

bintec Workshop
IP Load Balancing

Purpose This document is part of the user's guide to the installation and configuration of bintec gateways running software release 7.1.4 or later. For up-to-the-minute information and instructions concerning the latest software release, you should always read our **Release Notes**, especially when carrying out a software update to a later release level. The latest **Release Notes** can be found at www.funkwerk-ec.com.

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As multiprotocol gateways, bintec gateways set up WAN connections in accordance with the system configuration. To prevent unintentional charges accumulating, the operation of the product should be carefully monitored. Funkwerk Enterprise Communications GmbH accepts no liability for loss of data, unintentional connection costs and damages resulting from unsupervised operation of the product.

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Guidelines and standards bintec gateways comply with the following guidelines and standards:

R&TTE Directive 1999/5/EG

CE marking for all EU countries and Switzerland

You will find detailed information in the Declarations of Conformity at www.funkwerk-ec.com.

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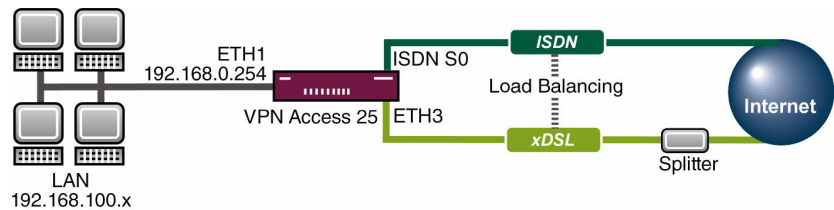
1 Introduction

The configuration of IP load balancing for a Bintec **VPN Access 25** gateway is described in the following chapters.

Load balancing allows the data traffic to be distributed between the available lines. In the event of a fault, one line naturally takes over all the traffic automatically. The traffic can be distributed according to various criteria, e.g. half the data traffic can be distributed to each line. The Setup Tool is used for the configuration.

1.1 Scenario

In this scenario, the interface ETH1 is used for the LAN, the third interface ETH3 for the xDSL access and the ISDN S0 interface for the ISDN connection.



1.2 Requirements

The following are required for the configuration:

- A Bintec **VPN Access 25** gateway.
- xDSL Internet connection.
- ISDN Internet connection.
- At least release 7.1.2.
- Connect your LAN to the ETH1 interface of your gateway.

2 Configuration of Metric



Note

Load balancing is only activated for equivalent routes. The default routes of the two WAN partners must have the same metric.

- Go to **IP → ROUTING**.

VPN Access 25 Setup Tool			Bintec Access Networks GmbH			
[IP] [ROUTING]: IP Routing			Gateway			
The flags are: U (Up), D (Dormant), B (Blocked), G (Gateway Route), I (Interface Route), S (Subnet Route), H (Host Route), E (Extended Route)						
Destination	Gateway	Mask	Flags	Met.	Interface	Pro
192.168.0.0	192.168.0.254	255.255.255.0		0	en0-1	loc
default		0.0.0.0	DI	1	freenet	loc
default		0.0.0.0	I	1	tonline	loc
ADD	ADDEXT		DELETE		EXIT	



Note

Proceed as follows if the two WAN partners do not have the same metric.

- Go to **IP → ROUTING → WAN PARTNER**.

VPN Access 25 Setup Tool		Bintec Access Networks GmbH	
[IP] [ROUTING] [EDIT]		Gateway	
Route Type	Default route		
Network	WAN without transit network		
Partner / Interface	freenet		
Metric	2		
SAVE		CANCEL	

The following field is relevant:

Field	Meaning
Metric	Priority of route.

Table 2-1: Relevant field in **IP** → **ROUTING** → **WAN PARTNER**

Proceed as follows to define the necessary settings:

- Enter *1* under **METRIC**.
- Leave all the other settings as they are.
- Press **SAVE** to confirm your settings.

3 Configuration of IP Load Balancing

- Go to **IP → BANDWIDTH MANAGEMENT (LOAD BALANCING/BOD) → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD.**

VPN Access 25 Setup Tool		Bintec Access Networks GmbH
[IP] [IP LOAD BALANCING] [EDIT]		Gateway
Description	DSL-ISDN Balancing	
Interface Group ID	0	
Distribution Policy	session round-robin	
Distribution Mode	always (use operational up and dormant interfaces)	
Distribution Ratio	individual for all interfaces of the group	
Interface 1	tonline	
Distribution Fraction (in percent)	50	
Interface 2	freenet	
Distribution Fraction (in percent)	50	
Interface 3	none	
	SAVE	CANCEL

The following fields are relevant:

Field	Meaning
Description	Description of load balancing.
Interface Group ID	The ID of the interface group. This is issued automatically by the system.
Distribution Policy	Policy according to which the data is distributed.
Distribution Mode	Interfaces to be used according to state.
Distribution Ratio	Defines how the data is to be distributed.
Interface 1	First WAN partner.
Distribution Fraction	Percentage utilization.

Field	Meaning
Interface 2	Second WAN partner.
Distribution Fraction	Percentage utilization.

Table 3-1: Relevant fields in **IP → BANDWIDTH MANAGEMENT (LOAD BALANCING/BOD) → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD**

Proceed as follows to define the necessary settings:

- Enter a unique name under **DESCRIPTION**, e.g. *DSL-ISDN Balancing*.
- Leave **INTERFACE GROUP ID** set to 0.
- Set **POLICY** to *session round-robin*.
- Set **DISTRIBUTION MODE** to *always (use operational up and dormant interfaces)*.
- Set **DISTRIBUTION RATIO** to *individual for all interfaces of the group*.
- Set **INTERFACE 1** to your first WAN partner, e.g. your xDSL connection.
- Enter 50 under **DISTRIBUTION FRACTION**.
- Set **INTERFACE 2** to your second WAN partner, e.g. your ISDN connection.
- Press **SAVE** to confirm your settings.



Note

The name "interface" does not refer to the physical interfaces.

Return to the main menu and finally save your new configuration in the flash memory with **EXIT** and **SAVE AS BOOT CONFIGURATION AND EXIT**.

4 Result

These settings cause your transmitted data to be distributed evenly to the two Internet connections.

4.1 Monitoring

Monitoring is possible with the command `iploadbiftable`. Enter the following in the command line of the gateway for this purpose:

```
Gateway:> iploadbiftable
```

inx	Index(*rw) Mode(-rw) ActLoad(ro)	GroupId(rw) ActAssignedSessions(ro) ActDownLoad(ro)	Ratio(rw) TotAssignedSessions(ro) ActUpLoad(ro)
00	10002 enabled 0	0 0 0	50 0 0
01	10001 enabled 0	0 0 0	50 0 0

```
Gateway:ipLoadBifTable>
```

4.2 Overview of Configuration Steps

Field	Menu	Description	Compulsory field
Metric	IP → ROUTING → INTERFACE	e.g. 1	Yes
Description	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	e.g. <i>DSL-ISDN Balancing</i>	
Distribution Policy	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	<i>session Round-Robin</i>	Yes
Distribution Mode	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	<i>always (use operational up and dormant interfaces)</i>	Yes
Distribution Ratio	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	e.g. 50 - 50	Yes
Interface 1	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	e.g. your DSL connection	Yes
Distribution Fraction	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	e.g. 50	Yes
Interface 2	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	e.g. your ISDN connection	Yes
Distribution Fraction	IP → BANDWIDTH MANAGEMENT → IP LOAD BALANCING OVER MULTIPLE INTERFACES → ADD	e.g. 50	Yes