

DataBand MUX-4 Quickstart Guide V3.2

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1. Introduction

This document is a basic guide for configuring a new Patapsco DataBand MUX-4. A full User Manual for configuring all settings on the unit is supplied on the DbManager Installation Disk. Patapsco offers an optional Pre-Configuration Service and optional Telephone Support Agreements at minimal cost. Information on these options can be found in the Support document on the DbManager installation disk.

1.1. Transition Networks - Patapsco

Patapsco DataBand products allow cross-connectivity of E1 and T1 ports and timeslots between any source and destination connected to the unit. Conversion of E1 to T1 and vice versa is catered for, as well as conversion between A-law and μ -law voice calls, while the DataBand E1T1 range allows simple conversion between the E1 and T1 protocols. The EV device allows conversion between V.35 and E1/T1 protocols.

1.2. Safety warnings



Caution: Danger of electric shock. The device may be connected to mains voltages. Switch to power-off state before working on the device.



Caution: Danger of electrostatic discharge. Electronic components are sensitive to electrostatic discharges that might damage the device. Protect the device from electrostatic discharges by wearing an electrostatic wristband.



Caution: Interruption of data transmission. Data transmission will be interrupted during any work on the transmission line and/or deactivation of the power supply. Make sure that that any work will only be carried out on inactive lines (without data transmission) or during quiet times to reduce interference to live systems.



Caution: Danger of damage to devices or service interruption. Access by unauthorized third persons may cause damage to devices and/or interrupt services. Make sure that subracks are only installed in lockable locations.



Caution: Danger of overvoltage. During faults, dangerous unprotected voltages may be present. Ensure sufficient grounding of the housings, i.e. by connecting the grounding contact.






- Safety requirements are not fulfilled unless this equipment is connected to a wall socket outlet with a protective earth (PE) contact.
- The power cord used to connect this equipment must be HAR marked and fitted with an IEC320 connector and an ASTA approved moulded plug.
- There are no user serviceable parts in this equipment. All servicing and repair tasks must be undertaken by qualified service personnel.
- Isolation from mains power is achieved by the removal of the main power cord.

2. Getting Started

This section will describe how to make the physical connections between DataBand MUX-4 and the other system devices, and install the Patapsco management application, DbManager.

2.1. Rack Mounting Instructions

The Rack Mounting Kit is comprised of the following:

Photo	Description	Quantity
	L-Bracket	2
	Long Patapsco case screw	4
	Cage Nut	4
	washer	4
	Rack Mount Screw	4

All Patapsco units can be mounted in a standard 19" rack housing. To allow units to fit into a 19" rack, a Rack Mounting Kit must be purchased for the unit (s). There are various rack mounting options depending on the size of the unit ordered. The following guide will explain how to use the Rack Mounting Kit with Patapsco units.

1. Remove the four short screws near the front or rear panel on the left and right hand sides of the Patapsco unit. The unit can be mounted with the front panel facing forward or with the ports facing forward as required.
2. Fit one of the **L-Brackets** to the side of the unit. The four small fixing holes allow the unit to protrude forward or sit further back depending on the desired position of the unit. The bracket may also face forwards or backwards depending on the desired position of the unit.
3. Fix the **L-Bracket** in place using the **Long Patapsco case screws**.
4. Fix the second **L-Bracket** to the other side of the case in the same way.
5. Put the **Rack Mount screws** through the **Rack Mount washers**.
6. Offer the unit up to the rack and fix it in place using the **Rack Mount Screws** and **Rack Mount cage nuts**.

2.2. Accessories

The following accessories are supplied with all Patapsco units:

Item	Description			
DbManager CD	Installable DbManager application, technical documents and manuals			
Controller Cable	Management cable. Connects to DataBand MUX-4's Terminal port	Cable Spec		
		RJ12		DB9S
		Pin	Function	Pin
		1	Rx	3
		2	Tx	2
		3	Gnd	5
IEC Mains Cable	Connects DataBand MUX-4 to the mains supply			

2.3. Optional Accessories

The following items can be ordered from Patapsco, or will be supplied with some units depending on the nature of the device.

- TDM Cables -** Cables to connect the Patapsco device to a CPE or network. Please see the full manual for cable specs on all Patapsco cables
- Rack Mounting Kit -** All Patapsco units can be mounted in a 19" rack using this kit

2.4. Making Connections

First, connect the TDM cables to DataBand MUX-4 followed by the Terminal Port management cable (if required), LAN 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.



Warning: The -48VDC power terminals are marked **0V**, **-48V**, and **GND**. Patapsco -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.

2.5. Installing DbManager

DbManager is required in order to monitor and manage Patapsco devices. 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 Patapsco equipment.

1. Insert the DbManager Installation Disk into the drive of the PC which will be used for management of DataBand MUX-4.
2. InstallShield Wizard will start up. Follow the steps to install DbManager.
3. Serial Number – Enter the Serial Number on the case of the DbMgr Disk.



Info: 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.

3. Configuring DataBand MUX-4

Follow these steps to connect to DataBand MUX-4 with DbManager and configure the unit for use.

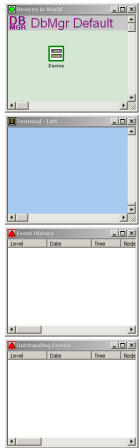
Configuration of DataBand MUX-4 is carried out by setting up DbManager to make a management connection, and then setting up the elements of DataBand MUX-4 in this order:

Identifier and Ethernet settings -
TDM Port Settings -
Clock Sources -
Routing -

The IP address settings and unique Identifier of the unit
Settings for the TDM ports
configure which interface DataBand MUX-4 is to take synchronisation clock from
Configure paths for the connections between DataBand MUX-4's ports

3.1. Connecting to DataBand MUX-4

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 Patapsco devices

Terminal

A view of the communications between DbMgr and DataBand MUX-4

Event History

All events which occur while connected to DataBand MUX-4

Outstanding Events

Current events

4. Select **View → Properties → Terminal** from the DbMgr 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 DataBand MUX-4. If it does not, check the COM port settings and re-try



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 DataBand MUX-4 are connected to the same LAN, management is possible using TCP/IP. All Patapsco products use the default IP settings:

IP Address	192.168.0.1
Subnet Mask	255.255.0.0
Gateway	0.0.0.0

To configure DbManager to access DataBand MUX-4 using TCP/IP, please follow these steps:

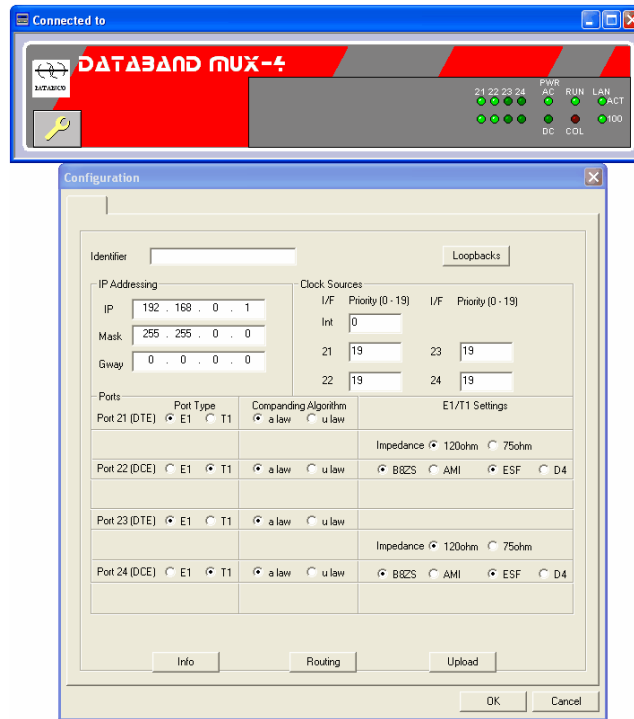
1. Select **View → Properties → Terminal → Device IP Addresses** from the DbMgr toolbar
2. 192.168.0.1 should already be configured. If using another IP address, add it to the list using the **Add** button
3. Click **OK → OK**
4. Select the **Devices in World** window and double click the Device node
5. The Connected to Device window should appear, showing the front and rear panels of DataBand MUX-4

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 DataBand MUX-4. Any switches, hubs or routers must be configured to allow communication on this port in order to manage DataBand MUX-4 via TCP/IP.

A successful management connection will open up the **Connected to Device** window:



3.2. Notes on configuring DataBand MUX-4

Uploading

Changes to config 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 DataBand MUX-4 for the new settings to come into effect.


To upload, go to **File → Upload** or press the **Upload** button on the config window 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 configuration has been uploaded, go to **File → Save File** and choose a location to save the file to. 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 DataBand MUX-4. Go to **File → Upload** or press the **Upload** button on the config window 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. DataBand MUX-4 configuration files are not compatible with other Patapsco platforms.

3.3. Identifier and Ethernet Settings

This menu controls the **IP Address**, **Subnet Mask**, **Default Gateway** and **Identifier**. Enter a unique Identifier and IP settings for the unit. These features are all fully explained in the DataBand MUX-4 User Manual on the DbManager Installation Disk.

3.4. TDM Port Configuration

Set the TDM ports to E1 or T1 mode. Enabling T1 mode will enable options relating to the T1 Line Code and Framing type. Please consult the documentation of the connected CPE if unsure of the correct settings to use.

There are two LEDs for each TDM port, and the LED states are as follows:

Top LED on -	Layer 1 and 2 established
Bottom LED on -	Channels active on interface

The other settings allow configuration of CRC4, Timeslot 0 and the Impedance setting. Configure these options according to the connected device. Please see the full user manual on the DbManager installation disk for full details on these settings.

3.5. Clock Sources

DataBand MUX-4 must be configured to either receive clock from an TDM interface, a connection to another DataBand MUX-4 or generate clock internally. Different priorities can be set for each port, so if one port is unavailable, DataBand MUX-4 will clock from the next available port in the Clock Source hierarchy.

Enter a digit to mark the priority of each TDM port and the internal clock. **0** will denote the highest priority Clock Source and **19** will denote the lowest. Ports which are not to be used for clocking can have their values left at 19.

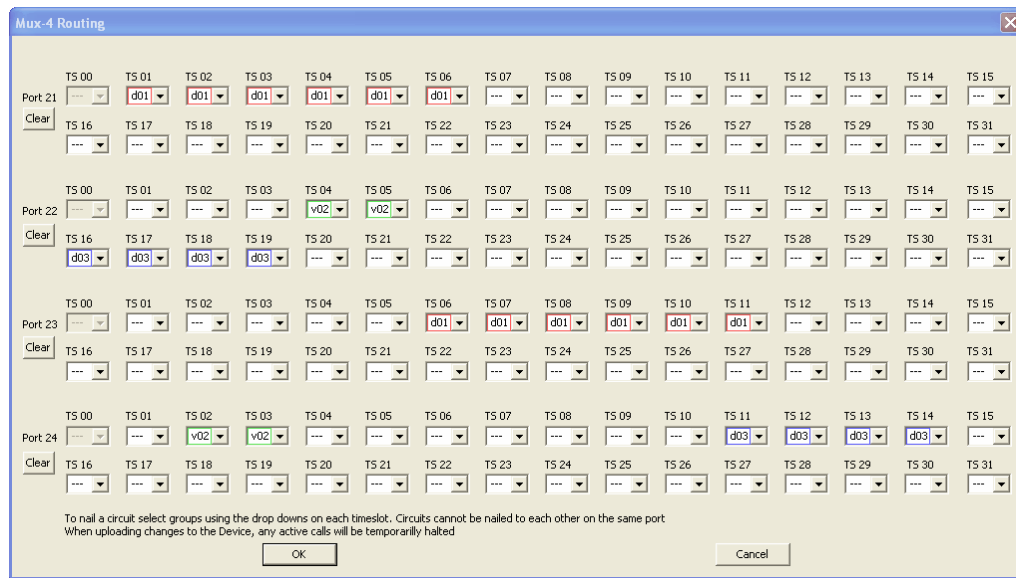


Warning: Clock Sources must be configured correctly to ensure error-free operation when DataBand MUX-4 is connected to any other clock-locked system or network. Please consult the full DataBand MUX-4 manual if unsure how to configure Clock Sources.

3.6. Routing

Use this window to configure static timeslot maps between ports on DataBand MUX-4.

1. Click the **Routing** button and use the drop-down menus to choose a **Group** which the chosen timeslot on the chosen port will map to (e.g. **d01**). Groups which will carry Voice traffic should be assigned the **d** prefix, while Data groups should be assigned **d**
2. Click on the drop-down menu for the last channel in the Group to add all of the timeslots between the first and last to the Group
3. Use the drop-down menus to configure the destination for the group of timeslots on the destination port
4. Additional Groups can be configured to map more timeslots between the ports. Each Group will be assigned its own colour which is shown when returning to the Routing window.



Mux-4 Routing

Port	TS 00	TS 01	TS 02	TS 03	TS 04	TS 05	TS 06	TS 07	TS 08	TS 09	TS 10	TS 11	TS 12	TS 13	TS 14	TS 15
Port 21	---	d01	d01	d01	d01	d01	d01	---	---	---	---	---	---	---	---	---
Port 22	---	---	---	---	v02	v02	---	---	---	---	---	---	---	---	---	---
Port 23	---	---	---	---	---	---	d01	d01	d01	d01	d01	---	---	---	---	---
Port 24	---	---	v02	v02	---	---	---	---	---	---	d03	d03	d03	d03	---	---

To nail a circuit, select groups using the drop downs on each timeslot. Circuits cannot be nailed to each other on the same port. When uploading changes to the Device, any active calls will be temporarily halted.

OK Cancel

Please see the full DataBand MUX-4 manual for more information on configuring routing.

3.7. Finishing Configuration



Note: Please remember to **Upload** when configuration of DataBand MUX-4 is complete. To upload, go to **File → Upload** or press the **Upload** button on the config window and wait until the progress bar completes.

3.8. More Resources

All Patapsco products and the DbManager application have their own User Manuals which can be found in the 'Documents & Manuals' folder on the DbManager installation disk. Please consult these manuals for more detailed information on any aspect of using Patapsco products. All documentation can also be obtained by registering at the Patapsco website:

http://www.patapsco.co.uk/Top_Level/Login_Register.asp

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