
G.SHDSL Router – AH505

User's Manual

Table of Contents

1. PRODUCT OVERVIEW.....	1
1.1 PREFACE.....	1
1.2 OVERVIEW.....	1
2. HARDWARE INSTALLATION.....	2
2.1 FRONT PANEL LEDs INDICATORS.....	2
2.2 REAR PANEL CONNECTORS.....	3
2.3 INSTALLATION PROCEDURE.....	3
3. CONFIGURING WITH CLI.....	4
3.1 CONSOLE SETUP.....	4
3.2 MENU OVERVIEW.....	5
3.3 LOGIN.....	5
3.3.1 <i>Login</i>	5
3.3.2 <i>Changing System Password</i>	5
3.4 SETUP.....	6
3.4.1 <i>Main Menu</i>	6
3.4.2 <i>System Overview</i>	7
3.4.3 <i>System Operation Mode</i>	7
3.4.4 <i>Bridge Mode</i>	8
3.4.5 <i>Router Mode</i>	18
3.5 SYSTEM MAINTENANCE.....	39
3.5.1 <i>Load Factory Default</i>	40
3.5.2 <i>General Maintenance</i>	41
3.5.3 <i>Ping Test</i>	42
3.5.4 <i>Display Configuration</i>	43
3.5.5 <i>Time Settings</i>	44
3.6 PERFORMANCE AND STATISTIC.....	45
3.6.1 <i>DSL</i>	46
3.6.2 <i>ATM</i>	47
4. CONFIGURING WITH WEB.....	48
4.1 LOGIN.....	48
4.2 WEB MENUS.....	48
4.3 SETUP.....	49
4.3.1 <i>System Information</i>	49
4.3.2 <i>System Operation Mode</i>	50
4.3.3 <i>Bridge Mode</i>	51
4.3.4 <i>Router Mode</i>	59
4.4 MAINTENANCE.....	75
4.4.1 <i>General Maintenance</i>	75
4.4.2 <i>Time Settings</i>	76

4.4.3 <i>Factory Default</i>	76
4.4.4 <i>Save</i>	77
4.5 PERFORMANCE.....	77
4.5.1 <i>DSL Performance & Statistic</i>	77
4.5.2 <i>ATM Performance & Statistic</i>	78
5. UPGRADING FIRMWARE	79
5.1 UPGRADE USING ETHERNET PORT	79
5.2 UPGRADE USING SERIAL PORT	80
APPENDIX	88
APPENDIX A:INSTALL TFTP SOFTWARE	88

1. Product Overview

1.1 Preface

The primary objective of this manual is to help network administrator operate AH505 bridge and router product. Strongly committed to user friendly, this manual will guide the users step by step to turn the product up and running in the simplest way ever.

1.2 Overview

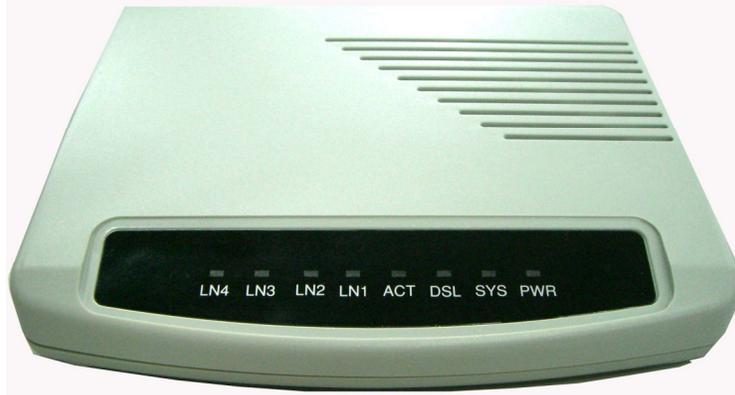
With the symmetrical data transmission up to 2.3 Mbps over the ordinary telephone line, SHDSL satisfies the needs of multiple user of small office/home office (SOHO), who needs both bandwidth and permanent data connection. Although SHDSL transmits data over the telephone line, it does not interrupt the voice because it uses different frequency for data transmission. Therefore, the end-users are able to access internet and to talk over the telephone simultaneously.

AH505 is designed to provide user all features needed in the SOHO environment. This product supports multiple virtual channel to connect to different location. Bridge and router features are also supported in AH505.

2. Hardware Installation

2.1 Front Panel LEDs Indicators

There are eight LED indicators on the front panel of AH505. They show the statuses of the device.



The functions of LED indicators are described in the following table:

LED	Color	Status	Meaning
PWR	Orange	Steady Off	The device is on. The device is off.
SYS	Orange	Steady Off	The device is on and functioning properly. The device is booting or Off
DSL	Orange	Steady Blinking Off	The device is Sync Status. The link is synchronizing - this may take several minutes. The device is unplugged or disconnected.
ACT	Orange	Blinking Off	The device is sending or receiving data There's no data sending or receiving.
LN1	Orange	Steady	Link 1 - The LAN connection is successfully established.
LN2	Orange	Steady	Link 2 - The LAN connection is successfully established.
LN3	Orange	Steady	Link 3 - The LAN connection is successfully established.
LN4	Orange	Steady	Link 4 - The LAN connection is successfully established.

2.2 Rear Panel Connectors

The rear panel connectors connecting the device to the LAN and xDSL network are illustrated as follows.

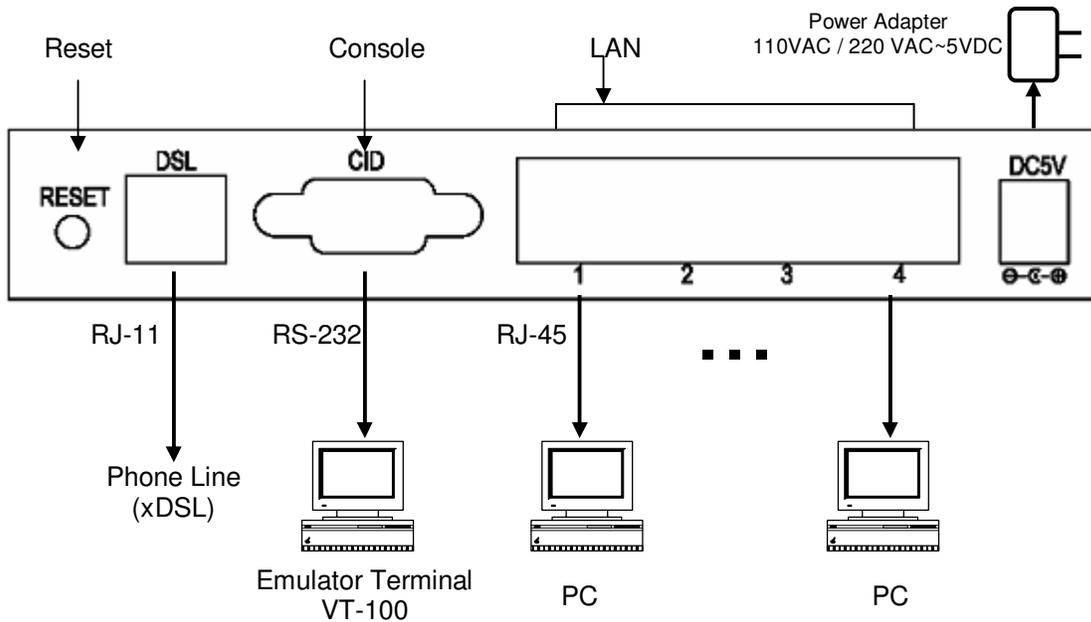


Figure 1 Rear Panel and Installation

2.3 Installation Procedure

Step 1. - Use RJ-11 cable to connect the device to xDSL line.

Step 2. - Use RS-232 cable to connect the console port of the device to serial port of the PC with terminal emulator software installed.

Step 3. - Use RS-45 cable to connect the device and the PC which has the Network Interface Card (NIC) installed. If you want to connect to an external hub, you have to use the RJ-45 cross-over cable.

Step 4. - Plug in the Power adaptor to the DC Power socket of the device, then connect the Power adaptor to the AC outlet.

3. Configuring with CLI

3.1 Console Setup

Step 1: Connect computer to the device through the console port as shown in the figure 1.

Step 2: Open the terminal emulator software (like Hyper-Terminal on Microsoft Windows machine, or “Minicom” on Linux machine), then select the proper COM port for the connection. Set the terminal and port to the following parameters:

- Terminal Mode: VT-100
- Baud rate : 115200 bps
- Data bits : 8
- Parity : None
- Stop bits : 1
- Flow Control : None

Turning on the AH505, then after few seconds of machine initialization, the system management terminal will display the login screen. Details see section 3.3.1.

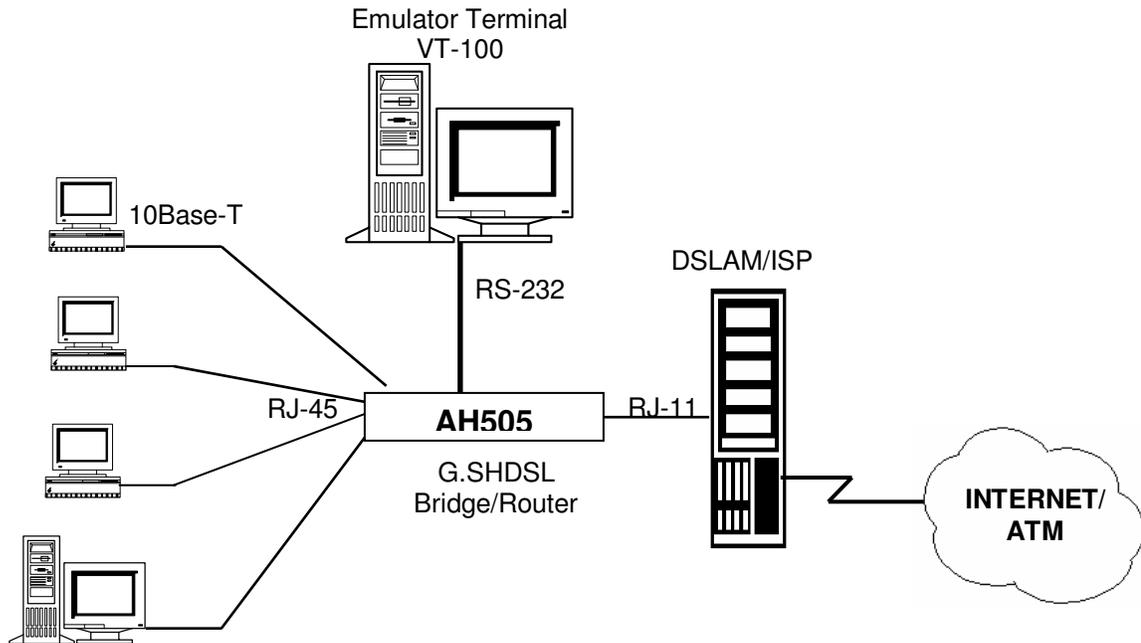


Figure 2 Console Setup

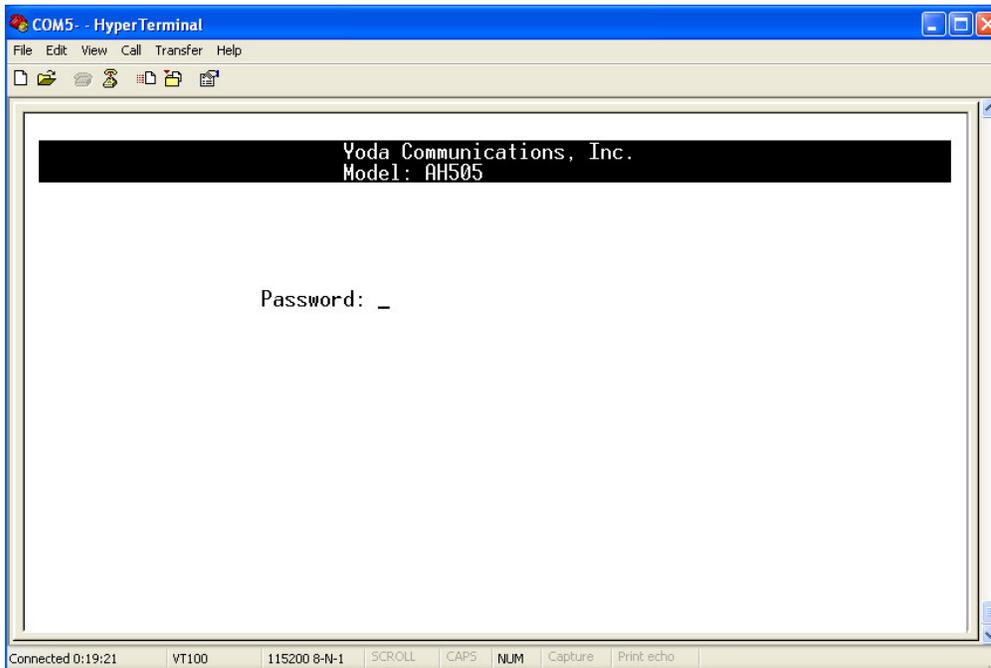
3.2 Menu Overview

You can refer to Main Menu, see section 3.4.1.

3.3 Login

3.3.1 Login

- Default Password: **admin**



3.3.2 Changing System Password

You can change the system password by following steps:

Login to the Main Menu:

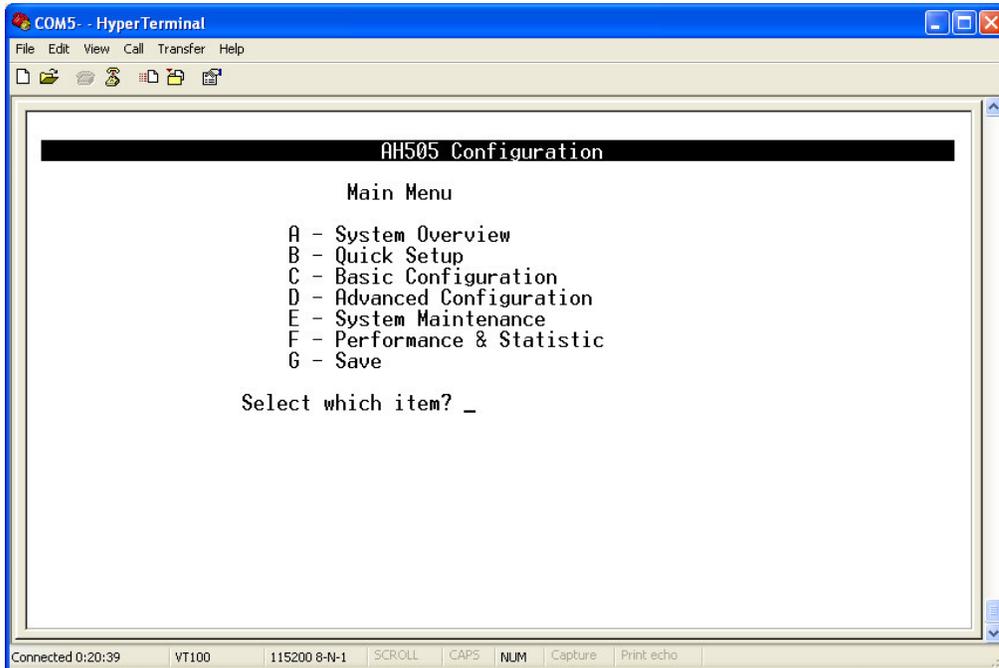
- Step 1. - Press '**E**' to open menu 'System Maintenance'
- Step 2. - Press '**B**' to open menu 'General Maintenance'
- Step 3. - Press '**C**' to enter the old password.
- Step 4. - Press '**D**' to enter a new password.
- Step 5. - Press '**E**' to re-type the new password to confirm.
- Step 6. - Press '**ENTER**' key to update.

NOTE: To cancel the setup, press the key '**ESC**'.

3.4 Setup

3.4.1 Main Menu

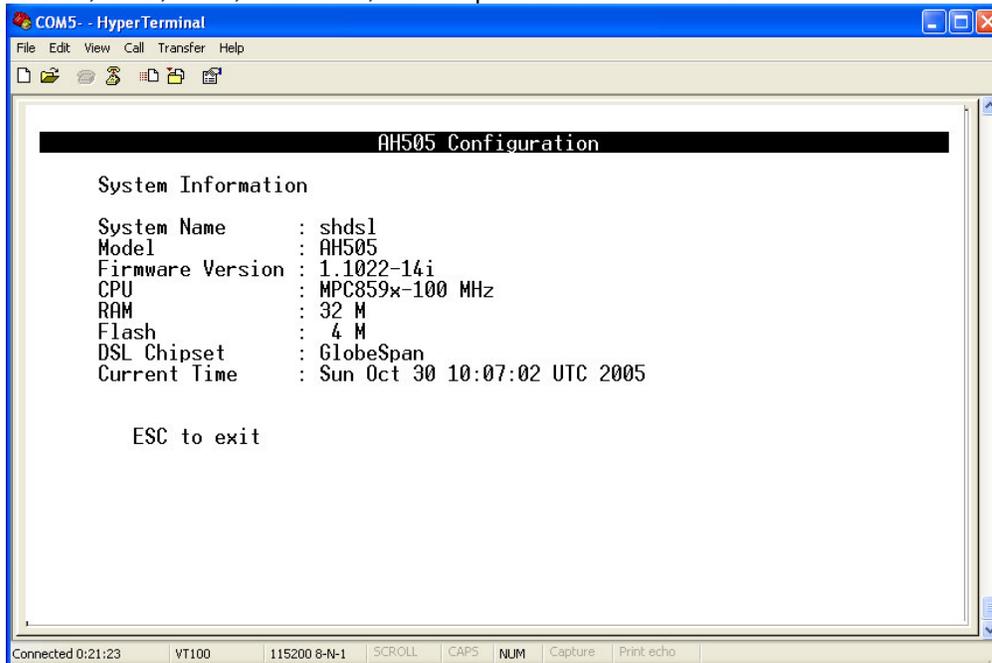
It contains all the submenus of management system terminal in which the configuration of device can be set.



3.4.2 System Overview

From Main Menu, press '**A**' to open menu System Overview.

In this menu, it shows the current system information such as: System Name, Model, Firmware Version, CPU, RAM, Flash size, DSL chipset and Current Time.



3.4.3 System Operation Mode

You can set System Operation Mode: BRIDGE or ROUTER from two different menus:-

a. In menu 'Quick Setup':

From Main Menu,

Step 1: - Press '**B**' - to open menu 'Quick Setup'

Step 2: - Press '**A**' - to select item Operation Mode

Step 3: - Press '**Space Bar**' - to toggle between BRIDGE / ROUTER mode

Step 4: - Press '**Enter**' - to update the system operation mode

b. In menu 'System Setup'

From Main Menu,

Step 1: - Press '**C**' - to open menu 'Basic Configuration'

Step 2: - Press '**A**' - to open menu 'System Setup'

Step 3: - Press '**A**' - to select item Operation Mode

Step 4: - Press '**Space Bar**' - to toggle between BRIDGE / ROUTER mode

Step 5: - Press '**Enter**' - to update the system operation mode

NOTE: You must press '**Enter**' to update system configuration after selecting the operation mode.

3.4.4 Bridge Mode

In Bridge mode, AH505 provides frame forward services between two or more LANs. It forwards frames based on the MAC (Medium Access Control) addresses which is hardware-level of NICs (Network Interface Card)

The operation mode of the system must set to BRIDGE Mode. To change the mode, please see the section 3.4.3. The following sections will help you to do configuration the device in BRIDGE mode by using the system management terminal.

The application of the G.SHDSL Modem in Bridge Mode are illustrated in the following figures

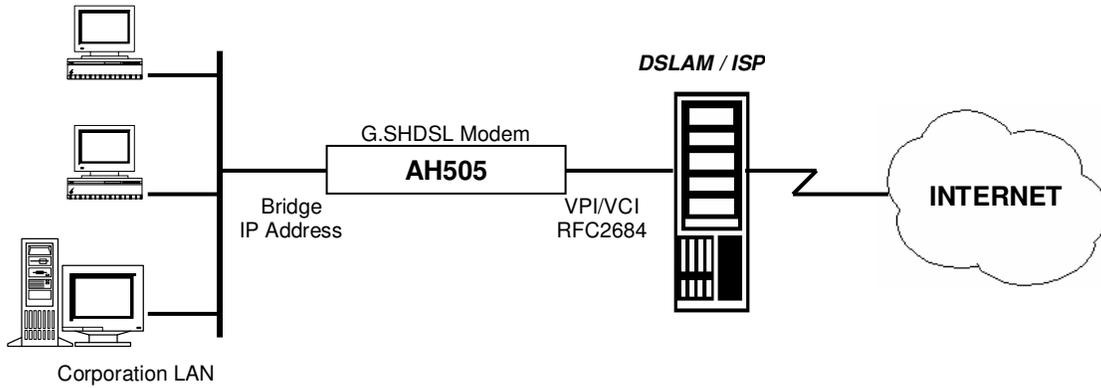


Figure 4 Bridge Mode - Application of AH505: Internet Access

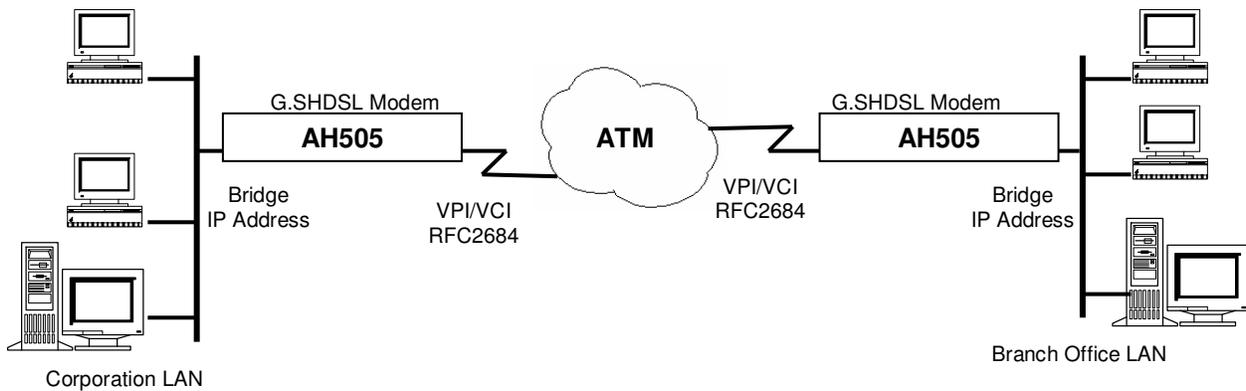
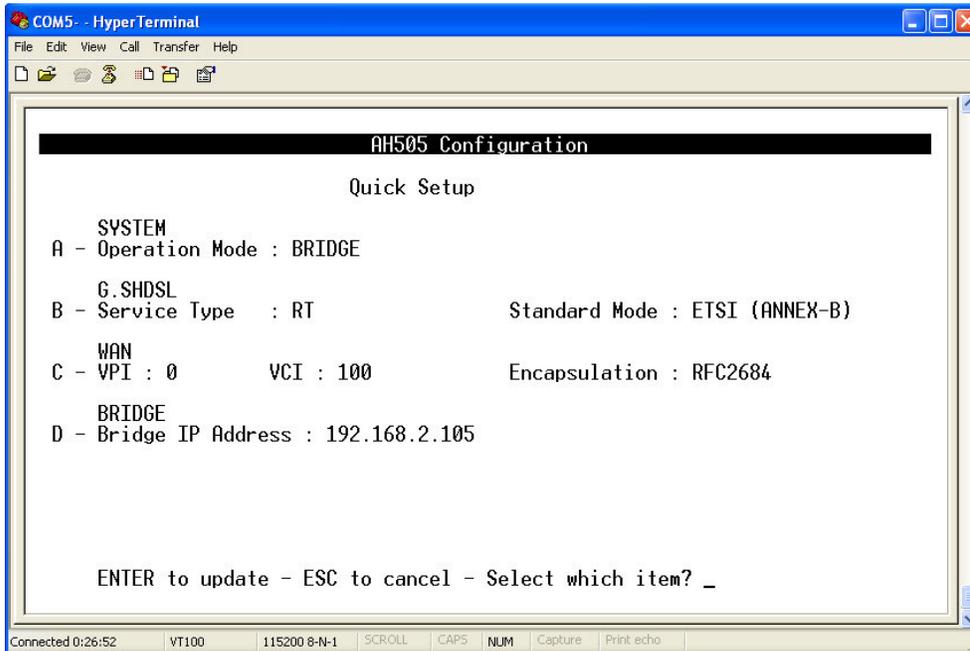


Figure 5 Bridge Mode - Application of AH505: LAN-to-LAN

3.4.4.1 Quick Setup:



From Main Menu, press '**B**' to open menu 'Quick Setup'

Using this setup, the device can be quickly configured and operated properly. The WAN configuration is for the first Virtual Circuit (VC 1) in twelve VC set available in the device.

The details of the items are described in the following table:

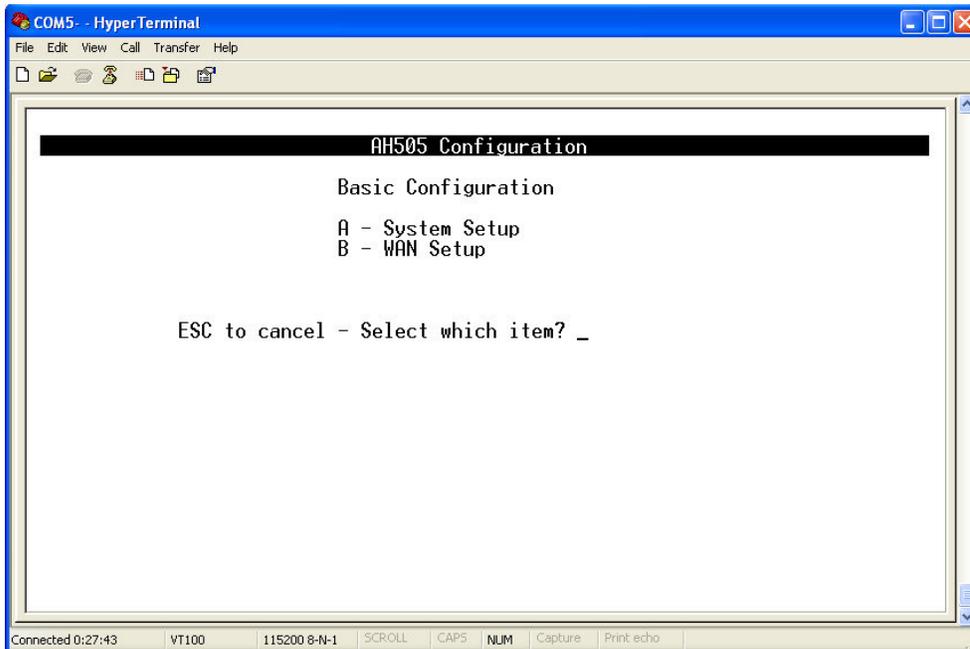
Item	Field Name	Description	Value
A	Operation Mode	System operation mode. Press 'Space Bar' to select the setting.	BRIDGE / ROUTER Default: BRIDGE
B	Service Type	System service type. System can be operated as RT or COT type. Press 'Space Bar' to select the setting.	RT / COT Default: RT
	Standard Mode	Physical standard mode.	ETSI / ANSI Default: ETSI
C	VPI	Virtual Path Identifier, given by ISP.	0 - 16
	VCI	Virtual Channel Identifier, given by ISP.	33 - 4096
D	Bridge IP Address	The device IP address.	i.e '192.168.2.105'

3.4.4.2 Basic Configuration:

From Main Menu,

- Press '**C**' to open menu 'Basic Configuration'.

In menu Basic Configuration, the system can be configured in submenus: System Setup and WAN setup.

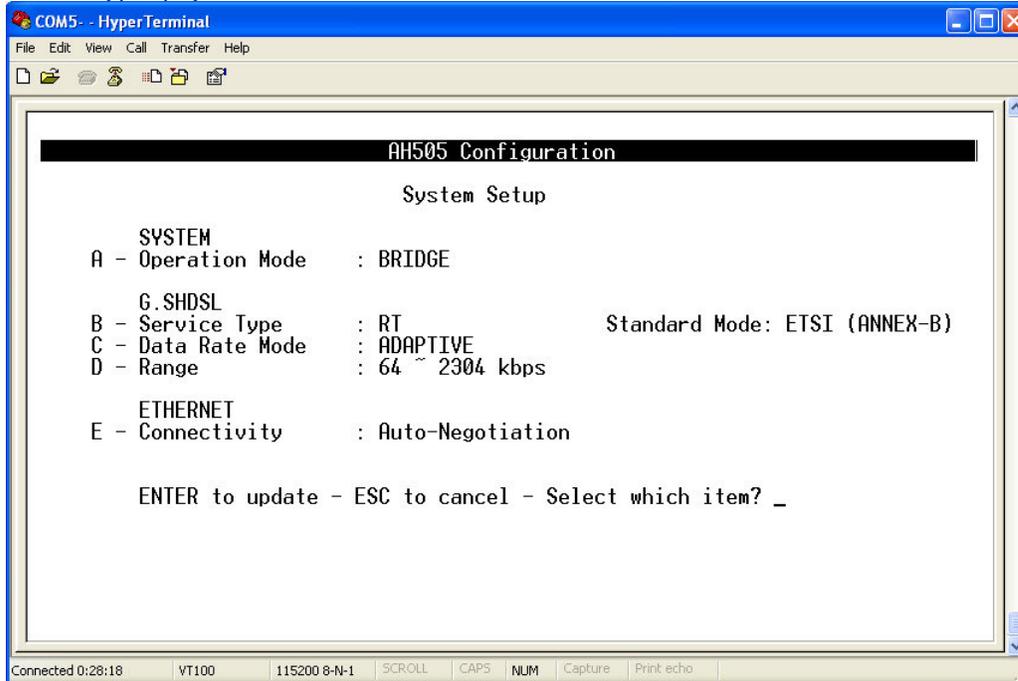


System Setup

From Main Menu,

- Press 'C' to open menu 'Basic Configuration'.
- Press 'A' to open menu 'System Setup'

In menu System Setup, it contains the system related configuration such as: operation mode, service type, physical standard mode, Data Rate mode and so on.



The details of the items are described in the following table:

Item	Field Name	Description	Value
A	Operation Mode	System operation mode. Press 'Space Bar' to select the setting.	BRIDGE / ROUTER Default: BRIDGE
B	Service Type	System service type. System can be operated as RT or COT type. Press 'Space Bar' to select the setting.	RT / COT Default: RT
	Standard Mode	Physical standard mode. Press 'Space Bar' to select the setting.	ETSI / ANSI Default: ETSI
C	Data Rate Mode	Data transferred rate mode. Press 'Space Bar' to select the setting.	ADAPTIVE / FIXED Default: ADAPTIVE
D*	Range	Date rate range. In Adaptive mode, the data rate can be changed in the range 192~2304 kbps. In Fixed mode, it is set in the range 64~2304 kbps. Press 'Space Bar' to select the setting.	ADAPTIVE: 192~2304 FIXED: 64 - 2304
E	ETHERNET Connectivity	Specify the operation mode of LAN port.	Auto-Negotiation/10M half/10M full/100M half/100M full

Note: * applicable for Data Rate FIXED mode only

WAN setup

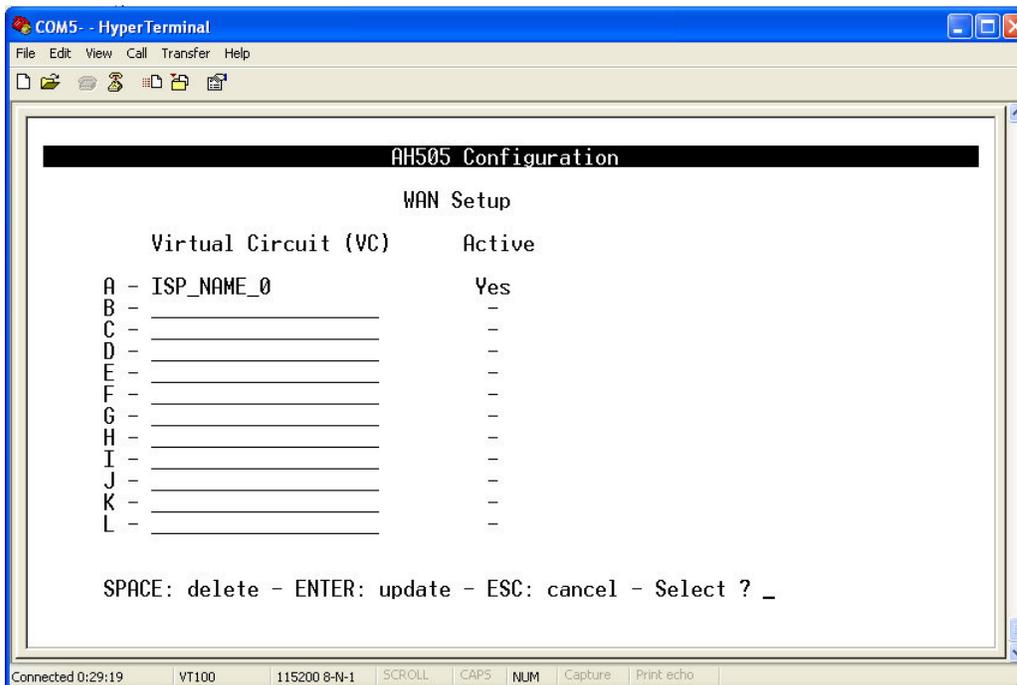
From Main Menu,

- Press '**C**' to open menu 'Basic Configuration'.
- Press '**B**' to open menu 'WAN Setup'

In menu WAN Setup, it shows the list of Virtual Circuits (VCs) and their statuses.

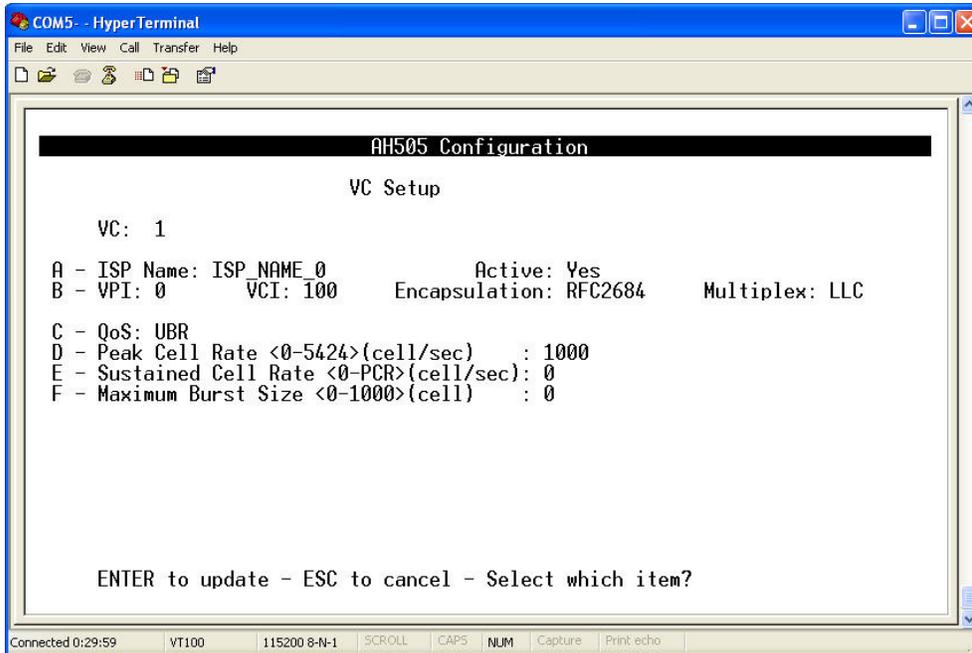
If a VC is already configured then it displays its name as a identification, otherwise it displays a underscore line.

If a VC is already activated, then in the field 'Active', it displays the word 'Yes', otherwise it displays a dash.



1)To setup VC configuration,

- Press an key 'A' to 'L' for an appropriate VC, i.e 'A' for VC 1, 'B' for VC 2...



```
COM5 - HyperTerminal
File Edit View Call Transfer Help
AH505 Configuration
VC Setup
VC: 1
A - ISP Name: ISP_NAME_0           Active: Yes
B - VPI: 0       VCI: 100      Encapsulation: RFC2684      Multiplex: LLC
C - QoS: UBR
D - Peak Cell Rate <0-5424>(cell/sec)   : 1000
E - Sustained Cell Rate <0-PCR>(cell/sec): 0
F - Maximum Burst Size <0-1000>(cell)   : 0
ENTER to update - ESC to cancel - Select which item?
Connected 0:29:59  VT100  115200 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

2)To Delete VC configuration,

- Press '**Space Bar**', then follow the instructions in the bottom line.

The details of the items are described in the following table:

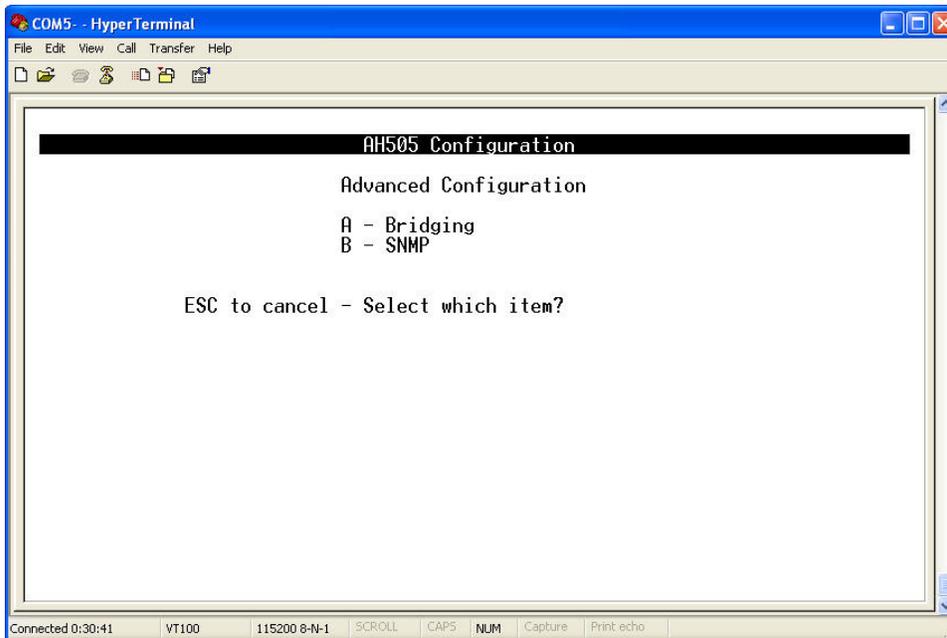
Item	Field Name	Description	Value
A	ISP Name	ISP Name	Max. 18 characters
B	VPI	Virtual Path Identifier, given by ISP	0 - 16
	VCI	Virtual Channel Identifier, given by ISP	33 - 4096
	Encapsulation	Encapsulation type	Always set RFC2684
	Multiplex	Header to identify the protocol that Virtual Circuit being carrying. LLC: Logical Link Control Multiplexing VCMUX : VC-based Multiplexing By press 'Space Bar' to select the setting.	LLC / VCMUX Default: LLC
C	QoS	Quality of Services UBR: Unspecified Bit Rate. CBR: Constant Bit Rate. rt-VBR: Real-Time Variable Bit Rate. nrt-VBR: Non-Real-Time Variable Bit Rate. Press 'Space Bar' to select the setting.	UBR / CBR / rt-VBR / nrt-VBR Default: UBR
D	Peak Cell Rate (PCR)	The maximum transmission rate.	0 - 5424
E	Sustained Cell Rate (SCR)	The Transmission rate in a burst traffic.	0 - PCR
F	Maximum Burst Size (MBS)	Maximum number of transmission cell at the peak rate.	0 - 1000

3.4.4.3 Advanced Configuration:

From Main Menu,

- Press 'D' to open menu 'Advanced Configuration'.

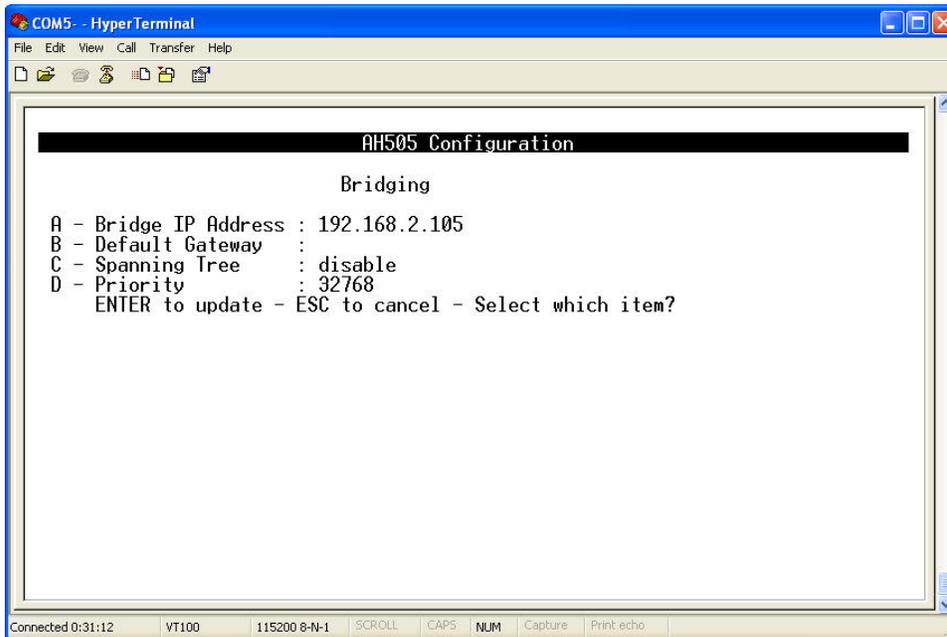
In submenu Bridging and SNMP under menu Advanced Configuration, it will help you to configure the system related information such as: Bridging IP address, Spanning Tree, Priority, SNMP.



Bridging

From Main Menu,

- Press 'D' to open menu 'Advanced Configuration'.
- Press 'A' to open menu 'Bridging'.



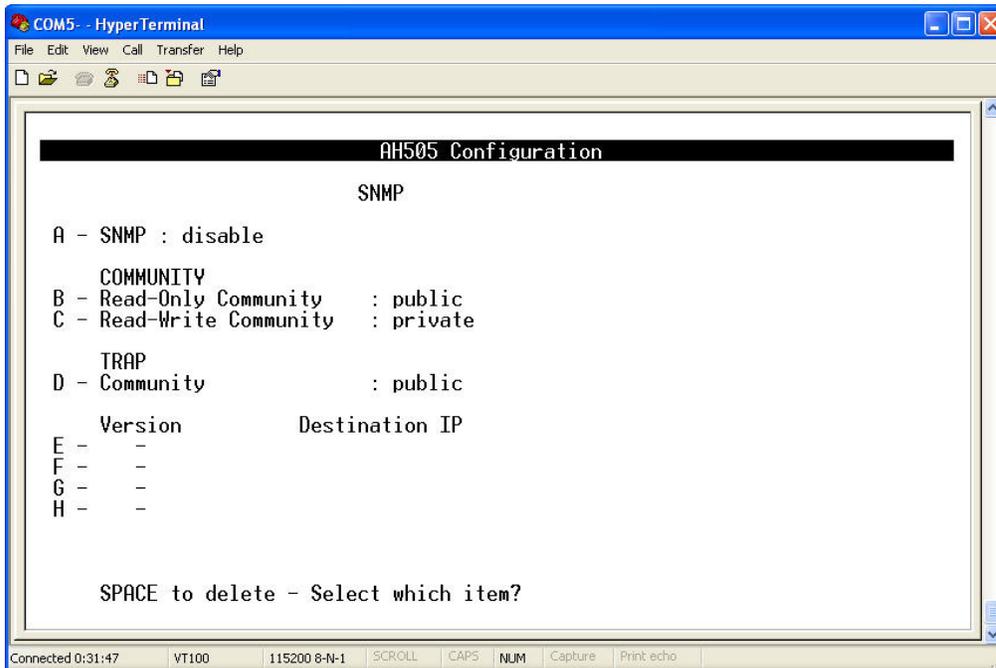
The details of the items are described in the following table:

Item	Field Name	Description	Value
A	Bridge IP Address	Bridge IP Address	i.e: '192.168.2.105'
B	Default Gateway	Specify Default Gateway address of the unit.	None
C	Spanning Tree	Spanning Tree Learning Bridge Protocol. Press 'Space Bar to select the settings.	Disable/Enable Default: Disable
D	Priority	Specify the priority.	0-65535

SNMP

From Main Menu,

- Press '**D**' to open menu 'Advanced Configuration'.
- Press '**B**' to open menu 'SNMP'.



The details of the items are described in the following table:

Item	Field Name	Description	Value
A	SNMP	Disable or Enable the SNMP management feature.	Disable/Enable Default: Disable
B	Read-Only Community	Specify the community name of external SNMP Managers allowed with access level of " Read " to the unit's MIB.	Public
C	Read-Write Community	Specify the community name of external SNMP Managers allowed with access level of " Read & write " to the unit's MIB.	Private
D	TRAP Community	Specify the community name of external SNMP Managers allowed to receive the TRAP message.	Public
E-H	Version	Specify TRAP version and destination IP address that the TRAP message is intended for.	None

3.4.5 Router Mode

The operation mode of the system must set to ROUTER Mode. To change the mode, please see the section 3.4.3. The following sections will help you to do configuration the device in Router mode.

The application of the G.SHDSL Modem in Router Mode are illustrated in the following figures

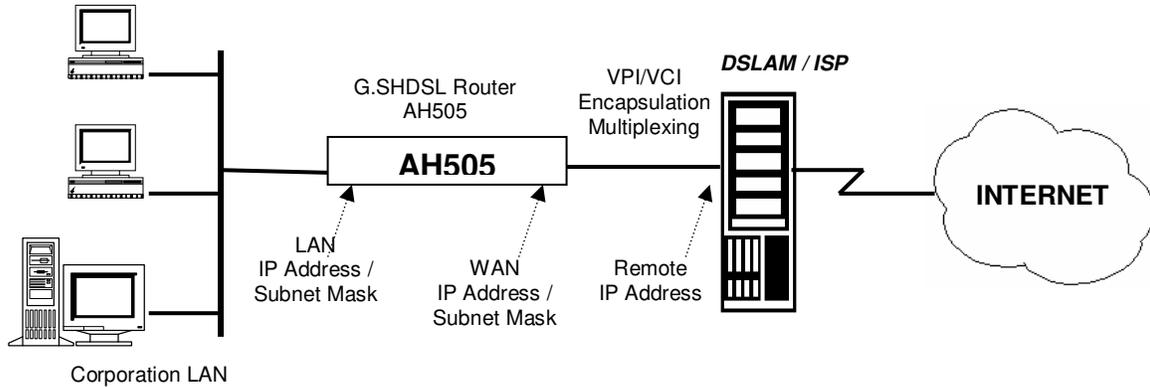


Figure 6 Router Mode - Application of AH505: Internet Access

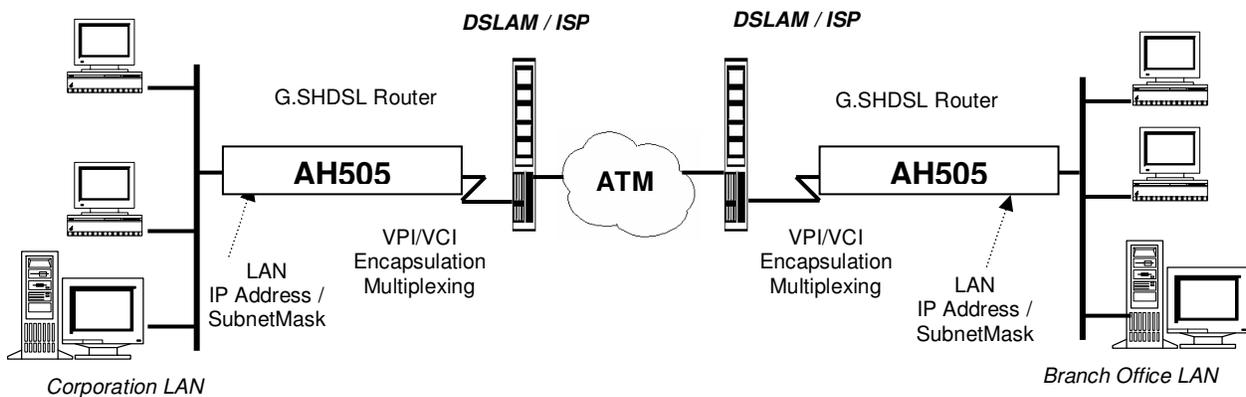


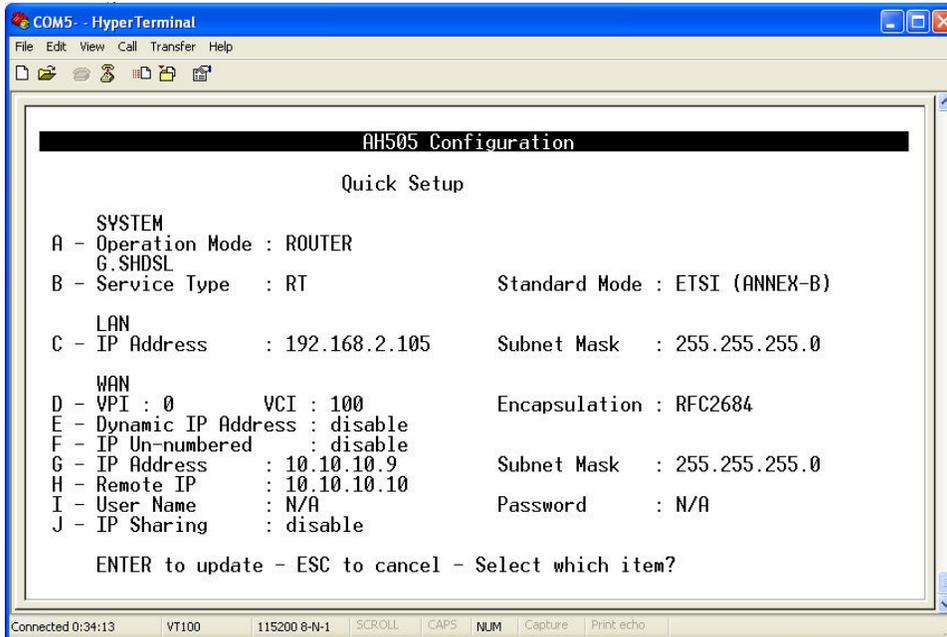
Figure 7 Router Mode - Application of AH505: LAN-to-LAN

3.4.5.1 Quick Setup:

From Main Menu, press '**B**' to open menu 'Quick Setup'.

Using this setup, the device can be quickly configured and operated properly.

Note: The WAN configuration is for the first Virtual Circuit (VC 1) in twelve VC set available in the device.



The details of the items are described in the following table:

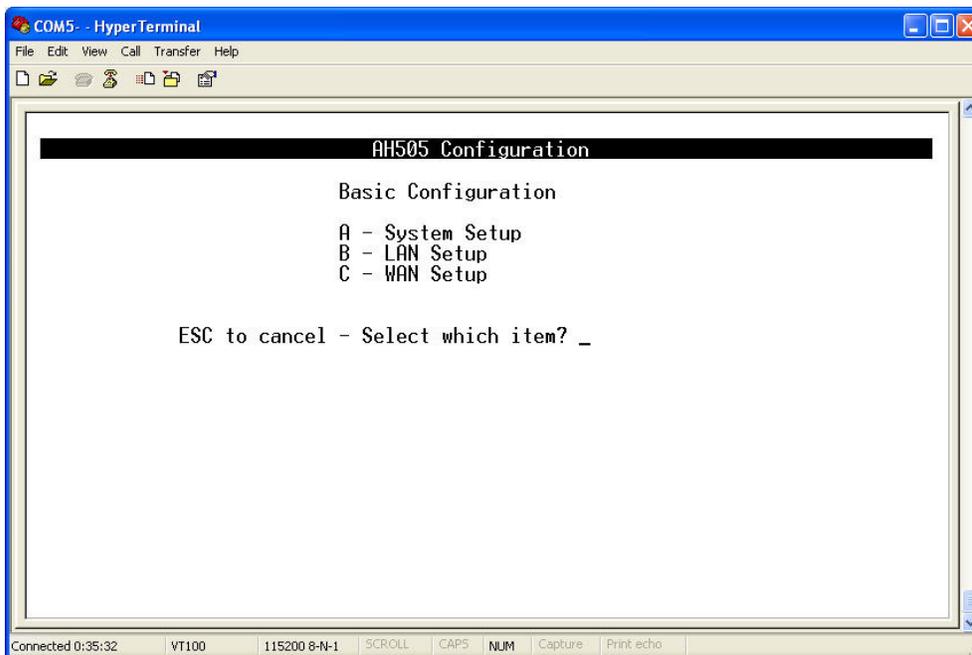
Item	Field Name	Description	Value
A	Operation Mode	System operation mode. Press 'Space Bar' to select the setting.	BRIDGE / ROUTER Default: BRIDGE
B	Service Type	System service type. System can be operated as RT or COT type. Press 'Space Bar' to select the setting.	RT / COT Default: RT
	Standard Mode	Physical standard mode. Press 'Space Bar' to select the setting.	ETSI / ANSI Default: ETSI
C	LAN IP Address	Local IP Address of router.	Default: '192.168.0.1'
	LAN IP Subnet Mask	Local Subnet Mask of router.	Default: '255.255.255.0'
D	VPI	Virtual Path Identifier	0 – 16
	VCI	Virtual Channel Identifier	33 - 4096
	Encapsulation	The encapsulation type is given by ISP. Press 'Space Bar' to select the setting.	RFC2684 / IPoA / PPPoE / PPPoA Default: RFC2684
E	Dynamic IP Address	Press 'Space Bar' to select the setting.	Disable/Enable Default: Disable
F	IP Un-numbered	Press 'Space Bar' to select the setting.	Disable/Enable
G	WAN IP Address	The WAN local IP Address of router, given by ISP	i.e '10.10.10.9'
	WAN IP Subnet Mask	The WAN local IP subnet mask of router, given by ISP	i.e '255.255.255.0'
H	Remote IP Address	The IP Address of DSLAM, given by ISP	i.e '10.10.10.10'
I	User Name	ISP login user name, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA	Max. 18 characters
	Password	ISP login password, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA	Max. 18 characters
J	IP Sharing	IP Sharing or NAT (Network Access Translation). Press 'Space Bar' to select the settings.	Disable / Enable Default: Disable

3.4.5.2 Basic Configuration:

From Main Menu,

- Press '**C**' to open menu 'Basic Configuration'.

In menu Basic Configuration, the system can be configured in individual submenu: System Setup, LAN Setup and WAN setup.

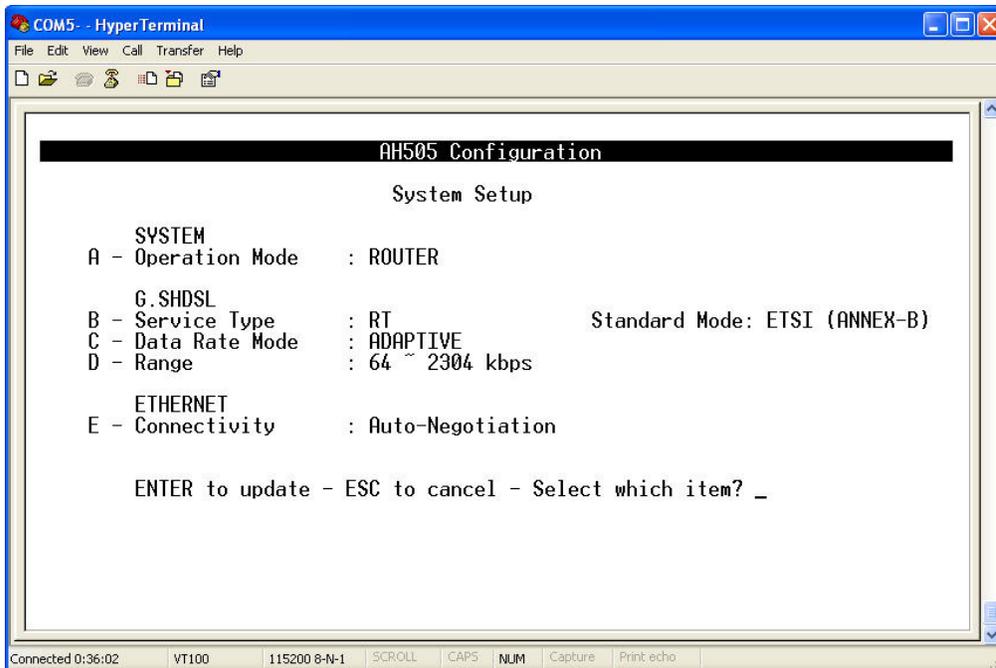


System Setup:

From Main Menu,

- Press '**C**' to open menu 'Basic Configuration'.
- Press '**A**' to open menu 'System Setup'

In menu System Setup, it contains the system related configuration such as: operation mode, service type, physical standard mode, Data Rate mode.



The details of the items are described in the following table:

Item	Field Name	Description	Value
A	Operation Mode	System operation mode. Press 'Space Bar' to select the settings.	BRIDGE / ROUTER
B	Service Type	System service type. System can be operated as RT or COT type. Press 'Space Bar' to select the settings.	RT / COT Default: RT
	Standard Mode	Physical standard mode. Press 'Space Bar' to select the settings.	ETSI / ANSI
C	Data Rate Mode	Data transferred rate mode. Press 'Space Bar' to select the settings.	ADAPTIVE / FIXED
D*	Range	Date rate range. In Adaptive mode, the data rate can be changed in the range 192~2304 kbps. In Fixed mode, it is set in the range 64~2304 kbps. Press 'Space Bar' to select the settings.	ADAPTIVE: 192~2304 FIXED: 64 - 2304
E	ETHERNET Connectivity	Specify the operation mode of LAN port.	Auto-Negotiation/10M half/10M full/100M half/100M full

Note: * applicable for Data Rate FIXED mode only

LAN Setup

From Main Menu,

- Press '**C**' to open menu 'Basic Configuration'.
- Press '**B**' to open menu 'LAN Setup'

```
COM5 - HyperTerminal
File Edit View Call Transfer Help
AH505 Configuration
LAN Setup
TCP/IP
A - IP Address      : 192.168.2.105      Subnet Mask: 255.255.255.0
B - IP Alias       : No
DHCP
C - DHCP Server    : disable
D - DHCP Relay Server IP : 0.0.0.0
E - Starting IP Address : 192.168.0.32      Ending      : 192.168.0.254
F - DNS Proxy      : disable
G - DNS 1          : 209.206.10.3      DNS 2       : 206.183.3.45
H - Leased Time<1-864000>: 864000

ENTER to update - ESC to cancel - Select which item? _

Connected 0:36:33  VT100  115200 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

The details of the items are described in the following table:

Item	Field Name	Description	Value
A	LAN IP Address	LAN IP address of router	Default: '192.168.0.1'
	LAN IP Subnet Mask	LAN IP subnet mask of router	Default: '255.255.255.0'
B	IP Alias	IP Alias	No/Yes Default:No
C	DHCP Server	Dynamic Host Configuration Protocol - allows dynamically for any of the connected hosts on a LAN that support DHCP clients. Press 'Space Bar' to select the settings.	Disable / Enable Default:Disable
D	DHCP Relay Server IP	DHCP Relay Server IP	None
E	Starting IP Address	Starting IP Address in the range in which the IP address of hosts on the LAN will be assigned, case of DHCP server set Enable	i.e: '192.168.0.32'
	Ending IP Address	Ending IP Address in the range in which the IP address of hosts on the LAN will be assigned, case of DHCP server set Enable	i.e: '192.168.0.254'
F	DNS Proxy	Enable or Disalbe DNS Proxy	Disable/Enable Default:Disable
G	DNS 1	Domain Name System - Primary DNS server IP address for resolving the symbolic IP (like www.yahoo.com) to numeric IP address (like 216.109.118.74)	i.e: '209.206.10.3'
	DNS 2	Secondary DNS server IP address	i.e: '206.183.3.45'
H	Leased Time	Amount of time that a given IP address will be valid.	1-864000

WAN setup

From Main Menu,

- Press '**C**' to open menu 'Basic Configuration'.
- Press '**C**' to open menu 'WAN Setup'

To setup VC configuration,

- Press an key '**A**' to '**L**' for an appropriate VC, i.e 'A' for VC 1, 'B' for VC 2...

-

To Delete VC configuration,

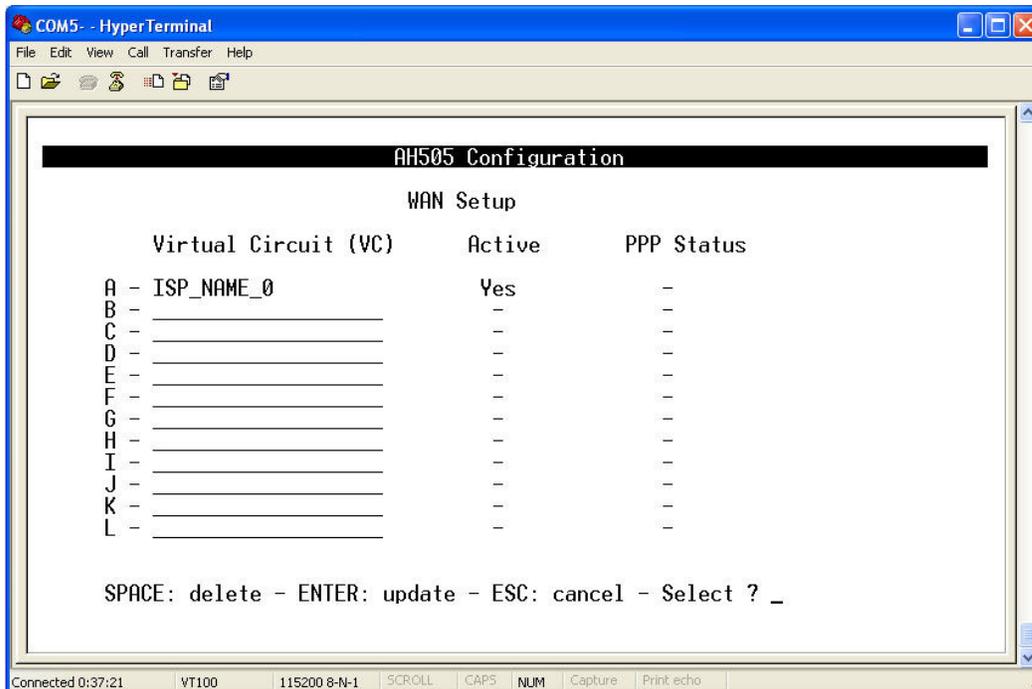
- Press '**Space Bar**', then follow the instruction in the bottom line.

In menu WAN Setup, it shows the list of Virtual Circuits (VCs) and their statuses.

If a VC is already configured then it display its name as a identification, otherwise it displays a underscore line.

If the VC is already activated, then in the field 'Active', it displays the word 'Yes', otherwise it displays a dash.

If the VC set with the encapsulation type of PPPoE or PPPoA, then in the field PPP Status it displays the status of PPP connection: 'Disconnected', 'Connecting' or 'Connected'.



VC setup:

From Main Menu,

- Press 'C' to open menu 'Basic Configuration'.
- Press 'C' to open menu 'WAN Setup'
- Press 'A' to 'L' to open the menu 'VC Setup' for the appropriate VC set.

```
COM5 - HyperTerminal
File Edit View Call Transfer Help
VC Setup

AH505 Configuration

VC: 1

A - ISP Name: ISP_NAME_0           Active: Yes
B - VPI: 0       VCI: 100       Encapsulation: RFC2684   Multiplex: LLC

C - QoS: UBR
D - Peak Cell Rate <0-5424>(cell/sec) : 1000
E - Sustained Cell Rate <0-PCR>(cell/sec): 0
F - Maximum Burst Size <0-1000>(cell) : 0

G - Dynamic IP Address: disable
H - IP Un-numbered : disable
I - IP Address: 10.10.10.9       Subnet Mask: 255.255.255.0
J - Remote IP : 10.10.10.10
K - User Name : N/A             Password : N/A
L - IP Sharing: disable

ENTER to update - ESC to cancel - Select which item? _

Connected 0:37:53  VT100  115200 8-N-1  SCROLL  CAPS  NUM  Capture  Print echo
```

The detail of item are described in the following table:

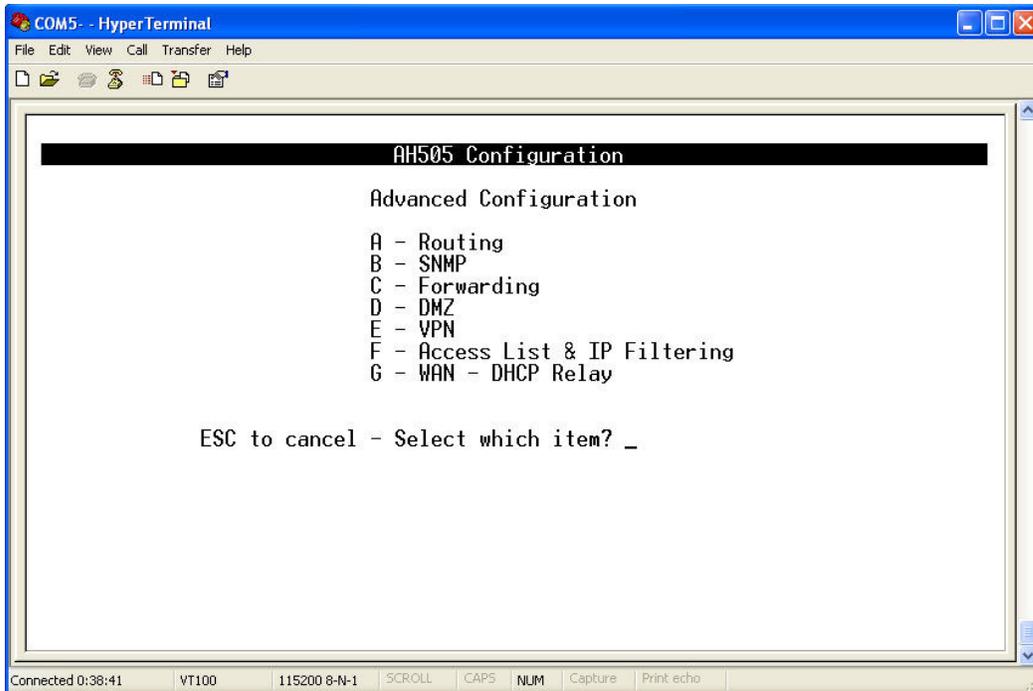
Item	Field Name	Description	Value
A	ISP Name	ISP Name	Max. 18 characters
B	VPI	Virtual Path Identifier, given by ISP	0 – 16
	VCI	Virtual Channel Identifier, given by ISP	33 - 4096
	Encapsulation	The encapsulation type is given by ISP. Press 'Space Bar' to select the setting.	RFC2684 / IPoA / PPPoE / PPPoA Default: RFC2684
	Multiplex	Header to identify the protocol that Virtual Circuit being carrying. LLC: Logical Link Control Multiplexing VCMUX : VC-based Multiplexing By press 'Space Bar' to select the seting.	LLC / VCMUX Default: LLC
C	QoS	Quality of Services UBR: Unspecified Bit Rate. CBR: Constant Bit Rate. rt-VBR: Real-Time Variable Bit Rate. nrt-VBR: Non-Real-Time Variable Bit Rate. Press 'Space Bar' to select the setting.	UBR / CBR / rt- VBR / nrt-VBR Default: UBR
D	Peak Cell Rate (PCR)	The maximum transmission rate.	0 - 5424
E	Sustained Cell Rate (SCR)	The Transmission rate in a burst traffic.	0 - PCR
F	Maximum Burst Size (MBS)	Maximum number of transmission cell at the peak rate.	0 - 1000
G	Dynamic IP Address	Press 'Space Bar' to select the setting.	Disable/Enable Default: Disable
H	IP Un-numbered	Press 'Space Bar' to select the setting.	Disable/Enable
I	WAN IP Address	The WAN local IP Address of router, given by ISP	i.e '123.221.79.2'
	WAN IP Subnet Mask	The WAN local IP subnet mask of router, given by ISP	i.e '255.0.0.0'
J	Remote IP Address	The IP Address of DSLAM, given by ISP	i.e '229.122.79.32'
K	User Name	ISP login user name, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA	Max. 18 characters
	Password	ISP login password, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA	Max. 18 characters
L	IP Sharing	IP Sharing or NAT (Network Access Translation). Press 'Space Bar' to select the settings.	Disable / Enable Default: Disable

3.4.5.3 Advanced Configuration:

From Main Menu,

- Press 'D' to open menu 'Advanced Configuration'.

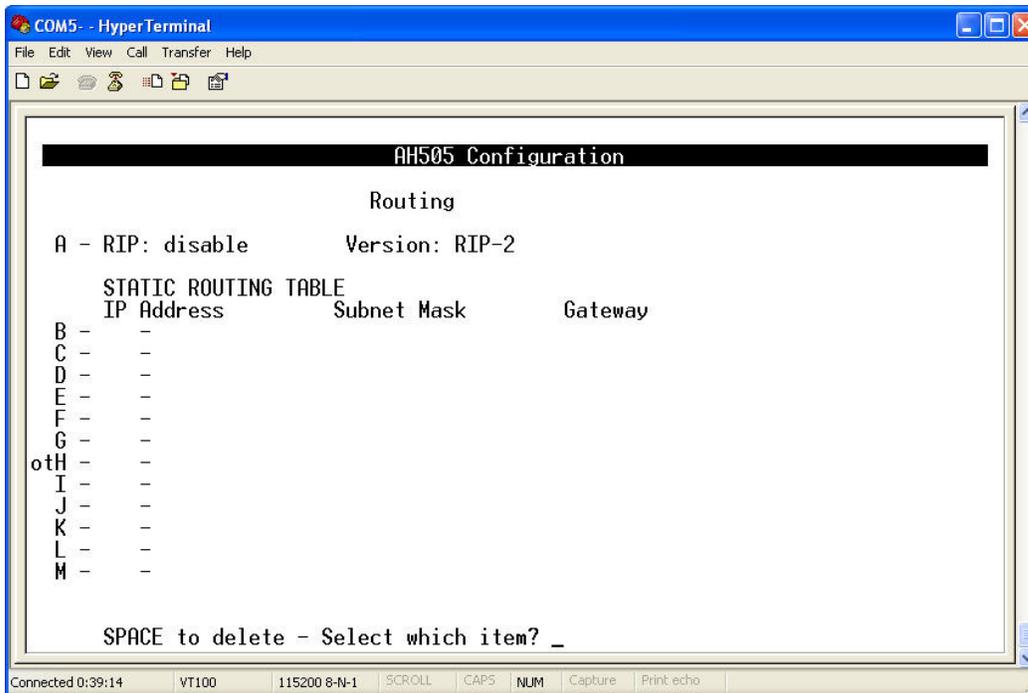
In menu Advance Configuration, the system can be configured in the submenu Routing, SNMP, Forwarding, DMZ ,VPN, Access List & IP Filtering, and WAN-DHCP Relay



Routing

From Main Menu,

- Press 'D' to open menu 'Advanced Configuration'.
- Press 'A' to open menu 'Routing'.



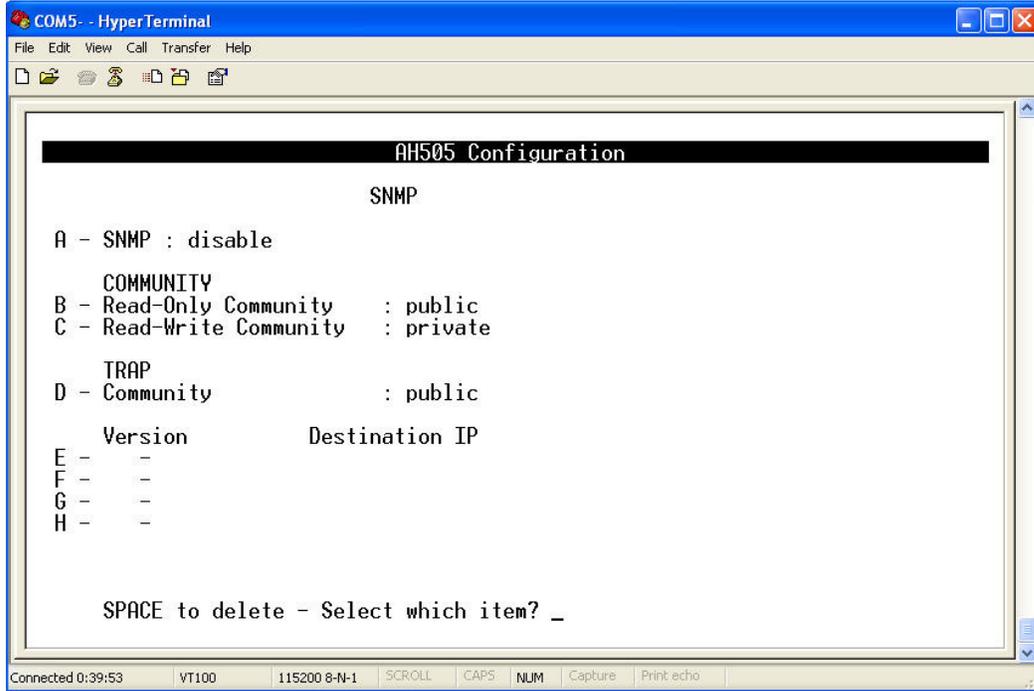
The details of the items are described in the following table:

Item	Field Name	Description	Value
Dynamic Routing	RIP	With Dynamic Routing, you can enable AH505 to automatically adjust to physical changes in the network's topology. Enable or disable the Routing Information Protocol.	Disable / Enable Default: Disable
	Version	RIP version determines the format and broadcasting method of any RIP transmissions by the AH505.	RIP-1 / RIP-2 Default: RIP-2
Static Routing	IP Address	A static route is a pre-configured path that data must traverse to reach a specific host or network. Specify the Destination IP Address for entry in the static routing table.	i.e '10.10.10.50'
	IP Subnet Mask	Specify the Subnet Mask for the network configured in the static routing table.	i.e '255.255.255.0'
	Gateway	Specify the IP address of Gateway.	i.e '192.168.0.1'

SNMP

From Main Menu,

- Press 'D' to select 'Advanced Configuration' menu.
- Press 'B' to select 'SNMP' menu.



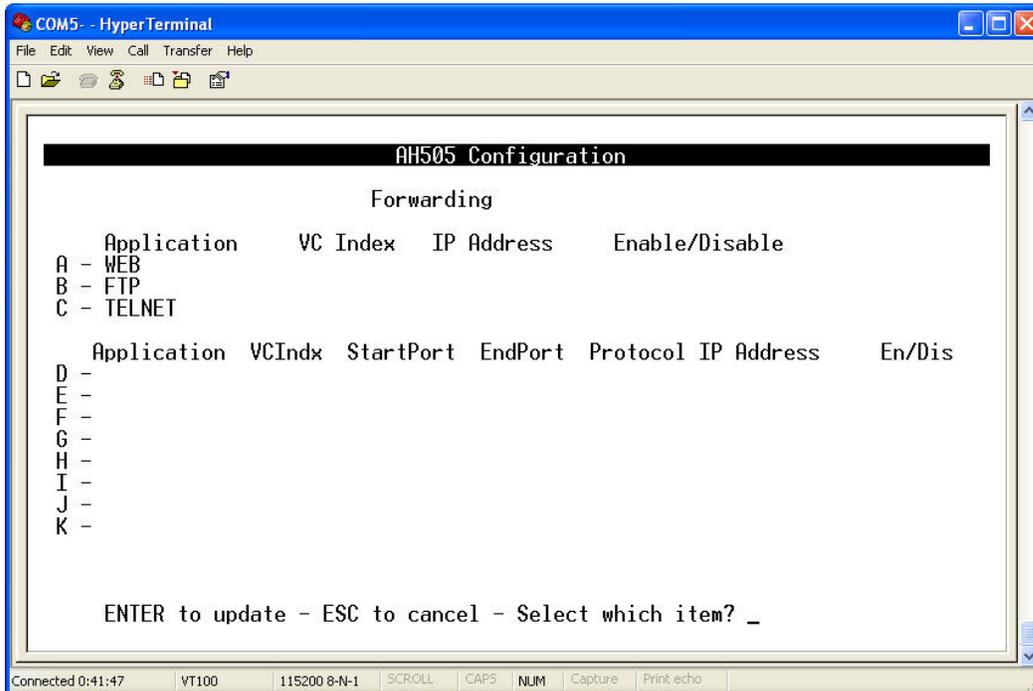
The details of the items are described in the following table:

Item	Field Name	Description	Value
A	SNMP	Disable or Enable the SNMP management feature..	Disable/Enable Default: Disable
B	Read-Only Community	Specify the community name of external SNMP Managers allowed with access level of " Read " to the unit's MIB.	Public
C	Read-Write Community	Specify the community name of external SNMP Managers allowed with access level of " Read & write " to the unit's MIB.	Private
D	TRAP Community	Specify the community name of external SNMP Managers allowed to receive the TRAP message.	Public
E-H	Version	Specify TRAP version and destination IP address that the TRAP message is intended for.	None

Forwarding

From Main Menu,

- Press '**D**' to select 'Advanced Configuration' menu.
- Press '**C**' to select 'Forwarding' menu.



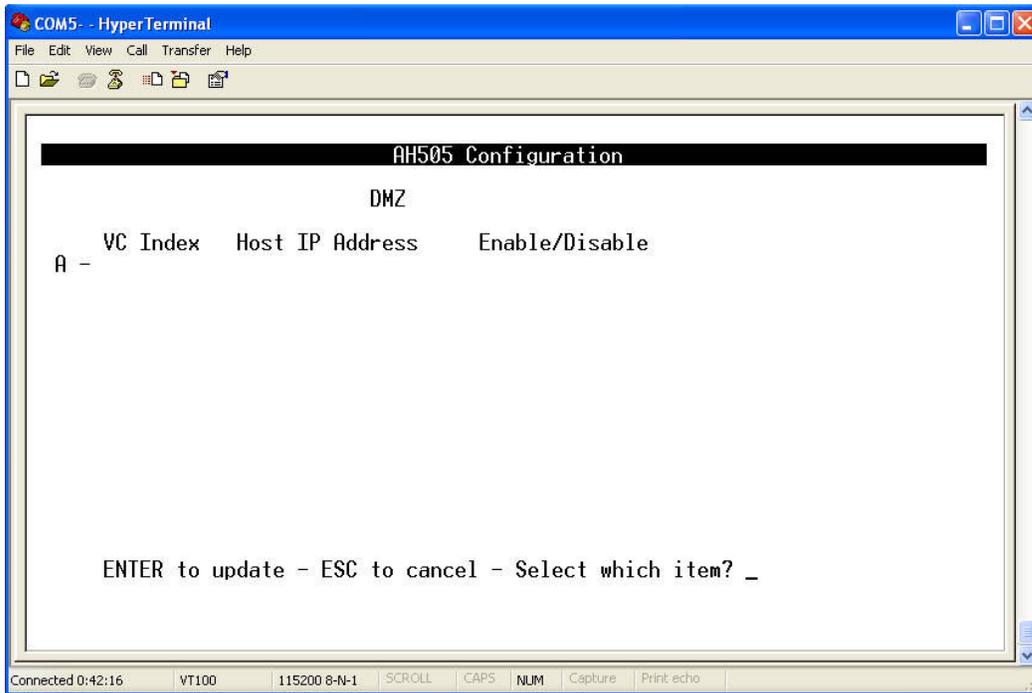
The details of the items are described in the following table:

Item	Field Name	Description	Value
A	WEB	Map WEB server on LAN for external Internet services.	None
B	FTP	Map FTP server on LAN for external Internet services.	None
C	TELNET	Map TELNET server on LAN for external Internet services.	None
D-K		Specify application parameters including VC Index, Port Number, Protocol, IP addresses.	None

DMZ

From Main Menu,

- Press '**D**' to open 'Advanced Configuration' menu.
- Press '**D**' to open 'DMZ' menu.



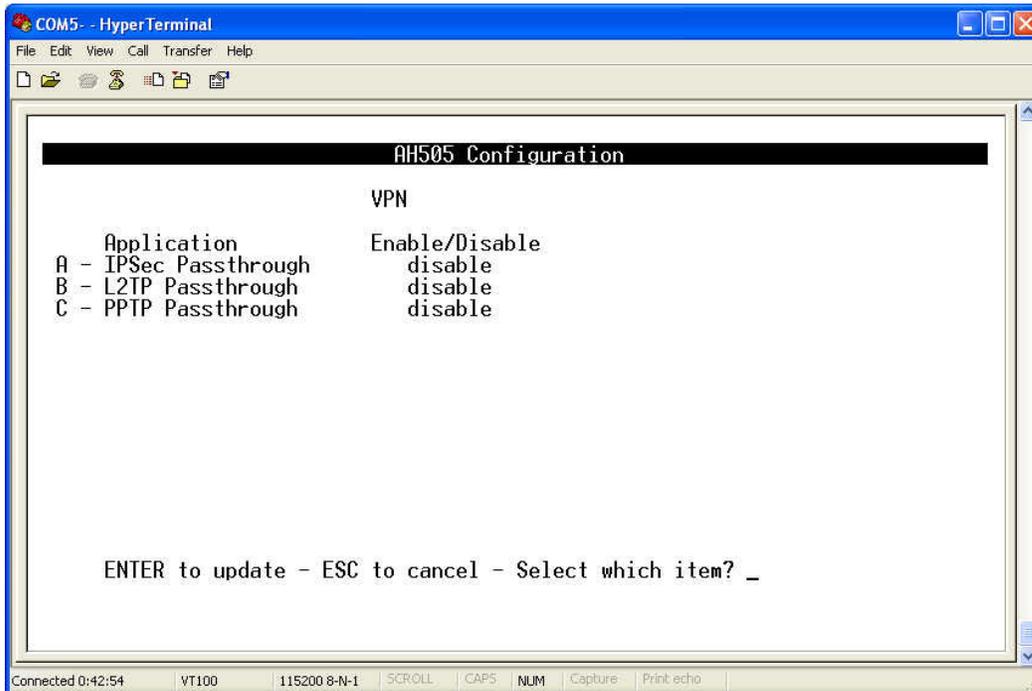
The details of the items are described in the following table:

Item	Field Name	Description	Value
A		Specify DMZ application parameters including VC Index, Host IP addresses	None

VPN

From Main Menu,

- Press '**D**' to open the 'Advanced Configuration' menu.
- Press '**E**' to open the 'VPN' menu.



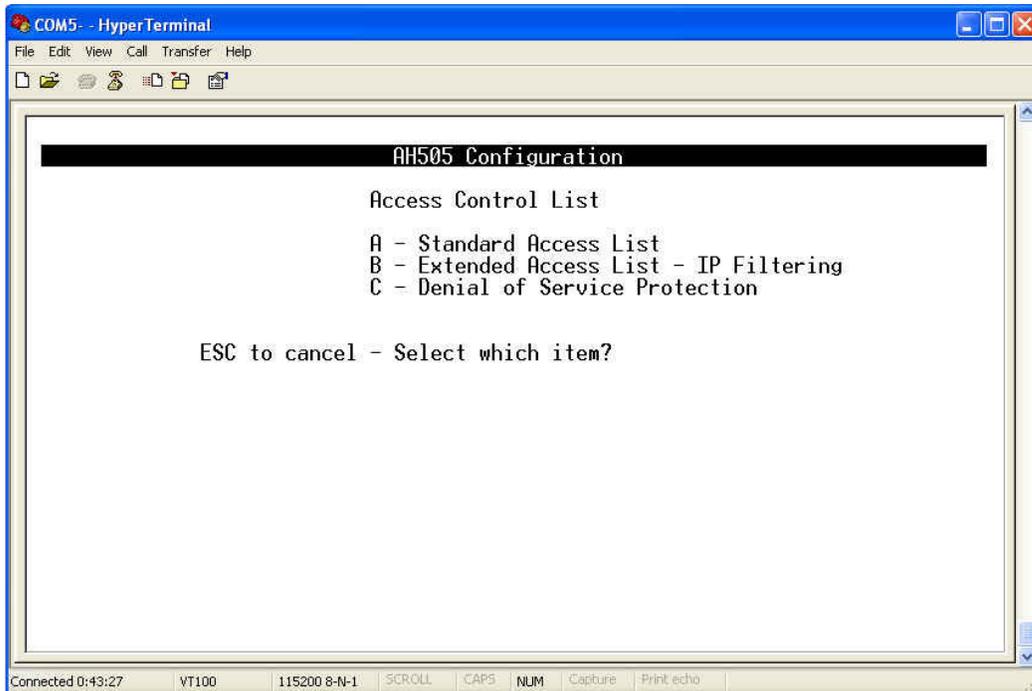
The details of the items are described in the following table:

Item	Field Name	Description	Value
A	IPSec pass through	Enable or disable the pass through of IPSec tunnel between two VPN end points.	Disable/Enable Default:Disable
B	L2TP pass through	Enable or disable the pass through of L2TP tunnel between two VPN end points.	Disable/Enable Default:Disable
C	PPTP pass through	Enable or disable the pass through of PPTP tunnel between two VPN end points.	Disable/Enable Default:Disable

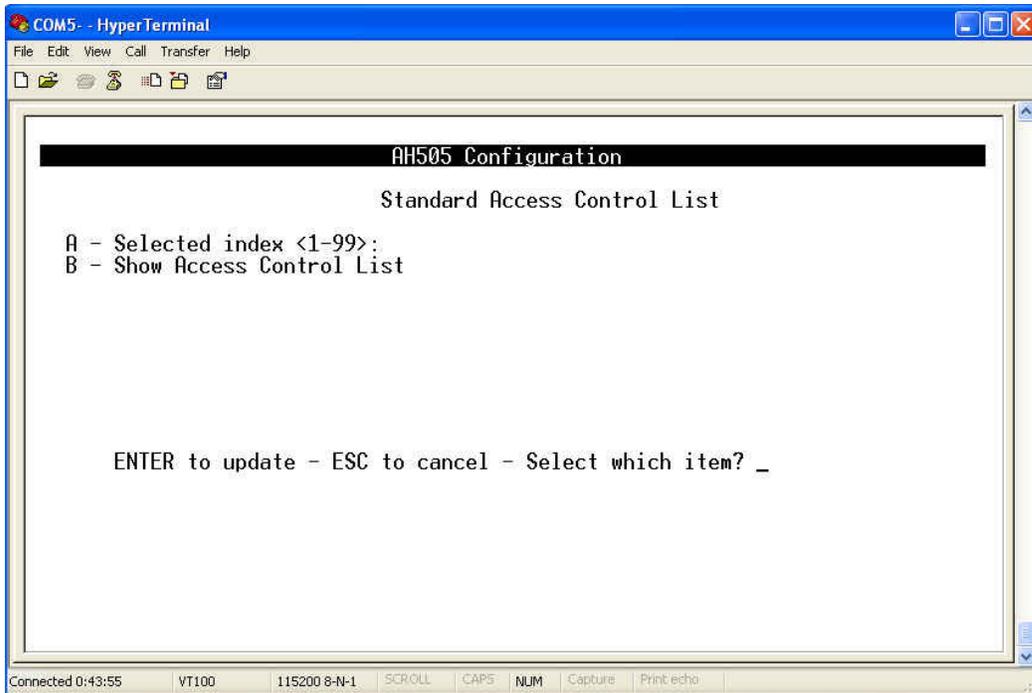
Access List & IP Filtering

From Main Menu,

- Press '**D**' to open the 'Advanced Configuration' menu.
- Press '**F**' to open the 'Access Control List' menu.

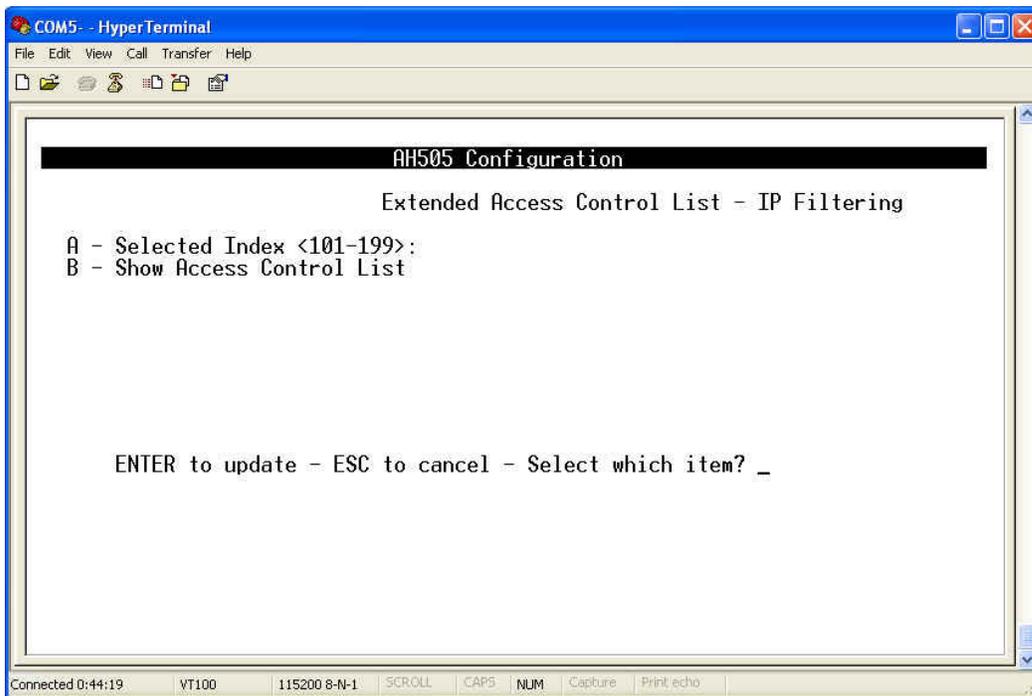


- Press 'A' to open the 'Standard Access Control List' menu.



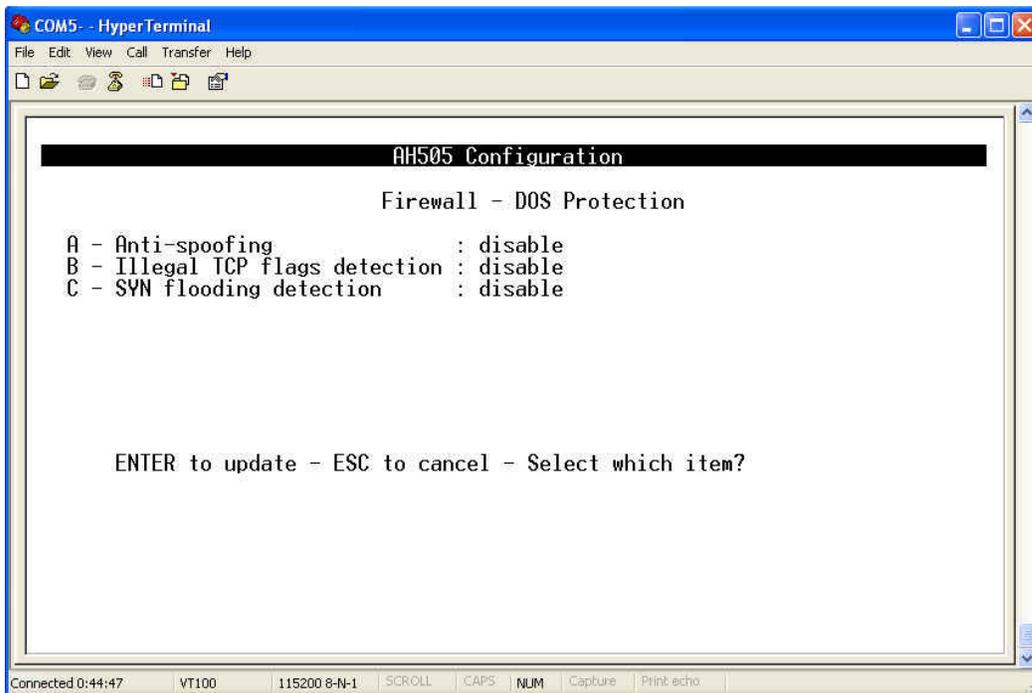
Item	Field Name	Description	Value
A	Select index	Specify a standard ACL number from 1 to 99	None
B	Show ACL	Show all current Access Control List.	None

- Press '**B**' to open the 'Extended Access Control List- IP Filtering' menu.

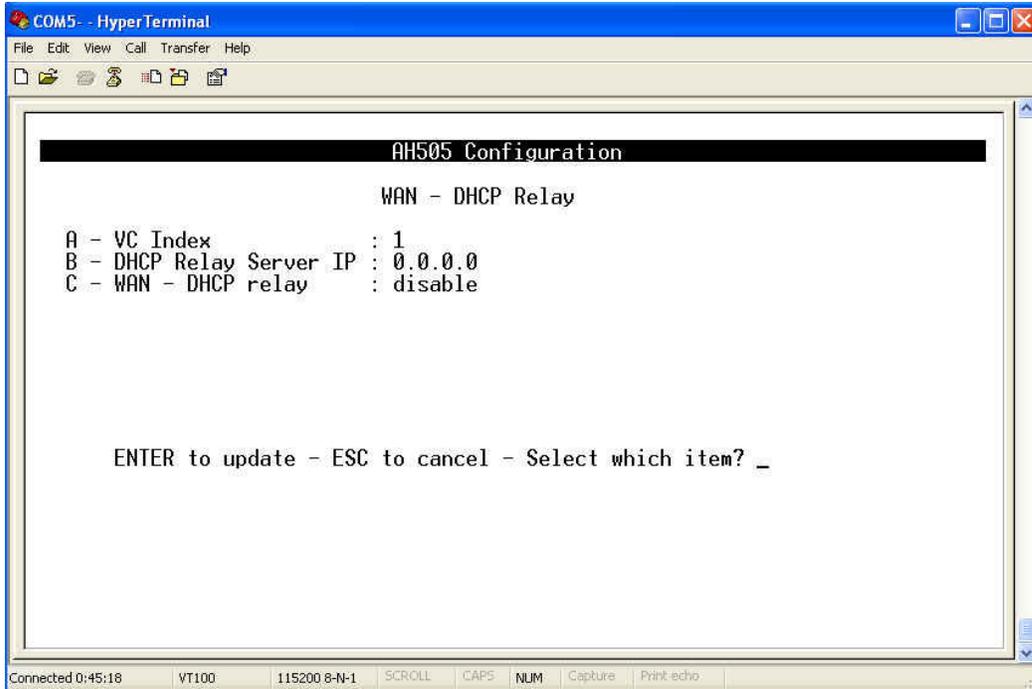


Item	Field Name	Description	Value
A	Select index	Specify a standard ACL number from 101 to 199	None
B	Show ACL	Show all current Access Control List.	None

- Press 'C' to open the 'Denial of Service Protection' menu.



Item	Field Name	Description	Value
A	Anti-spoofing	Disable/Enable Anti-spoofing	Disable/Enable Default:Disable
B	Illegal TCP flags detection	Disable/Enable Illegal TCP flags detection	Disable/Enable Default:Disable
C	SYN flooding detection	Disable/Enable SYN flooding detection	Disable/Enable Default:Disable

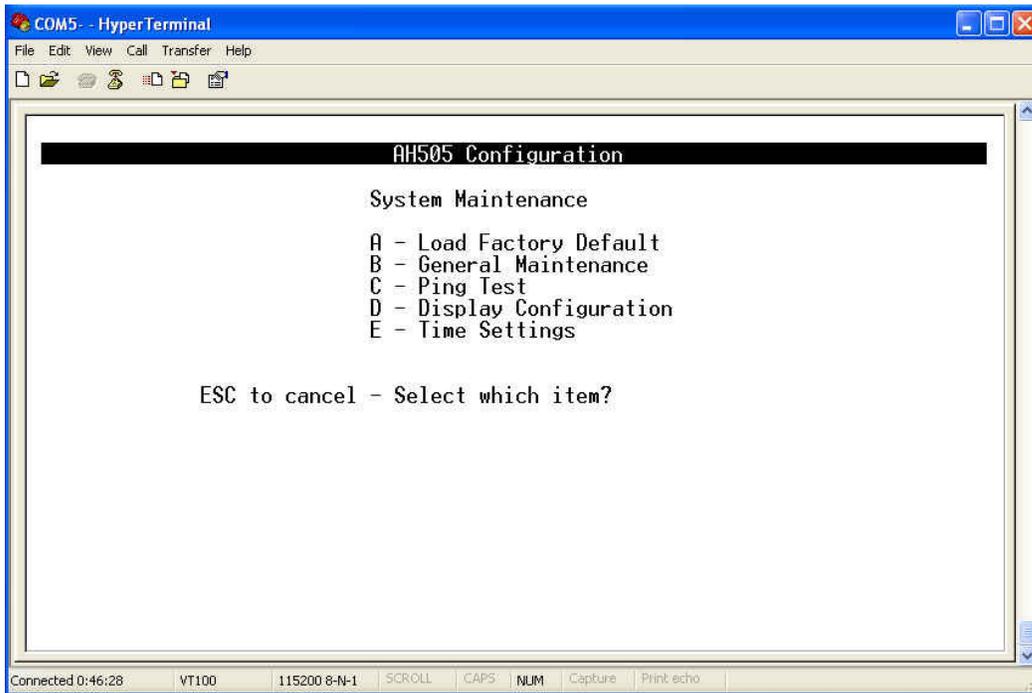
WAN-DHCP Relay

Item	Field Name	Description	Value
A	VC Index	Specify VC Index	None
B	DHCP Relay Server IP	Specify DHCP Relay Server IP	None
C	WAN-DHCP relay	Disable/Enable WAN-DHCP relay	Disable/Enable Default:Disable

3.5 System Maintenance

From Main Menu,

- Press 'E' to open menu 'System Maintenance'.

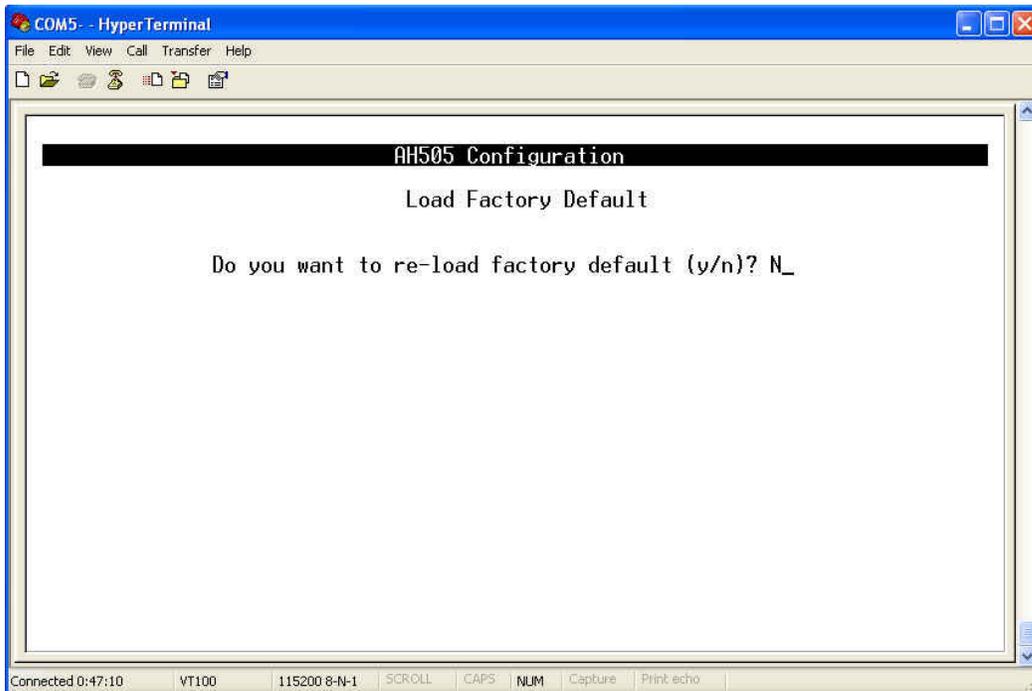


3.5.1 Load Factory Default

From Main Menu,

- Press 'E' to open the 'System Maintenance' menu.
- Press 'A' to open the 'Load Factory Default' menu.

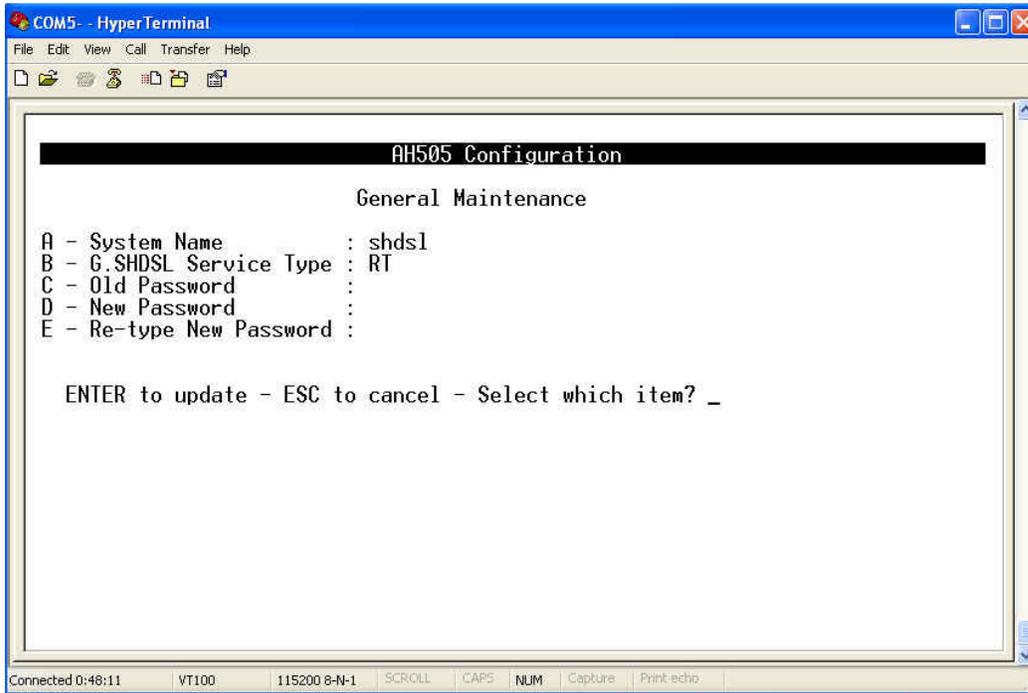
If you type "Y" to re-load factory default, the device will reboot by itself.



3.5.2 General Maintenance

From Main Menu,

- Press 'E' to open the 'System Maintenance' menu.
- Press 'B' to open the 'General Maintenance' menu.



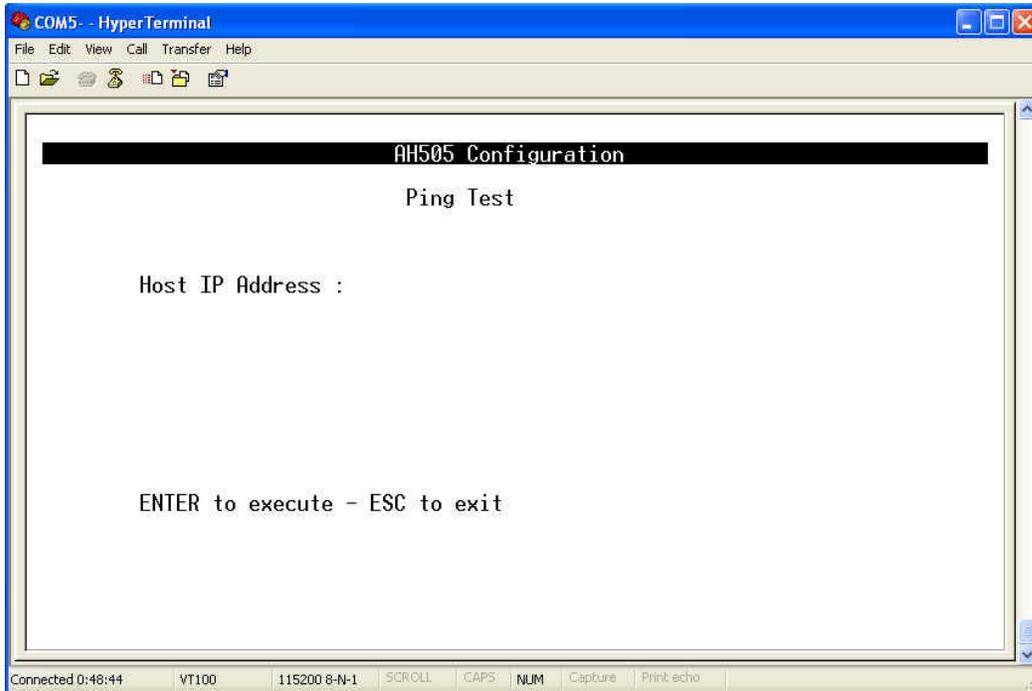
The details of the items are described in the following table:

Item	Field Name	Description	Value
A	System Name	The system name	Max. 18 characters
B	Service Type	System service type. System can be operated as RT or COT type. Press 'Space Bar' to select the setting.	RT / COT Default: RT
C	Old Password	You must input the corrected old password before set new password.	Max. 18 characters
D	New Password	The new password	Max. 18 characters
E	Re-type New Password	It must be exactly the same new password in the item 'D'	Max. 18 characters

3.5.3 Ping Test

From Main Menu,

- Press 'E' to open the 'System Maintenance' menu.
- Press 'C' to open the 'Ping Test' menu.



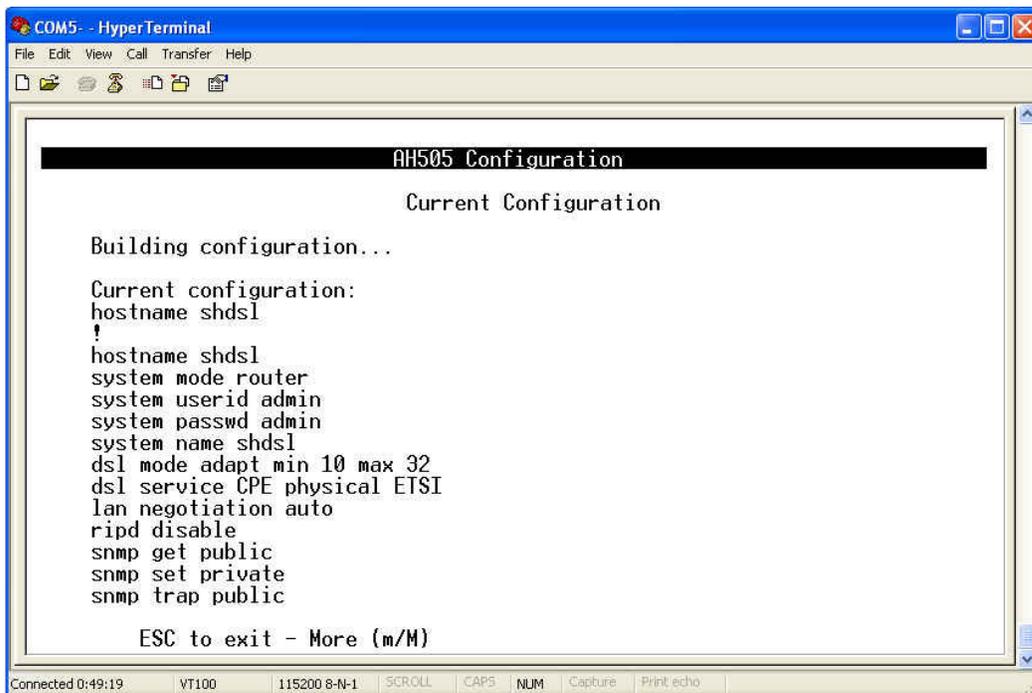
Note: If the test is successful then it will display a message: ' <Host IP> is alive! '. Otherwise it will display a message "Network is unreachable" or "No response".

3.5.4 Display Configuration

From Main Menu,

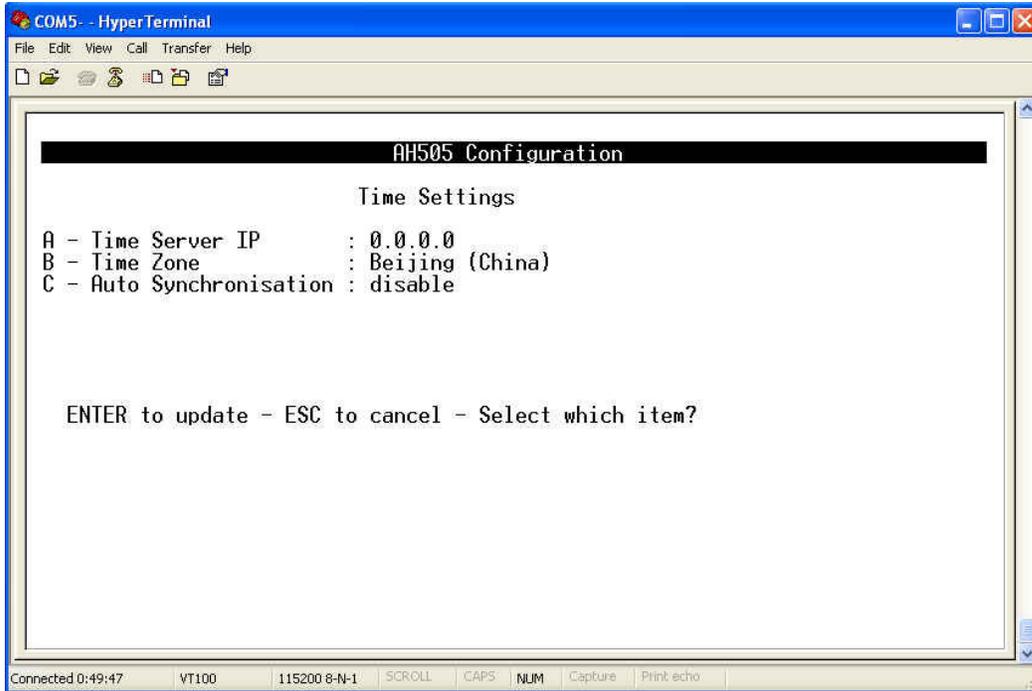
- Press 'E' to open the 'System Maintenance' menu.
- Press 'D' to open the 'Display Configuration' menu

Press "m" or "M" to see more information



```
COM5 - HyperTerminal
File Edit View Call Transfer Help
AH505 Configuration
Current Configuration
Building configuration...
Current configuration:
hostname shdsl
!
hostname shdsl
system mode router
system userid admin
system passwd admin
system name shdsl
dsl mode adapt min 10 max 32
dsl service CPE physical ETSI
lan negotiation auto
ripd disable
snmp get public
snmp set private
snmp trap public
ESC to exit - More (m/M)
Connected 0:49:19 VT100 115200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

3.5.5 Time Settings



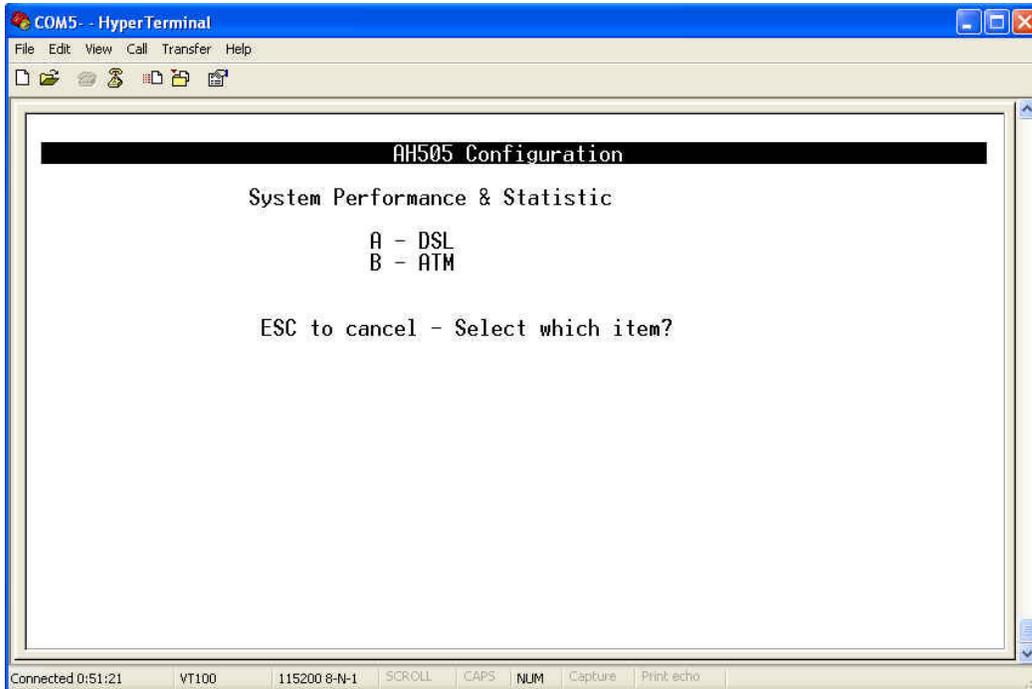
Item	Field Name	Description	Value
A	Time Server IP	Specify Time Server IP	None
B	Time Zone	Specify Time Zone	None
C	Auto Synchronisation	Disable/Enable Auto Synchronisation	Disable/Enable Default:Disable

3.6 Performance and Statistic

From Main Menu,

- Press '**F**' to open menu 'Performance & Statistic'.

In menu 'Performance & Statistic', you can test the performance of the DSL line and the ATM interfaces which are already setup and activated.

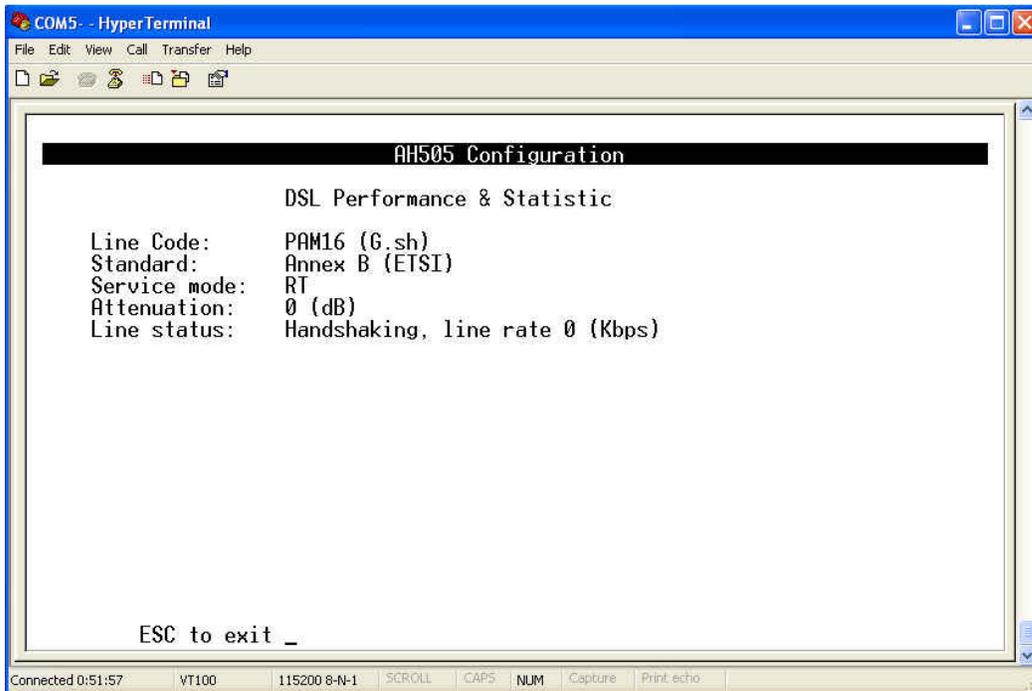


3.6.1 DSL

From Main Menu,

- Press '**F**' to open the 'Performance & Statistic' menu.
- Press '**A**' to open the 'DSL Performance & Statistic' menu.

And you can see the information of Line Code, Standard, Service mode, Attenuation, and Line Status.



```
COM5 - HyperTerminal
File Edit View Call Transfer Help
AH505 Configuration
DSL Performance & Statistic
Line Code: PAM16 (G.sh)
Standard: Annex B (ETSI)
Service mode: RT
Attenuation: 0 (dB)
Line status: Handshaking, line rate 0 (Kbps)
ESC to exit _
Connected 0:51:57 VT100 115200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

An Example of DSL performance in active operation

3.6.2 ATM

From Main Menu,

- Press '**F**' to open the 'Performance & Statistic' menu.
- Press '**B**' to open the 'ATM Performance & Statistic' menu.

VPI/VCI	Link	Status	Rx-Pkts	Rx-Err	Tx-Pkts	Tx_Err	Rx-Bts	Tx-Bts
1 - 0/100	rfc2684	Yes	0	0	0	0	0	0
2 - N/A	-	-	-	-	-	-	-	-
3 - N/A	-	-	-	-	-	-	-	-
4 - N/A	-	-	-	-	-	-	-	-
5 - N/A	-	-	-	-	-	-	-	-
6 - N/A	-	-	-	-	-	-	-	-
7 - N/A	-	-	-	-	-	-	-	-
8 - N/A	-	-	-	-	-	-	-	-
9 - N/A	-	-	-	-	-	-	-	-
10 - N/A	-	-	-	-	-	-	-	-
11 - N/A	-	-	-	-	-	-	-	-
12 - N/A	-	-	-	-	-	-	-	-

MAC Address - 00:D0:DA:90:06:5A

ESC to exit

4. Configuring with WEB

4.1 Login

When connected, the AH505 has the following pre-configured host IP addresses “**192.168.0.1**” as shown below.



To access the Web Utility,

- Configure your PC to the same network segment as the AH505. For example, you could set the PC to IP address **192.168.0.10** with a subnet mask of 255.255.255.0.
- Connect the PC to any of LAN port designated 1, 2, 3 or 4 on the Front Panel.
- Open the Web browser.
- Enter the IP address of the AH505 in the address field of the browser as exemplified: **http://192.168.0.1** and then press **<Enter>** to connect.
- There is a default User Name “admin” for the AH505.
- Enter Password “**admin**”.

4.2 Web Menus

On each Web Menu, there are two areas to illustrate:

- ◆ **Menu Item:** On the left side of the Web Menu is the menu items.
- ◆ **Main Menu:** The remaining area of Web Menu provides fields for configuration, specific to each menu item, and displays prompt or Performance & Diagnostic data.

4.3 Setup

4.3.1 System Information

Menu “ System Information “ allows you to view and verify the unit’s identity information as shown below.

In this menu, it shows the current system information such as: System Name, Model, Firmware Version, CPU, RAM, Flash size and DSL chipset.

The screenshot shows the YODA AH505 web interface. The top navigation bar includes the YODA logo, the model number AH505, and the device type G.Shdsl LAN Extender. The left sidebar contains a menu with options: Home, Quick Set-up, Basic Configuration, Advance Configuration, Tools, and System Monitor. The main content area is titled "System Information" and displays the following data:

System Name	shdsl
Model	AH505
Firmware Version	1.1022-14i
CPU	MPC859x-100 MHz
RAM	32 M
Flash	4 M
SHDSL Chipset	GlobeSpan

Items	Description
System Name	: Display the name of the unit.
Model	: Display the model name.
Firmware Version	: Display the current software version.
CPU	: Display the CPU chipset and its operating frequency.
RAM	: Display the size of the RAM Memory.
Flash	: Display the size of the Flash Memory.
SHDSL Chipset	: Display the chip name.

4.3.2 System Operation Mode

You can set System Operation Mode: BRIDGE or ROUTER from two different menus:-

1. From menu “Quick Setup”,

Step 1: - Click the option button **Router** or **Bridge** to select Operation Mode

Step 2: - Click **Apply** button to update the system operation mode

The screenshot displays the YODA AH505 web interface for the 'Quick Set-up' page. The left sidebar contains a navigation menu with categories like Home, Basic Configuration, WAN, Advance Configuration, Tools, and System Monitor. The main content area is titled 'Quick Set-up' and is divided into sections: 'System', 'WAN', and 'Bridge'. In the 'System' section, the 'Operation Mode' is set to 'Bridge' (indicated by a selected radio button). Other settings include 'Service Type' set to 'RT' and 'Standard Mode' set to 'ETSI'. The 'WAN' section shows 'VPI' as 0, 'VCI' as 100, and 'Encapsulation' as RFC2684. The 'Bridge' section shows an 'IP Address' of 192.168.0.1. At the bottom of the form, there are 'Apply' and 'Cancel' buttons.

2. From menu “System”

Step 1: - Click the option button **Router** or **Bridge** to select Operation Mode

Step 2: - Click **Apply** button to update the system operation mode

4.3.3 Bridge Mode

In Bridge mode, AH505 provides frame forward services between two or more LANs. It forwards frames based on the MAC (Medium Access Control) addresses which is hardware-level of NICs (Network Interface Card)

The operation mode of the system must set to BRIDGE Mode. To change the mode with WEB, please see the section 4.3.2. The following sections will help you to do configuration the device in BRIDGE mode.

Regarding to the application of the G.SHDSL Modem in Bridge Mode, please see the section 3.4.4.

4.3.3.1 Quick Set-up

Using this setup, the device can be quickly configured and operated properly.

Note: The WAN configuration is for the first Virtual Circuit (VC 1) in twelve VC set available in the device.

The details of the items are described in the following table:

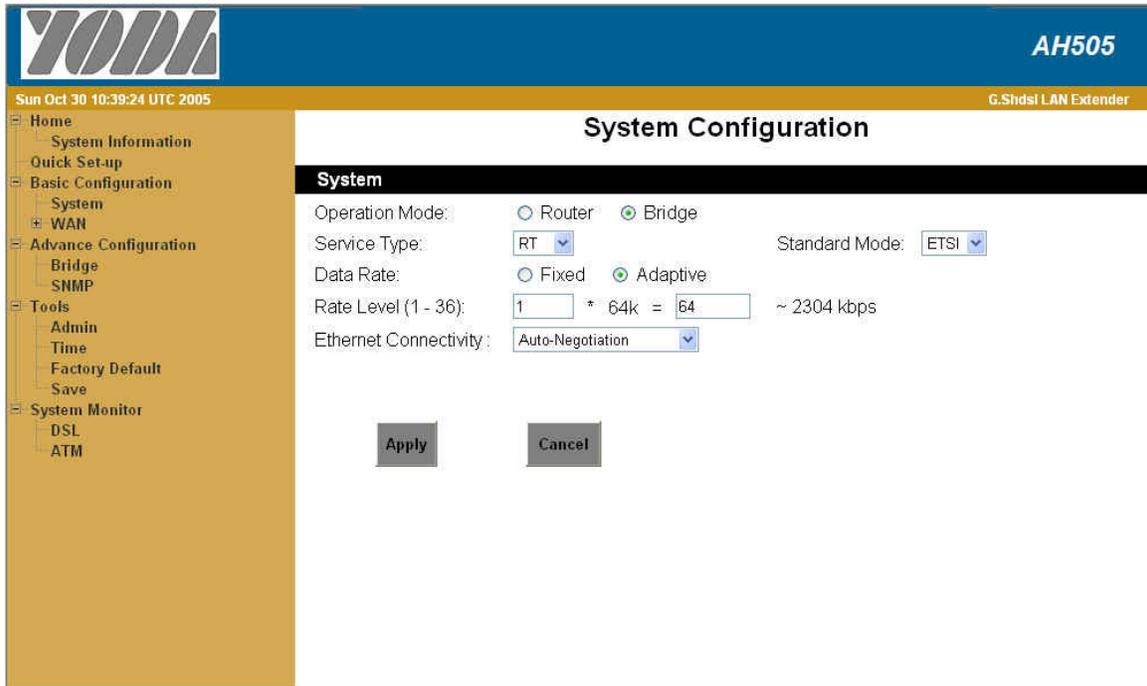
Item	Field Name	Description	Value
System	Operation Mode	System operation mode.	BRIDGE / ROUTER Default: BRIDGE
	Service Type	System service type. System can be operated as RT or COT type. Select from the drop-down list.	RT / COT Default: RT
	Standard Mode	Physical standard mode. Select from the drop-down list.	ETSI / ANSI Default: ETSI
Wan	VPI	Virtual Path Identifier	0 - 16
	VCI	Virtual Channel Identifier	33 - 4096
	Encapsulation	The encapsulation type is given by ISP. Select from the drop-down list.	RFC2684 / IPoA / PPPoE / PPPoA Default: RFC2684
BRIDGE	IP Address	The device IP address.	i.e '192.168.0.1'

4.3.3.2 Basic Configuration

In menu Basic Configuration, the system can be configured in individual submenu: System Setup, and WAN setup.

System

In menu “System”, it contains the system related configuration such as: operation mode, service type, physical standard mode, Data Rate mode, and so on.



The details of the items are described in the following table:

Item	Field Name	Description	Value
System	Operation Mode	System operation mode.	BRIDGE / ROUTER
	Service Type	System service type. System can be operated as RT or COT type. Select from the drop-down list.	RT / COT Default: RT
	Standard Mode	Physical standard mode. Select from the drop-down list.	ETSI / ANSI Default: ETSI
	Data Rate Mode	Data transferred rate mode.	ADAPTIVE / FIXED Default: ADAPTIVE
	Range	Date rate range. In Adaptive mode, the data rate can be changed in the range 192~2304 kbps. In Fixed mode, it is set in the range 64~2304 kbps.	ADAPTIVE: 192~2304 FIXED: 64 - 2304
	ETHERNET Connectivity	Specify the operation mode of LAN port.	Auto-Negotiation/10M half/10M full/100M half/100M full

WAN

To setup VC configuration,

- Click submenu channel 1 to channel 12 for an appropriate VC, i.e 'channel1' for VC 1, 'channel2' for VC 2...

To Delete VC configuration,

- Click submenu channel 1 to channel 12 for an appropriate VC, then click button "Delete VC ..."

In menu WAN Setup, it shows the list of Virtual Circuits (VCs):channel 1 to channel 12

If a VC is already configured then it display its parameters as ISP Name, VPI,VCI, and so on.

If the VC is already activated, then in the field 'Active', it displays the word 'Yes', otherwise it displays a 'No'.

If the VC set with the encapsulation type of PPPoE or PPPoA, then in the field Encapsulation it displays the status of PPP connection: RFC2684, lpoA, PPPoE or PPPoA.

The screenshot displays the WAN Configuration interface for VC 1. The left sidebar shows a navigation menu with categories: Home, System Information, Quick Set-up, Basic Configuration (System, WAN), Advance Configuration (Bridge, SNMP), Tools (Admin, Time, Factory Default, Save), and System Monitor (DSL, ATM). The WAN section is expanded, showing channels 1 through 12. The main content area is titled 'WAN Configuration' and 'VC 1'. It contains the following fields and controls:

- ISP Name:
- Active:
- VPI:
- VCI:
- Encapsulation:
- Multiplex:
- QoS:
- Peak Cell Rate <1-5424> (cell/sec):
- Sustained Cell Rate <0-PCR> (cell/sec):
- Maximum Burst Size <0-1000> (cell):

At the bottom of the configuration area, there are three buttons: , , and .

The details of the items are described in the following table:

Item	Field Name	Description	Value
VC1	ISP Name	ISP Name	Max. 18 characters
	VPI	Virtual Path Identifier, given by ISP	0 - 16
	VCI	Virtual Channel Identifier, given by ISP	33 - 4096
	Encapsulation	The encapsulation type is given by ISP. Select from the drop-down list.	RFC2684 / IPoA / PPPoE / PPPoA Default: RFC2684
	Multiplex	Header to identify the protocol that Virtual Circuit being carrying. LLC: Logical Link Control Multiplexing VCMUX : VC-based Multiplexing Select from the drop-down list..	LLC / VCMUX Default: LLC
	QoS	Quality of Services UBR: Unspecified Bit Rate. CBR: Constant Bit Rate. rt-VBR: Real-Time Variable Bit Rate. nrt-VBR: Non-Real-Time Variable Bit Rate. Select from the drop-down list.	UBR / CBR / rt-VBR / nrt-VBR Default: UBR
	Peak Cell Rate (PCR)	The maximum transmission rate.	0 - 5424
	Sustained Cell Rate (SCR)	The Transmission rate in a burst traffic.	0 - PCR
	Maximum Burst Size (MBS)	Maximum number of transmission cell at the peak rate.	0 - 1000

4.3.3.3 Advanced Configuration

In menu “Advance Configuration”, the system can be configured in the submenu Bridge and SNMP,

Bridge

The screenshot shows the YOMA AH505 web interface. The top navigation bar includes the YOMA logo, the model number AH505, and the device name G.Shdsl LAN Extender. The left sidebar contains a menu with categories: Home, Basic Configuration, Advance Configuration, Tools, and System Monitor. Under 'Advance Configuration', the 'Bridge' option is selected. The main content area displays the 'Bridging Configuration' page with the following fields:

- IP Address: 192, 168, 0, 1
- Default Gateway: 0, 0, 0, 0
- Spanning Tree: Enable Disable
- Priority: 32768

Buttons for 'Apply' and 'Cancel' are located at the bottom of the form.

The details of the items are described in the following table:

Item	Field Name	Description	Value
Bridge	IP Address	Bridge IP Address	i.e: '192.168.0.1'
	Default Gateway	Specify Default Gateway address of the unit.	None
	Spanning Tree	Spanning Tree Learning Bridge Protocol.	Disable/Enable Default: Disable
	Priority	Specify the priority.	0-65535

SNMP

Sun Oct 30 10:50:02 UTC 2005 G.Shdsl LAN Extender

SNMP Configuration

SNMP: Enable Disable

Read-Only Community: Read-Write Community:

TRAP Community:

Version	Destination IP	Action
SNMP v1		None

Apply Cancel

To configure the SNMP, go through the following steps.

- Click the button to **Enable** or **Disable** SNMP management capabilities.

Community

Read-Only Community:

- Specify the community name of external SNMP Managers allowed with access level of " Read " to the unit's MIB..

Read-Write Community:

- Specify the community name of external SNMP Managers allowed with access level of " Read & write " to the unit's MIB.

Trap

To configure the Trap, go through the following steps.

- Select the version number, SNMPv1 or SNMPv2, from the pull-down menu.
- Specify the IP address of each SNMP Trap Manager in the correspondent **Destination IP**.
- Select the options, **None**, **Add** or **Delete**, from the pull-down menu.
- Click the " **Apply** " button to save the configuration.

4.3.4 Router Mode

The operation mode of the system must set to ROUTER Mode. To change the mode with WEB, please see the section 4.3.2. The following sections will help you to do configuration the device in Router mode.

Regarding to the application of the G.SHDSL Modem in Router Mode ,please see the section 3.4.5.

4.3.4.1 Quick Set-up

Using this setup, the device can be quickly configured and operated properly.

Note: The WAN configuration is for the first Virtual Circuit (VC 1) in twelve VC set available in the device.

YODA AH505

Sun Oct 30 10:53:48 UTC 2005 G.Shdsl LAN Extender

Quick Set-up

System

Operation Mode: Router Bridge

Service Type: Standard Mode:

LAN

IP Address: Subnet Mask:

WAN

VPI: VCI: Encapsulation:

Dynamic IP Address: Enable Disable

IP Un-numbered: Enable Disable

Local IP: Subnet Mask:

Remote IP:

User Name: Password:

IP Sharing: Enable Disable

The details of the items are described in the following table:

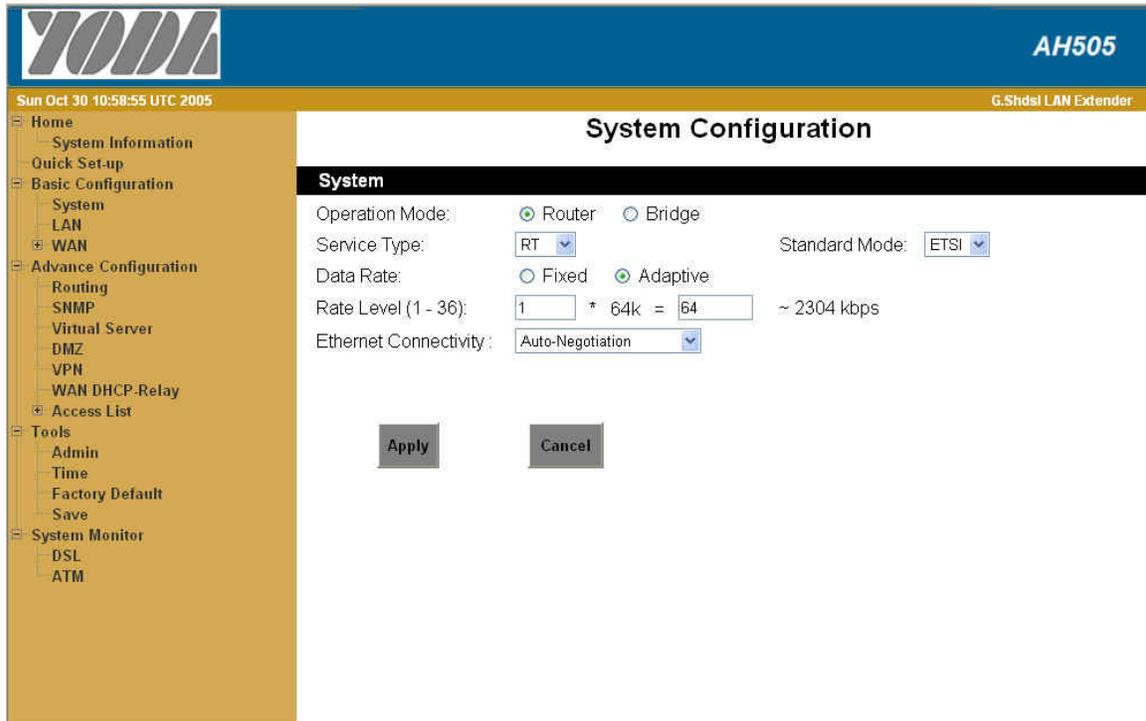
Item	Field Name	Description	Value
System	Operation Mode	System operation mode.	BRIDGE / ROUTER Default: BRIDGE
	Service Type	System service type. System can be operated as RT or COT type. Select from the drop-down list.	RT / COT Default: RT
	Standard Mode	Physical standard mode. Select from the drop-down list.	ETSI / ANSI Default: ETSI
LAN	LAN IP Address	Local IP Address of router.	Default: '192.168.0.1'
	LAN IP Subnet Mask	Local Subnet Mask of router.	Default: '255.255.255.0'
WAN	VPI	Virtual Path Identifier	0 - 16
	VCI	Virtual Channel Identifier	33 - 4096
	Encapsulation	The encapsulation type is given by ISP. Select from the drop-down list.	RFC2684 / IPoA / PPPoE / PPPoA Default: RFC2684
	Dynamic IP Address	Dynamic IP Address	Disable/Enable Default: Disable
	IP Un-numbered	IP Un-numbered	Disable/Enable Default: Disable
	WAN IP Address	The WAN local IP Address of router, given by ISP	i.e '10.10.10.9'
	WAN IP Subnet Mask	The WAN local IP subnet mask of router, given by ISP	i.e '255.255.255.0'
	Remote IP Address	The IP Address of DSLAM, given by ISP	i.e '10.10.10.10'
	User Name	ISP login user name, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA	Max. 18 characters
	Password	ISP login password, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA	Max. 18 characters
	IP Sharing	IP Sharing or NAT (Network Access Translation).	Disable / Enable Default: Disable

4.3.4.2 Basic Configuration

In menu Basic Configuration, the system can be configured in individual submenu: System Setup, LAN Setup and WAN setup.

System

In menu “System”, it contains the system related configuration such as: operation mode, service type, physical standard mode, Data Rate mode.



The details of the items are described in the following table:

Item	Field Name	Description	Value
System	Operation Mode	System operation mode.	BRIDGE / ROUTER
	Service Type	System service type. System can be operated as RT or COT type. Select from the drop-down list.	RT: Client COT: Server
	Standard Mode	Physical standard mode. Select from the drop-down list.	ETSI / ANSI
	Data Rate Mode	Data transferred rate mode.	ADAPTIVE / FIXED
	Range	Date rate range. In Adaptive mode, the data rate can be changed in the range 192~2304 kbps. In Fixed mode, it is set in the range 64~2304 kbps.	ADAPTIVE: 192~2304 FIXED: 64 - 2304

LAN

The details of the items are described in the following table:

YOMA AH505

Sun Oct 30 10:59:53 UTC 2005 G.Shdsl LAN Extender

LAN Configuration

TCP/IP

IP Address: Subnet Mask:

Alias	IP Address	Subnet Mask	Delete
1	<input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="255.255.255.0"/>	<input type="radio"/> Yes <input checked="" type="radio"/> No
2	<input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="0"/>	<input type="text" value="255.255.255.0"/>	<input type="radio"/> Yes <input checked="" type="radio"/> No

DHCP

DHCP Server: Enable Disable DHCP Relay

Relay Server:

DNS Proxy: Enable Disable

Starting IP: Ending IP:

DNS1: DNS2:

Leased Time:

The details of the items are described in the following table:

Item	Field Name	Description	Value
TCP/IP	IP Address	LAN IP address of router	Default: '192.168.0.1'
	IP Subnet Mask	LAN IP subnet mask of router	Default: '255.255.255.0'
	Alias	Specify Alias ip and subnet mask	Default:NO
DHCP	DHCP Server	Dynamic Host Configuration Protocol - allows dynamically for any of the connected hosts on a LAN that support DHCP clients.	Disable / Enable Default:Disable
	Relay Server	Specify Relay Server IP	None
	DNS Proxy	Enable or Disable DNS Proxy	Disable / Enable Default:Disable
	Starting IP	Starting IP Address in the range in which the IP address of hosts on the LAN will be assigned, in case of DHCP server set to " Enable ".	i.e: '192.168.0.32'
	Ending IP	Ending IP Address in the range in which the IP address of hosts on the LAN will be assigned, in case of DHCP server set to " Enable ".	i.e: '192.168.0.254'
	DNS 1	Domain Name System - Primary DNS server IP address for resolving the symbolic IP (like www.yahoo.com) to numeric IP address (like 216.109.118.74)	i.e: '209.206.10.3'
	DNS 2	Secondary DNS server IP address	i.e: '206.183.3.45'
	Leased Time	Amount of time that a given IP address will be valid.	1-864000

WAN

To setup VC configuration,

- Click submenu channel 1 to channel 12 for an appropriate VC, i.e 'channel1' for VC 1, 'channel2' for VC 2...

-

To Delete VC configuration,

- Click submenu channel 1 to channel 12 for an appropriate VC, then click button "Delete VC ..."

In menu WAN Setup, it shows the list of Virtual Circuits (VCs):channel 1 to channel 12

If a VC is already configured then it display its parameters as ISP Name, VPI,VCI, and so on.

If the VC is already activated, then in the field 'Active', it displays the word 'Yes', otherwise it displays a 'No'.

If the VC set with the encapsulation type of PPPoE or PPPoA, then in the field Encapsulation it displays the status of PPP connection: RFC2684, IpoA, PPPoE or PPPoA.

The screenshot displays the WAN Configuration interface for VC 1. The left sidebar shows a navigation menu with categories like Home, Basic Configuration, LAN, WAN, Advance Configuration, and Tools. The main content area is titled 'WAN Configuration' and shows the configuration for 'VC 1'. The configuration includes fields for ISP Name (ISP_NAME_0), VPI (0), VCI (100), Encapsulation (RFC2684), and Multiplex (LLC). It also features QoS settings (UBR), Peak Cell Rate (1000), Sustained Cell Rate (0), and Maximum Burst Size (0). Dynamic IP Address and IP Un-numbered are both set to 'Disable'. The IP Address is 10.10.10.9 with a Subnet Mask of 255.255.255.0. The Remote IP is 10.10.10.10. There are fields for User Name and Password, and IP Sharing is set to 'Disable'. At the bottom, there are buttons for 'Apply', 'Cancel', and 'Delete VC 1'.

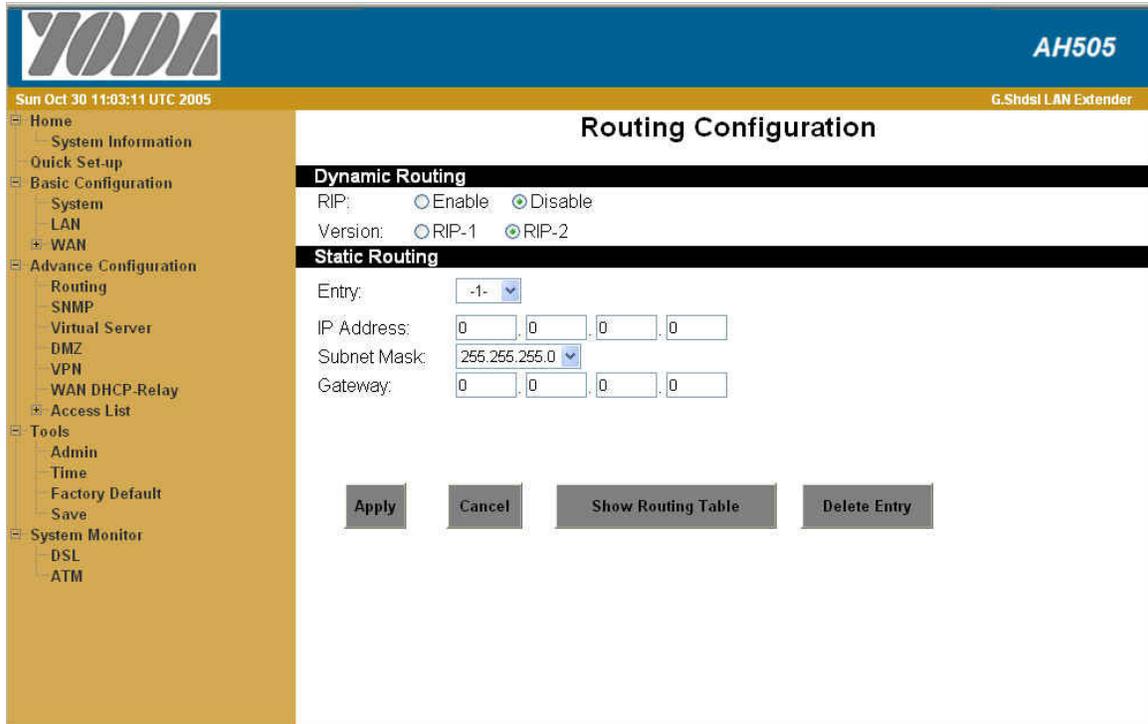
The details of the items are described in the following table:

Item	Field Name	Description	Value
VC1	ISP Name	ISP Name	Max. 18 characters
	VPI	Virtual Path Identifier, given by ISP	0 - 16
	VCI	Virtual Channel Identifier, given by ISP	33 - 4096
	Encapsulation	The encapsulation type is given by ISP. Select from the drop-down list.	RFC2684 / IPoA / PPPoE / PPPoA Default: RFC2684
	Multiplex	Header to identify the protocol that Virtual Circuit being carrying. LLC: Logical Link Control Multiplexing VCMUX : VC-based Multiplexing Select from the drop-down list..	LLC / VCMUX Default: LLC
	QoS	Quality of Services UBR: Unspecified Bit Rate. CBR: Constant Bit Rate. rt-VBR: Real-Time Variable Bit Rate. nrt-VBR: Non-Real-Time Variable Bit Rate. Select from the drop-down list.	UBR / CBR / rt-VBR / nrt-VBR Default: UBR
	Peak Cell Rate (PCR)	The maximum transmission rate.	0 - 5424
	Sustained Cell Rate (SCR)	The Transmission rate in a burst traffic.	0 - PCR
	Maximum Burst Size (MBS)	Maximum number of transmission cell at the peak rate.	0 - 1000
	Dynamic IP Address	Enable or Disable Dynamic IP Address	Disable/Enable Default: Disable
	IP Un-numbered	Enable or Disable IP Un-numbered	Disable/Enable Default: Disable
	WAN IP Address	The WAN local IP Address of router, given by ISP	i.e '10.10.10.9'
	WAN IP Subnet Mask	The WAN local IP subnet mask of router, given by ISP	i.e '255.255.255.0'
	Remote IP Address	The IP Address of DSLAM, given by ISP	i.e '10.10.10.10'
	User Name	ISP login user name, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA.	Max.18 characters
Password	ISP login password, given by ISP. It is set for the encapsulation type of PPPoE or PPPoA.	Max.18 characters	
IP Sharing	IP Sharing or NAT (Network Access Translation). Select from the drop-down list.	Disable/Enable Default: Disable	

4.3.4.3 Advanced Configuration

In menu “Advance Configuration”, the system can be configured in the submenu Routing, SNMP, Virtual Server, DMZ ,VPN, WAN-DHCP Relay and Access List

Routing



The details of the items are described in the following table:

Item	Field Name	Description	Value
Dynamic Routing	RIP	With Dynamic Routing, you can enable AH505 to automatically adjust to physical changes in the network’s topology. Enable or disable the Routing Information Protocol.	Disable / Enable Default: Disable
	Version	RIP version determines the format and broadcasting method of any RIP transmissions by the AH505.	RIP-1 / RIP-2 Default: RIP-2
Static Routing	IP Address	A static route is a pre-configured path that data must traverse to reach a specific host or network. Specify the Destination IP Address for entry in the static routing table.	i.e '10.10.10.50'
	IP Subnet Mask	Specify the Subnet Mask for the network configured in the static routing table.	i.e '255.255.255.0'
	Gateway	Specify the IP address of Gateway.	i.e '192.168.0.1'

SNMP

Screenshot of the YOMA AH505 web interface showing the SNMP Configuration page. The page includes a navigation menu on the left, a status bar at the top, and a main configuration area. The configuration area has radio buttons for 'Enable' and 'Disable' (selected), text boxes for 'Read-Only Community' (public), 'Read-Write Community' (private), and 'TRAP Community' (public). Below this is a 'TRAP Table' with columns for 'Version', 'Destination IP', and 'Action'. The table contains four rows, each with 'SNMP v1' in the Version column, empty IP fields, and 'None' in the Action column. 'Apply' and 'Cancel' buttons are at the bottom.

To configure the SNMP, go through the following steps.

- Click the button to **Enable** or **Disable** SNMP management capabilities.

Community

Read-Only Community:

- Specify the community name of external SNMP Managers allowed with access level of "Read" to the unit's MIB..

Read-Write Community:

- Specify the community name of external SNMP Managers allowed with access level of "Read & write" to the unit's MIB.

Trap

To configure the Trap, go through the following steps.

- Select the version number, SNMPv1 or SNMPv2, from the pull-down menu.
- Specify the IP address of each SNMP Trap Manager in the correspondent **Destination IP**.
- Select the options, **None**, **Add** or **Delete**, from the pull-down menu.
- Click the "**Apply**" button to save the configuration.

Virtual Server

Virtual Server Settings

Application	VC Index	IP Address	Enable
WEB	1 (1..12)		<input type="checkbox"/>
FTP	1 (1..12)		<input type="checkbox"/>
Telnet	1 (1..12)		<input type="checkbox"/>

Application	Port Start	Port End	Protocol	VC Index	IP Address	Enable
			TCP	1		<input type="checkbox"/>
			TCP	1		<input type="checkbox"/>
			TCP	1		<input type="checkbox"/>
			TCP	1		<input type="checkbox"/>
			TCP	1		<input type="checkbox"/>
			TCP	1		<input type="checkbox"/>
			TCP	1		<input type="checkbox"/>

Apply Cancel

To configure, go through the following steps.

- Specify the IP address of the correspondent local server, e.g., Web, FTP or Telnet.
- Check the button to **Enable** these servers.
- Specify the name of the application.
- Specify the starting global port number as Port Start indicated.
- Specify the starting global port number as Port End indicated.
- Select the protocol, **TCP** or **UDP** passing through this port from the pull-down menu. .
- Specify the WAN channel number.
- Specify the IP address of the local server at which the Internet user is accessible.

Check the button to **Enable** it.

DMZ

The screenshot shows the YODA AH505 web interface. The header includes the YODA logo and 'AH505'. The navigation menu on the left lists various configuration options, with 'DMZ' selected under 'Advance Configuration'. The main content area is titled 'DMZ Settings' and contains the following fields and controls:

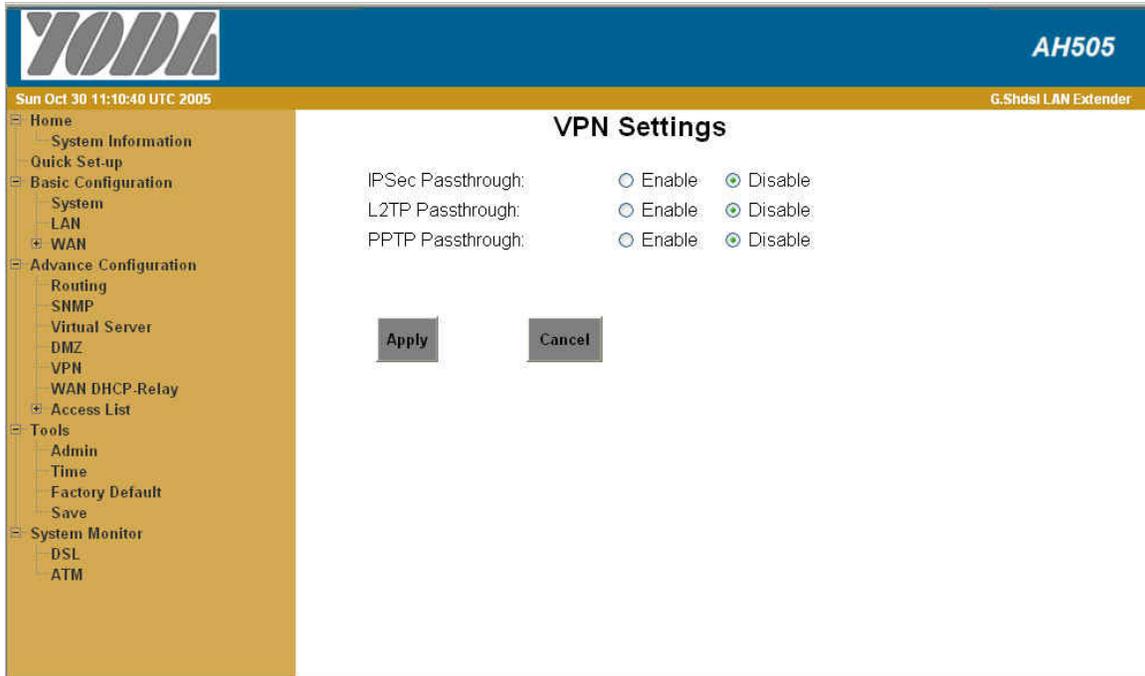
- VC Index (1..12):
- DMZ Host IP Address: . . .
- Enable:
- Disable:
- Apply:
- Cancel:

Click **DMZ** from the Configuration menu item for showing the configuration screen.
To configure,

- Specify the WAN channel number.
- Specify IP address of the DMZ host intended for.
- Check the button to **Enable** or **Disable** it.

Click the **Apply** button to save the configuration.

VPN



Click **VPN** from the Configuration menu item for showing the configuration screen.
To configure,

- Click the button to **Enable** or **Disable** the tunnel pass through feature specific to **IPSec**, **L2TP**, or **PPTP** corresponding to each protocol.

Click the **Apply** button to save the configuration.

WAN DHCP-Relay

The screenshot displays the WAN DHCP-Relay configuration interface for a YODA AH505 router. The interface includes a navigation sidebar on the left with categories like Home, Basic Configuration, Advance Configuration, Tools, and System Monitor. The main content area is titled 'WAN DHCP-Relay' and contains the following configuration options:

- VC Index (1..12):** A text input field containing the value '1'.
- DHCP Relay Server IP Address:** A dotted IP address input field with three empty segments.
- Enable/Disable:** Two radio buttons. The 'Disable' option is selected.
- Buttons:** 'Apply' and 'Cancel' buttons are located at the bottom of the configuration area.

The top of the page features the YODA logo and 'AH505' model name. The status bar shows the date and time as 'Sun Oct 30 11:11:28 UTC 2005' and the page title as 'G.Shdsl LAN Extender'.

Access List

Standard Access Control List

The screenshot displays the YODA AH505 web interface. The top navigation bar includes the YODA logo and the model number AH505. Below this, a status bar shows the date and time (Sun Oct 30 11:12:28 UTC 2005) and the device name (G.Shdsl LAN Extender). A left-hand navigation menu lists various configuration options, with 'Access List' expanded to show 'Standard', 'Extended', and 'DOS Protection'. The main content area is titled 'Standard Access Control List' and contains a form for configuring a specific list entry. The form fields are as follows:

List Index (1..99):	<input type="text" value="1"/>
Active:	<input type="text" value="No"/>
Action:	<input type="text" value="Deny"/>
Source Host:	<input type="text" value="Host"/>
IP Address:	<input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/>
Wildcard Mask:	<input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/> <input type="text" value="."/>

Below the form are three buttons: 'Apply', 'Cancel', and 'Show Standard Access List'.

Extended Access Control List – IP filtering

The screenshot shows the configuration page for an Extended Access Control List (ACL) on a YODA AH505 router. The interface includes a navigation menu on the left and a main configuration area. The configuration area is titled "Extended Access Control List - IP filtering" and contains the following fields:

- List Index (101..199): 101
- Active: No
- Action: Deny
- Protocol: 0
- Source Host:
 - Type: Host
 - IP Address: [] . [] . [] . []
 - Wildcard Mask: [] . [] . [] . []
 - Port Operation: None
 - Port: []
- Destination Host:
 - Type: Host
 - IP Address: [] . [] . [] . []
 - Wildcard Mask: [] . [] . [] . []
 - Port Operation: None
 - Port: []
 - TCP Established:

DOS Protection

The screenshot shows the configuration interface for a YODA AH505 router. The top header includes the YODA logo and the model number AH505. Below the header, the date and time are shown as 'Sun Oct 30 11:14:06 UTC 2005' and the device is identified as 'G.Shdsl LAN Extender'. A navigation menu on the left lists various configuration options, with 'DOS Protection' selected under the 'Access List' category. The main content area is titled 'DOS Protection' and contains a table with three rows of settings:

Anti-spoofing:	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable
Illegal TCP Flags Detection:	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable
SYN Flooding Detection:	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable

Below the table, there are two buttons: 'Apply' and 'Cancel'.

4.4 Maintenance

4.4.1 General Maintenance

From menu item “Admin”, you can get the “General Maintenance” menu.

The screenshot displays the YOMA AH505 web interface. The top header shows the YOMA logo and the model number AH505. Below the header, the date and time are shown as "Sun Oct 30 11:15:33 UTC 2005" and the device is identified as "G.Shdsl LAN Extender". A navigation menu on the left lists various configuration options, including Home, System Information, Quick Set-up, Basic Configuration, System, LAN, WAN, Advance Configuration, Routing, SNMP, Virtual Server, DMZ, VPN, WAN DHCP-Relay, Access List, Tools, Admin, Time, Factory Default, Save, System Monitor, DSL, and ATM. The main content area is titled "General Maintenance" and contains the following fields and options:

- System Name:
- G.SHDSL Service Type: COT RT
- Change Password: No Yes
- Old Password:
- New Password:
- Confirm New Password:

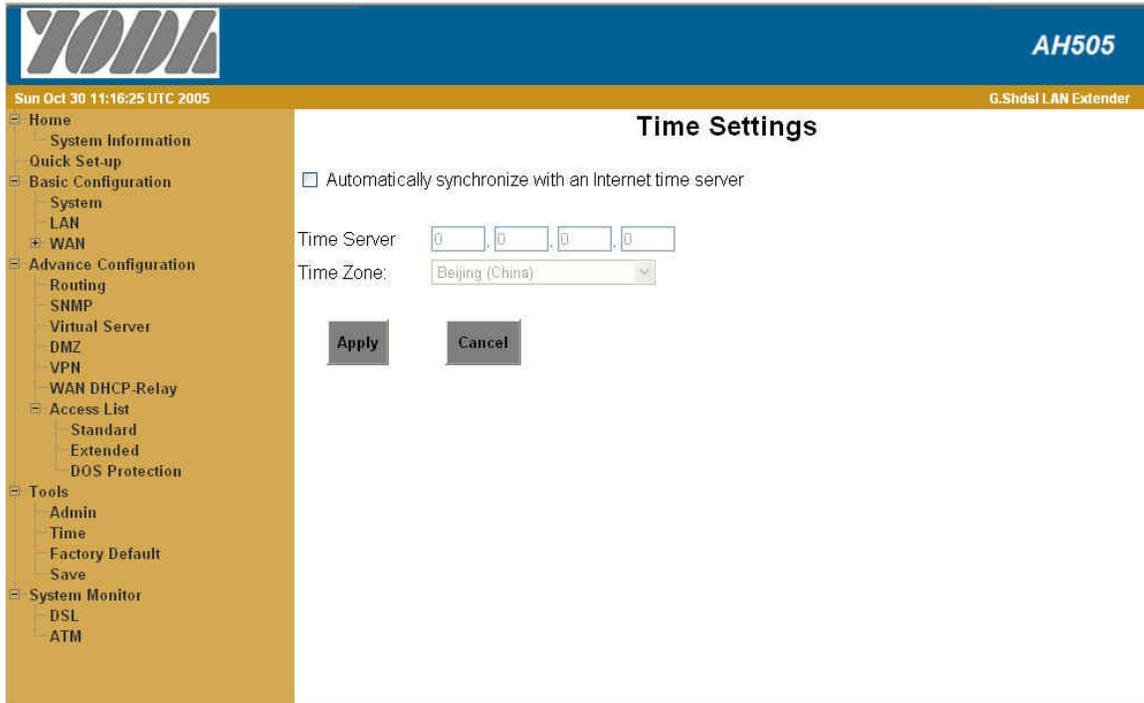
At the bottom of the form, there are two buttons: "Apply" and "Cancel".

To configure Password,

- Check the button “ **Yes** ” to confirm the change or “ **No** ” to nullify the action.
- Enter the Old Password used.
- Enter the New Password desired.
- Re-enter the New Password to confirm the change.

Click the “ **Apply** ” button to save the configuration.

4.4.2 Time Settings



The details of the items see section 3.5.5

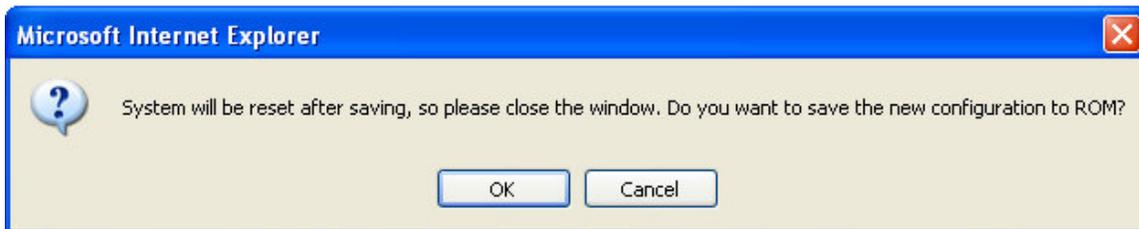
4.4.3 Factory Default

From Factory Default Menu, you'll get a dialog as following picture:



If you click "OK" to re-load factory default, the device will reboot by itself.

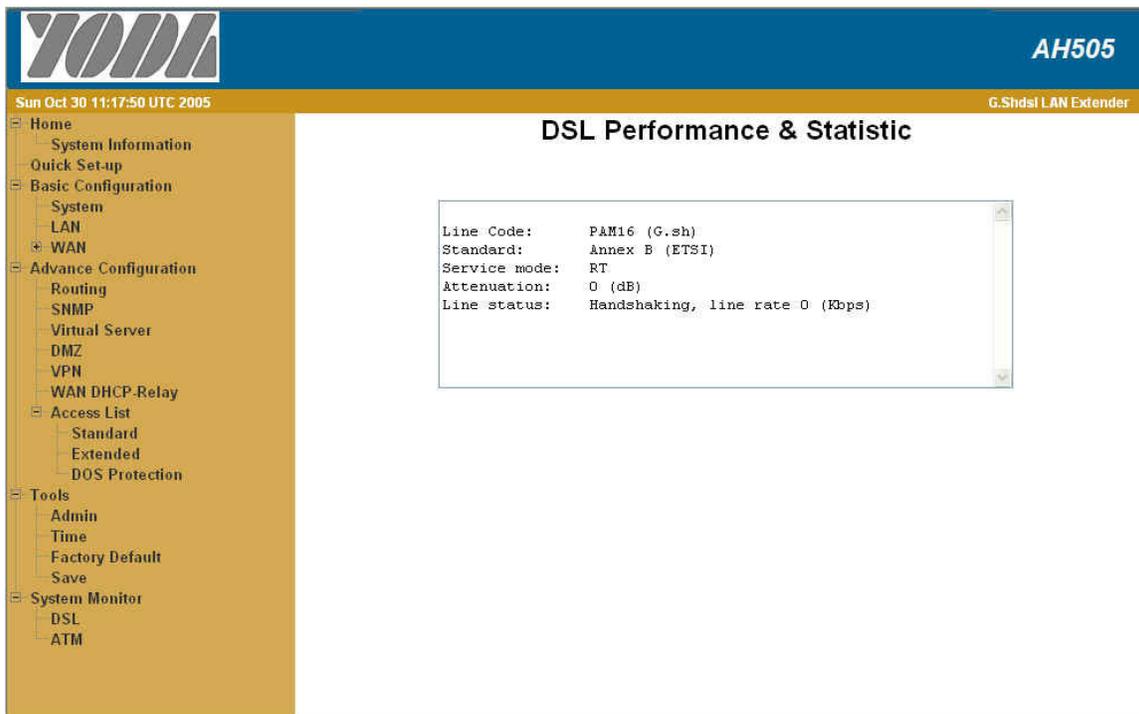
4.4.4 Save



If you click "OK" to save the new configuration, the device will reboot by itself.

4.5 Performance

4.5.1 DSL Performance & Statistic

A screenshot of the YODA AH505 web interface. The top header shows the YODA logo on the left and "AH505" on the right. Below the header, the date and time "Sun Oct 30 11:17:50 UTC 2005" are displayed on the left, and "G.Shdsl LAN Extender" on the right. A left-hand navigation menu is visible, with "WAN" selected. The main content area is titled "DSL Performance & Statistic" and contains a text box with the following information:

```
Line Code:      PAM16 (G.sh)
Standard:      Annex B (ETSI)
Service mode:  RT
Attenuation:   0 (dB)
Line status:   Handshaking, line rate 0 (Kbps)
```

Display the DSL Performance and Statistics.

4.5.2 ATM Performance & Statistic

The screenshot displays the YOMA AH505 web interface. The top navigation bar shows the YOMA logo and the model number 'AH505'. Below the navigation bar, the date and time 'Sun Oct 30 11:19:35 UTC 2005' and the device name 'G.Shdsl LAN Extender' are visible. The left sidebar contains a menu with categories: Home, System Information, Quick Set-up, Basic Configuration, Advance Configuration, Access List, Tools, and System Monitor. The main content area is titled 'ATM Performance & Statistic' and contains a table with 10 columns: Item, VPI/VCI, Link, Status, Rx-Pkts, Rx Err, Tx Pkts, Tx Err, Rx-Bts, and Tx-Bts. The table shows 12 rows of data. Below the table, the MAC address '00:D0:DA:90:06:5A' is displayed.

Item	VPI/VCI	Link	Status	Rx-Pkts	Rx Err	Tx Pkts	Tx Err	Rx-Bts	Tx-Bts
1	0/100	rfc2684	Yes	0	0	0	0	0	0
2	-/-	-	-	-	-	-	-	-	-
3	-/-	-	-	-	-	-	-	-	-
4	-/-	-	-	-	-	-	-	-	-
5	-/-	-	-	-	-	-	-	-	-
6	-/-	-	-	-	-	-	-	-	-
7	-/-	-	-	-	-	-	-	-	-
8	-/-	-	-	-	-	-	-	-	-
9	-/-	-	-	-	-	-	-	-	-
10	-/-	-	-	-	-	-	-	-	-
11	-/-	-	-	-	-	-	-	-	-
12	-/-	-	-	-	-	-	-	-	-

MAC Address: 00:D0:DA:90:06:5A

Displaying ATM Performance and Statistics.

5. Upgrading Firmware

There are 2 kinds of methods to update firmware:

- Through Serial port
- Through Ethernet port

5.1 Upgrade using Ethernet port

Step 1: Install TFTP software, such as TFTP Client (Details see Appendix A).

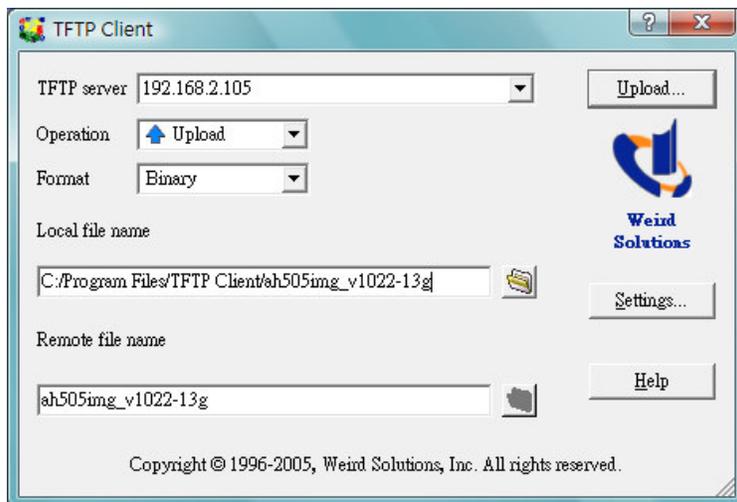
Step 2: Connect the RS-232 & Ethernet cable to PC and AH505

Step 3: Using Hyper Terminal of Windows to check AH505 status. The default setting of Hyper terminal is 115200 bps, 8 data bit, No Parity, 1 stop bit.

Step 4: Check the IP address of AH505, to make sure it is on the same subnet with your PC (e.g. PC-192.168.2.10, AH505-192.168.2.105)

Step 5. Do ping test from your PC, to make sure the connection between PC and AH505 unit is good.

Step 6: Run the TFTP Client software under the Windows's XP or 2000 OS, to get following screen:



Items	Description
TFTP server	: Enter the IP Address of TFTP Server(AH505's IP).
Operation	: Click the check box for “ Upload ”.
Format	: Select binary for file format.
Local file name	: Specify the targeted file through directory and path associated.
Upload Now ---	: Click this button to proceed the update.

Step 7:Click “Upload Now...” to upgrade firmware. Code in AH505 will be upgraded after several minutes, and automatically reboot device.

5.2 Upgrade using Serial port

Step 1:Connect PC and AH505 with RS-232 cable.

Step 2:Using Hyper Terminal of Windows to check AH505 status. The default setting of Hyper terminal is 115200 bps, 8 data bit, No Parity, 1 stop bit.

Step 3:Power on the AH505, then PC will show following screen

```
COM5 - HyperTerminal
File Edit View Call Transfer Help
Yoda Communications, Inc.
Model: AH505

Password:

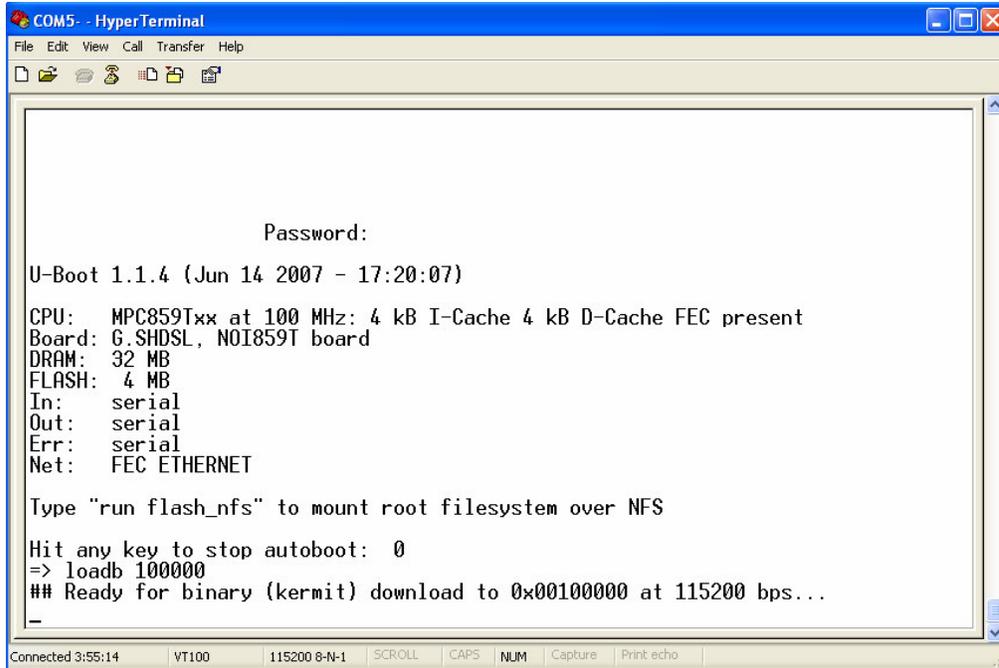
U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)

CPU: MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM: 32 MB
FLASH: 4 MB
In: serial
Out: serial
Err: serial
Net: FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS
Hit any key to stop autoboot: 1 _

Connected 3:52:53 VT100 115200 8-N-1 SCROLL CAPS NUM Capture Print echo
```

Step 3: Press “Enter” key immediately when you see this message “Hit any key to stop autoboot:” then you can see the prompt “=>”. Enter “loadb 100000” and press “Enter” key you can get following screen

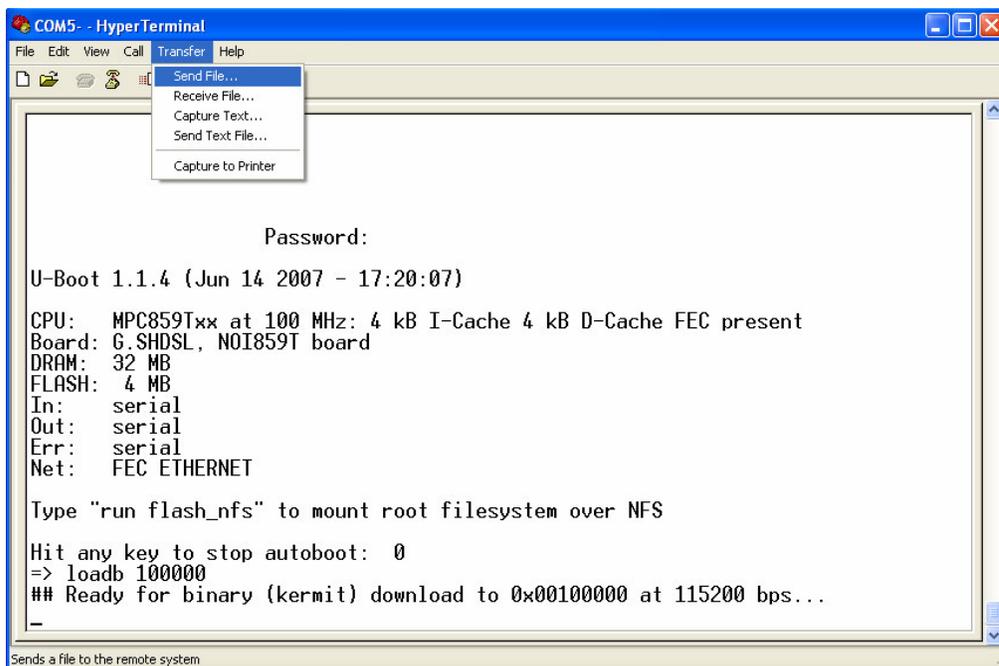


The screenshot shows a HyperTerminal window titled "COM5 - HyperTerminal". The terminal displays the following text:

```
COM5 - HyperTerminal
File Edit View Call Transfer Help
Password:
U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)
CPU: MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM: 32 MB
FLASH: 4 MB
In: serial
Out: serial
Err: serial
Net: FEC ETHERNET
Type "run flash_nfs" to mount root filesystem over NFS
Hit any key to stop autoboot: 0
=> loadb 100000
## Ready for binary (kermit) download to 0x00100000 at 115200 bps...
-
```

The status bar at the bottom shows: Connected 3:55:14 VT100 115200 8-N-1 SCROLL CAPS NUM Capture Print echo

Step 4: Select “Send File...” under the tool’s bar of “Transfer” as following screen.



The screenshot shows the same HyperTerminal window as in Step 3, but with the "Transfer" menu open. The menu options are:

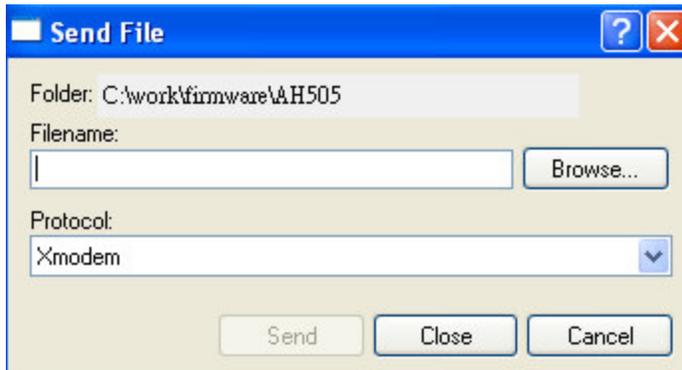
- Send File...
- Receive File...
- Capture Text...
- Send Text File...
- Capture to Printer

The terminal text is identical to the previous screenshot:

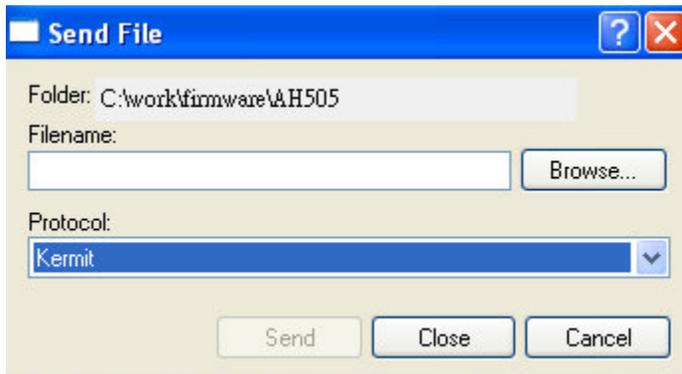
```
COM5 - HyperTerminal
File Edit View Call Transfer Help
Password:
U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)
CPU: MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM: 32 MB
FLASH: 4 MB
In: serial
Out: serial
Err: serial
Net: FEC ETHERNET
Type "run flash_nfs" to mount root filesystem over NFS
Hit any key to stop autoboot: 0
=> loadb 100000
## Ready for binary (kermit) download to 0x00100000 at 115200 bps...
-
```

The status bar at the bottom shows: Sends a file to the remote system

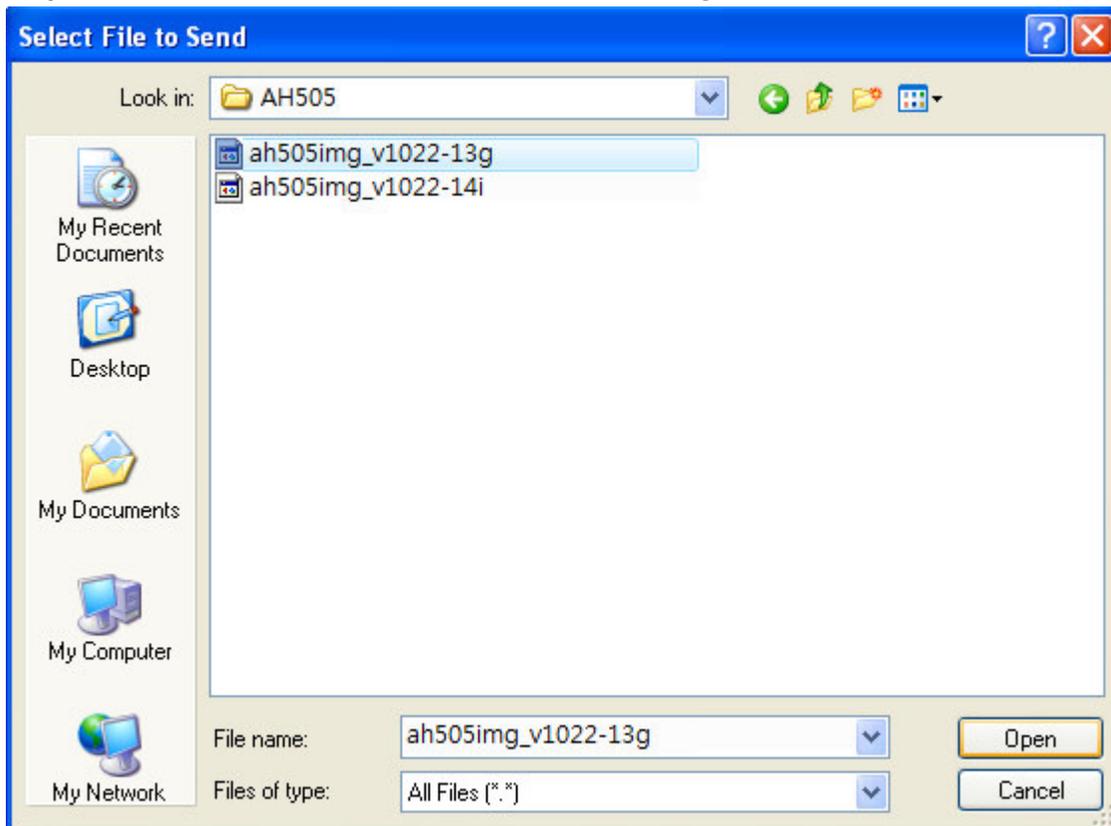
Step 5: Then you can get the following screen:



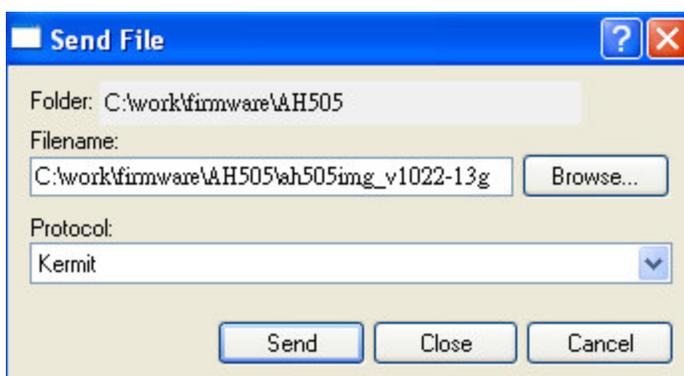
Step 6: Select "Kermit" Protocol as the following screen:



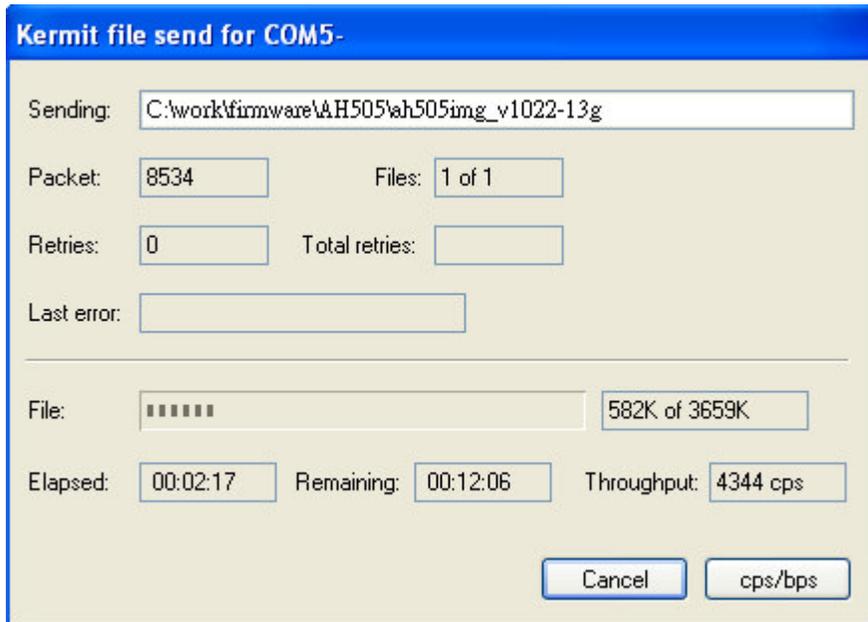
Step 7: Click “Browse” for select file to send as the following screen:



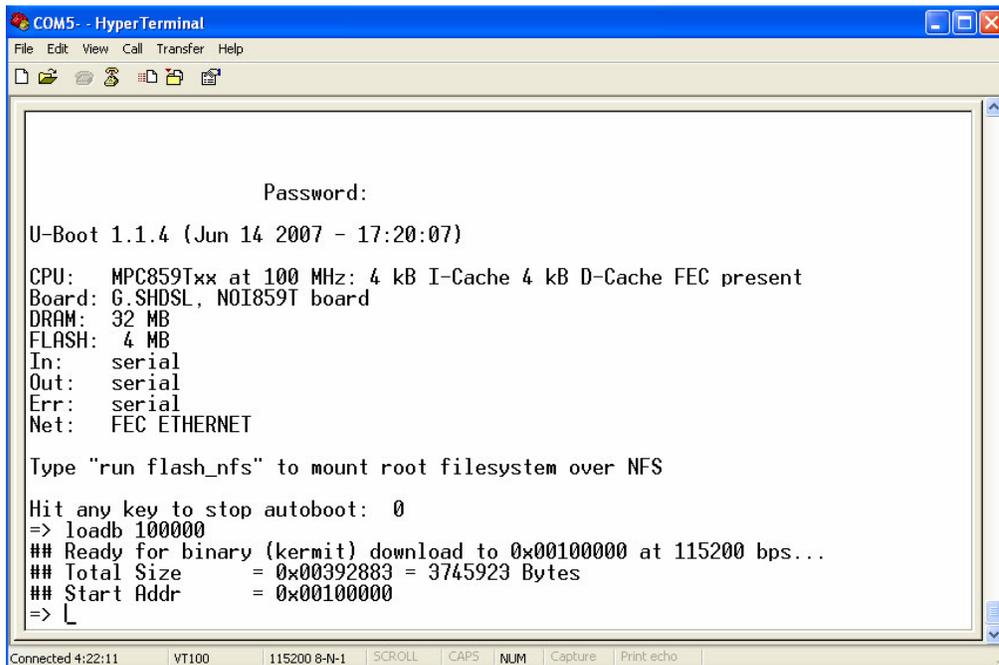
Step 8: Click “OPEN”, you can get the following screen:



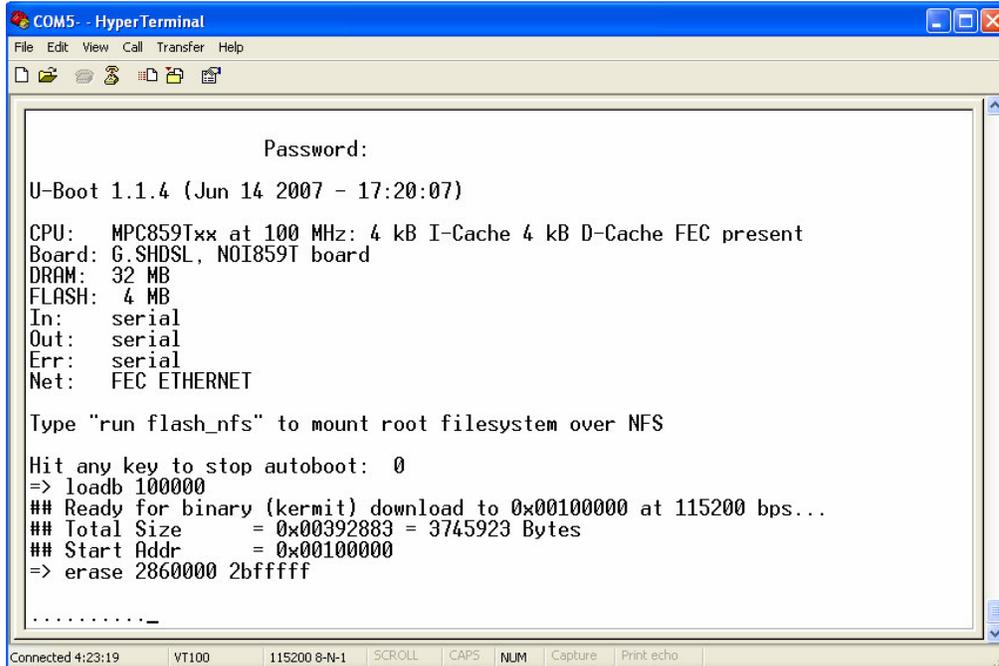
Step 9: Click “Send” you can get the following screen:



Step 10: Code in AH505 will be uploaded. It will take about 18~20 minutes. The above screen will automatically disappear after Code was completely updated and you can get the following screen:



Step 11: Enter “erase 2860000 2bffff” as the following screen:

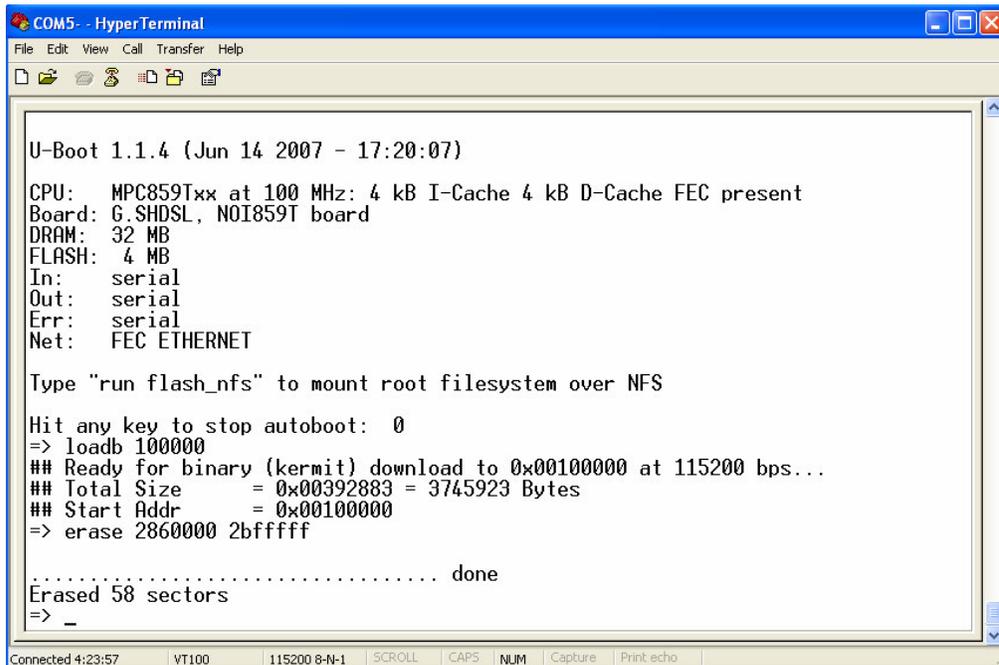


```
COM5 - HyperTerminal
File Edit View Call Transfer Help
Password:
U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)
CPU: MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM: 32 MB
FLASH: 4 MB
In: serial
Out: serial
Err: serial
Net: FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS

Hit any key to stop autoboot: 0
=> loadb 100000
## Ready for binary (kermit) download to 0x00100000 at 115200 bps...
## Total Size = 0x00392883 = 3745923 Bytes
## Start Addr = 0x00100000
=> erase 2860000 2bffff
....._
```

Step 12: It will take about few minutes to erase flash memory and the screen will display “done” message as the following:



```
COM5 - HyperTerminal
File Edit View Call Transfer Help
U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)
CPU: MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM: 32 MB
FLASH: 4 MB
In: serial
Out: serial
Err: serial
Net: FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS

Hit any key to stop autoboot: 0
=> loadb 100000
## Ready for binary (kermit) download to 0x00100000 at 115200 bps...
## Total Size = 0x00392883 = 3745923 Bytes
## Start Addr = 0x00100000
=> erase 2860000 2bffff
..... done
Erased 58 sectors
=> _
```

Step 13: Enter “cp.b 100000 2860000 \$(filesize)” as the following screen:

```

COM5 - HyperTerminal
File Edit View Call Transfer Help
U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)

CPU:   MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM:  32 MB
FLASH: 4 MB
In:    serial
Out:   serial
Err:   serial
Net:   FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS

Hit any key to stop autoboot: 0
=> loadb 100000
## Ready for binary (kermit) download to 0x00100000 at 115200 bps...
## Total Size      = 0x00392883 = 3745923 Bytes
## Start Addr      = 0x00100000
=> erase 2860000 2bffff

..... done
Erased 58 sectors
=> cp.b 100000 2860000 $(filesize)
Copy to Flash... _

```

Step 14: It will take about few minutes to copy flash memory and the screen will display “done” message as the following:

```

COM5 - HyperTerminal
File Edit View Call Transfer Help
CPU:   MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM:  32 MB
FLASH: 4 MB
In:    serial
Out:   serial
Err:   serial
Net:   FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS

Hit any key to stop autoboot: 0
=> loadb 100000
## Ready for binary (kermit) download to 0x00100000 at 115200 bps...
## Total Size      = 0x00392883 = 3745923 Bytes
## Start Addr      = 0x00100000
=> erase 2860000 2bffff

..... done
Erased 58 sectors
=> cp.b 100000 2860000 $(filesize)
Copy to Flash... done
=>

```

Step 15: Enter “reset “ as the following screen:

```

COM5 - HyperTerminal
File Edit View Call Transfer Help
#####
## Total Size      = 0x00392883 = 3745923 Bytes
## Start Addr     = 0x00100000
=> erase 2860000 2bffff
..... done
Erased 58 sectors
=> cp.b 100000 2860000 $(filesize)
Copy to Flash... done
=> reset

U-Boot 1.1.4 (Jun 14 2007 - 17:20:07)

CPU:   MPC859Txx at 100 MHz: 4 kB I-Cache 4 kB D-Cache FEC present
Board: G.SHDSL, NOI859T board
DRAM:  32 MB
FLASH: 4 MB
In:     serial
Out:    serial
Err:    serial
Net:    FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS
Hit any key to stop autoboot:  4

```

Step 16: The system will automatically reboot then you can see the new version that you had updated it before as the following screen:

```

COM5 - HyperTerminal
File Edit View Call Transfer Help
#####
DRAM: 32 MB
FLASH: 4 MB
In:    serial
Out:   serial
Err:   serial
Net:   FEC ETHERNET

Type "run flash_nfs" to mount root filesystem over NFS
Hit any key to stop autoboot:  0
## Booting image at 02860000 ...
Image Name: AH505-image, v. 1.022-14i
Created:    2007-12-04 21:49:14 UTC
Image Type: PowerPC Linux Multi-File Image (gzip compressed)
Data Size: 3759398 Bytes = 3.6 MB
Load Address: 00000000
Entry Point: 00000000
Contents:
Image 0: 690939 Bytes = 674.7 kB
Image 1: 3068446 Bytes = 2.9 MB
Verifying Checksum ... OK
Uncompressing Multi-File Image ... OK
Loading Ramdisk to 01cc2000, end 01faf21e ... OK

```

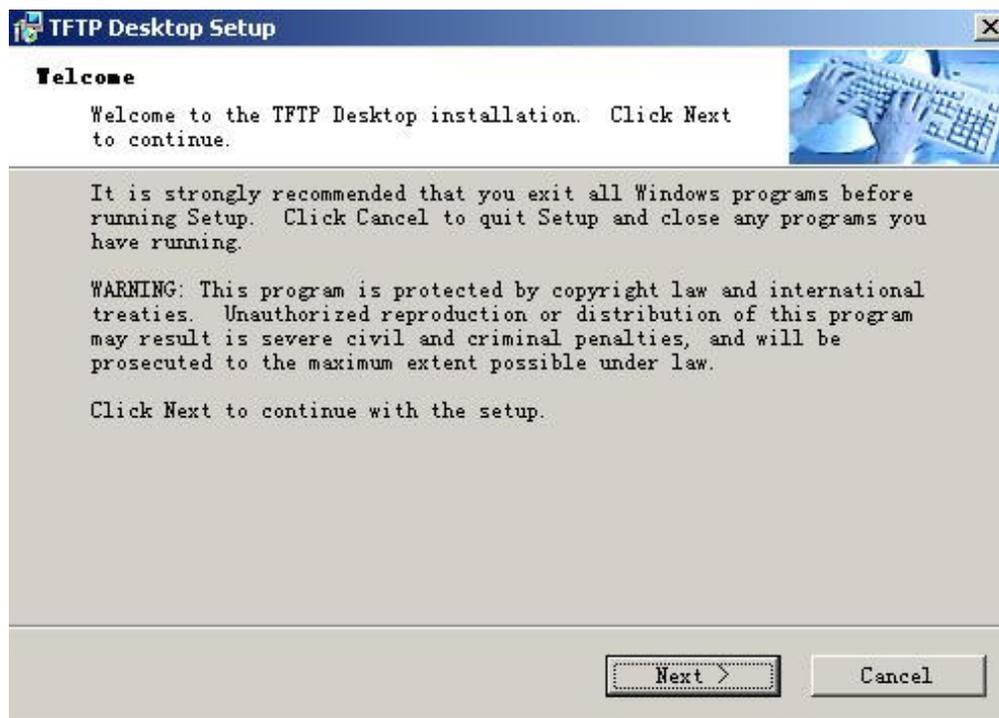
Appendix

Appendix A: Install TFTP software

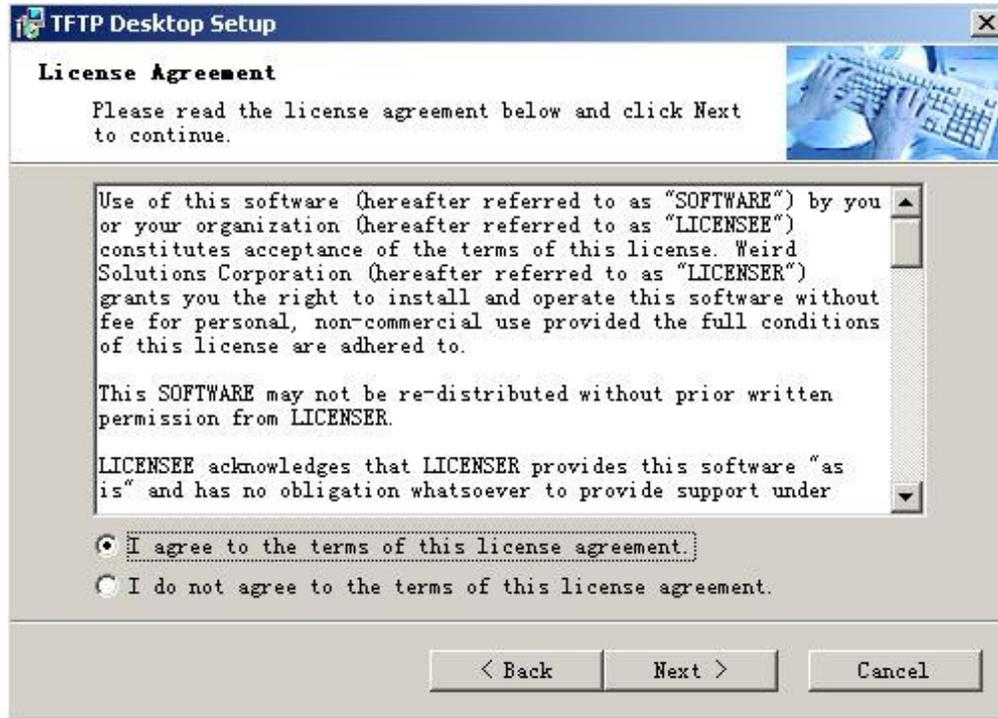
Step 1: Install the software of TFTP, double click the icon of tftpd_ftp.exe as following:



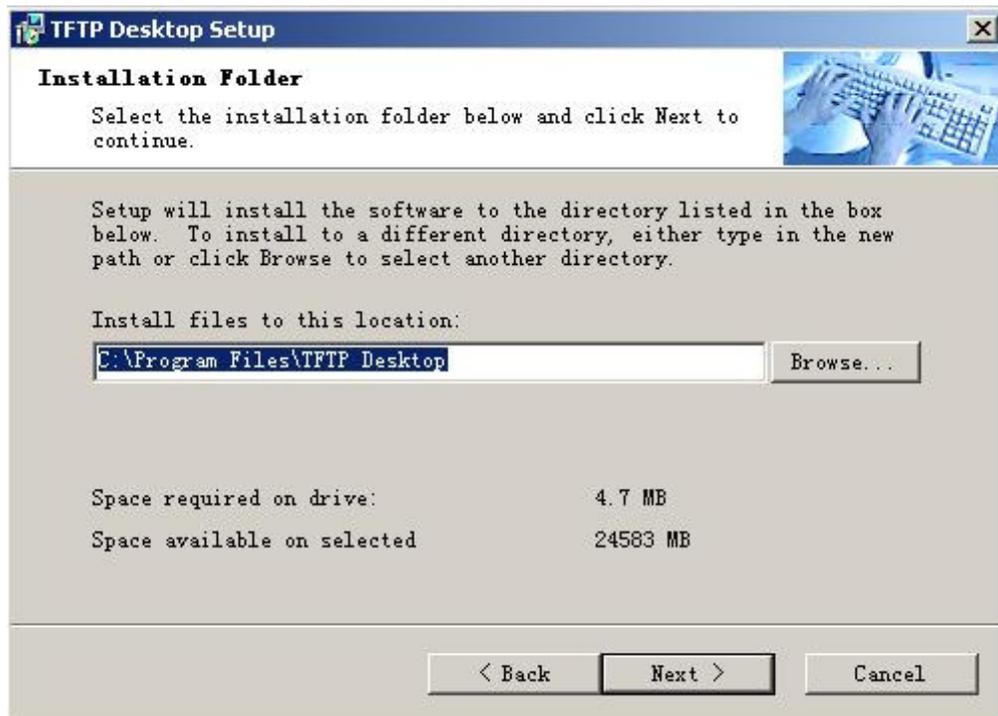
Step 2: Then the PC will show installing icon as following:



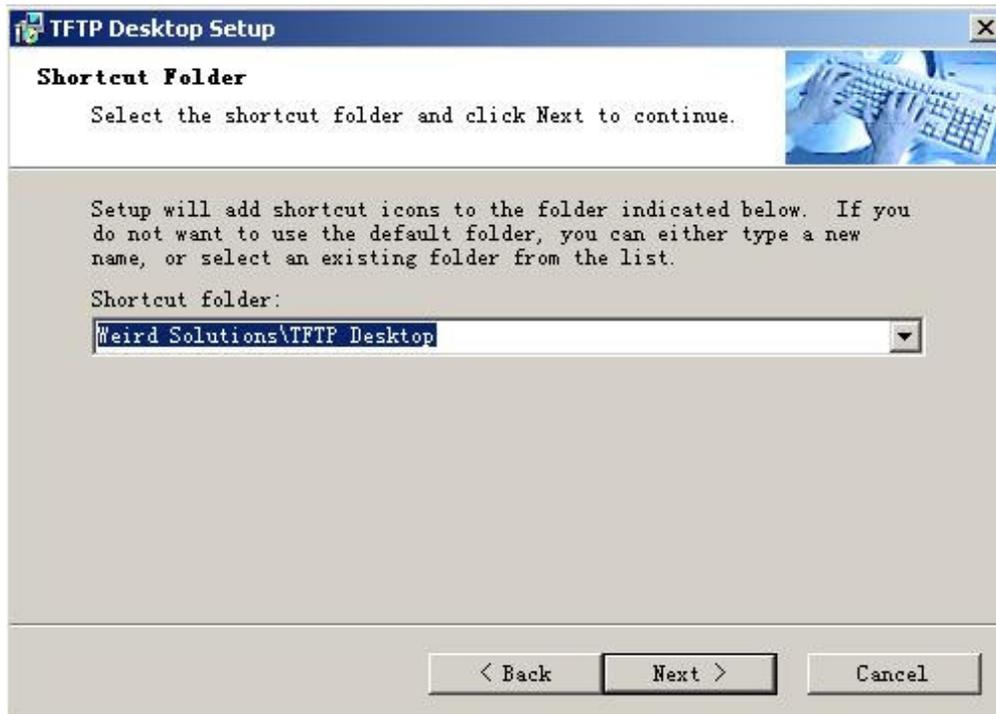
Step 3: Click “Next”, the PC will show following screen



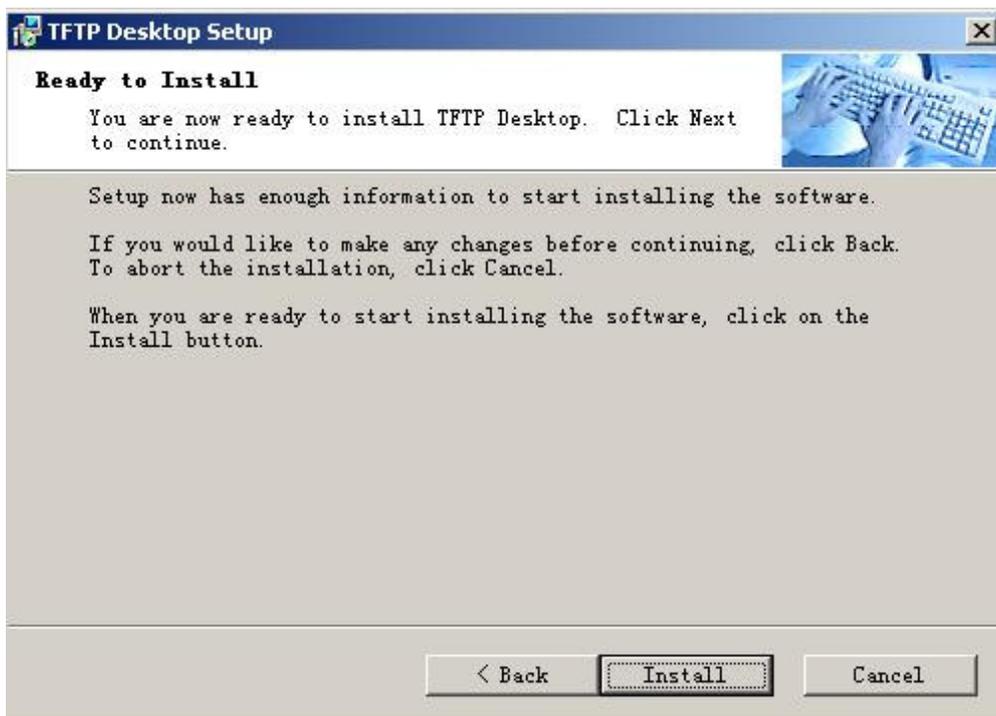
Step 4: Select “I agree to the terms of this license agreement.” and click “Next” to get following screen:



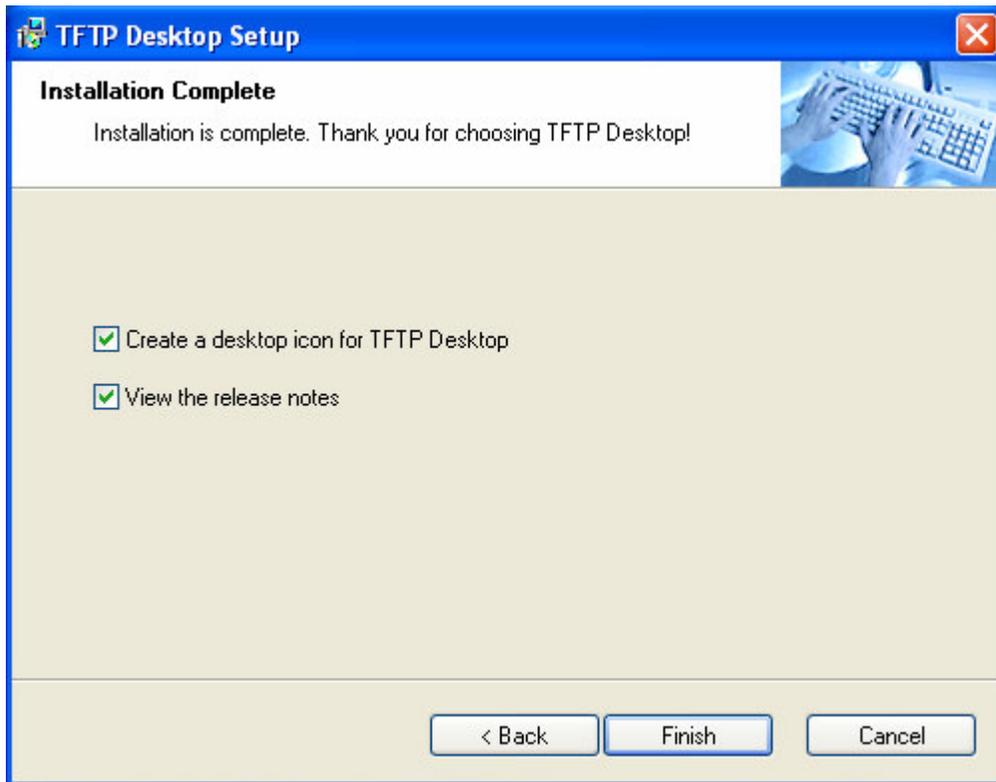
Step 5: Click “Next” and to get following screen:



Step 6: Click “Next” and to get following screen:



Step 7: Click “Install” and to get following screen:



Step 8: Then click “Finish”, The TFTP software has been installed completely.