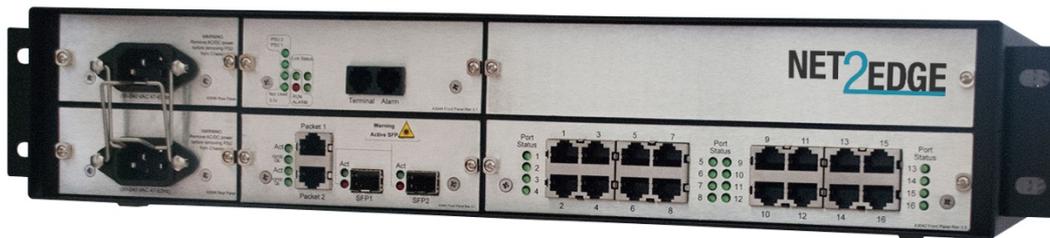# Quick Start Guide: PB-ISDN

PacketBand ISDN Chassis

NET2EDGE

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Revision History

Rev	Date	Description
2.0	5th September 2016	Rebranding and formatting changes

Contents

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1.   Introduction

This document is a basic guide for configuring a new Net2Edge PacketBand ISDN. A full User Manual for configuring all settings on the unit is supplied on the DbManager Installation Disk.

2.   Applications

The PacketBand ISDN range allows the delivery of synchronous ISDN, across asynchronous IP networks. The product range covers both switched ISDN applications and unswitched 'nailed' circuits. PacketBand will packetize traffic for transport across the IP network and transparently depacketise it at a remote site. The traffic will then be played out to the data interfaces.

PacketBand ISDN must be used as a two-ended solution, and an existing system can easily be expanded with more PacketBand ISDN units to allow links to new sites and devices.

3.   Features

The PacketBand ISDN Chassis is available to support either 8, 16 or 32 PRIs. Each product has the following features:

- 8, 16 or 32 PRI (E1 / T1 ports)
- 2 x SFP cages
- 2 x RJ45 UTP ports
- 1 x RJ12 asynchronous control port
- 1 x RJ11 alarm port
- 2 x RJ45 external clock inputs
- 2 x BNC external clock inputs
- 1 or 2 PSUs (AC or DC)

4.   Getting Started

This section will describe how to make the physical connections between PacketBand ISDN Chassis and the other system devices, and install the Net2Edge management application, DbManager.

4.1   Standard Accessories

The following accessories are supplied with the PacketBand ISDN:

Item	Description			
DbManager CD	Installable DbManager application, technical documents and manuals			
Controller Cable	Management cable. Connects to the PacketBand ISDN Chassis' Terminal port	**Cable Spec**		
		RJ12		DB9S
		Pin	**Function**	**Pin**
		1	Rx	3
		2	Tx	2
		3	Gnd	5
IEC Mains Cable	Connects PacketBand ISDN Chassis to the mains supply			

4.2.   Optional Accessories

The following items can be ordered separately:

ISDN Cables
Cables to connect the PacketBand ISDN Chassis to a CPE or network. Please see the full manual for specifications of all Net2Edge cables

SFP Modules and Cables
Please see the PacketBand ISDN Chassis user manual for instructions and precautions to take when using SFP modules

4.3   Making Connections

First, connect the ISDN cables to PacketBand ISDN Chassis followed by the Terminal Port management cable (if required), PKT Port cable and lastly the Mains cable. If the unit has a DC power supply connection, use the screw terminals to connect the DC power source.

If the unit has a DC power supply connection, use the screw terminals to connect the DC power source.

Warning: The -48VDC power terminals are marked **0V**, **-48V**, and **GND**. Net2Edge -48VDC products are designed for use with negative voltage DC supplies, and therefore expect the positive voltage to be connected to the **0V** terminal, and the negative connected to **-48V**. Please be sure about the polarity of this connection before connecting power to the terminals. Units which have a positive +24VDC power source will be marked **+24VDC**, **0V** and **GND** respectively. Please ensure that the positive connection is made on the **+24VDC** terminal.

4.4   Installing DbManager

DbManager is required in order to monitor and manage the PacketBand ISDN Chassis. Management can be made using the Terminal (serial) port, or using TCP/IP over a LAN or WAN. DbManager is installed using the CD provided with product or can be downloaded from the Net2Edge Website: www.net2edge.com

1. Insert the DbManager Installation Disk into the drive of the PC which will be used for management of PacketBand ISDN.
2. InstallShield Wizard will start up. Follow the steps to install DbManager.
3. Serial Number – Enter the Serial Number on the case of the DbManager Disk.

N.B.: DbManager is supplied as a 'Lite' version by default. This allows configuration and monitoring of devices, but only allows configuration of a single device node and a single user account. To use DbManager in 'Lite' mode, do not enter a serial number during installation. Please see the full DbManager User Manual for more information on configuring and using DbManager.

Warning: If an older version of DbManager is already installed on the management PC, it is necessary to update to the version supplied on the new DbManager CD. This can be done by consulting the 'Upgrade' folder on the DbManager CD. The 'readme.txt' file explains how to upgrade to the new DbManager without reinstalling the program.

5.   Configuring PacketBand ISDN Chassis

Follow these steps to connect to PacketBand ISDN Chassis with DbManager and configure the unit for use.

Configuration of PacketBand ISDN Chassis is carried out by setting up DbManager to make a management connection, and then setting up the elements of PacketBand ISDN Chassis in this order:

Device Settings	The unit-specific settings of the PacketBand ISDN Chassis such as the **IP Address** and **Identifier**
Clock Sources	configure which interface PacketBand ISDN Chassis is to take synchronisation clock from a network, or recovered clock from another PacketBand ISDN Chassis
ISDN Ports	Each ISDN port can be individually configured with the correct settings to interface with another device or network
Link Configuration	Configure settings to carry ISDN channels across a PSN between PacketBand ISDN units
Call Routing	Configure routes for the traffic PacketBand ISDN Chassis will pass between connected devices and networks

5.1   Connecting to the PacketBand ISDN Chassis

1.   Start up the DbManager Application

2.   Login as **Super User** (no password required)

3.   Four windows will be displayed:
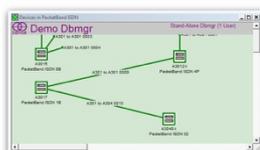
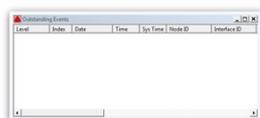|		
	Map	A network map showing Nodes and Links between Net2Edge devices
	Terminal	A view of the communications between DbManager and PacketBand ISDN
	Event History	All events which occur while connected to PacketBand ISDN
	Outstanding Events	Current Events

4. Select **View Properties Terminal** from the DbManager toolbar.

5. Choose the COM port which is in use. Leave the **Serial Port Rate** at the default setting of 19200bps. Click **OK**.

6. Select the **Devices in World** window and double click the **Device** node

7. The **Connected to Device** window should appear, showing the front and rear panels of PacketBand ISDN. If it does not, check the COM port settings and try again.

   Warning: If management via the Terminal port is not possible, it could be that the management PC has another application running which uses the COM ports of the PC. Even when some programs which use the COM ports are closed down, other programs cannot access the COM ports. Rebooting the PC is required in order to release the COM ports so that DbManager can use them

If the PC and PacketBand ISDN Chassis are connected to the same LAN, management is possible using TCP/IP. The PacketBand ISDN default IP settings are:

|	
IP Address:	192.168.0.1
Subnet Mask:	255.255.0.0
Gateway:	0.0.0.0

To configure DbManager to access the PacketBand ISDN Chassis using TCP/IP, please follow these steps:

1. Select **View Properties Terminal Device IP Addresses** from the DbManager toolbar

2. 192.168.0.1 should already be configured. If using another IP address, **Add** it to the list using the **Add** button

3. Click **OK   OK**

4. Select the **Devices in World** window and double click the Device node

5. The Connected to Device window should appear, showing the front panel of PacketBand ISDN.

The Device node can be made to connect to other IP addresses configured in the **Device IP Addresses** list by right-clicking the node, selecting **Properties** and choosing an IP address from the **IP List**.

   Info: TCP/IP management requires TCP port 3001 (dec) to be open between the management PC and PacketBand ISDN Chassis. Any switches, hubs or routers must be configured to allow communication on this port in order to manage the PacketBand ISDN Chassis via TCP/IP.

A successful management connection will open up the **Connected to Device** window:
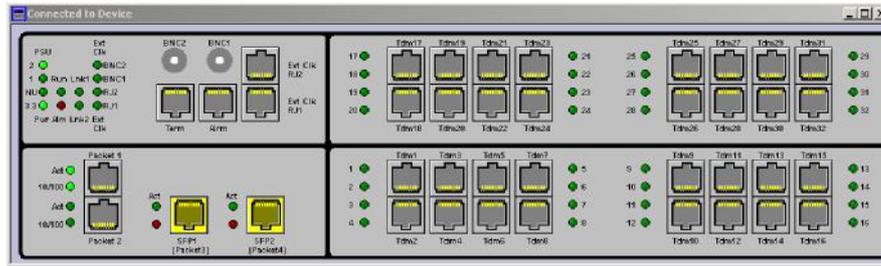
5.2   Notes on configuring the PacketBand ISDN Chassis

Uploading

Changes to the configuration can be made on each window and saved using the OK key when exiting each window. When happy with the configuration, it must be uploaded to the PacketBand ISDN for the new settings to come into effect.

To upload, go to **File Upload** and wait until the progress bar completes.

Saving Files

Configuration files can be saved in order to backup settings or copy settings across to another unit. Once the configuration has been uploaded, go to **File Save File** and choose a location where you wish to save the file. The file extension of any saved config files is **.dbc**

Loading Files

Once connected to a unit, an existing configuration file can be loaded to the device. Go to **File Open File** and navigate to the saved file. Click **Open**. Now the file must be uploaded to PacketBand ISDN: Go to **File Upload** and wait until the progress bar completes.

> **Warning:** When loading existing configuration files to a unit, please ensure that the correct configuration files are used for the unit type in use. PacketBand ISDN Chassis configuration files are not compatible with other Net2Edge products.

5.3   Device Settings

This menu controls unit-specific features of the PacketBand ISDN such as the IP Address, Identifier, Serial Number, Configuration Number, Time & Date and Event Reporting. These features are all fully explained in the PacketBand ISDN Chassis User Manual on the DbManager Installation Disk.

5.4   Clock Sources

PacketBand ISDN Chassis must be configured to either receive clock from an ISDN interface or generate clock internally. Different priorities can be set for each port, so if one port is unavailable, PacketBand ISDN Chassis will clock from the next available port in the Clock Source hierarchy

1. Select **Clock Sources** from the **Terminal** port menu.
2. Enter values into the table to denote the clocking priority of each interface on PacketBand ISDN Chassis. The values which may be entered are as follows:

0	Interface Not Used
1-32	ISDN Ports
33-36	External Clock Ports (optional)
101-108	Logical Links 101-108

3. Click **OK** to save the setting.

   Warning: Clock Sources must be configured correctly to ensure error-free operation when PacketBand ISDN Chassis is connected to any other clock-locked system or network. Please consult the full PacketBand ISDN manual if unsure how to configure Clock Sources.

5.5   PRI Ports

All PRI ports are NT by default (connect to TE device). To use the ports as TE, each port must be manually set to TE and a crossover cable must be used. Each port has a single LED to show its status:

Flashing once/sec:	Layer 1 and 2 established
Flashing five times/sec:	Layer 1 established, trying to synchronize with Layer 2
On:	Calls active on interface

1. Click on an enabled PRI port.
2. The configuration settings for the port are displayed.
3. Configure the settings as required for the port.
4. Click **OK** to save the settings.

5.6 Configuring Routing Profiles

It is strongly recommended that you draw a simple diagram showing the PacketBand ISDN Chassis, its ISDN ports in use, the DDI numbers, and any local devices and the number ranges used to access them. An example is shown below.

This example requires that the PacketBand ISDN-32s route calls as follows:

1. Route calls from the PSTN to the PBX
2. Route calls from the PBX to the PSTN

All of these actions can be catered for using Call Routing Profiles. A Call Routing Profile is used to direct traffic from one port or group of ports to another, or to a Logical Link. A Routing Profile has many options to control how calls are routed, but in this case and in most applications the Routing Profile will consists of the following elements:

Name, Source, Destination

Click on the **Terminal** port and select **Call Routing** from the Drop-Down menu to configure routing profiles for PacketBand ISDN Chassis.

1. The Call Routing Profiles List is displayed. This will show all Routing Profile details when they are configured.
2. Select **Add Profile** and choose **Add Routing Profile**.
3. Name the profile and tick the **Enable** check-box.
4. Move the **SOURCE PORTS** radio button to **Select** and enter a source for incoming calls. A source can be designated by entering a port number, port and channel number or by using a **Group** of ports and/or channels:

To use a port:	Enter the port number (e.g. **1** for PRI 1, 2 for PRI 2)
To use a port and channel:	Enter the port number followed by a full stop and then the channel number (e.g. 1.1 for PRI 1 channel 1, 2.2 for PRI 2 Channel 2)
To use a Group:	Configure a group and select it from the Drop-Down menu
To use a Logical Link:	Enter the Logical Link number (101 for Logical Link 101, 164 for Logical Link 164)

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5. Move the **DESTINATION PORTS** radio button to Select, and enter a destination for calls in the same way as the **SOURCE PORTS**

6. Select the **Incoming Numbers** tab to choose numbers which Liberator will use to route the calls.

   Note: If no Incoming Numbers are configured (*/*), the PacketBand ISDN Chassis will route all calls received on the Source ports to the Destination ports, regardless of the DDI, CLI or SubAddress numbers of the call.

7. The DDI Listing defaults to */* which represents any number and any SubAddress (Number/SubAddress).

8. Double click the */* to edit the number values. An entry of ***1234/*** would route any call with a DDI ending in 1234 with any SubAddress. Right-clicking an existing entry will present more options.

9. Enter a CLI value if required. This is entered in the same way as the DDI. The default value; * will route calls with any CLI.

   Note: More routing options may be used to configure complex routing profiles. These are all explained in the PacketBand ISDN-32 manual on the DbManager installation disk.

10. Click **OK** on the two active windows and the new routing profile will appear in the Call Routing Profiles List.

11. Click **Exit** to return to the Connected to Device window.

5.7 Prioritizing Routing Profiles

The **Call Routing Profiles List** shows all configured Call Routing Profiles in order of priority. These priorities can be rearranged to allow diverse routing possibilities. When PacketBand ISDN Chassis receives a call, it will check each profile in order from the top of the list for any routing parameters matching those of the call. It will route the call based on the first matching profile.

1. Select **Call Routing** from the **Terminal** port Drop-Down menu.

2. All configured routing profiles are displayed.

3. Right click on a profile in the Type column to display options. The profile can be promoted or demoted in the priority list. There are also options to edit and delete the profile.

This table shows the profiles which would be required to carry out the call routing shown in the diagram above:

Profile Number	Profile Name	Source	Primary Destination	DDIs
0	PSTN to PBX	1	101	*/*
1	PBX to PSTN	101	1	*/*

The PacketBand ISDN Chassis will route any calls from the PSTN to PacketBand ISDN Chassis via its Logical Link 101, and any calls from the PacketBand ISDN Chassis to the PSTN. The PacketBand ISDN Chassis will have the following routing configuration:

Profile Number	Profile Name	Source	Primary Destination	DDIs
0	PBX to PSTN	101	1	*/*
1	PSTN to PBX	1	101	*/*

Calls can now be passed between the two PacketBand ISDN Chassis.

5.8 Link Configuration

The Link Configuration option is used to configure **Logical Links** between PacketBand ISDN Chassis. Each Logical Link can carry up to 32 ISDN channels.

1. Click on **Link Configuration**
2. Select the first Logical Link; **LL101**
3. Tick the **Enable** checkbox
4. Enter the IP address of the remote PacketBand ISDN Chassis

Note: Each Logical Link can be configured with many settings for transport across a Packet Switched Network. All of these options are described in the PacketBand ISDN Chassis User Manual. The above settings are all that is required to get a Logical Link running initially. A pair of PacketBand ISDN Chassis working in a system should have identical Logical Link settings in order to pass traffic across a PSN.

5.9 Using Groups

When more than one port needs to be configured as a source or destination for calls, a Group of ports can be set.

1. Select **Add Group** from the **Add Routing Profile** screen.
2. The **Group Configuration** screen is displayed.
3. Name the Group you wish to configure.

   Note: The names of any Routing Profiles, Groups and Identifiers must not contain the following characters: < > ~

4. Use the **All** and **None** buttons to add blocks of PRI and BRI ports to the Group, or select individual channels from each port by using the tick-boxes.
5. Click **OK** to save the group.
6. The new Group will now appear in the **SOURCE** and **DESTINATION** drop-down menus. Select this Group from the drop-down to use it in a Call Routing Profile.

5.10 Finishing Configuration

Note: Please remember to **Upload** when configuration of PacketBand ISDN Chassis is complete. To upload, go to **File Upload** and wait until the progress bar completes.

5.11 Additional Resources

All Net2Edge products and the DbManager application have their own User Manuals which can be found in the 'Documents & Manuals' folder on the DbManager installation disk or by registering at the Net2Edge website: www.net2edge.com

For help with a specific problem, please click on the On-Line Help icon on the website, or email a request to support@net2edge.com

5.   Contacts

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