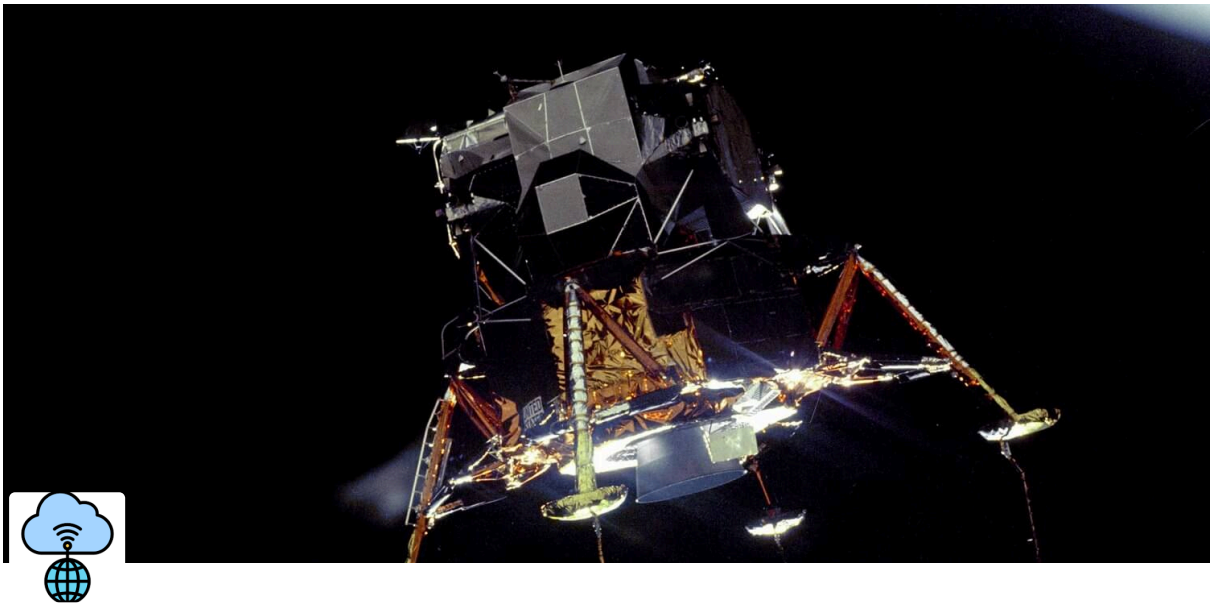


Basic ISP Network Topology

Disclaimer: This document is for educational purposes only. All configurations are examples and should be adapted for actual environments. Any resemblance to real networks is coincidental.

In ISP (Internet Service Provider) networks, different components work together to deliver internet and related services to customers. Here's a clear explanation of the terms you asked about, categorized by their role in the network:

🔷 Core Components

These are used at the heart of the ISP's infrastructure.

1. **Core (Core Router/L3 Switch):**
    - High-capacity, high-performance routers/switches.
    - Handle routing between different parts of the ISP network and the Internet.
    - Typically connected to upstream providers or IXP (Internet Exchange Points) (Like for Pure Internet- TATA, Airtel, Jio, BSNL, Vodafone, etc. and for Peering- Extreme, DE-CIX, NIXI, Peering through any ISP, etc.)
    - Device Example: Cisco ASR, Huawei NE series, Juniper MX series, MikroTik CCR1072,

2. **NAS (Network Access Server):**
    - Gateway between customer traffic and ISP core network.
    - Authenticates and authorizes subscribers, especially in PPPoE or IPoE.
    - Works with RADIUS to grant or deny access.
    - Device Example: MikroTik, Cisco BRAS, BNG Servers, etc.
3. **RADIUS (Remote Authentication Dial-In User Service):**
    - AAA server (Authentication, Authorization, Accounting).
    - Validates username/password or MAC/IP of users connecting via NAS.
    - Keeps records of usage for billing.
    - Example: H-8, PHP, IPACCT, etc.

🔶 Distribution & Access Layer

1. **LAN-MAIN-Switch (Main Distribution Switch):**
    - Main switch at the ISP PoP or office where all access/distribution switches aggregate.
    - Provides uplink to the core network (means NAS, BNG, BRAS, Core).
    - Handles VLANs, QoS, bandwidth control, etc.
2. **Other Location Switches:**
    - Switches deployed at customer premises, ours society locations, towers, or reseller/LCO locations.
    - Extend the network to different cities, sectors, locations or neighborhoods.
    - Generally L2/L3 switches are used.
3. **OLT (Optical Line Terminal):**
    - Used in fiber-based networks (FTTH).
    - Terminates the fiber line and connects to ONU/ONT.
    - Located at ISP office/data center or local node.
    - Manages multiple customer fiber connections.
4. **ONT/ONU (Optical Network Terminal / Optical Network Unit):**

- Installed at customer premises.
- Converts fiber signal to Ethernet or Wi-Fi.
- Communicates with the OLT.
- Supports VLANs, voice, IPTV, etc.

🔶 Customer & Service Equipment

1. **Wi-Fi Routers:**
   - Devices installed at the customer home/office.
   - Create a wireless network (Wi-Fi) and often act as the DHCP gateway.
   - Can be standalone or part of ONT.
2. **Servers:**
   - Provide services like:
     - Log Server
     - Web Portal Server (Captive Portal)
     - Monitoring Server (Observium, PRTG, Grafana, LibreNMS, Zabbix, Solar Wind etc.)
     - DNS Server
     - DHCP Server
     - Caching Server (like Squid, CDN)
   - Typically hosted in the ISP data center.

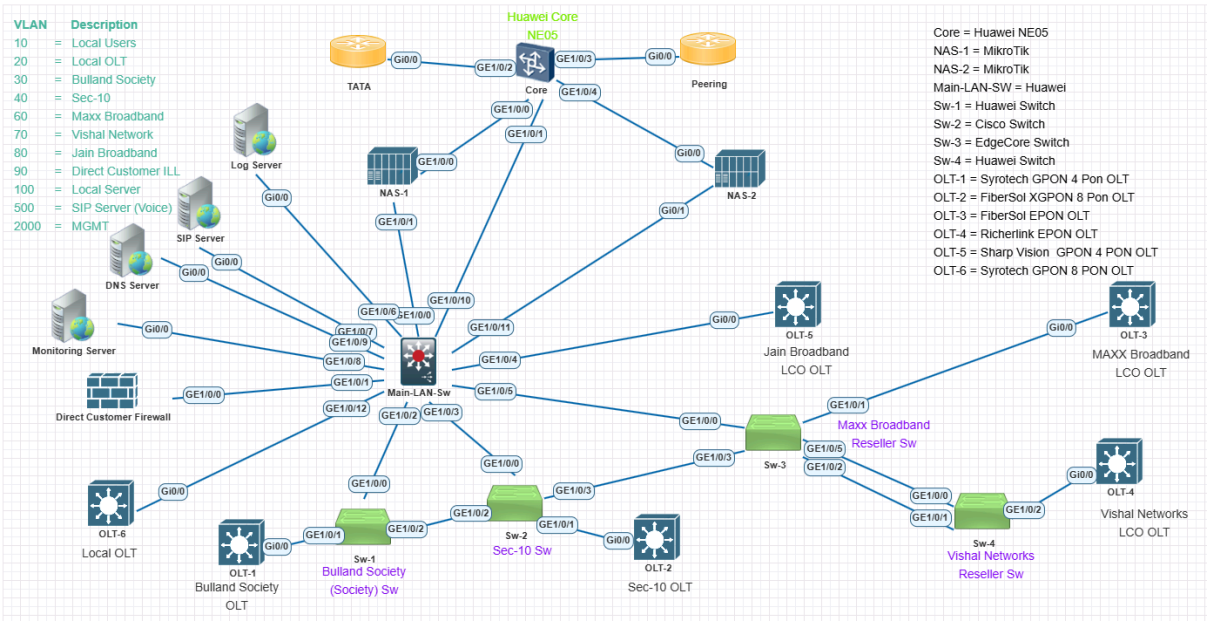
📝 Summary Table

Component	Location	Purpose
Core	ISP HQ / Data Center/ Server Room	Backbone routing
NAS	ISP HQ / Data Center/ Server Room/PoP	Manages user sessions
RADIUS	ISP HQ / Data Center/ Server Room	User authentication/accounting

LAN-MAIN-Switch	ISP Office/Server Room/PoP	Aggregation & VLAN management
Other Switches	Field/Remote Sites/Reseller/LCO Locations	L2/L3 distribution
OLT	Office Server Room, Field/Remote Sites/Reseller/LCO Locations	FTTH management
ONU/ONT	Customer Premises	Fiber termination
WiFi Router	Customer Premises	Local wireless internet
Servers	ISP Data Center/Server Room	Services, monitoring, billing

The following sections describe our ISP network topology, including network devices, VLANs, and public/private IP address pools. We are using a very basic ISP network topology, so we are adding limited devices.

1. Basic Network Diagram (A Basic ISP Network)



2. We have some networking devices at our ISP network as

Device	Model/Make	IP Address
Core	Huawei NE05	100.1.1.1/172.25.25.1/100.1.1.5
NAS-1	MikroTik (For PPPoE Users)	100.1.1.2

NAS-2	MikroTik (For IPoE Users)	100.1.1.6
Main-LAN-SW	Huawei	172.25.25.2
Sw-1	Huawei Switch	172.25.25.3
Sw-2	Cisco Switch	172.25.25.4
Sw-3	EdgeCore Switch	172.25.25.5
Sw-4	Huawei Switch	172.25.25.6
OLT-1	Bulland Society (Syrotech GPON OLT)	172.25.25.100
OLT-2	Sec-10 (FiberSol XGPON OLT)	172.25.25.101
OLT-4	Vishal Network (Richerlink EPON OLT)	172.25.25.102
OLT-5	Jain Broadband (Sharp Vision GPON OLT)	172.25.25.103
OLT-6	Office Local (Syrotech GPON OLT)	172.25.25.104
Log Server	Server	100.1.1.34
DNS Server	Server	100.1.1.35
Monitoring Server	Server	100.1.1.36
SIP Server	Server	100.1.1.10

3. We are using some VLAN Database as

VLAN	Description
10	Local Users
20	Local OLT (PPPoE)
30	Bulland Society (PPPoE)
40	Sec-10 (PPPoE)
60	Maxx Broadband (IPoE)
70	Vishal Network (PPPoE)
80	Jain Broadband (IPoE)
90	Direct Customer ILL
100	Local Server
500	SIP Server (Voice)
2000	MGMT VLAN

4. Public IP Addresses for Our Networks

Assume we have a AS Number is 123456 and IP pool as 100.1.1.0/23

a) Subnetting of 100.1.1.0/24 is as

<table>
<tr><th colspan="8">100.1.1.0/24</th></tr>
<tr><td>100.1.1.0/30
NAS-1 IP</td><td>100.1.1.4/30
NAS-2 IP</td><td>100.1.1.8/30
SIP Server IP</td><td>12
Free</td><td colspan="4" rowspan="2">100.1.1.64/27
NAS-1 (Static IP for PPPoE Users)</td></tr>
<tr><td colspan="2">100.1.1.16/29
Direct Users (IT Room)</td><td>24
Free</td><td>28
Free</td></tr>
<tr><td colspan="2">100.1.1.32/29
Servers IP</td><td colspan="2">100.1.1.40/29
Direct Customer ILL 100Mbps (XYZ)
(Vlan-90)</td><td colspan="4">100.1.1.96/28
NAS-2 (Static IP for Jain Broadband)
(Vlan- 80)</td></tr>
<tr><td colspan="4">100.1.1.48/28
Free</td><td colspan="4">100.1.1.112/28
NAS-2 (Static IP for Maxx Broadband)
(Vlan- 60)</td></tr>
<tr><td colspan="4">100.1.1.128/27
NAS-2 (SNAT for 10.10.100.0/24)
(Vlan-60, Maxx Broadband)</td><td colspan="4">100.1.1.192/27
NAS-1 (SNAT for 10.21.0.0/24)</td></tr>
<tr><td colspan="4">100.1.1.160/27
NAS-2 (SNAT for 10.10.101.0/24)
Vlan-80, Jain Broadband</td><td colspan="4">100.1.1.224/27
NAS-1 (SNAT for 10.21.1.0/24)</td></tr>
</table>

b) Subnetting of 100.1.2.0/24 is as

<table>
<tr><th colspan="8">100.1.2.0/24</th></tr>
<tr><td colspan="4">100.1.2.0/27
NAS-1 (SNAT for 10.21.2.0/24)</td><td colspan="4">100.1.2.64/27
NAS-1 (SNAT for 10.21.4.0/24)</td></tr>
<tr><td colspan="4">100.1.2.32/27
NAS-1 (SNAT for 10.21.3.0/24)</td><td colspan="4">100.1.2.96/27
NAS-1 (SNAT for 10.21.5.0/24)</td></tr>
<tr><td>128</td><td>132</td><td>136</td><td>140</td><td>192</td><td>196</td><td>200</td><td>204</td></tr>
<tr><td>144</td><td>148</td><td>152</td><td>156</td><td>208</td><td>212</td><td>216</td><td>220</td></tr>
<tr><td>160</td><td>164</td><td>168</td><td>172</td><td>224</td><td>228</td><td>232</td><td>236</td></tr>
<tr><td>176</td><td>180</td><td>184</td><td>188</td><td>240</td><td>244</td><td>248</td><td>252</td></tr>
</table>

5. Private IP Address Pools for Our Networks

1. 10.21.0.0/24 (For PPPoE Connection IP Pool)

2. 10.21.1.0/24 (For PPPoE Connection IP Pool)
3. 10.21.2.0/24 (For PPPoE Connection IP Pool)
4. 10.21.3.0/24 (For PPPoE Connection IP Pool)
5. 10.21.5.0/24 (For PPPoE Connection IP Pool)
6. 10.21.6.0/24 (For PPPoE Connection IP Pool)
7. 10.10.100.0/24 (For IPoE Connection IP Pool)
8. 10.10.100.0/24 (For IPoE Connection IP Pool)
9. 172.25.25.0/24 (For MGMT)

Now we are going to configure all our devices step by step as

(A) Huawei Core Configuration

Step1: First perform basic configurations on our Core Huawei NE05 Router as

```
# Give the name of Core Router
sysname My-Core

# Enable the telnet Server and aslo change the default port as 2020
telnet server enable
telnet server port 2020

# Create Vlan Database
vlan 10
 description DIRECT-OFFICE-IT-ROOM
vlan 700
 description EXTREME-PEERING
vlan 701
 description NAS-1
vlan 100
 description LOCAL-SERVER
vlan 703
 description DNS-Server
vlan 90
 description ABC-ILL
```

```
vlan 2000
 description MGMT

# Create a username and password as you wish on aaa
aaa
 local-user admin password irreversible-cipher admin@123
 local-user admin privilege level 15
 local-user admin service-type terminal http, telnet

 # Create SNMP Community as you wish
snmp-agent
snmp-agent community read cipher ABC@54321
snmp-agent sys-info contact MY-CORE
snmp-agent sys-info location Delhi-Main-Office
snmp-agent sys-info version all

# configure user interface and set authentication mode as aaa
user-interface con 0
 authentication-mode aaa
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound all
user-interface vty 16 20
```

Step2: Now configure IP addresses and All Port configuration as

```
# Create a SVI with vlan 700 for Extreme Peering
interface Vlanif700
 description EXTREME-PEERING
 ip address 50.50.50.2 255.255.255.0

# Create a SVI with vlan 701 for NAS-1
interface Vlanif701
 description TO_NAS-1
 ip address 100.1.1.1 255.255.255.252
```

```
# Give the IP Pool for Direct Customer ILL (ABC-ILL)
interface Vlanif90
 description TO-ABC-ILL
 ip address 10.1.1.41 255.255.255.248

# Assign the IP Pool for Local Servers
interface Vlanif100
 description FOR-LOCAL-SERVER
 ip address 100.1.1.33 255.255.255.248

# Assign the IP Pool for DNS Server
interface Vlanif703
 description DNS-SERVER
 ip address 100.1.1.9 255.255.255.252

# Configuration of port connected with NAS-1
interface GigabitEthernet1/0/0
 description TO-NAS-1
 switchport
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 701

# Configuration of port connected with NAS-1
interface GigabitEthernet1/0/1
 description TO-MAIN-LAN-SWITCH
 switchport
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 10 90 100 703 2000

# Configure TATA IP address on port that connect to TATA
interface GigabitEthernet1/0/2
 description UPLINK-TATA
 ip address 20.20.20.2 255.255.255.252

# Configure port that connected with EXTREME-PEERING
```

```
interface GigabitEthernet0/0/3
 description TO-EXTREME-PEERING
 switchport
 port link-type access
 port default vlan 700
 stp disable

# Configure IP Address on port which is directly connected with NAS-2
interface GigabitEthernet1/0/4
 description TO-NAS-2
  ip address 100.1.1.5 255.255.255.252
```

Step3: Now configure Static Routing of IP Pools which are routed towards NAS

```
ip route-static 100.1.1.0 255.255.254.0 NULL0
ip route-static 100.1.2.0 255.255.255.0 NULL0
ip route-static 100.1.1.64 255.255.255.224 100.1.1.2
ip route-static 100.1.1.96 255.255.255.224 100.1.1.6
ip route-static 100.1.1.128 255.255.255.192 100.1.1.6
ip route-static 100.1.1.192 255.255.255.192 100.1.1.2
ip route-static 100.1.2.0 255.255.255.0 NULL0
ip route-static 100.1.1.0 255.255.255.128 100.1.1.2
```

Step4: Now configure BGP

(I) First Create Route-Policy as

```
route-policy tata-ill permit node 10
 if-match ip-prefix tata        ## It will take IP pools from tata Prefix
 apply as-path 134924 134924 134924 134924 additive
```

(II) Now create IP-Prefixes as

```
ip ip-prefix tata index 20 permit 100.1.1.0 24
ip ip-prefix tata index 30 permit 100.1.2.0 24
ip ip-prefix tata index 1000 deny 0.0.0.0 0
ip ip-prefix peering index 1000 deny 0.0.0.0 0
```

```
ip ip-prefix EXTREME-IX index 5 permit 100.1.1.0 24
ip ip-prefix EXTREME-IX index 10 permit 100.1.2.0 24
```

(III) Now configure our BGP with upstream

```
# First configure BGP Peer
bgp 123456
 router-id 10.0.0.1                ## Set a unique Router ID for BGP
 undo check-first-as
 peer 50.50.50.50 as-number 49378
 peer 50.50.50.50 description RS-1
 peer 50.50.50.60 as-number 49378
 peer 50.50.50.60 description RS-2
 peer 20.20.20.1 as-number 4755
 peer 20.20.20.1 description TTSL_ILL

 # Now configure unicast BGP
 ipv4-family unicast
  undo synchronization
  import-route direct
  import-route static
  peer 50.50.50.50 enable
  peer 50.50.50.50 ip-prefix EXTREME-IX export
  peer 50.50.50.60 enable
  peer 50.50.50.60 ip-prefix EXTREME-IX export
  peer 20.20.20.1 enable
  peer 20.20.20.1 route-policy tata-ill export
```

Note:

```
ipv4-family unicast
 undo synchronization
 import-route direct
 import-route static
```

These BGP (Border Gateway Protocol) commands in the Huawei router configuration are essential for proper routing functionality:

- **undo synchronization** - This command disables BGP synchronization, which means the router doesn't need to wait for IGP (Internal Gateway

Protocol) to learn about a route before advertising it to external peers. This improves convergence time and is standard practice in modern networks.

- **import-route direct** - This command imports directly connected routes into the BGP routing table, allowing the router to advertise networks that are directly attached to it.

```
ipv4-family unicast
 import-route direct

OR

ipv4-family unicast
 network 100.1.1.0 255.255.255.0
 network 100.1.2.0 255.255.255.0
```

- **import-route static** - This command imports static routes into the BGP routing table. In your configuration, this would include all the static routes configured for your IP pools (100.1.1.0/24, 100.1.2.0/24, etc.) so they can be advertised to upstream providers and peers.

```
ip route-static 0.0.0.0 0.0.0.0 20.20.20.1

OR

ipv4-family unicast
 import-route static
```

These commands are part of the BGP configuration that allows your ISP network to announce your IP prefixes to other networks (like TATA and EXTREME-IX) and receive routes from them.

(B) NAS Server (NAS-1) Configuration (PPPoE)

Step1: First perform basic configurations on our NAS Router as

```
/interface ethernet
set [ find default-name=ether1 ] name=GE1/0/0-Uplink
set [ find default-name=ether2 ] name=GE1/0/1-Downlink

/interface vlan
add interface=GE1/0/1-Downlink name="Local-OLT" vlan-id=20
add interface=GE1/0/1-Downlink name="Bulland-Society" vlan-id=30
add interface=GE1/0/1-Downlink name="Sec-10" vlan-id=40
add interface=GE1/0/1-Downlink name="Vishal-Networks" vlan-id=70

/ip pool
add name="Static-IP-POOL1" ranges=100.1.1.65-100.1.1.94
add name=PPPoE-POOL ranges=10.21.0.0-10.21.3.254,10.21.4.0-10.21.5.25
4

/snmp community
set [ find default=yes ] name=ABC@123

/ip address
add address=100.1.1.2/30 interface=GE1/0/0-Uplink network=100.1.1.0

/ip dns
set servers=100.1.1.35,8.8.8.8

/ip route
add distance=1 gateway=100.1.1.1

/ip service
set ftp disabled=yes
set www port=9191
set ssh disabled=yes
set winbox port=9190
set api-ssl disabled=yes

/system identity
set name="NAS-2"
```

Step2: Configuration done by Radius Service Provider

/ppp profile
set *0 dns-server=100.1.1.35,8.8.8.8 local-address=100.1.1.2 remote-address=Default

/system logging action
set 3 remote=100.1.1.34

/interface pppoe-server server
add authentication=pap disabled=no interface="Local-OLT" Max-mru=1492 Max-mtu=1492 one-session-per-host=yes
add authentication=pap disabled=no interface="Bulland-Society" Max-mru=1492 Max-mtu=1492 one-session-per-host=yes
add authentication=pap disabled=no interface="Sec-10" Max-mru=1492 Max-mtu=1492 one-session-per-host=yes
add authentication=pap disabled=no interface="Vishal-Networks" Max-mru=1492 Max-mtu=1492 one-session-per-host=yes service-name=ABCD

/ip firewall nat
add action=dst-nat chain=dstnat dst-port=53 protocol=udp to-addresses=8.8.8.8 to-ports=53
add action=src-nat chain=srcnat src-address=10.21.0.0/29 to-addresses=100.1.1.192
add action=src-nat chain=srcnat src-address=10.21.0.8/29 to-addresses=100.1.1.193
add action=src-nat chain=srcnat src-address=10.21.0.16/29 to-addresses=100.1.1.194
add action=src-nat chain=srcnat src-address=10.21.0.24/29 to-addresses=100.1.1.195
add action=src-nat chain=srcnat src-address=10.21.0.32/29 to-addresses=100.1.1.196
add action=src-nat chain=srcnat src-address=10.21.0.40/29 to-addresses=100.1.1.197
add action=src-nat chain=srcnat src-address=10.21.0.48/29 to-addresses=100.1.1.198
add action=src-nat chain=srcnat src-address=10.21.0.56/29 to-addresses=100.1.1.199

```
add action=src-nat chain=srcnat src-address=10.21.0.64/29 to-
addresses=100.1.1.200
add action=src-nat chain=srcnat src-address=10.21.0.72/29 to-
addresses=100.1.1.201
add action=src-nat chain=srcnat src-address=10.21.0.80/29 to-
addresses=100.1.1.202
add action=src-nat chain=srcnat src-address=10.21.0.88/29 to-
addresses=100.1.1.203
add action=src-nat chain=srcnat src-address=10.21.0.96/29 to-
addresses=100.1.1.204
add action=src-nat chain=srcnat src-address=10.21.0.104/29 to-
addresses=100.1.1.205
add action=src-nat chain=srcnat src-address=10.21.0.112/29 to-
addresses=100.1.1.206
add action=src-nat chain=srcnat src-address=10.21.0.120/29 to-
addresses=100.1.1.207
add action=src-nat chain=srcnat src-address=10.21.0.128/29 to-
addresses=100.1.1.208
add action=src-nat chain=srcnat src-address=10.21.0.136/29 to-
addresses=100.1.1.209
add action=src-nat chain=srcnat src-address=10.21.0.144/29 to-
addresses=100.1.1.210
add action=src-nat chain=srcnat src-address=10.21.0.152/29 to-
addresses=100.1.1.211
add action=src-nat chain=srcnat src-address=10.21.0.160/29 to-
addresses=100.1.1.212
add action=src-nat chain=srcnat src-address=10.21.0.168/29 to-
addresses=100.1.1.213
add action=src-nat chain=srcnat src-address=10.21.0.176/29 to-
addresses=100.1.1.214
add action=src-nat chain=srcnat src-address=10.21.0.184/29 to-
addresses=100.1.1.215
add action=src-nat chain=srcnat src-address=10.21.0.192/29 to-
addresses=100.1.1.216
add action=src-nat chain=srcnat src-address=10.21.0.200/29 to-
addresses=100.1.1.217
add action=src-nat chain=srcnat src-address=10.21.0.208/29 to-
addresses=100.1.1.218
```

```
add action=src-nat chain=srcnat src-address=10.21.0.216/29 to-
addresses=100.1.1.219
add action=src-nat chain=srcnat src-address=10.21.0.224/29 to-
addresses=100.1.1.220
add action=src-nat chain=srcnat src-address=10.21.0.232/29 to-
addresses=100.1.1.221
add action=src-nat chain=srcnat src-address=10.21.0.240/29 to-
addresses=100.1.1.222
add action=src-nat chain=srcnat src-address=10.21.0.248/29 to-
addresses=100.1.1.223
add action=src-nat chain=srcnat src-address=10.21.1.0/29 to-
addresses=100.1.1.224
add action=src-nat chain=srcnat src-address=10.21.1.8/29 to-
addresses=100.1.1.225
add action=src-nat chain=srcnat src-address=10.21.1.16/29 to-
addresses=100.1.1.226
add action=src-nat chain=srcnat src-address=10.21.1.24/29 to-
addresses=100.1.1.227
add action=src-nat chain=srcnat src-address=10.21.1.32/29 to-
addresses=100.1.1.228
add action=src-nat chain=srcnat src-address=10.21.1.40/29 to-
addresses=100.1.1.229
add action=src-nat chain=srcnat src-address=10.21.1.48/29 to-
addresses=100.1.1.230
add action=src-nat chain=srcnat src-address=10.21.1.56/29 to-
addresses=100.1.1.231
add action=src-nat chain=srcnat src-address=10.21.1.64/29 to-
addresses=100.1.1.232
add action=src-nat chain=srcnat src-address=10.21.1.72/29 to-
addresses=100.1.1.233
add action=src-nat chain=srcnat src-address=10.21.1.80/29 to-
addresses=100.1.1.234
add action=src-nat chain=srcnat src-address=10.21.1.88/29 to-
addresses=100.1.1.235
add action=src-nat chain=srcnat src-address=10.21.1.96/29 to-
addresses=100.1.1.236
add action=src-nat chain=srcnat src-address=10.21.1.104/29 to-
addresses=100.1.1.237
```

```
add action=src-nat chain=srcnat src-address=10.21.1.112/29 to-
addresses=100.1.1.238
add action=src-nat chain=srcnat src-address=10.21.1.120/29 to-
addresses=100.1.1.239
add action=src-nat chain=srcnat src-address=10.21.1.128/29 to-
addresses=100.1.1.240
add action=src-nat chain=srcnat src-address=10.21.1.136/29 to-
addresses=100.1.1.241
add action=src-nat chain=srcnat src-address=10.21.1.144/29 to-
addresses=100.1.1.242
add action=src-nat chain=srcnat src-address=10.21.1.152/29 to-
addresses=100.1.1.243
add action=src-nat chain=srcnat src-address=10.21.1.160/29 to-
addresses=100.1.1.244
add action=src-nat chain=srcnat src-address=10.21.1.168/29 to-
addresses=100.1.1.245
add action=src-nat chain=srcnat src-address=10.21.1.176/29 to-
addresses=100.1.1.246
add action=src-nat chain=srcnat src-address=10.21.1.184/29 to-
addresses=100.1.1.247
add action=src-nat chain=srcnat src-address=10.21.1.192/29 to-
addresses=100.1.1.248
add action=src-nat chain=srcnat src-address=10.21.1.200/29 to-
addresses=100.1.1.249
add action=src-nat chain=srcnat src-address=10.21.1.208/29 to-
addresses=100.1.1.250
add action=src-nat chain=srcnat src-address=10.21.1.216/29 to-
addresses=100.1.1.251
add action=src-nat chain=srcnat src-address=10.21.1.224/29 to-
addresses=100.1.1.252
add action=src-nat chain=srcnat src-address=10.21.1.232/29 to-
addresses=100.1.1.253
add action=src-nat chain=srcnat src-address=10.21.1.240/29 to-
addresses=100.1.1.254
add action=src-nat chain=srcnat src-address=10.21.1.248/29 to-
addresses=100.1.1.255
add action=src-nat chain=srcnat src-address=10.21.2.0/29 to-
addresses=100.1.2.0
```

```
add action=src-nat chain=srcnat src-address=10.21.2.8/29 to-
addresses=100.1.2.1
add action=src-nat chain=srcnat src-address=10.21.2.16/29 to-
addresses=100.1.2.2
add action=src-nat chain=srcnat src-address=10.21.2.24/29 to-
addresses=100.1.2.3
add action=src-nat chain=srcnat src-address=10.21.2.32/29 to-
addresses=100.1.2.4
add action=src-nat chain=srcnat src-address=10.21.2.40/29 to-
addresses=100.1.2.5
add action=src-nat chain=srcnat src-address=10.21.2.48/29 to-
addresses=100.1.2.6
add action=src-nat chain=srcnat src-address=10.21.2.56/29 to-
addresses=100.1.2.7
add action=src-nat chain=srcnat src-address=10.21.2.64/29 to-
addresses=100.1.2.8
add action=src-nat chain=srcnat src-address=10.21.2.72/29 to-
addresses=100.1.2.9
add action=src-nat chain=srcnat src-address=10.21.2.80/29 to-
addresses=100.1.2.10
add action=src-nat chain=srcnat src-address=10.21.2.88/29 to-
addresses=100.1.2.11
add action=src-nat chain=srcnat src-address=10.21.2.96/29 to-
addresses=100.1.2.12
add action=src-nat chain=srcnat src-address=10.21.2.104/29 to-
addresses=100.1.2.13
add action=src-nat chain=srcnat src-address=10.21.2.112/29 to-
addresses=100.1.2.14
add action=src-nat chain=srcnat src-address=10.21.2.120/29 to-
addresses=100.1.2.15
add action=src-nat chain=srcnat src-address=10.21.2.128/29 to-
addresses=100.1.2.16
add action=src-nat chain=srcnat src-address=10.21.2.136/29 to-
addresses=100.1.2.17
add action=src-nat chain=srcnat src-address=10.21.2.144/29 to-
addresses=100.1.2.18
add action=src-nat chain=srcnat src-address=10.21.2.152/29 to-
addresses=100.1.2.19
```

```
add action=src-nat chain=srcnat src-address=10.21.2.160/29 to-
addresses=100.1.2.20
add action=src-nat chain=srcnat src-address=10.21.2.168/29 to-
addresses=100.1.2.21
add action=src-nat chain=srcnat src-address=10.21.2.176/29 to-
addresses=100.1.2.22
add action=src-nat chain=srcnat src-address=10.21.2.184/29 to-
addresses=100.1.2.23
add action=src-nat chain=srcnat src-address=10.21.2.192/29 to-
addresses=100.1.2.24
add action=src-nat chain=srcnat src-address=10.21.2.200/29 to-
addresses=100.1.2.25
add action=src-nat chain=srcnat src-address=10.21.2.208/29 to-
addresses=100.1.2.26
add action=src-nat chain=srcnat src-address=10.21.2.216/29 to-
addresses=100.1.2.27
add action=src-nat chain=srcnat src-address=10.21.2.224/29 to-
addresses=100.1.2.28
add action=src-nat chain=srcnat src-address=10.21.2.232/29 to-
addresses=100.1.2.29
add action=src-nat chain=srcnat src-address=10.21.2.240/29 to-
addresses=100.1.2.30
add action=src-nat chain=srcnat src-address=10.21.2.248/29 to-
addresses=100.1.2.31
add action=src-nat chain=srcnat src-address=10.21.3.0/29 to-
addresses=100.1.2.32
add action=src-nat chain=srcnat src-address=10.21.3.8/29 to-
addresses=100.1.2.33
add action=src-nat chain=srcnat src-address=10.21.3.16/29 to-
addresses=100.1.2.34
add action=src-nat chain=srcnat src-address=10.21.3.24/29 to-
addresses=100.1.2.35
add action=src-nat chain=srcnat src-address=10.21.3.32/29 to-
addresses=100.1.2.36
add action=src-nat chain=srcnat src-address=10.21.3.40/29 to-
addresses=100.1.2.37
add action=src-nat chain=srcnat src-address=10.21.3.48/29 to-
addresses=100.1.2.38
```

```
add action=src-nat chain=srcnat src-address=10.21.3.56/29 to-
addresses=100.1.2.39
add action=src-nat chain=srcnat src-address=10.21.3.64/29 to-
addresses=100.1.2.40
add action=src-nat chain=srcnat src-address=10.21.3.72/29 to-
addresses=100.1.2.41
add action=src-nat chain=srcnat src-address=10.21.3.80/29 to-
addresses=100.1.2.42
add action=src-nat chain=srcnat src-address=10.21.3.88/29 to-
addresses=100.1.2.43
add action=src-nat chain=srcnat src-address=10.21.3.96/29 to-
addresses=100.1.2.44
add action=src-nat chain=srcnat src-address=10.21.3.104/29 to-
addresses=100.1.2.45
add action=src-nat chain=srcnat src-address=10.21.3.112/29 to-
addresses=100.1.2.46
add action=src-nat chain=srcnat src-address=10.21.3.120/29 to-
addresses=100.1.2.47
add action=src-nat chain=srcnat src-address=10.21.3.128/29 to-
addresses=100.1.2.48
add action=src-nat chain=srcnat src-address=10.21.3.136/29 to-
addresses=100.1.2.49
add action=src-nat chain=srcnat src-address=10.21.3.144/29 to-
addresses=100.1.2.50
add action=src-nat chain=srcnat src-address=10.21.3.152/29 to-
addresses=100.1.2.51
add action=src-nat chain=srcnat src-address=10.21.3.160/29 to-
addresses=100.1.2.52
add action=src-nat chain=srcnat src-address=10.21.3.168/29 to-
addresses=100.1.2.53
add action=src-nat chain=srcnat src-address=10.21.3.176/29 to-
addresses=100.1.2.54
add action=src-nat chain=srcnat src-address=10.21.3.184/29 to-
addresses=100.1.2.55
add action=src-nat chain=srcnat src-address=10.21.3.192/29 to-
addresses=100.1.2.56
add action=src-nat chain=srcnat src-address=10.21.3.200/29 to-
addresses=100.1.2.57
```

```
add action=src-nat chain=srcnat src-address=10.21.3.208/29 to-
addresses=100.1.2.58
add action=src-nat chain=srcnat src-address=10.21.3.216/29 to-
addresses=100.1.2.59
add action=src-nat chain=srcnat src-address=10.21.3.224/29 to-
addresses=100.1.2.60
add action=src-nat chain=srcnat src-address=10.21.3.232/29 to-
addresses=100.1.2.61
add action=src-nat chain=srcnat src-address=10.21.3.240/29 to-
addresses=100.1.2.62
add action=src-nat chain=srcnat src-address=10.21.3.248/29 to-
addresses=100.1.2.63
add action=src-nat chain=srcnat src-address=10.21.4.0/29 to-
addresses=100.1.2.64
add action=src-nat chain=srcnat src-address=10.21.4.8/29 to-
addresses=100.1.2.65
add action=src-nat chain=srcnat src-address=10.21.4.16/29 to-
addresses=100.1.2.66
add action=src-nat chain=srcnat src-address=10.21.4.24/29 to-
addresses=100.1.2.67
add action=src-nat chain=srcnat src-address=10.21.4.32/29 to-
addresses=100.1.2.68
add action=src-nat chain=srcnat src-address=10.21.4.40/29 to-
addresses=100.1.2.69
add action=src-nat chain=srcnat src-address=10.21.4.48/29 to-
addresses=100.1.2.70
add action=src-nat chain=srcnat src-address=10.21.4.56/29 to-
addresses=100.1.2.71
add action=src-nat chain=srcnat src-address=10.21.4.64/29 to-
addresses=100.1.2.72
add action=src-nat chain=srcnat src-address=10.21.4.72/29 to-
addresses=100.1.2.73
add action=src-nat chain=srcnat src-address=10.21.4.80/29 to-
addresses=100.1.2.74
add action=src-nat chain=srcnat src-address=10.21.4.88/29 to-
addresses=100.1.2.75
add action=src-nat chain=srcnat src-address=10.21.4.96/29 to-
addresses=100.1.2.76
```

```
add action=src-nat chain=srcnat src-address=10.21.4.104/29 to-
addresses=100.1.2.77
add action=src-nat chain=srcnat src-address=10.21.4.112/29 to-
addresses=100.1.2.78
add action=src-nat chain=srcnat src-address=10.21.4.120/29 to-
addresses=100.1.2.79
add action=src-nat chain=srcnat src-address=10.21.4.128/29 to-
addresses=100.1.2.80
add action=src-nat chain=srcnat src-address=10.21.4.136/29 to-
addresses=100.1.2.81
add action=src-nat chain=srcnat src-address=10.21.4.144/29 to-
addresses=100.1.2.82
add action=src-nat chain=srcnat src-address=10.21.4.152/29 to-
addresses=100.1.2.83
add action=src-nat chain=srcnat src-address=10.21.4.160/29 to-
addresses=100.1.2.84
add action=src-nat chain=srcnat src-address=10.21.4.168/29 to-
addresses=100.1.2.85
add action=src-nat chain=srcnat src-address=10.21.4.176/29 to-
addresses=100.1.2.86
add action=src-nat chain=srcnat src-address=10.21.4.184/29 to-
addresses=100.1.2.87
add action=src-nat chain=srcnat src-address=10.21.4.192/29 to-
addresses=100.1.2.88
add action=src-nat chain=srcnat src-address=10.21.4.200/29 to-
addresses=100.1.2.89
add action=src-nat chain=srcnat src-address=10.21.4.208/29 to-
addresses=100.1.2.90
add action=src-nat chain=srcnat src-address=10.21.4.216/29 to-
addresses=100.1.2.91
add action=src-nat chain=srcnat src-address=10.21.4.224/29 to-
addresses=100.1.2.92
add action=src-nat chain=srcnat src-address=10.21.4.232/29 to-
addresses=100.1.2.93
add action=src-nat chain=srcnat src-address=10.21.4.240/29 to-
addresses=100.1.2.94
add action=src-nat chain=srcnat src-address=10.21.4.248/29 to-
addresses=100.1.2.95
```

```
add action=src-nat chain=srcnat src-address=10.21.5.0/29 to-
addresses=100.1.2.96
add action=src-nat chain=srcnat src-address=10.21.5.8/29 to-
addresses=100.1.2.97
add action=src-nat chain=srcnat src-address=10.21.5.16/29 to-
addresses=100.1.2.98
add action=src-nat chain=srcnat src-address=10.21.5.24/29 to-
addresses=100.1.2.99
add action=src-nat chain=srcnat src-address=10.21.5.32/29 to-
addresses=100.1.2.100
add action=src-nat chain=srcnat src-address=10.21.5.40/29 to-
addresses=100.1.2.101
add action=src-nat chain=srcnat src-address=10.21.5.48/29 to-
addresses=100.1.2.102
add action=src-nat chain=srcnat src-address=10.21.5.56/29 to-
addresses=100.1.2.103
add action=src-nat chain=srcnat src-address=10.21.5.64/29 to-
addresses=100.1.2.104
add action=src-nat chain=srcnat src-address=10.21.5.72/29 to-
addresses=100.1.2.105
add action=src-nat chain=srcnat src-address=10.21.5.80/29 to-
addresses=100.1.2.106
add action=src-nat chain=srcnat src-address=10.21.5.88/29 to-
addresses=100.1.2.107
add action=src-nat chain=srcnat src-address=10.21.5.96/29 to-
addresses=100.1.2.108
add action=src-nat chain=srcnat src-address=10.21.5.104/29 to-
addresses=100.1.2.109
add action=src-nat chain=srcnat src-address=10.21.5.112/29 to-
addresses=100.1.2.110
add action=src-nat chain=srcnat src-address=10.21.5.120/29 to-
addresses=100.1.2.111
add action=src-nat chain=srcnat src-address=10.21.5.128/29 to-
addresses=100.1.2.112
add action=src-nat chain=srcnat src-address=10.21.5.136/29 to-
addresses=100.1.2.113
add action=src-nat chain=srcnat src-address=10.21.5.144/29 to-
addresses=100.1.2.114
```

```
add action=src-nat chain=srcnat src-address=10.21.5.152/29 to-
addresses=100.1.2.115
add action=src-nat chain=srcnat src-address=10.21.5.160/29 to-
addresses=100.1.2.116
add action=src-nat chain=srcnat src-address=10.21.5.168/29 to-
addresses=100.1.2.117
add action=src-nat chain=srcnat src-address=10.21.5.176/29 to-
addresses=100.1.2.118
add action=src-nat chain=srcnat src-address=10.21.5.184/29 to-
addresses=100.1.2.119
add action=src-nat chain=srcnat src-address=10.21.5.192/29 to-
addresses=100.1.2.120
add action=src-nat chain=srcnat src-address=10.21.5.200/29 to-
addresses=100.1.2.121
add action=src-nat chain=srcnat src-address=10.21.5.208/29 to-
addresses=100.1.2.122
add action=src-nat chain=srcnat src-address=10.21.5.216/29 to-
addresses=100.1.2.123
add action=src-nat chain=srcnat src-address=10.21.5.224/29 to-
addresses=100.1.2.124
add action=src-nat chain=srcnat src-address=10.21.5.232/29 to-
addresses=100.1.2.125
add action=src-nat chain=srcnat src-address=10.21.5.240/29 to-
addresses=100.1.2.126
add action=src-nat chain=srcnat src-address=10.21.5.248/29 to-
addresses=100.1.2.127


/ppp aaa
set interim-update=10m use-radius=yes

/radius
add address=3.3.3.3 secret=secret service=ppp,hotspot timeout=3s

/radius incoming
set accept=yes

/system package update
```

```
set channel=bugfix
#error exporting /system routerboard mode-button

/system scheduler
add interval=30s name=schedule1 on-event="/ip hotspot host remove [find
where authorized=no uptime>00:01:00]"
policy=ftp,reboot,read,write,policy,test,password,sniff,sensitive,romon start-
date=apr/27/2021 start-time=11:33:46

/tool user-manager database
set db-path=user-manager
```

(C) NAS Server (NAS-2) Configuration (IPoE)

Step1: First perform basic configurations on our NAS Router as

```
/interface ethernet
set [ find default-name=sfp-sfpplus1 ] name=Gi0/0-Uplink
set [ find default-name=combo1 ] name=Gi0/1-Downlink

/interface vlan
add interface=Gi0/1-Downlink name="Vlan-60 Maxx BROADBAND" vlan-id=60
add interface=Gi0/1-Downlink name="Vlan-80 Jain BROADBAND" vlan-id=80

/ip pool
add name="Maxx BROADBAND-10.10.100.1/24" ranges=10.10.100.0-
10.10.100.254
add name="Jain BROADBAND-10.10.101.1/24" ranges=10.10.101.0-10.10.100.254
add name="Maxx BROADBAND 100.1.1.1/29" ranges=103.212.89.161-
103.212.89.190
add name="Jain BROADBAND 100.1.1.1/28" ranges=103.115.124.113-
103.115.124.126

/ip address
add address=100.1.1.1/30 interface=Gi0/0-Uplink network=100.1.1.0
add address=10.10.100.1/24 interface="Vlan-60 Maxx BROADBAND"
```

```
network=10.10.100.0
add address=10.10.101.1/24 interface="Vlan-80 Jain BROADBAND"
network=10.10.101.0
add address=100.1.1.1/29 interface="Vlan-60 Maxx BROADBAND"
network=100.1.1.0
add address=100.1.1.1/29 interface="Vlan-80 Jain BROADBAND"
network=100.1.1.0

/ip dns
set servers=100.1.1.35,8.8.8.8

/ip route
add distance=1 gateway=100.1.1.5

/ip service
set telnet disabled=yes
set ftp disabled=yes
set www port=2222
set ssh disabled=yes
set api
set winbox port= 9999
set api-ssl disabled=yes

/snmp community
add addresses=0.0.0.0/0 name=ABC@123 write-access=yes

/snmp
set contact="NAS-2" enabled=yes location=XYZ trap-community=ABC@123
trap-generators=interfaces trap-version=2

/system identity
set name=NAS-2

/tool bandwidth-server
set enabled=no

/tool graphing interface
add
```

/tool graphing queue
add

Step2: Configuration done by Radius Service Provider

/ip hotspot profile
add login-by=mac,http-pap mac-auth-password=h8SSRMS name=hsprof1 use-radius=yes

/ip hotspot
add addresses-per-mac=unlimited disabled=no idle-timeout=none interface="Vlan-60 Maxx BROADBAND" name=server1 profile=hsprof1
add addresses-per-mac=unlimited disabled=no idle-timeout=none interface="Vlan-80 Jain BROADBAND" name="server1" profile=hsprof1

/ip hotspot user profile
set [find default=yes] insert-queue-before=hs-<server1>

/system logging action
set 3 remote=100.1.1.34

/ip firewall filter
add action=log chain=forward out-interface=all-vlan protocol=tcp tcp-flags=syn
add action=log chain=forward connection-nat-state=srcnat,dstnat connection-state=new dst-address=!8.8.8.8 protocol=udp
add action=passthrough chain=unused-hs-chain comment="place hotspot rules here" disabled=yes

/ip firewall nat
add action=dst-nat chain=dstnat dst-port=53 protocol=udp to-addresses=100.1.1.35 to-ports=53
add action=dst-nat chain=dstnat dst-port=53 protocol=tcp to-addresses=8.8.8.8 to-ports=53
add action=src-nat chain=srcnat src-address=10.10.100.0/29 to-addresses=100.1.1.128
add action=src-nat chain=srcnat src-address=10.10.100.8/29 to-addresses=100.1.1.129

```
add action=src-nat chain=srcnat src-address=10.10.100.16/29 to-
addresses=100.1.1.130
add action=src-nat chain=srcnat src-address=10.10.100.24/29 to-
addresses=100.1.1.131
add action=src-nat chain=srcnat src-address=10.10.100.32/29 to-
addresses=100.1.1.132
add action=src-nat chain=srcnat src-address=10.10.100.40/29 to-
addresses=100.1.1.133
add action=src-nat chain=srcnat src-address=10.10.100.48/29 to-
addresses=100.1.1.134
add action=src-nat chain=srcnat src-address=10.10.100.56/29 to-
addresses=100.1.1.135
add action=src-nat chain=srcnat src-address=10.10.100.64/29 to-
addresses=100.1.1.136
add action=src-nat chain=srcnat src-address=10.10.100.72/29 to-
addresses=100.1.1.137
add action=src-nat chain=srcnat src-address=10.10.100.80/29 to-
addresses=100.1.1.138
add action=src-nat chain=srcnat src-address=10.10.100.88/29 to-
addresses=100.1.1.139
add action=src-nat chain=srcnat src-address=10.10.100.96/29 to-
addresses=100.1.1.140
add action=src-nat chain=srcnat src-address=10.10.100.104/29 to-
addresses=100.1.1.141
add action=src-nat chain=srcnat src-address=10.10.100.112/29 to-
addresses=100.1.1.142
add action=src-nat chain=srcnat src-address=10.10.100.120/29 to-
addresses=100.1.1.143
add action=src-nat chain=srcnat src-address=10.10.100.128/29 to-
addresses=100.1.1.144
add action=src-nat chain=srcnat src-address=10.10.100.136/29 to-
addresses=100.1.1.145
add action=src-nat chain=srcnat src-address=10.10.100.144/29 to-
addresses=100.1.1.146
add action=src-nat chain=srcnat src-address=10.10.100.152/29 to-
addresses=100.1.1.147
add action=src-nat chain=srcnat src-address=10.10.100.160/29 to-
addresses=100.1.1.148
```

```
add action=src-nat chain=srcnat src-address=10.10.100.168/29 to-
addresses=100.1.1.149
add action=src-nat chain=srcnat src-address=10.10.100.176/29 to-
addresses=100.1.1.150
add action=src-nat chain=srcnat src-address=10.10.100.184/29 to-
addresses=100.1.1.151
add action=src-nat chain=srcnat src-address=10.10.100.192/29 to-
addresses=100.1.1.152
add action=src-nat chain=srcnat src-address=10.10.100.200/29 to-
addresses=100.1.1.153
add action=src-nat chain=srcnat src-address=10.10.100.208/29 to-
addresses=100.1.1.154
add action=src-nat chain=srcnat src-address=10.10.100.216/29 to-
addresses=100.1.1.155
add action=src-nat chain=srcnat src-address=10.10.100.224/29 to-
addresses=100.1.1.156
add action=src-nat chain=srcnat src-address=10.10.100.232/29 to-
addresses=100.1.1.157
add action=src-nat chain=srcnat src-address=10.10.100.240/29 to-
addresses=100.1.1.158
add action=src-nat chain=srcnat src-address=10.10.100.248/29 to-
addresses=100.1.1.159
add action=src-nat chain=srcnat src-address=10.10.101.0/29 to-
addresses=100.1.1.160
add action=src-nat chain=srcnat src-address=10.10.101.8/29 to-
addresses=100.1.1.161
add action=src-nat chain=srcnat src-address=10.10.101.16/29 to-
addresses=100.1.1.162
add action=src-nat chain=srcnat src-address=10.10.101.24/29 to-
addresses=100.1.1.163
add action=src-nat chain=srcnat src-address=10.10.101.32/29 to-
addresses=100.1.1.164
add action=src-nat chain=srcnat src-address=10.10.101.40/29 to-
addresses=100.1.1.165
add action=src-nat chain=srcnat src-address=10.10.101.48/29 to-
addresses=100.1.1.166
add action=src-nat chain=srcnat src-address=10.10.101.56/29 to-
addresses=100.1.1.167
```

```
add action=src-nat chain=srcnat src-address=10.10.101.64/29 to-
addresses=100.1.1.168
add action=src-nat chain=srcnat src-address=10.10.101.72/29 to-
addresses=100.1.1.169
add action=src-nat chain=srcnat src-address=10.10.101.80/29 to-
addresses=100.1.1.170
add action=src-nat chain=srcnat src-address=10.10.101.88/29 to-
addresses=100.1.1.171
add action=src-nat chain=srcnat src-address=10.10.101.96/29 to-
addresses=100.1.1.172
add action=src-nat chain=srcnat src-address=10.10.101.104/29 to-
addresses=100.1.1.173
add action=src-nat chain=srcnat src-address=10.10.101.112/29 to-
addresses=100.1.1.174
add action=src-nat chain=srcnat src-address=10.10.101.120/29 to-
addresses=100.1.1.175
add action=src-nat chain=srcnat src-address=10.10.101.128/29 to-
addresses=100.1.1.176
add action=src-nat chain=srcnat src-address=10.10.101.136/29 to-
addresses=100.1.1.177
add action=src-nat chain=srcnat src-address=10.10.101.144/29 to-
addresses=100.1.1.178
add action=src-nat chain=srcnat src-address=10.10.101.152/29 to-
addresses=100.1.1.179
add action=src-nat chain=srcnat src-address=10.10.101.160/29 to-
addresses=100.1.1.180
add action=src-nat chain=srcnat src-address=10.10.101.168/29 to-
addresses=100.1.1.181
add action=src-nat chain=srcnat src-address=10.10.101.176/29 to-
addresses=100.1.1.182
add action=src-nat chain=srcnat src-address=10.10.101.184/29 to-
addresses=100.1.1.183
add action=src-nat chain=srcnat src-address=10.10.101.192/29 to-
addresses=100.1.1.184
add action=src-nat chain=srcnat src-address=10.10.101.200/29 to-
addresses=100.1.1.185
add action=src-nat chain=srcnat src-address=10.10.101.208/29 to-
addresses=100.1.1.186
```

```
add action=src-nat chain=srcnat src-address=10.10.101.216/29 to-
addresses=100.1.1.187
add action=src-nat chain=srcnat src-address=10.10.101.224/29 to-
addresses=100.1.1.188
add action=src-nat chain=srcnat src-address=10.10.101.232/29 to-
addresses=100.1.1.189
add action=src-nat chain=srcnat src-address=10.10.101.240/29 to-
addresses=100.1.1.190
add action=src-nat chain=srcnat src-address=10.10.101.248/29 to-
addresses=100.1.1.191

/ip hotspot ip-binding
add address=10.10.100.0/24 comment="Maxx-BROADBAND"
add address=10.10.101.0/24 comment="JAIN-BROADBAND"
add address=100.1.1.96/28 comment="Maxx-BROADBAND"
add address=100.1.1.112/28 comment="JAIN-BROADBAND"
add address=0.0.0.0/0 type=blocked

/radius
add address=3.3.3.4 secret=secret service=hotspot timeout=3s

/radius incoming
set accept=yes

/system logging
set 0 topics=info,!firewall
add action=remote topics=firewall

/system scheduler
add interval=10s name=schedule1 on-event="/ip hotspot host remove [find
where authorized=no uptime>00:00:10] "
policy=ftp,reboot,read,write,policy,test,password,sniff,sensitive,romon start-
date=mar/03/2023 start-time=02:08:08
add interval=10m name=schedule2 on-event="/ip dns cache flush"
policy=ftp,reboot,read,write,policy,test,password,sniff,sensitive,romon start-
date=mar/03/2023 start-time=02:08:33
add interval=5m name=schedule3 on-event="/ip arp remove [/ip arp find
dynamic=yes]"
```

policy=ftp,reboot,read,write,policy,test,password,sniff,sensitive,romon start-date=mar/03/2023 start-time=02:08:56

(D) Main Office Switch Configuration

Step1: Basic Configuration

```
# Give the switch name
sysname HUAWEI-MAIN-OFFICE-SW

# Create a VLAN batch
vlan batch 10 20 30 40 60 70 80 90 100 500 2000

# Name the VALN
vlan 10
 description IT-ROOM
vlan 20
 description Office-Local-OLT
vlan 30
 description Bulland-Society
vlan 40
 description SEC-10
vlan 60
 description Maxx-BROADBAND
vlan 70
 description Vishal-Network
vlan 80
 description Jain-BROADBAND
vlan 90
 description Direct-ABC-ILL-Customer
vlan 100
 description LOCAL-SERVERS
vlan 500
 description SIP-SERVER
vlan 703
 description DNS-SERVER
vlan 2000
 description MGMT
```

```
# Set STP mode as RSTP
stp mode rstp

# Enable telnet server and  change the telnet port
telnet server enable
telnet server port 2023

# Create a username for login
aaa
 local-user admin password irreversible-cipher Admin@123
 local-user admin privilege level 15
 local-user admin service-type telnet terminal ssh http

# Give the IP Address to switch on MGMT SVI interface
interface Vlanif2000
 description MGMT
 ip address 172.25.25.2 255.255.255.0

# Configure a default route towards gateway
ip route-static 0.0.0.0 0.0.0.0 172.25.25.1

# Configure SNMP
snmp-agent
snmp-agent community read cipher ABC@54321
snmp-agent sys-info contact MY-OFFICE
snmp-agent sys-info location MAIN-OFFICE-SW
snmp-agent sys-info version all

# Configure VTY interface for telnet or ssh
user-interface con 0
 authentication-mode aaa
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound all
user-interface vty 16 20
```

Step2: Interface level configuration

```
#
interface GigabitEthernet1/0/01
 description From-NAS-1-Input
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 20 30 40 70
 stp disable
 stp edged-port enable
 port-isolate enable group 1
#
interface GigabitEthernet1/0/01
 description TO-ABC-Direct-ILL
 port link-type access
 port default vlan 90
 stp disable
 stp edged-port enable
#
interface GigabitEthernet1/0/2
 description TO-Bulland-Society-Fiber-Out
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 30 40 60 70 80 500 2000
#
interface GigabitEthernet1/0/3
 description TO-Sec-10-Fiber-Out
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 30 40 60 70 80 500 2000
#
interface GigabitEthernet1/0/4
 description TO-JAIN-BROADBAND-OLT
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 80 500 2000
 loopback-detect enable
 loopback-detect action trap
 stp disable
 stp edged-port enable
```

```
 port-isolate enable group 10
#
interface GigabitEthernet1/0/5
 description TO-Maxx-Broadband-Fiber-Out
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 30 40 60 70 80 500 2000
#
interface GigabitEthernet1/0/6
 description TO-Log-Server
 port link-type access
 port default vlan 100
 stp disable
 stp edged-port enable
#
interface GigabitEthernet1/0/7
 description TO-SIP-Server
 port link-type access
 port default vlan 500
 stp disable
 stp edged-port enable
#
interface GigabitEthernet1/0/8
 description TO-Monitoring-Server
 port link-type access
 port default vlan 100
 stp disable
 stp edged-port enable
#
interface GigabitEthernet1/0/9
 description TO-DNS-Server
 port link-type access
 port default vlan 703
 stp disable
 stp edged-port enable
#
interface GigabitEthernet1/0/10
 description From-Core-Input
```

```
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 10 90 100 500 703 2000
#
interface GigabitEthernet1/0/11
 description From-NAS-2-Input
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 60 80
 stp disable
 stp edged-port enable
#
interface GigabitEthernet1/0/12
 description TO-Office-OLT
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 20 500 2000
 loopback-detect enable
 loopback-detect action trap
 stp disable
 stp edged-port enable
 port-isolate enable group 10
#
interface GigabitEthernet1/0/16
 description TO-IT-Room
 port link-type access
 port default vlan 10
 stp disable
 stp edged-port enable
```

(E) Bulland Society Huawei Switch Configuration

Step1: Basic Configuration

```
# Give the switch name
sysname Bulland-Society-Sw
```

```
# Create a VLAN batch
vlan batch 30 40 60 70 500 2000

# Name the VALN
vlan 30
 description Bulland-Society
vlan 40
 description SEC-10
vlan 60
 description Maxx-BROADBAND
vlan 70
 description Vishal-Network
vlan 500
 description SIP-SERVER
vlan 2000
 description MGMT

# Set STP mode as RSTP
stp mode rstp

# Enable telnet server and  change the telnet port
telnet server enable
telnet server port 2023

# Create a username for login
aaa
 local-user admin password irreversible-cipher Admin@123
 local-user admin privilege level 15
 local-user admin service-type telnet terminal ssh http

# Give the IP Address to switch on MGMT SVI interface
interface Vlanif2000
 description MGMT
 ip address 172.25.25.3 255.255.255.0

# Configure a default route towards gateway
ip route-static 0.0.0.0 0.0.0.0 172.25.25.1
```

```
# Configure SNMP
snmp-agent
snmp-agent community read cipher ABC@54321
snmp-agent sys-info contact MY-OFFICE
snmp-agent sys-info location Bulland-Society
snmp-agent sys-info version all

# Configure VTY interface for telnet or ssh
user-interface con 0
 authentication-mode aaa
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound all
user-interface vty 16 20
```

Step2: Interface level configuration

```
#
interface GigabitEthernet1/0/1
 description From-Main-Office-Fiber-1-Input
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 30 40 60 70 500 2000
#
interface GigabitEthernet1/0/01
 description TO-Bulland-OLT
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 30 500 2000
#
interface GigabitEthernet1/0/2
 description TO-Sec-10-Fiber-Out
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 30 40 60 70 500 2000
```

(F) Sec-10 Cisco Switch Configuration

Step1: Basic Configuration

```
! Give the switch name
hostname Sec-10-Sw

! Create a VLAN batch
vlan batch 30,40,60,70,500,2000

! Name the VALN
vlan 30
 name Bulland-Society
vlan 40
 name SEC-10
vlan 60
 name Maxx-BROADBAND
vlan 70
 name Vishal-Network
vlan 500
 name SIP-SERVER
vlan 2000
 name MGMT

! Set STP mode as RSTP
spanning-tree mode rapid-pvst

! Create a username for login
username admin password 5 admin@123  role network-admin

! Give the IP Address to switch on MGMT SVI interface
interface Vlan2000
 description MGMT
 ip address 172.31.254.4 255.255.255.0

! Configure a default route towards gateway
ip default-gateway 172.31.254.1
```

```
! Configure SNMP
snmp-server community ABC@54321 RO
snmp-server location Sec-10

! Configure VTY interface for telnet or ssh
line con 0
line vty 0 4
 password 7 005647090A5702080A
 login
line vty 5 15
 login
```

Step2: Interface level configuration

```
!
interface GigabitEthernet1/0/0
description From-Main-Office-Fiber-Input-1
switchport trunk allowed vlan 30,40,60,70,500,2000
switchport mode trunk
!
interface GigabitEthernet1/0/1
description To-Bulland-OLT
switchport trunk allowed vlan 40,500,2000
switchport mode trunk
!
interface GigabitEthernet1/0/2
description From-Bulland-Society-Fiber-Input-2
switchport trunk allowed vlan 30,40,60,70,500,2000
switchport mode trunk
!
interface GigabitEthernet1/0/3
description To-Maxx-Broadband-Fiber-Out-1
switchport trunk allowed vlan 30,40,60,70,500,2000
switchport mode trunk
```

(G) Maxx Broadband Edge Core Sw Configuration

Step1: Actually, this reseller is using their OLT in plug-and-play mode.

```
!
hostname Maxx-BB-OLT
!
spanning-tree mst config
!
vlan database
 vlan 1
!
interface vlan1.1
 ip address 192.168.20.1/24
!
interface epon1
!
interface epon2
!
interface epon3
!
interface epon4
!
interface ge1
 description From-Switch
 switchport access vlan 1
!
interface ge2
!
interface ge3
!
interface ge4
!
interface ge5
!
```

```
interface ge6
!
interface xe1
!
interface xe2
!
line vty
 login local
!
end
```

Step2: Interface level configuration

```
!
interface Port-channel 1
description To-Vishal-Networks
switchport
switchport mode trunk
switchport allowed vlan add 70,50,2000 tagged
switchport allowed vlan remove 1

!
interface GE1/0/0
 description From-Main-Office-Fiber-Input
 switchport mode trunk
 switchport allowed vlan add 30,40,60,70,80,500,2000 tagged
 switchport allowed vlan remove 1
!
interface GE1/0/1
 description To-Maxx-Broadband-OLT
 switchport allowed vlan add 60 untagged
 switchport mode access
```

```
 switchport native vlan 60
 switchport allowed vlan remove 1

!
interface GE1/0/2
 description To-Vishal Network-Fiber-Out-1
 channel-group 1 mode on

!
interface GE1/0/3
 description From-Sec-10-Fiber-Input
 switchport mode trunk
 switchport allowed vlan add 30,40,60,70,80,500,2000 tagged
 switchport allowed vlan remove 1

!
interface GE1/0/5
 description To-Vishal Network-Fiber-Out-2
 channel-group 1 mode on
```

(H) Vishal Networks Huawei Switch Configuration

Step1: Basic Configuration

```
# Give the switch name
sysname Vishal-Network-Sw

# Create a VLAN batch
vlan batch 70 500 2000

# Name the VALN
vlan 70
 description Vishal-Network
vlan 500
 description SIP-SERVER
vlan 2000
```

```
 description MGMT

# Set STP mode as RSTP
stp mode rstp

# Enable telnet server and  change the telnet port
telnet server enable
telnet server port 2023

# Create a username for login
aaa
 local-user admin password irreversible-cipher Admin@123
 local-user admin privilege level 15
 local-user admin service-type telnet terminal ssh http

# Give the IP Address to switch on MGMT SVI interface
interface Vlanif2000
 description MGMT
 ip address 172.25.25.6 255.255.255.0

# Configure a default route towards gateway
ip route-static 0.0.0.0 0.0.0.0 172.25.25.1

# Configure SNMP
snmp-agent
snmp-agent community read cipher ABC@54321
snmp-agent sys-info contact MY-OFFICE
snmp-agent sys-info location Vishal-Network
snmp-agent sys-info version all

# Configure VTY interface for telnet or ssh
user-interface con 0
 authentication-mode aaa
user-interface vty 0 4
 authentication-mode aaa
 protocol inbound all
user-interface vty 16 20
```

Step2: Interface level configuration

```
#
interface Eth-Trunk1
 description From-Maxx-Broadband-Input
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 70 500 2000
 mode lacp
#
interface GigabitEthernet1/0/1
 description From-Maxx-Broadband-Fiber-1-Input
 eth-trunk 1
#
interface GigabitEthernet1/0/01
 description From-Maxx-Broadband-Fiber-2-Input
 eth-trunk 1
#
interface GigabitEthernet1/0/2
 description TO-Vishal-Network-OLT
 port link-type trunk
 undo port trunk allow-pass vlan 1
 port trunk allow-pass vlan 70 500 2000
```

(I) Office Syrotech GPON OLT Configuration

Step1: Basic configuration

```
! Configure Hostname of OLT and login password
hostname OFFICE-OLT
password admin@123
enable password admin@123

! Create VLAN Database
vlan 20
description Data
```

```
exit
vlan 500
description Voice
exit
vlan 2000
description MGMT

! Assign IP to OLT and default route towards gateway
interface vlan 2000
ip address 172.25.25.104/24
!
ip route 0.0.0.0/0 172.25.25.1

! Enable loopback on pon
loopback detect enable pon
loopback aging-time 300
loopback mode manual-recovery
!
port link-flapping mode auto-recovery

! Create users as per our requirement
user add admin login-password admin@123
user role admin ADMIN enable-password admin@123
```

Step2: Now configure input interface

```
interface gigabitethernet 0/0
switchport mode trunk
switchport trunk vlan 20
switchport trunk vlan 500
switchport trunk vlan 2000
no shutdown
```

Step3: Now create the profile and tag the VLAN data for PON

```
! DBA profile is already by default is created. So no need to create it
profile dba id 511 name default1
```

```
type 4 Maximum 1024000
exit

! First create line profile with name "All"
profile line id 1 name All
  tcont 1 dba default1
    gemport 1 tcont 1 gemport_name gem_1
      service ser_1 gemport 1 vlan 20
      service-port 1 gemport 1 uservlan 20 vlan 20
  tcont 2 dba default1
    gemport 2 tcont 2 gemport_name gem_2
      service ser_2 gemport 2 vlan 500
      service-port 2 gemport 2 uservlan 500 vlan 500
commit
exit

! Second create service profile  with name Ser-All
profile srv id 1 name Ser-All
portvlan veip 1 mode transparent
portvlan eth 1 mode transparent
commit
exit
```

Step4: Finally apply the profile on required PON

```
!
interface gpon 0/1
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
exit
!
interface gpon 0/2
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/3
```

```
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/4
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/5
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/6
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/7
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/8
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
```

Note: If you want to tag ONU/ONT manually then no need of profile

(J) Bulland Syrotech GPON OLT Configuration

Step1: Basic configuration

```
! Configure Hostname of OLT and login password
hostname Bulland-OLT
password admin@123
enable password admin@123

! Create VLAN Database
vlan 30
description Data
exit
vlan 500
description Voice
exit
vlan 2000
description MGMT

! Assign IP to OLT and default route towards gateway
interface vlan 2000
ip address 172.25.25.100/24
!
ip route 0.0.0.0/0 172.25.25.1

! Enable loopback on pon
loopback detect enable pon
loopback aging-time 300
loopback mode manual-recovery
!
port link-flapping mode auto-recovery

! Create users as per our requirement
user add admin login-password admin@123
user role admin ADMIN enable-password admin@123
```

Step2: Now configure input interface

```
interface gigabitethernet 0/0
switchport mode trunk
switchport trunk vlan 30
```

```
switchport trunk vlan 500
switchport trunk vlan 2000
no shutdown
```

Step3: Now create the profile and tag the VLAN data for PON

```
! DBA profile is already by default is created. So no need to create it
profile dba id 511 name default1
type 4 Maximum 1024000
exit

! First create line profile with name "All"
profile line id 1 name All
  tcont 1 dba default1
    gemport 1 tcont 1 gemport_name gem_1
      service ser_1 gemport 1 vlan 30
      service-port 1 gemport 1 uservlan 30 vlan 30
  tcont 2 dba default1
    gemport 2 tcont 2 gemport_name gem_2
      service ser_2 gemport 2 vlan 500
      service-port 2 gemport 2 uservlan 500 vlan 500
commit
exit

! Second create service profile  with name Ser-All
profile srv id 1 name Ser-All
portvlan veip 1 mode transparent
portvlan eth 1 mode transparent
commit
exit
```

Step4: Finally apply the profile on required PON

```
!
interface gpon 0/1
onu auto-learn
onu auto-learn line-profile name All
```

```
onu auto-learn srv-profile name Ser-All
exit
!
interface gpon 0/2
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/3
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/4
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
```

Note: If you want to tag ONU/ONT manually then no need of profile

(K) Sec-10 Syrotech GPON OLT Configuration

Step1: Basic configuration

```
! Configure Hostname of OLT and login password
hostname SEC-10-OLT
password admin@123
enable password admin@123

! Create VLAN Database
vlan 40
description Data
exit
vlan 500
description Voice
exit
```

```
vlan 2000
description MGMT

! Assign IP to OLT and default route towards gateway
interface vlan 2000
ip address 172.25.25.101/24
!
ip route 0.0.0.0/0 172.25.25.1

! Enable loopback on pon
loopback detect enable pon
loopback aging-time 300
loopback mode manual-recovery
!
port link-flapping mode auto-recovery

! Create users as per our requirement
user add admin login-password admin@123
user role admin ADMIN enable-password admin@123
```

Step2: Now configure input interface

```
interface gigabitethernet 0/0
switchport mode trunk
switchport trunk vlan 40
switchport trunk vlan 500
switchport trunk vlan 2000
no shutdown
```

Step3: Now create the profile and tag the VLAN data for PON

```
! DBA profile is already by default is created. So no need to create it
profile dba id 511 name default1
type 4 Maximum 1024000
exit

! First create line profile with name "All"
```

```
profile line id 1 name All
  tcont 1 dba default1
    gemport 1 tcont 1 gemport_name gem_1
      service ser_1 gemport 1 vlan 40
      service-port 1 gemport 1 uservlan 40 vlan 40
  tcont 2 dba default1
    gemport 2 tcont 2 gemport_name gem_2
      service ser_2 gemport 2 vlan 500
      service-port 2 gemport 2 uservlan 500 vlan 500
commit
exit

! Second create service profile  with name Ser-All
profile srv id 1 name Ser-All
portvlan veip 1 mode transparent
portvlan eth 1 mode transparent
commit
exit
```

Step4: Finally apply the profile on required PON

```
!
interface gpon 0/1
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
exit
!
interface gpon 0/2
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/3
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
```

```
interface gpon 0/4
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/5
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/6
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/7
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/8
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
```

Note: If you want to tag ONU/ONT manually then no need of profile

(L) Maxx Broadband Syrotech EPON OLT Configuration

Step: Actually, this reseller is using their OLT in plug-and-play mode.

```
! Configure Hostname
hostname Maxx-BB-OLT
!
vlan database
```

```
 vlan 1
!
interface vlan1.1
 ip address 192.168.20.1/24
!
interface epon1
!
interface epon2
!
interface epon3
!
interface epon4
!
interface ge1
 description From-Switch
 switchport access vlan 1
!
interface ge2
!
interface ge3
!
interface ge4
!
interface ge5
!
interface ge6
!
interface xe1
!
interface xe2
!
line vty
 login local
!
end
```

(M) Vishal Network Syrotech EPON OLT Configuration

Step1: Configure Basic Configuration

```
! Configure Hostname
hostname Vishal-Network-OLT

! Crreate VLAN Database
vlan database
 vlan 70 name DATA
 vlan 500 name Voice
 vlan 2000 name MGMT

! Assign IP address on MGMT
interface vlan1.2000
 ip address 172.25.25.102/24

 ! Configure default route
 ip route 0.0.0.0/24 192.168.30.1
```

Step2: Now configure interface and all PON

```
!
interface gigabitethernet 0/0
switchport mode trunk
switchport trunk vlan 70
switchport trunk vlan 500
switchport trunk vlan 1680
no shutdown

!
interface epon 0/1
switchport mode hybrid
switchport hybrid vlan 70 untagged
switchport hybrid vlan 500 tagged
switchport hybrid pvid vlan 70
```

```
!
interface epon2
switchport mode hybrid
switchport hybrid vlan 70 untagged
switchport hybrid vlan 500 tagged
switchport hybrid pvid vlan 70
!
interface epon3
switchport mode hybrid
switchport hybrid vlan 70 untagged
switchport hybrid vlan 500 tagged
switchport hybrid pvid vlan 70
!
interface epon4
switchport mode hybrid
switchport hybrid vlan 70 untagged
switchport hybrid vlan 500 tagged
switchport hybrid pvid vlan 70
```

(N) Jain Broadband Syrotech GPON OLT Configuration

Step1: Basic configuration

```
! Configure Hostname of OLT and login password
hostname JAIN-BB-OLT
password admin@123
enable password admin@123

! Create VLAN Database
vlan 80
description Data
exit
vlan 500
description Voice
exit
vlan 2000
```

```
description MGMT

! Assign IP to OLT and default route towards gateway
interface vlan 2000
ip address 172.25.25.103/24
!
ip route 0.0.0.0/0 172.25.25.1

! Enable loopback on pon
loopback detect enable pon
loopback aging-time 300
loopback mode manual-recovery
!
port link-flapping mode auto-recovery

! Create users as per our requirement
user add admin login-password admin@123
user role admin ADMIN enable-password admin@123
```

Step2: Now configure input interface

```
interface gigabitethernet 0/0
switchport mode trunk
switchport trunk vlan 80
switchport trunk vlan 500
switchport trunk vlan 2000
no shutdown
```

Step3: Now create the profile and tag the VLAN data for PON

```
! DBA profile is already by default is created. So no need to create it
profile dba id 511 name default1
type 4 Maximum 1024000
exit

! First create line profile with name "All"
profile line id 1 name All
```

```
  tcont 1 dba default1
    gemport 1 tcont 1 gemport_name gem_1
      service ser_1 gemport 1 vlan 80
      service-port 1 gemport 1 uservlan 80 vlan 30
  tcont 2 dba default1
    gemport 2 tcont 2 gemport_name gem_2
      service ser_2 gemport 2 vlan 500
      service-port 2 gemport 2 uservlan 500 vlan 500
commit
exit

! Second create service profile  with name Ser-All
profile srv id 1 name Ser-All
portvlan veip 1 mode transparent
portvlan eth 1 mode transparent
commit
exit
```

Step4: Finally apply the profile on required PON

```
!
interface gpon 0/1
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
exit
!
interface gpon 0/2
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/3
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
!
interface gpon 0/4
```

```
onu auto-learn
onu auto-learn line-profile name All
onu auto-learn srv-profile name Ser-All
```

Note: If you want to tag ONU/ONT manually then no need of profile