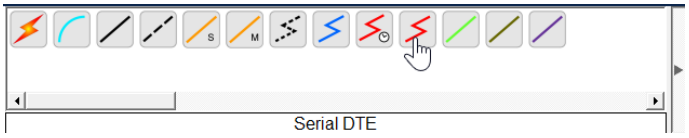
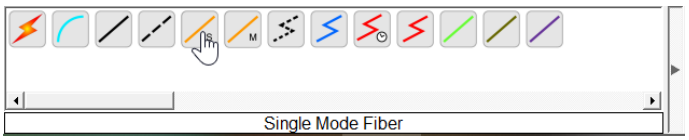
TP N° 5

1. C'est Quoi un cable **Serie** et un cable **Fibre**:

Cable

- **Serie** : un cable qui simule les connections **WAN** entre routeurs.
- **Fibre** : un cable qui utilise des fils de verre pour transmettre des données sous forme de lumiere.

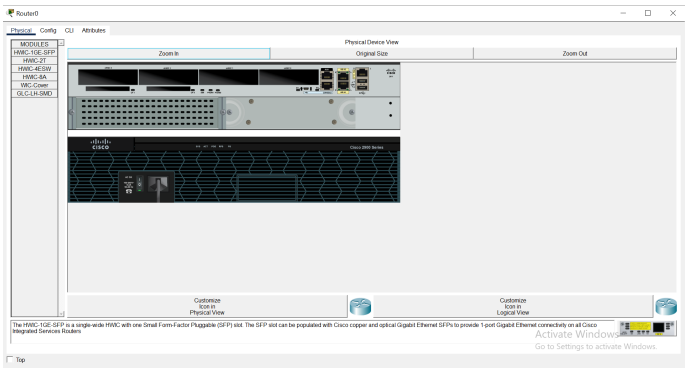


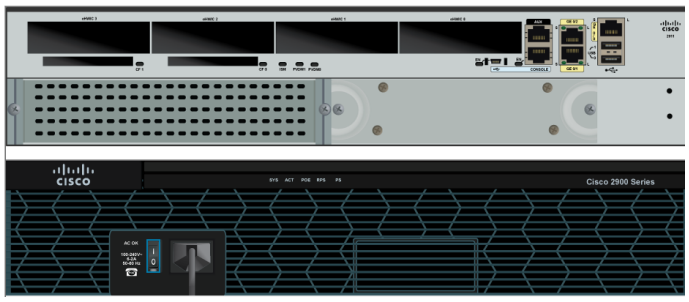


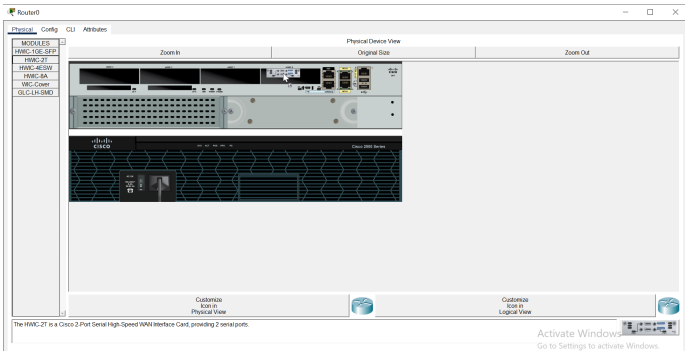
2. Comment ajouter les ports Serie et fibre dans un routeur?:

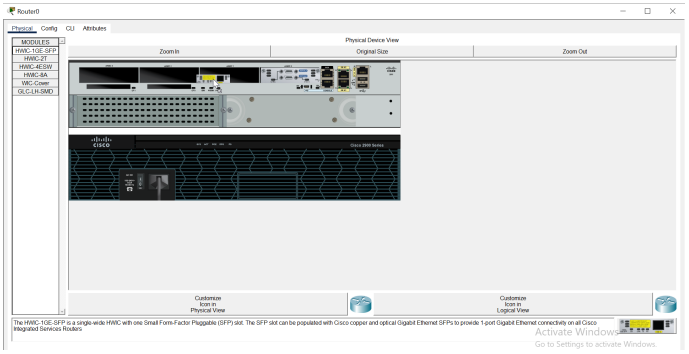
Ajouter Ports

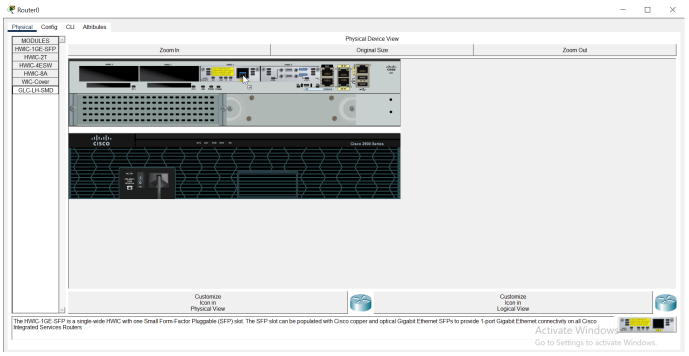
- Click sur le routeur
- Eteint le routeur
- Ajouter le module `HWIC-2T` pour ajouter le port **Serie**
- Ajouter le module `HWIC-1G-SFP`
- Ajouter le module `GLC-LH-SMD` sur `HWIC-1G-SFP` pour ajouter le port **Fibre**
- Allumer le routeur.



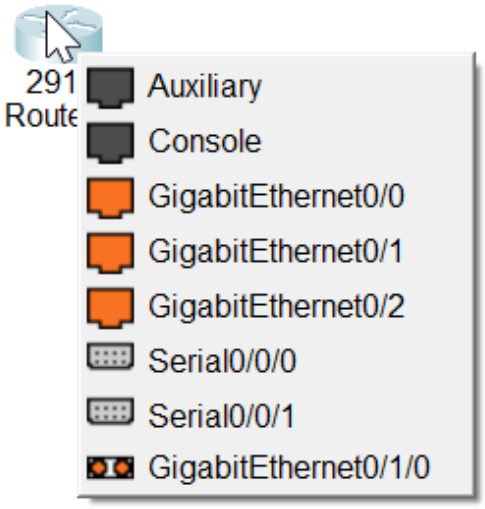



Router0
Physical
Config
CLI
Attributes
Physical Device View
Zoom In
Original Size
Zoom Out
MODULES
HWIC-1GE-SFP
HWIC-2T
HWIC-4ESW
HWIC-8A
WIC-Cover
GLC-LH-SMD
Customize Icon in Physical View
Customize Icon in Logical View
The HWIC-2T is a Cisco 2-Port Serial High-Speed WAN Interface Card, providing 2 serial ports.
Activate Windows
Go to Settings to activate Windows.

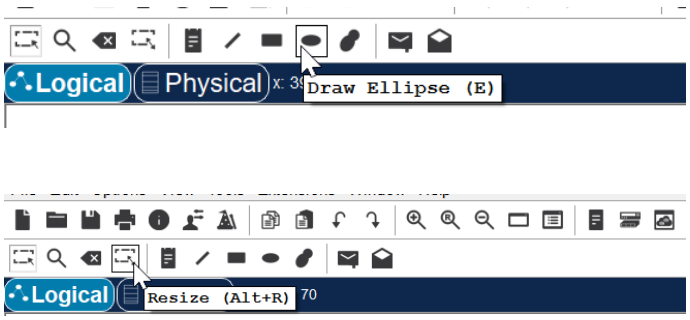

Router0
Physical
Config
CLI
Attributes
Physical Device View
Zoom In
Original Size
Zoom Out
MODULES
HWIC-1GE-SFP
HWIC-2T
HWIC-4ESW
HWIC-8A
WIC-Cover
GLC-LH-SMD
Customize Icon in Physical View
Customize Icon in Logical View
The HWIC-1GE-SFP is a single-wide HWIC with one Small Form-Factor Pluggable (SFP) slot. The SFP slot can be populated with Cisco copper and optical Gigabit Ethernet SFPs to provide 1-port Gigabit Ethernet connectivity on all Cisco Integrated Services Routers
Activate Windows
Go to Settings to activate Windows.


Router0
Physical
Config
CLI
Attributes
Physical Device View
Zoom In
Original Size
Zoom Out
MODULES
HWIC-1GE-SFP
HWIC-2T
HWIC-4ESW
HWIC-8A
WIC-Cover
GLC-LH-SMD
Customize Icon in Physical View
Customize Icon in Logical View
The HWIC-1GE-SFP is a single-wide HWIC with one Small Form-Factor Pluggable (SFP) slot. The SFP slot can be populated with Cisco copper and optical Gigabit Ethernet SFPs to provide 1-port Gigabit Ethernet connectivity on all Cisco Integrated Services Routers
Activate Windows
Go to Settings to activate Windows.

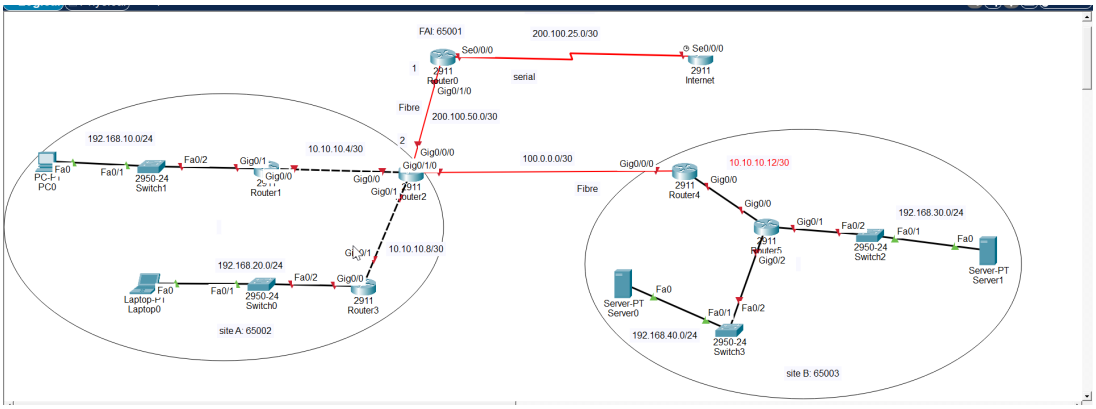

cisco
Cisco 2900 Series



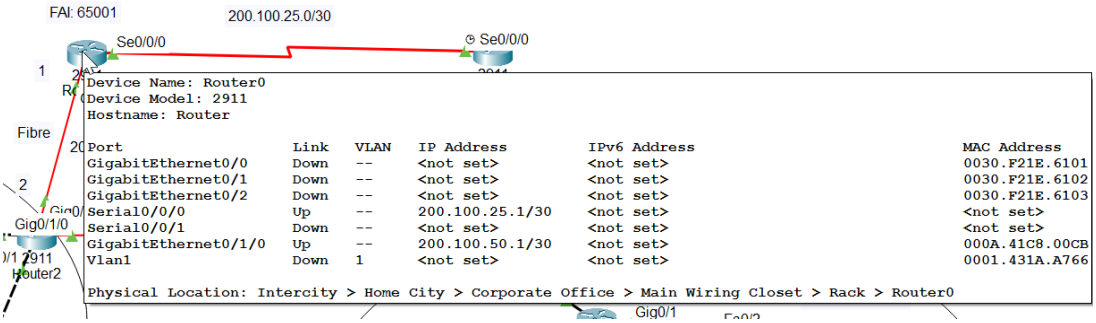
3. Comment ajouter Des ellipse et ajuster sa taille ?

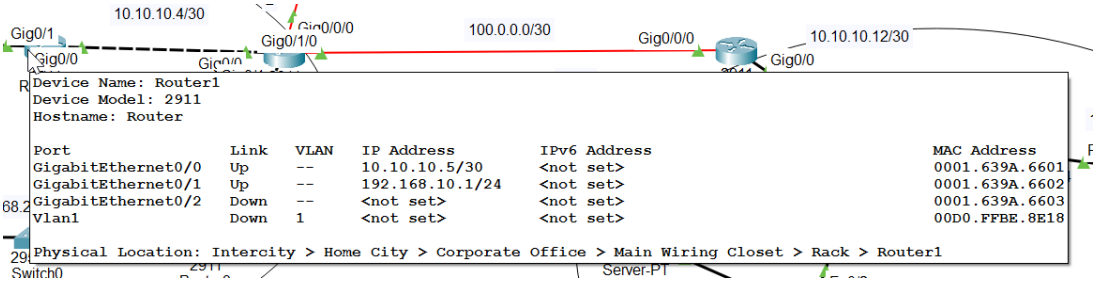


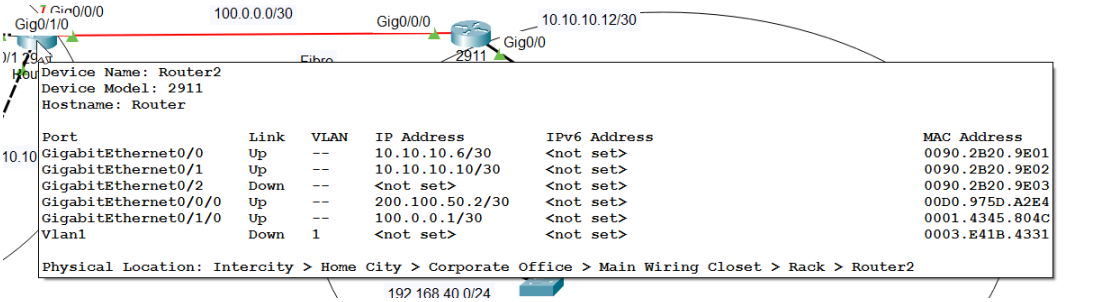
4. Faite la topologie suivants:

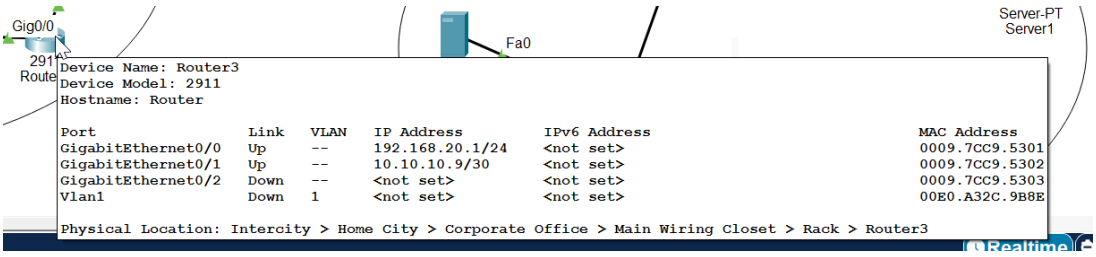


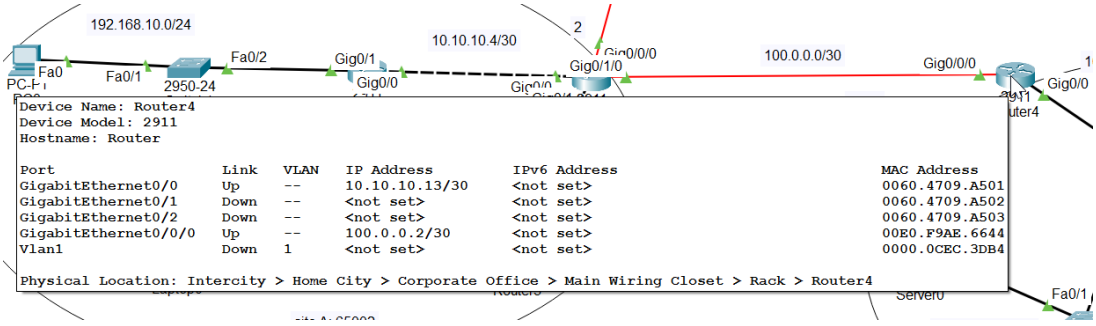
5. Faite l'adressage:

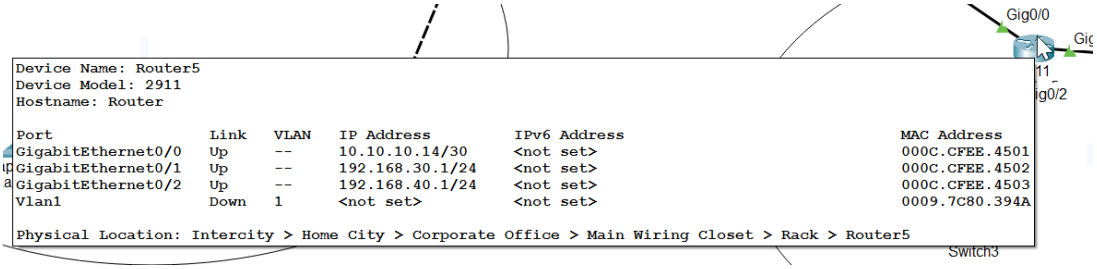


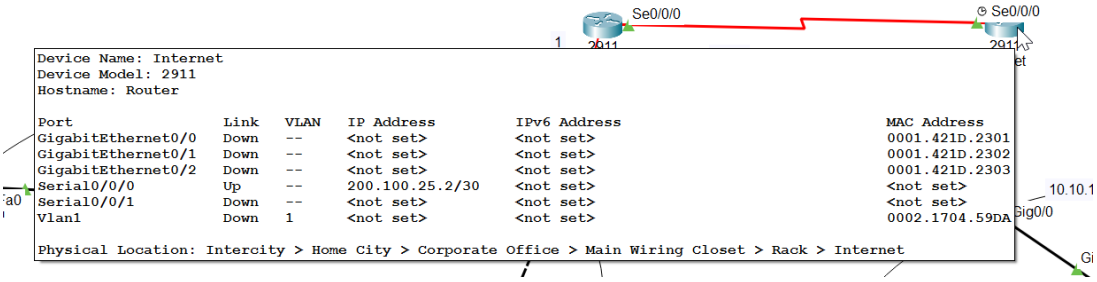


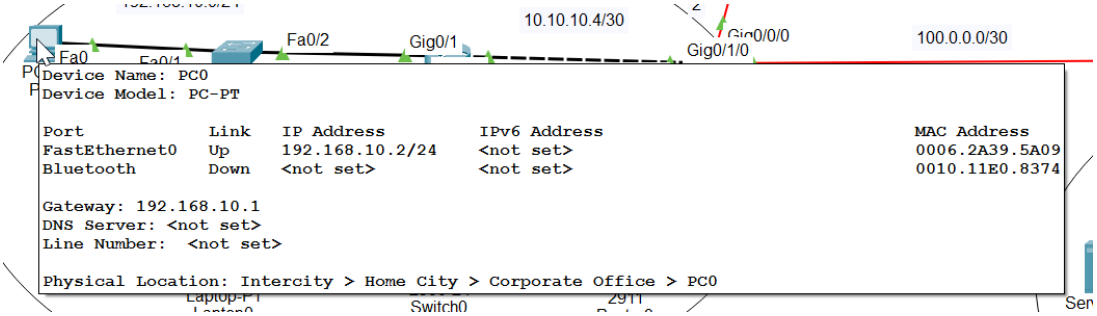


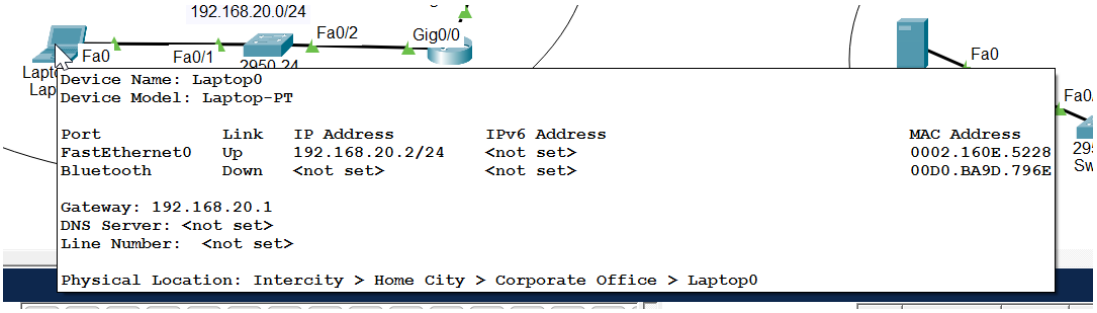


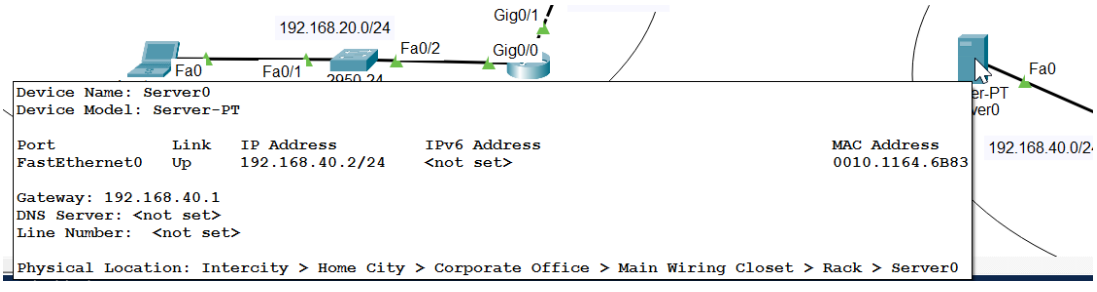


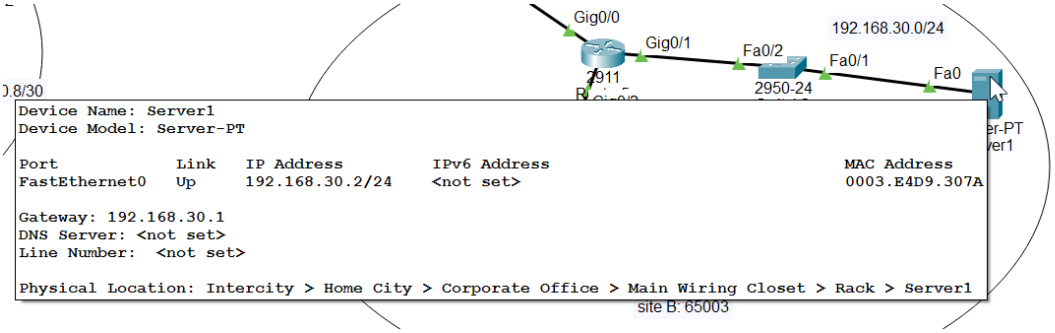

Gig0/0
Device Name: Router5
Device Model: 2911
Hostname: Router
Port Link VLAN IP Address IPv6 Address MAC Address
GigabitEthernet0/0 Up -- 10.10.10.14/30 <not set> 000C.CFEE.4501
GigabitEthernet0/1 Up -- 192.168.30.1/24 <not set> 000C.CFEE.4502
GigabitEthernet0/2 Up -- 192.168.40.1/24 <not set> 000C.CFEE.4503
Vlan1 Down 1 <not set> <not set> 0009.7C80.394A
Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Router5
Switch3


Se0/0/0
Se0/0/0
Device Name: Internet
Device Model: 2911
Hostname: Router
Port Link VLAN IP Address IPv6 Address MAC Address
GigabitEthernet0/0 Down -- <not set> <not set> 0001.421D.2301
GigabitEthernet0/1 Down -- <not set> <not set> 0001.421D.2302
GigabitEthernet0/2 Down -- <not set> <not set> 0001.421D.2303
Serial0/0/0 Up -- 200.100.25.2/30 <not set> <not set>
Serial0/0/1 Down -- <not set> <not set> <not set>
Vlan1 Down 1 <not set> <not set> 0002.1704.59DA
Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Internet

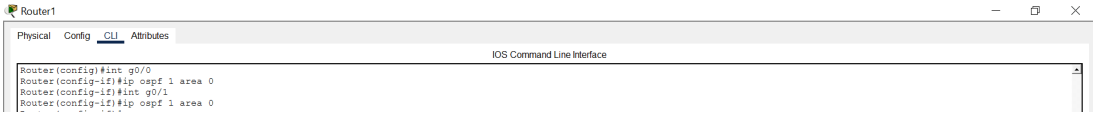

10.10.10.4/30
100.0.0.0/30
Fa0
Fa0/2
Gig0/1
Gig0/1/0
Device Name: PC0
Device Model: PC-PT
Port Link IP Address IPv6 Address MAC Address
FastEthernet0 Up 192.168.10.2/24 <not set> 0006.2A39.5A09
Bluetooth Down <not set> <not set> 0010.11E0.8374
Gateway: 192.168.10.1
DNS Server: <not set>
Line Number: <not set>
Physical Location: Intercity > Home City > Corporate Office > PC0

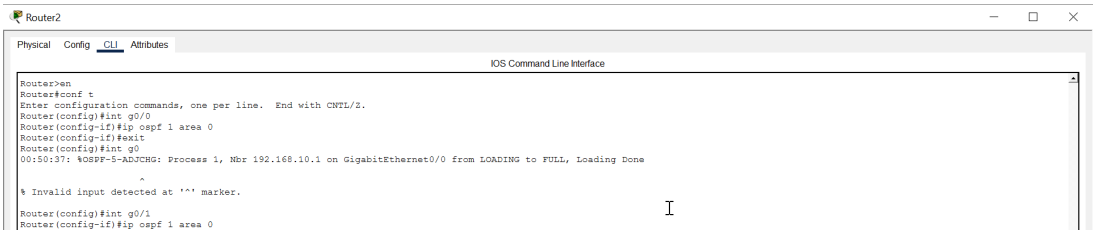

192.168.20.0/24
Fa0
Fa0/1
Fa0/2
Gig0/0
Device Name: Laptop0
Device Model: Laptop-PT
Port Link IP Address IPv6 Address MAC Address
FastEthernet0 Up 192.168.20.2/24 <not set> 0002.160E.5228
Bluetooth Down <not set> <not set> 00D0.BA9D.796E
Gateway: 192.168.20.1
DNS Server: <not set>
Line Number: <not set>
Physical Location: Intercity > Home City > Corporate Office > Laptop0

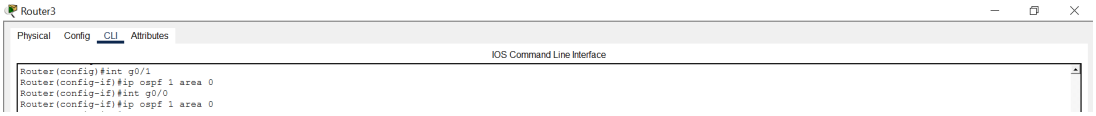

192.168.20.0/24
Gig0/1
Fa0
Fa0/1
Fa0/2
Gig0/0
Device Name: Server0
Device Model: Server-PT
Port Link IP Address IPv6 Address MAC Address
FastEthernet0 Up 192.168.40.2/24 <not set> 0010.1164.6B83
Gateway: 192.168.40.1
DNS Server: <not set>
Line Number: <not set>
Physical Location: Intercity > Home City > Corporate Office > Main Wiring Closet > Rack > Server0

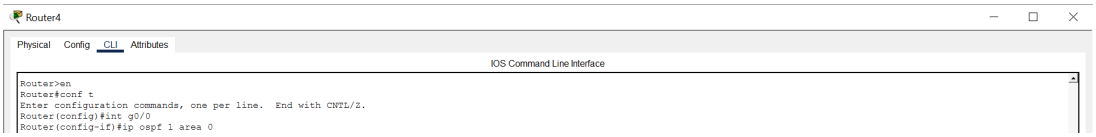


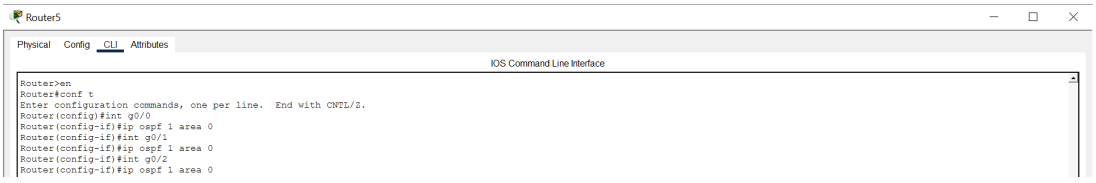
6. Configurez l'**OSPF** (en mode interface) au niveau des sites A et B:



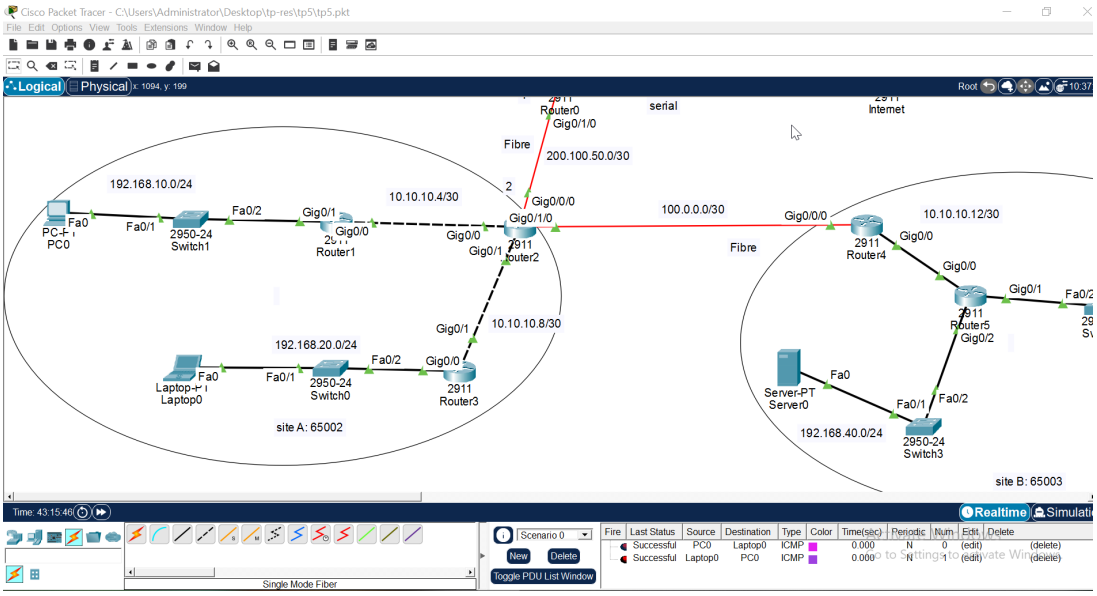


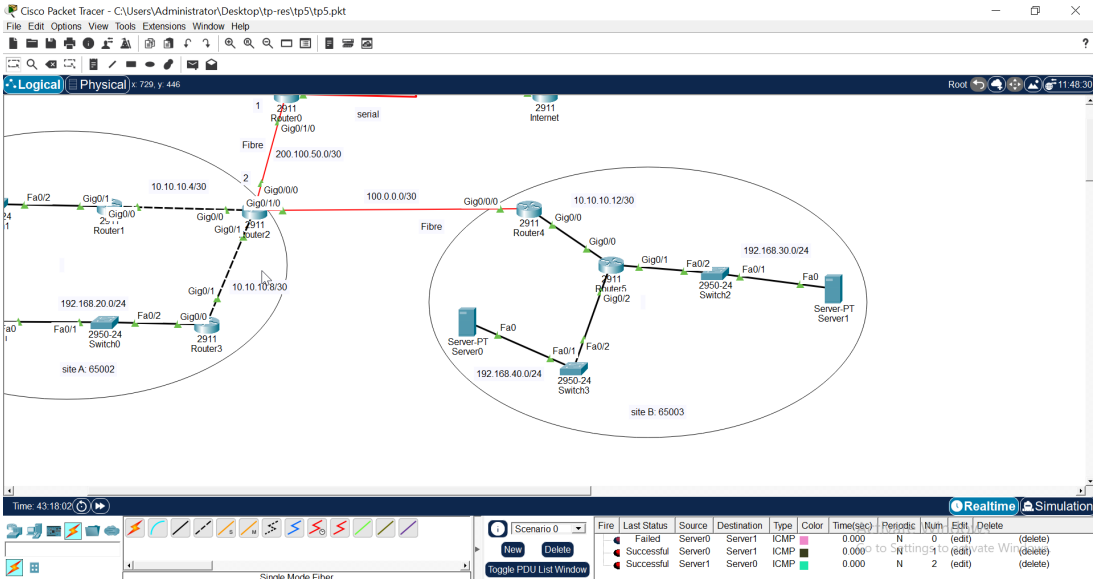




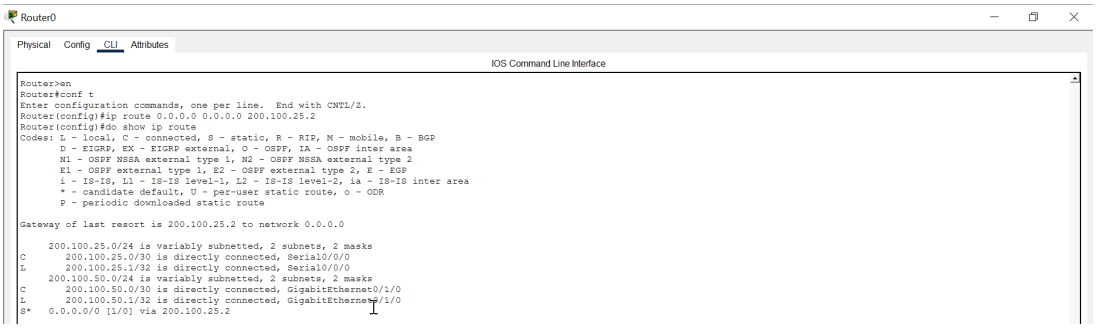


7. Faire un ping entre machines du meme Site (Entre Machine Site A puis Entre Machine Site B) :





8. Configurez la route par défaut sur le routeur Router0 vers internet:



9. C'est Quoi un systeme autonome?:

Système Autonome

Un système autonome est un système réseau qui dispose de **edge routers** qui configurent **BGP** pour permettre la communication avec des systèmes autonomes externes.

10. C'est Quoi le protocole **BGP**?

BGP

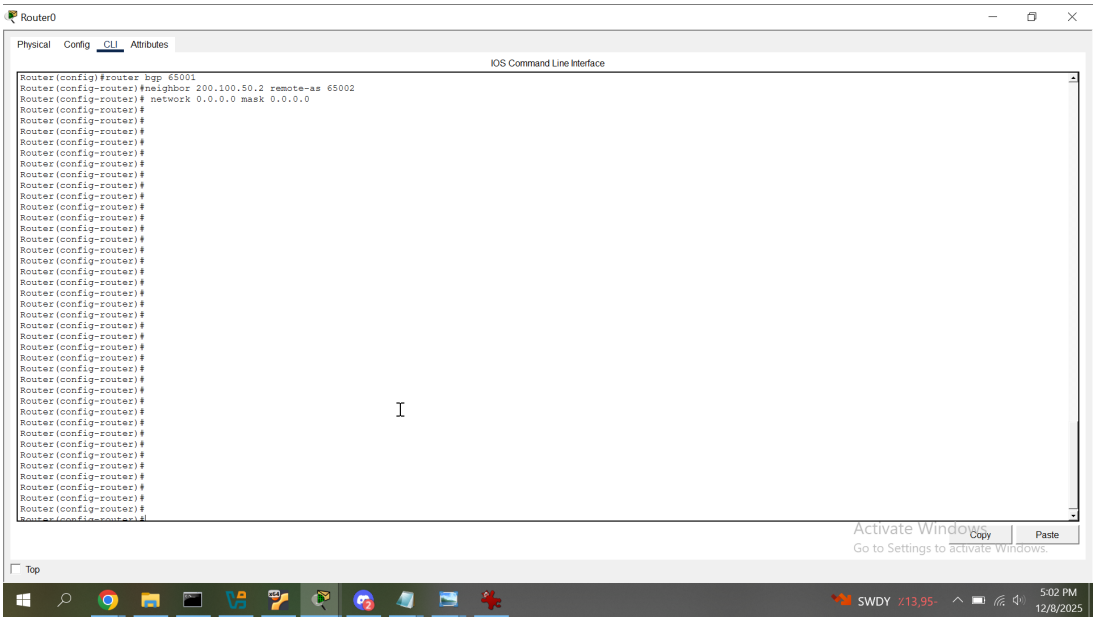
BGP est un protocole de routage dynamique qui permet la communication entre les systemes autonomes , ce dernier est configurer sur les edges routers qui vont partager leur reseaux **LAN**
a ces voisins (edges routers d'autre systemes autonomes).

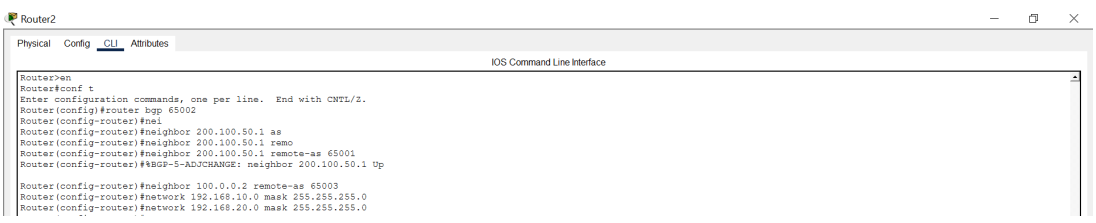
11. Comment Configurer **BGP**?

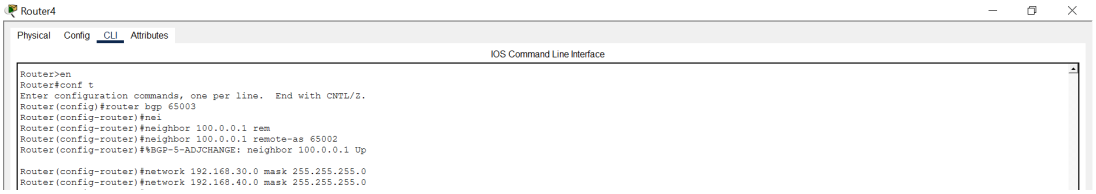
Configurer BGP

- On doit etre au niveau 3 pour activer le **BGP** avec l'ID du system autonome du routeur avec la commande : `router bgp <Current_SA_ID>`
- Apres la commande precedente on passe au niveau 4 (`config-router`)
- Pour creer une session avec un voisin on utilise la commande suivant :
  `neighbor <@Neighbor> remote as <Neighbor_SA_ID>`
- Pour propager les reseaux **LAN** au voisin on utilise la commande suivant :
  `network <@LAN> mask <mask>`

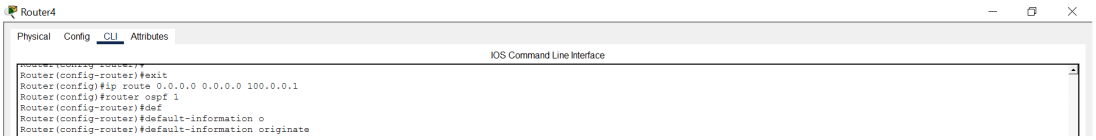
12. Configurez le **BGP** sur les edge routers (router0 , router2, router4)



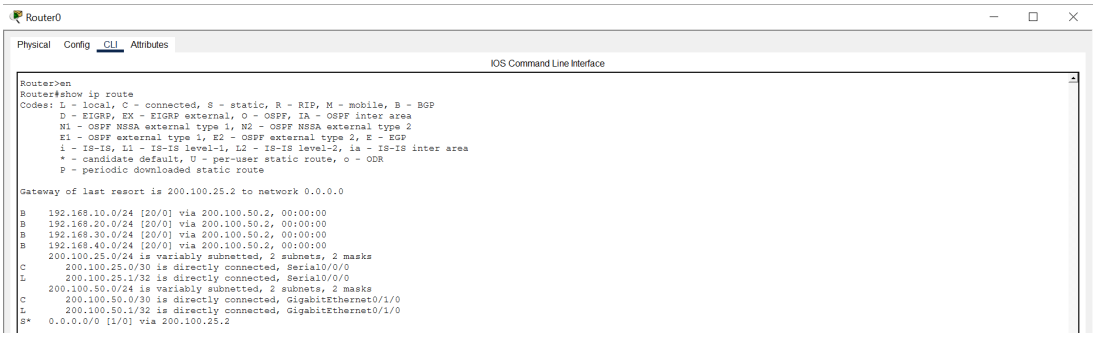


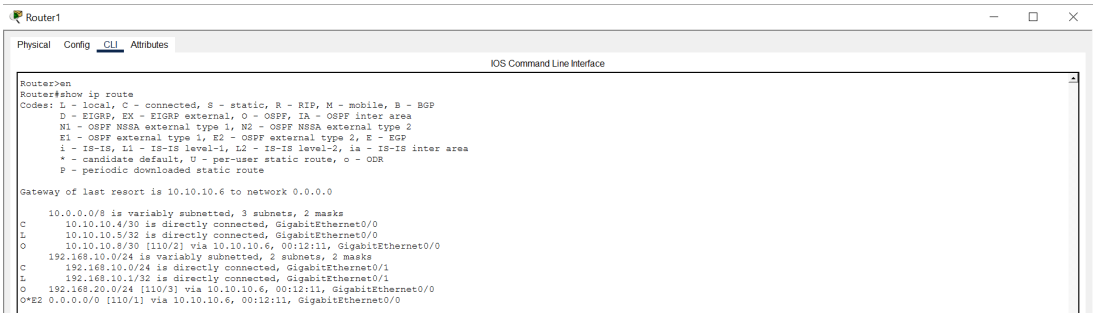


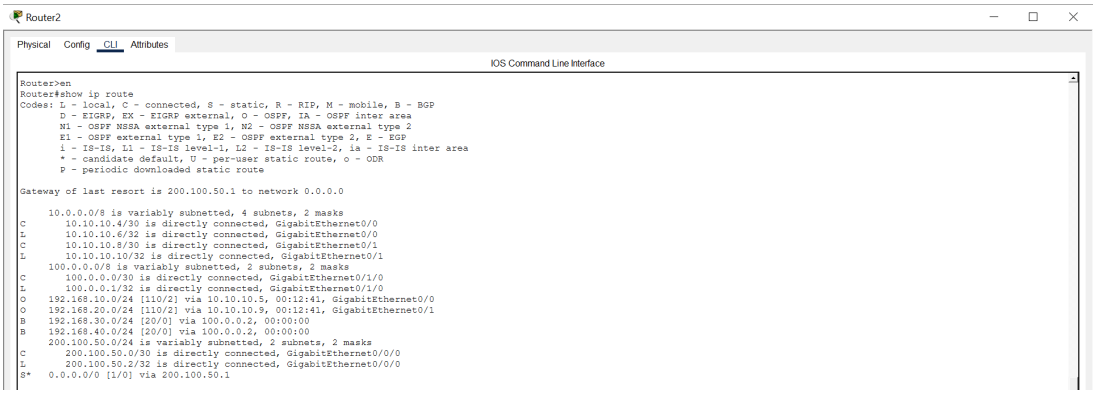
13. Configurez la route par défaut sur le routeur Router2, Router4 et la propagation **OSPF**:

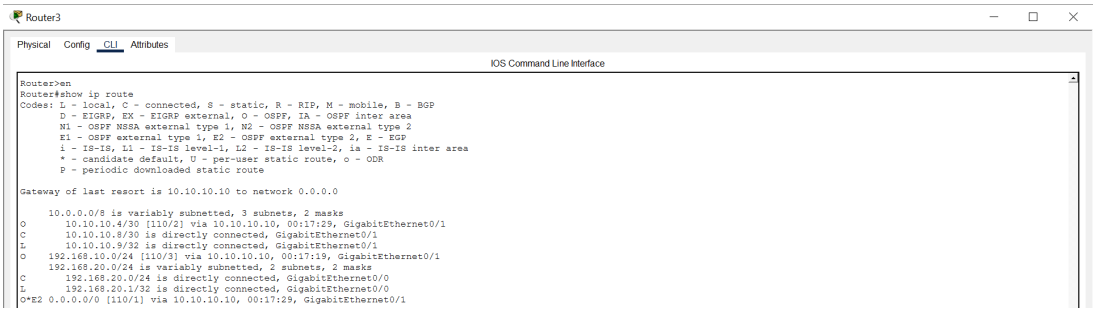


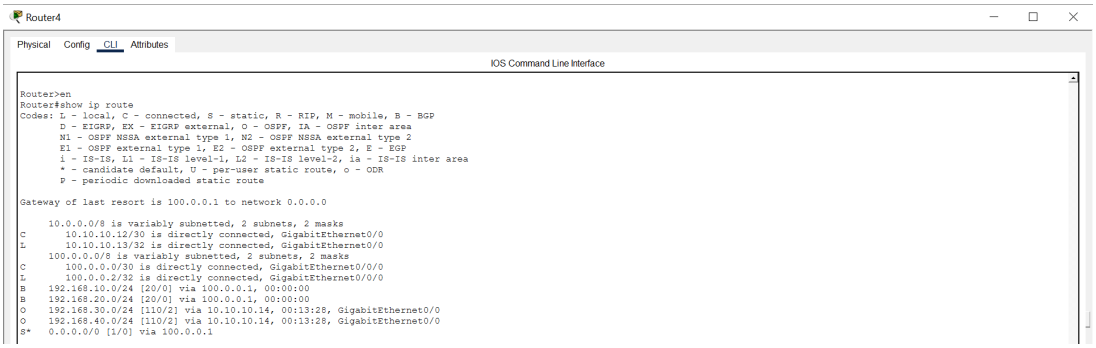
14. Affichez les tables de routage des différents routeurs :

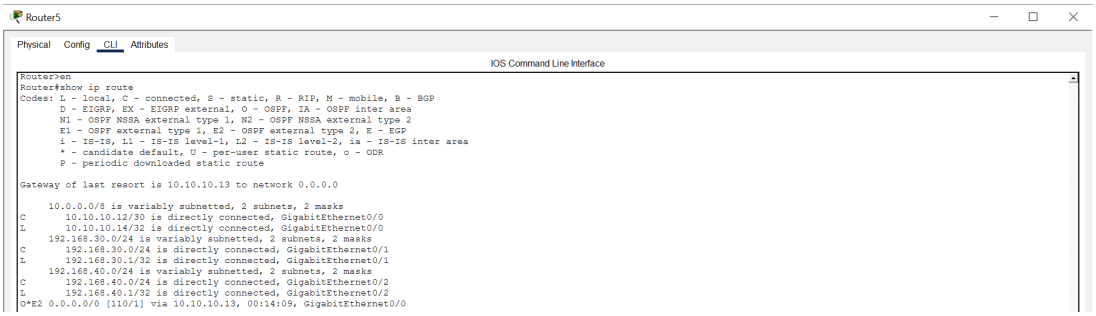












Remarque

On remarque que dans la table de routage des routeurs internes (pas les edge routers) qu'ils sont une route `O*E` qui veut dire une route **OSPF** extenre a son systeme autonome c'est la route qui mene vers son edge router pour quitter le systeme autonome.

15. Vérifiez la communication entre les différents équipements :