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Quick Install Guide for the Bandwidth Manager BM-Product Family Version 2.0

Oneshield Bandwidth Manager
Network Management Solutions

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I. Introduction

The Oneshield BM product family are network traffic and bandwidth management appliances, specifically designed for small medium enterprise (SME) customers.

The Oneshield BM Products are designed to manage, analyze and control crucial network traffic. They support the network manager in solving a broad range of WAN bandwidth bottleneck problems and reducing cost by preserving and prioritizing communication streams.

The Oneshield BM hardware and software is developed specifically to address the special needs that the SME customers have; simple reliable equipment that do not include unnecessary expensive features. The many products within the family all have the same management interface, reducing personnel training costs drastically and easing management of large site.

With their excellent price/performance and their easy to use, intelligent graphical user interface the Oneshield BM products offer minimal total cost of ownership.



Figure I.2 Oneshield BM Pico 5

The BM-5 is capable of controlling traffic up to a maximum of 5 Mbps. This Bandwidth Manager, shown in figure I.2, has the same management interface as all other BM products and can monitor up to 100 Mbps. In addition to this, it can simultaneously shape at 5 Mbps and process pass-thru traffic at up to 100Mbps.



Figure I.3 Oneshield BM Nano 10

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The BM-10 is capable of controlling traffic up to a maximum of 10 Mbps. This Bandwidth Manager, shown in figure 1.3, has the same management interface as all other BM products and can monitor up to 100Mbps. In addition to this, it can simultaneously shape at 10 Mbps and process pass-thru traffic at up to 100Mbps. New high speed DSL links can now require the performance that the BM-10 now offers.



Figure 1.4 Oneshield BM Business 100

The BM-100, as shown in figure 1.4, is designed to be used in the enterprise Ethernet environment, where full ethernet performance is required.

The BM-100 is able to shape at the full 100 Mbps line speed. Up to 20000 streams can be defined within the engine, and 100000 simultaneous connections can flow over this product.

Ethernet interfaces provide connectivity allowing the system to be placed transparently in broadband WAN (Internet) connections. The BM products from Oneshield are designed for the commercial network, where network downtime is not acceptable. For this reason, they include an Ethernet hardware bypass. This will always connect the Ethernet transparently through the Bandwidth Manager, when the power is turned off. Network managers can therefore be sure that in the unlikely event of a BM product failure, the network will continue operating without any problems.

The design of the system is based on advanced Oneshield technology that ensures highest reliability,

2. Installation

2.1. Introduction

The BM Bandwidth Manager Appliance will typically be installed into a 19-inch cabinet, provided with power, and connected into the Ethernet network by means of the Int. and Ext. Ethernet connectors. The Ethernet traffic will thus be directed through the Bandwidth Manager, and the Web-based management will also need to be connected by a separate Ethernet cable.

2.2. Package Contents

The BM Bandwidth Manager contains the following items:

- ▶ 1 BM Bandwidth Manager appliance (Check the model number on the back of the unit against the documentation)
- ▶ 1 power cable
- ▶ 1 null modem serial cable

Contact the Delemont partner where you purchased the product to report missing or improperly functioning items.

2.3. Site Requirements

Before you install the switch, make sure the site meets the following requirements:

Mounting Provide a flat table, shelf surface, or an optional 19 in. (48.3 cm) equipment rack. Use an EIA standard equipment rack that is grounded and physically secure.

Power source Provide a power source within six feet (1.8 m) of the installation location. This source must provide 100 VAC to 240 VAC, and 50 Hz to 60 Hz power. Power specifications for the switch are shown in Appendix 6.1, "Technical Specifications". Primary voltage selection within the above ranges is automatic and requires no user action.

Environmental Install the BM Bandwidth Manager in a dry area, with adequate air circulation. Avoid placing the BM Bandwidth Manager in direct sunlight or near other heat sources, such as hot-air vents. For temperature and humidity specifications, see Appendix 6.1, "Technical Specifications."

Ventilation Do not restrict airflow by covering or obstructing air inlets on the side of the BM Bandwidth Manager.

2.4. Connecting to the Console Port

The BM console port is a serial RS-232 interface that provides a connection to a terminal for performing basic configuration and other specific functions.

The terminal may be a PC or workstation running terminal emulation software, or a terminal configured as a Data Terminal Equipment (DTE) connection. If you connect a terminal to the console port prior to powering on the switch, you can observe the progress and results of the power-on initialization as the BM Bandwidth Manager goes through its initialization process.

The console port is a standard RS-232 DTE connection using a male DB-9 connector (see Figure 6.1 for pinouts).

2.4.1. Console Port (Out-of-Band) Connections

To connect the BM console port to a terminal, do the following:

- a. Connect a VT100 compatible terminal or a PC running a terminal emulation program to the console port. When connecting to a PC, compatible null-modem connection will be needed. (compatible with the console port pin assignments shown in Appendix 6.2).
- b. Connect one end of the interface cable directly to the BM's console port and tighten the retaining screws.
- c. Connect the other end of the interface cable to a terminal (in some instances, an adapter may be required to make this connection).
- d. From your terminal, start the terminal emulation program.
- e. Configure the terminal to the following communication settings: VT100 emulation, 115200 baud, no parity, 8 data bits, 1 stop bit, no flow control, ASCII character set.

2.4.2. Ethernet In-Band Management

The BM Bandwidth Manager is delivered with the management IP address set to 10.100.10.100/8 for the MGMT-Ethernet port, **FIRST LAN-Ethernet port, (the first port starting from VGA and console port indicated in eth0 on the FRONT panel) on BM Nano and Business.** An SSH client, able to connect to this subnet, can connect via the Ethernet to the console menu in the same way as through the serial cable.

2.4.3. Powering the BM Bandwidth Manager

To supply power to the BM, connect the power cord to the connector mounted at the rear of the appliance and to a grounded three-prong wall outlet. See Appendix 6.1, “Technical Specifications” for more information regarding specific international power cord requirements. The main power switch located at the rear of the BM must also be turned to the “on” position.

During the initial power cycle, the “Status” lamp on the front panel will light. During the system boot it will show “flashing”, which will change to “steady” when normal operation starts. The hardware Ethernet bypass-switch connects the “INT” Ethernet port directly to “EXT” Ethernet port when power is removed from the appliance.

If the power cycle is not as described, check to make sure that the power cable is plugged in correctly, the main switch is “on” and that the power source is good. When power is applied, the BM conducts a series of hardware and software tests after bootstrapping to verify operation. If a terminal or computer is connected to the console port, the results of the tests, and bootstrap are displayed on the screen.

The BM-100 Bandwidth Manager includes a display on the front panel which gives the user more status information. The display will initially show “Monitor: Setup” during the early boot phase, this will change to show the boot phase in which the Bandwidth Manager is in. For example, the text “Boot: Stage 1” indicates that the first stage of the boot and system initialisation is taking place. After the last boot phase is completed, the display will then show “BM-100: Ready”.

The display will from then on, continuously show the data as selected by the user in the web management interface in section 5.2.4. The default values shown are the “INBOUND/OUTBOUND bandwidth”.

2.4.4. Connecting into the Ethernet Network

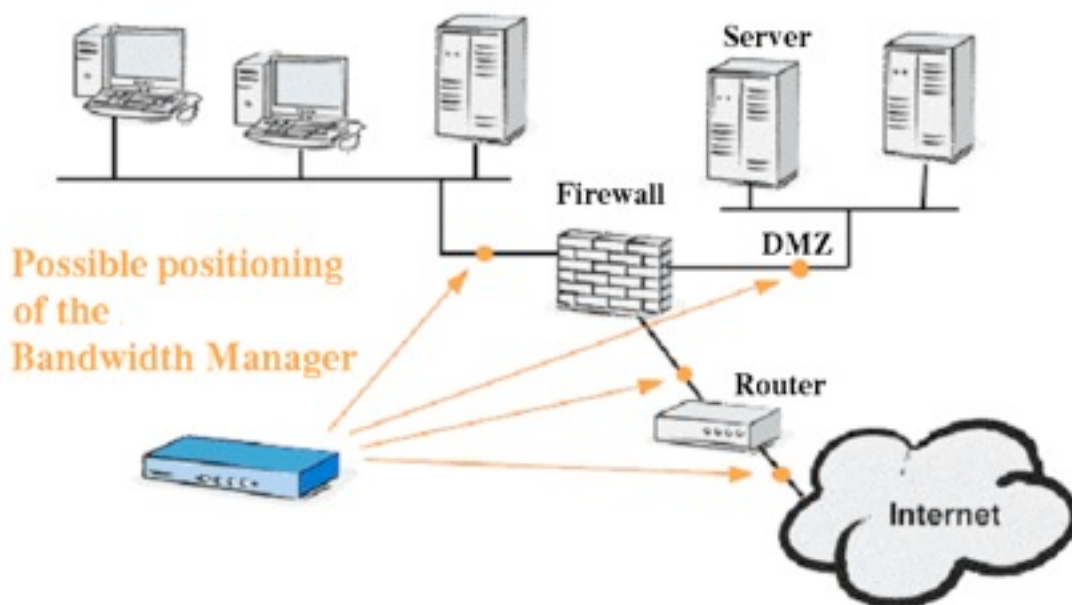


Figure 3.1 :Typical connections in a network

The BM Bandwidth Manager is equipped with 4 Ethernet RJ45 network interfaces. Possible network configurations are shown in Figure 3.1, where the appliance is placed between the internal network and the external router. The management port is connected either directly or via the network to the management PC. Each RJ45 Ethernet connector is fitted with two LEDs to show the status of the Ethernet connection.

The interfaces should be connected to the network as described below:

INT: 10Mbps(BM-10)/100Mbps FDX Ethernet connection to the internal network. Whatever is seen connected via this interface will be classified as **internal. Inbound** traffic is therefore defined as traffic leaving this interface. This port is the **eth1 ethernet interface on BM Nano and Business.**

EXT: 10Mbps(BM-10)/100Mbps FDX Ethernet connection to the *external network*, probably a router connecting to the WAN. Whatever is seen connected via this interface will be classified as **external. Outbound** traffic is therefore defined as traffic leaving this interface. This port is the **eth2 ethernet interface on BM Nano and Business.**

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The eth3 ethernet port is NOT USED.

MGMT: 10/100Mbps FDX Ethernet connection for all BM in-band management. This is used for the web-based management. This port has an IP address, IP netmask, and default gateway. It can also access DNS, and NTP servers.

The MGMT port is the FIRST LAN-Ethernet port, (the first port starting from VGA and console port indicated in eth0 on the FRONT panel) on BM Nano and Business.

These interfaces should be connected to an Ethernet hub, or a switch by a straight Ethernet CAT-5 cable. When connecting to an Ethernet port on a router, a crossed cable will be needed.

Note

The INT and EXT interfaces are technically identical. The only difference between them is the categorization of the data seen traversing the interface. The web-management output categories will be based on the assumption that the EXT is connected to the external network (router), and INT to the internal one. If the ports are connected in a different manner, then the management reports and graphs will have to be interpreted accordingly.

The factory IP address for the MGMT port is 10.100.10.100 with an IP netmask of 255.0.0.0.

After installation, all standard management will be browser-based either via the standard HTTP port 80 or the secure HTTPS port 443 . However, the Ethernet port can also be used when connecting via SSH to the setup menu.

3. Basic System Configuration

To set up the basic system configuration, it is necessary to log into the basic system menu via either the serial port, or SSH connected by the MGMT Ethernet port.

The factory user name and password are as listed in table 4.1.

USERNAME	admin
PASSWORD	admin

Table 4.1: Factory Password for administration and setup

3.1. Basic Configuration Menu

Figure 4.1 shows the Basic Configuration menu after logging, in using the username and password. The cursor keys or the TAB key can be used to move the cursor to the entry to be changed. It can then be selected by pressing the return key.

IP Address : The IP address of the MGMT Ethernet port. The web management interface and SSH server will both respond at this address.

Netmask: The IP netmask of the MGMT interface.

Default_GW: Gateway IP address to allow access from the MGMT interface to other subnets. This could be necessary to access any DNS and NTP servers outside the sub-network.

DNS Server (1): IP address of primary DNS server, used only for the web-based management display. This entry is not essential for correct shaping operation, it does however make the management displays more readable.

DNS Server (2): IP address of backup DNS server, used for the web-based management display. This entry is not essential for correct shaping operation, it does however make the management displays more readable.

Time Server (1): IP address of primary NTP server to set and maintain system time.

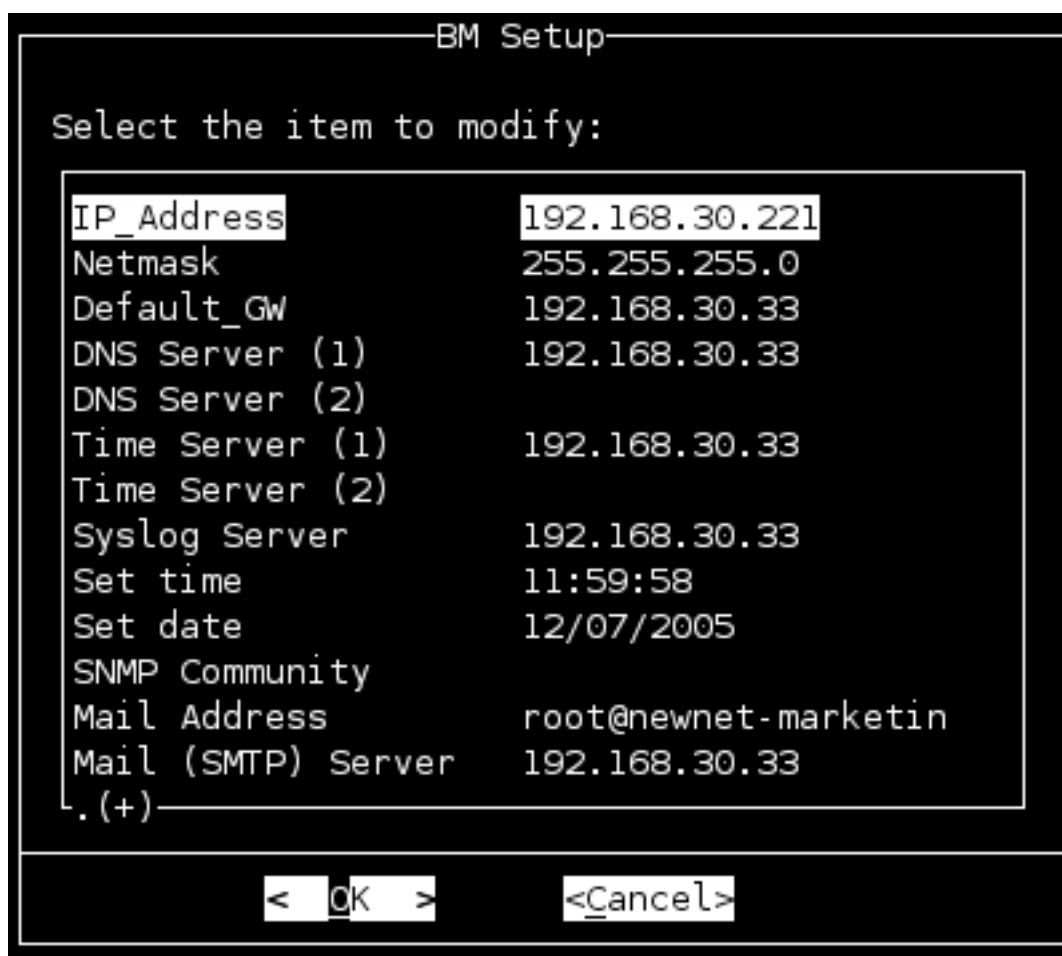


Figure 4.1

Time Server (2): IP address of backup NTP server to set and maintain system time.

Syslog Server : IP Address of a Server where the syslog messages can be dumped. This address must be entered, to be able to send syslog messages to a remote system. The following syslog facility types will be sent from the BM Bandwidth Manager:

LOCAL3 All application syslog messages.

LOCAL4 All Alert syslog messages.

Set Time: Set system time manually. The values can be easily set by using the arrow icons in the menu to roll the time to the selected value.

Set Date: Set system date manually. The values can be easily set by using the arrow icons in the menu. The month, year, and day are selected through these arrows.

SNMP Community: Set the SNMP community string to allow read access to the SNMP variables. The same community string must be entered in the management sta-

tion to access this data. **Caution: This string will be transmitted over the network in clear text.**

Mail Address The complete E-Mail address of the E-Mail recipient who will receive the Alerts. Both this field and the *Mail SMTP Server* must be filled to be able to send Alerts via E-Mail.

Mail SMTP Server The IP address of a SMTP server, which will accept SMTP E-mails from this client, and forward them to the *Mail Address*. Both this field and the *Mail Address* must be filled to be able to send Alerts via E-Mail. Alert E-Mails are sent with the sender marked as BM-nnmaster@delemont.com, where the BM-nn will reflect the actual product in use.

Expert: Select the Expert menu for firmware upgrades, and other special features.

Save: Save changes and reboot the BM with the new parameters.

Quit (No Save): Continue operation without changing parameters, or rebooting.

3.2. Expert Configuration Menu

The expert menu adds extra management functions. This mode is entered directly from the standard menu by selecting the “expert” entry. The terminal display in this mode is shown in figure 4.2.



Figure 4.2 Expert setup menu

Update Firmware: The system firmware can be upgraded via the Z-Modem protocol.

This is described in detail in Appendix 6.4. Note that the Oneshield Bandwidth Manager can store two firmware images. This allows the system manager to roll back to the previous firmware version if necessary.

Reset Firmware: Revert to factory-loaded system firmware.

Clear Configuration: All configurations are reset to the factory defaults. This includes the admin password, which is changed back to “admin”. The following parameters are reset to the factory defaults: IP address, netmask, etc. The stream database is reset to the initial state.

Load Default Objects Database: Delete the present objects configuration database, and replace it with the factory release. This effectively re-initialises the object database.

Export Configuration: Save a copy of present configuration using the Z-Modem protocol.

Import Configuration: Load a configuration using the Z-Modem protocol.

Switch Boot Images: Switch to the other stored image. This is then selected at the next boot.

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View Log: List any system anomalies and events that occurred since last system boot.

System Info: System software version, firmware release, device model, etc.

Main Menu: Return to the standard configuration menu. Note: It will be necessary to scroll down to select this entry.