Assignment 3: PPP - Value: 10%

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Class day/time:	12/9/2022

Instructions:

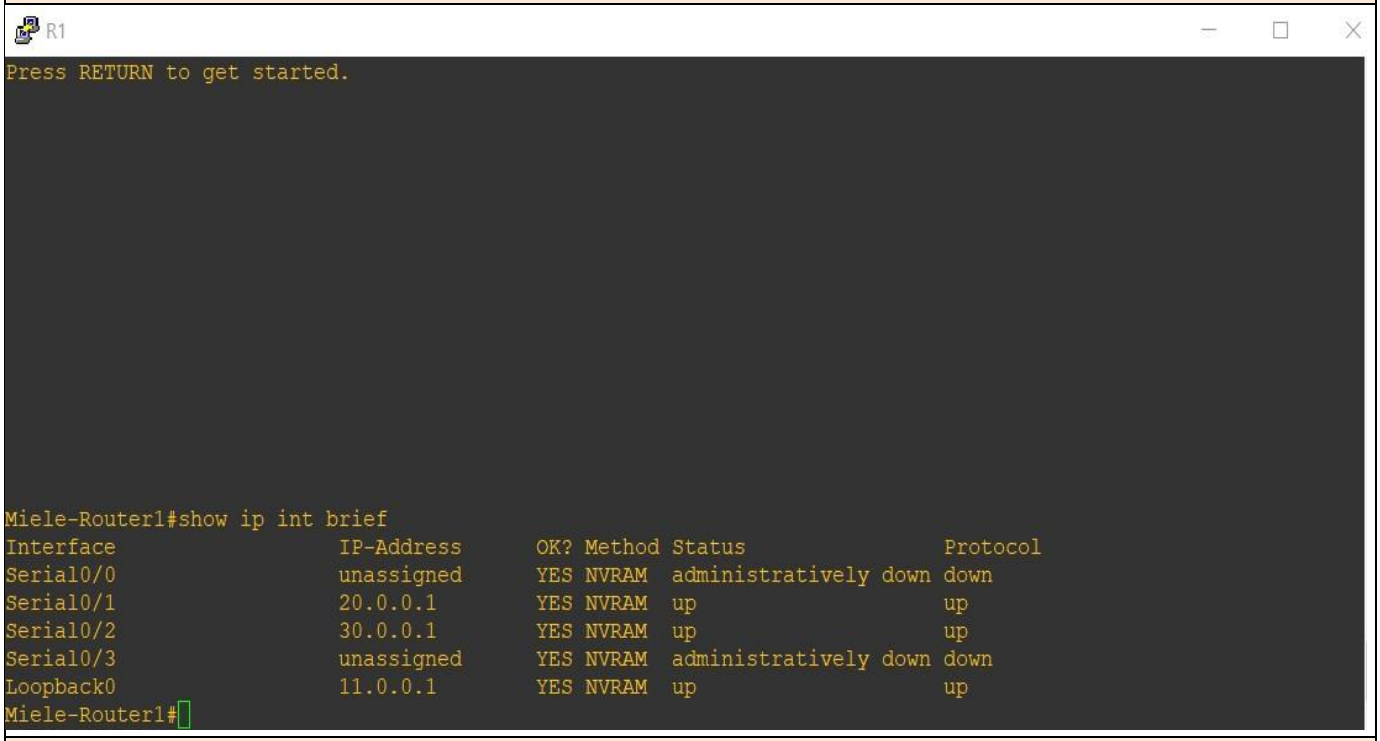
- **IMPORTANT:** The router hostname should be set to **Lastname-RouterX**. So if your last name is Smith and you are setting the hostname for Router2, the hostname should be **Smith-Router2**.
- Use this file to submit yours answers. Take screenshots as instructed below. Crop out any irrelevant parts of the screen (**10% penalty if I can't easily read the output in the screenshot**).
- Submit the file in SLATE before the deadline. **You should submit 2 files**; this Word document **saved as a PDF file**, and a ZIP file containing all the files in your GNS3 project.

1. Answer the following questions:

Each router has ___ actively used physical interface(s).	2
Each router has ___ virtual interface(s).	1
Each router has ___ directly-connected networks in its routing table.	3

2. For each router, show the output of the **show ip interface brief** command:

Output from Router1:



Output from Router2:

R2

```
Miele-Router2 con0 is now available



Press RETURN to get started.


Miele-Router2#show ip int brief
Interface                  IP-Address      OK? Method Status                Protocol
Serial0/0                  unassigned      YES unset  administratively down down
Serial0/1                  10.0.0.1        YES manual up                    up
Serial0/2                  30.0.0.2        YES manual up                    up
Serial0/3                  unassigned      YES unset  administratively down down
Loopback0                  12.0.0.1        YES manual up                    up
Miele-Router2#
```

Output from Router3:

R3

```
Miele-Router3 con0 is now available



Press RETURN to get started.




Miele-Router3#show ip int brief
Interface                  IP-Address      OK? Method Status                Protocol
Serial0/0                  unassigned      YES unset  administratively down down
Serial0/1                  20.0.0.2        YES manual up                    up
Serial0/2                  10.0.0.2        YES manual up                    up
Serial0/3                  unassigned      YES unset  administratively down down
Loopback0                  13.0.0.1        YES manual up                    up
Miele-Router3#
```

Output from Router1:

3. For each router, show the output of the **show ip route** command:

```
Miele-Router1#show ip route
Codes: C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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

     20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       20.0.0.0/8 is directly connected, Serial0/1
C       20.0.0.2/32 is directly connected, Serial0/1
R    10.0.0.0/8 [120/1] via 30.0.0.2, 00:00:17, Serial0/2
                [120/1] via 20.0.0.2, 00:00:01, Serial0/1
C    11.0.0.0/8 is directly connected, Loopback0
R    12.0.0.0/8 [120/1] via 30.0.0.2, 00:00:17, Serial0/2
R    13.0.0.0/8 [120/1] via 30.0.0.2, 00:00:17, Serial0/2
                [120/1] via 20.0.0.2, 00:00:01, Serial0/1
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.2/32 is directly connected, Serial0/2
C       30.0.0.0/8 is directly connected, Serial0/2
```

Output from Router2:

```
Miele-Router2#show ip route
Codes: C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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

R    20.0.0.0/8 [120/1] via 30.0.0.1, 00:00:21, Serial0/2
                [120/1] via 10.0.0.2, 00:00:16, Serial0/1
     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.2/32 is directly connected, Serial0/1
C       10.0.0.0/8 is directly connected, Serial0/1
R    11.0.0.0/8 [120/1] via 30.0.0.1, 00:00:21, Serial0/2
C    12.0.0.0/8 is directly connected, Loopback0
R    13.0.0.0/8 [120/1] via 10.0.0.2, 00:00:16, Serial0/1
     30.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       30.0.0.0/8 is directly connected, Serial0/2
C       30.0.0.1/32 is directly connected, Serial0/2
```

Output from Router3:

```
Miele-Router3#show ip route
Codes: C - connected, S - static, 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
       i - IS-IS, su - IS-IS summary, 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

     20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       20.0.0.0/8 is directly connected, Serial0/1
C       20.0.0.1/32 is directly connected, Serial0/1
     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/8 is directly connected, Serial0/2
C       10.0.0.1/32 is directly connected, Serial0/2
R    11.0.0.0/8 [120/1] via 20.0.0.1, 00:00:06, Serial0/1
                [120/1] via 10.0.0.1, 00:00:12, Serial0/2
R    12.0.0.0/8 [120/1] via 20.0.0.1, 00:00:06, Serial0/1
                [120/1] via 10.0.0.1, 00:00:14, Serial0/2
C    13.0.0.0/8 is directly connected, Loopback0
R    30.0.0.0/8 [120/1] via 20.0.0.1, 00:00:09, Serial0/1
                [120/1] via 10.0.0.1, 00:00:14, Serial0/2
```

4. For each router, run the **show run** command, and take screenshots of the parts showing the **PPP username/password**, **interface configurations** and the part showing the **RIP configuration**. Do not include the rest of the config file. **There will be a 10% penalty if you simply paste a screenshot of the entire config file**.

Output from Router1:

```
interface Loopback0
 ip address 11.0.0.1 255.0.0.0
!
interface Serial0/0
 no ip address
 shutdown
 serial restart-delay 0
!
interface Serial0/1
 ip address 20.0.0.1 255.0.0.0
 encapsulation ppp
 serial restart-delay 0
 ppp authentication chap
!
interface Serial0/2
 ip address 30.0.0.1 255.0.0.0
 encapsulation ppp
 serial restart-delay 0
 ppp authentication chap
!
```

```
username Miele-Router2 password 0 Miele
username Miele-Router3 password 0 Miele
!
router rip
 network 11.0.0.0
 network 20.0.0.0
 network 30.0.0.0
```

Output from Router2:

```
interface Loopback0
 ip address 12.0.0.1 255.0.0.0
!
interface Serial0/0
 no ip address
 shutdown
 serial restart-delay 0
!
interface Serial0/1
 ip address 10.0.0.1 255.0.0.0
 encapsulation ppp
 serial restart-delay 0
 ppp authentication chap
!
interface Serial0/2
 ip address 30.0.0.2 255.0.0.0
 encapsulation ppp
 serial restart-delay 0
 ppp authentication chap
!
```

```
username Miele-Router3 password 0 Miele
username Miele-Router1 password 0 Miele
router rip
 network 10.0.0.0
 network 12.0.0.0
 network 30.0.0.0
```

Output from Router3:

```
interface Loopback0
 ip address 13.0.0.1 255.0.0.0
!
interface Serial0/0
 no ip address
 shutdown
 serial restart-delay 0
!
interface Serial0/1
 ip address 20.0.0.2 255.0.0.0
 encapsulation ppp
 serial restart-delay 0
 ppp authentication chap
!
interface Serial0/2
 ip address 10.0.0.2 255.0.0.0
 encapsulation ppp
 serial restart-delay 0
 ppp authentication chap
!
```

```
username Miele-Router1 password 0 Miele
username Miele-Router2 password 0 Miele
router rip
 network 10.0.0.0
 network 13.0.0.0
 network 20.0.0.0
```

5. From each router, ping all the interfaces on networks that are not directly connected to the router. For example, from Router1 you should ping 12.0.0.1, 13.0.0.1, 10.0.0.1 and 10.0.0.2. Take one screenshot showing the 4 ping results. **There will be a 10% penalty if the screenshot contains irrelevant information**.

Output from Router1:

```
Miele-Router1#ping 12.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/64/64 ms
Miele-Router1#ping 13.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 13.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 68/86/100 ms
Miele-Router1#ping 10.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 40/74/96 ms
Miele-Router1#ping 10.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 68/82/100 ms
```

Output from Router2:

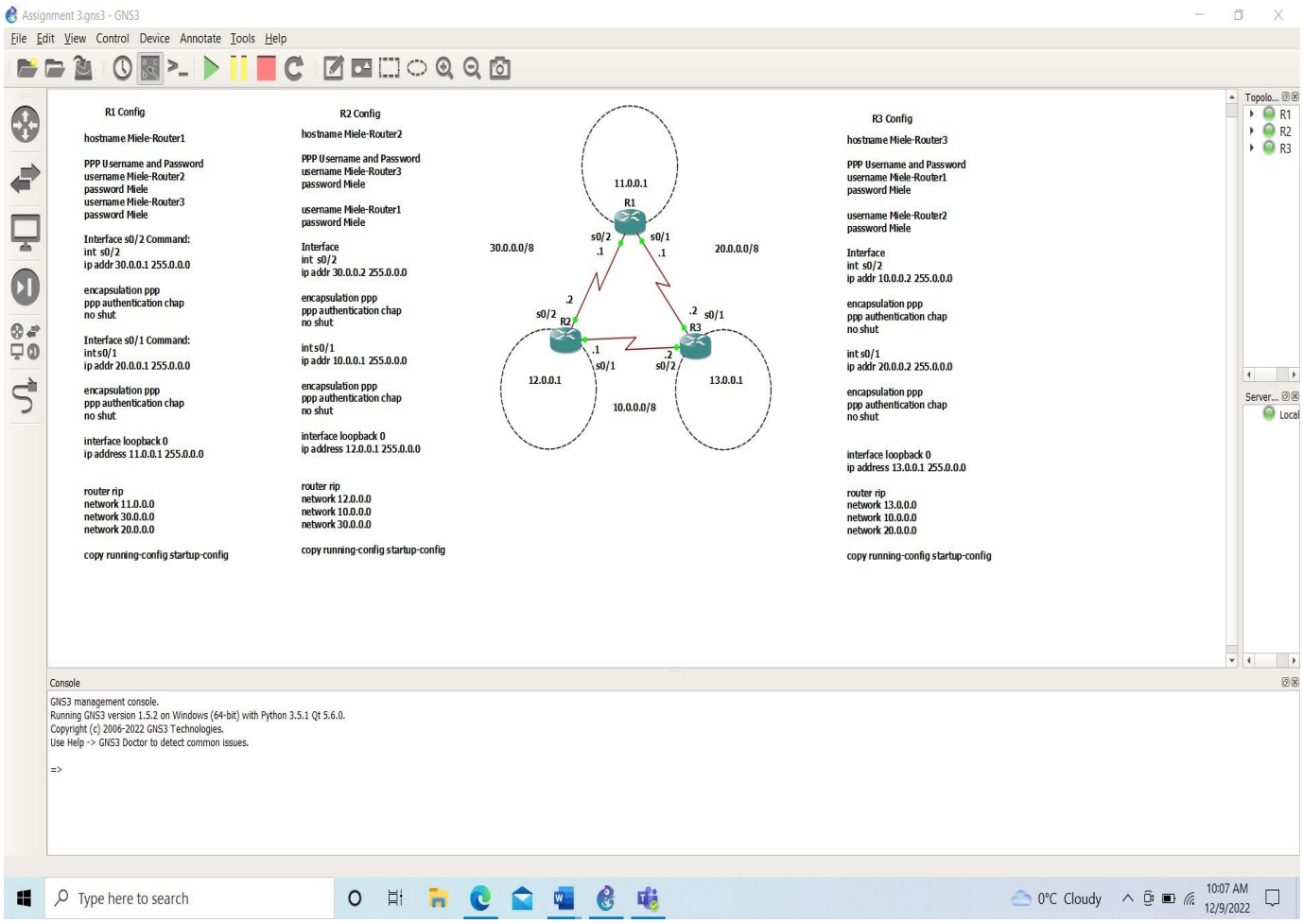
```
Miele-Router2#ping 11.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 11.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 20/28/32 ms
Miele-Router2#ping 13.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 13.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/68/72 ms
Miele-Router2#ping 20.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 20.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/48/64 ms
Miele-Router2#ping 20.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 20.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/64/68 ms
```

Output from Router3:

```
Miele-Router3#ping 11.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 11.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/80/100 ms
Miele-Router3#ping 12.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 12.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 68/80/100 ms
Miele-Router3#ping 30.0.0.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 30.0.0.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 28/57/100 ms
Miele-Router3#ping 30.0.0.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 30.0.0.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 64/66/68 ms
```

6. Take a screenshot of your GNS3 network topology. Use the screenshot feature in GNS3 (click File, Take a screenshot).

GNS3 Network:


Assignment 3.gns3 - GNS3
File Edit View Control Device Annotate Tools Help
R1 Config
hostname Miele-Router1
PPP Username and Password
username Miele-Router2
password Miele
username Miele-Router3
password Miele
Interface s0/2 Command:
int s0/2
ip addr 30.0.0.1 255.0.0.0
encapsulation ppp
ppp authentication chap
no shut
Interface s0/1 Command:
int s0/1
ip addr 20.0.0.1 255.0.0.0
encapsulation ppp
ppp authentication chap
no shut
interface loopback 0
ip address 11.0.0.1 255.0.0.0
router rip
network 11.0.0.0
network 30.0.0.0
network 20.0.0.0
copy running-config startup-config
R2 Config
hostname Miele-Router2
PPP Username and Password
username Miele-Router3
password Miele
username Miele-Router1
password Miele
Interface
int s0/2
ip addr 30.0.0.2 255.0.0.0
encapsulation ppp
ppp authentication chap
no shut
int s0/1
ip addr 10.0.0.1 255.0.0.0
encapsulation ppp
ppp authentication chap
no shut
interface loopback 0
ip address 12.0.0.1 255.0.0.0
router rip
network 12.0.0.0
network 10.0.0.0
network 30.0.0.0
copy running-config startup-config
11.0.0.1
R1
s0/2
.1
s0/1
.1
30.0.0.0/8
20.0.0.0/8
.2
s0/2
R2
.2
s0/1
R3
.1
s0/1
.2
s0/2
12.0.0.1
13.0.0.1
10.0.0.0/8
R3 Config
hostname Miele-Router3
PPP Username and Password
username Miele-Router1
password Miele
username Miele-Router2
password Miele
Interface
int s0/2
ip addr 10.0.0.2 255.0.0.0
encapsulation ppp
ppp authentication chap
no shut
int s0/1
ip addr 20.0.0.2 255.0.0.0
encapsulation ppp
ppp authentication chap
no shut
interface loopback 0
ip address 13.0.0.1 255.0.0.0
router rip
network 13.0.0.0
network 10.0.0.0
network 20.0.0.0
copy running-config startup-config
Topolo...
R1
R2
R3
Server...
Local
Console
GNS3 management console.
Running GNS3 version 1.5.2 on Windows (64-bit) with Python 3.5.1 Qt 5.6.0.
Copyright (c) 2006-2022 GNS3 Technologies.
Use Help -> GNS3 Doctor to detect common issues.
=>
Type here to search
0°C Cloudy
10:07 AM
12/9/2022