Securepoint Security Systems

Version 2007nx Release 3

·O· SECUREPOINT

Content

Multipath routing

The linking of multiple DSL or other internet connections with Securepoint systems is also known as multipath routing. Multipath routing not only increases the bandwidth of the internet connection but also offers redundancy. If you use different provider the effect ascends. The data transfer can be allocated weighted lines.

If one line drops down the Securepoint System direct the data transfer through the other available connection. This causes a higher load for the stable connections but it assures the availability of the services. If the connection will reestablished the transfer will automatically conduct over all lines.

The Securepoint Systems will not only manage the multipath routing they also manage the load balancing for an optimal load sharing between the separate lines.

1   Multipath routing with two direct DSL connections

In this configuration the Securepoint appliance acts as a router. The Appliance is directly connected to the modems.

1.1   Attaching DSL provider

To configure a multipath environment with two DSL connections you have to dispose two DSL providers at first.

➢ Go to the menu item **Network** and choose the entry **DSL provider** or click the icon **network** and switch to the tab **DSL provider**.
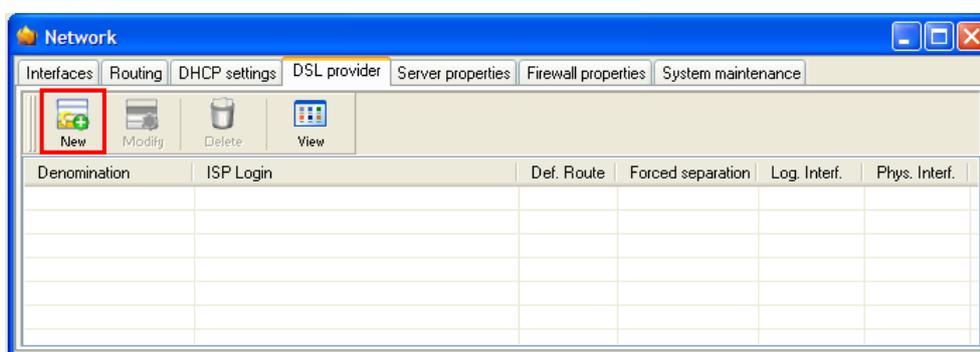

fig. 1 Network - tab DSL provider

➢ Click the icon **New**.

The dialogue **DSL provider** appears.

➢ Enter your connection data you have received from your provider.
➢ **Don't** check the box at **Set default route automatically**.
➢ If you use a dynamic DNS service, switch to the tab **Dyn-DNS** and enter the data of you Dyn-DNS provider.
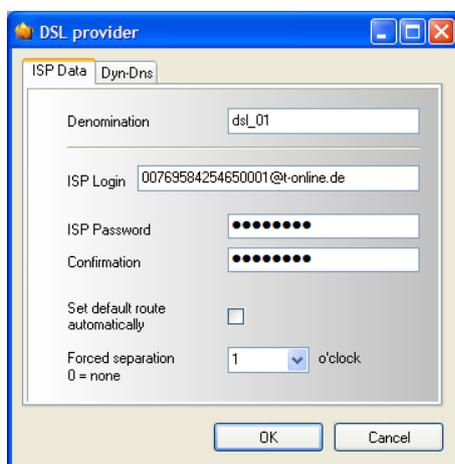

fig. 2 Enter the data of the DSL provider
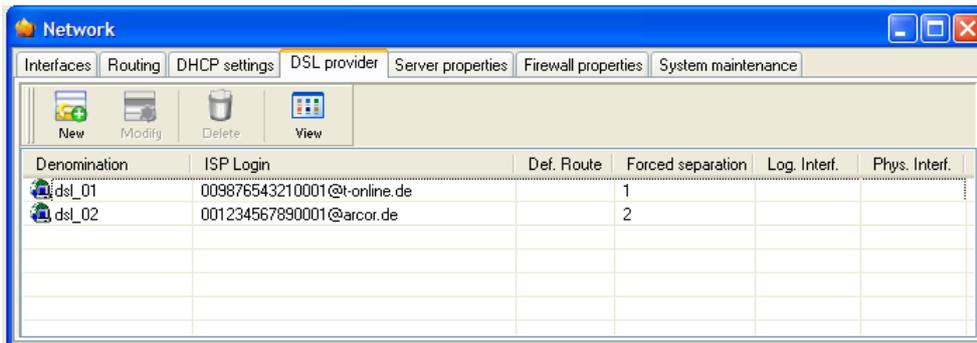
➢ Repeat the procedure for the second DSL provider.

fig. 3 two DSL provider - without default route

1.2   Attaching DSL interfaces

Depending on whether your provider uses the protocol PPPoE or PPTP, you have to attach two PPPoE interfaces or two PPTP interfaces or one of each kind.

➢ Switch to the tab *Interfaces*.
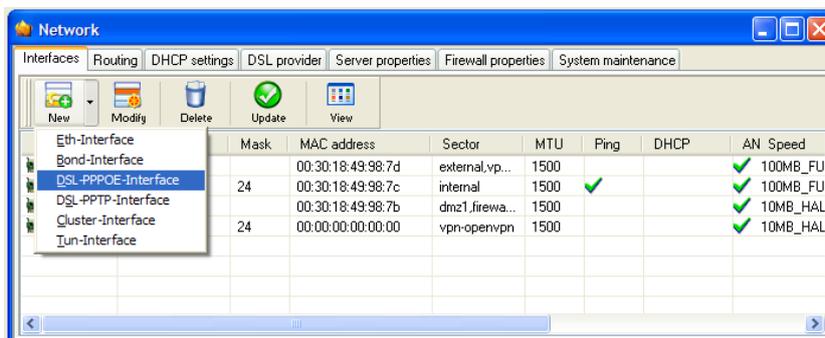➢ Click the arrow beneath the icon *New* and select the according DSL interface.

fig. 4 dropdown menu of the icon New

In this example we use two PPPoE interfaces.
The dialogue *PPPOE-Interface [ppp0] – Add appears*.

➢ On the tab *General* select an interface (eth0 or eth2) and for *DSL provider* one of the two attached DSL provider.

The name of the DSL interface will be generated automatically by the program. The name is composed of *ppp* and a *consecutive number*.
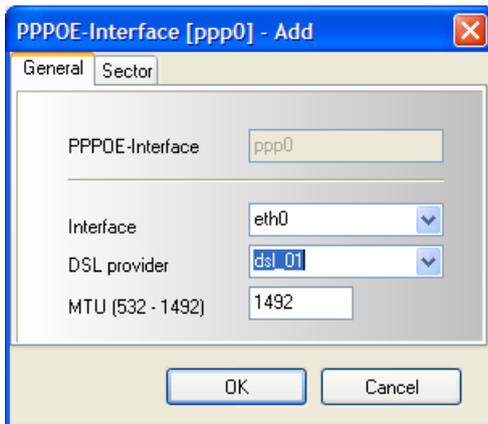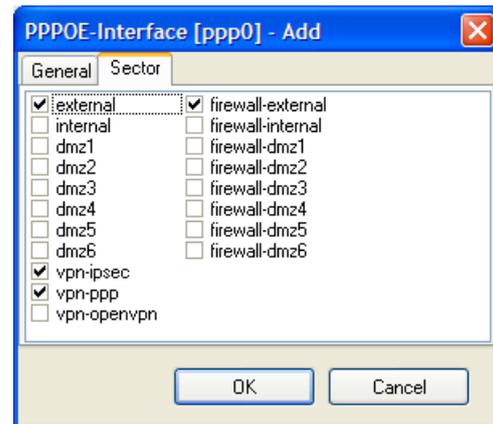
fig. 5 bind PPPoE interface to eth0

fig. 6 zones will be kept

> ➢ Repeat this procedure.
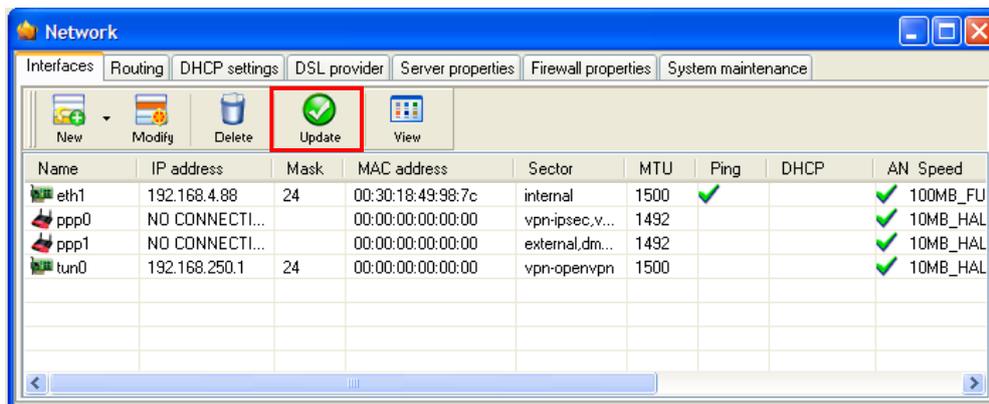> ➢ Click on the icon **Update** to adopt the changes.

fig. 7 view after attaching the DSL interfaces

1.3   Attaching a second internet network object

You have to create a second internet object to setup separate rules for the different DSL connections.

> ➢ Go to the menu item **Firewall** and choose the entry **Network objects** or click the icon **Firewall** and switch to the tab **Network objects**.
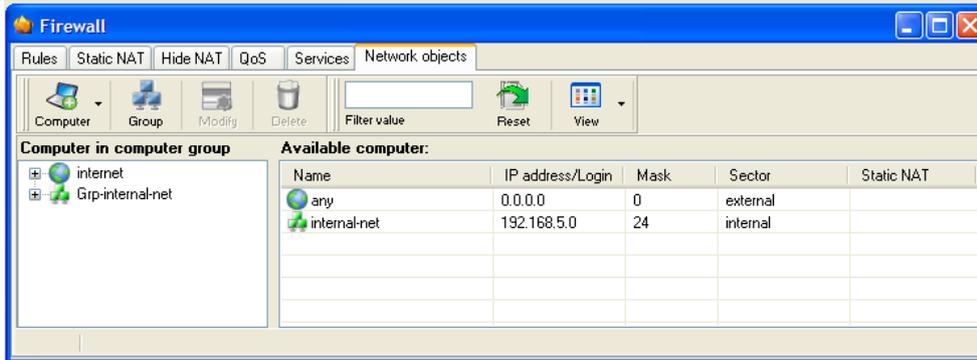

fig. 8 view of the existing network objects

To distinguish between the both internet connections you can rename the existing internet object.

> ➢ Click on the object **any** by using the right mouse button and select **modify** from the context menu.
>
> ➢ In the dialog **Modify network** change the name of the object to **any1** for example.
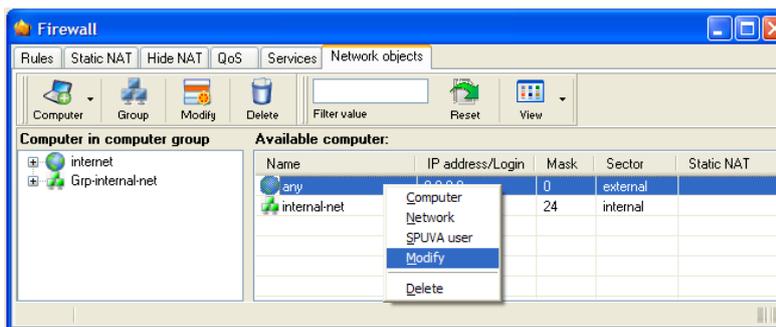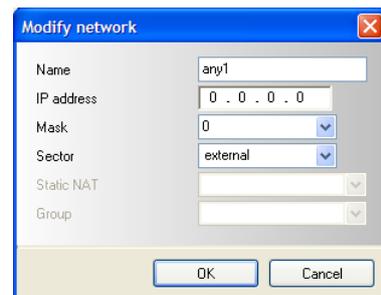

fig. 9 select network object

fig. 10 rename network object

Now create a network object for the second DSL connection.

> Click on the arrow beneath the icon *Computer* and select *Computer* from the dropdown menu or simply click on the icon *Computer*.

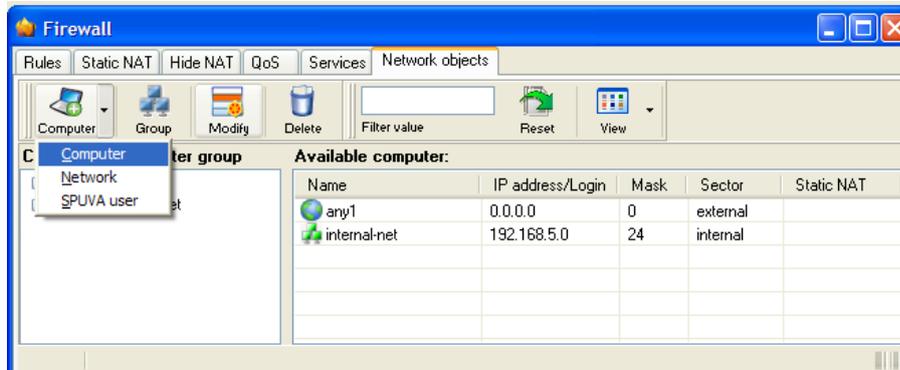*fig. 11 attaching computer*

The dialog *Add computer* appears.

> Create the network object like the object *any1*.
> Select *dmz1* for Sector.
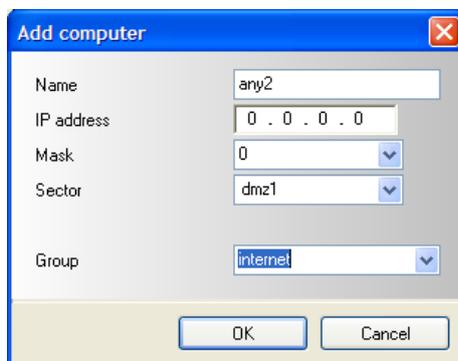> Select *internet* for Group.

fig. 12 create network object

Add other needed network objects (if not yet carried out).
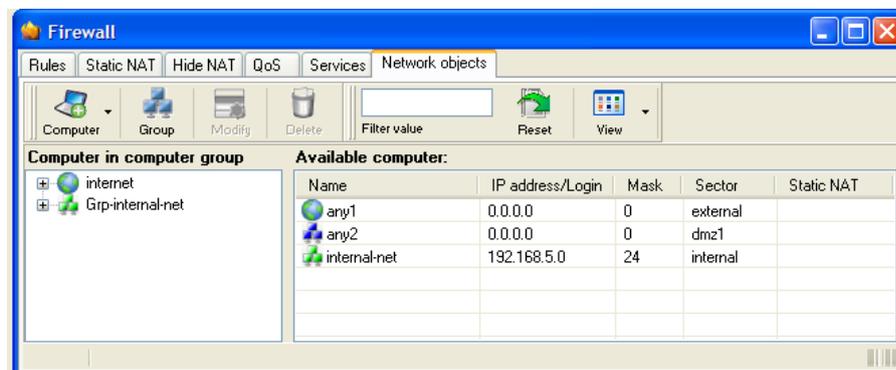
fig. 13 view of network objects

1.4 Attaching Hide-NAT

To using the Network Address Translation for both DSL connections you have to setup following settings.
These settings can only be made, if a network object for the internal net exits.

> ➢ Switch to the tab **Hide NAT**.
> ➢ Click on the icon **New**.
> ➢ Enter the data like shown below.

fig. 14 Hide NAT settings for the first connection ...
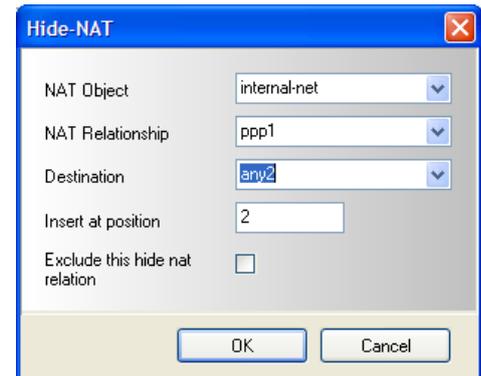
fig. 15 ... and for the second one.
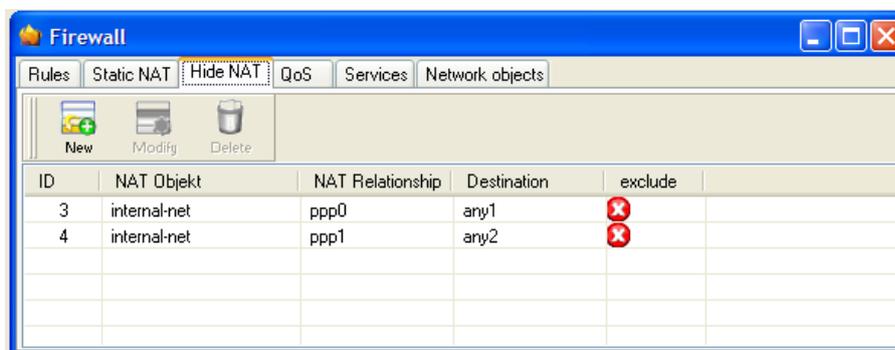
fig. 16 view of Hide NAT entries

1.5 Routing and weighting

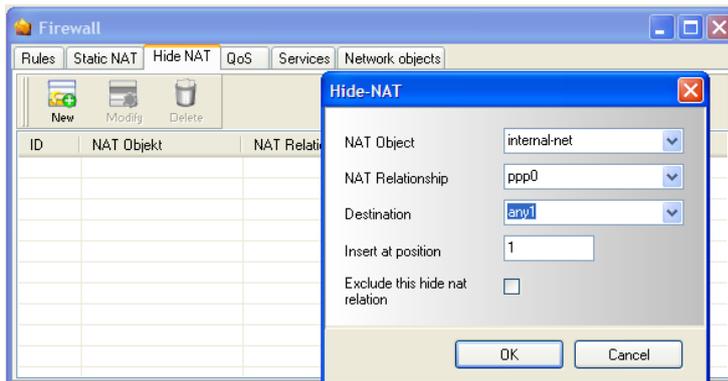You have to set default routes for both DSL connections. Do not set the default route automatically at the attaching of the DSL provider. The second DSL interface would overwrite the default route of the first interface.

➢ Go to the menu item **Network** and select the entry **Routing** or click the icon **Network** and switch to the tab **Routing**.

➢ Click the icon **Default Route**.

➢ Attach consecutively a default route for each connection.

➢ Update the routing by clicking the icon **Update**.

fig. 17 default route for ppp0

fig. 18 default route for ppp1

fig. 19 update the settings by click the icon Update

In this example the weighting for both connections is 1. This means, that both connections are used in equal shares.

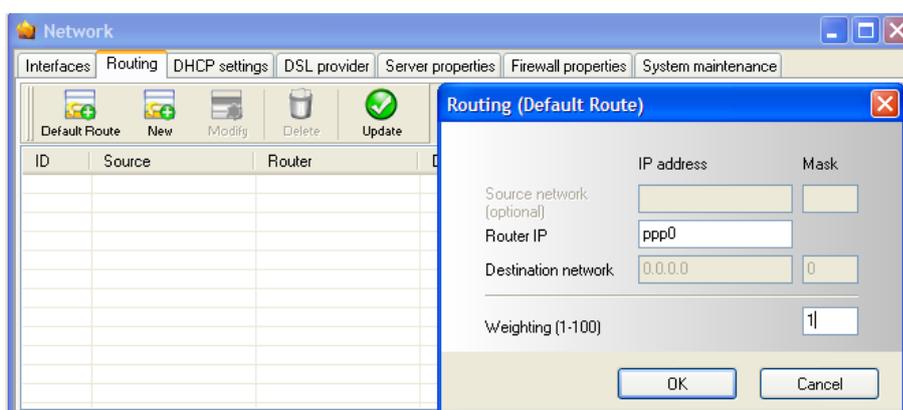If you use connections with different bandwidth, you have to adjust the weighting. Without adjustment the Securepoint appliance cannot assure an optimal load balancing.

Example:　You have a connection with 2 MBit and one with 6 MBit.
　　　　　　The second connection has the triple bandwidth of the first one. So you must give the second connection the triple weighting of the first connection.
　　　　　　Set the weighting for the first connection to 1 and the weighting for the second one to 3.
　　　　　　You can also use 5 for the first connection and 15 for the second connection.
　　　　　　Important is the factor between the weighting values not the difference.
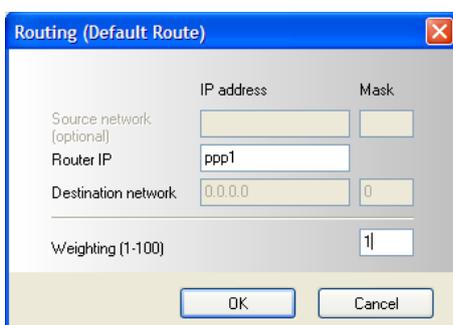
2 Multipath with one direct DSL connection and one connection over a router

In this setting the Securepoint manage one DSL connection and one internet connection over a router.
For the DSL connection a provider must be attached (cf. 1.1 Attaching DSL provider).

2.1 Network configuration

For setting up the direct DSL connection take a look to chapter 1.

If you bind the direct DSL connection at eth0, connect the router to the interface eth2.

➢ Go to the menu item **Network** and select the entry **Interfaces** or click the icon **Network**.

➢ Click with the right mouse button on the entry for the interface **eth2** and select **Modify** from the context menu or highlight the entry **eth2** and click the icon **Modify**.

➢ Enter a static IP address out of the network range of the router. If only the appliance is connected to the router, disable the DHCP services of the router.
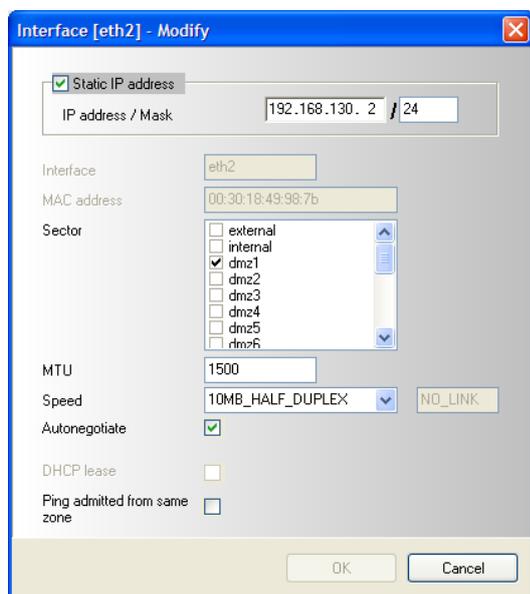

fig. 20 configurate eth2

2.2 Hide-NAT

This configuration also needs two network objects for the internet. One for each connection. To attach these take a look to chapter 1.3.

You have to adjust the Hide-NAT settings.

> Go to the menu item **Firewall** and select the entry **Hide-NAT** or click the icon **Firewall** and switch to the tab **Hide-NAT**.
> Click the icon **New**.
> The dialog **Hide-NAT** appears.
> Attach one entry for the direct DSL connection **NAT Relationship ppp0** and one entry for the router connection **NAT Relationship eth2**.
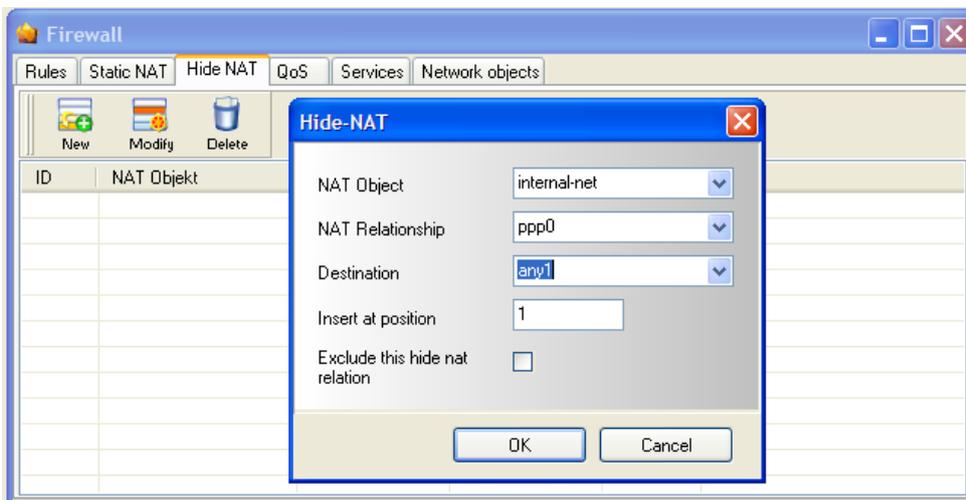

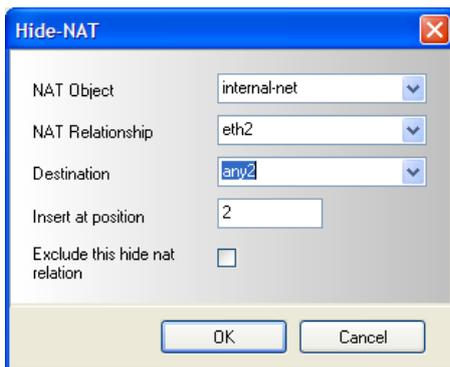*fig. 21 attach Hide-NAT entry for the DSL connection*
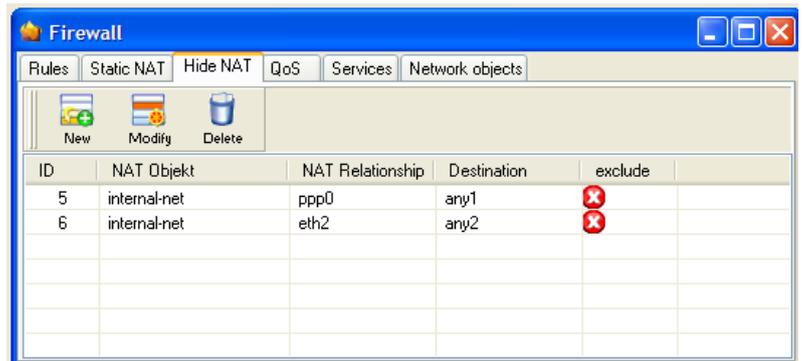

fig. 22 Hide-NAT for router connection   *fig. 23 view of the Hide-NAT entries*

2.3   Routing and weighting

Attach default routes.

- ➢ Go to the menu item **Network** and select the entry **Routing** or click the icon **Network** and switch to the tab **Routing**.
- ➢ Click the icon **Default Route**.
- ➢ Attach default routes for the interface ppp0 and the interface eth2.

  Note: To attach a default route for the interface eth2 you have to enter the IP address of the interface.

- ➢ Enter a weighting value.
- ➢ Update the routes by clicking the icon **Update**.

Only with adjusted weighting values the Securepoint appliance can assure an optimal load balancing.
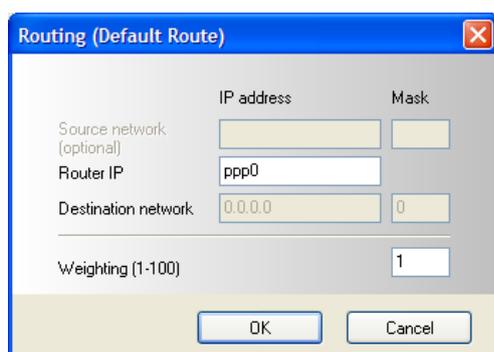Same values for the weighting means, that the connections will be used in equal shares.
If you use connections with different bandwidths you have to adjust the weighting values.

Example: You have a connection with 2 MBit and one with 6 MBit.
The second connection has the triple bandwidth of the first one. So you must give the second connection the triple weighting of the first connection.
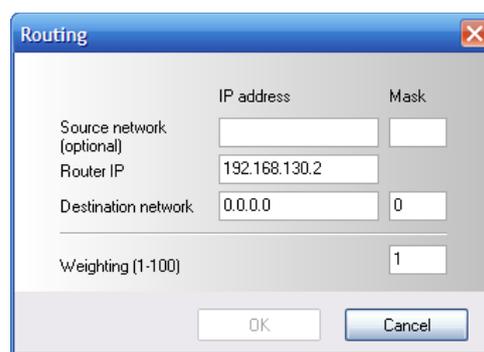Set the weighting for the first connection to 1 and the weighting for the second one to 3.
You can also use 5 for the first connection and 15 for the second connection.
Important is the factor between the weighting values not the difference.

fig. 24 default route for ppp0 (DSL)

fig. 25 default route for eth2 (router)
              using the IP of the interface

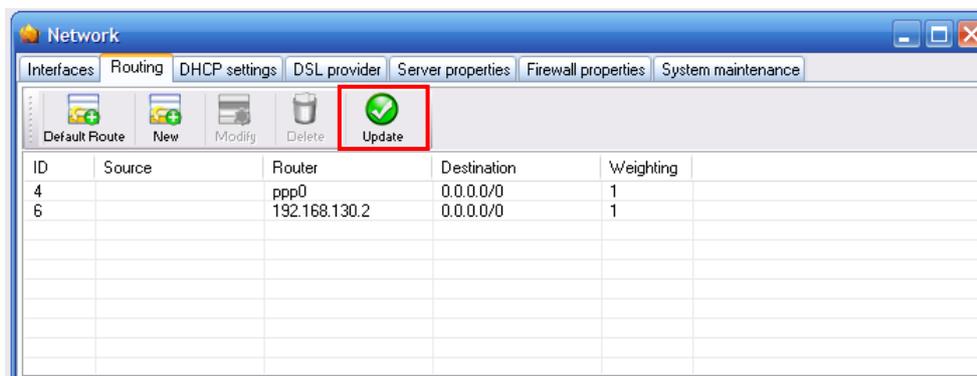> ➢ Now update the routes by clicking on the icon **Update**.

fig. 26 update routes

Afterwards save your settings and update the rules.

> ➢ Click the icon **Save** and save the settings under the actually configuration or click on the **arrow beneath the icon** and select **Save as…** and save the settings under a new configuration.
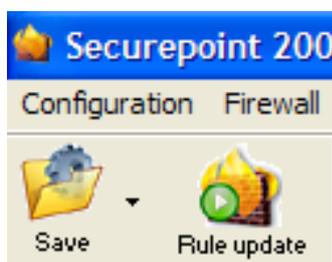> ➢ Afterwards click the icon **Rule update**, to attach the changes to the firewall.

fig. 27 icons for saving and updating

2.4   Disadvantage of the router connection

This scenario has in contrary to the configuration with two directly DSL connections the disadvantage, that the appliance don't "notices", when the DSL connections of the router gets lost.
The appliance will further on try to send the data packets over the router although it has no connection to the internet.

If the appliance manages the DSL connections directly, it will "notice" the breakdown of one connection. The appliance will conduct the whole traffic over the remaining connection. This will stress the data link, but the connection will not abort.
If the second connection is available again, the appliance automatically continues the load balancing.

3   Source routing

Some applications (for example: mail server, VPN) require that the data packets are always sent or received over the same interface to work properly.
To realize this you have to set a precise route for the computer the application runs on.

- ➢ Go to the menu item **Network** and select the entry **Routing** or click the icon **Network** an switch to the tab **Routing**.
- ➢ Click on the icon **New**.
- ➢ Apply a route for the computer the application (for example: mail server) runs on.
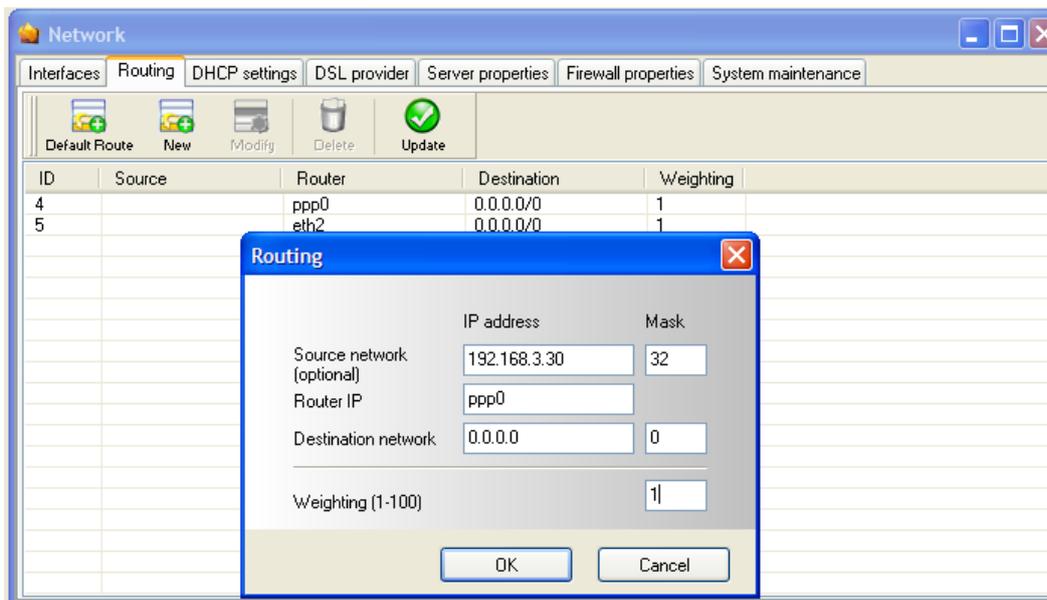

fig. 28 apply source route for one computer

In the shown example the applications runs on the computer with the IP address 192.168.3.30. Network mask must be 32 to specify only this computer.
The interface to use is ppp0 and the destination is set to any IP address.