D-Link®
Building Networks for People

D NetDefend

Configuration examples for the D-Link NetDefend Firewall series

DFL-210/800/1600/2500

Scenario: How to configure WAN load sharing and failover for two ISPs using policy based routing

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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 2.11.02. If you are using an earlier 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.
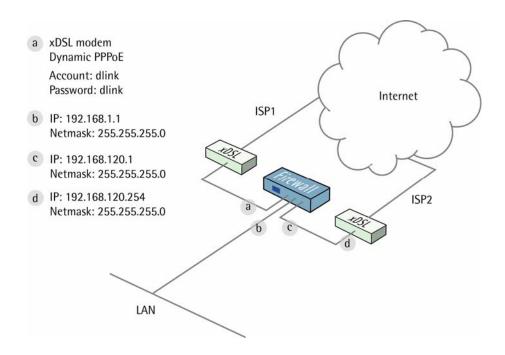
How to configure WAN loading sharing and failover for two ISPs using policy based routing

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.
- From LAN to WAN direction on **WAN2** interface, SMTP, POP3 and Ping services are allowed to connect to Internet.

WAN1 and WAN2 interface serve for different Internet services at the same time; meanwhile 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 **lannet** to **192.168.1.0/24**
Change **wan2_ip** to **192.168.120.1**
Change **wan2net** to **192.168.120.0/24**
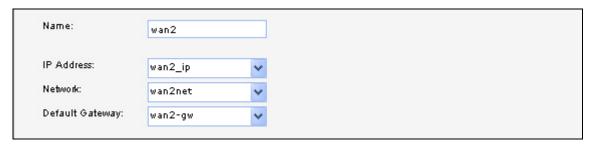
Create a new IP address:
Name: wan2-gw
IP address: **192.168.120.254**

Click Ok.

2. Ethernet interfaces

Go to *Interfaces -> Ethernet*:
Edit the WAN2 interface.

In the General tab:

General:

Name:	wan2
IP Address:	wan2_ip
Network:	wan2net
Default Gateway:	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: 100

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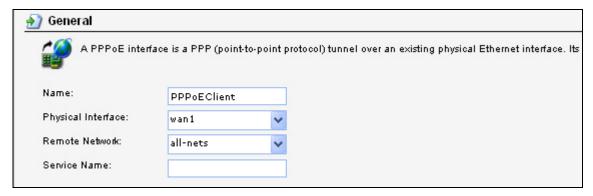
Click Ok

3. PPPoE Client Configuration

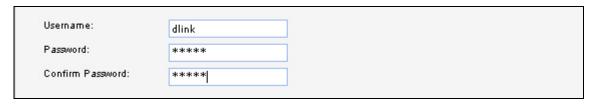Under *Interfaces -> PPPoE:*

Add a new PPPoE tunnel.

In the general tab:

General:

Name: **PPPoEClient**
Physical Interface: **WAN1**
Remote Network: **all-nets**

Authentication:

Username: **dlink**
Password**: dlink**
Confirm password: **dlink**

Advanced tab:

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

Click OK.

4. Routes

Go to *Routing -> Routing Tables -> main*.

Add a new Route.

In the General tab:

General:

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

In the Monitor tab:

Monitoring for Route Failover:

Select **Monitor This Route**

Method:

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**

In the Monitor tab:

Monitoring for Route Failover:

Select **Monitor This Route**

Method:

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:

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:

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

Interfaces:

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

Click Ok

6. Rules

Go to *Rules -> IP Rules.*

Add a new IP Rules Folder called **lan_to_pppoewan2**

In the new folder, add a new IP Rule.

In the General tab:

General:

Name: **allow-http-all**
Action: **NAT**
Service: **http-all**

Address Filter:

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 -> Routing Tables*:

Add a new Routing Table.

General:

Name: **r-pppoe**
Ordering: **Only**

In the newly created table, add a new Route:

In the General tab:

General:

Interface: **PPPoEClient**
Network: **all-nets**
Metric: **80**

Click Ok

Add a new Route:

In the General tab:

General:

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

Click Ok

Go to *Routing -> Routing Rules:*

Add a new Routing Rule:

General:

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

Address Filter:

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.