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IE-MultiWay

Operation Manual



B+B SMARTWORX 
+ IMC NETWORKS

FCC Radio Frequency Interference Statement

Class A (using 48V Telco type power)

This equipment has been tested and found to comply with the limits for a Class A computing device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The use of non-shielded I/O cables may not guarantee compliance with FCC RFI limits. This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

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This equipment has been tested and found to comply with the limits for a Class B computing device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

The use of non-shielded I/O cables may not guarantee compliance with FCC RFI limits. This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

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Effective for products of B+B SmartWorX shipped on or after May 1, 2013, B+B SmartWorX warrants that each such product shall be free from defects in material and workmanship for its lifetime. This limited lifetime warranty is applicable solely to the original user and is not transferable.

This warranty is expressly conditioned upon proper storage, installation, connection, operation and maintenance of products in accordance with their written specifications.

Pursuant to the warranty, within the warranty period, B+B SmartWorX, at its option will:

1. Replace the product with a functional equivalent;
2. Repair the product; or
3. Provide a partial refund of purchase price based on a depreciated value.

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About the IE-MultiWay

The IE-MultiWay is an SNMP manageable standalone device providing two fixed 10/100/1000Base-T copper ports and 2 SFP ports. The SFP ports support fiber or copper SFPs. As a plug and play device, the IE-MultiWay provides several distinct modes of operation to support a wide range of applications. The IE-MultiWay provides OAM functionality with 802.3ah (LINK-OAM ah) and 802.1ag (SERVICE-OAM ag) supported on each port. It supports jumbo frame sizes of up to 10,240 bytes as well as AutoCross on the copper ports. Power options for the IE-MultiWay include both a standard low voltage wall transformer and a Power Block for Office Battery or a DC Power Supply connection. As an Industrial Ethernet device, it supports an extended temperature range of -40°C to +85°C. A console port and a DIP Switch bay provide configuration options.

The IE-MultiWay can be directly managed, because it contains on-board logic. Current firmware versions may be downloaded from the B+B SmartWorX site. iView² is a free software, posted on the website under Support/Downloads. Please refer to page 4 for details.

The IE-MultiWay requires two small form-factor (SFP) modules which provide greater flexibility in the network environment. The hot-swappable nature of the SFPs, available in dual strand for Multi Mode and Single Mode, and single strand fiber types for Single Mode, allow for easy configuration and future upgrading as network demands evolve. The SFP modules must be MSA-compliant and both DDMI and non-DDMI are supported. The fiber SFP can support 100Mbps or 1000Mbps; while the copper SFPs support 10/100/1000Mbps and 1000Mbps.

SFPs are sold separately by B+B SmartWorX and meet Class 1 Laser Safety Standard.

IE-MultiWay Features and Configuration

The IE-MultiWay offers a full feature set including Auto Negotiation, Selective Advertising, AutoCross, VLANs, SNMP management, loopback testing and OAM. Unit software updates can be downloaded through TFTP or iView² (iConfig view).

IE-MultiWay features include:

- SNMP manageable
- OAM AH
 - IEEE 802.3ah Link OAM for per port monitoring (OAM AH)

- OAM AH Functions

- Discovery
- Link Performance Monitoring
- Remote Loopback
- Fault Detection
- Link Fault
- Dying Gasp
- Critical Event
- OAM CFM (SERVICE-OAM)
 - IEEE 802.1ag Connectivity Fault Management (OAM CFM)
 - OAM CFM Functions
 - Continuity Check
 - Loopback
- Speed/duplex modes
- 802.1q VLAN; trunk or access port-based
- Extra tagging with user-defined VLAN tag
- Ethertype 88A8 as defined in 802.1ad
- Command Line Interface capable (CLI), TELNET
- Link Fault Pass Through (LFPT)
- Password assignment via CLI, Telnet or iView²
- DIP Switch configuration for Modes
- Bandwidth Limiting
- L2PT

The IE-MultiWay can be installed as a standalone CPE device, back to back, or as a Remote when connected to an iMcV-Giga-FiberLinX-II configured as a Host.

As a CPE device, the IE-MultiWay can behave as a remote to an iMcV-Giga-FiberLinX-II (or -III) host when:

- 1) The iMcV-Giga-FiberLinX-II (or -III):
 - Is connected via the SFP ports on the IE-MultiWay
 - Is configured as a Host
- 2) The SNMP card (if present):
 - Uses SNMP firmware version 953-00D0 or higher
- 3) The IE-MultiWay:

When using iView², the IE-MultiWay can be fully managed without an IP address using a secure management channel. However, an IP address can be assigned through iView² (iConfig view), the CLI or Telnet using the default IP address of 10.10.10.10.

Operations, Administration and Maintenance (OAM)

OAM is a general term used in network management and is typically applied to a series of standard protocols for installing, monitoring, and troubleshooting Metropolitan Area Networks.

When applied to Ethernet – OAM is typically assumed to refer to the layer 2 (MAC layer), management protocols, specifically 802.3ah and 802.1ag. Layer 2 management protocols do not need higher level transport protocols to operate, OAM data is transferred in standard multicast Ethernet frames.

802.3ah OAM: Is a point-to-point protocol designed to verify a specific link between two directly connected devices (over copper or fiber), which support 802.3ah OAM. One device must be configured to be an active OAM device, the other a passive (typically the core switch would be the active device, the end device passive). 802.3ah OAM provides link status, remote fault detection and the ability to initiate a loopback circuit.

802.1ag: Often referred to as Connectivity Fault Management (CFM), is an end-to-end protocol designed to verify a specific network path between two devices that may well be in different geographical locations. CFM allows the network operator to administer, monitor and debug the network using continuity check (a heart beat message), link trace (similar to traceroot, but operating at the MAC layer) and finally loopback (can be likened to a layer 2 ping).

iView² Management Software

iView² is the B+B SmartWorX management software that features a Graphical User Interface (GUI) and gives network managers the ability to monitor and control the manageable B+B SmartWorX products.

iView² is available in several versions, including a desktop version for Windows, a WebServer version 3.0, and can also function as a snap-in module for HP OpenView Network Node Manager and other third party SNMP Management software.

iView² supports the following platforms:

- Windows 2000
- Windows XP
- Windows Vista
- Windows 7

For assistance in selecting the right version of iView² for a specific operating system, please visit:

<http://www.imcnetworks.com>

iView² (iConfig view)

iView² (iConfig view) is an in-band utility created by B+B SmartWorX, used for SNMP configuration for B+B SmartWorX' SNMP-manageable devices.

The iView² (iConfig view) feature allows the following to be performed:

- Set an IP address, subnet mask and default gateway
- Define community strings and SNMP Traps

iView² (iConfig view) also includes an authorized IP address system and restricted access to MIB groups which are supported by B+B SmartWorX' manageable devices. These extra layers of security do not affect SNMP compatibility. iView² (iConfig view) can upload new versions of the system software and new MIB information. It also includes diagnostic capabilities for faster resolution of technical support issues.

Hardware Mounting Options

The IE-MultiWay can be mounted on a DIN Rail or using a wall mount bracket (shown below). DIN Rail clips (part number 806-39105) and wall mount brackets (part number 895-39229) are available for purchase through a B+B SmartWorX Distributor.



The IE-MultiWay can be mounted with two DIN Rail clips, a hardware option available through B+B SmartWorX. The DIN Rail clips include screws, to allow the installation onto a DIN Rail. Install the screws into DIN Rail clips, which can be mounted parallel or perpendicular to the DIN Rail. Snap the converter onto the clips. To remove the converter from the DIN Rail, use a flat-head screwdriver into the slot to gently pry the converter from the rail. Refer to picture on page 7.

NOTE
<i>The DIN Rail clips are designed for use on a DIN-35 rail.</i>

DIP Switch Selectable Mode Configuration

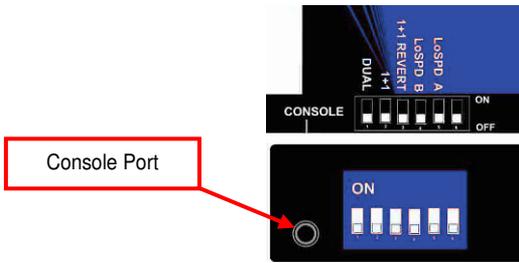
The IE-MultiWay can be configured in one of the following ways via DIP Switch settings (see page 7):

Configuration Method	Description
4-Port Switch (default)	In this mode, the unit acts as a standard 4-port MAC-layer switch.
Dual Converter mode	In this mode, the unit functions as two independent (SFP to TX) media converters and traffic never passes between the two converters.
1+1 SFP Protection Non-Revertive mode	<p>In this mode, the "SFP A" port (fiber or copper) is connected through the switch to the drop ports as the main link. The "SFP B" port (fiber or copper) is active into the MAC switch, but no connection inside the switch is made; in this way, the "SFP B" line is held as the standby line. The "SFP B" line is held in the LINK state for testing and line verification, but does not actively carry user data.</p> <p>When a fault is detected on the active line, all customer traffic is switched to the "SFP B" port. With non-Revertive mode data is not resumed by "SFP A" port until SFP B fails or is disconnected.</p>
1+1 SFP Protection Revertive mode	<p>In this mode, the "SFP A" port (fiber or copper) is connected through the switch to the drop ports as the main link. The "SFP B" port (fiber or copper) is active into the MAC switch, but no connection inside the switch is made; in this way, the "SFP B" line is held as the standby line. The "SFP B" line is held in the LINK state for testing and line verification, but does not actively carry user data.</p> <p>When a fault is detected on the active line, all customer traffic is switched to the "SFP B" port. Once the "A" port is no longer in a fault condition, data is resumed on that port.</p>

NOTE

Revertive and Non-Revertive modes can only operate on the ports with SFPs, not the fixed copper ports.

DIP Switch Configuration

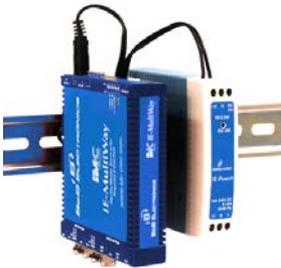


DIP Switch	Name	Description	Default Setting
1	Dual	Enable dual channel	OFF
2	1+1	Provides 1+1 protection with non-revertive switching	OFF
3	1+1 Revert	Provides 1+1 protection with revertive switching	OFF
4	LoSpd B	Optional-for future use	OFF
5	LoSpd A	Optional-for future use	OFF
6	Reserved		

Powering the IE-MultiWay

The IE-MultiWay includes multiple powering options:

- AC adapter
- The 4-terminal DC power block
- An optional IE-Power/5V DIN Rail mount power supply, extended temperature
- An optional B+B SmartWorX Double-USB Power Cable



IE-MultiWay with optional DIN Rail mount power supply

Mini-Serial Port

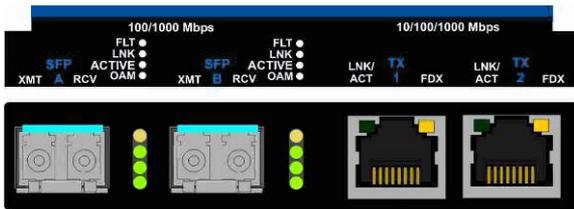
A console port, located next to the DIP Switch bay, allows the customer to use a local RS-232 serial interface for management. A special mini-jack to DB9-F cable is provided with the product for direct connection to a PC serial port.

NOTE

To log on through the serial port, set the computer/terminal for VT-100 emulation, with: 38.4K baud, 8 data bits, 1 stop bit, no parity, no FlowControl.

LED Operation

Each IE-MultiWay includes SFP and RJ-45 LEDs.



SFP LED functions are as follows:

- FLT** Glows amber when a fault is detected.
- LNK** Glows green with a valid optical link.
- ACTIVE** Glows green when the port is active
OFF when SFP is in standby (does not indicate activity)
- OAM** Glows green when an active OAM AH channel is established.

RJ-45 LED functions are as follows:

- LNK/ACT** Glows green when a link is established on the TX port; blinks green when activity is detected on the TX port.
- FDX** Glows amber when an FDX link is established on the TX port.
Not lit for HDX.

Autocross Feature for Twisted Pair Connections

All fixed twisted pair ports on the IE-MultiWay include AutoCross, a feature that automatically selects between a crossover workstation and a straight-through connection depending on the connected device.

Configuration

The IE-MultiWay includes many features that are configurable via a serial/Telnet session (CLI) or through iView² (SNMP Management view or iConfig view).

Configuration Options

The following options are configurable through both the iView² (iConfig view) and Serial/Telnet.

Feature	iView²	Serial/Telnet
Loopback	✓	✓
Auto Negotiation	✓	✓
Force Mode	✓	✓
FlowControl	✓	✓
VLANs	✓	✓
IP Address	✓	✓
Subnet Mask	✓	✓
Default Gateway	✓	✓
MIB Community	✓	✓
Traps Assignment	✓	✓
Users	✓	✓
Passwords	✓	✓
Access Level	✓	✓
Reboot	✓	✓
Frame size selection	✓	✓
Bandwidth Limiting	✓	✓
LFPT (Link Fault Pass Through)	✓	✓
Branch/Leaf	✓	✓
L2PT	✓	✓

The following table presents management options configurable via iView² (iConfig view) or a serial/Telnet session.

Feature	iView² (iConfig)	Serial/Telnet
PROM Software Download/Upload	✓	
Telnet Session	✓	✓
Software Download Setup (TFTP)		✓
DHCP		✓
Restore Configuration	✓	✓
Save Configuration	✓	
MACTAB		✓
Clear Counters		✓
Disable/Enable Mgmt on ports		✓

Basic Device Configuration Using the CLI

After running through an initial self test, the screen will display the following message:

Press **Enter** for Device Configuration.

```
Press <Enter> for Device Configuration
```

Press **Enter** to open the main configuration screen. This screen allows the user to set the IP address and the destination IP address for traps with the community string, read/write access and password as usual.

```
Saved Values. (These values will be active after reboot)
```

```
IP Address      - 10.10.10.10
Subnet Mask     - 255.255.255.0
Default Gateway - 0.0.0.0
DHCP is Not Active
```

```
Current Values. (These values are in use now)
```

```
IP Address      - 10.10.10.10
Subnet Mask     - 255.255.255.0
Default Gateway - 0.0.0.0
```

```
Community String: public   Access: r/w
```

```
Press I to enter new saved parameter values. Press P to change Password.
Press T to enter new Trap Destination. Press K to remove All Trap Destinations.
Press C to enter new Community String. Press U to remove All Community Strings.
Press E to End session. Type REBOOT to reboot unit. Press D for DHCP On/Off.
Press SpaceBar for additional commands.
```

This screen contains the following information and options:

Saved and Current Values

Saved values display the changes made during the current session and current values display the values currently in use:

- IP Address (IP address of SNMP agent)
- Subnet Mask (mask to define IP subnet to which agent is connected)
- Default Gateway (default router for IP traffic outside of the subnet)

Command List

I = Enter new **Saved Parameter Values**

P = Change the **Password***

T = Enter new **Trap Destinations**

K = Remove **All Trap Destinations**

C = Create **SNMP Community Strings**

U = Delete All **SNMP Community Strings**

E = **End** the session*

Reboot = Reboot the unit (may result in short data loss)

D = Enable or disable **DHCP**

Space Bar = Opens the device specific configuration options screen.

*The screens illustrated in this manual show capabilities for users with Admin rights. Individuals with User-level rights can only view port status and port settings, change their password, end a session, and reboot the unit.

NOTE

*It is necessary to reboot the IE-MultiWay after making any modifications to the Saved Values for the changes to take effect. To reboot, type **Reboot** at the prompt on the Main Configuration screen.*

Assigning IP Information

To modify the Saved Parameter Values (i.e., assign IP address and subnet mask), press **I**. The system prompts for the IP address and subnet mask for the connected device. Press **Enter** after each entry. A default gateway can also be assigned, or press **Enter** to skip. When finished, press **Enter**, then type **reboot** for changes to take effect. The Current Values can only be saved and acted on after the IE-MultiWay has been successfully rebooted.

Password Protection for Serial Port Connections

Password/username is not offered for the serial port by default. This allows the end user to quickly access the device for some basic configuration capability. Password protection is provided for the serial configuration process by pressing **P** on the main configuration screen. Enter a password, keeping in mind that passwords are case-sensitive and must not exceed eight characters or include

spaces, and press **Enter**. This password will be requested whenever logging on. To remove password protection, select **P** and, instead of entering a password, press **Enter**.

Passwords have the following requirements:

- The password must be between 1 and 8 characters long
- The password consists of a combination of any ASCII characters except spaces
- Passwords are case sensitive

Passwords are a way to make the management of the B+B SmartWorX devices secure, but these password lists must be stored and maintained.

Assigning SNMP Trap Destinations

Traps are sent by the manageable device to a management PC when a certain event takes place. To enter a trap destination, press **T**. When prompted, enter a New IP Address prompt, enter the appropriate IP address of the destination device and press **Enter**. Then, type the name of the community string (that the destination device has been configured to accept) and press **Enter**. Select whether the trap is for SNMP version 1 or 2c and press **Enter**. This function enables ALL of the device traps. Supported traps include: Link Down, Link Up, and Last Gasp.

Removing Trap Destinations

To remove all trap destinations, press **K**. Press **Y** to continue to confirm or **N** to abort and remove all trap destinations. Press **Enter** to finish.

This function will delete all trap destinations. To selectively delete trap destinations or to disable/enable Traps, use iView² (iConfig view) to configure the device.

Creating Community Strings

Community strings add a level of security to a network. The default community string is named "public" and has read/write access. For security, "public" should be replaced with custom community strings such as ones created with read-only access (for general use), and another with read/write access (for the administrator).

To create a new community string, go to the main configuration screen and press **C**. Enter the name of the new community (up to 16 characters, no spaces) and press **Enter**. Then type one of the following to assign the community string's access rights:

- **R** = read-only access
- **W** = read/write access
- **Enter** = abort

After entering **R** or **W**, press **Enter**. To finish, press **Enter** and reboot.

Deleting Community Strings

To delete all community strings, perform the following:

Press **U**. The "Are you sure you want to delete all future strings?" prompt is displayed. Press **Y** when prompted to proceed and delete all community strings, **N** to abort. Press **Enter** to finish.

This function will delete ALL community strings. To selectively delete community strings, use iView² (iConfig view) to configure the device.

Ending the Session

Press **E** to end a serial port or Telnet/HyperTerminal session before disconnecting the serial cable. This will stop the continuous stream of data to the serial port.

Rebooting the Unit

To reboot the IE-MultiWay, type **reboot** from the main screen or the command menu.

Enabling/Disabling DHCP

To toggle DHCP on the IE-MultiWay between enable and disable, press **D** and then **Y**. Press the **Space Bar** once to return to the main screen without making any changes.

DHCP Disable (Static IP Addressing)

DHCP is disabled in the default configuration. Initially, modules are assigned a Static default IP Address of 10.10.10.10. Changes to the Static IP Address can be added manually through iView² (iConfig view) or a Console session. The changes will be initiated following reboot of the module.

DHCP Enable (Dynamic IP Addressing)

If a DHCP server is present on the network and DHCP is enabled, the DHCP client will initiate a dialogue with the server during the boot up sequence. The server will then issue an IP address to the management card. Once the new IP address is received, the SNMP Management Module will reboot so that the new IP address will take effect. Refer to About Serial Port Configuration for more information about Enabling/Disabling DHCP.

When there is no DHCP server on the network, use the serial configuration to manually set the IP addresses.

When DHCP is enabled, the IP address (default 10.10.10.10 or a previously used IP address, or user-configured) is saved. When DHCP is disabled, the saved IP address will be reinstated and the device will reboot.

DHCP servers give out lease times: devices renew their leases based on the administrator-specified time. If a device cannot renew its lease, and the lease expires, the device will be given the IP address 10.10.10.10 and will reboot.

Commands List (Space Bar)

Command	Description
cleandb	Reboot With Clean Database
download	File Download from TFTP Server
accounts	Add or Delete Username/Password Accounts
vlan	Display And Change ULAN Settings
bw	Display And Change Bandwidth Settings
mactab	Display Mac Tables
version	Show Firmware Version
ifstats	Display Port Statistics
rmstats	Display Port RMON Statistics
sysdescr	Change System Descriptions
reboot	Reboot Unit
oam	Display And Change OAM Settings
sfpstats	Display SFP DDMI Info
unit	Display And Change Unit Settings
port	Display And Change Port Settings

->
 Press RETURN To Go Back To Main Screen.

The IE-MultiWay also includes several device-specific options. To access these options, press the **Space Bar** from the Main Configuration screen, type the name of the action to be performed (as shown below) and press **Enter**.

Command	Description
cleandb	Reboots the unit with a clean database. This removes all information from the database and sets the unit to factory defaults.
download	Downloads firmware via the TFTP protocol
accounts	Allows the addition for User, Superuser, Admin
vlan	Provides selection of two modes of operation to support all VLAN configurations.
bw	Displays settings for Bandwidth configuration
mactab	Displays MAC tables
ifstats	Displays interface statistics
rmstats	Displays remote monitoring (RMON) statistics on packets received as defined in RFC 2819 for RMON.

Command	Description
sysDescr	Allows the editing of sysName, sysDescr, and Port information
reboot	Allows a soft reboot of the unit after changes are made by the end user
oam	Enable/disable OAM
sfpstats	Provides information about the wavelength, serial number, output power, BER and other information. Requires an SFP with DDMI.
unit	Unit global settings, frame size selection. Unit OAM enable must be enabled for AH and AG to function.
port	Displays the port status and allows changes to port settings, such as duplex status and speed.

Cleandb

Entering cleandb reboots the unit with its database cleaned depending on the option selected. Users are presented with two, sequential options, first to reset all SNMP settings and, second, to reset all of the unit's configuration to default. Enabling the first option presents the second. Resetting the unit to factory default values (option two) will delete all custom IP and other configurations performed through iView².

Downloading Files

Firmware and/or saved configuration data for the IE-MultiWay can be downloaded via a TFTP connection from a central server via TFTP protocol. Initiate this download via serial configuration or Telnet session. To download a configuration file, type **download** and press **Enter** to be taken to the Download a file screen. This screen displays the IP Address of the TFTP server and the name of the file to be downloaded:

```
----- Download a file from TFTP server -----
IP address of Server: 0.0.0.0
Name of File to download:
Enter New IP Address of TFTP Server: >192.168.10.65      <
Enter New Name of File to Download: >config.scl_ <
```

The TFTP server should be open. Press **Enter** to start downloading the file. After the transfer process is complete, press **Enter** to load the configuration file:

```
----- Download a file from TFTP server -----
IP address of Server: 0.0.0.0
Name of File to download:
Enter New IP Address of TFTP Server: >192.168.10.65      <
Enter New Name of File to Download: >config.scl <

Ready to attempt transfer of file from TFTP server to local file storage.
Press RETURN to Continue, or Q to Quit
Transfer Block Counter: 143
An SNMP Configuration file has been downloaded from the TFTP
Server and has been put in local storage.

Press RETURN to load the configuration data from this
file into the device's SNMP configuration area.
Press Q to Not LOAD the configuration data,
but leave the file in local storage.
-
```

Once loaded into the device's SNMP memory area, the system prompts the user to **reboot** the device to make the new configuration active.

Accounts

The following are the three levels for CLI or Telnet account access:

- User:** View status, change own password, and reboot.
- Operator:** All User privileges mentioned above, plus ability to change settings.
- Administrator:** Operator privileges mentioned above, plus ability to add/delete accounts and reinitialize the unit to default settings (cleandb).

VLAN Configuration

The ports can be assigned as a trunk or access port. Once you assign the type of port, then you can enter a VID of your choice.

sysName = MultiWay	IE-MultiWay
This Device is currently in OPERATION MODE 2	
DIP Switch Configuration: 4 Port Switch	

SFP A	Port Is Trunk
SFP B	Port Is Access
TX 1	Port Is Access
TX 2	Port Is Access

Press Space Bar To Change Value.	
Up-Arrow or Dn-Arrow	
Save Changes and Exit: F3 or S. Exit without Saving: F4 or Q.	

Trunk Port vs Access Port

A Trunk port allows multiple VLANs to pass between two switches. An Access Port allows one VLAN ID, assigned a VLAN ID as well as Priority.

When configuring a trunk port, an EtherType can be user-defined (a trunk port is also defined as a provider port, based on 802.1ad). If an EtherType value comes in a trunk port and is different than the user-defined EtherType, it will be treated as an unrecognized VLAN tagged frame. If configuring the port as an access port, enter a VLAN ID between 1 and 4,094. Possible priority settings are 0 (lowest priority) through 7 (highest priority).

sysName = MultiWay		IE-MultiWay	
This Device is currently in OPERATION MODE 2			
DIP Switch Configuration: 4 Port Switch			
	For Trunk Ports Vlan Tag EtherType	For Access Ports VID Priority	
SFP A	8100		
SFP B	88a8		
TX 1		21 4	
TX 2		893 2	

Enter VLAN TAG EtherType, 0000 - FFFF, F2 = Del.			
Arrow Keyes for navigation.			
Save Changes and Exit: F3 or S. Exit without Saving: F4 or Q.			

NOTE

When an EtherType or VLAN ID is assigned, the same values need to be configured at the end device (router, etc) to avoid network configuration problems.

Operational Mode Configuration

There are two modes of operation that can be configured through the Serial/Telnet session: Mode 1, which supports a mixture of tagged and untagged traffic, and Mode 2 Extra tagging.

The configuration screen is accessed by typing **vlan** and pressing **Enter** from the Additional Commands screen. The system displays the current operation mode screen. Press the **Space Bar** to select the other mode.

Operation Mode 1 – Mixed Tagged and Untagged Frames

In this mode, all tagged and untagged frames pass on any given port. Management to the device can be tagged or untagged.

```
sysName = MultiWay                               IE-MultiWay
This Device is currently in OPERATION MODE 1
DIP Switch Configuration: 4 Port Switch
-----
                OPERATION MODE 1 – Mixed tagged and untagged frames
MODE 1 forwards both tagged and untagged frames.
* Device does not act on Ulan tags, they pass through unchanged.
* Management traffic to device accepted from any Port.
* Management traffic to device can be either tagged or untagged.
* Any traffic, including management traffic, allowed to flow
  to/from Ports transparently.
-----
Press Space Bar To Browse Mode Setting. Press RETURN To SET New Mode.
Dn-Arrow to change settings for current mode
Save Changes and Exit: F3 or S. Exit without Saving: F4 or Q.
```

Press the down arrow on the computer keyboard to access additional configuration selections.

```
sysName = MultiWay                               IE-MultiWay
This Device is currently in OPERATION MODE 1
DIP Switch Configuration: Dual 2 Port Switches
-----
Management Domain Tags:           Tags on Management Traffic
Management Ulan ID:               3159
Management Ulan Priority           0
Xstratags On IEEE Reserved Frames No Tags on IEEE Res. Frames <Trunks>
-----
Press Space Bar To Change Value. Up-Arrow to go back to previous screen.
Dn-Arrow for next setting.
Save Changes and Exit: F3 or S. Exit without Saving: F4 or Q.
```

WARNING

If a VLAN # is added to a port and is the same VLAN # assigned for a tag on management traffic, saving these changes will disrupt management indefinitely.