



# Configuration examples for the D-Link NetDefend Firewall series

## DFL-210/800/1600/2500

### Scenario: How to configure WAN failover for two ISPs using policy based routing

Last update: 2005-10-20

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#### Overview

In this document, the notation *Objects->Address book* means that in the tree on the left side of the screen **Objects** first should be clicked (expanded) and then **Address Book**.

Most of the examples in this document are adapted for the DFL-800. The same settings can easily be used for all other models in the series. The only difference is the names of the interfaces. Since the DFL-1600 and DFL-2500 has more than one lan interface, the lan interfaces are named lan1, lan2 and lan3 not just lan.

The screenshots in this document is from firmware version 2.04.00. If you are using a later version of the firmware, the screenshots may not be identical to what you see on your browser.

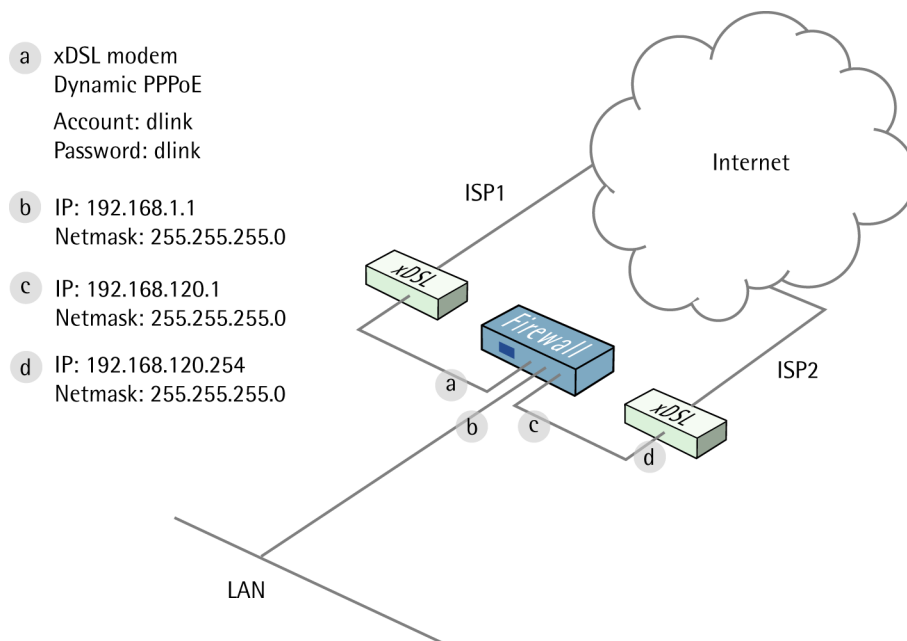
To prevent existing settings to interfere with the settings in these guides, reset the firewall to factory defaults before starting.

## 2 How to configure WAN failover for two ISPs using policy based routing

Details for this scenario:

- **WAN1** is using dynamic IP with PPPoE
- **WAN2** is using a static IP
- From LAN to WAN direction on **WAN1** interface, HTTP, HTTPS and FTP services are allowed to connect to Internet. T
- From LAN to WAN direction on **WAN2** interface, SMTP, POP3 and Ping services are allowed to connect to Internet.

If any WAN circuit fails, all services will be redirected to the other WAN interface. When the failed circuit returns to normal, these services will come back to original WAN circuit.



## 1. Addresses

Go to *Objects* -> *Address book* -> *InterfaceAddresses*:

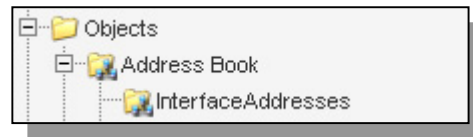
Edit the following items:

Change **lan\_ip** to 192.168.1.1

Change **lan\_net** to 192.168.1.0/24

Change **wan2\_ip** to 192.168.120.1

Change **wan2\_net** to 192.168.120.0/24



Create a new IP4 Host/Network:

Name: wan2-gw

IP address: 192.168.120.254

Click Ok.

## 2. Ethernet interfaces

Go to *Interfaces* -> *Ethernet*:

Edit the **WAN2** interface.

In the **General** tab:

### General:

Name:	<input type="text" value="wan2"/>
IP Address:	<input type="text" value="wan2_ip"/>
Network:	<input type="text" value="wan2net"/>
Default Gateway:	<input type="text" value="wan2-gw"/>

Leave IP Address as **wan2\_ip** and Network as **wan2net**.

Select **wan2-gw** as Default Gateway.

In the **Advanced** tab:

### Automatic Route Creation:

Automatically add commonly used routes related to this interface

Add route for interface network

Add default route if default gateway is specified

Route Metric:

Deselect **Add route for interface network** and **Add default route if default gateway is specified**

Click Ok

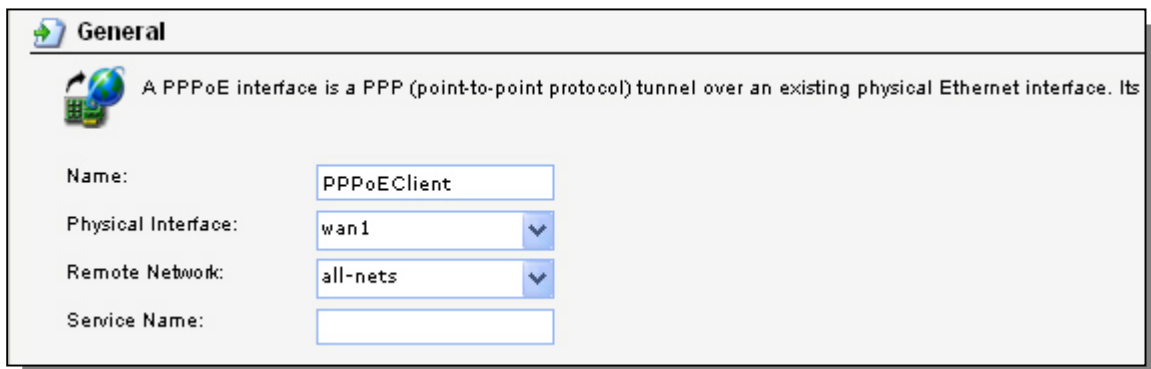
### 3. PPPoE Client Configuration

Under *Interfaces -> PPPoE Tunnels*:

Add a new PPPoE tunnel.

In the **general** tab:

#### **General:**



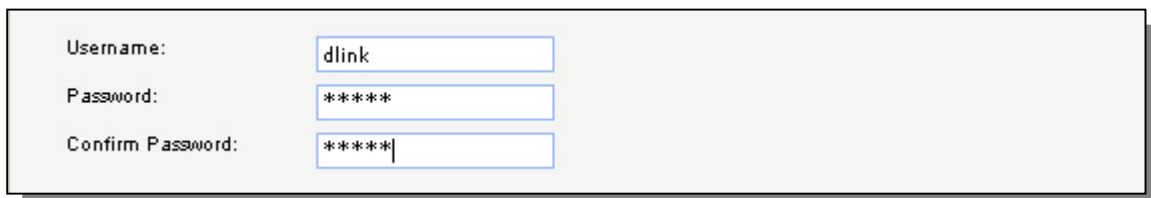
The screenshot shows the 'General' tab of the PPPoE Client Configuration interface. It features a title bar with a home icon and the word 'General'. Below the title bar is a descriptive text: 'A PPPoE interface is a PPP (point-to-point protocol) tunnel over an existing physical Ethernet interface. Its'. The main area contains four configuration fields: 'Name' with the value 'PPPoEClient', 'Physical Interface' with a dropdown menu showing 'wan1', 'Remote Network' with a dropdown menu showing 'all-nets', and 'Service Name' which is an empty text box.

Name: **PPPoEClient**

Physical Interface: **WAN1**

Remote Network: **all-nets**

#### **Authentication:**



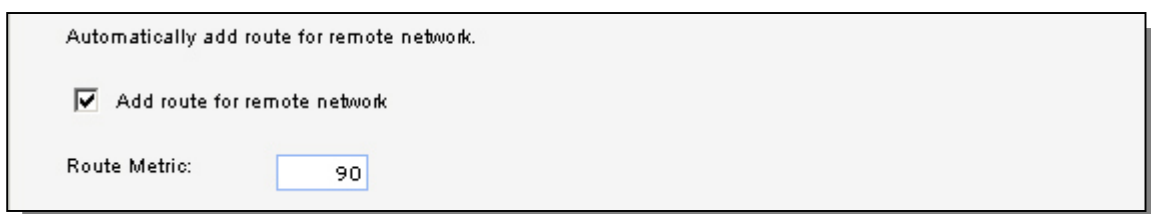
The screenshot shows the 'Authentication' tab of the PPPoE Client Configuration interface. It contains three fields: 'Username' with the value 'dlink', 'Password' with the value '\*\*\*\*\*', and 'Confirm Password' with the value '\*\*\*\*\*|'.

Username: **dlink**

Password: **dlink**

Confirm password: **dlink**

#### **Advanced tab:**



The screenshot shows the 'Advanced' tab of the PPPoE Client Configuration interface. It features a checkbox labeled 'Add route for remote network' which is checked. Below the checkbox is a 'Route Metric' field with the value '90'.

Select **Add route for remote network** and set **Route metric** to **90**.

Click **OK**.

## 4. Routes

Go to *Routing -> Main Routing Table*.

Add a new Route.

In the **General** tab:

### **General:**

Interface:	wan2
Network:	wan2net
Gateway:	(None)
Local IP Address:	(None)
Metric:	80

Interface: **wan2**

Network: **wan2net**

Gateway: **(None)**

Local IP Address: **(None)**

Metric: **80**

In the **Monitor** tab:

### **Monitoring for Route Failover:**

<input checked="" type="checkbox"/> Monitor This Route
--

Select **Monitor This Route**

### **Method:**

<input checked="" type="checkbox"/> Monitor Interface Link Status
<input type="checkbox"/> Monitor Gateway Using ARP Lookup
<input type="checkbox"/> Manual ARP Lookup Interval: 1000 milliseconds

Select **Monitor Interface Link Status**

Click **Ok**.

Add a new Route.

In the **General** tab:

**General:**

Interface:	wan2
Network:	all-nets
Gateway:	wan2-gw
Local IP Address:	(None)
Metric:	80

Interface: wan2  
Network: all-nets  
Gateway: wan2-gw  
Local IP Address: (None)  
Metric: 80

In the Monitor tab:

**Monitoring for Route Failover:**

<input checked="" type="checkbox"/> Monitor This Route
--

Select Monitor This Route

**Method:**

<input checked="" type="checkbox"/> Monitor Interface Link Status
<input checked="" type="checkbox"/> Monitor Gateway Using ARP Lookup
<input type="checkbox"/> Manual ARP Lookup Interval: 1000 milliseconds

Select Monitor Interface Link Status  
Select Monitor Gateway Using ARP Lookup

Click Ok.

Add a new Route.

In the General tab:

**General:**

Interface: PPPoEClient  
Network: all-nets  
Gateway: (None)  
Local IP Address: (None)  
Metric: 90

In the Monitor tab:

**Monitoring for Route Failover:**

Select Monitor This Route

**Method:**



Monitor Interface Link Status  
 Monitor Gateway Using ARP Lookup  
 Manual ARP Lookup Interval:  milliseconds

Select **Monitor Interface Link Status**  
Select **Monitor Gateway Using ARP Lookup**

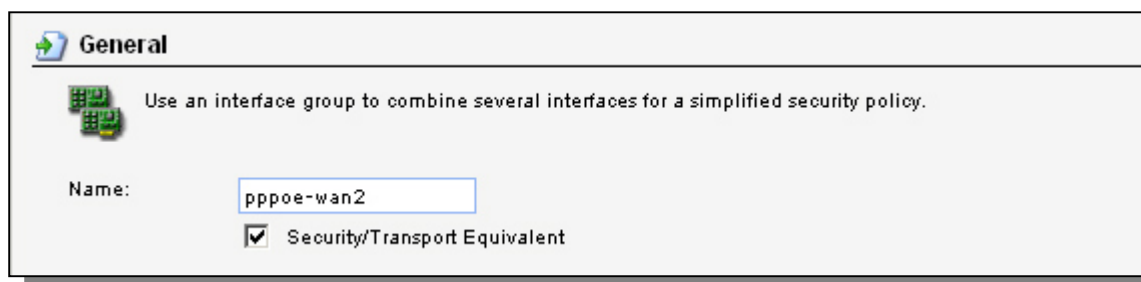
Click **Ok**.

## 5. Interface groups

Go to *Interfaces -> Interface Groups*.

Create a new **Interface Group**:

**General:**



**General**  
Use an interface group to combine several interfaces for a simplified security policy.  
Name:   
 Security/Transport Equivalent

Name: **pppoe-wan2**  
Select **Security/Transport Equivalent**

**Interfaces:**



Available	Selected
wan1 dmz lan	wan2 PPPoEClient

Add **PPPoEClient** and **wan2**

Click **Ok**

## 6. Rules

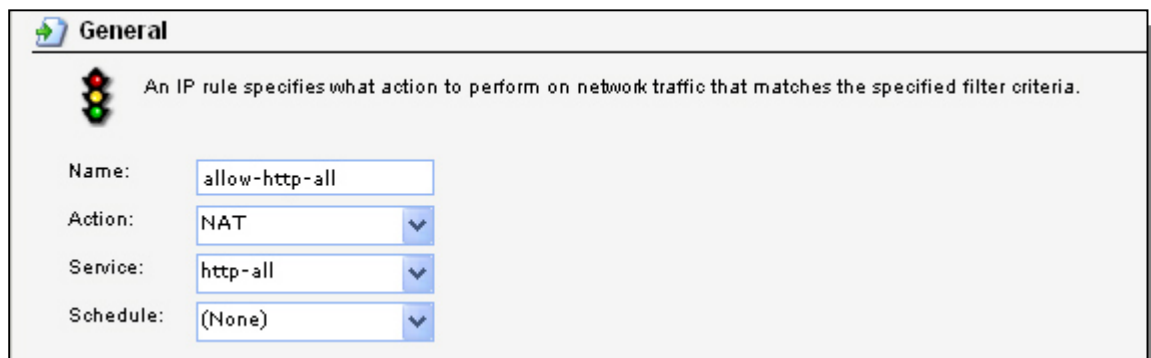
Go to *Rules -> IP Rules*.

Add a new **IP Rules Folder** called **lan\_to\_pppoe wan2**

In the new folder, add a new **IP Rule**.

In the General tab:

**General:**



**General**

An IP rule specifies what action to perform on network traffic that matches the specified filter criteria.

Name:

Action:

Service:

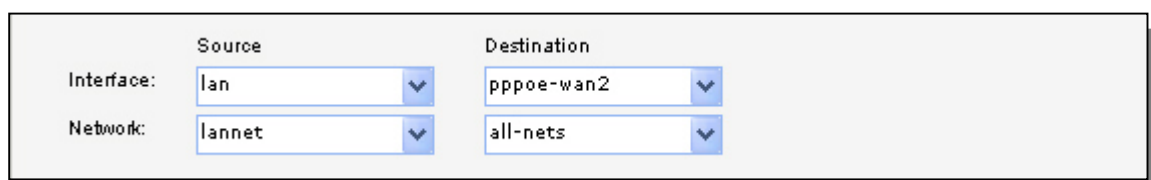
Schedule:

Name: **allow-http-all**

Action: **NAT**

Service: **http-all**

**Address Filter:**



Interface:

Network:

Source interface: **lan**

Source network: **lannet**

Destination interface: **pppoe-wan2**

Destination network: **all-nets**

Click Ok

Now create four more rules in the same way as the first rule:

Name	Action	Service	SourceIf	DestIf	SourceNet	DestNet
allow-ftp	NAT	ftp-passthrough	lan	pppoe-wan2	lannet	all-nets
allow-smtp	NAT	smtp	lan	pppoe-wan2	lannet	all-nets
allow-pop3	NAT	pop3	lan	pppoe-wan2	lannet	all-nets
allow-ping	NAT	ping-outbound	lan	pppoe-wan2	lannet	all-nets
allow-dns	NAT	dns-all	lan	pppoe-wan2	lannet	all-nets

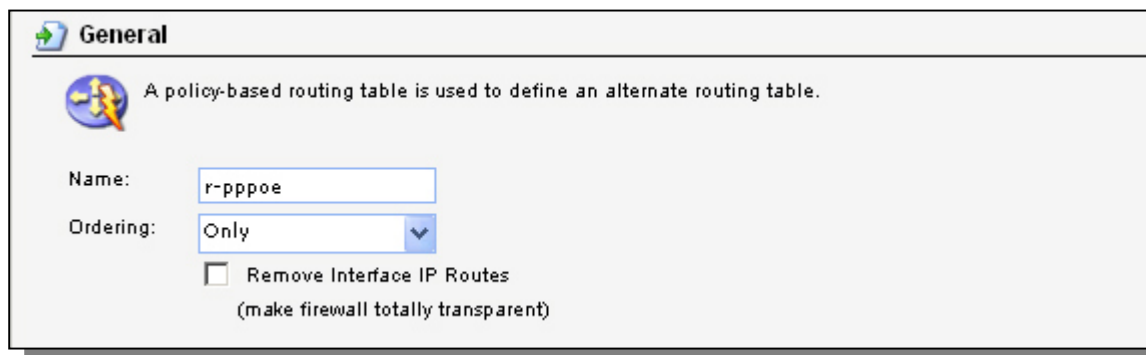


## 7. Policy based routing

Under *Routing* -> *Policy-based Routing Tables*:

Add a new Policy-based Routing Table.

**General:**



The screenshot shows the 'General' configuration page for a Policy-based Routing Table. At the top, there is a title bar with a folder icon and the word 'General'. Below the title bar, there is a globe icon and a descriptive text: 'A policy-based routing table is used to define an alternate routing table.' The configuration fields are: 'Name' with the value 'r-pppoe', 'Ordering' with a dropdown menu set to 'Only', and a checkbox labeled 'Remove Interface IP Routes (make firewall totally transparent)' which is currently unchecked.

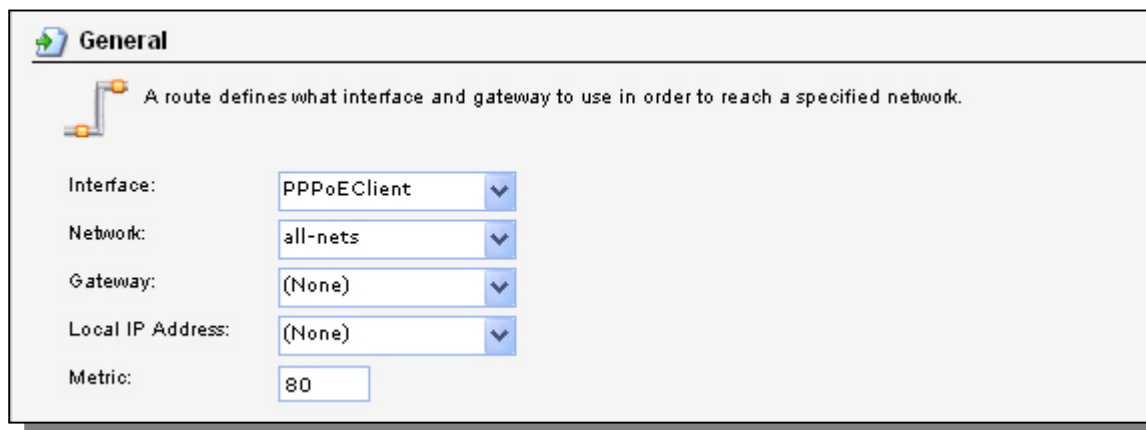
**Name:** r-pppoe

**Ordering:** Only

In the newly created table, add a new Route:

In the **General** tab:

**General:**



The screenshot shows the 'General' configuration page for a Route. At the top, there is a title bar with a folder icon and the word 'General'. Below the title bar, there is a network icon and a descriptive text: 'A route defines what interface and gateway to use in order to reach a specified network.' The configuration fields are: 'Interface' with a dropdown menu set to 'PPPoEClient', 'Network' with a dropdown menu set to 'all-nets', 'Gateway' with a dropdown menu set to '(None)', 'Local IP Address' with a dropdown menu set to '(None)', and 'Metric' with a text input field containing the value '80'.

**Interface:** PPPoEClient

**Network:** all-nets

**Metric:** 80

Click Ok

Add a new Route:

In the **General** tab:

**General:**



**General**

A route defines what interface and gateway to use in order to reach a specified network.

Interface: wan2

Network: all-nets

Gateway: wan2-gw

Local IP Address: (None)

Metric: 90

Interface: wan2  
Network: all-nets  
Gateway: wan2-gw  
Metric: 90

Click Ok

Go to *Routing -> Policy-based Routing Policy:*

Add a new Policy-based Routing Rule:

**General:**



Name: pbr-http-all

Forward Table: r-pppoe

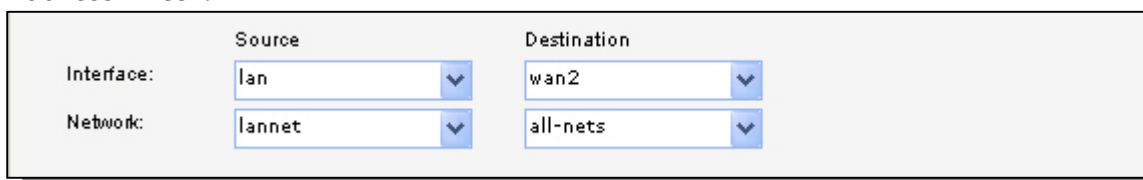
Return Table: <main>

Service: http-all

Schedule: (None)

Name: pbr-http-all  
Forward Table: r-pppoe  
Return Table: <main>  
Service: http-all

**Address Filter:**



Interface: lan

Network: lannet

Destination interface: wan2

Destination network: all-nets

Source interface: lan  
Source network: lannet  
Destination interface: wan2  
Destination network: all-nets

Click Ok

Create one more Policy-based Routing Rules in the same way as the previous one:

Name	Forward	Return	Service	SourceIf	DestIf	SourceNet	DestNet
pbr-ftp	r-pppoe	<main>	ftp-outbound	lan	wan2	lannet	all-nets

Save and activate the configuration.