

AT-RG624/634

PPPoA Configuration Example

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STRE_CEX_PPPoA_RG6x4_AI

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Introduction

Purpose

The following configuration example details a reference configuration to be used on the AT-RG6x4 in order to properly configure a PPPoA connection on ADSL line.

Overall Network Description

Figure 1 shows the related network scenario. We mainly want to provide two services:

- VoIP service
- NAT/Firewall service for all the PCs that the user has connected to the AT-RG6x4 LAN ports.

To do this we define three different Transports that will be *routed* by the AT-RG6x4 CPU. These Transports are:

- `Transp_name`: Transport composed of ADSL Port
- `vinternal`: Transport composed of Lan2, Lan3 and Lan4
- `vvoip`: Transport composed of telephone ports
- `default`: Transport composed of Lan1, used to manage the device in telnet connection.

To these Transports we associate three different IP interfaces:

- IP interface `ipexternal` is associated to the Transport `Transp_name` and uses a dynamic public IP address provided by PPPoA server in the IP network.
- IP interface `ipvoip` is associated to the Transport `vvoip` and uses a fixed private IP address for VoIP feature
- IP interface `ipinternal` is associated to the Transport `vinternal` and uses a fixed private IP address for all traffic data

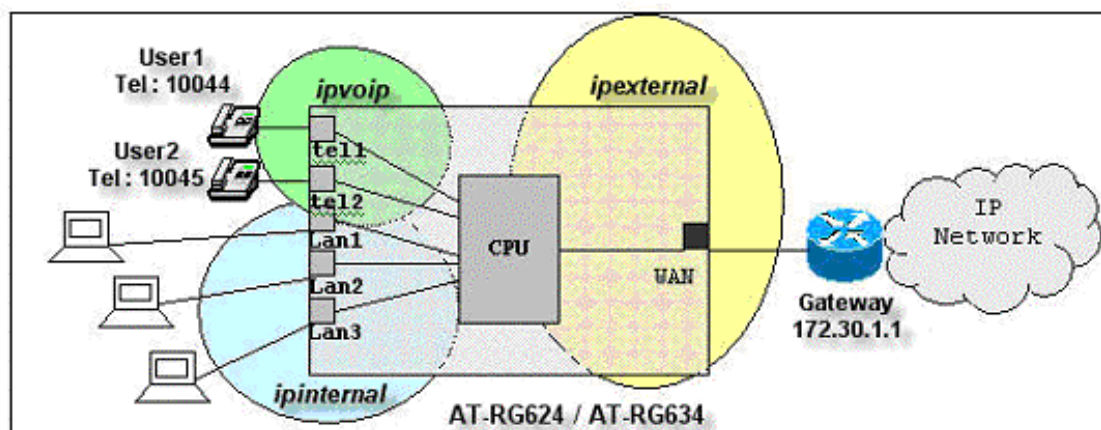


FIGURE 1 - CONFIGURATION SCENARIO

The `ipexternal` interface gets its own configuration by an external PPPoA server.

On top of the `ipinternal` interface is configured a DHCP server in order to provide IP addresses to PC that belong to the same subnet.

Configuration details

By default on the AT-RG6x4 a VLAN named *default* is defined. To this VLAN belong all the AT-RG6x4 Ethernet ports (LAN1, LAN2, LAN3 and LAN4).

To this *default* VLAN corresponds an Ethernet transport named *default*. To this *default* Ethernet transport is attached an IP interface named *ip0*

By default on the AT-RG6x4 there is also an RFC1483 connection pre-set, so that you can connect at once AT-RG6x4 to an ATI DSLAM with default setting, and the connection goes up.

This connection has VPI/VCI=0/35, and we suggest removing it in first configuration step, if you are not interested from it.

```
# We need to delete the default transport "pvc_0_35", and the default bridge
interface "pvc_0_35_if"
```

```
--> bridge detach pvc_0_35_if
--> bridge delete interface pvc_0_35_if
--> transports delete pvc_0_35
```

```
# Create the ipexternal Ip interface
```

```
--> ip add interface ipexternal
```

```
# list all Ip interfaces
```

```
--> ip list interfaces
```

IP Interfaces:

ID	Name	IP Address	DHCP	Transport
1	ip0	0.0.0.0	ENABLED	t1
2	ipexternal	0.0.0.0	disabled	Not attached

```
# Create a PPPoA transport named transp_name using the defined parameters
```

```
# VPI/VCI: 8/35
```

```
--> pppoa add transport transp_name dialout pvc 2 a1 8 35
```

⇒ (pppoa add transport <transport_name> dialout pvc
<numberID_of_adsl_interface> a | <vpi> <vci>)

```
# Attach the PPPoA transport to the defined IP interface
--> ip attach ipexternal transp_name

# Set PPPoA transport properties
--> pppoa set transport transp_name welogin (auto|chap|none|pap)
--> pppoa set transport transp_name username <username>
--> pppoa set transport transp_name password <password>
--> pppoa set transport 1 headers llc enabled
--> pppoa set transport transp_name enabled

# We need to define a new IP interface named ipinternal, to define a new
Ethernet transport associated to the vinternal VLAN and to attach it to the
ipinternal interface

# Create a vlan named vinternal using Vid=22
--> vlan add vinternal vid 22

# Add port lan2, lan3 and lan4 to vlan vinternal
--> vlan add vinternal port lan2 frame untagged
--> vlan add vinternal port lan3 frame untagged
--> vlan add vinternal port lan4 frame untagged

# Define Ethernet transport vinternal
--> ethernet add transport vinternal

# Create an internal Ip interface named ipinternal
--> ip add interface ipinternal

# Attach the ipinternal interface to the vinternal VLAN
--> ip attach ipinternal vinternal

# Set a static address on ipinternal interface
--> ip set interface ipinternal ipaddress 192.168.1.1 255.255.255.0

# We need to enable a DHCP Server on ipinternal interface, and we need that
DHCP server provide Ip addresses between 192.168.1.10 and 192.168.1.100
```

```
# Enable the DHCP SERVER module
--> dhcpserver enable

# Add a subnet named subn-0 to the DHCP SERVER
--> dhcpserver add subnet subn-0 192.168.1.0 255.255.255.0 192.168.1.10
192.168.1.100

# Set the subnet subn-0 used by the DHCP SERVER to provide host info
# (the ipinternal interface IP address) as default gateway
--> dhcpserver set subnet subn-0 hostisdefaultgateway enabled

# Set the subnet subn-0 used by the DHCP SERVER to provide host info
# (the ipinternal interface IP address) as dns server
--> dhcpserver set subnet subn-0 hostisdnsserver enabled
--> dhcpserver update

# We need to define a new IP interface named ipvoip, to define a new Ethernet
transport associated to the vvoip VLAN and to attach it to the ipvoip
interface

# Create a vlan named vvoip using Vid=23
--> vlan add vvoip vid 23 802.lp_priority 7

# Define Ethernet transport vvoip
--> ethernet add transport vvoip

# Create a voip Ip interface named ipvoip
--> ip add interface ipvoip 192.168.2.1 255.255.255.0

# Attach the ipinternal interface to the vinternal VLAN
  → ip attach ipvoip vvoip

# Enable the security module. This MUST be enabled to configure the NAT
# between the ipexternal interface and ipinternal IP interface.

--> security enable
```



```
# Add the IP interface ipinternal as internal security interface
--> security add interface ipinternal internal

# Add the IP interface ipvoip as internal security interface
--> security add interface ipvoip internal

# Add the interface ipexternal as external security interface
--> security add interface ipexternal external

# Enable a NAT rule named natmebaby between the ipexternal interface and the
# ipinternal IP interface
--> nat enable natmebaby ipexternal internal

# Enable SIP protocol
--> voip sip protocol enable

# Attach the SIP module to the ipvoip interface
--> voip sip protocol set netinterface ipvoip

# Configure the Location server ls1
# In this example the ls1 has 172.30.1.125 as IP address.
--> voip sip locationserver create ls1 contact 172.30.1.125

# Configure the Proxy Server ps1
# In this example ps1 has 172.30.1.125 as IP address
--> voip sip proxyserver create ps1 contact 172.30.1.125

# Create the analog endpoint tel1
--> voip ep analogue create tel1 type al-fxs-del physical-port tel1

# Create the analog endpoint tel2
--> voip ep analogue create tel2 type al-fxs-del physical-port tel2
```

```
# Create the SIP user named user1
--> voip sip user create user1 address 10044

# Create the SIP user named user2
--> voip sip user create user2 address 10045

# Attach the SIP user named user1 to the analog endpoint tel1
--> voip sip user add user1 port tel1

# Attach the SIP user named user2 to the analog endpoint tel2
--> voip sip user add user2 port tel2

# Enable NAT on Voice traffic
--> voip sip protocol set nat interface ipexternal

# Create reserve mappings to allow voice traffic
--> nat add resvmap fortcp interfacename ipexternal 192.168.2.1 tcp 23
--> nat add resvmap siptcp interfacename ipexternal 192.168.2.1 tcp 5060
--> nat add resvmap sipudp interfacename ipexternal 192.168.2.1 udp 5060
--> nat add resvmap rtp50600 interfacename ipexternal 192.168.2.1 udp 50600
--> nat add resvmap rtcp50601 interfacename ipexternal 192.168.2.1 udp 50601
--> nat add resvmap rtp50602 interfacename ipexternal 192.168.2.1 udp 50602
--> nat add resvmap rtcp50603 interfacename ipexternal 192.168.2.1 udp 50603
--> nat add resvmap rtp50604 interfacename ipexternal 192.168.2.1 udp 50604
--> nat add resvmap rtcp50605 interfacename ipexternal 192.168.2.1 udp 50605
--> nat add resvmap rtp50606 interfacename ipexternal 192.168.2.1 udp 50606
--> nat add resvmap rtcp50607 interfacename ipexternal 192.168.2.1 udp 50607
--> nat add resvmap rtp50608 interfacename ipexternal 192.168.2.1 udp 50608
--> nat add resvmap rtcp50609 interfacename ipexternal 192.168.2.1 udp 50609
--> nat add resvmap rtp50610 interfacename ipexternal 192.168.2.1 udp 50610
--> nat add resvmap rtcp50611 interfacename ipexternal 192.168.2.1 udp 50611
--> nat add resvmap rtp50612 interfacename ipexternal 192.168.2.1 udp 50612
```

List of all commands

(the grouping identifies logical subdivisions of commands)

```
bridge detach pvc_0_35_if
bridge delete interface pvc_0_35_if
transports delete pvc_0_35
```

```
ip add interface ipexternal
ip list interfaces
```

```
pppoa add transport transp_name dialout pvc 2 a1 8 35
ip attach ipexternal transp_name
```

```
pppoa set transport transp_name welogin (auto|chap|none|pap)
pppoa set transport transp_name username <username>
pppoa set transport transp_name password <password>
pppoa set transport 1 headers llc enabled
pppoa set transport transp_name enabled
```

```
vlan add vinternal vid 22
vlan add vinternal port lan2 frame untagged
vlan add vinternal port lan3 frame untagged
vlan add vinternal port lan4 frame untagged
```

```
ethernet add transport vinternal
ip add interface ipinternal
ip attach ipinternal vinternal
ip set interface ipinternal ipaddress 192.168.1.1 255.255.255.0
```

```
dhcpserver enable
dhcpserver add subnet subn-0 192.168.1.0 255.255.255.0 192.168.1.10
192.168.1.100
dhcpserver set subnet subn-0 hostisdefaultgateway enabled
dhcpserver set subnet subn-0 hostisdnsserver enabled
dhcpserver update
```

```
vlan add vvoip vid 23 802.1p_priority 7
ethernet add transport vvoip
ip add interface ipvoip 192.168.2.1 255.255.255.0
ip attach ipvoip vvoip
```

```
security enable
security add interface ipinternal internal
security add interface ipvoip internal
security add interface ipexternal external
nat enable natmebaby ipexternal internal

voip sip protocol enable
voip sip protocol set netinterface ipvoip
voip sip locationserver create ls1 contact 172.30.1.125
voip sip proxyserver create ps1 contact 172.30.1.125
voip ep analogue create tell type al-fxs-del physical-port tell
voip ep analogue create tel2 type al-fxs-del physical-port tel2
voip sip user create user1 address 10044
voip sip user create user2 address 10045
voip sip user add user1 port tell
voip sip user add user2 port tel2

voip sip protocol set nat interface ipexternal
nat add resvmap fortcp interfacename ipexternal 192.168.2.1 tcp 23
nat add resvmap siptcp interfacename ipexternal 192.168.2.1 tcp 5060
nat add resvmap sipudp interfacename ipexternal 192.168.2.1 udp 5060
nat add resvmap rtp50600 interfacename ipexternal 192.168.2.1 udp 50600
nat add resvmap rtcp50601 interfacename ipexternal 192.168.2.1 udp 50601
nat add resvmap rtp50602 interfacename ipexternal 192.168.2.1 udp 50602
nat add resvmap rtcp50603 interfacename ipexternal 192.168.2.1 udp 50603
nat add resvmap rtp50604 interfacename ipexternal 192.168.2.1 udp 50604
nat add resvmap rtcp50605 interfacename ipexternal 192.168.2.1 udp 50605
nat add resvmap rtp50606 interfacename ipexternal 192.168.2.1 udp 50606
nat add resvmap rtcp50607 interfacename ipexternal 192.168.2.1 udp 50607
nat add resvmap rtp50608 interfacename ipexternal 192.168.2.1 udp 50608
nat add resvmap rtcp50609 interfacename ipexternal 192.168.2.1 udp 50609
nat add resvmap rtp50610 interfacename ipexternal 192.168.2.1 udp 50610
nat add resvmap rtcp50611 interfacename ipexternal 192.168.2.1 udp 50611
nat add resvmap rtp50612 interfacename ipexternal 192.168.2.1 udp 50612
```