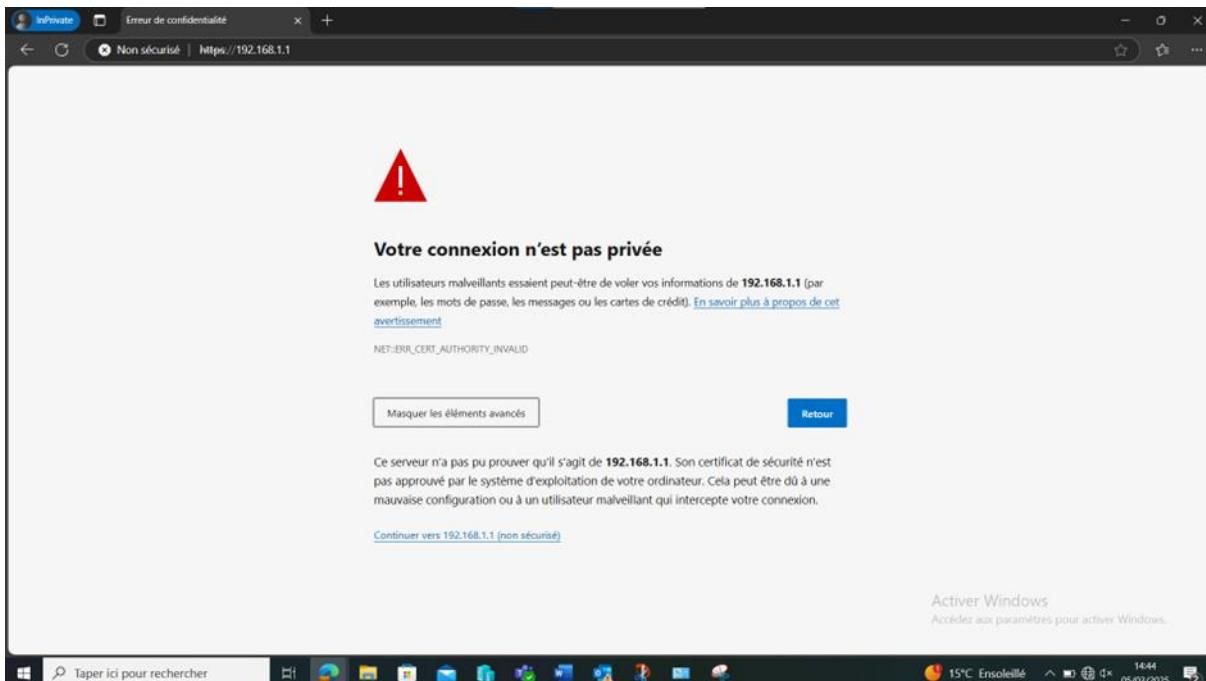


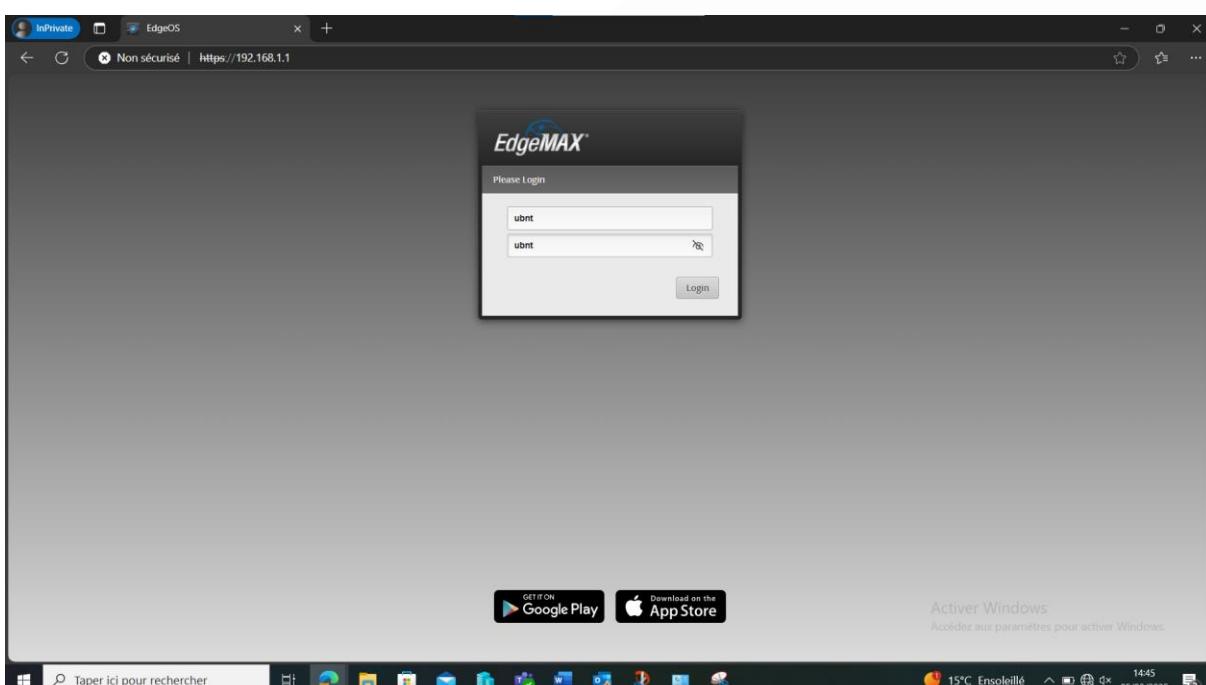
CONFIGURATION MATERIELLE BAIE

Routeur Ubiquiti

J'ai configuré l'adresse IP de mon ordinateur sur le réseau 192.168.1.0/24 afin d'attendre l'adresse par défaut du routeur : **192.168.1.1**.



Je me suis ensuite connectée avec les identifiants par défaut qui sont : **ubnt ubnt**



J'ai changé les identifiants du routeur pour plus de sécurité, ainsi que son adresse IP. Ceux-ci sont désormais :

Configuration de mon routeur et de mes switches

ID : admin

MDP : P@ssw0rd

IP : 192.168.11.254

Voici la **configuration** appliquée à mon routeur :

J'ai débord nommé mon routeur **P1R1**.

The screenshot shows the EdgeRouter Lite configuration interface. In the top navigation bar, it says "Welcome admin" and "to P1R1". The main area has tabs for "Services", "Interfaces", and "Wizards". Under "Services", there's a "Routes" section with a table:

| Type | Count |
|-----------|-------|
| connected | 7 |
| static | 1 |
| rip | 0 |
| ospf | 0 |
| bgp | 0 |
| total | 8 |

Under "Interfaces", there's a table:

| Interface | Tx Rate (kops) | Rx Rate (kops) |
|-----------|----------------|----------------|
| eth0 | 500 | 1.6 |
| eth1 | 400 | 1.4 |
| eth1.100 | 300 | 1.2 |
| eth1.101 | 200 | 1.0 |
| eth1.102 | 100 | 0.8 |
| eth1.103 | 50 | 0.6 |
| eth2 | 0 | 0.4 |

Below the interfaces table are several configuration sections:

- Basic Settings**: Host Name (P1R1), System gateway address, System domain name.
- Time Zone**: Use Coordinated Universal Time (UTC) or Select continent/ocean.
- Name Server**: System name server, Add New.
- NTP**: Automatically update system time using NTP.
- Device analytics & crash reporting**: Enable device analytics, Help us improve our EdgeRouter experience and stability by sharing anonymous crash reports and usage statistics.
- Management Settings**: SSH Server (Enable, Port 22), Telnet Server (Enable, Port), SNMP Agent (Enable).
- UISP Connection**: Enable.

J'ai configuré mon EdgeRouter avec l'interface eth0 connectée à Internet et eth1 utilisée pour le réseau local. Sur eth1, j'ai créé plusieurs VLANs : eth1.100 pour les serveurs, eth1.101 pour la VoIP, eth1.102 pour l'administration et eth1.103 pour l'entrepôt.

The screenshot shows the EdgeRouter Lite configuration interface. In the top navigation bar, it says "Welcome admin" and "to P1R1". The main area has tabs for "Services", "Interfaces", and "Wizards". Under "Services", there's a "Routes" section with a table:

| Type | Count |
|-----------|-------|
| connected | 7 |
| static | 1 |
| rip | 0 |
| ospf | 0 |
| bgp | 0 |
| total | 8 |

Under "OSPF" is disabled, showing "areas n/a". Under "NAT" is enabled, showing "rules 1". Under "Firewall" is enabled, showing "rulesets 2" and "rules 4". Under "DHCP" is enabled, showing "active servers 4" and "inactive servers 0".

Under "Interfaces", there's a table:

| Interface | Type | IP Address | MTU | Tx | Rx |
|-----------|----------|--------------------|------|-------------|-------------|
| eth0 | Ethernet | 192.168.2.1/24 | 1500 | 112.62 Kbps | 17.71 Kbps |
| eth1 | Ethernet | 192.168.11.254/24 | 1500 | 55.95 Kbps | 120.91 Kbps |
| eth1.100 | VLAN | 192.168.100.254/24 | 1500 | 0 bps | 0 bps |
| eth1.101 | VLAN | 192.168.101.254/24 | 1500 | 1.42 Kbps | 544 bps |
| eth1.102 | VLAN | 192.168.102.254/24 | 1500 | 696 bps | 1.17 Kbps |
| eth1.103 | VLAN | 192.168.103.254/24 | 1500 | 0 bps | 0 bps |
| eth2 | Ethernet | 192.168.2.1/24 | 1500 | 0 bps | 0 bps |

Below the interfaces table is a "Search" field and a table of "Showing 1 to 7 of 7 entries":

| Description | Interface | Type | IP Address | MTU | Tx | Rx | Status | Actions |
|----------------|-----------|----------|--------------------|------|-------------|-------------|--------------|---------|
| Internet | eth0 | Ethernet | 192.168.2.1/24 | 1500 | 112.62 Kbps | 17.71 Kbps | Connected | Actions |
| Local | eth1 | Ethernet | 192.168.11.254/24 | 1500 | 55.95 Kbps | 120.91 Kbps | Connected | Actions |
| Serveurs | eth1.100 | VLAN | 192.168.100.254/24 | 1500 | 0 bps | 0 bps | Connected | Actions |
| Voip | eth1.101 | VLAN | 192.168.101.254/24 | 1500 | 1.42 Kbps | 544 bps | Connected | Actions |
| Administration | eth1.102 | VLAN | 192.168.102.254/24 | 1500 | 696 bps | 1.17 Kbps | Connected | Actions |
| Entrepôt | eth1.103 | VLAN | 192.168.103.254/24 | 1500 | 0 bps | 0 bps | Connected | Actions |
| Local 2 | eth2 | Ethernet | 192.168.2.1/24 | 1500 | 0 bps | 0 bps | Disconnected | Actions |

J'ai configuré quatre serveurs DHCP sur mon routeur, chacun associé à un sous-réseau différent :

- **LAN1** : 192.168.1.0/24, avec une plage de 256 adresses IP disponibles.
- **Vlan101** : 192.168.101.0/24, avec une plage de 16 adresses (+4 réservées).

Configuration de mon routeur et de mes switches

- **Vlan102** : 192.168.102.0/24, avec une plage de 20 adresses.
- **Vlan103** : 192.168.103.0/24, également avec une plage de 20 adresses.

Le serveur DHCP est actif sur chacun de ces réseaux pour attribuer automatiquement les adresses IP aux appareils connectés. Je peux aussi voir combien d'adresses sont actuellement louées ou encore disponibles.

| Name | subnet | Pool size | Leased | Available | static |
|---------|------------------|-----------|--------|-----------|--------|
| LAN1 | 192.168.11.0/24 | 206 | 1 | 205 | 0 |
| Vlan101 | 192.168.101.0/24 | 16 | 3 | 13 | 4 |
| Vlan102 | 192.168.102.0/24 | 20 | 1 | 19 | 0 |
| Vlan103 | 192.168.103.0/24 | 20 | 1 | 19 | 0 |

Sur le DHCP de mon Vlan 101, celui de la VOIP, j'ai réalisé une réservation pour 4 appareils afin que leur adresse IP demeure fixe. Il s'agit des téléphones SIP 1, 2, 3 et du standard Asterisk.

| Name | MAC Address | IP Address | Actions |
|------------------|-------------------|----------------|---------|
| StandardAsterisk | 00:15:5d:01:c9:9e | 192.168.101.7 | Actions |
| TelSIP1 | 24:9a:d8:6e:3a:e6 | 192.168.101.8 | Actions |
| TelSIP2 | 24:9a:d8:6e:38:7e | 192.168.101.9 | Actions |
| TelSIP3 | 00:08:5d:28:8e:66 | 192.168.101.10 | Actions |

J'ai mis en place une file intelligente (Smart Queue) nommée VoIP-QoS sur l'interface eth1.101, qui correspond au VLAN dédié à la VoIP. Cette configuration fait partie de la gestion de la qualité de service (QoS) afin de prioriser le trafic vocal. J'ai défini une limite de 2000 Kbit/s en upload et 1000 Kbit/s en download, appliquée aux flux montants et descendants, pour assurer une bande passante stable et suffisante aux communications VoIP.

| Policy name | WAN Interface | Upload Rate | Download Rate |
|-------------|---------------|---------------|---------------|
| VoIP-QoS | eth1.101 | 2000 Kbit/sec | 1000 Kbit/sec |

Switches Cisco

Dans le cadre de mon projet, j'ai mis en place une infrastructure réseau composée de plusieurs switches interconnectés entre eux, avec une agrégation de liens entre eux. J'ai également activé le protocole Spanning Tree (STP) afin de gérer la redondance et la tolérance aux pannes.

Agrégation de liens entre switches

L'agrégation de liens (souvent appelée LACP – Link Aggregation Control Protocol lorsqu'elle est dynamique) permet de combiner plusieurs ports physiques entre deux switches pour créer un lien logique unique. Cela présente plusieurs avantages :

- ➔ **Amélioration de la bande passante** : les données peuvent circuler sur plusieurs liaisons en parallèle, ce qui augmente la capacité totale entre les switches.
- ➔ **Équilibrage de charge** : le trafic réseau est réparti entre les liens agrégés, évitant les saturations sur un seul lien.
- ➔ **Continuité de service** : si un câble ou un port tombe en panne, le trafic passe automatiquement par les autres liens du groupe agrégé.

Spanning Tree Protocol (STP)

Le STP est activé pour éviter les boucles réseau, qui peuvent rendre le réseau instable. Il détecte les chemins redondants et désactive temporairement ceux qui ne sont pas nécessaires, tout en gardant une alternative prête si un lien principal échoue.

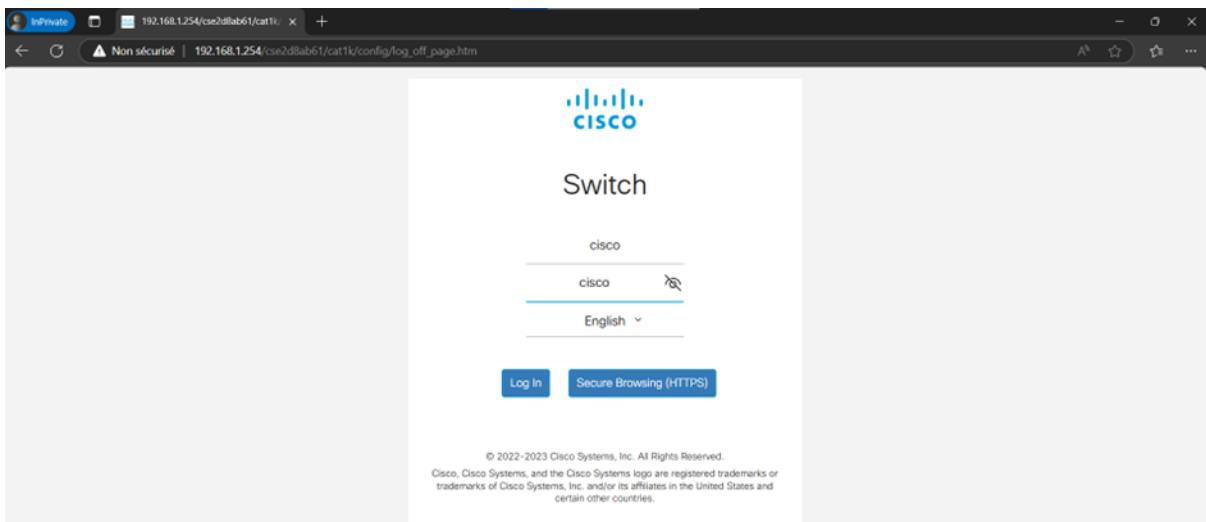
Avantages de cette architecture

Redondance et tolérance aux pannes :

- ➔ Grâce à l'agrégation et au STP, le réseau peut continuer à fonctionner même en cas de défaillance d'un lien ou d'un switch.
- ➔ Performance accrue : L'agrégation permet de mieux gérer les flux importants entre switches.
- ➔ Fiabilité : Le réseau est protégé contre les boucles qui pourraient le faire cracher.

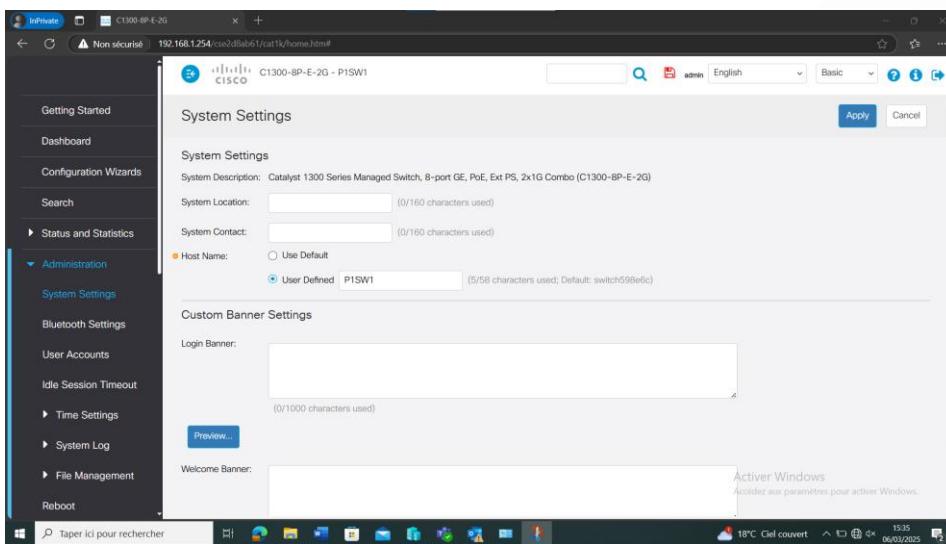
Pour chacun de mes switches, j'ai commencé par les connecter à l'adresse IP par défaut 192.168.1.254 en ayant pris soin d'attribuer une adresse ip sur le même réseau à mon ordinateur, et ai utilisé les identifiants par défaut : cisco cisco.

Configuration de mon routeur et de mes switches



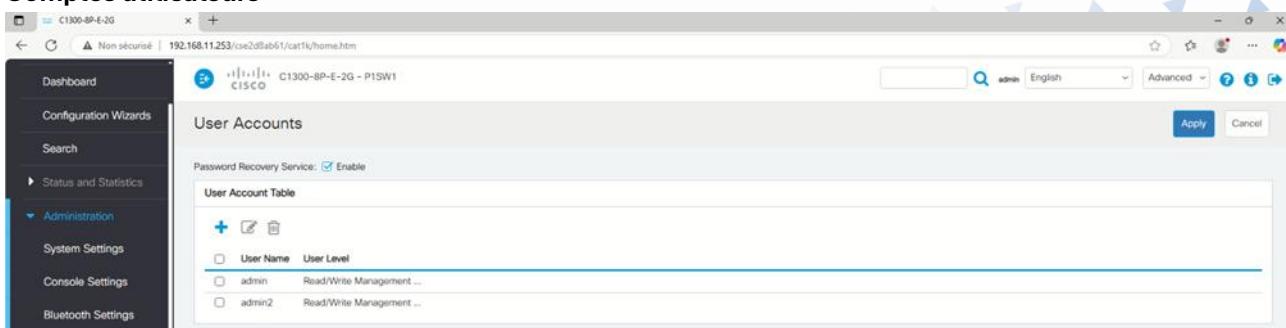
J'ai ensuite changé les identifiants et mots de passe pour chacun de mes switches. C'est la première étape proposée lors de la première connexion.

Ensuite, j'ai changé le nom de mes appareils. Respectivement : P1SW1, P1SW2 et P1SW3, comme étiqueté dans ma baie.



Configuration de mon switch SW1

Comptes utilisateurs



Configuration de mon routeur et de mes switches

Ports actifs

The screenshot shows the 'Port Management' section with 'Port Settings' selected. Under 'Link Aggregation', 'LAG Management' is expanded. The 'Port Settings Table' displays the following data:

| Entry No. | Port | Port Type | Operational Status | Link Status | Time Range | Name | State | Port Speed | Duplex Mode | LAG | Protection State |
|-----------|---------------|--------------|--------------------|-------------|------------|------|-------|------------|-------------|-----|------------------|
| 1 | GE1 (P1-SW2) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | 1 | Unprotected |
| 2 | GE2 (P1-SW2) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | 1 | Unprotected |
| 3 | GE3 (P1-SW2) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | 1 | Unprotected |
| 4 | GE4 (P1-SW3) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | | Unprotected |
| 5 | GE5 (Hyper-V) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | | Unprotected |
| 6 | GE6 (P1-AD1) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | | Unprotected |
| 7 | GE7 | 1000M-Copper | Up | Enabled | | | | 1000M | Full | | Unprotected |
| 8 | GE8 (P1-R1) | 1000M-Copper | Up | Enabled | | | | 1000M | Full | | Unprotected |
| 9 | GE9 | 1000M-ComboC | Down | Enabled | | | | | | | Unprotected |
| 10 | GE10 | 1000M-ComboC | Down | Enabled | | | | | | | Unprotected |

LAG Management

The screenshot shows the 'Port Management' section with 'LAG Management' selected. The 'LAG Management Table' displays the following data:

| LAG | Name | LACP | Link State | Active Member | Standby Member |
|-------|------|----------|------------------|---------------|----------------|
| LAG 1 | | Disabled | Link Up | GE1, GE2, GE3 | |
| LAG 2 | | | Link Not Present | | |
| LAG 3 | | | Link Not Present | | |
| LAG 4 | | | Link Not Present | | |
| LAG 5 | | | Link Not Present | | |
| LAG 6 | | | Link Not Present | | |
| LAG 7 | | | Link Not Present | | |
| LAG 8 | | | Link Not Present | | |

LAG Settings

The screenshot shows the 'Port Management' section with 'LAG Settings' selected. The 'LAG Settings Table' displays the following data:

| Entry No. | LAG | Type | Status | Link Status | Time Range | SNMP Traps | Name | State | Auto Negotiation | Speed | Flow Control | Protection State |
|-----------|-------|-------|--------|-------------|------------|------------|------|-------|------------------|-------|--------------|------------------|
| 1 | LAG 1 | 1000M | Up | Enabled | | | | | Enabled | 1000M | Disabled | Unprotected |
| 2 | LAG 2 | | | Enabled | | | | | | | | Unprotected |
| 3 | LAG 3 | | | Enabled | | | | | | | | Unprotected |
| 4 | LAG 4 | | | Enabled | | | | | | | | Unprotected |
| 5 | LAG 5 | | | Enabled | | | | | | | | Unprotected |
| 6 | LAG 6 | | | Enabled | | | | | | | | Unprotected |
| 7 | LAG 7 | | | Enabled | | | | | | | | Unprotected |
| 8 | LAG 8 | | | Enabled | | | | | | | | Unprotected |

VLAN Membership

The screenshot shows the 'VLAN Management' section with 'VLAN Settings' selected. The 'VLAN Table' displays the following data:

| VLAN ID | VLAN Name | Originators | VLAN Interface State | Link Status | SNMP Traps |
|---------|----------------|-------------|----------------------|-------------|------------|
| 1 | Administration | Default | Enabled | Enabled | |
| 100 | Static | Enabled | Enabled | | |
| 101 | Static | Enabled | Enabled | | |
| 102 | Static | Enabled | Enabled | | |
| 103 | Static | Enabled | Enabled | | |

Configuration de mon routeur et de mes switches

VLAN GE5

| Interface | Mode | Administrative VLANs | Operational VLANs | LAG |
|---------------|--------|------------------------------|-------------------|-----|
| GE1 (P1-SW2) | Access | 1U | | 1 |
| GE2 (P1-SW2) | Access | 1U | | 1 |
| GE3 (P1-SW2) | Access | 1U | | 1 |
| GE4 (P1-SW3) | Access | 1U | 1U | |
| GE5 (Hyper-V) | Trunk | 1U, 2-99, 100-103T, 100-103T | 1U, 100-103T | |
| GE6 (P1-AD1) | Access | 1U | 1U | |
| GE7 | Access | 1U | 1U | |
| GE8 (P1-R1) | Trunk | 1U, 2-99, 100-103T, 100-103T | 1U, 100-103T | |
| GE9 | Access | 1U | 1U | |
| GE10 | Access | 1U | 1U | |

STP Settings

| Entry No. | Interface | STP | Edge Port | Root Guard | BPDU Guard | BPDU Handling | Port Role | Path Cost | Priority | Port State | Designated Bridge ID | Designated Port ID | Designated Cost | Forward Tra |
|-----------|---------------|---------|-----------|------------|------------|---------------|------------|-----------|----------|------------|-------------------------|--------------------|-----------------|-------------|
| 1 | GE1 (P1-SW2) | Enabled | Disabled | Disabled | Disabled | STP | Disable | 2000000 | 128 | N/A | N/A | N/A | N/A | N/A |
| 2 | GE2 (P1-SW2) | Enabled | Disabled | Disabled | Disabled | STP | Disable | 2000000 | 128 | N/A | N/A | N/A | N/A | N/A |
| 3 | GE3 (P1-SW2) | Enabled | Disabled | Disabled | Disabled | STP | Disable | 2000000 | 128 | N/A | N/A | N/A | N/A | N/A |
| 4 | GE4 (P1-SW3) | Enabled | Disabled | Disabled | Disabled | STP | Designated | 20000 | 128 | Forwarding | 32768-e4:a4:1c:59:8e:6c | 128-4 | 10000 | 4 |
| 5 | GE5 (Hyper-V) | Enabled | Enabled | Disabled | Disabled | STP | Designated | 20000 | 128 | Forwarding | 32768-e4:a4:1c:59:8e:6c | 128-5 | 10000 | 1 |
| 6 | GE6 (P1-AD1) | Enabled | Enabled | Disabled | Disabled | STP | Designated | 20000 | 128 | Forwarding | 32768-e4:a4:1c:59:8e:6c | 128-6 | 10000 | 1 |
| 7 | GE7 | Enabled | Enabled | Disabled | Disabled | STP | Designated | 20000 | 128 | Forwarding | 32768-e4:a4:1c:59:8e:6c | 128-7 | 10000 | 1 |
| 8 | GE8 (P1-R1) | Enabled | Enabled | Disabled | Disabled | STP | Designated | 20000 | 128 | Forwarding | 32768-e4:a4:1c:59:8e:6c | 128-8 | 10000 | 1 |
| 9 | GE9 | Enabled | Disabled | Disabled | Disabled | STP | Disable | 2000000 | 128 | Disabled | N/A | N/A | N/A | N/A |
| 10 | GE10 | Enabled | Disabled | Disabled | Disabled | STP | Disable | 2000000 | 128 | Disabled | N/A | N/A | N/A | N/A |

| | | | | | | | | | | | | | |
|---------------------------|--|------------------------------------|-------------------------|------------------------------------|-------------------------|------------|---------------------------------|----------|----|----------------------------------|----------------|----|----------------------------------|
| Spanning Tree State: | <input checked="" type="checkbox"/> Enable | | | | | | | | | | | | |
| STP Loopback Guard: | <input type="checkbox"/> Enable | | | | | | | | | | | | |
| STP Operation Mode: | <input type="radio"/> Classic STP <input checked="" type="radio"/> Rapid STP <input type="radio"/> Multiple STP <input type="radio"/> Per VLAN STP <input type="radio"/> Rapid Per VLAN STP | | | | | | | | | | | | |
| BPDU Handling: | <input type="radio"/> Filtering <input type="radio"/> Flooding | | | | | | | | | | | | |
| Path Cost Default Values: | <input type="radio"/> Short <input checked="" type="radio"/> Long | | | | | | | | | | | | |
| Bridge Settings | <table border="1"> <tr> <td>Priority:</td> <td>32768</td> <td>(Range: 0 - 61440, Default: 32768)</td> </tr> <tr> <td>Hello Time:</td> <td>2</td> <td>sec (Range: 1 - 10, Default: 2)</td> </tr> <tr> <td>Max Age:</td> <td>20</td> <td>sec (Range: 6 - 40, Default: 20)</td> </tr> <tr> <td>Forward Delay:</td> <td>15</td> <td>sec (Range: 4 - 30, Default: 15)</td> </tr> </table> | Priority: | 32768 | (Range: 0 - 61440, Default: 32768) | Hello Time: | 2 | sec (Range: 1 - 10, Default: 2) | Max Age: | 20 | sec (Range: 6 - 40, Default: 20) | Forward Delay: | 15 | sec (Range: 4 - 30, Default: 15) |
| Priority: | 32768 | (Range: 0 - 61440, Default: 32768) | | | | | | | | | | | |
| Hello Time: | 2 | sec (Range: 1 - 10, Default: 2) | | | | | | | | | | | |
| Max Age: | 20 | sec (Range: 6 - 40, Default: 20) | | | | | | | | | | | |
| Forward Delay: | 15 | sec (Range: 4 - 30, Default: 15) | | | | | | | | | | | |
| Designated Root | <table border="1"> <tr> <td>Bridge ID:</td> <td>32768-e4:a4:1c:59:8e:6c</td> </tr> <tr> <td>Root Bridge ID:</td> <td>32768-58:8b:1c:64:ba:7c</td> </tr> <tr> <td>Root Port:</td> <td>LAG1</td> </tr> </table> | Bridge ID: | 32768-e4:a4:1c:59:8e:6c | Root Bridge ID: | 32768-58:8b:1c:64:ba:7c | Root Port: | LAG1 | | | | | | |
| Bridge ID: | 32768-e4:a4:1c:59:8e:6c | | | | | | | | | | | | |
| Root Bridge ID: | 32768-58:8b:1c:64:ba:7c | | | | | | | | | | | | |
| Root Port: | LAG1 | | | | | | | | | | | | |

Configuration de mon routeur et de mes switches

IPv4 Interface

The screenshot shows the Cisco WebUI interface for managing IPv4 interfaces. The left sidebar includes options like Getting Started, Dashboard, Configuration Wizards, Status and Statistics, Administration, Port Management, Smartport, VLAN Management, Spanning Tree, and MAC Address Tables. The main content area displays the 'IPv4 Interface' table with the following data:

| Interface | IP Address Type | IP Address | Mask | Status |
|-----------|-----------------|-----------------|---------------|--------|
| VLAN 1 | Static | 192.168.11.253 | 255.255.255.0 | Valid |
| VLAN 100 | Static | 192.168.100.253 | 255.255.255.0 | Valid |
| VLAN 101 | Static | 192.168.101.253 | 255.255.255.0 | Valid |
| VLAN 102 | Static | 192.168.102.253 | 255.255.255.0 | Valid |
| VLAN 103 | Static | 192.168.103.253 | 255.255.255.0 | Valid |

STP Settings

The screenshot shows the Cisco WebUI interface for RSTP settings. The left sidebar includes options like Administration, Port Management, Smartport, VLAN Management, Spanning Tree, and various IP-related configurations. The main content area displays the 'RSTP Interface Setting Table' with the following data:

| Entry No. | Interface | Point-to-Point Operational Status | Port Role | Mode | Fast Link Operational Status | Port Status |
|-----------|---------------|-----------------------------------|------------------|--------------|------------------------------|------------------|
| 1 | GE1 (P1-SW2) | Enabled (LAG 1) | Disabled (LAG 1) | RSTP (LAG 1) | Disabled (LAG 1) | Disabled (LAG 1) |
| 2 | GE2 (P1-SW2) | Enabled (LAG 1) | Disabled (LAG 1) | RSTP (LAG 1) | Disabled (LAG 1) | Disabled (LAG 1) |
| 3 | GE3 (P1-SW2) | Enabled (LAG 1) | Disabled (LAG 1) | RSTP (LAG 1) | Disabled (LAG 1) | Disabled (LAG 1) |
| 4 | GE4 (P1-SW3) | Enabled | Designated | RSTP | Disabled | Forwarding |
| 5 | GE5 (Hyper-V) | Enabled | Designated | RSTP | Enabled | Forwarding |
| 6 | GE6 (P1-AD1) | Enabled | Designated | RSTP | Enabled | Forwarding |
| 7 | GE7 | Enabled | Designated | RSTP | Enabled | Forwarding |
| 8 | GE8 (P1-R1) | Enabled | Designated | RSTP | Enabled | Forwarding |
| 9 | GE9 | Enabled | Disabled | RSTP | Disabled | Disabled |
| 10 | GE10 | Enabled | Disabled | RSTP | Disabled | Disabled |

QoS Properties

The screenshot shows the Cisco WebUI interface for Quality of Service properties. The left sidebar includes options like MAC Address Tables, Multicast, IPv4 Configuration, IPv6 Configuration, General IP Configuration, Security, Access Control, and Quality of Service (with sub-options like General, QoS Properties, Queue, CoS/802.1p to Queue, DSQoS to Queue, Bandwidth, Egress Shaping Per Queue, and VLAN Ingress Rate Limit). The main content area displays the 'QoS Properties' table with the following data:

| Entry No. | Interface | Default CoS |
|-----------|---------------|-------------|
| 1 | GE1 (P1-SW2) | 0 |
| 2 | GE2 (P1-SW2) | 0 |
| 3 | GE3 (P1-SW2) | 0 |
| 4 | GE4 (P1-SW3) | 0 |
| 5 | GE5 (Hyper-V) | 0 |
| 6 | GE6 (P1-AD1) | 0 |
| 7 | GE7 | 0 |
| 8 | GE8 (P1-R1) | 0 |
| 9 | GE9 | 0 |
| 10 | GE10 | 0 |

QoS Interface Settings

The screenshot shows the Cisco WebUI interface for Global Settings under Quality of Service. The left sidebar includes options like IPv6 Configuration, General IP Configuration, Security, Access Control, and Quality of Service (with sub-options like General, QoS Properties, Queue, CoS/802.1p to Queue, DSQoS to Queue, Bandwidth, Egress Shaping Per Queue, and VLAN Ingress Rate Limit). The main content area displays the 'Global Settings' table with the following data:

| Trust Mode: | CoS/802.1p | DSCP | CoS/802.1p-DSCP |
|------------------------|---------------------------------|---------------------------------------|--|
| Override Ingress DSCP: | <input type="checkbox"/> Enable | <input checked="" type="radio"/> DSCP | <input type="checkbox"/> CoS/802.1p-DSCP |

Configuration de mon routeur et de mes switches

Configuration de mon switch SW2

Comptes utilisateurs

The screenshot shows the 'User Accounts' section of the Cisco C1300-8P-E-2G switch configuration interface. The left sidebar includes options like Bluetooth Settings, User Accounts, and Reboot. The main area displays a table titled 'User Account Table' with two entries: 'admin' and 'admin2', both assigned to 'Read/Write Management' level.

Ports actifs

The screenshot shows the 'Port Settings' section of the Cisco C1300-8P-E-2G switch configuration interface. The left sidebar includes options like Port Management, Port Settings, and Spanning Tree. The main area displays a table titled 'Port Settings Table' listing ten ports (GE1 to GE10) with their respective configurations: speed (1000M), duplex mode (Full), and protection state (Unprotected).

LAG Management

The screenshot shows the 'LAG Management' section of the Cisco C1300-8P-E-2G switch configuration interface. The left sidebar includes options like Port Management, Port Settings, and Spanning Tree. The main area displays a table titled 'LAG Management Table' showing eight LAGs (LAG 1 to LAG 8) with their link states and active members.

LAG Settings

The screenshot shows the 'LAG Settings' section of the Cisco C1300-8P-E-2G switch configuration interface. The left sidebar includes options like Port Management, Port Settings, and Spanning Tree. The main area displays a table titled 'LAG Settings Table' showing eight LAG settings with various parameters like type, status, and auto-negotiation.

Configuration de mon routeur et de mes switches

VLAN SETTINGS

The screenshot shows the 'VLAN Settings' page of a Cisco switch configuration interface. The left sidebar navigation includes 'Status and Statistics', 'Administration', 'Port Management', 'Smartport', 'VLAN Management' (selected), 'VLAN Settings' (under VLAN Management), 'Interface Settings', 'Port to VLAN', 'Port VLAN Membership', and 'Voice VLAN'. The main content area is titled 'VLAN Settings' and contains a table titled 'VLAN Table'. The table has columns: VLAN ID, VLAN Name, Originators, VLAN Interface State, Link Status, and SNMP Traps. The table lists the following VLANs:

| VLAN ID | VLAN Name | Originators | VLAN Interface State | Link Status | SNMP Traps |
|---------|----------------|-------------|----------------------|-------------|------------|
| 1 | Default | Enabled | Enabled | | |
| 100 | Serveurs | Static | Enabled | Enabled | |
| 101 | Voip | Static | Enabled | Enabled | |
| 102 | Administration | Static | Enabled | Enabled | |
| 103 | Entrepot | Static | Enabled | Enabled | |

VLAN PORTS MEMBERSHIP

The screenshot shows the 'Port VLAN Membership' page of a Cisco switch configuration interface. The left sidebar navigation includes 'Status and Statistics', 'Administration', 'Port Management', 'Smartport', 'VLAN Management' (selected), 'VLAN Settings', 'Interface Settings', 'Port to VLAN', 'Port VLAN Membership', 'Voice VLAN', 'Auto-Surveillance VLAN', 'Spanning Tree', 'MAC Address Tables', 'Multicast', and 'IPv4 Configuration'. The main content area is titled 'Port VLAN Membership' and contains a table titled 'Port VLAN Membership Table'. The table has columns: Interface, Mode, Administrative VLANs, Operational VLANs, and LAG. The table lists the following port assignments:

| Interface | Mode | Administrative VLANs | Operational VLANs | LAG |
|---------------|--------|----------------------|-------------------|-----|
| GE1 (P1-SW1) | Access | 1U | | 1 |
| GE2 (P1-SW1) | Access | 1U | | 1 |
| GE3 (P1-SW1) | Access | 1U | | 1 |
| GE4 (P1-SW3) | Trunk | IU, 100-103T | IU, 100-103T | |
| GE5 (Hyper-V) | Trunk | IU, 100-103T | IU, 100-103T | |
| GE6 (P1-AD2) | Access | 1U | 1U | |
| GE7 | Access | 1U | 1U | |
| GE8 (P1-R1) | Trunk | IU, 100-103T | IU, 100-103T | |
| GE9 | Access | 1U | 1U | |
| GE10 | Access | 1U | 1U | |

STP Settings

The screenshot shows the 'STP Interface Settings' page of a Cisco switch configuration interface. The left sidebar navigation includes 'Dashboard', 'Configuration Wizards', 'Search', 'Status and Statistics', 'Administration', 'Port Management', 'Smartport', 'VLAN Management', 'Spanning Tree' (selected), 'STP Status & Global Settings', 'STP Interface Settings' (selected), 'RSTP Interface Settings', and 'MAC Address Tables'. The main content area is titled 'STP Interface Settings' and contains a table titled 'STP Interface Setting Table'. The table has columns: Entry No., Interface, STP, Edge Port, Port Role, Priority, Port State, Designated Bridge ID, Designated Port ID, Designated Cost, Forward Transitions, and LAG. The table lists the following STP interface settings:

| Entry No. | Interface | STP | Edge Port | Port Role | Priority | Port State | Designated Bridge ID | Designated Port ID | Designated Cost | Forward Transitions | LAG |
|-----------|---------------|---------|-----------|------------|----------|------------|-------------------------|--------------------|-----------------|---------------------|-----|
| 1 | GE1 (P1-SW1) | Enabled | Disabled | Disable | 128 | N/A | N/A | N/A | N/A | N/A | 1 |
| 2 | GE2 (P1-SW1) | Enabled | Disabled | Disable | 128 | N/A | N/A | N/A | N/A | N/A | 1 |
| 3 | GE3 (P1-SW1) | Enabled | Disabled | Disable | 128 | N/A | N/A | N/A | N/A | N/A | 1 |
| 4 | GE4 (P1-SW3) | Enabled | Disabled | Designated | 128 | Forwarding | 32768-58:8b:1c:64:ba:7c | 128-4 | 0 | 1 | |
| 5 | GE5 (Hyper-V) | Enabled | Enabled | Designated | 128 | Forwarding | 32768-58:8b:1c:64:ba:7c | 128-5 | 0 | 1 | |
| 6 | GE6 (P1-AD2) | Enabled | Enabled | Designated | 128 | Forwarding | 32768-58:8b:1c:64:ba:7c | 128-6 | 0 | 1 | |
| 7 | GE7 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 8 | GE8 (P1-R1) | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 9 | GE9 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 10 | GE10 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |

Configuration de mon routeur et de mes switches

STP Status & Global Settings

Global Settings

- Spanning Tree State: Enable
- STP Loopback Guard: Enable
- STP Operation Mode:
 - Classic STP
 - Rapid STP
 - Multiple STP *
 - Per VLAN STP *
 - Rapid Per VLAN STP *
- BPDU Handling:
 - Filtering
 - Flooding
- Path Cost Default Values:
 - Short
 - Long

Bridge Settings

| | | |
|----------------|-------|------------------------------------|
| Priority: | 32768 | (Range: 0 - 61440, Default: 32768) |
| Hello Time: | 2 | sec (Range: 1 - 10, Default: 2) |
| Max Age: | 20 | sec (Range: 6 - 40, Default: 20) |
| Forward Delay: | 15 | sec (Range: 4 - 30, Default: 15) |

Designated Root

| | |
|-----------------|-------------------------|
| Bridge ID: | 32768-58:8b:1c:64:ba:7c |
| Root Bridge ID: | 32768-58:8b:1c:64:ba:7c |
| Root Port: | 0 |

[Activer Windows](#)
Accédez aux paramètres pour activer Windows.

IPv4 Interface

IPv4 Interface

IPv4 Routing: Enable

IPv4 Interface Table

| Interface | IP Address Type | IP Address | Mask | Status |
|-----------|-----------------|-----------------|---------------|--------|
| VLAN 1 | Static | 192.168.11.252 | 255.255.255.0 | Valid |
| VLAN 100 | Static | 192.168.100.252 | 255.255.255.0 | Valid |
| VLAN 101 | Static | 192.168.101.252 | 255.255.255.0 | Valid |
| VLAN 102 | Static | 192.168.102.252 | 255.255.255.0 | Valid |
| VLAN 103 | Static | 192.168.103.252 | 255.255.255.0 | Valid |

QoS Properties

QoS Properties

QoS Mode:

- Disable
- Basic
- Advanced *

An * indicates an advanced feature. Activate advanced display mode to fully configure this feature.

Interface CoS Configuration Table

| Interface CoS Configuration Table | | |
|--------------------------------------|---------------|-------------|
| Restore CoS Defaults | | |
| Entry No. | Interface | Default CoS |
| 1 | GE1 (P1-SW1) | 0 |
| 2 | GE2 (P1-SW1) | 0 |
| 3 | GE3 (P1-SW1) | 0 |
| 4 | GE4 (P1-SW3) | 0 |
| 5 | GE5 (Hyper-V) | 0 |
| 6 | GE6 (P1-AD2) | 0 |
| 7 | GE7 | 0 |
| 8 | GE8 (P1-R1) | 0 |
| 9 | GE9 | 0 |
| 10 | GE10 | 0 |

QoS Interface Settings

Global Settings

Trust Mode:

- CoS/R02.1p
- DSCP
- CoS/R02.1p-DSCP

Override Ingress DSCP: Enable

Configuration de mon routeur et de mes switches

Configuration de mon switch SW3

Comptes utilisateurs

| User Name | User Level |
|-----------|--------------------------|
| admin | ReadWrite Management ... |
| admin2 | ReadWrite Management ... |

Ports actifs

| Entry No. | Port | Port Type | Operational Status | Port Speed | Duplex Mode | LAG | Protection State |
|-----------|--------------|-----------------|--------------------|------------|-------------|-----|------------------|
| 1 | GE1 (P1-SW1) | 1000M-Copper | Up | 1000M | Full | | Unprotected |
| 2 | GE2 (P1-SW2) | 1000M-Copper | Up | 1000M | Full | | Unprotected |
| 3 | GE3 | 1000M-Copper | Down | | | | Unprotected |
| 4 | GE4 | 1000M-Copper | Down | | | | Unprotected |
| 5 | GE5 | 1000M-Copper | Down | | | | Unprotected |
| 6 | GE6 | 1000M-Copper | Down | | | | Unprotected |
| 7 | GE7 | 1000M-Copper | Up | 1000M | Full | | Unprotected |
| 8 | GE8 | 1000M-Copper | Down | | | | Unprotected |
| 9 | GE9 | 1000M-Copper | Up | 1000M | Full | | Unprotected |
| 10 | GE10 | 1000M-Copper | Up | 100M | Full | | Unprotected |
| 11 | GE11 | 1000M-Copper | Down | | | | Unprotected |
| 12 | GE12 | 1000M-Copper | Down | | | | Unprotected |
| 13 | GE13 | 1000M-Copper | Down | | | | Unprotected |
| 14 | GE14 | 1000M-Copper | Down | | | | Unprotected |
| 15 | GE15 | 1000M-Copper | Down | | | | Unprotected |
| 16 | GE16 | 1000M-Copper | Down | | | | Unprotected |
| 17 | GE17 | 1000M-Copper | Down | | | | Unprotected |
| 18 | GE18 | 1000M-Copper | Down | | | | Unprotected |
| 19 | GE19 | 1000M-Copper | Down | | | | Unprotected |
| 20 | GE20 | 1000M-Copper | Down | | | | Unprotected |
| 21 | GE21 | 1000M-Copper | Down | | | | Unprotected |
| 22 | GE22 | 1000M-Copper | Down | | | | Unprotected |
| 23 | GE23 | 1000M-Copper | Down | | | | Unprotected |
| 24 | GE24 | 1000M-Copper | Up | 1000M | Full | | Unprotected |
| 25 | XG1 | 10G-FiberOptics | Down | | | | Unprotected |
| 26 | XG2 | 10G-FiberOptics | Down | | | | Unprotected |
| 27 | XG3 | 10G-FiberOptics | Down | | | | Unprotected |
| 28 | XG4 | 10G-FiberOptics | Down | | | | Unprotected |

LAG Management

| LAG | Name | LACP | Link State | Active Member | Standby Member |
|-------|------|------|------------------|---------------|----------------|
| LAG 1 | | | Link Not Present | | |
| LAG 2 | | | Link Not Present | | |
| LAG 3 | | | Link Not Present | | |
| LAG 4 | | | Link Not Present | | |
| LAG 5 | | | Link Not Present | | |
| LAG 6 | | | Link Not Present | | |
| LAG 7 | | | Link Not Present | | |
| LAG 8 | | | Link Not Present | | |

LAG Settings

| Entry No. | LAG | Type | Status | Auto Negotiation | Speed | Flow Control | Protection State |
|-----------|-------|------|--------|------------------|-------|--------------|------------------|
| 1 | LAG 1 | | | | | | Unprotected |
| 2 | LAG 2 | | | | | | Unprotected |
| 3 | LAG 3 | | | | | | Unprotected |
| 4 | LAG 4 | | | | | | Unprotected |
| 5 | LAG 5 | | | | | | Unprotected |
| 6 | LAG 6 | | | | | | Unprotected |
| 7 | LAG 7 | | | | | | Unprotected |
| 8 | LAG 8 | | | | | | Unprotected |

Configuration de mon routeur et de mes switches

| VLAN ID | VLAN Name | Originator | VLAN Interface State | Link Status | SNMP Traps |
|---------|----------------|------------|----------------------|-------------|------------|
| 1 | Default | Enabled | Enabled | | |
| 100 | Serveur | Static | Enabled | Enabled | |
| 101 | Voip | Static | Enabled | Enabled | |
| 102 | Administration | Static | Enabled | Enabled | |
| 103 | Entrepot | Static | Enabled | Enabled | |

VLAN PORTS MEMBERSHIP

| Interface | Mode | Administrative VLANs | Operational VLANs | LAG |
|--------------|--------|----------------------|-------------------|-----|
| GE1 (P1-SW1) | Trunk | 1U, 100-103T | 1U, 100-103T | |
| GE2 (P1-SW2) | Trunk | 1U, 100-103T | 1U, 100-103T | |
| GE3 | Access | 1U | 1U | |
| GE4 | Access | 1U | 1U | |
| GE5 | Access | 1U | 1U | |
| GE6 | Access | 1U | 1U | |
| GE7 | Access | 101U | 101U | |
| GE8 | Access | 101U | 101U | |
| GE9 | Access | 101U | 101U | |
| GE10 | Access | 101U | 101U | |
| GE11 | Access | 1U | 1U | |
| GE12 | Access | 1U | 1U | |
| GE13 | Access | 1U | 1U | |
| GE14 | Access | 1U | 1U | |
| GE15 | Access | 1U | 1U | |
| GE16 | Access | 1U | 1U | |
| GE17 | Access | 1U | 1U | |
| GE18 | Access | 1U | 1U | |
| GE19 | Access | 1U | 1U | |
| GE20 | Access | 1U | 1U | |
| GE21 | Access | 1U | 1U | |
| GE22 | Access | 1U | 1U | |
| GE23 | Access | 1U | 1U | |
| GE24 | Trunk | 1U, 100-103T | 1U, 100-103T | |
| XG1 | Access | 1U | 1U | |
| XG2 | Access | 1U | 1U | |
| XG3 | Access | 1U | 1U | |

Port 24 = Borne Wifi

Port 7, 8, 9, 10 = Téléphones SIP

STP Settings

| Entry No. | Interface | STP | Edge Port | Port Role | Priority | Port State | Designated Bridge ID | Designated Port ID | Designated Cost | Forward Transitions | LAG |
|-----------|--------------|---------|-----------|------------|----------|------------|-------------------------|--------------------|-----------------|---------------------|-----|
| 1 | GE1 (P1-SW1) | Enabled | Disabled | Alternate | 128 | Discarding | 32768-e4:a4:1c:59:8e:6c | 128-4 | 10000 | 4 | |
| 2 | GE2 (P1-SW2) | Enabled | Disabled | Root | 128 | Forwarding | 32768-58:8b:1c:64:bc:7c | 128-4 | 0 | 1 | |
| 3 | GE3 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 4 | GE4 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 5 | GE5 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 6 | GE6 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 7 | GE7 | Enabled | Enabled | Designated | 128 | Forwarding | 32768-84:5a:3e:83:48:de | 128-7 | 20000 | 1 | |
| 8 | GE8 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 9 | GE9 | Enabled | Enabled | Designated | 128 | Forwarding | 32768-84:5a:3e:83:48:de | 128-9 | 20000 | 1 | |
| 10 | GE10 | Enabled | Enabled | Designated | 128 | Forwarding | 32768-84:5a:3e:83:48:de | 128-10 | 20000 | 1 | |
| 11 | GE11 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 12 | GE12 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 13 | GE13 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 14 | GE14 | Enabled | Enabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 15 | GE15 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 16 | GE16 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 17 | GE17 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 18 | GE18 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 19 | GE19 | Enabled | Disabled | Disable | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 20 | GE20 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 21 | GE21 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 22 | GE22 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 23 | GE23 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 24 | GE24 | Enabled | Enabled | Designated | 128 | Forwarding | 32768-84:5a:3e:83:48:de | 128-24 | 20000 | 1 | |
| 25 | XG1 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 26 | XG2 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 27 | XG3 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |
| 28 | XG4 | Enabled | Disabled | Designated | 128 | Disabled | N/A | N/A | N/A | N/A | |

Configuration de mon routeur et de mes switches

STP Status & Global Settings

Global Settings

- Spanning Tree State: Enable
- STP Loopback Guard: Enable
- STP Operation Mode:
 - Classic STP
 - Rapid STP *
 - Multiple STP *
 - Per VLAN STP *
 - Rapid Per VLAN STP *
- BPDU Handling:
 - Filtering
 - Flooding
- Path Cost Default Values:
 - Short
 - Long

Bridge Settings

| | | |
|----------------|-------|------------------------------------|
| Priority: | 32768 | (Range: 0 - 61440, Default: 32768) |
| Hello Time: | 2 | sec (Range: 1 - 10, Default: 2) |
| Max Age: | 20 | sec (Range: 6 - 40, Default: 20) |
| Forward Delay: | 15 | sec (Range: 4 - 30, Default: 15) |

Designated Root

| | |
|-------------------------|-------------------------|
| Bridge ID: | 32768-84:3e:03:04:b0:c0 |
| Root Bridge ID: | 32768-58:8b:1c:64:b0:c0 |
| Root Port: | GE1/2 |
| Root Path Cost: | 20000 |
| Topology Changes Count: | 18 |
| Last Topology Change: | 788122 |

IPv4 Interface

IPv4 Interface

IPv4 Routing: Enable

IPv4 Interface Table

| Interface | IP Address Type | IP Address | Mask | Status |
|-----------|-----------------|-----------------|---------------|--------|
| VLAN 1 | Static | 192.168.11.251 | 255.255.255.0 | Valid |
| VLAN 100 | Static | 192.168.100.251 | 255.255.255.0 | Valid |
| VLAN 101 | Static | 192.168.101.251 | 255.255.255.0 | Valid |
| VLAN 102 | Static | 192.168.102.251 | 255.255.255.0 | Valid |
| VLAN 103 | Static | 192.168.103.251 | 255.255.255.0 | Valid |

QoS Properties

QoS Properties

QoS Mode: Advanced *

An * indicates an advanced feature. Activate advanced display mode to fully configure this feature.

Interface CoS Configuration Table

| Interface | Default CoS |
|--------------|-------------|
| GE1 (P1-SW1) | 0 |
| GE2 (P1-SW2) | 0 |
| GE3 | 0 |
| GE4 | 0 |
| GE5 | 0 |
| GE6 | 0 |
| GE7 | 0 |
| GE8 | 0 |
| GE9 | 0 |
| GE10 | 0 |
| GE11 | 0 |
| GE12 | 0 |
| GE13 | 0 |
| GE14 | 0 |
| GE15 | 0 |
| GE16 | 0 |
| GE17 | 0 |
| GE18 | 0 |

QoS Interface Settings

Global Settings

Trust Mode:

- QoS802.1p
- DSQoS
- QoS802.1p+DSQoS

Override Ingress DSQoS: Enable