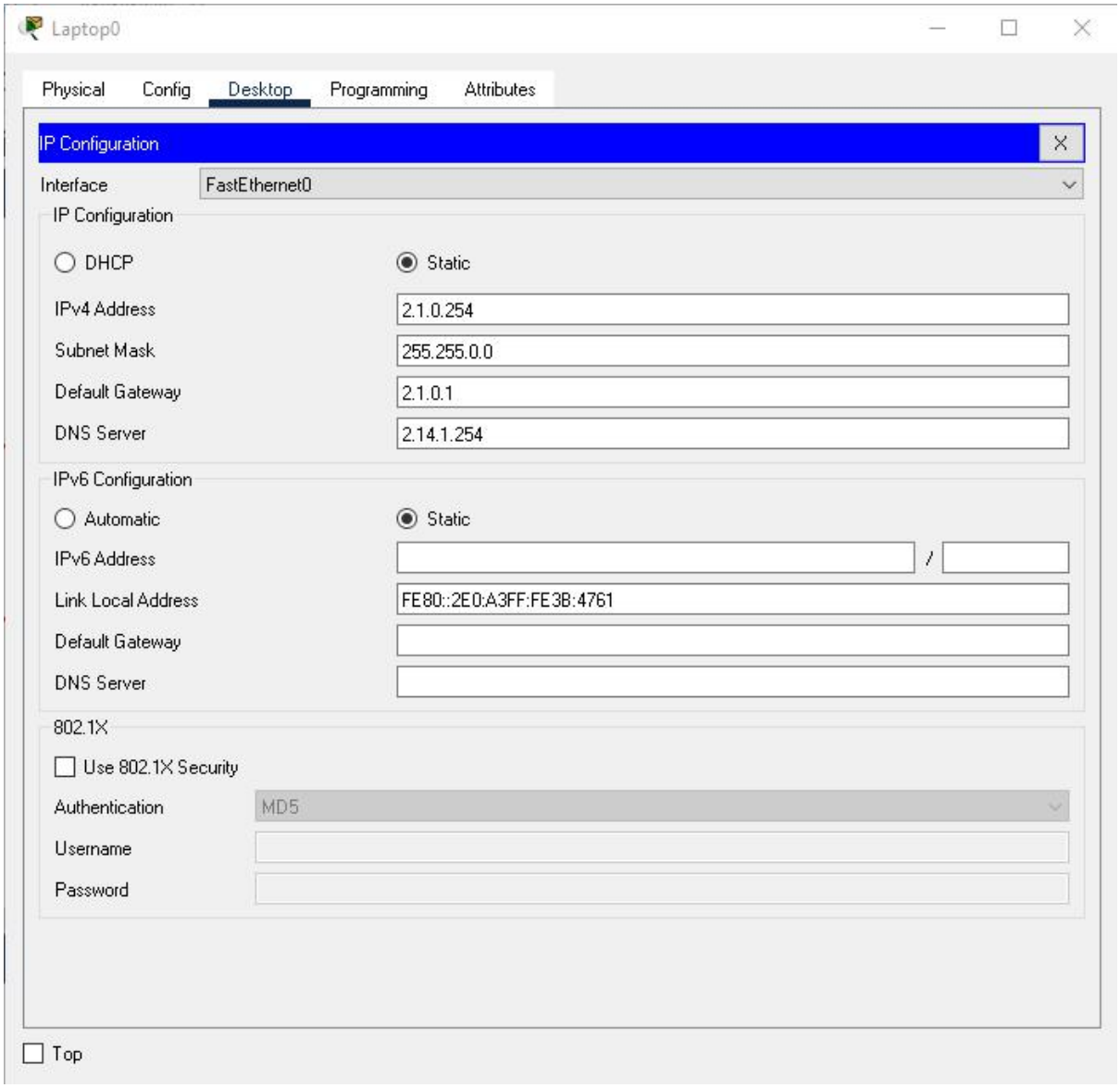
PC/Laptop Configuration :

Now we will configure our PC according to our excel note

Select a PC to configure.

Desktop > IP Configuration.

Inset IPv4 address, default gateway, DNS server according to the note.

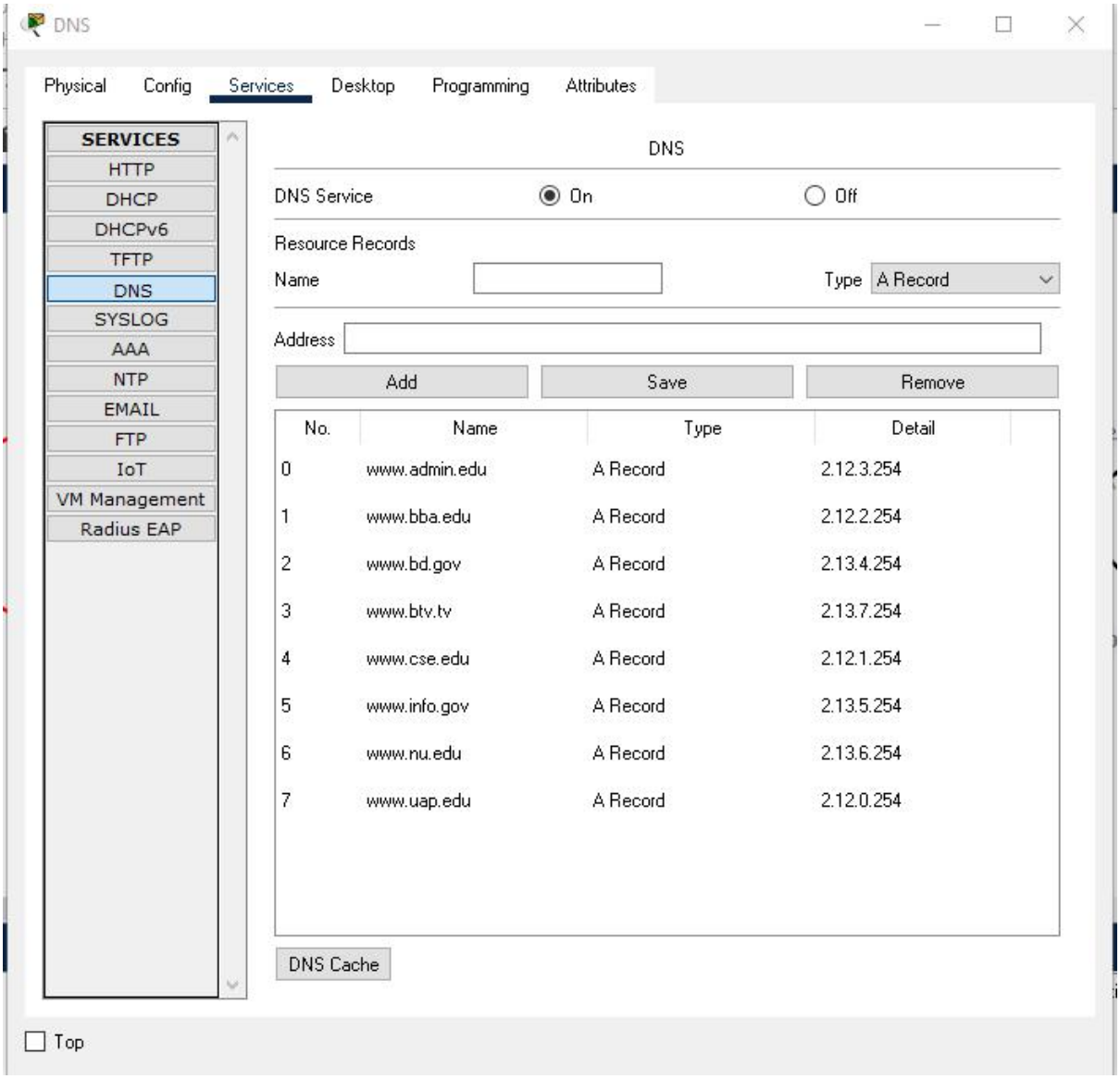


DNS Configuration :

Select west server & east server. Then Services > DNS

ON the DNS. Then enter the Name and addresses of UAP,CSE,BBA,ADMMIN,BD,INFO,NU,BTV according to the table.

Then click ADD button and you can see the added Name below.



RIP VERSION-2 Configuration :

Now we have to establish RIP version-2 configuration to establish a successful communicative connection between all used routers.

Select a router. Then CLI there comes a box where we need to write some code.

Follow the steps:

enable

conf t

router rip

version 2

no auto summary

network 2.11.0.0
network 2.10.0.0
End

```
Gateway of last resort is not set

     2.0.0.0/16 is subnetted, 2 subnets
C       2.2.0.0 is directly connected, Serial2/0
C       2.3.0.0 is directly connected, Serial3/0

Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#no auto summary
Router(config-router)#network 2.2.0.0
Router(config-router)#network 2.3.0.0
Router(config-router)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Do this work for all routers according to the table below:

Router	Connected Networks			
Router 0	2.1.0.0	2.15.0.0	2.2.0.0	2.11.0.0
Router 1	2.2.0.0	2.3.0.0	--	--
Router 2	2.3.0.0	2.4.0.0	2.14.0.0	--
Router 3	2.4.0.0	2.5.0.0	--	--
Router 4	2.10.0.0	2.11.0.0	--	--
Router 5	2.9.0.0	2.10.0.0	--	--
Router 6	2.8.0.0	2.9.0.0	--	--
Router 7	2.5.0.0	2.6.0.0	--	--
Router 8	2.7.0.0	2.8.0.0	--	--
Router 9	2.6.0.0	2.7.0.0	2.12.0.0	2.13.0.0

After configuring all routers, we can check using [show ip route] to confirm that all networks are connected.

You can check, if all networks are connected or not, using “show ip route”.

```
Router>show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     2.0.0.0/16 is subnetted, 15 subnets
R       2.1.0.0 [120/1] via 2.2.0.1, 00:00:20, Serial2/0
C       2.2.0.0 is directly connected, Serial2/0
C       2.3.0.0 is directly connected, Serial3/0
R       2.4.0.0 [120/1] via 2.3.0.2, 00:00:19, Serial3/0
R       2.5.0.0 [120/2] via 2.3.0.2, 00:00:19, Serial3/0
R       2.6.0.0 [120/3] via 2.3.0.2, 00:00:19, Serial3/0
R       2.7.0.0 [120/4] via 2.3.0.2, 00:00:19, Serial3/0
R       2.8.0.0 [120/5] via 2.3.0.2, 00:00:19, Serial3/0
R       2.9.0.0 [120/6] via 2.3.0.2, 00:00:19, Serial3/0
R       2.10.0.0 [120/7] via 2.3.0.2, 00:00:19, Serial3/0
R       2.11.0.0 [120/1] via 2.2.0.1, 00:00:20, Serial2/0
R       2.12.0.0 [120/4] via 2.3.0.2, 00:00:19, Serial3/0
R       2.13.0.0 [120/4] via 2.3.0.2, 00:00:19, Serial3/0
R       2.14.0.0 [120/1] via 2.3.0.2, 00:00:19, Serial3/0
R       2.15.0.0 [120/1] via 2.2.0.1, 00:00:20, Serial2/0

Router>
Router>
```

if everything is ok, we are good to go for web search.

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