bintec elmeg

# Loopback Interface

bintec-Dm 743-I

## Legal Notice

Warranty

This publication is subject to change.

bintec offers no warranty whatsoever for information contained in this manual.

bintec is not liable for any direct, indirect, collateral, consequential or any other damage connected to the delivery, supply or use of this manual.

# Table of Contents

# I Related Documents

bintec-Dm 704-I Configuration and Monitoring

bintec-Dm 772-I Common Configuration for Interfaces

# Chapter 1 Introduction

## 1.1 The loopback interface

The loopback interface is a virtual interface that does not physically exist in the device, however it carries out all the functions of a normal interface. As many loopback interfaces as required can be configured.

A loopback interface has the following characteristics:

- It is always active (UP), unless it has been specifically disabled with the **SHUTDOWN** command located in the interface configuration menu.
- Packets destined for the loopback interface are locally processed.
- Packets routed through the loopback interface (not destined to the interface itself:

  - Are dropped without provoking any type of error provided that there is no *virtual link* with another loopback interface.

  - Are routed towards the other end of the virtual link provided that there is a virtual link with another loopback interface.
- Traffic is never received through a loopback interface, provided that there is no virtual link with another loopback interface.

# Chapter 2 Configuration

## 2.1 Creating a loopback interface

The loopback interface must be created through the **ADD DEVICE** command in the general configuration menu.

*Syntax:*

```
Config>ADD DEVICE LOOPBACK <interface_id>
```

- *<interface_id>* this is the identifier for loopback interface to be created.

*Example:*

```
*CONFIG

Config>ADD DEVICE LOOPBACK 1
Config>
```

You can check the created interface has been correctly added by listing the existing interfaces in the device:

```
Config>LIST DEVICES

Interface            Connector     Type of interface
ethernet0/0          LAN1          Fast Ethernet interface
serial0/0            SERIAL0/WAN1  Frame Relay
serial0/1            SERIAL1/WAN2  Synchronous Serial Line
serial0/2            SERIAL2/WAN3  X25
bri0/0               BRI/ISDN1     ISDN Basic Rate Int
x25-node             ---           Router->Node
loopback1            ---           Loopback
Config>
```

## 2.2 Deleting a loopback interface

To delete a loopback interface, use the **NO DEVICE** command in the general configuration menu.

*Syntax:*

```
Config>NO DEVICE <interface_name>
```

- *<interface_name>* name of the interface to delete (*loopbackX*, *X*=Interface Identifier).

*Example:*

```
*CONFIG

Config>NO DEVICE LOOPBACK1
Config>
```

You can check the created interface has been correctly deleted by listing the existing interfaces in the device:

```
Config>LIST DEVICES

Interface            Connector     Type of interface
ethernet0/0          LAN1          Fast Ethernet interface
serial0/0            SERIAL0/WAN1  Frame Relay
serial0/1            SERIAL1/WAN2  Synchronous Serial Line
serial0/2            SERIAL2/WAN3  X25
bri0/0               BRI/ISDN1     ISDN Basic Rate Int
x25-node             ---           Router->Node
loopback1            ---           Loopback
Config>NO DEVICE LOOPBACK1
Config>LIST DEVICES

Interface            Connector     Type of interface
ethernet0/0          LAN1          Fast Ethernet interface
serial0/0            SERIAL0/WAN1  Frame Relay
```

```
serial0/1            SERIAL1/WAN2  Synchronous Serial Line
serial0/2            SERIAL2/WAN3  X25
bri0/0               BRI/ISDN1     ISDN Basic Rate Int
x25-node             ---           Router->Node
Config>
```

## 2.3 Configuring the loopback interface

The loopback interfaces configuration commands must be entered at their associated configuration prompt (*loopbackX config*>). To access the configuration menu for a loopback interface, enter **NETWORK** <**interface_loopback**> from the general configuration menu, where <**interface_loopback**> is the name of the loopback interface previously created in the device.

For example, if you want to access the **loopback1** interface, enter:

```
Config>NETWORK loopback1

-- Loopback interface configuration --
loopback1 config>
```

There are certain commands which are common for all the device's interfaces. These commands are described in the manual on configuring common interfaces (Dm 772-I Common Configurations for Interfaces).

| Command | Function |
|---|---|
| *? (AYUDA)* | Displays the available commands or their options. |
| *NO* | Negates the command or establishes the default value for a parameter. |
| *VIRTUAL-LINK* | Establishes a virtual link with another Loopback interface. |
| *EXIT* | Exits the specific configuration menu for the Loopback interface. |

### 2.3.1 VIRTUAL-LINK

This establishes a virtual link with another loopback interface. The link is point-to-point, i.e., the link only exists between two loopback interfaces.

*Syntax:*

```
loopbackX config>virtual-link
  <word>    Shared virtual link name
```

*Example:*

Creating a virtual link between two Loopback interfaces.

```
Config>network loopback1
loopback1config>virtual-link vlink
Config>
Config>network loopback2
loopback2config>virtual-link vlink
```

If you try and add more than two interfaces to this link, an error message is displayed:

```
CLI Error: Multipoint not supported. There are already two interfaces attached
CLI Error: Command error
```

#### 2.3.1.1 NO VIRTUAL-LINK

Permits you to eliminate the virtual link to another interface.

```
loopbackX config>no virtual-link <virtual-link name>
```

# Chapter 3 Monitoring

## 3.1 Monitoring the loopback interface

The loopback interface does not have any specific type of monitoring.

```
+NETWORK LOOPBACK1
Loopback monitoring unavailable
+
```

In order to know the interface status and the statistics, we need to go to the generic monitoring commands. These are described in the following sections and in more detail in the manual *bintec-Dm 704-I Configuration and Monitoring*.

## 3.2 Interface status

The interface status can be discovered through the **CONFIGURATION** command from the monitoring menu:

```
+CONFIGURATION
Bintec's Router, XXX S/N: 403/00567
P.C.B.=43  Mask=0502  Microcode=0000  CLK=49152 KHz  BUSCLK=49152 KHz PCICLK=327
68 KHz
ID: AT-8F32R L2.156
Boot ROM release:
 BIOS CODE VERSION: 01.09.05   Dec  2 2005 13:33:58
  gzip  Nov 23 2005 09:32:38
  io1  Dec  2 2005 13:33:50
  io2  Nov 23 2005 09:32:09
  io3  Dec  2 2005 13:33:50
 START FROM FLASH L0    Watchdog timer Enabled
Software release: 10.7.0 Jan 17 2006 17:31:11
Compiled by INTEGRATOR on INTEGRATOR2000
Hostname:                    Active user:
Date:  Thursday, 01/20/06    Time: 21:25:20
Router uptime: 3m18s
Num  Name     Protocol
0    IP       DOD-IP
3    ARP      Address Resolution Protocol
4    H323     H323
6    DHCP     Dynamic Host Configuration Protocol
11   SNMP     SNMP
 Information Protocol
17   SIP      SIP
7 interfaces:
Connector     Interface            MAC/Data-Link        Status
LAN1          ethernet0/0          Ethernet/IEEE 802.3  Up
SERIAL0/WAN1  serial0/0            Frame Relay          Down
SERIAL1/WAN2  serial0/1            HDLC                 Down
SERIAL2/WAN3  serial0/2            X25                  Down
BRI/ISDN1     bri0/0               BRI Net              Up
---           x25-node             internal             Up

---           loopback1            Null device          Up   SNMP OperStatus:
Interface       OperStatus
ethernet0/0     Up
serial0/0       Down
serial0/1       Down
serial0/2       Down
bri0/0          Up
x25-node        Up
loopback1       Up
+
```

The most common interface states (*Interface status* / *SNMP OperStatus*) are as follows:

- Up / Up: the interface is active.
- Disabled / Down: the interface is not operative, as it has been manually disabled through the **SHUTDOWN** command from the interface configuration menu.

For further information on all the possible interface states, please see manual *bintec Dm 704-I Configuration and Monitoring*.

## 3.3 Interface statistics

Through the **STATISTICS** command found in the monitoring menu, you can check how many packets have been transmitted (dropped) by the interface and the number of corresponding bytes.

```
+STATISTICS
                    Unicast  Multicast      Bytes      Packets          Bytes
Interface         Pqts Rcv   Pqts Rcv   Received   Transmitted   Transmitted
ethernet0/0              0        295     197820            0             0
serial0/0                0          0          0            0             0
serial0/1                0          0          0            0             0
serial0/2                0          0          0            0             0
bri0/0                   0          0          0            0             0
x25-node                 0          0          0            0             0
loopback1                0          0          0            3          4284
+
```

Logically, the reception statistics remain at zero while those for the transmission display the data corresponding to the packets that have been transmitted by the interface and therefore dropped without notification.

## 3.4 Loopback interface events

There are three events that are directly related to the loopback interface; events 61, 66 and 67 in the GW subsystem.

```
GW.061        C-INFO    Ifc %s dsc pkt prt %d
```

**GW.061**

*Level:* Common informational comment, INFO-N/C-INFO

*Syntax:*

GW.061 Ifc *interface_name* dsc pkt prt *protocol_number*

*Description:*

Data is sent to an interface (from which the number, the type and the interface number of this type is given), which is dropped without informing the sending agent. The data protocol number is also given complying with the following table:

| Number | Initials | Name |
|---|---|---|
| 0 | IP | Internet Protocol |
| 1 | X.28 | X.28 |
| 2 | IPv6 | IP version 6 (IPng) |
| 3 | ARP | Address Resolution Protocol |
| 4 | H.323 | H.323 |
| 6 | DHCP | Dynamic Host Configuration Protocol |
| 11 | SNMP | Simple Network Management Protocol |
| 12 | OSPF | Open Shortest Path First |
| 13 | RIP | Routing Information Protocol |
| 15 | DEP | Dataphone Protocol |
| 23 | ASRT | Adaptive Source Routing Transparent Enhanced Bridge |
| 26 | DLS | Data Link Switching |

**GW.066**

*Level:* Frequently produced events, P-TRACE

*Syntax:*

GW.066 Ifc *interface_name* rcv frm *source* to *destination,* prot *protocol_number*

*Description:*

Data has been received in an interface (which provides the name). This also indicates the packet's source and destination as well as the protocol number.

```
GW.067        Incom pack disc no act int, int %s
```

**GW.067**

*Level:* Internal error, UI-ERROR

*Syntax:*

GW.066 Incom pack disc no act int, int *interface_name*

*Description:*

The packet has been dropped because the interface is down.