Bandwidth Manager

BM-2155

User's Manual

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Customer Service

For information on customer service and support for the BM-2155, please refer to the following Website URL：

http://www.planet.com.tw

Before contacting customer service, please take a moment to gather the following information：

◆   BM-2155 serial number and MAC address
◆   Any error messages that displayed when the problem occurred
◆   Any software running when the problem occurred
◆   Steps you took to resolve the problem on your own

Revision

User's Manual for PLANET BM-2155

Model: BM-2155

Rev: 1.0 (Oct, 2004)

Part No. EM-BM2155

Table of Contents

Chapter 1：Introduction

Business-critical and time-sensitive applications such as VoIP or transaction processing need guaranteed bandwidth. PLANET's 155Mbps Bandwidth Manager, the BM-2155, offers administrators of *Medium or Large Enterprise network* an easy yet powerful means to allocate network resources based on business priorities, and to shape, analyze and control bandwidth usage. Expensive WAN resources are more effectively utilized, avoiding the need for costly upgrades while still meeting business priorities.

Equipped with two 10/100/1000Mbps Ethernet ports for connecting to the local network and the WAN router respectively, the PLANET BM-2155 is simple to install. For bandwidth management, packets can be classified based on IP address, IP subnet and TCP/UDP port number. The device has more than 30 of the most common protocols such as H.323, Oracle, HTTP as well as FTP for easy definition. And then the administrator can define policies to ensure committed and maximum bandwidth levels for inbound / outbound traffic in each class. The administrator can also define three priority levels for each policy to ensure that high priority packets and receive the maximum available bandwidth. In addition, each policy can have a schedule defined for when the policy is activated or inactivated in increments of 5 minutes.

The BM-2155 also enables administrators to effectively measure traffic on your network and provides comprehensive graphical reports about how bandwidth is being used. The administrator can view each internal inbound and outbound traffic of host as well as network services. The BM-2155 also provides a graphical report for either the top ten internal hosts or services that generate traffic. This report system helps administrators quickly understand and reallocate bandwidth usage to an optimized level and make best use of the limited and expensive wide-area network bandwidth.

For uninterrupted Internet access, the BM-2155 also provides HA (High Availability) function which allows to install two BM-2155s in parallel. If the active BM-2155 fails, the backup BM-2155 will become active to manage the network bandwidth to keep the network in order without any interruption.

1.1 Features

♦ 19-inch rack-mount size with two 10/100/1000 Mbps Fast Ethernet port for 155Mbps inbound and outbound throughput.

♦ LCD panel for initial setup and network information display

♦ Remote configuration through standard web browser with SSL security

♦ Supports SNMP to simplify management

♦ Transparent operation requires no changes to existing network structure

♦ High level bandwidth shaper with hierarchical link

♦ Supports management traffic on a VLAN

♦ Traffic classification based on IP, IP range/subnet and TCP/UDP port range

♦ Traffic classification support specially application, like IPSEC/PPTP, P2P

♦ Configurable guaranteed and maximum bandwidth with three levels of priorities

♦ TCP connection limit within bandwidth policy

♦ Assigns daily and weekly access schedules to each individual policy

♦ Real time traffic monitoring with graphical bandwidth usage display

♦ Policy bandwidth usage report and customization of bandwidth usage reports

♦ A free utility, Bandwidth Analyzer, helps with further bandwidth analysis

♦ All user connections can be recorded and uploaded to an ftp sever for billing or analysis

♦ Simple backup and restore of configuration files with full SSL protection

- ♦ Basic firewall functions with access control by IP or MAC

- ♦ IP/MAC discover function finds all hosts on the LAN

- ♦ Second hot-standby device in parallel provides high availability

1.2 Package Contents

The following items should be included:

- ♦ BM-2155
- ♦ Power Cord
- ♦ Quick Installation Guide
- ♦ User's Manual and utility CD
- ♦ RJ-45 cable
- ♦ Cross-over cable
- ♦ Console cable
- ♦ Rack mounting kit

If any of the contents are missing or damaged, please contact your dealer or distributor immediately.

1.3 Bandwidth Manager BM-2155 Front View

- Front View:

LCD Panel: Used to make IP settings, view IP settings, reboot system, show service information, reset password and reset all configuration. It also show the average bandwidth usage for past 10 seconds when not in configuration mode. Check section "Initial Setup by LCD panel" for detail on IP settings. The following table shows the button function.

Button	Function
(ENTER)	Used to select or confirm the selection
(ESC)	Used to cancel the selection or back to previous manual
(▲)	Change to previous option or increase the number. Press longer to increase the number by 10.
(▼)	Change to next option or decrease the number. Press longer to decrease the number by 10.

LED Panel: Used to show the system and connection status. The following table show the connection LED definition.

LED	Status	Meaning
PWR	Lit Orange	Indicates the device is receiving power
STATUS	Lit Red	Indicates the device is reading/writing data from DOM
LNK/ACT	Lit Green	Indicates the port get the link-pulse from the Ethernet device
	Blink Green	Packets are transmitting or receiving on LAN or WAN port
100/1000	Off	Indicates the link operate on 10 or 1000Mbps
	Lit Green	Indicates the link operate on 100Mbps

Port	Function
LAN Port	This is where you will connect the RJ-45 line to your local switch or device. This port is MDI interface
WAN Port	This is where you will connect the RJ-45 line to your router or ISP. This port is MDI interface
Console	This port is reserved for manufacturer use only

1.4 Bandwidth Manager BM-2155 Rear Panel

- Rear View:
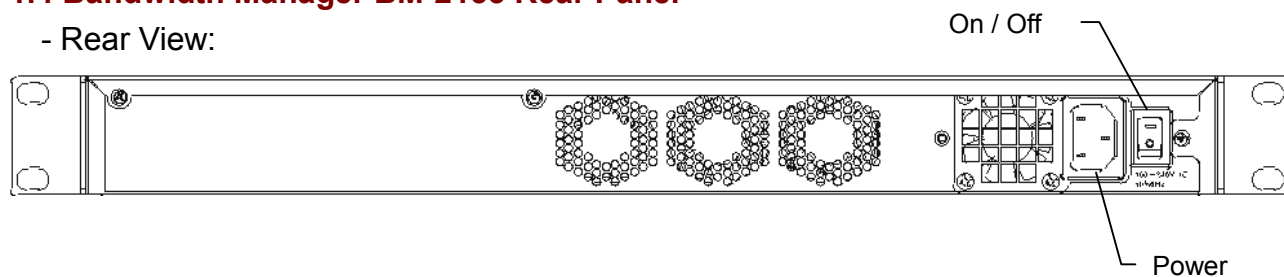
On / Off

Power

Port	Function
Power	This is where you will connect the AC power cord. 100~240VAC is allowed.
On/Off Switch	You can turn on/off this device by the switch when the power cord is connected

1.5 Specification

Product	155Mbps Bandwidth Manager
Model	BM-2155
Hardware	
Connections	2 x 10/100/1000Base-TX
RS-232 console	Yes
LCD Panel	20x2 characters LCD
System LED	System: Power, Status Network: ACT/LNK, 100/1000
Power	100~240V AC, 50~60Hz
Operating Environment	Temperature: 0~50°C Relative Humidity: 20%~90%
Dimension W x D x H	425 x 334 x 44 mm
Regulatory	FCC, CE Mark
Software	
Maximum Bandwidth	155Mbps
Maximum Host catalog + Service Catalog + Policy	1024
Maximum Link policy	127
Maximum Bandwidth policy per Link	256
Maximum concurrent session	65535
Management	Web with SSL protect, SNMP, LCD panel
Traffic Classification	IP, IP subnet, TCP/UDP port, IPSec, PPTP, P2P
Bandwidth Allocation	Divide total bandwidth to different link Hierarchy of policy rules with In/Out traffic management Management traffic on a VLAN Per policy rule of sharing type support shaper by IP or Connection TCP connection limit per IP Guaranteed and maximum bandwidth Scheduled in unit of 5 minutes 3 Priorities
Real-Time Report	Number of Connections Internal Host In/Out Traffic Service In/Out Traffic Top 10 Host Top 10 Service All Policies Bandwidth Usage Customized Bandwidth Usage Report IP Discovery for auto IP address account
Advanced Report	Bandwidth Analyzer for advanced analysis Upload each user's connection data to FTP sever for billing or other analysis
Firewall	Deny SYN / UDP / ICMP flood, deny port scan Access control to limit user's access rights based on IP or TCP/UDP port Discard per user connection based on IP or MAC Deny PING request on BM
Other Functions	Firmware upgradeable through web NTP support Configuration backup and restore through web Second hot-standby device in parallel provides high availability

Chapter 2：Hardware Installation

2.1 Installation Requirements

Before installing the BM-2155, make sure your network meets the following requirements.

- Mechanical Requirements

The BM-2155 is to be installed between your router and local area network. The BM-2155 can be placed on the table or rack. Locate the unit near the power outlet.

- Electrical Requirements

The BM-2155 is powered from 100/240 VAC. A standard IEC connector is used for the power cable. Follow all applicable electrical codes. Frame ground should be tied to a common grounding point using #18AWG cable.

NOTE: The BM-2155 is a power-required device, it means, the BM-2155 will not work until it is powered. If your networked PCs will need to transmit data all the time, please consider use an UPS (Uninterrupted Power Supply) for your BM-2155. It will prevent you from network data loss. In some area, installing a surge suppression device may also help to protect your BM-2155 from being damaged by unregulated surge or current to the BM-2155.

- Network Requirements

In order for BM-2155 to manage traffic, the traffic must pass through BM-2155 at a useful point in a network. In most situations, the BM-2155 should be placed behind the Internet connection router.

This deployment allows the network administers to control all bandwidth based on business priorities and give business-critical and time-sensitive applications guarantee bandwidth and higher priority. Business-critical applications can receive maximum performance while other less urgent traffic is still available on remaining bandwidth. BM-2155 also provides comprehensive reporting functions to help monitor network and bandwidth usage and allow adjustment of the bandwidth management policies accordingly.
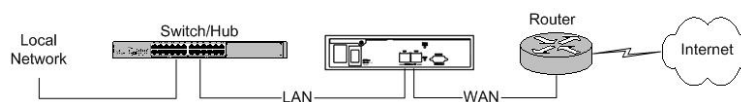
The BM-2155 provides two 10/100/1000Base-TX port for connecting to WAN (external) and LAN (internal) side. The network ports are both MDI (media dependent interface) port. Please use straight Category 5e or 6 UTP Ethernet cable to connect the network port to gigabit switch, hub or other devices with MDI-X interface and use cross-over cable to connect the network port to router, DSL/Cable modem or other devices with MDI interface.

Please make sure your switch support Gigabit Ethernet and then the BM-2155 could manage bandwidth up to 155Mbps.

2.2 Install Bandwidth Manager BM-2155 to Your Network

- Choose an Installation Site

Select a suitable place on the network to install the BM-2155.

- Connect LAN Cables

Use standard LAN cables to connect your LAN side Switch or Hub to the LAN ports on BM-2155. The LAN and WAN port of BM-2155 support Auto-Negotiation to connect with best speed and duplex mode.   The LAN port of BM-2155 is MDI port. Thus, you can just use straight network to connect the LAN port to your switch or hub.

- Connect WAN Cable

Connect the router or switch hub to the WAN port on BM-2155. The LAN and WAN port of BM-2155 are both MDI port.   Thus, in some case, you may need to use cross-over cable to connect your router.

- Power Up

Connect the supplied power cord to BM-2155 and use the power switch that in rear panel to turn on the BM-2155. Use only the power cord provided. Using a different one may cause hardware damage.

- Check the LEDs

The PWR LED should be ON. This STATUS LED flash when is reading/writing data from the DOM (Disk on Memory). Both the WAN and LAN's ACT/LNK LED should be on. If one of the LEDs is off, please check the network connection. In some case, you may need to use cross-over cable to connect the LAN or WAN port to your networks.

For more information, refer to Section 1.3 Bandwidth Manager BM-2155 Front View.

Chapter 3：Getting Started

This chapter explains how to setup your computer to be a client to manage the BM-2155.

3.1 Initial Setup by LCD Panel

1. Press (ENTER) button to enter Select menu.
2. Choose Setup Network and press (ENTER) button to enter IP setup process.

```
SELECT:
Setup Network
```

3. Set the BM-2155's IP address:

```
IP Address:
192.168.0.250
```

   Please press (▲) or (▼) button to edit the BM-2155's IP address. Press (ENTER) button to edit next number.　　After editing all the number, press (ENTER) button to start the Network mask configuration.
   NOTE: You can press　(▲) or (▼) longer for it the number to change in unit of 10.

4. Set the BM-2155's subnet mask:

```
Netmask Address:
255.255.255.0
```

   Please press ((▲) or (▼) button to edit the BM-2155's IP address. Press (ENTER) button to edit next number.　　After editing all the number, press (ENTER) button to start the Gateway address configuration.

5. Set the BM-2155's Gateway address:

```
Gateway Address:
192.168.0.254
```

   Please press (▲) or (▼) button to edit the BM-2155's IP address. Press (ENTER) button to edit next number.　　After editing all the number, press (ENTER) button to save the configuration.

6. Confirm and Save Configuration:

```
Save Config?
Y(Enter)  N(ESC)
```

   If the configuration is Ok, please press (ENTER) button to save. Otherwise, press (ESC) button to go back to SELECT Menu.

7. After you press (ENTER), the following message is shown:

```
Setup Network
Save OK....
```

   Now the new Network setting is active and you can start on web management of the BM-2155.

3.2 Logging in as Administrator

Now you can communicate with BM-2155 by web browser.

Open the web browser and type https://192.168.0.250:8889.   Please note that "**8889"** is the port number of BM-2155 management interface, "**https"** here is to invoke the SSL of you web browser.

You must key in user name and password to enter its web management interface.

The default user name is "**admin**" without password.

Then, you will enter BM-2155's Configuration Menu.

Chapter 4：Web Configuration

This chapter introduces how to configure the BM-2155 to effectively control your bandwidth usage.

On the top of the Web interface, there is three major menu of the BM-2155:

System Settings: The basic system configurations

Policy Editor: The policy that will be used to manage the bandwidth

Report: The reporting system of the BM-2155 base on the system settings and pre-defined policy

The BM-2155 will need the three parameters before it operates the bandwidth control: **Host**, (illustrated in section 4.1.6), **Services** (illustrated in section 4.1.7) and **Policy**, (illustrated in section 4.2). However, some of the configurations are also required.   Please refer to the related section for the details.

4.1 System Settings

System settings menu contains three categories: "General" allows you to configure basic network parameters, Internet connection bandwidth and date/time. "Catalog" allows you to define host and services information which is needed for policy editor. "Admin" contains options to setup SNMP, backup / restore settings, upgrade firmware, etc.

4.1.1 Information

This section shows information about the BM-2155.

Product :	BM-2155
Version:	v3.0
License:	Commercial
Serial No :	O6C0O-P0X0T-Q1Y8A-M9H8F
Bandwidth Limit :	Outbound :158720 kbps, Inbound :158720 kbps
HA Mode :	none

4.1.2 Network

You can setup BM-2155's network settings in this section.

♦ **Host Name:** Please assign a name that is easy to remember for the BM-2155.

♦ **Domain Name:** Your local network domain name.

♦ **DNS Server:** Your ISP's DNS server IP or your DNS server IP.

♦ **IP Address:** Please assign an IP that is not in use by other device for BM-2155.   The default IP address of BM-2155 is 192.168.0.250. This IP address can be on different subnet from other internal hosts that you want to manage. For example, the BM-2155's IP can be 192.168.0.250 and you can use it to manage internal hosts with IP in 10.x.x.x subnet.

♦ **Network Mask:** Your local network subnet mask.   For example, 255.255.255.0.

♦ **Default Gateway:** Your local network default gateway. For example, 192.168.0.254.

♦ **Save:** Press save button to save all these configurations.

 Note: If you have modified the IP address to a different IP subnet, you need to also modify the IP address of management client's IP address settings.

Network Setting	
Host Name :	BM-2155
Domain Name :	
DNS Server :	168.95.1.1
IP Address :	192.168.0.250
Network Mask :	255.255.255.0
Default Gateway :	192.168.0.254
Save	

4.1.3 Bandwidth

Please enter your network bandwidth here.   The sum of guaranteed bandwidth for all policies should not exceed this value.

♦ **Inbound Bandwidth:** Input the downstream speed of your Internet connection (WAN port).   The valid value is form 1 to 158720 in unit of 1 kbps.

♦ **Outbound Bandwidth:** Input the upstream speed of your Internet connection (WAN port).   The valid value is form 1 to 158720 in unit of 1 kbps.

♦ **Save:** Press save button to save all these configurations.

Bandwidth Setting		
Inbound Bandwidth:	158720	Kbps, Valid value range: 1 ~ 158720
Outbound Bandwidth:	158720	Kbps, Valid value range: 1 ~ 158720
Save		

The BM-2155 allows up to 155Mbps (158720kbps) inbound/outbound bandwidth in both directions of its WAN port. Please be aware of the bandwidth that your Internet services provider provided. It is not necessary to configure Inbound and outbound bandwidth in the same values. Asymmetric bandwidth like 1.5Mbps (1544Kbs) downstream, 384Kbps upstream ADSL is allowed.

4.1.4 VLAN

VLAN setting enables the BM-2155 to operate within a VLAN network. Since the network could be a VLAN tagged network, this option provides the alternative to pass through the VLAN tagged packets from the router or switches transparently. The switch and the router that connected with BM-2155 should also support IEEE802.1Q Tagged-VLAN.

To configure the options in the Web page, you are required to turn on the VLAN support from the LCD panel and reboot the BM-2155 after it is configured, please refer to Appendix A.4, page 56 for the setup steps. Please consult or check with the network administrator about the VLAN setting before you access the management interface. You are required to use the main VLAN ID you inserted to the BM-2155 before you setup the further VLAN setting.

The options can be found in this Web page are as below:

♦   **VLAN Tagged Support:** Display VLAN function is enabled or disabled.

♦   **Main VLAN ID:** The VLAN ID that allowed to manage the BM-2155, it can be any one of all VLAN IDs. This value can be set only from LCD Panel. Please note this ID is the VLAN the BM-2155 device is on. Specify an ID in the range 1-4095 (default to 1).

♦   **VLAN ID Group:** The other VLAN IDs of the VLAN Network. The IDs that you allows to pass through the BM-2155. If the ID is not in the list, BM-2155 will drop the packets.

♦   **Save:** Press save button to save all these configurations.

VLAN Setting	
VLAN Tagged Support :	Enabled
Main VLAN ID :	1
VLAN ID Group :	2-5
	Format: (a)2 (b)10-20 (c)Use comma to divide each ones.(each VLAN ID number must from 1 to 4094)
Save	

Note:

1. VLAN function can't co-work with HA function.

2. To get all VLAN IDs, please check with the network administrator for the information. Those ID can be found in the setting of the router or switches.

3. Before enabling the VLAN function check first the packets from router or switches has carried 802.1Q tag, so that the packets can pass through BM-2155 and the administrator is able to mange the device. Surely, the management PC should be also on the same VLAN. Otherwise, it could have the problem to login to this BM-2155 after reboot

4.1.5 Date/Time

The Date/Time menu contains commands for setting BM-2155's time and date required for correctly record the bandwidth usage time. User can directly input the date and time or specify the NTP server for the device to synchronize with time-server. Click on **"Date/Time"** in the system settings menu bar and the Date/Time screen will appear as illustrated below:

♦   **Date:** Input the year and select the Date from the pull-down list respectively.

♦   **Time:** Select the Time from the pull-down list respectively.

♦   **NTP Server:** Local NTP (Network time protocol) server IP or DNS name. If you want to manually

configure the date and time, left this field blank.

> **Note:** Please find below NTP server web address for your reference to set the time-server.
>
> *http://www.eecis.udel.edu/~mills/ntp/clock1a.htm*
>
> *http://www.eecis.udel.edu/~mills/ntp/clock2a.htm*

♦ **Time Zone:** System administrator must select the time zone for the region.

♦ **Save:** Press save button to save all these configurations.   If you have input a NTP server IP address or DNS name, the BM-2155 will try to inquire the current time and update the Date and Time field.

♦ **Renew All Report:** If the newly-configured date and time are earlier than the previous ones, you have to click "Renew All Report" button. Otherwise, the static report can not be displayed normally.

The Date/Time information will be used in the reporting system (refer to section 4.3). If your BM-2155 can reach to the Internet, you can find the nearest NTP server in the Internet for your BM-2155 that should provide the accurate date and time for the BM-2155.

Caution:

After you press the "Renew All Report" button, it will clear the report system.

4.1.6 Host

BM-2155 can control the bandwidth usage via host IP address.   You must define local and/or remote user's IP address that you want to manage to the host catalog.   This host catalog is useful on defining policy. The total traffic monitor number of host catalog, service catalog and policies cannot exceed 1024 for BM-2155.

The Host Catalog page lists all the defined hosts with host name, IP address and location.   On the top of the host table, the following buttons are available:

♦ **New -** Create new host catalog.

♦ **Prev -** Go to previous page.

♦ **1, 2, … -** First, second, … page.

♦ **Next -** Next page.

On the Action field of each host name, the following two buttons are provided:

 - Modify the host catalog

 - Delete the host catalog

After clicking "New" or Modify button, the following host configuration page will be shown:

- ♦ **Host Name:** The name of specified IP address or a range of IP address. With it, you can easily tell the bandwidth usage through this meaningful name. For example, a name like "Web_server" to a dedicated IP, or "Acct_Group" for the IP range of accounting department.

- ♦ **IP Address:** IP or IP range of this host. You can input by single IP address, IP range, IP subnet or mix of about formats and divided by comma. For example, 192.168.0.1, 192.168.0.5, for the two devices using (IP address 1 and 5); 192.168.0.20-30 (for the range of IP address from 20 to 30), and 192.168.0.128/28 (for IP address from 128 to 143).

- ♦ **Location:** If the host's position is on the WAN side of BM-2155 in the network, please choose external. If the host's position is on the LAN side of BM-2155, please choose internal.

- ♦ **Monitor:** Enable or disable to monitor the traffic flow with this IP or IP range and show on the report function.

- ♦ **Description:** Additional description of this host(s).

- ♦ **Save/Cancel:** Press save button to save above configurations and Cancel button to discard your configurations.

After clicking Save or Cancel button, the Host Catalog page will be shown again. To edit the host(s) you have configured, please click Modify button on the Action field. To remove the host(s) you have configured, please click Delete button on the Action field.

> **Tip:** It is recommended to use subnet type, such as 10.0.0.0/24 for the format of the IP address, this make the device has a higher performance than it is in format of IP range.

4.1.7 Service

The Service Catalog contains all the popular services that you may want to manage. The total traffic monitor number of host catalog, service catalog and policies can not exceed 1024 for BM-2155. The BM-2155 have contained 35 predefine services. For other Internet services, however, you can direct click on New to add the services or click on Modify icon to modify and remove by click on the delete icon.

♦   **New -** Create new service.

♦   **Prev -** Go to previous page.

♦   **1, 2, … -** First, second, … page.

♦   **Next -** Next page.

On the Action field of each service name, the following two buttons are provided:

🖉   - Modify the Service catalog

🗑   - Delete the Service catalog

Service Catalog

New | Prev | 1 | 2 | 3 | Next | Now Page: 1 | Total Item: 35

Name	Protocol	Port	Description	Monitor	Action
all	all		All services of tcp/ip	Enabled	
all tcp	tcp		All services of tcp	Enabled	
all udp	udp		All services of udp	Enabled	
all tcp/udp	tcp/udp		All services of tcp and udp	Enabled	
ftp	tcp	21	File Transfer Protocol	Disabled	🖉
h323	tcp/udp	389, 522, 1503, 1720, 1731	VoIP	Disabled	🖉
ipsec	udp/esp/ah	500	VPN Traffic	Disabled	🖉
pptp	tcp/gre	1723	VPN Traffic	Disabled	🖉
p2p	tcp		P2P Traffic. Now support: AppleJuice,BitTorrent,Gnutella,KaZaA,Edonkey. Note: enable this service monitor, it will cost a lot of cpu power.	Disabled	🖉
http	tcp	80	HyperText Transfer Protocol	Enabled	🖉 🗑
https	tcp	443	secure http (SSL)	Enabled	🖉 🗑
dns	tcp/udp	53	Domain Name Server	Enabled	🖉 🗑
telnet	tcp	23		Enabled	🖉 🗑
pop3	tcp	110	POP version 3	Enabled	🖉 🗑
pop3s	tcp	995	POP-3 over SSL	Enabled	🖉 🗑

After clicking "New" or Modify button, the following service configuration page will be shown.

- ♦ **Name:** Name of this service. For example, www, http or telnet.

- ♦ **Protocol:** Choose which kind of protocol this service use. For example, Telnet is using TCP; voice data transmission like PLANET VoIP gateway, is using UDP.

- ♦ **Monitor:** Enable or disable to monitor this type of traffic flow and show on the report function.

- ♦ **Port Number:** enter the port number this service use. For example, Telnet will use port 23, http will use port 80, PLANET VoIP gateway is using 30000 to 30100 by default.

- ♦ **Description:** Additional description of this service.

- ♦ **Save/Cancel:** Press save button to save above configurations and Cancel button to discard your configurations.

After clicking Save or Cancel button, the Service Catalog page will be shown again.   To edit the service you have configured, please click Modify button on the Action field.   To remove the service you have configured, please click Delete button on the Action field.

4.1.8 SNMP

Use the SNMP Configuration screen to display and modify parameters for the Simple Network Management Protocol (SNMP). The device includes an on-board SNMP agent which monitors the status of its hardware, as well as the traffic passing through it. A computer attached to the network, called a Network Management Station (NMS), can be used to access this information. Access rights to the agent are controlled by community string. To communicate with the device, the NMS must first submit a valid community string for authentication.

♦ **Enable SNMP:** Check this box to enable the SNMP function.

♦ **Community Strings:** A community entry authorized for management access. The network management station must use same string to read the SNMP data from the device.

♦ **System Location:** Specifies the area or location where the device resides.

♦ **Contact Information:** Contact person for the device.

♦ **Save:** Press save button to save all these configurations.

4.1.9 Backup/Restore

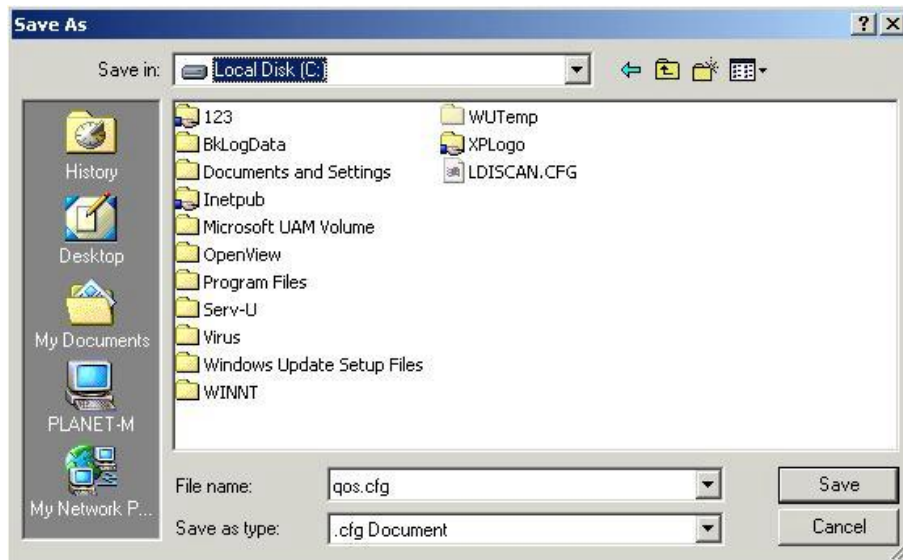You can easily backup and restore the current configuration of BM-2155.

♦ **Backup:** Press "Start" button on the Config Download row to download the configuration file of BM-2155 to your local client side. The following page will then be shown. Click "Save" to save the configuration file.
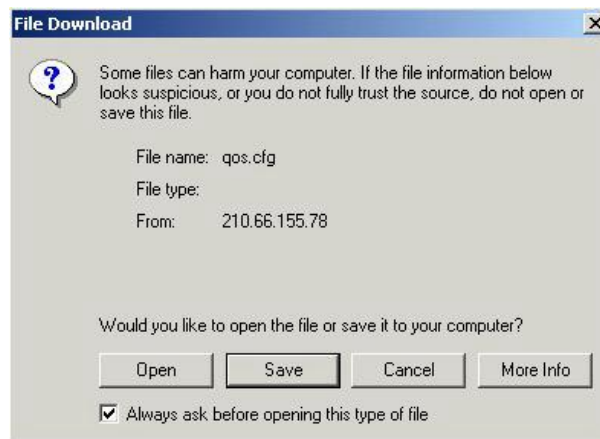
Note: It is strongly recommended to backup your file configuration file whenever you have completed the configurations.

♦ **Restore:** Press "Browse…" button to select the configuration file you have saved before.

Then press "Start" button to start upload configuration file to BM-2155.

After confirm backup date and network settings, press "Restore" button to start restore all of the configurations to BM-2155.

After restore is completed, a "Restore complete" window prompts.   Click "OK" to continue.

4.1.10 Firmware Upgrade

PLANET will announce new patch or firmware on the website for users. You can download the latest firmware from the website and use this screen to upgrade.

4.1.11 Account

You can change the user name and password when you log in on this window.

- ♦ **Old Name:** The old name you use to log in BM-2155
- ♦ **New Name:** The new name that you want to change.
- ♦ **Old Password:** Enter old password that you use before.
- ♦ **New Password:** The new password that you want to change.
- ♦ **New Password Again:** Confirm new password again.
- ♦ **Save:** Press "Save" button to save all the configurations.

After save is completed, the following window is prompted, click "OK" to continue.

Note: For safety reason, it is strongly recommended to change the default password and store the password in a safe place.

4.1.12 Reboot

You can reboot BM-2155 from web and by Reset button on the rear side of this device.

Press "Reboot" button to reboot the BM-2155, while reboot is processing, this info prompt.

4.1.13 Logout

You can logout the management interface after finishing your configuration.


4.2 Policy Editor

You can setup all bandwidth link, control policies, make IP/MAC binding for security and control access right in this section.

4.2.1 Link Editor

Here will list all the links that you defined. The total number of Link cannot exceed 127. Each link defines a major traffic flow that could consist of one or more policies as a unit. This options help to combine several polices into one big pipeline and handle this pipeline as a whole.

In most conditions use only one link; however, you can aggregate many links base on the demand. Basically, you can place one or more policies to the default link, or modify its setting - but you cannot delete this default link, nor can you rename it.
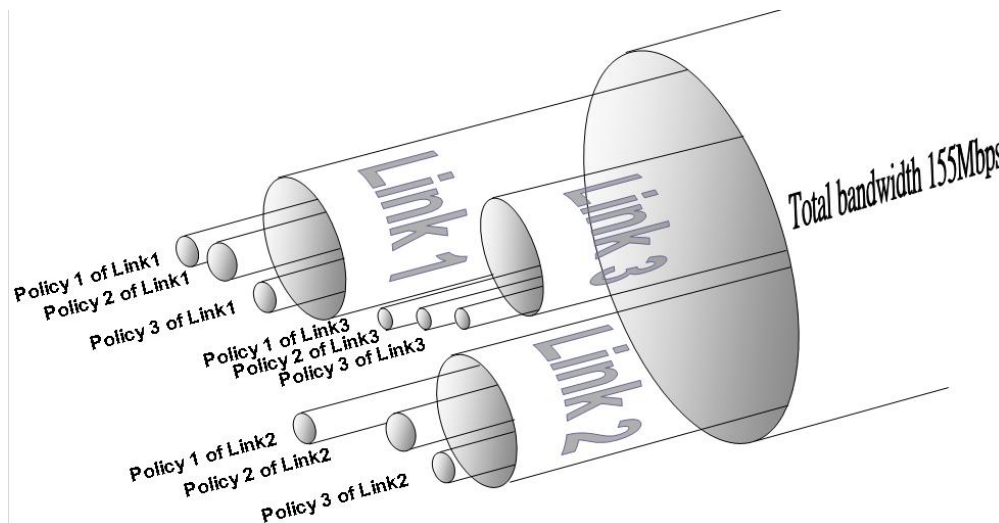
- ♦ **New** - Create new link
- ♦ **Prev** - Go to previous page.
- ♦ **1, 2, …** - First, second, … page.
- ♦ **Next** - Next page.

- Modify the existing link

- Delete the link

Link

New | Remnant: 128000kbps(Outbound)   128000kbps(Inbound)

Order	Name	Internal → External (Out)		Internal ← External (In)		Enable	Action
		Guarantee (kbps)	Burst (kbps)	Guarantee (kbps)	Burst (kbps)		
1	Branch_Company	20480 (12.9%)	20480 (12.9%)	20480 (12.9%)	20480 (12.9%)	Enabled	
2	Default Link	10240 (6.5%)	10240 (6.5%)	10240 (6.5%)	10240 (6.5%)	Enabled	

Press "New" or ![button] button, the link configuration page will be shown as the following.

♦ **Order:** Links processing sequence. When the BM-2155 receives a packet, it will find the fit policy from order 1 link, order 2 link and so on, Thus, always put mission-critical traffic policy in preceding Links to get higher performance.

♦ **Link Name:** Name of this link.

♦ **Guarantee:** Assign guaranteed bandwidth in kbps to this link. This is the minimum bandwidth that the link guarantees. The sum of all link's guarantee bandwidth should not exceed the inbound and outbound bandwidth settings on chapter 4.1.3.

♦ **Burst:** This link's maximum bandwidth may be used.

♦ **Priority:** The packet's priority on this link. Each link is assigned a priority, Low or Medium or High. Higher-priority traffic is given precedence over lower-priority traffic.

♦ **Enable:** Enable or disable this link.

♦ **Save/Cancel:** Press "Save" button to save above configurations and "Cancel" button to discard your configurations.

Link -- New

Order:	Before 1 ▼
Link Name:	Branch_Company
Internal → External (Out)	
Guarantee:	512 kbps (mininum:64, remnant:148480)
Burst:	512 kbps (maximum:158720)
Priority:	Medium ▼
Internal ← External (In)	
Guarantee:	512 kbps (mininum:64, remnant:148480)
Burst:	512 kbps (maximum:158720)
Priority:	Medium ▼
Enable:	Enabled ▼
Description :	

Save   Cancel

4.2.2 Policy Editor

Here will list all the policies that you have made. The total number of policy per link cannot exceed 256 for BM-2155. And the total number of host catalog, service catalog and policies cannot exceed 1024 for BM-2155. The following functions are provided on this page:

♦ **Link** - Link selector, shows the policies that this Link group belongs to.

♦ **New** - Create new policy

♦ **Prev** - Go to previous page.

♦ **1, 2, …** - First, second, … page.

♦ **Next** - Next page.

- Modify the existing policy

- Delete the policy

- Schedule the time when the policy will be enabled.

Policy

Link : Default Link ▼ | New Policy | Remnant: 7936kbps(Outbound) 7936kbps(Inbound)

test
Default Link

Order	Internal Host	External Host	Service	Internal → External Guarantee(kbps)	Internal ← External Guarantee(kbps)	Enable	Action
1	Internal-205	External-204	http	1024 (10%)	1024 (10%)	Enabled	📝 🗑 ⊘
2	Internal-207	External-206	http	1024 (10%)	1024 (10%)	Enabled	📝 🗑 ⊘
3	Default internal host	Any host	all	256 (2.5%)	256 (2.5%)	Enabled	📝

Press "New" or Modify button, the policy configuration page will be shown as the following.

♦ **Order:** Policies processing sequence. When the BM-2155 receives a packet, it will find the packet's Internal Host, External Host and Service and check which policy the packet applies. Order 1 policy will be the first policy to check and so on. When the BM-2155 find a policy fit to the packet, it will stop the checking and apply the guarantee bandwidth, burst bandwidth and priority to the packet. Thus, always put mission-critical traffic policy in the front to get higher performance.

♦ **Internal Host:** The internal host that you want to manage. You have to first define the internal host on host catalog.

♦ **External Host:** The destination host that you want to manage. You have to first define the external host on host catalog. You can build an external host if the BM-2155 is deployed in a LAN to LAN (VPN, Wireless, G.SHDSL, etc) network environment.

♦ **Sharing Type:** By IP - share out bandwidth between IP addresses. By Connection – Share out bandwidth between connections.

♦ **TCP connection limit per IP:** Limit the number of TCP connection per IP address.

♦ **Service:** The service that you want to manage. The services must be defined on the service catalog.

♦ **Guarantee:** Assign guaranteed bandwidth in kbps to this policy. This is the minimum bandwidth that the policy guarantees. The sum of all guarantee bandwidth should not exceed the inbound and outbound bandwidth settings on chapter 4.1.3.

♦ **Burst:** This policy's maximum bandwidth may be used. This is the maximum bandwidth that the policy can use.

♦ **Priority:** The packet's priority on this policy. Each policy is assigned a priority, Low or Medium or High. Higher-priority traffic is given precedence over lower-priority traffic.

♦ **Enable:** Enable or disable this policy.

♦ **Save/Cancel:** Press "Save" button to save above configurations and "Cancel" button to discard your configurations.

You may use ⊙ button on policy list to schedule when each policy will be enabled.

♦ **Start time:** Time to start policy activation.

♦ **End time:** Time to terminate policy activation.

♦ **Week:** Days in a week that you want QoS policy to take effect.

♦ **Enable:** Enable or disable this schedule.

♦ **Save/Cancel:** Press "Save" button to save all the configurations and "Cancel" button to discard your configurations.

4.2.3 Protection

The BM-2155 provides extended capabilities for filtering out any malicious attacks based on TCP, UDP, or ICMP protocols. This greatly improves the security of your bandwidth, and guarantees that such attacks will not disrupt the normal operation of your systems. While filtering out detected malicious traffic, your network will be able to operate normally.

♦ **Deny SYN Flood:** TCP SYN Flood is one kind of attack that an attacker makes connection requests aimed at the victim device with packets with unreachable source addresses. The device is not able to complete the connection requests and, as a result, the device wastes all of its network resources, resulting in shutting down a device. By defining a SYN attack threshold, the BM-2155 allows only the certain number of packets with unreachable source addresses each second.

♦ **UDP Flood Attack:** UDP is a connectionless protocol and it does not require any connection setup procedure to transfer data. An UDP Flood Attack is possible when an attacker sends a UDP packet to a random port on the victim device. When the victim device receives an UDP packet, it will determine what application is waiting on the destination port. When it realizes that there is no application that is waiting on the port, it will generate an ICMP packet of destination unreachable to the forged source address. If enough UDP packets are delivered to ports on victim, the device will go down. By defining a UDP flood threshold, the BM-2155 allows only the certain number of destination unreachable UDP packets each second.

♦ **ICMP Flood Attack:** An ICMP flood is usually accomplished by broadcasting either a bunch of pings or UDP packets. The idea is, to send so much data to your system, that it slows you down so much that you're disconnected from IRC due to a ping timeout. By defining a ICMP flood attack threshold, the BM-2155 allows only the certain number of ICMP packets each second.

♦ **Deny Port Scan:** Most attackers will first scan all port of the victim to know which services are running and then determined how to attack.   Deny port scan will make hacker much hard to attack your internal LAN.

♦ **Circumventing Path MTU Discovery with MSS Clamping(for ADSL, cable, PPPoE):** An Ethernet packet provides maximum 1460 bytes payload. However, not all parts of the Internet support full 1460 bytes of payload per packet. It is therefore necessary to try and find the largest packet that will 'fit', in order to optimize a connection. This process is called 'Path MTU Discovery', where MTU stands for 'Maximum Transfer Unit.' However, Path MTU Discovery is not always working.   MSS (Maximum Segment Size) is another way to set the maximum packet size. This is a field in the TCP Options part of a SYN packet.   By enable MSS clamping, the BM-2155 calculates the proper MSS for your link and tell the remote side unequivocally 'do not ever try to send me packets bigger than this value'.   Enable this function if your Internet connection is ADSL or cable modem and you meet connection problem with your ISP.

♦ **Deny Ping request on this device:**

If not checked, BM-2155 will respond to ICMP packets received from the Internet. If checked, ICMP packets from the Internet will be ignored. Enabling this option provides a slight increase in security.

4.2.4 IP/MAC Binding Setting

IP/MAC Binding allow you to bind IP and MAC to allow or block only certain IP/MAC or MAC for passing through the BM-2155.   The IP/MAC binding table can be build by importing from text file or discovering by the BM-2155.   The following functions are provided on this page:

♦   **Binding Function:** Enable or disable binding function.

♦   **Binding Mode:** There are two options on binding mode **–**

Block the traffic when not defined or not match in the IP/MAC table.   Select this option if you only want to allow the Internet access of defined and enabled IP/MAC addresses.

Allow the traffic when not defined or match in the IP/MAC table.   Select this option if you only want to block the Internet access of defined and enabled IP/MAC addresses.

4.2.5 IP/MAC Table

Here will list all the defined IP/MAC binding table that you have built. The following functions and information are provided on this page:

♦   **New -** Create new IP/MAC binding.

♦   **Delete All** - Delete all the IP/MACbinding table

♦   **Prev -** Go to previous page.

♦   **1, 2, … -** First, second, … page.

♦   **Next -** Next page.

On the Action field of each IP address, the following two buttons are provided:

- Modify the IP/MAC binding

- Delete the IP/MAC binding

Press "New" or modify button, the IP/MAC Table configuration page will be shown as the following.

♦   **MAC Address:** The MAC address of the host in format of xx:xx:xx:xx:xx:xx.

♦   **IP Address:** The IP address of the host in format of xxx.xxx.xxx.xxx.   If you want to specify the MAC address only, input 0.0.0.0 here.

♦   **Enable:** Enable or Disable the IP/MAC binding.   Only enabled IP/MAC binding is applied to the allow or

block blocking mode.

4.2.6 Discover IP/MAC

The Discover IP/MAC function help you to find all the IP/MAC binding on your local network.   The following functions and information are provided on this page:

♦   **IP Subnet:** Input a class C subnet for the BM-2155 to find all host and their MAC address on the subnet.

♦   **Ignore Defined**: Select Yes if you want to ignore the defined IP/MAC binding.   However, if only MAC address or IP address is defined on the IP/MAC table, the BM-2155 will still show the IP/MAC binding on the result window.

♦   **Start Discover**: Click this button to start the discovery process.

After clicking the "Start Discover", a warning message is shown to prompt for waiting a moment and don't press stop button of browser. A screen similar to the following is then shown for all IP/MAC address the BM-2155 found on the IP subnet you specify.   The following functions and information are provided on this page:

♦   **Clear All:** Unselect al the IP/MAC binding.

♦   **Select All**: Select all the IP/MAC binding.

♦   **Import:** Import the selected IP/MAC binding to the IP/MAC Table.

♦   **Cancel:** Discard the discover result and go back to Discover IP/MAC page.

On the table, each item has 3 fields:

♦   **Select:** Check this box to import to the IP/MAC table after clicking Import button.

♦   **IP Address:** IP address the BM-2155 discovers.   If there is already an IP address defined on the IP/MAC table, a * will be shown after the address to denote it is defined on the IP/MAC table.

♦   **MAC Address:** IP address the BM-2155 discovers. If there is already a MAC address defined on the IP/MAC table, a * will be shown after the address to denote it is defined on the IP/MAC table.

4.2.7 Export / Import

This page allows you to export the IP/MAC table or import IP/MAC binding from a text file.

♦ **Export IP/MAC file:** export the IP/MAC data to a file named ipmac.dump in text format.

♦ **Import IP/MAC file**: Click "Browse…" to select the IP/MAC table file you want to import and then click "Start" to import.

Each item in the IP/MAC Table file has 3 fields and use "space" to divide each field:

Field 1: IP address

Field 2: MAC address

Field 3: Enabled or disabled, 1 for enabled, 0 for disabled.

An example is as the following:

192.168.0.1 00:30:4F:18:CB:D4 1
192.168.0.2 00:30:4F:23:45:64 1
192.168.0.3 00:30:4F:AB:CD:EF 0

4.2.8 Access Control Setting

Access Control function allows you to control the access right of packets based on their IP address and TCP/UDP port.   In Access Control setting, you can enable or disable the access control function and choose its access control mode.

♦ **Access Control Function:** Enable or disable access control function.   If it is enabled, the access control checking will be processed first before bandwidth policy checking.

♦ **Access Control Mode:** There are two options on access control mode **–**

Allow the traffic when deny rules aren't defined in the Access List.   You can choose allow or deny on the policy field on the Access List.   Select this option if you only want to block the Internet access of defined IP addresses and TCP/UDP port with deny policy.

Deny the traffic when allow rule aren't defined in the Access List. Select this option if you only want to allow the Internet access of defined IP addresses and TCP/UDP port with allow policy.

Setting	
Access Control Function:	Disabled ▼
Access Control Mode:	⦿ Allow the traffic when deny rule aren't defined in the Access List. ○ Deny the traffic when allow rule aren't define in the Access List.
Save	

4.2.9 Access List

Access List allow you to define the access right based on traffic's source and destination IP address, and TCP/UDP port (service). The following functions and information are provided on this page:

♦ **New -** Create new service.

♦ **Prev -** Go to previous page.

♦ **1, 2, … -** First, second, … page.

♦ **Next -** Next page.

♦ **Action -** On the Action field of each service name, the following two buttons are provided:

  🖉 - Modify the Access list

  🗑 - Delete the Access list

Access List					
New					
Order	Source Host	Destination Host	Service	Policy	Action
1	Any host	VoIP Gateway	h323	accept	🖉 🗑
2	VoIP Gateway	Any host	h323	accept	🖉 🗑
3	Any host	Mail Server	smtp	accept	🖉 🗑
4	Mail Server	Any host	smtp	accept	🖉 🗑
6	Any host	Mail Server	pop3	accept	🖉 🗑
7	Any host	Web and FTP Server	ftp	accept	🖉 🗑
8	Any host	Web and FTP Server	http	accept	🖉 🗑

Press "New" or Modify button, the access list configuration page will be shown as the following.

♦ **Order:** Access List processing sequence. When the BM-2155 receives a packet, it will find the packet's Source Host, Destination Host and Service and check which Access List the packet applies. Order 1 will be the first list to check and so on. When the BM-2155 find a list fit to the packet, it will stop the checking and accept or deny the packet. Thus, always put mission-critical traffic list in the front to get higher performance.

♦ **Source Host:** The source host that you want to control. You have to first define the source host on host catalog. This is the host(s) which originates the network service request. It can be on LAN(internal) or WAN(external) side.

♦ **Destination Host:** The destination host that you want to control. You have to first define the destination host on host catalog. This is the host(s) which receives the network service request. It can be on LAN(internal) or WAN(external) side.

♦ **Service:** The service that you want to control.   The services must be defined on the service catalog.

♦ **Policy:** Accept or deny this access list.

♦ **Save/Cancel:** Press "Save" button to save above configurations and "Cancel" button to discard your configurations.
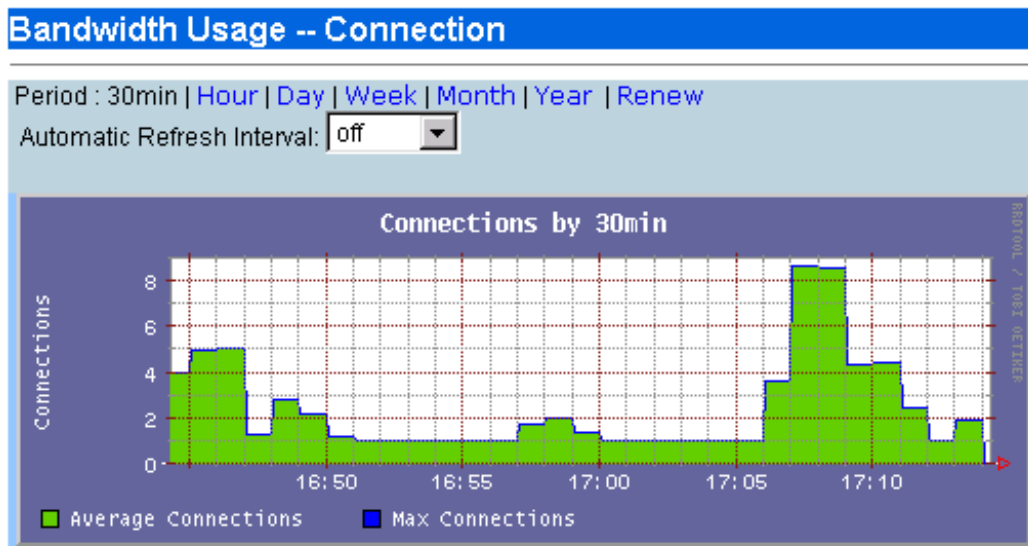
4.3 Report

PLANET BM-2155 can monitor all the inbound and outbound packets and automatically categorize to provide versatile reports.   These reports help you to analyze the traffic flowing through your BM-2155 and aid you in determining the optimum configuration for your system.

4.3.1 Connection

This report shows all the connections passed BM-2155 and you can choose several periods that you want it to display.
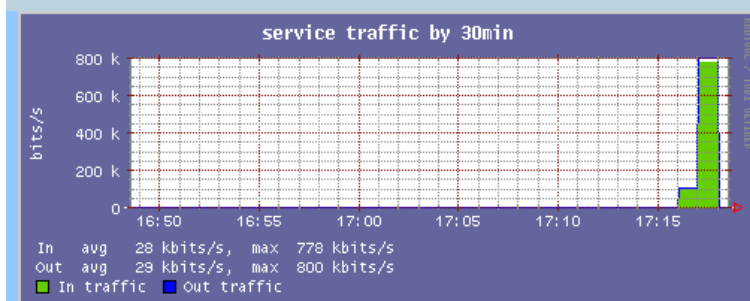
4.3.2 Internal Host

This report shows the bandwidth usage rate of each internal host. And you can choose several kinds of period that you want it to display. The graph report shows both inbound and outbound traffic.

4.3.3 External Host

This report shows the bandwidth usage rate of each external host. And you can choose several kinds of period that you want it to display. The graph report shows both inbound and outbound traffic.

4.3.4 Service

This report shows the bandwidth usage rate that each service used. And you can choose several kinds of period that you want it to display.   The graph report shows both inbound and outbound traffic.

Bandwidth Usage -- Service

Period : 30min | Hour | Day | Week | Month | Year | Renew | Renew All | Service: [all tcp ▼]
Automatic Refresh Interval: [1 min ▼]

service traffic by 30min

```
bits/s
  800 k
  600 k
  400 k
  200 k
    0
      16:50   16:55   17:00   17:05   17:10   17:15
```

In   avg   28 kbits/s, max   778 kbits/s
Out   avg   29 kbits/s, max   800 kbits/s
■ In traffic ■ Out traffic

4.3.5 Top 10 Internal Host

This report shows top 10 bandwidth usage of internal hosts. And you can choose several kinds of period that you want it to display.

Bandwidth Usage -- Top 10 Internal Host

Period : 30min | Hour | Day | Week | Month | Year | Automatic Refresh Interval: [off ▼]

Internal ← External (In)

Internal Host	Average rate(bps)	Total transfer(byte)	Percentage	Graph
Clinet-206	155 K	34.01 M	100% ▮▮▮▮▮▮▮▮	▦

Internal → External (Out)

Internal Host	Average rate(bps)	Total transfer(byte)	Percentage	Graph
Clinet-206	157 K	34.39 M	100% ▮▮▮▮▮▮▮▮	▦

Press ▦ button to view graph report of specified internal host. The graph report shows both inbound and outbound traffic.

4.3.6 Top 10 External Host

This report shows top 10 bandwidth usage of external hosts. And you can choose several kinds of period that you want it to display.

Bandwidth Usage -- Top 10 External Host

Period : 30min | Hour | Day | Week | Month | Year | Automatic Refresh Interval: off

Internal ← External (In)

External Host	Average rate(bps)	Total transfer(byte)	Percentage	Graph
Server-204	578 K	127.08 M	100%	

Internal → External (Out)

External Host	Average rate(bps)	Total transfer(byte)	Percentage	Graph
Server-204	578 K	127.00 M	100%	

Press button to view graph report of specified internal host. The graph report shows both inbound and outbound traffic.

4.3.7 Top 10 Service

This report shows top 10 bandwidth usage of services. And you can choose several kinds of period that you want it to display.

Bandwidth Usage -- Top 10 Service

Period : 30min | Hour | Day | Week | Month | Year | Automatic Refresh Interval: 1 min

Internal ← External (In)

Service	Average rate (bps)	Total transfer (byte)	Percentage	Graph
http	2 K	472.53 K	87%	
smtps	128	28.20 K	5%	
pop3s	107	23.43 K	4%	
dns	48	10.56 K	2%	
pop3	27	5.96 K	1%	
smtp	6	1.38 K	0%	

Internal → External (Out)

Service	Average rate (bps)	Total transfer (byte)	Percentage	Graph
http	14 K	3.00 M	77%	
smtps	4 K	898.13 K	22%	
pop3s	73	15.99 K	0%	
dns	20	4.49 K	0%	
pop3	19	4.18 K	0%	

Press button to view graph report of specified service. The graph report shows both inbound and outbound traffic.

4.3.8 Bandwidth Policy

You can choose each policy that you want to view. And you can choose several kinds of period that you want it to display.   The graph report shows both inbound and outbound traffic.
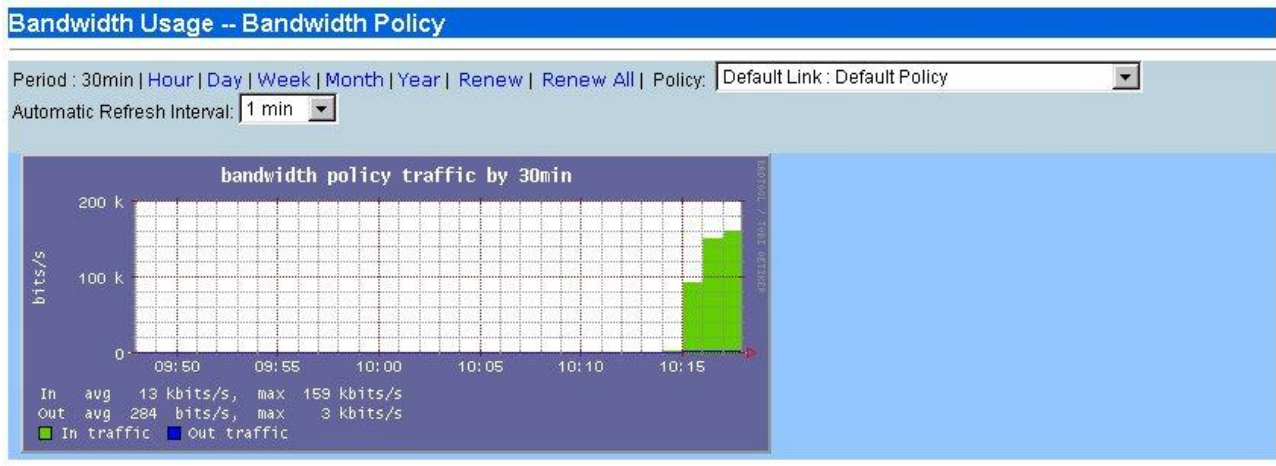
4.3.9 Customize

This function offers system administrator to easily collect network bandwidth usage rate information to report. The BM-2155 will record the traffic of all the defined host catalog, service catalog and policy and save the following data in a specified time period:

- ♦   The average bandwidth usage per minute for past 12 hours

- ♦   The average bandwidth usage per 10 minutes for past 60 hours

- ♦   The average bandwidth usage per hour for past 10 days

- ♦   The average bandwidth usage per day for past 360 days (1 year)

Thus, when you use customize to show the bandwidth usage statistic, please make sure you do not use a time period that BM-2155 does not record.

- ♦   **Name:** Customized report title.
- ♦   **Type:** Type of report.   Three options provided: Internal host / service / bandwidth policy.
- ♦   **Period:** Choose several periods that you wants to do a routine record in our report
- ♦   **End Time:** Stop to record network bandwidth usage rate in this report.
- ♦   **Disabled no data:** If there is no data in some item. You may decide that enable or disable these items display on the report.

Press "OK" button to generate a report you have customized

The following is a part of customized report as a sample.
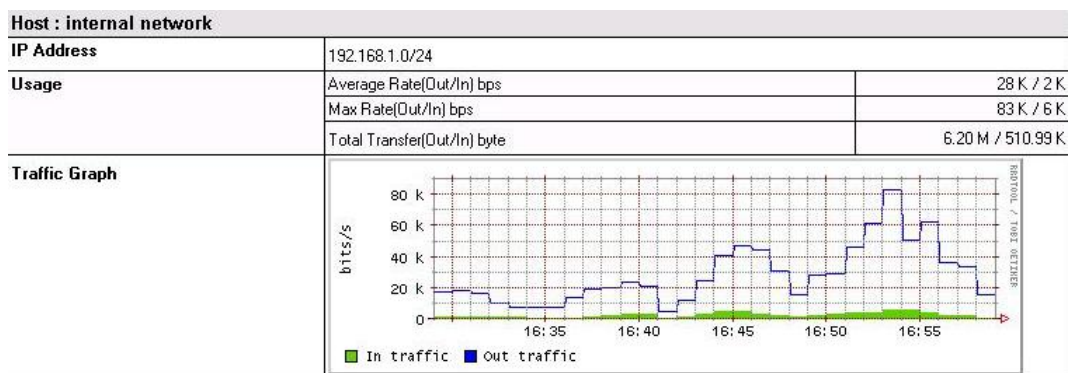
4.3.10 IP Discovery - Text List

This function lists all the internal IP addresses which have passed through BM-2155 and their upload and download data. This offer you an easily way for you to know which host use most bandwidth and how many bandwidth it have used. It also helps you to find the hidden node(s) on your network and take adequate action.

Press "Renew to count" button that reset the data to zero and start to count all the internal IP bandwidth usage again. You can also press "Upload Transfer (byte)" button to sort by upload transfer rate and press "Download Transfer (byte)" button to sort by download transfer rate.

♦ **Clear All:** Unselect all the IP Address.

♦ **Select All**: Select all the IP Address.

♦ **Import to Host Catalog:** Import the selected IP Address to the Host Catalog. When you import it , the record's monitor attribute default is enabled.

Note: The statistics for Upload/Download Transfer on Text List starts at power on, and it would keep accumulating till rebooting or Clear All button is clicked.
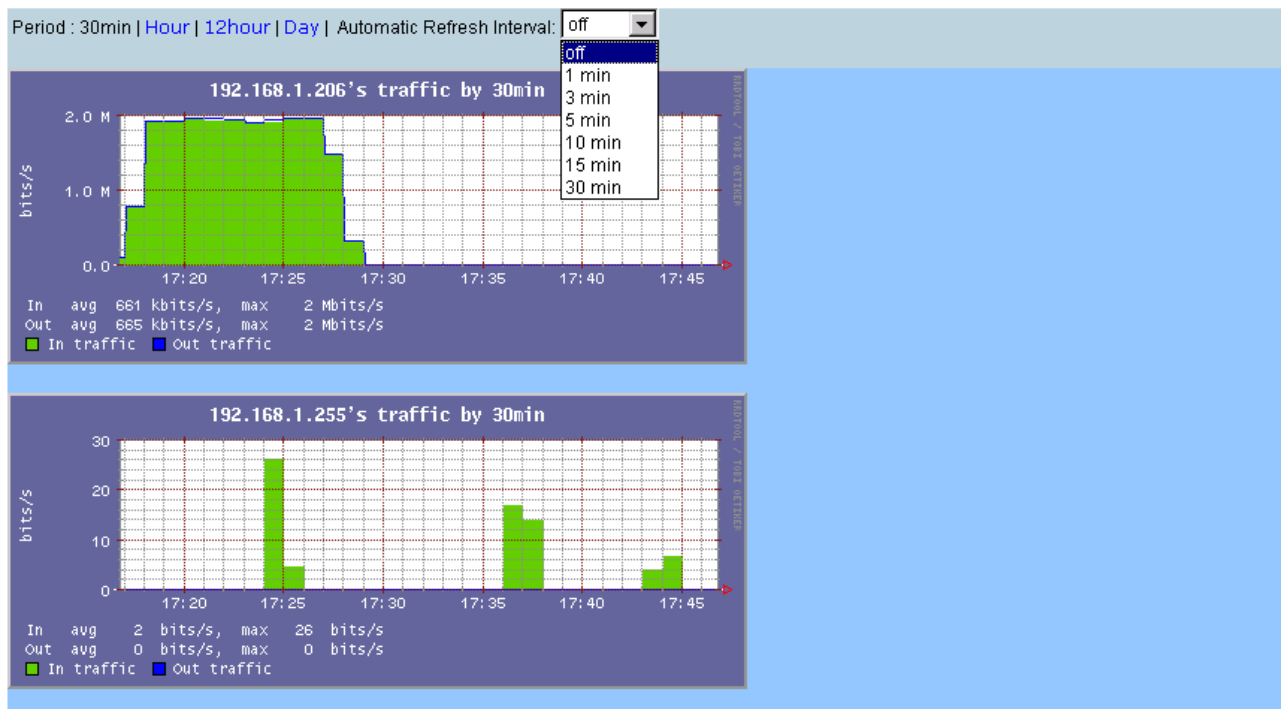
4.3.11 IP Discovery - Graph List

This function provide a graph view all the internal IP addresses which have pass through BM-2155 and their upload and download data and you can choose several periods that you want it to display.

4.3.12 Log – Export Log

This function allows you to send all the session statistics to a FTP server.   The log data which compressed with tgz is sent to FTP server every 5 minutes.   This data is suitable for you to make your own analysis and even billing.   The following parameters are required:

♦ **Export Function:** Enable or disable the export function.

♦ **Server Type:** Choose the server type as FTP or FTPS.   FTPS is FTP with SSL security which is more

secure than FTP.   Please make sure your FTP server also support FTPS before choose FTPS.

♦ **IP Address:** The IP address of the FTP server.

♦ **Port Number:** The TCP port number used for FTP communication.   The default port number for FTP is

21.

♦ − **Remote Dir:** The directory used to store the log data.　Please make sure you have created this directory on the FTP server before make test.

If this column is empty, the file will be saved into root directory

Example：C:\BACKUP FILE ....Root directory

C:\BACKUP FILE\AAA.. Sub directory

Please leave this column empty if you want to save to root directory and create AAA sub-directory if you want to save your file into AAA subdirectory.

♦ **User Name:** The user name used to login to FTP server.

♦ **Password:** The password used to login to FTP server.

♦ **Save:** Press "Save" button to save above configurations.

♦ **Test:** Test the connection status to FTP server.　If the server is on-line and the remote directory, user name and password are all correct, the BM-2155 will upload a file named "test_upload" to the remote directory and a small window will pop-up with message of "Server is ready".　Otherwise, it will show "Can not connect to server".

Once you click "Save", the BM-2155 will start to export the logo data to FTP server every 5 minutes. The file name format of log data is "year-month-day-hour-minute.txt.gz". For example, 2003-05-21-19-15.txt.gz.　The minute represent the start time of the log data. Each log file contains many connection session for the 5 minutes.　The data format is as the following with an example:

Host1	Host2	Protocol	Port1	Port2	Received Bytes 1	Received Bytes 2	Received Packets 1	Received Packets 2	First Packet Time	Last Packet Time	First Packet Host	Last Packet Host
192.168.001.040	192.168.002.137	6	139	3982	184023	5164128	2461	3729	01:40:02.9531	01:45:01.9304	2	2
192.168.002.137	192.168.001.203	6	4109	22	52932	190218	330	355	01:40:25.7275	01:45:02.1453	2	1

♦ **Host1:**　Host 1 IP address, eg: 192.168.001.040

♦ **Host2:**　Host 2 IP address, eg: 192.168.002.137

♦ **Protocol:** Network connection protocol, 1=icmp, 6=tcp, 17=udp, 0= other non-TCP/IP packets.

◆ **Port1:** Port number used by host 1, eg: 139

◆ **Port2:** Port number used by host 2, eg: 3982

◆ **Received Bytes 1:** Total number of received data by host 1 in unit of bytes

◆ **Received Bytes 2:** Total number of received data by host 2 in unit of bytes

◆ **Received Packets 1:** Total number of received packets by host 1

◆ **Received Packets 2:** Total number of received packets by host 2

◆ **First Packet Time:** Time the first packet pass through the BM-2155.   This is the time the session start. The time format is HH:MM:SS.SSSS which HH is hours, MM is minutes, and SS.SSSS is seconds with precision up to 1/10,000 seconds.

◆ **Last Packet Time:** Time the last packet pass through the BM-2155.   This is the time the session complete. The time format is HH:MM:SS.SSSS which HH is hours, MM is minutes, and SS.SSSS is seconds with precision up to 1/10,000 seconds.

◆ **First Packet Host:** 1 mean Host 1 send the first packet, i.e., host 1 start the session.   2 mean Host 2 send the first packet, i.e., host 2 start the session.

◆ **Last Packet Host:** 1 mean Host 1 send the last packet, i.e., host 1 complete the session. 2 mean Host 2 send the last packet, i.e., host 2 complete the session.

4.3.13 Log – To Analyzer

This function allows you to export the connection data to Bandwidth Analyzer for further analysis.   You can know each IP's bandwidth usage and service usage ratio from this free utility.   Please note this utility can only run on Windows 2000 and Windows XP.

◆ **Export Function:** Enable or Disable the Export function.

◆ **IP Address:** The IP address of the computer which is running Bandwidth Analyzer.

◆ **Save:** Press "Save" button to save above configurations.

◆ **Test:** Test the connection status to Bandwidth Analyzer.   If the computer which is running Bandwidth Analyzer is on-line, a small window will pop-up with message of "Server is ready".   Otherwise, it will show "Can not connect to server".

4.3.14 Email Account Setting

This function will enable the BM-2155 to send e-mail alerts to the System Administrator when Alert Event occurs.

♦ **Enable Alert:** Enable or disable the function to send Alert Event by e-mail

♦ **Authentication:** Check box for Email Alert. Turn it on when the SMTP server need to make authentication for the email sender

♦ **SMTP Server:** The IP address or domain name of SMTP server

♦ **SMTP User:** The e-mail address of sender, the account that BM-2155 will use

♦ **Password:** The e-mail password of sender

♦ **EMail to:** The e-mail address of receiver, the network administrator that BM-2155 would like to alert to

♦ **Save:** save configuration

♦ **Test:** Test if the Alert Event can be sent to receiver properly

Email Account Setting	
Enable Alert:	☑
Authentication:	☑
SMTP Server:	planet.com.tw
SMTP User:	admin@planet.com.tw
Password:	●●●●
EMail to:	admin@planet.com.tw
Save Test	

4.3.15 Alert Event

The function enable the BM-2155 send an e-mail to notify the administrator when following conditions occur.

♦ **Device Restart:** Send an Alert Event when the BM-2155 is restarted

♦ **Cable connected detection:** Send an Alert Event when cables are being connected or removed

♦ **Web login fail:** Send an Alert Event when a invalid login occurs (for example, login password is incorrect)

♦ **Upload bandwidth average usage is more than** ☐ **Kbps for past** ☐ **minutes:**

Send an Alert Event when the average upload bandwidth reaches Y kbps in the past X minutes

Download bandwidth average usage is more than ☐ **Kbps for past** ☐ **minutes:**

Send an Alert Event when the average download bandwidth reaches Y kbps in the past X minutes

Next time to send alert mail when ☐ **minutes**

The function check out the two conditions above at one-minute intervals; the next Alert Event will be sent when the conditions match at the specified time interval.

Alert Event				
☑ Device Restart				
☑ Cable connected detection				
☑ Web login fail				
☑ Upload bandwidth average usage is more than	1024	Kbps for past	10	minutes
Download bandwidth average usage is more than	1024	Kbps for past	10	minutes
Next time to send alert mail when	10	minutes		
Save				

Chapter 5：Program Installation

Please insert your CD into CDROM drive if your CD-ROM driver's Auto-play feature is enabled, select Install MySQL or double click on "my computer" icon on desktop and double click on your CD-ROM driver and click install.exe to begin the installation.
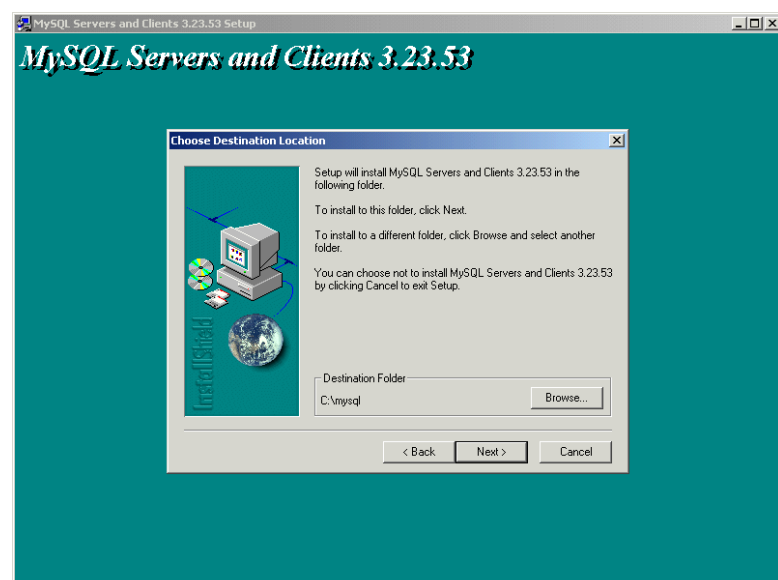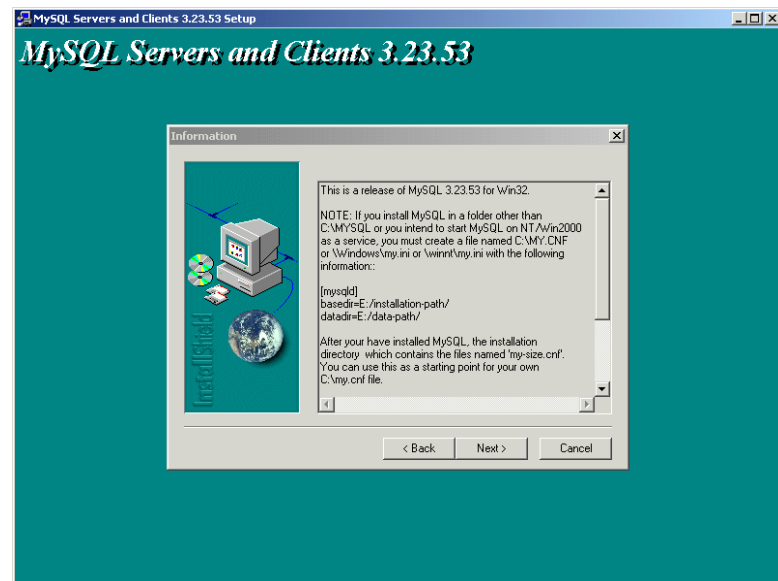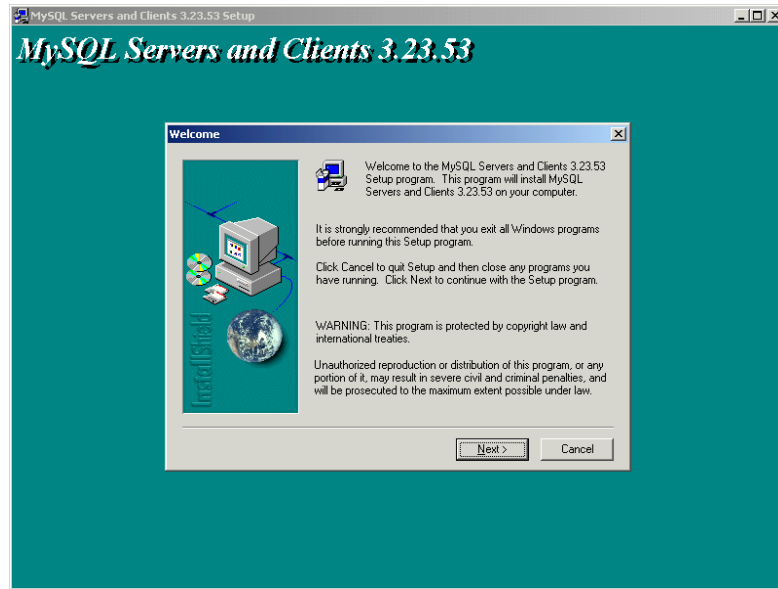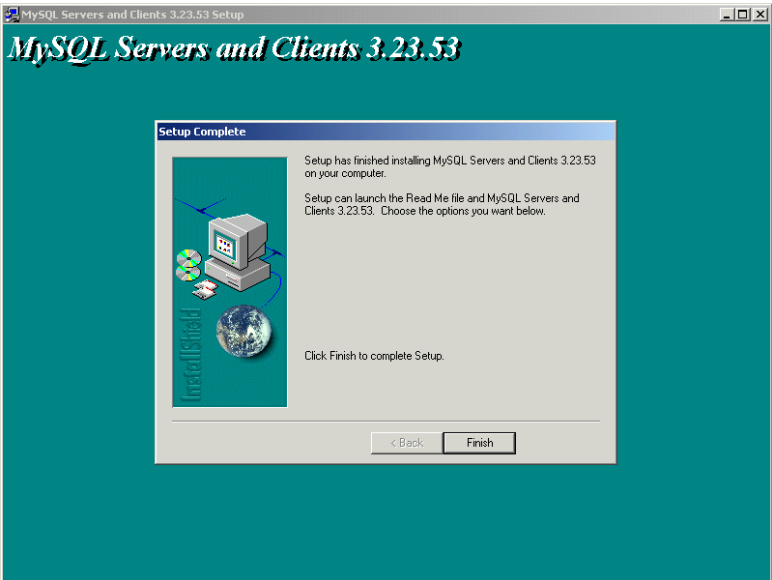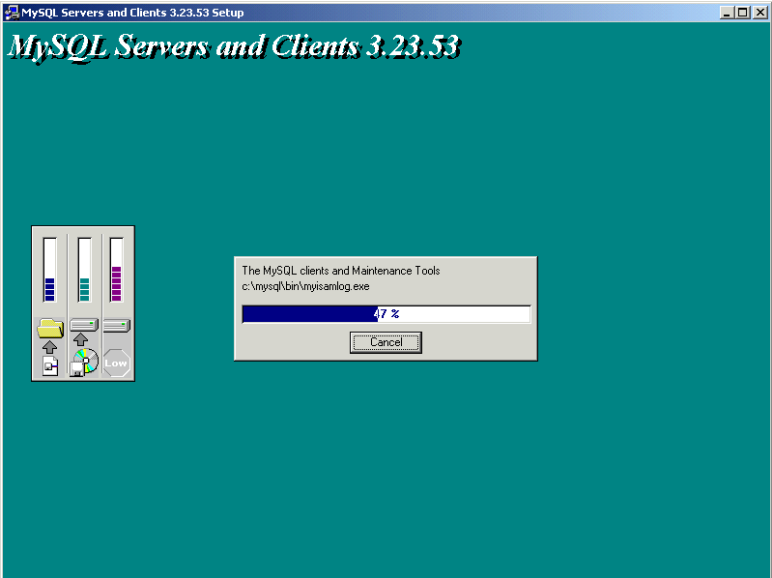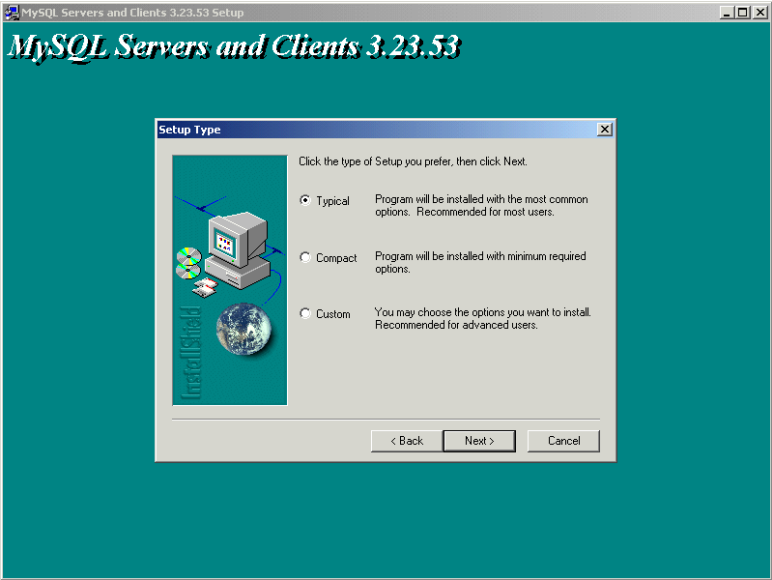
System Requirement:

♦ Pentium II or higher

♦ At least 128MB RAM

♦ Windows 2000 or Windows XP Operation System

5.1 Install MySQL:

1. Press install button to Install MYSQL

2. If the software is already exist, the buttons will change to grey color and shows MYSQL has been installed

3. Please follow the instruct to completed the installation

5.2 Install MySQL ODBC:

1. Press install button to Install MySQL ODBC

2. If the software is already exist, the buttons will change to grey color and shows MYSQL ODBC has been installed.

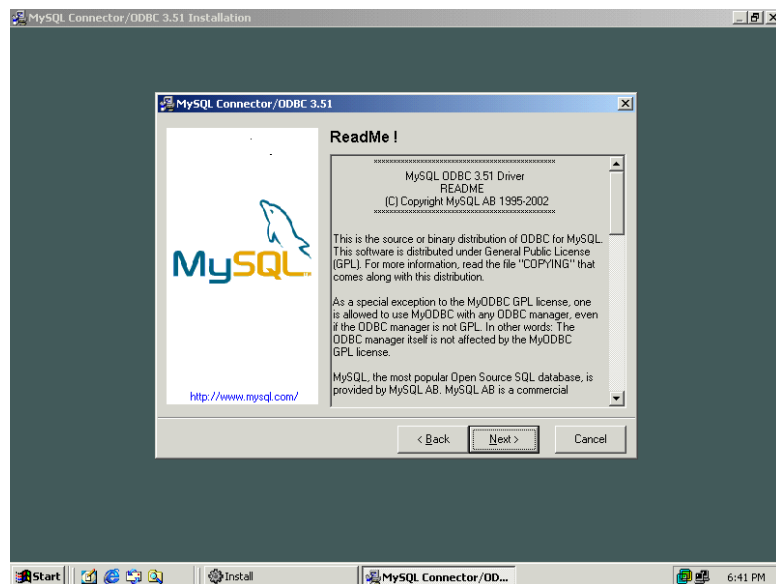3. Please follow the instruct to completed the installation.
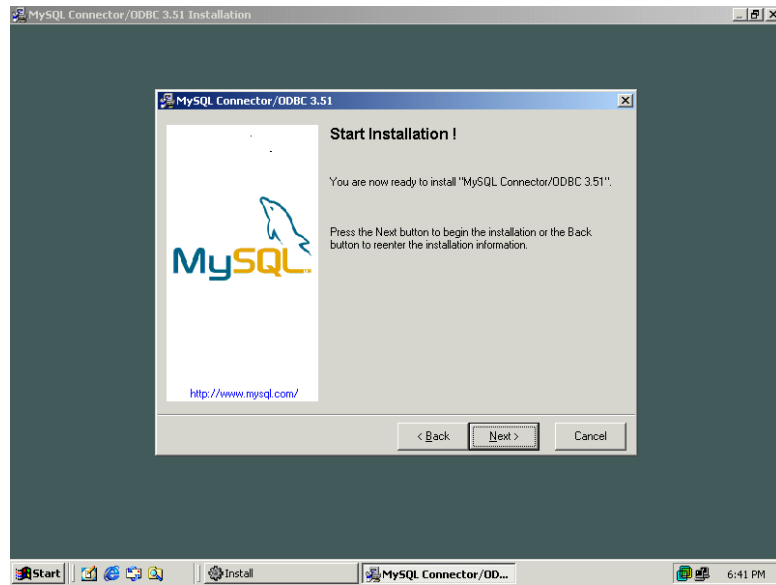
5.3 Install Bandwidth Analyzer:

1. Press install button to Install Bandwidth Analyzer.

2. If the software is already exist, the buttons will change to grey color and shows Bandwidth Analyzer has been installed
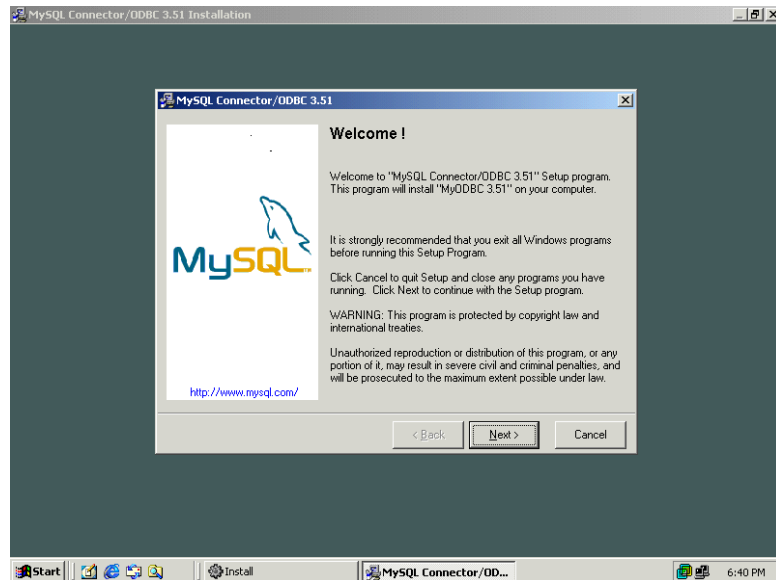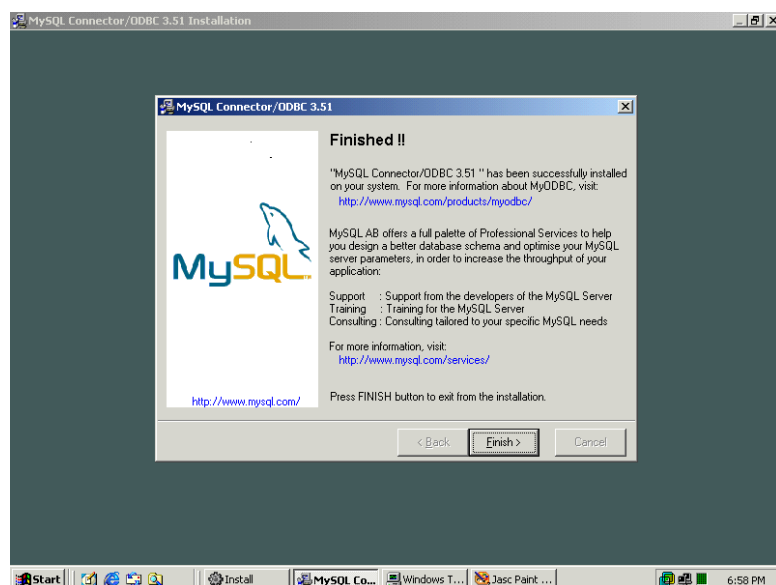
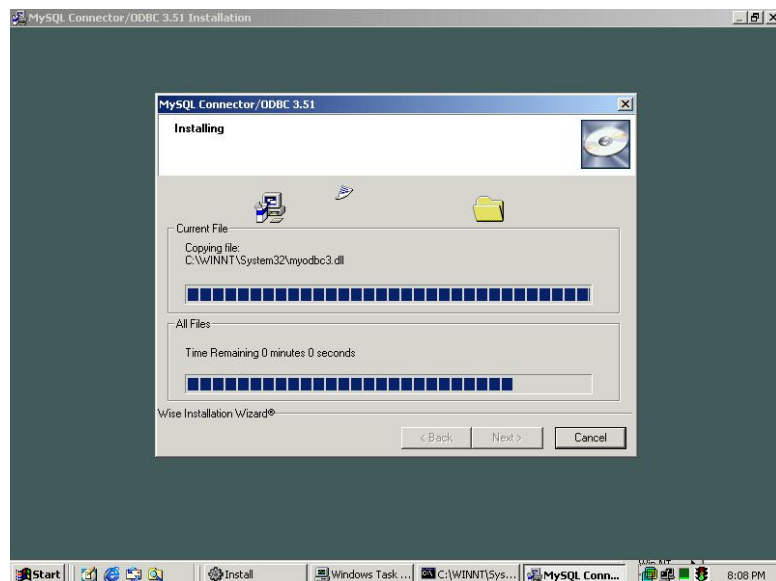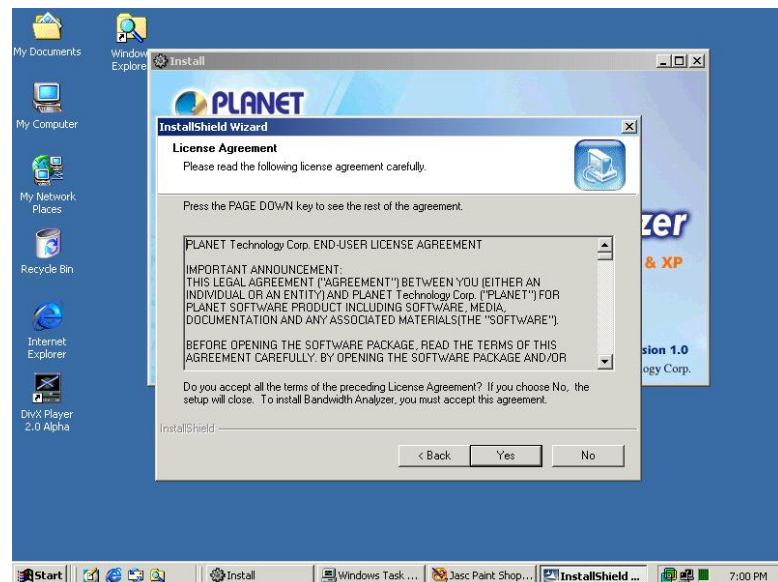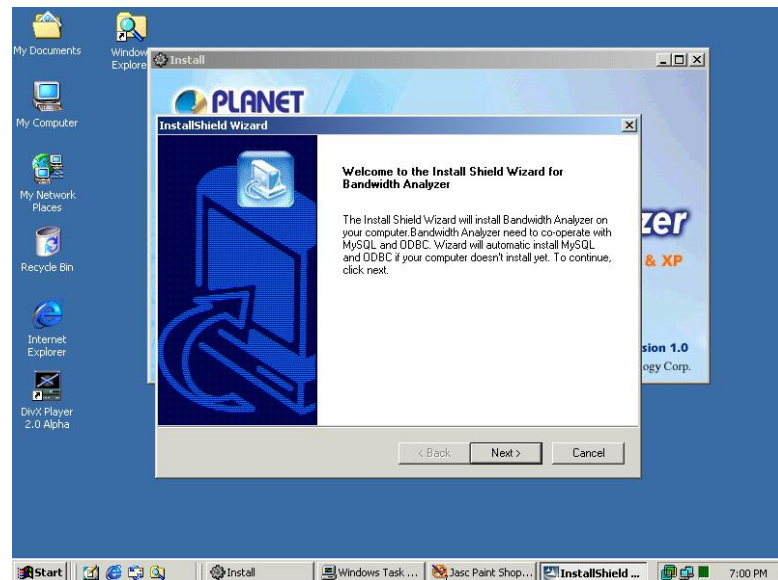3. Please follow the instruct to completed the installation
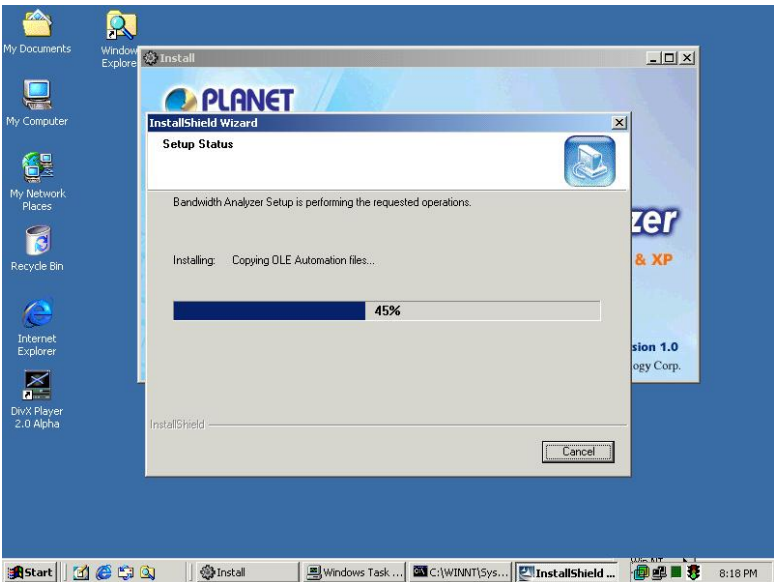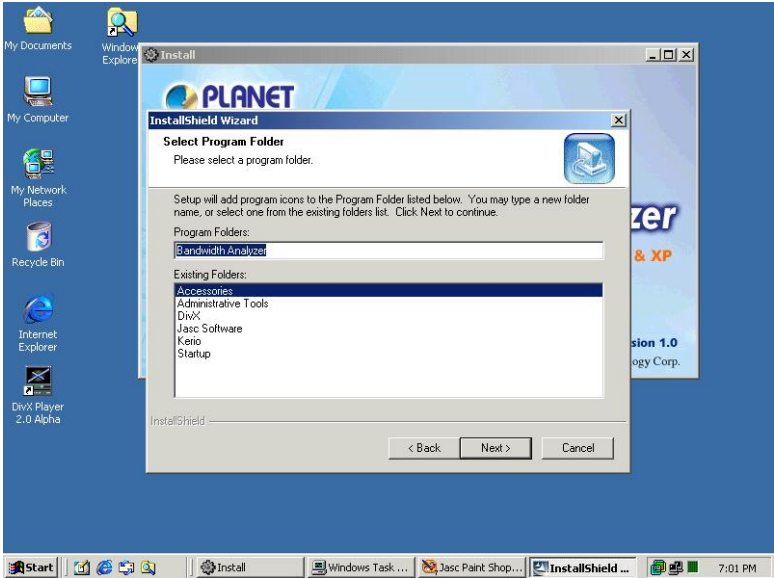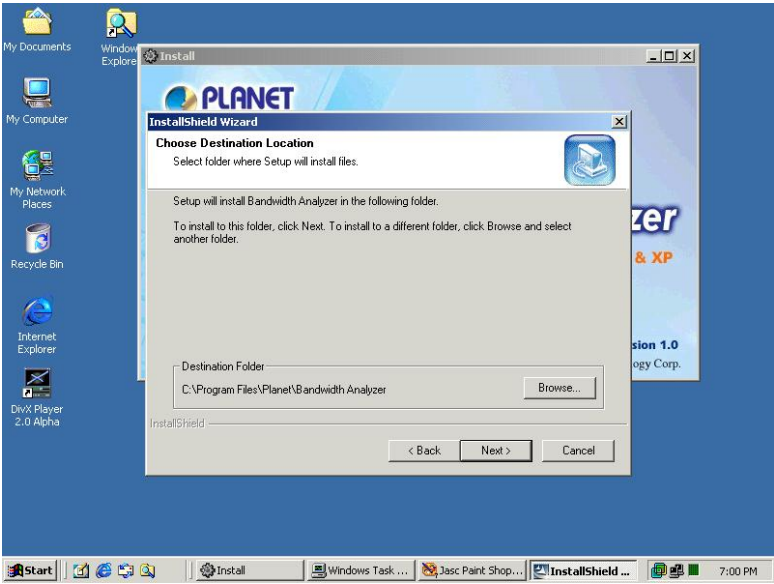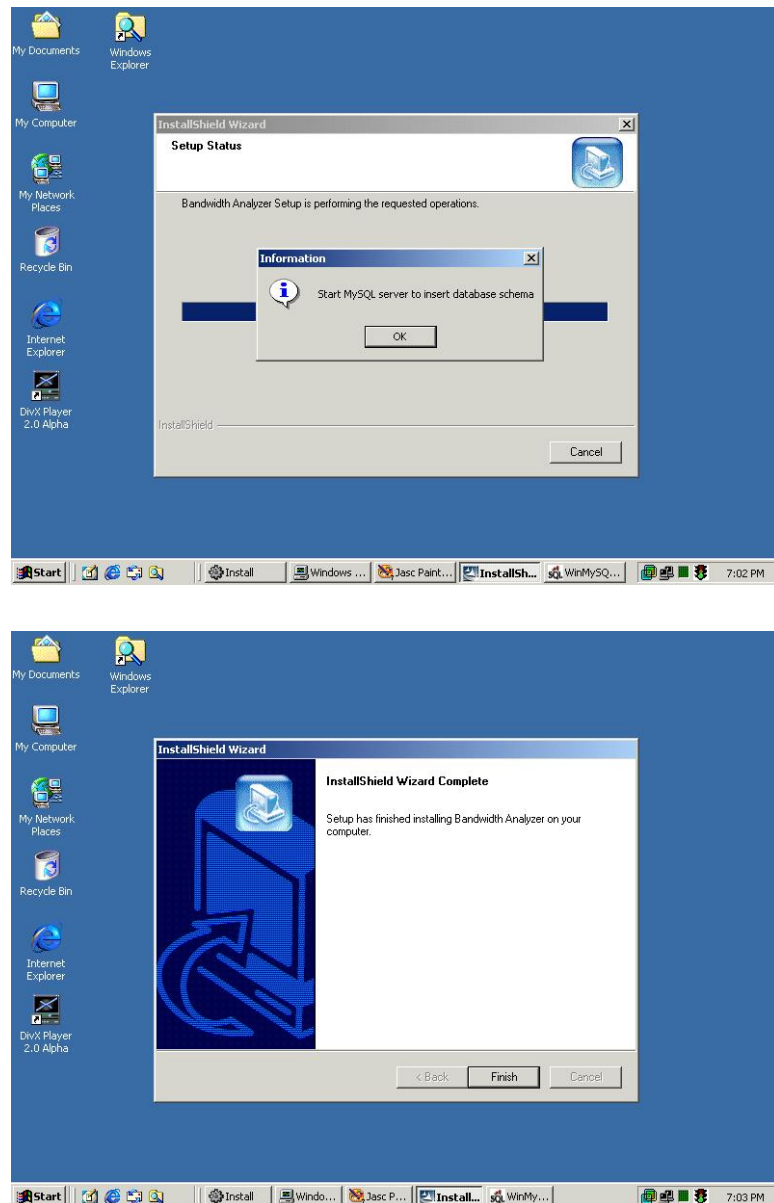
4. Follow the prompt on the screen to start the installation. Before install the program, the installation procedure will install MySQL database relative file. After the MySQL installation is completed, it will then start the installation the Bandwidth Analyzer.

5. After the installation process is completed, a program named "Bandwidth Analyzer" will be shown by clicking "Start" -> "Program". Select the Bandwidth Analyzer to start the program.

5.4 Using Bandwidth Analyzer

There are 4 menus on the BM-2155:

1. File – Two sub-menus are provided: New Analysis and Exit. Select New Analysis to make another analysis. Select Exit to exit this program.

2. View – Select the Status Bar option to show or hide the status bar.

3. Window – This menu allow you to choose either Cascade or Tile style to show the Analysis windows

or choose another Analysis window.

4. Help – Show the version information of BM-2155.
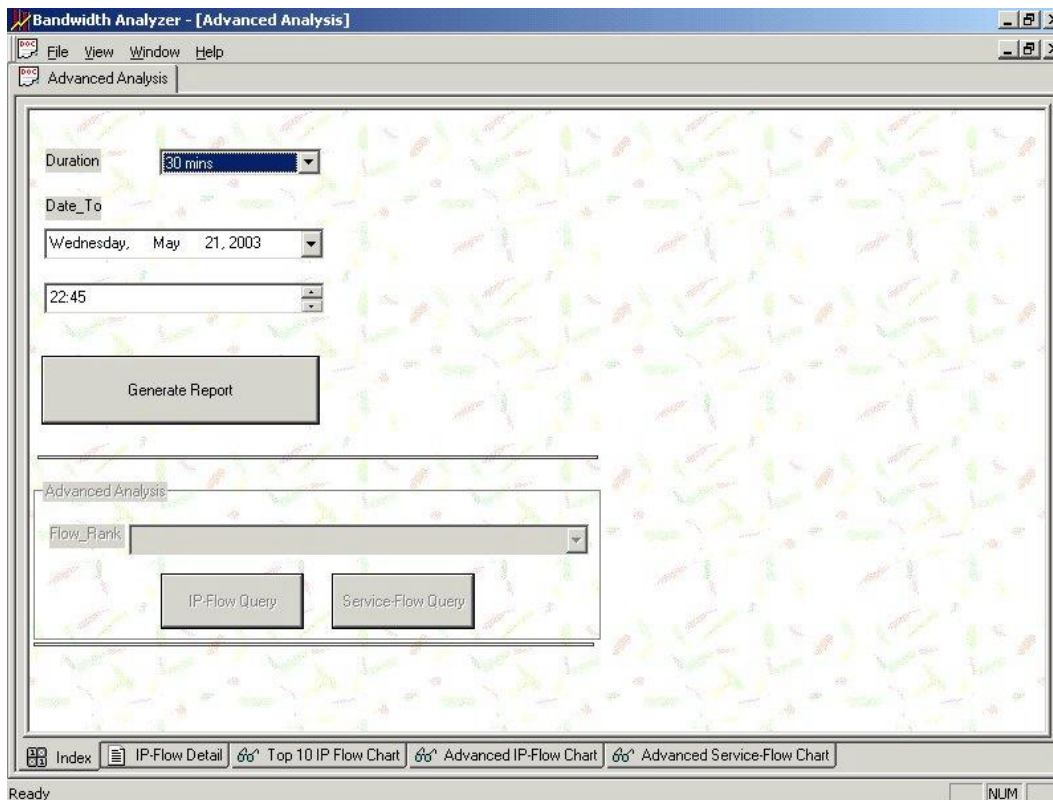
On each analysis window, it provides five tabs: Index, IP Flow Detail, Top 10 IP flow Chart, Advanced IP flow Chart, Advanced Service Flow Chart.   On Index tab, it provides the following options:

♦   **Duration:** Select the analysis time period of the report.   Available duration is 30 minutes, 1 hour, 1 day and 1 week.

♦   **Date to:** Select the end date of the report.

♦   **Time:** Select the end time of the report.

♦   **Generate Report:** Start the generation of the report. After clicking this button, it will show "Analyzing data… Please wait".   Depend on the size of the records, it may take a few minutes to complete the generation.

♦   **Top 10 IP Flow Chart tab:** When the report generation is completed, it will then show the Top 10 IP Flow Chart similar to the following.   From this Top 10 flow chart, you can know which host uses the most bandwidth.
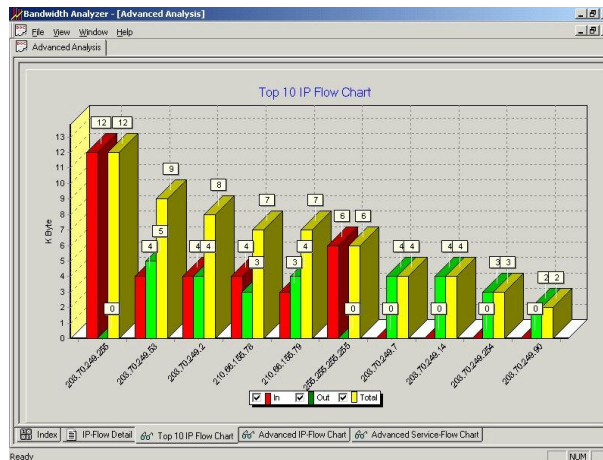
♦ **IP Flow Detail tab:** You can also click the IP Flow Detail to know the bandwidth usage status of all hosts.

Advanced Analysis - After the report is generated, this option becomes available.

♦ **Flow Rank:** From the pull down menu, select the IP address which you want to make advanced analysis.

♦ **IP Flow Query:** Click this button to make Advanced IP Flow Chart of the host you select.   You can know the hsot's IN and OUT packet rate for each small time-period (5 minutes or 1 hours).
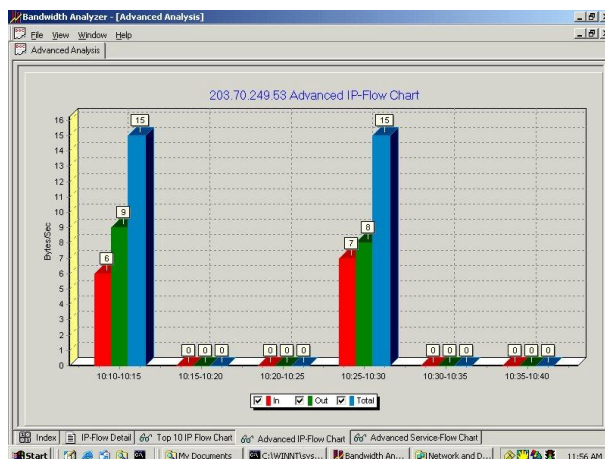
♦ **Service Flow Query:**   Click this button to make Advanced Service Flow chart which show the service usage status of the host for the duration you select.   A window similar to the following will be shown.
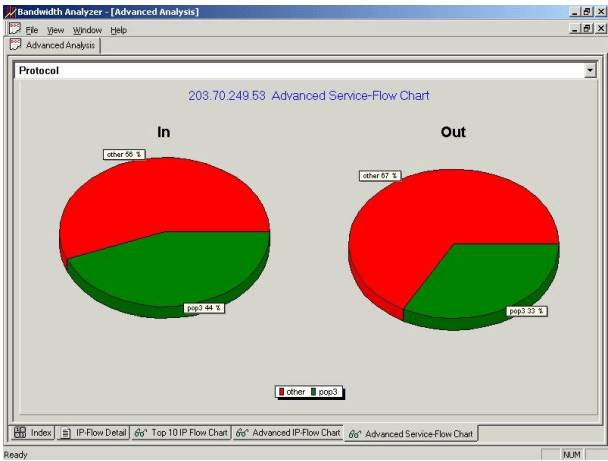
Chapter 6：High-Availability Installation

For uninterrupted Internet access, the BM-2155 also provides HA (High Availability) function which allows to install two BM-2155s in parallel. If the active BM-2155 fails, the backup BM-2155 will become active to manage the network bandwidth and to keep the network in order without any interruption.

The following is the setup steps:

1. Prepare two BM-2155s and two Ethernet switches.

2. Please leave the two units disconnected from the network.

3. Choose one unit to let it be a master device.

    a. Power on the master unit.

    b. Configure the master device's network setting from LCD Panel.

    c. Enable HA function from LCD panel and set mode to Master. For more information, please refer to **A.5 Setup HA Mode,** page 55. The unit will reboot for activating the HA function.

    d. Connect WAN port to the Switch of WAN side and connect LAN port to the Switch of LAN side by Ethernet cables.

4. Configure the second BM-2155 to be a slave device.

   a. Power on the slave unit.

    b. Configure the slave device's network setting as the master device configured, the both devices must have the same IP address, subnet mask and default gateway.

    c. Enable HA function from LCD panel and set mode to Slave. For more information, please refer to **A.5 Setup HA Mode,** page 55. The unit will reboot to activate the HA function.

    d. Connect WAN port to the Switch of WAN side and connect LAN port to the Switch of LAN side by Ethernet cables.

5. Now both BM-2155s is working on HA mode and you can enter the management interface by the IP address you set on LCD panel. The Slave device will get same configuration from Master device automatically at 5-minutes intervals.

Note:

Consider using a Fast Ethernet Hub as the WAN or LAN hubs, once the Active BM-2155 is not operating, the network traffic will swap to the slave BM-2155 right away. However, in the case that the Fast Ethernet Hub can not be found, it is recommended to choose manageable switch with the support for ageing time setting as an alternative choice. Due to the switch will need a fixed time to renew the MAC address table, a normal switch will effect the active time for the slave BM-2155. To adjust the ageing time of the switch to a smaller one shall speed up the swap time between two BM-2155s.
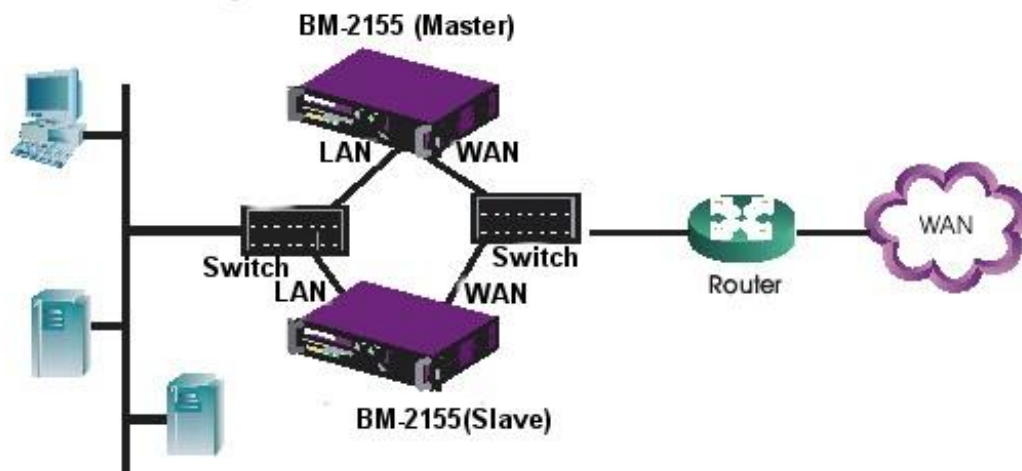
Appendix A：Using the LCD Panel

A.1 LCD Panel

Used to make IP settings, view IP settings, reboot system, show service information, reset password and reset all configuration. *It also show the average bandwidth usage for past 10 seconds when not in configuration mode.* Check section "Initial Setup by LCD panel" for detail on IP settings. The following table shows the button function.

Button	Function
(ENTER)	Used to select or confirm the selection
(ESC)	Used to cancel the selection or back to previous manual
(▲)	Change to previous option or increase the number. Press longer to increase the number by 10.
(▼)	Change to next option or decrease the number. Press longer to decrease the number by 10.

A.2 Setup Network

1. Press (ENTER) button to enter Select menu.

2. Select Setup Network and press (ENTER) button to enter IP setup process.

```
SELECT：
Setup Network
```

3. Set the BM-2155's IP address:

```
IP Address:
192.168.0.250
```

Please press (▲) or (▼) button to edit the BM-2155's IP Address. Press (ENTER) button to edit next number. After editing all the number, press (ENTER) button to start the Network mask configuration.
NOTE: You can press (▲) or (▼) longer for the number to change in unit of 10.

4. Set the BM-2155's subnet mask:

```
Netmask Address:
255.255.255.0
```

Please press (▲) or (▼) button to edit the BM-2155's subnet mask. Press (ENTER) button to edit next number. After editing all the number, press (ENTER) button to start the Gateway address configuration.

5. Set the BM-2155's Gateway address:

```
Gateway Address：
192.168.0.254
```

Please press (▲) or (▼) button to edit the BM-2155's Gateway address. Press (ENTER) button to edit next number. After editing all the number, press (ENTER) button to save the configuration.

6. Confirm and Save Configuration:

```
Save Config ?
 Y (Enter)   N (ESC)
```

    If the configuration is Ok, please press (ENTER) Button to save. Otherwise, press (ESC) button to go back to SELECT Menu.

7. After you press (ENTER) button, the following message is shown:

```
Setup Network
Save OK....
```

    Now the new IP setting is active and you can start on web management of the BM-2155.

A.3 View Network

1. Press (ENTER) button to enter Select menu..

2. Select View Network and press (ENTER) button to view the network settings.

```
SELECT：
View Network
```

3.Display IP address:

```
IP Address：
192.168.0.250
```

    Press (▼) button to display Netmask Address.

4. Display Netmask Address:

```
Netmask Address：
255.255.255.0
```

    Press (▼) button to display Gateway Address.

5. Display Gateway address:

```
Gateway Address:
192.168.0.254
```

    Press (ENTER) or (ESC) button to go back to Select Menu.

A.4 Setup VLAN

1. Press (ENTER) button to enter Select menu..

2. Select Setup VLAN and press (ENTER) button to display current VLAN status.

```
SELECT:
Setup VLAN
```

3. Display VLAN Status：

```
VLAN Support is:
Disabled
```

    Press (Enter) button for next step.

3. Set VLAN as Enabled or Disabled：

```
Enabled VLAN:
Y(Enter)  N(ESC)
```

    Press (ENTER) button to enable VLAN function.

4. Set main VLAN ID：

```
Enter VLAN ID:
              1
```

    Press (▲) or (▼) button to edit the main VLAN ID.
    Press (ENTER) button to save the value.

Caution: Please check with the network administrator about the VLAN ID. The ID number here should be the general ID or the VLAN ID for Administrator group. That is, the management PC should belongs to the same VLAN ID you key in to the BM-2155. Otherwise, you could have the problem to login to this BM-2155 after the reboot.

5. After you press (ENTER) button, the following message is shown:

```
Setup VLAN
Save OK....
```

```
Setup VLAN
Now Need Reboot
```

```
Setup VLAN
Rebooting...
```

A.5 Setup HA Mode

1. Press (ENTER) button to enter Select menu..

2. Select Setup HA and press (ENTER) button to display current mode.

```
SELECT:
Setup HA Mode
```

3. Show HA Mode Status:

```
HA Mode is:
None
```

Press (Enter) button for next step.

4. Set HA Mode to Master, Slave or None:

```
Set HA = None
Y(Enter)  N(ESC)
```

Press (▲) or (▼) button to select HA Mode. There are three modes: None, Master and Slave. Press (ENTER) button to save the setting.

5. After you press (ENTER) button, the following message is shown:

```
Setup HA Mode
Save OK....
```

```
Setup HA Mode
Now Need Reboot
```

```
Setup HA Mode
Rebooting...
```

A.6 Reboot System

1. Press (ENTER) button to enter Select menu..

2. Select Reboot System and press (ENTER) button for option Yes or No.

```
SELECT:
Reboot System
```

3. Reboot System:

```
Reboot System
Y(Enter)    N(ESC)
```

Press (Enter) button to reboot the device. Press (ESC) to cancel.

```
Reboot System
Rebooting...
```

A.7 Service Information

1. Press (ENTER) button to enter Select menu..

2. Select Service Info and press (ENTER) button to display the Telephone number which you can contact with Planet.

```
SELECT：
Service Info
```

3. Telephone number:

```
Phone：
886-2-2219-9518
```

Press (▼) button to display the E-mail address which you can contact with Planet.

4. Service E-mail:

```
E-Mail： support@
planet.com.tw
```

Press (▼) button to display the Planet's Web site domain name.

5. Web hyper link:

```
Web：http://www.
planet.com.tw
```

Press (ESC) button to return to Select Menu.

A.8 Password Reset

1. Press (ENTER) button to enter Select menu..

2. Select Password Reset and press (ENTER) button for option Yes or No.

```
SELECT：
Password Reset
```

3. Password Reset：

```
Password Reset
Y(Enter)    N(ESC)
```

Press (Enter) button to reset password. Press (ESC) to cancel.

Note:

Default username is 『admin 』 and default password is empty.

A.9 Reset ALL Config

1. Press (ENTER) button to enter Select menu..

2. Select Reset ALL Config and press (ENTER) button for option Yes or No.

```
SELECT:
Reset ALL Config
```

3. Reset all configuration of the BM-2155:

```
Reset ALL Config
Y(Enter)    N(ESC)
```

      Press (Enter) button to reset all configuration. Press (ESC) to cancel.

4. After you press (ENTER) button, the following message is shown:

```
Reset ALL Config
Start....
```

```
Reset ALL Config
Finish....
```

```
Reset ALL Config
Now Need Reboot
```

```
Reset ALL Config
Rebooting...
```

A.10 Exit

1. Press (ENTER) button to enter Select menu.

2. Select Exit and press (ENTER) button to go back to top Menu.

```
SELECT:
Exit
```