

OpenWRT HOWTO for Geos

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(1) Compact flash setup

Download the Geos OpenWRT image and copy the image to a Linux box.

(i) copy to Compact Flash

Using a USB / CF Adapter, connect to a USB port on a Linux box.
Now using dd copy the the image to the CF card. Assuming the USB port used is sda...

```
dd if=geos-openwrt.img of=/dev/sda
```

Once complete you should see...

```
_records in  
_records out  
_bytes (8 MB) copied
```

(iii) Remove the CF card from the USB adapter and plug it into the Geos.
If you connect to the Geos serial port (optional) - you should see the following output...

```
coreboot-3.0. Wed Mar 31 13:15:17 EST 2010  
GeodeLink speed: 400  
Max RAM speed: 400  
Initialising DDR  
DDR initialised  
read_resources: root(Root Device) dtsname cpus enabled 1  
.....  
read_resources: domain_0(PCI_DOMAIN: 0000) dtsname dynamic PCI: 00:0f:7 enabled 1  
Traverse Technologies Geos v0.17 (HW Rev B)  
Booting payload...
```

Then you see the following output from OpenWRT...

```
Press any key to continue.  
Linux version 2.6.32.20 (nathan@dualcore) (gcc version 4.1.2) #7 Wed Sep 15 09:40:10 EST 2010  
KERNEL supported cpus:  
Intel GenuineIntel  
AMD AuthenticAMD  
NSC Geode by NSC  
Cyrix CyrixInstead  
Centaur CentaurHauls  
Transmeta GenuineTMx86  
Transmeta TransmetaCPU  
UMC UMC UMC UMC  
.....  
Solos PCI Driver Version 0.07  
solos 0000:00:0c:0: Solos FPGA Version 0.03 svn-38  
solos 0000:00:0c:0: Registered ATM device 0  
solos 0000:00:0c:0: Registered ATM device 1  
.....  
USB Mass Storage support registered.  
USB Serial support registered for FTDI USB Serial Device  
usbcore: registered new interface driver ftdi_sio  
ftdi_sio: v1.5.0:USB FTDI Serial Converters Driver  
Now press Enter and the OpenWRT busybox prompt will appear :  
  
BusyBox v1.17.2 (2010-09-08 10:15:49 EST) built-in shell (ash)
```

Enter 'help' for a list of built-in commands.

root@OpenWrt:/#

(2) Web Interface

By default the OpenWRT image has DHCP enabled.

It will allocate IP addresses in the range 192.168.1.100 -> 192.168.1.250

Connect to eth0 (via an ethernet switch or crossover cable), and using a web browser point to the following IP address :

<http://192.168.1.1>

You should see the following screen...

No password set!
There is no password set on this router. Please configure a root password to protect the web interface and enable SSH.

Authorization Required

Please enter your username and password.

Username	<input type="text" value="root"/>
Password	<input type="password"/>

Select **Login**, then select **System** → **Admin Password**

Enter your new password and select Submit

Overview | Status | **System** | Services | Network

System | Software | **Admin Password** | SSH -Keys | Processes | LED Configuration | Backup / Restore | Flash Firmware | Reboot

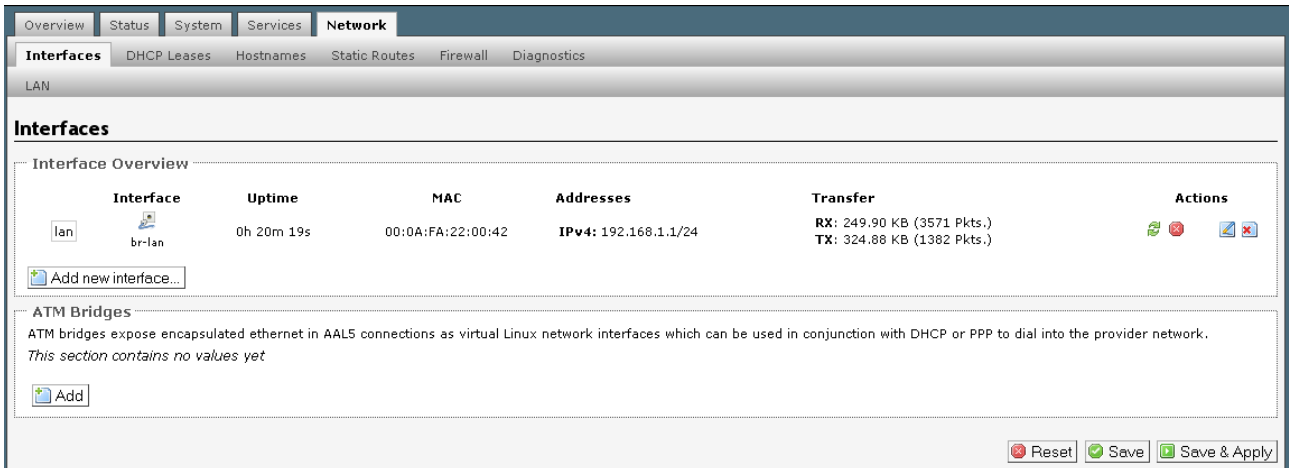
Admin Password

Change the password of the system administrator (User root)





Password	<input type="password" value="••••••"/>	<input type="button" value=""/>
Confirmation	<input type="password" value="••••••"/>	<input type="button" value=""/>

(3) PPPoA Setup

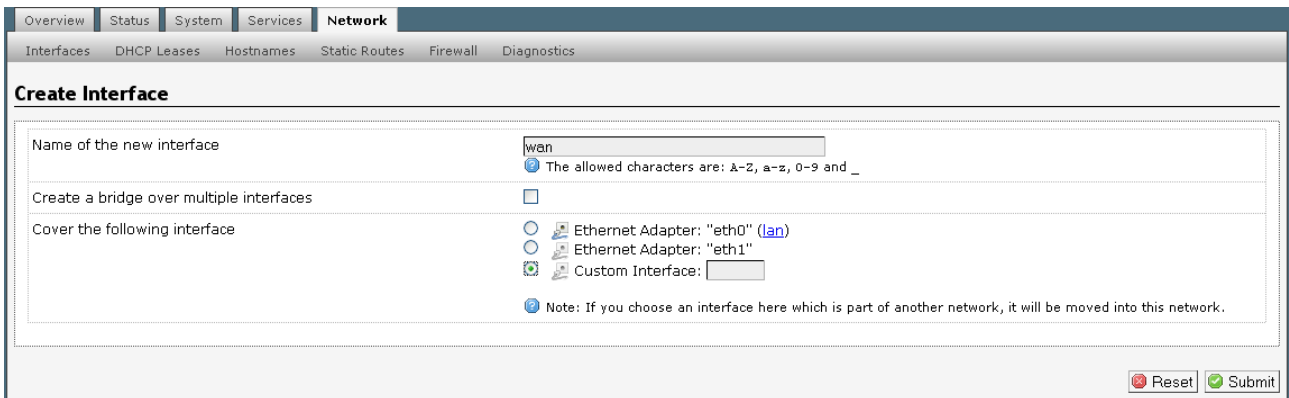
Select **Network** → **Interfaces**



The screenshot shows the Mikrotik WinBox interface for the 'Network' section, specifically the 'Interfaces' tab. The 'LAN' section is active, displaying a table of interfaces. The 'lan' interface is listed with its uptime, MAC address, IPv4 address, and transfer statistics. Below the table, there is an 'Add new interface...' button. The 'ATM Bridges' section is also visible, with an 'Add' button. At the bottom right, there are 'Reset', 'Save', and 'Save & Apply' buttons.

Interface	Uptime	MAC	Addresses	Transfer	Actions
lan br-lan	0h 20m 19s	00:0A:FA:22:00:42	IPv4: 192.168.1.1/24	RX: 249.90 KB (3571 Pkts.) TX: 324.86 KB (1382 Pkts.)	   

Add an new Interface called **wan** and select **Custom...**



The screenshot shows the 'Create Interface' form in Mikrotik WinBox. The 'Name of the new interface' field is filled with 'wan'. Below it, there is a checkbox for 'Create a bridge over multiple interfaces' which is unchecked. Under 'Cover the following interface', there are three radio button options: 'Ethernet Adapter: "eth0" (lan)', 'Ethernet Adapter: "eth1"', and 'Custom Interface:'. The 'Custom Interface' option is selected. A note at the bottom states: 'Note: If you choose an interface here which is part of another network, it will be moved into this network.' At the bottom right, there are 'Reset' and 'Submit' buttons.

Then select **Submit**

Next the WAN config screen will appear as shown below.
Set the protocol to **PPPoA**
Set the **username & password** as specified by your provider

Interfaces DHCP Leases Hostnames Static Routes Firewall Diagnostics

WAN LAN

Interfaces - WAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation `INTERFACE.VLANNR` (e.g.: eth0.1).

Common Configuration

General Setup | **PPP Settings** | ATM Settings | Physical Settings | Firewall Settings

Status Interface not present or not connected yet.

Protocol **PPPoA**
You need to install "comgt" for UMTS/GPRS, "ppp-mod-pppoe" for PPPoE, "ppp-mod-pppoe" for PPPoA or "pptp" for PPTP support

Username your_username@your_isp.net

Password

IP Aliases
This section contains no values yet

DHCP Server

General Setup

Ignore interface Disable DHCP for this interface.

Powered by LuCI Trunk (v0.10+svn6656)

Select **Save and Apply**

Next select the **ATM Settings** tab and configure the **VPI** and **VCI**.

*Important : Note that the entry fields are reversed here from normal – VCI is entered first, then VPI.
Note : VPI / VCI settings are different for different countries and providers – see Appendix A for details.*

Interfaces DHCP Leases Hostnames Static Routes Firewall Diagnostics

WAN LAN

Interfaces - WAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation `INTERFACE.VLANNR` (e.g.: eth0.1).

Common Configuration

General Setup | **PPP Settings** | **ATM Settings** | Physical Settings | Firewall Settings

PPPoA Encapsulation VC-Mux

ATM device number 0

ATM Virtual Channel Identifier (VCI) 35

ATM Virtual Path Identifier (VPI) 8

IP Aliases
This section contains no values yet

DHCP Server

General Setup

Ignore interface Disable DHCP for this interface.

Select **Save & Apply**

Then return to the General Setup tab. Once PPP is connected you will see an IP address assigned to the WAN interface as shown below...

Interfaces - WAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation `INTERFACE.VLANNR` (e.g.: eth0.1).

Common Configuration

General Setup | PPP Settings | ATM Settings | Physical Settings | Firewall Settings

Status

Uptime: 0h 4m 43s
MAC Address: 00:00:00:00:00:00
RX: 6900.22 KB (6507 Pkts.)
TX: 403.80 KB (4403 Pkts.)
IPv4: 124.148.182.252/32

Protocol: PPPoA
You need to install "comgt" for UMTS/GPRS, "ppp-mod-pppoe" for PPPoE, "ppp-mod-pppoe" for PPPoA or "pptp" for PPTP support

Username: g@inet.net.au

Password: ●●●●●●●●

IP-Aliases

This section contains no values yet

Add

DHCP Server

General Setup

Ignore interface Disable DHCP for this interface.

Reset Save Save & Apply

If you can get this far, PPPoA is connected and you are up and running – Enjoy!

If PPPoA does not come up, check the following...

- (i) Username – most isp's require the full username here – don't forget the @your_isp.net
- (ii) Password – yes it is case sensitive
- (iii) VPI / VCI – see appendix A, also note that these fields are reversed in this release, so enter the VCI first, then VPI.

Finally select **Overview** → **Logout** to logout of the admin interface...

Overview | Status | System | Services | Network

User Interface | LuCI Components | Logout

Hello!

This is the administration area of LuCI.

LuCI is a free, flexible, and user friendly graphical interface for configuring OpenWrt Kamikaze. On the following pages you can adjust all important settings of your router.

Notice: In LuCI changes have to be confirmed by clicking Changes - Save & Apply before being applied.

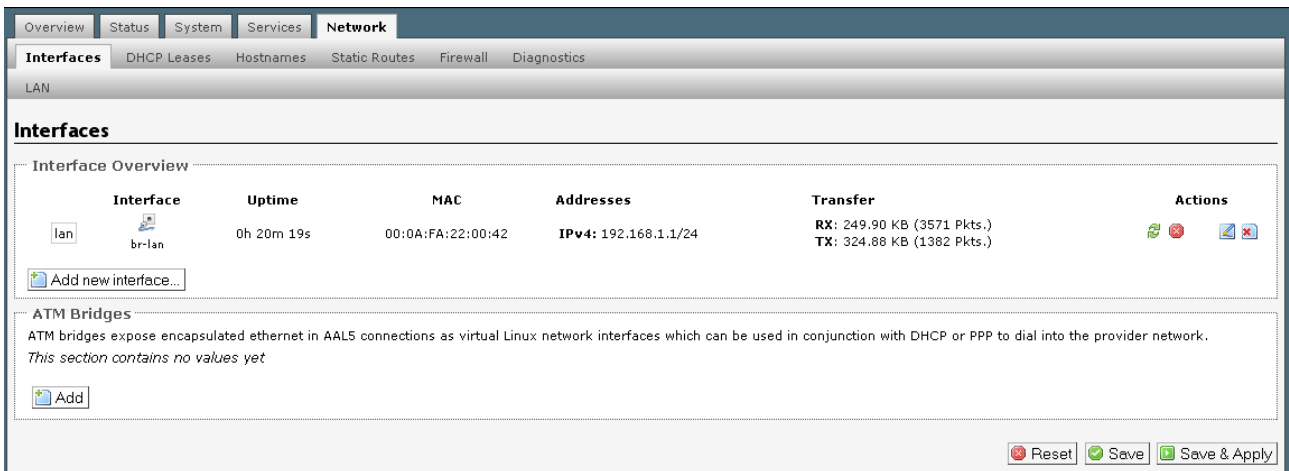
As we always want to improve this interface we are looking forward to your feedback and suggestions.

And now have fun with your router!




[The LuCI Team](#)

(4) PPPoE Setup

Select **Network** → **Interfaces**, then in the **ATM Bridges** window select **Add...**

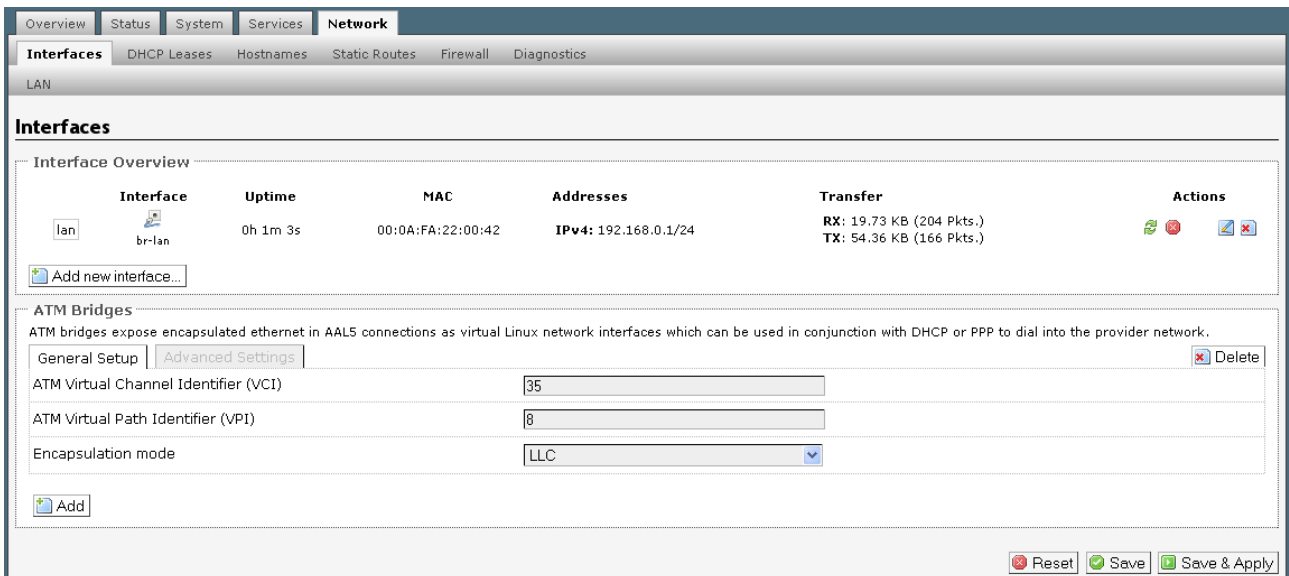


The screenshot shows the Mikrotik WinBox interface for the Network section, specifically the Interfaces page. The 'Interfaces' tab is active, showing a table of network interfaces. Below the table is the 'ATM Bridges' section, which is currently empty. The interface table has the following data:

Interface	Uptime	MAC	Addresses	Transfer	Actions
lan br-lan	0h 20m 19s	00:0A:FA:22:00:42	IPv4: 192.168.1.1/24	RX: 249.90 KB (3571 Pkts.) TX: 324.88 KB (1382 Pkts.)	  

Below the table, there is an 'Add new interface...' button. The 'ATM Bridges' section contains a description and an 'Add' button. At the bottom right, there are 'Reset', 'Save', and 'Save & Apply' buttons.

Next configure the **VPI** and **VCI**, then **Save & Apply...**



The screenshot shows the Mikrotik WinBox interface for the Network section, specifically the ATM Bridges configuration page. The 'ATM Bridges' section is active, showing the configuration for a new ATM bridge. The 'General Setup' tab is selected, and the configuration fields are as follows:

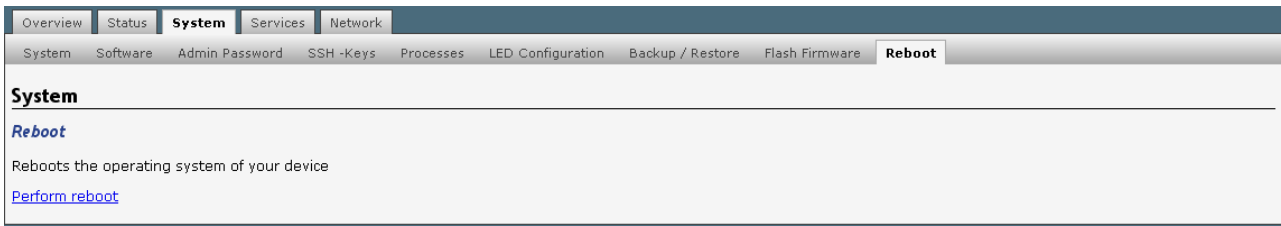
Field	Value
ATM Virtual Channel Identifier (VCI)	35
ATM Virtual Path Identifier (VPI)	8
Encapsulation mode	LLC

There is an 'Add' button at the bottom left and a 'Delete' button at the bottom right. At the bottom right, there are 'Reset', 'Save', and 'Save & Apply' buttons.

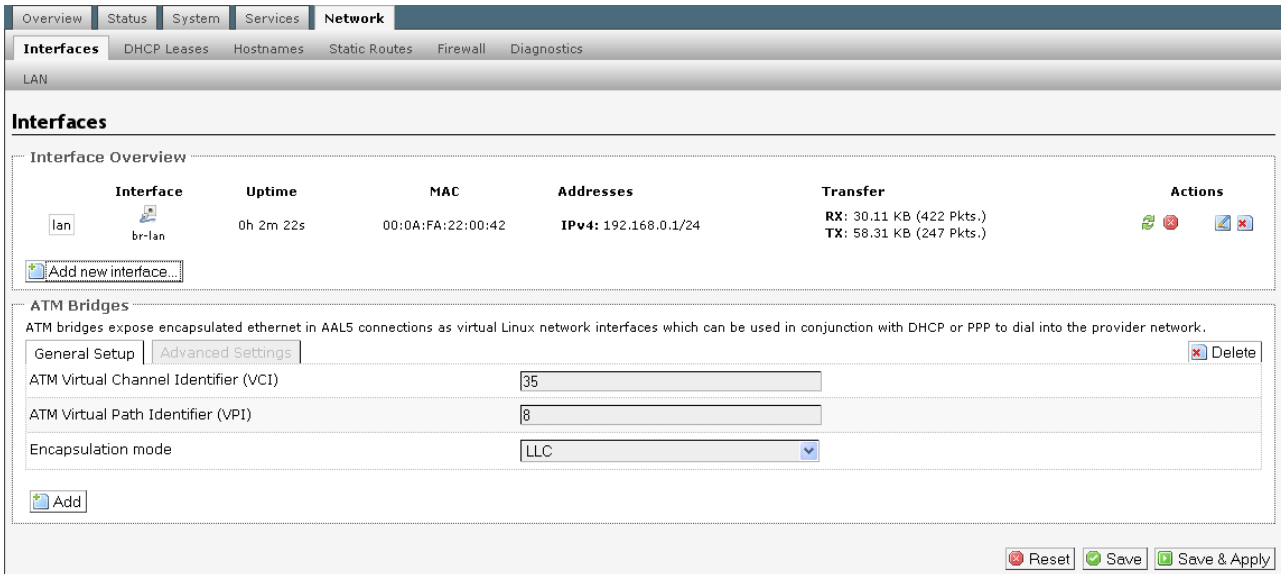
Important : Note that the entry fields are reversed here from normal – VCI is entered first, then VPI.

Note : VPI / VCI settings are different for different countries and providers – see Appendix A for details.

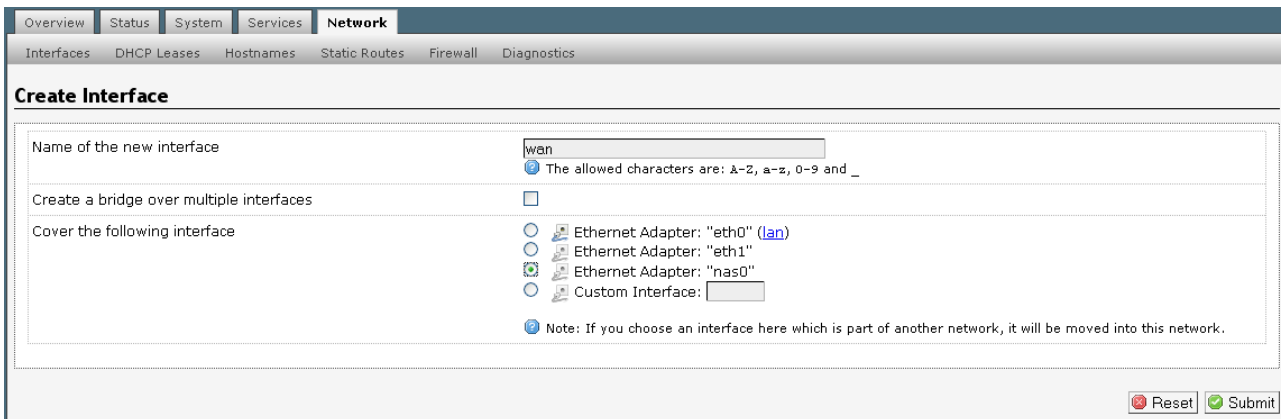
Next reboot the router for the ATM changes to take effect.
Select **System** → **Reboot**, then **Perform Reboot...**



Once the router has rebooted, login and select **Network** → **Interfaces** then **Add new interface...**



Name the interface **wan** and select **nas0**, then select **Submit...**



Next set the WAN protocol to **PPPoE**. Enter the **username** and **password** as required by your provider...

The screenshot shows the Mikrotik WinBox interface for configuring WAN interfaces. The 'Network' menu is active, and the 'WAN' tab is selected. The 'Interfaces - WAN' section is open, showing the configuration for the 'nas0' interface. The 'Common Configuration' section has 'General Setup' selected. The 'Protocol' is set to 'PPPoE'. The 'Username' field contains 'your_username@your_isp.net' and the 'Password' field is masked with dots. The 'Status' section shows 'Uptime: -', 'MAC Address: 00:00:01:00:00:00', 'RX: 302.69 KB (1930 Pkts.)', and 'TX: 269.47 KB (1967 Pkts.)'. The 'IP-Aliases' section is empty. The 'DHCP Server' section has 'General Setup' selected and 'Ignore interface' checked. At the bottom, there are 'Reset', 'Save', and 'Save & Apply' buttons.

Then select **Save & Apply**

After 10-20 seconds you should see pppoe come up...

The screenshot shows the Mikrotik WinBox interface for configuring WAN interfaces, now showing the 'pppoe-wan' interface. The 'Network' menu is active, and the 'WAN' tab is selected. The 'Interfaces - WAN' section is open, showing the configuration for the 'pppoe-wan' interface. The 'Common Configuration' section has 'General Setup' selected. The 'Status' section shows 'Uptime: 0h 0m 36s', 'MAC Address: 00:00:00:00:00:00', 'RX: 34.52 KB (243 Pkts.)', 'TX: 54.02 KB (304 Pkts.)', and 'IPv4: 203.217.79.120/32'. The 'DHCP Server' section has 'General Setup' selected and 'Ignore interface' checked. At the bottom, there are 'Reset', 'Save', and 'Save & Apply' buttons.

Next select the Interfaces tab and you should see the following ...

The screenshot shows the LuCI Network configuration page. The 'Network' tab is selected, and the 'Interfaces' sub-tab is active. The main content area is titled 'Interfaces' and contains an 'Interface Overview' table. The table lists four interfaces: 'lan', 'br-lan', 'wan', and 'pppoe-wan'. Each row shows the interface name, uptime (0h 4m 21s), MAC address, IPv4 address, and transfer statistics (RX and TX). The 'wan' interface is highlighted in blue. Below the table is a button to 'Add new interface...'. Underneath is the 'ATM Bridges' section, which includes a description and a form with fields for 'ATM Virtual Channel Identifier (VCI)' (value: 35), 'ATM Virtual Path Identifier (VPI)' (value: 8), and 'Encapsulation mode' (value: LLC). At the bottom right, there are buttons for 'Reset', 'Save', and 'Save & Apply'.

If you can get this far, PPPoE is connected and you are up and running – Enjoy!

If PPPoE does not come up, check the following...

- (I) Username – most isp's require the full username here – don't forget the @your_isp.net
- (II) Password – yes it is case sensitive
- (III) VPI / VCI – see appendix A, also note that these fields are reversed in this release, so enter the VCI first, then VPI.

Finally select **Overview** → **Logout** to logout of the admin interface...

The screenshot shows the LuCI Overview page. The 'Overview' tab is selected. The page has a header with 'User Interface', 'LuCI Components', and 'Logout' tabs. The main content area is titled 'Hello!' and contains the following text: 'This is the administration area of LuCI. LuCI is a free, flexible, and user friendly graphical interface for configuring OpenWrt Kamikaze. On the following pages you can adjust all important settings of your router. Notice: In LuCI changes have to be confirmed by clicking Changes - Save & Apply before being applied. As we always want to improve this interface we are looking forward to your feedback and suggestions. And now have fun with your router! The LuCI Team'.

APPENDIX A – ADSL Protocol and PVC Values

Country	Provider	ATM Protocol	VPI	VCI
.au	All	PPPoE, PPPoA	8	35
Austria	AON	PPPoA	8	48
.be	Belgacom	PPPoE or Bridged Eth. RFC1483	8	35
.bh	Batelco	PPPoA	8	35
.es		Routed IP RFC1483	8	32
.ch	Sunrise and Bluewin	PPPoE	8	35
.fr	Wannadoo	PPPoA or PPPoE	8	35
.nl		PPPoA	8	48
.nz	NZ Telecom	PPPoA	0	100
.pt	Portugal Telecom	PPPoE or Bridged Eth. RFC1483	0	35
.uk	British Telecom	PPPoA	0	38
USA	Bell South	PPPoA	8	35
	Earthlink	PPPoE	0	35