

**ATTACHMENT E.**

**- USER MANUAL -**

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# **WiMAX Indoor Repeater INSTALLATION GUIDE**

**Version 1.0  
(GSR-2633D-SPR)**

**GS Teletech Inc.**

# Contents of Box

Contents	Picture	Quantity
Repeater		1EA
Installation Guide Book ver 1.0		1EA
CD which Contains User Manual Ver 1.0 And Installation Guide Ver 1.0		1EA
Ethernet Cable 6.6ft(2m)		1EA
Power Cord 10ft (3m)		1EA
Ground Cable 10ft (3m)		1EA

Contents	Picture	Quantity
Ground Cable 6.6ft (2m)		1EA
Ground Sems Screw M4 x 0.31" (M4 x 8mm)		4EA
Bracket Sems Screw M6 x 0.63" (M6 x 16mm)		4EA
Lag Screw Size: 1/2" x 2"		4EA
Anchor Bolt Set 1/2" x 2"		4EA

**This publication provides instruction for installing WiMAX 24dBm, 30dBm, and 33dBm repeaters.**

**The images for the User Interface in this publication may vary from the repeater's depending on its S/W version.**

### Copyright

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### Version Revision History:

Date	Version	Changes
07/2008	Draft	

### Certification

UL/FCC: This equipment complies with UL and FCC

## Warnings and Hazards

### **WARNING! ELECTRIC SHOCK**

Opening the BDA (bi-directional amplifier) could result in electric shock and may cause severe injury.

### **WARNING! EXPOSURE TO RF**

Working with the repeater while in operation, may expose the technician to RF electromagnetic fields that exceed FCC rules for human exposure. Visit the FCC website at <http://www.fcc.gov/oet/rfsafety> to learn more about the effects of exposure to RF electromagnetic fields.

### **WARNING! DAMAGE TO EQUIPMENT**

Operating the BDA with antennas in very close proximity facing each other could lead to severe damage to the repeater.

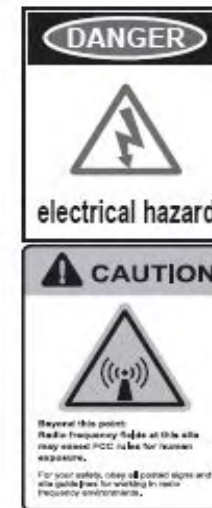
### **RF EXPOSURE & ANTENNA PLACEMENT**

Actual separation distance is determined upon gain of antenna used.

Please maintain a minimum safe distance of at least 8inch while operating near the donor and the server antennas. Also, the donor antenna needs to be mounted outdoors on a permanent structure.

### **WARRANTY**

Opening or tampering the BDA will void all warranties.



**! CAUTION:** REPEATER SHOULD BE INSTALLED AS CLOSE AS POSSIBLE TO POWER SOURCE.

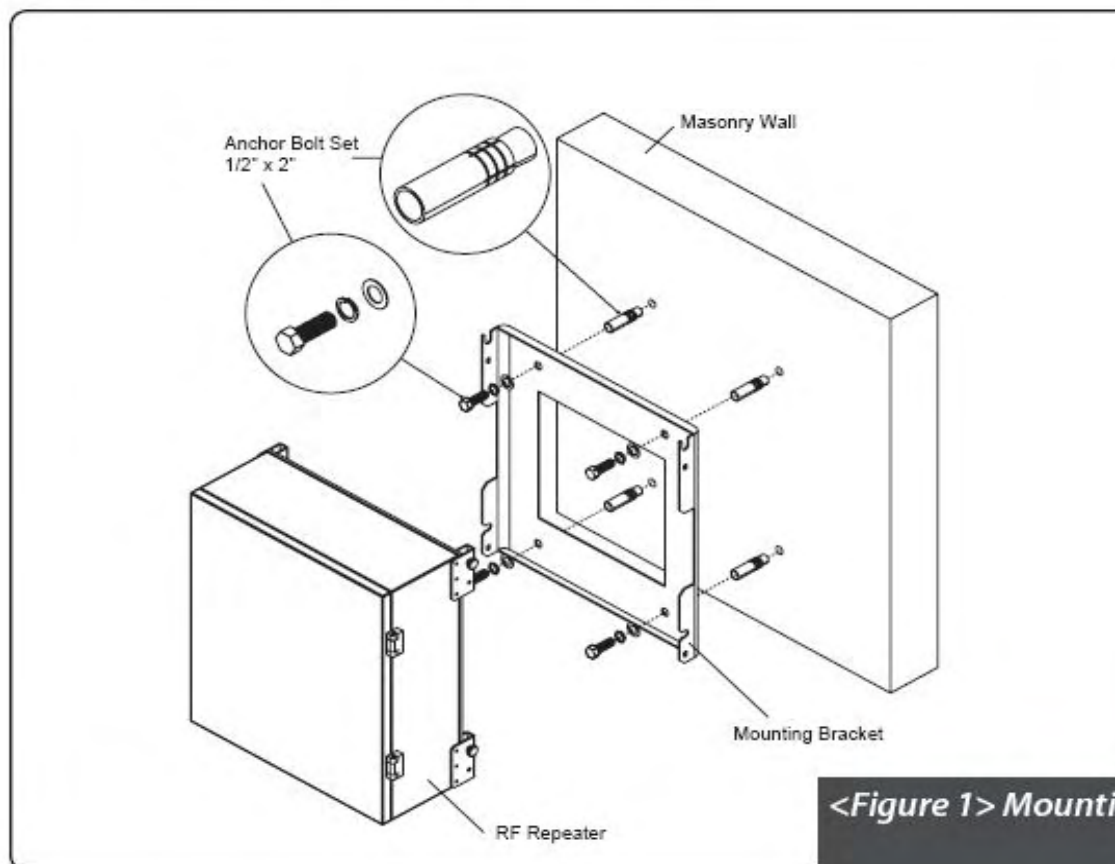
**! CAUTION:** THIS REPEATER IS FOR INDOOR USE ONLY AND SHOULD BE LOCATED INSIDE OF BUILDING.

**! CAUTION:** RISK OF EXPLOSION IF BATTERY ON CONTROLLER BOARD IS REPLACED WITH AN INCORRECT TYPE.

# Mounting Repeater

## Masonry Wall

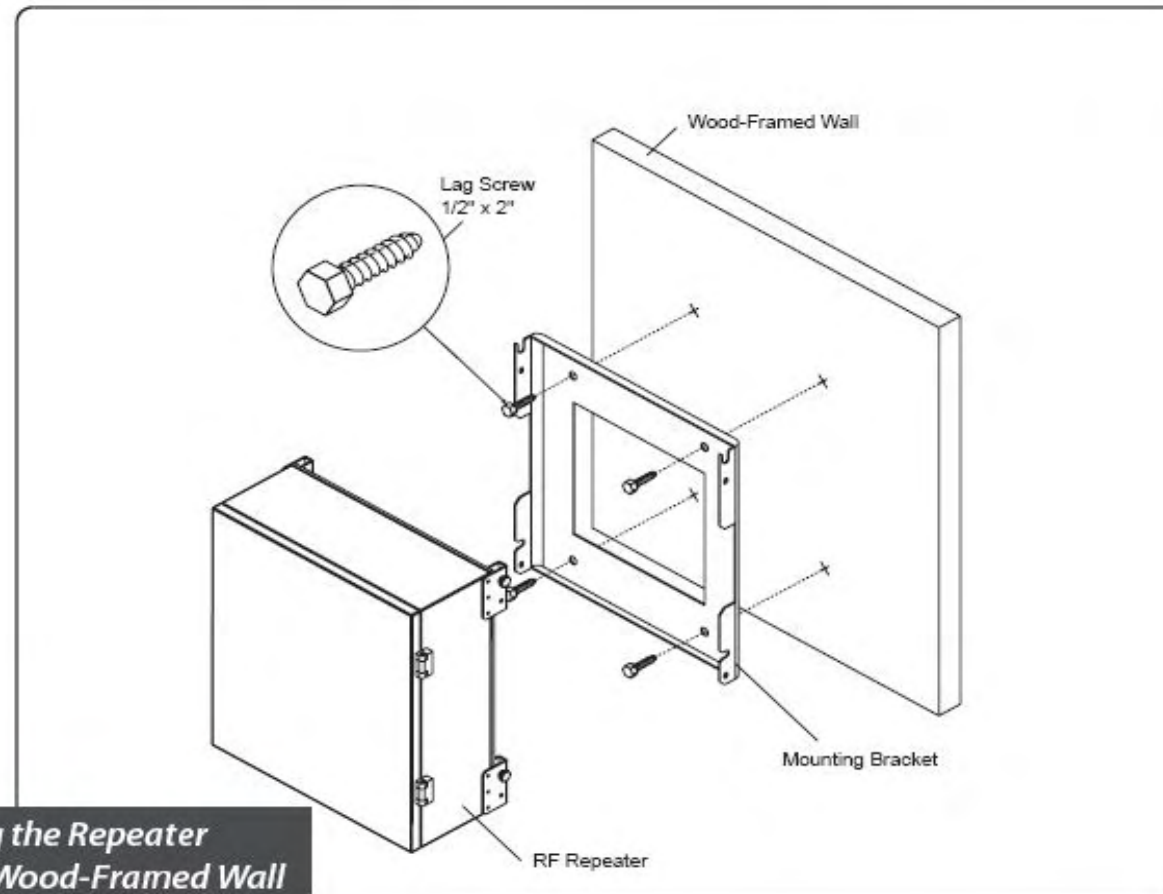
1. Using a pencil, mark the location of each of the mounting bracket's four mounting holes on the wall.
2. Drill holes in the wall at the locations marked in step 1.
3. Set the anchors in the wall using a hammer.
4. Locate the four mounting bolts and place a lock washer and flat washer on each bolt.
5. Place the mounting bracket over the four holes with anchors, making sure that the washers are on the repeater side of the mounting bracket. Tighten bolts until secure.



# Mounting Repeater

## Wood-Framed Wall

1. It is recommended to first attach a sheet of plywood to the wall. The sheet of plywood should be anchored to the studs in the wall.
2. Using a pencil, mark the location for each of the mounting bracket's four mounting holes on the plywood.
3. Place the mounting bracket over the four lag screws heads.
4. Thread a lag screw at the positions marked in step 1.



**<Figure 2> Mounting the Repeater on a Wood-Framed Wall**

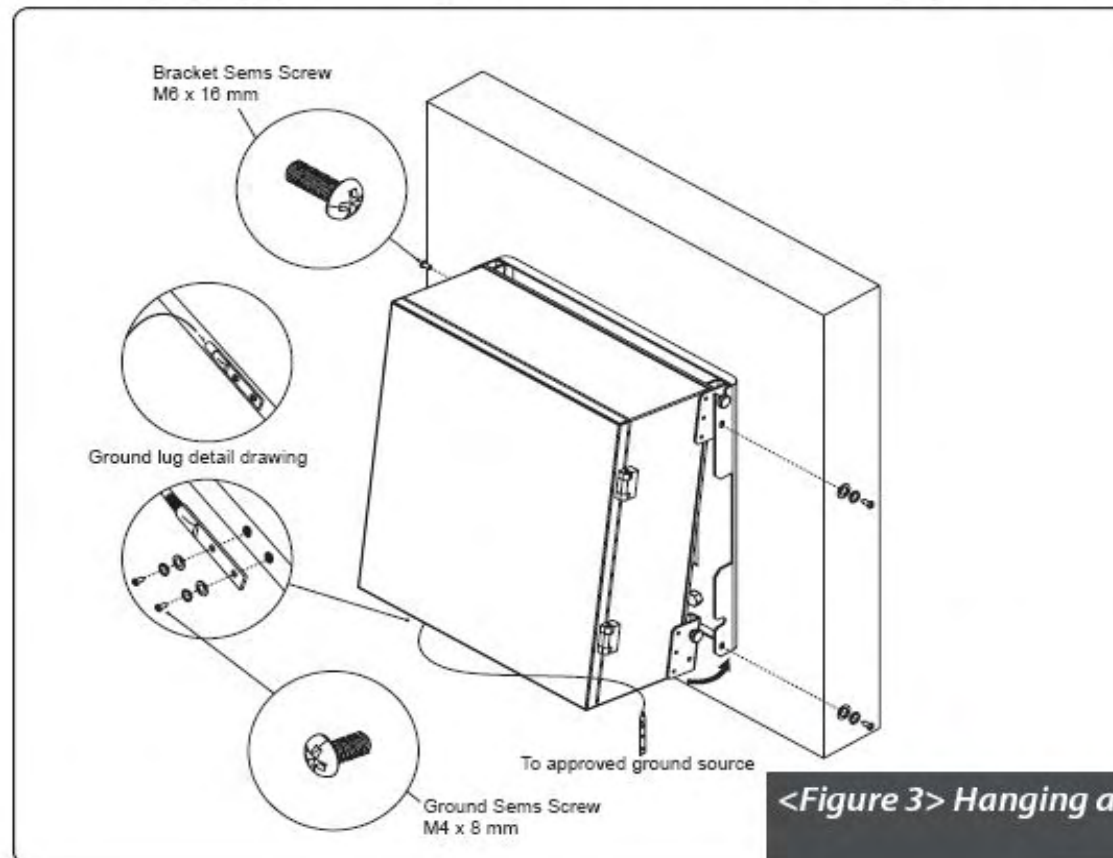
## Hanging and Grounding

1. Hang the Repeater from the mounting bracket.
2. Locate the four Bracket Sems Screws with installed washers. Tighten bolts until secure.
3. Locate the ground lug on the underside(or side) of the repeater.
4. Crimp the ground cable to the ground lug.
5. Route the free end of the ground cable to an approved(per local code or practice) ground source.



### CAUTION

Ground cable must be properly grounded to provide both EMI and voltage surge protection for the repeater.



<Figure 3> Hanging and Grounding the Repeater



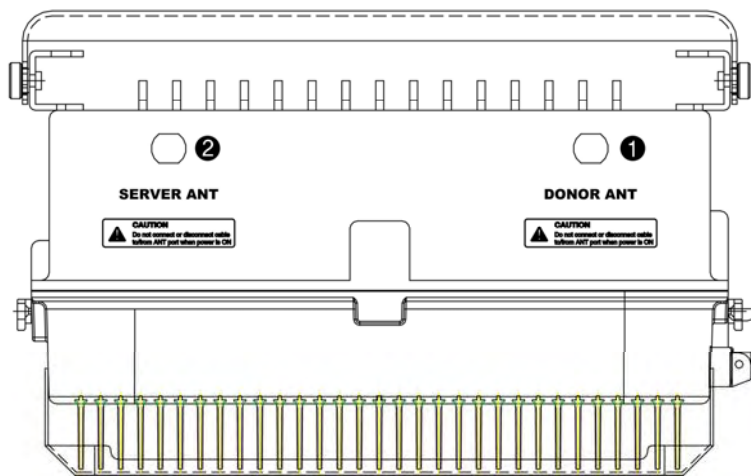
## Position Antenna

- Customer specifications should be followed for positioning the antennas properly.

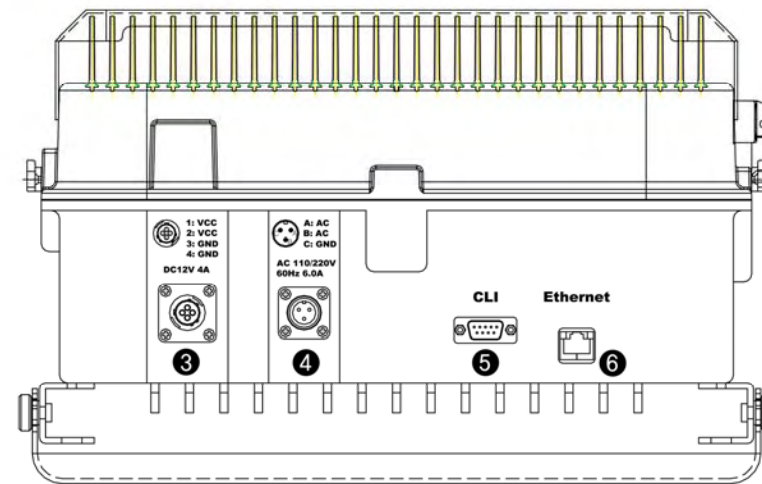


*<Figure 4> An installer is directing Donor Antenna to nearby BTS to receive strong input signal.*

# WiMAX Repeater External Port Design



**<Figure 5> ANT Port Display**



**<Figure 6> Port Display (Bottom side)**

NO	PORT	NO	PORT
①	DONOR ANT PORT	④	AC POWER PORT
②	SERVER ANT PORT	⑤	CLI PORT
③	DC POWER PORT	⑥	ETHERNET PORT

**<Figure 7> WIMAX\_33dBm External Port Title**

# Cable Connections

- Connect Donor and Server Antennas



**CAUTION**

Do not connect or disconnect cable from ANT port when power is ON



<Figure 8> Donor ANT Port Connection



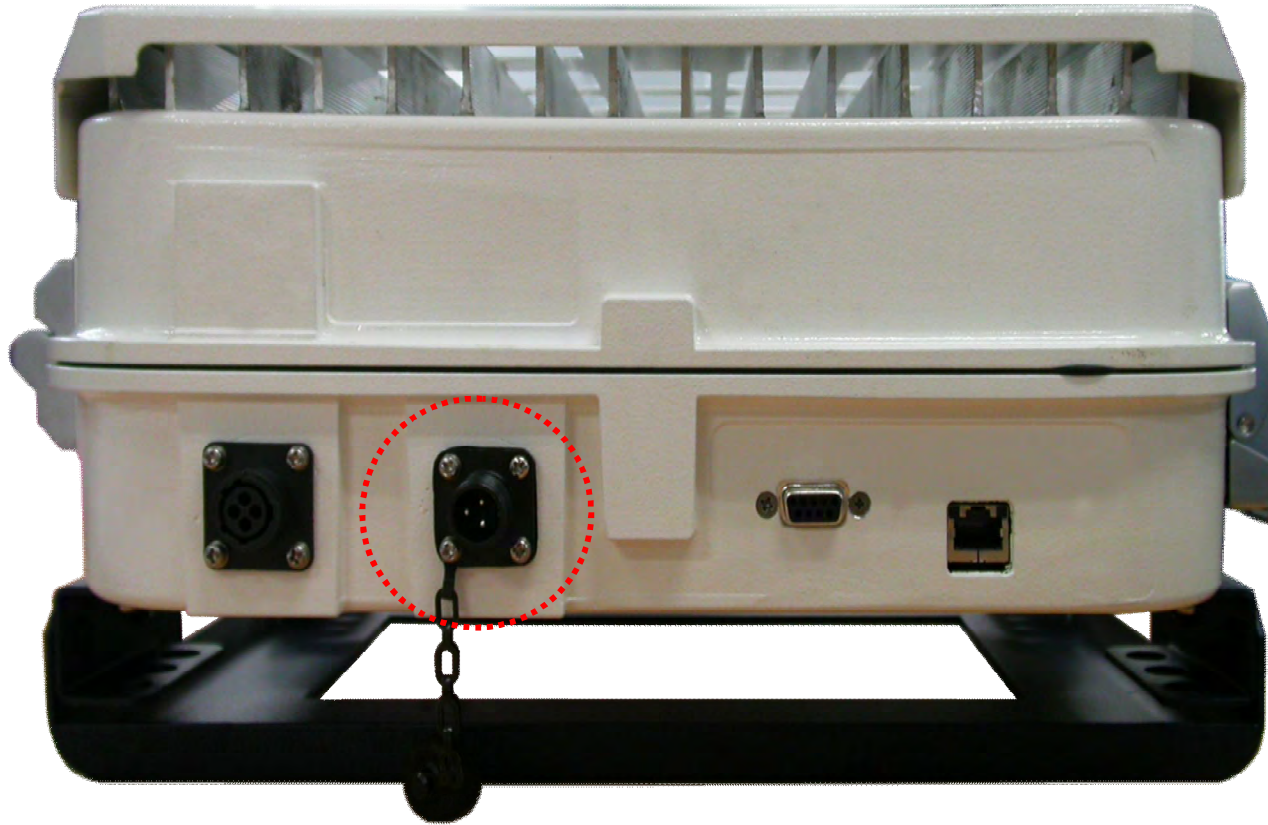
<Figure 9> Server ANT Port Connection

# WiMAX Repeater External Design



<Figure 10> WiMAX Repeater External Design

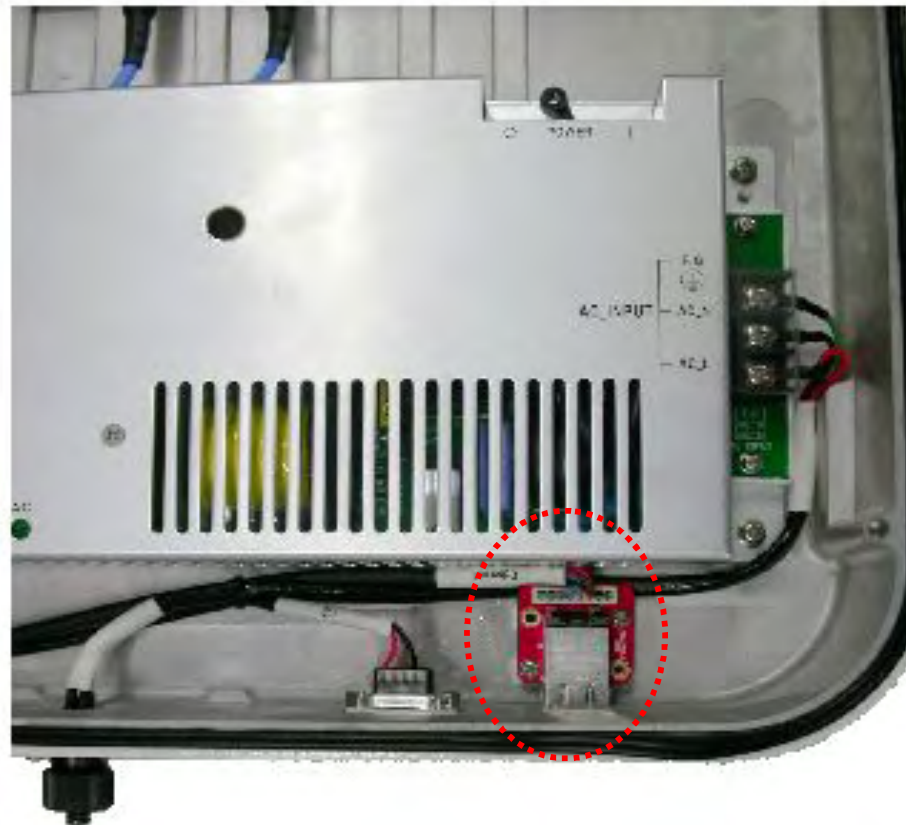
# Connecting Power Cable



<Figure 11> AC Power Port Connection

## Web UI

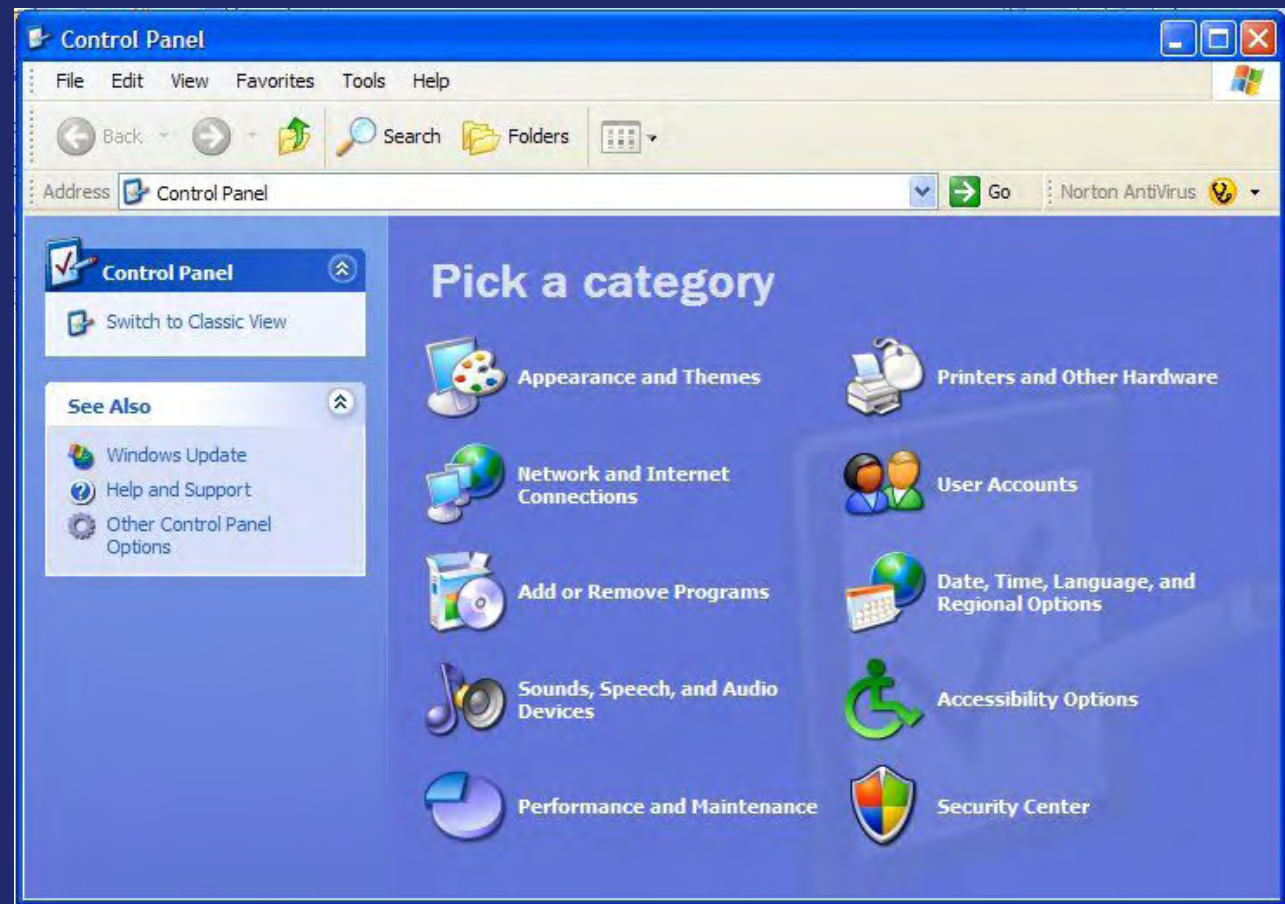
- Before connecting to repeater, disable wireless networking functions and remove wireless broadband card.
- Connect Ethernet Crossover cable from repeater to laptop.



<Figure 12> Ethernet Port

# Connecting to Web UI

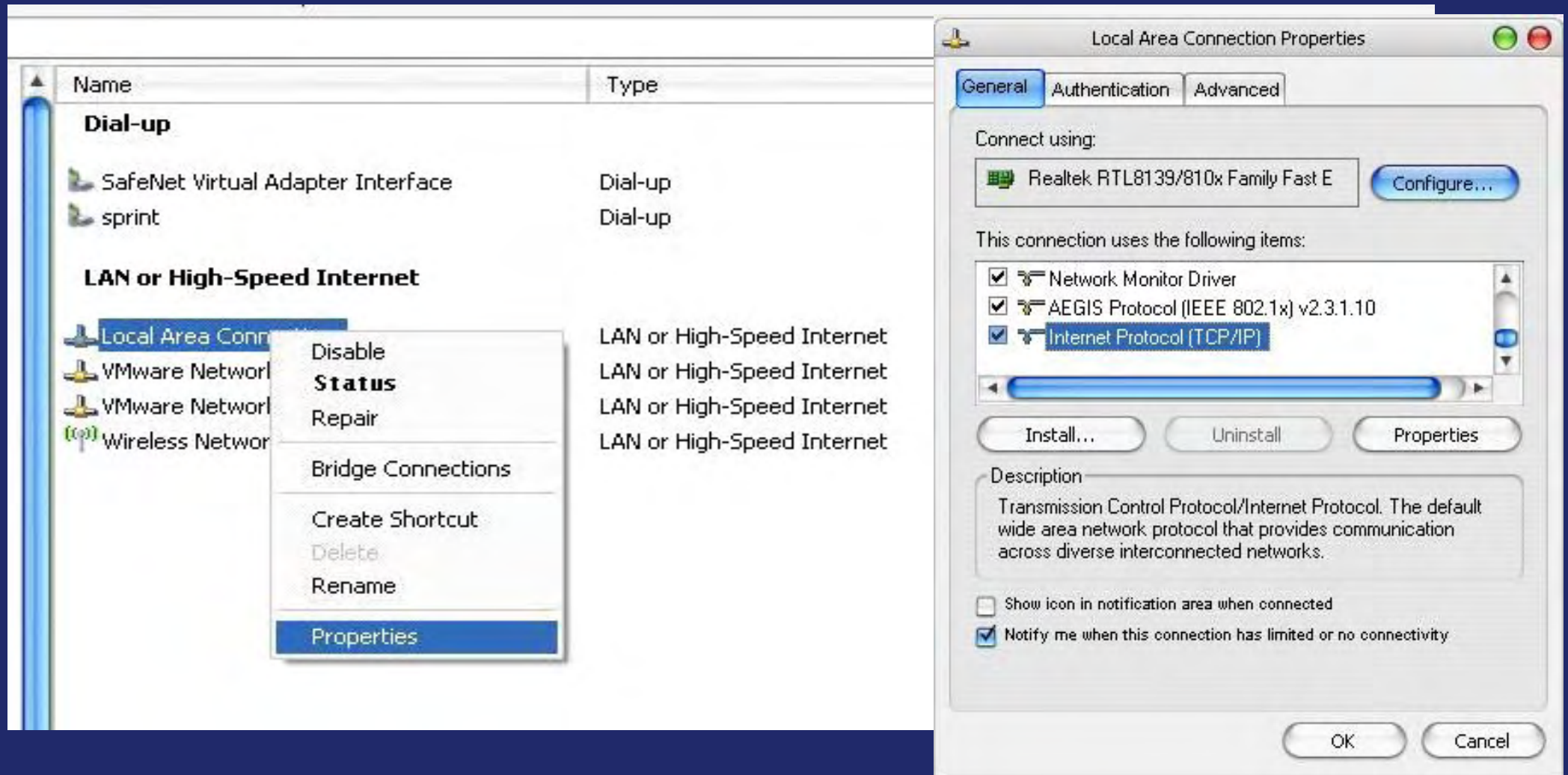
## 1. Start->Control Panel->Network and Internet Connections



**CAUTION**  
Disable wireless connections and remove wireless broadband card.

# Connecting to Web UI

2. Right click Local Area Connections and choose Properties
3. Click Internet Protocol (TCP/IP) on General tab and click Properties

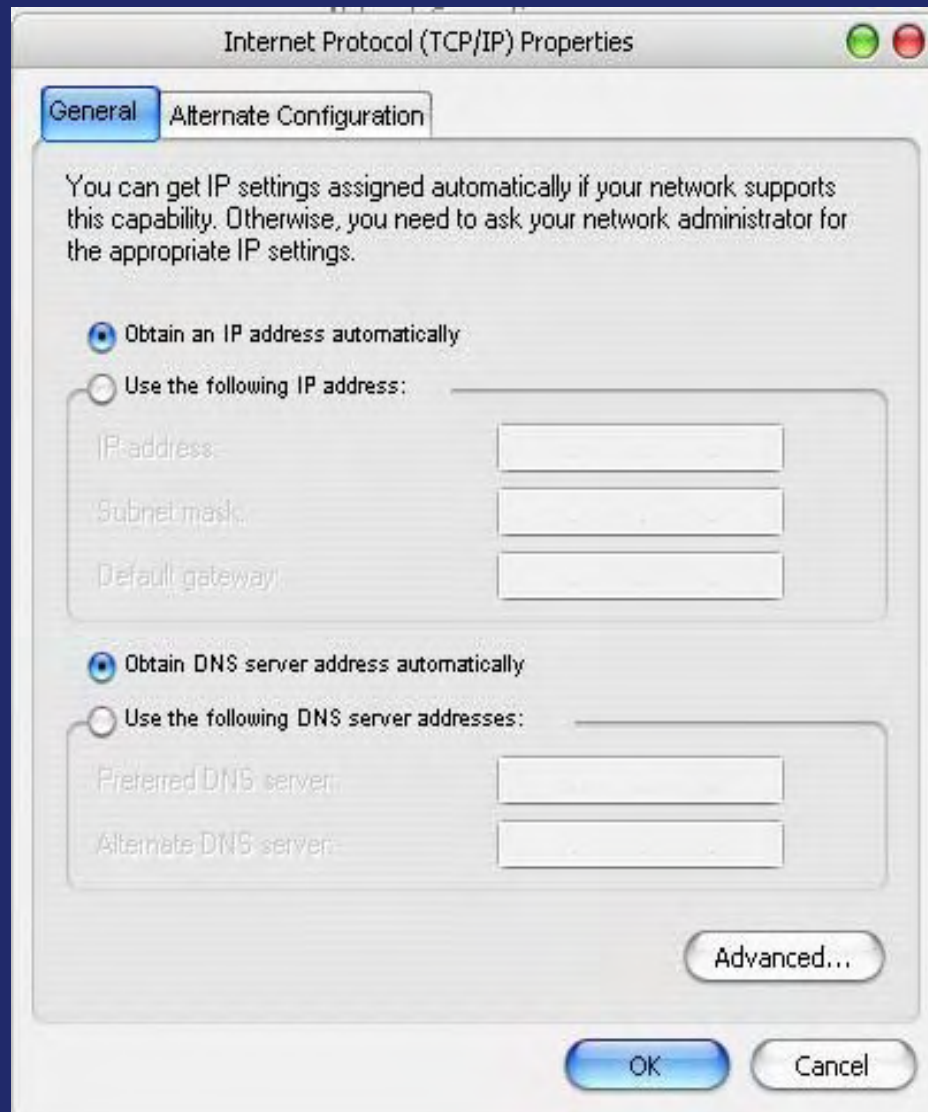


The screenshot shows the Windows Network Connections window on the left. A context menu is open over the 'Local Area Connections' folder, with 'Properties' selected. The 'Local Area Connection Properties' dialog box is open on the right, showing the 'General' tab. The 'Connect using:' section shows 'Realtek RTL8139/810x Family Fast E'. The 'This connection uses the following items:' list includes 'Network Monitor Driver', 'AEGIS Protocol (IEEE 802.1x) v2.3.1.10', and 'Internet Protocol (TCP/IP)'. The 'Internet Protocol (TCP/IP)' item is selected. The 'Description' section provides details about the Transmission Control Protocol/Internet Protocol. At the bottom, there are 'Install...', 'Uninstall', and 'Properties' buttons, and 'OK' and 'Cancel' buttons at the very bottom.

Name	Type
<b>Dial-up</b>	
SafeNet Virtual Adapter Interface	Dial-up
sprint	Dial-up
<b>LAN or High-Speed Internet</b>	
Local Area Connections	LAN or High-Speed Internet
VMware Network	LAN or High-Speed Internet
VMware Network	LAN or High-Speed Internet
Wireless Network	LAN or High-Speed Internet



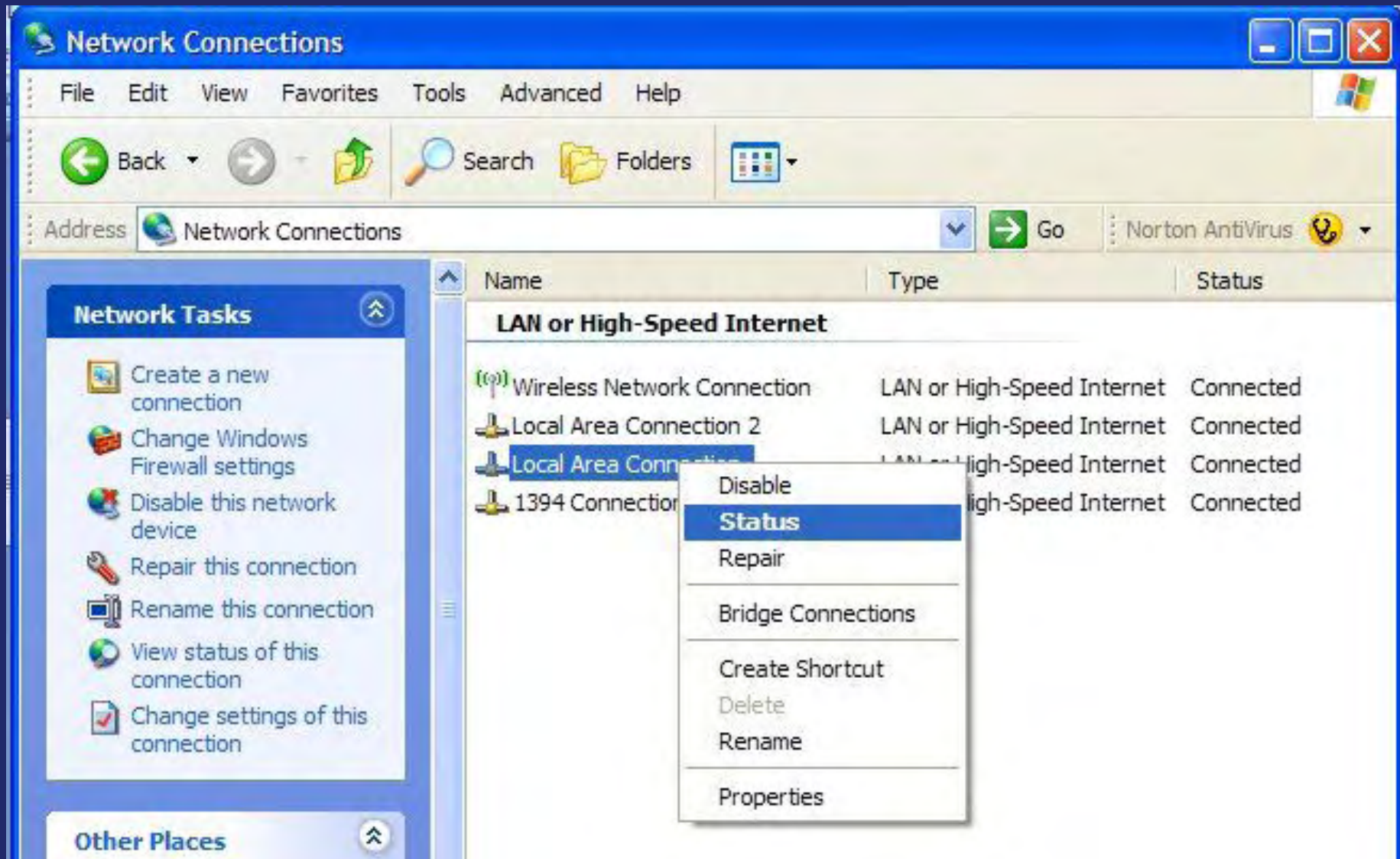
## On General Tab



4. Choose **"Obtain an IP address automatically"**
5. Choose **"Obtain DNS server address automatically"**
6. Click **"OK"** to close **Properties**
7. Click **"OK"** to close **Properties**

# Connecting to Web UI

## 8. Right click Local Area Connections and choose Status



# Verify Assigned IP Address

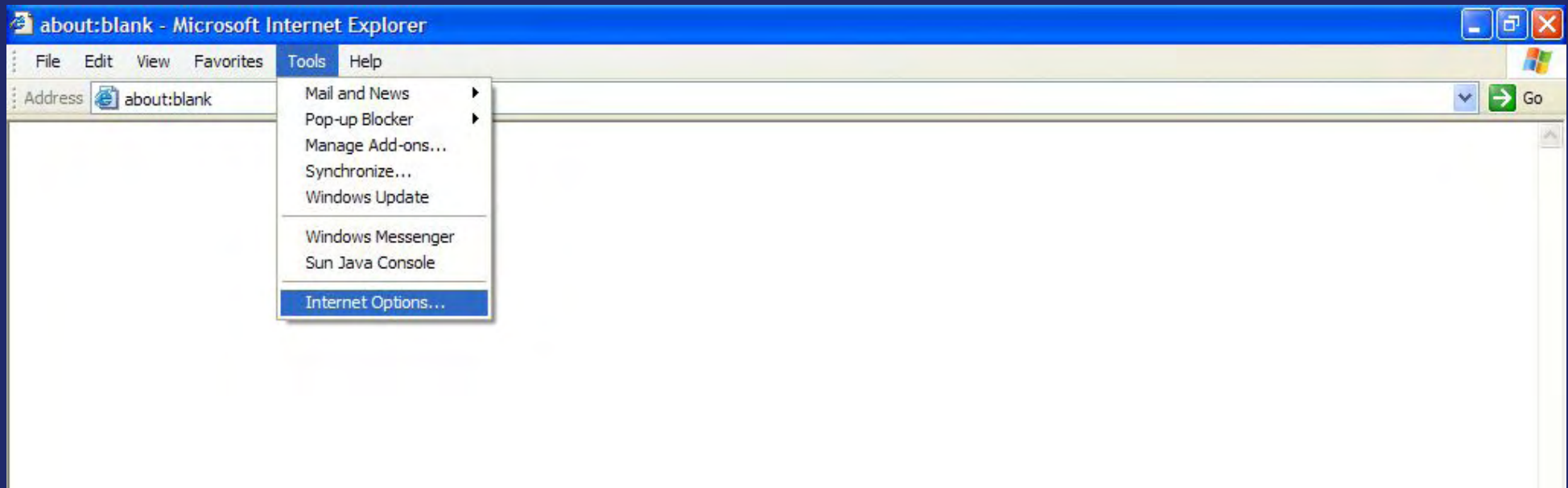


9. Click on "Support" tab.
10. Verify assigned Default Gateway at local connection.  
(If IP address is not assigned, click repair)
11. Close all windows when finished.

# Internet Explorer Option Settings

- Proceed step by step as indicated in the following slides to delete all temporary internet files and records.

## 1. Open Internet Explorer -> Tools -> Internet Options

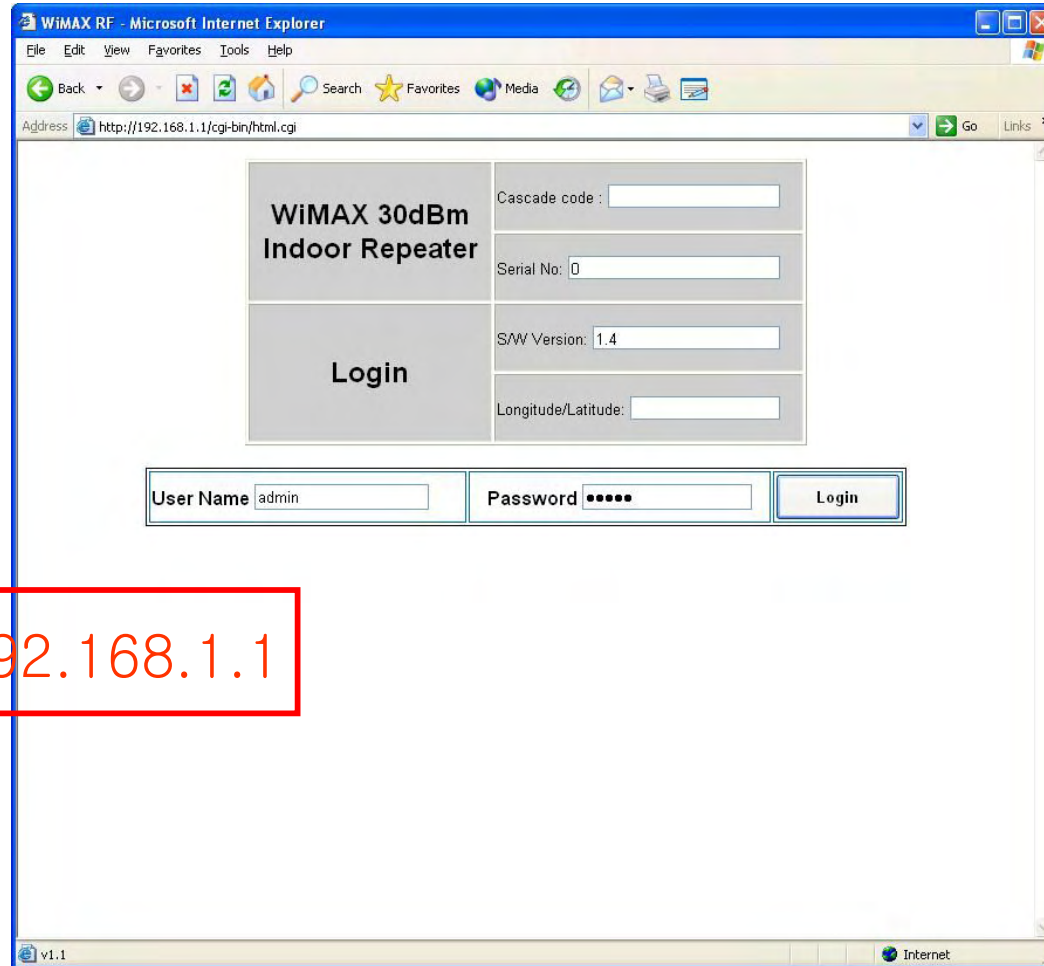


# Browser History Options



- On the “General” tab,  
In the “Temporary Internet Files” section:*
- 2. Click “Delete Cookies” → “OK”*
  - 3. Click “Delete Files” → “OK”*
  - 4. Click “OK”*

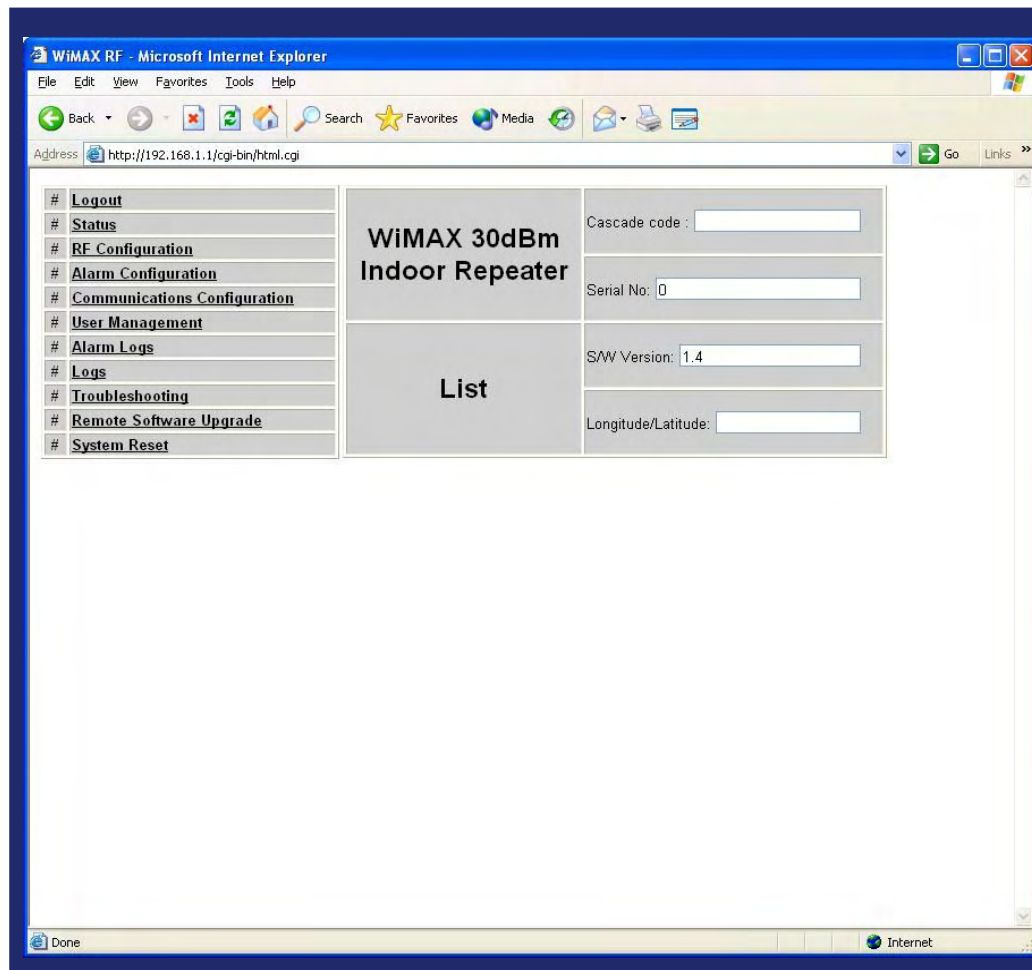
# Login Screen



Enter Default Gateway's IP address into address bar as previously described, you will be redirected to Login. Default User Name is 'admin', and default Password is 'admin'. You may need to change password as described in the User Management section. Cascade Code and Longitude/Latitude will initially be blank, you can input Cascade Code and Longitude/Latitude as described in the Communications Configuration section.

# List Menu

- After you log in, you can see various menu page links related to the equipment.



# Status Page

- Default D/L and U/L are set at minimum Gain.
- The default values in various fields will differ with different models of WiMAX Repeaters.
- In order to view other pages, you can click the desired menu on the top-left corner of all pages.
- Changes can be made on the Status Page. This page is for checking the repeater's conditions and settings.

RF Status Indoor 30dBm					
Downlink Output Power	-10.0	dBm	Uplink Output Power	-10.0	dBm
Downlink Upper Limit	50.0	dBm	Uplink Upper Limit	50.0	dBm
Downlink Lower Limit	20.0	dBm	Uplink Lower Limit	20.0	dBm
Downlink ATT	0.0	dB	Uplink ATT	0.0	dB
Downlink ALC Limit	42.0	dBm	Uplink ALC Limit	42.0	dBm
Downlink RSSI Level	-1.1	dBm	RSSI Lower Limit	20.0	dBm
Downlink ALC Control	ON		Uplink ALC Control	ON	
HPA ON/OFF	OFF				
Gain Balance	OFF		Shutdown ON/OFF	ON	
AGS Control ON/OFF	OFF		Delay Alarm Reporting Minutes	5	
Temperature	77.0	°F	Temperature Limit	122.0	°F



# Status Page

**WIMAX RF - Microsoft Internet Explorer**

Address: <http://192.168.1.1/cgi-bin/html.cgi?function=status>

Downlink Output Power	-10.0	dBm	Uplink Output Power	-10.0	dBm
Downlink Upper Limit	50.0	dBm	Uplink Upper Limit	50.0	dBm
Downlink Lower Limit	20.0	dBm	Uplink Lower Limit	20.0	dBm
Downlink ATT	0.0	dB	Uplink ATT	0.0	dB
Downlink ALC Limit	42.0	dBm	Uplink ALC Limit	42.0	dBm
Downlink RSSI Level	-1.1	dBm	RSSI Lower Limit	20.0	dBm
Downlink ALC Control	ON		Uplink ALC Control	ON	
HPA ON/OFF	OFF				
Gain Balance	OFF		Shutdown ON/OFF	ON	
AGS Control ON/OFF	OFF		Delay Alarm Reporting Minutes	5	
Temperature	77.0	°F	Temperature Limit	122.0	°F

**Band Select Status**

Bandwidth	10	MHz	Band Blocks Used	AB	2518.50
-----------	----	-----	------------------	----	---------

**Time Sync Mode Status**

D/L Symbol	255		Pilot Number	255	
TDD Mode	Auto Mode				
FO Quantity	0	dB	FO Threshold	81	dB

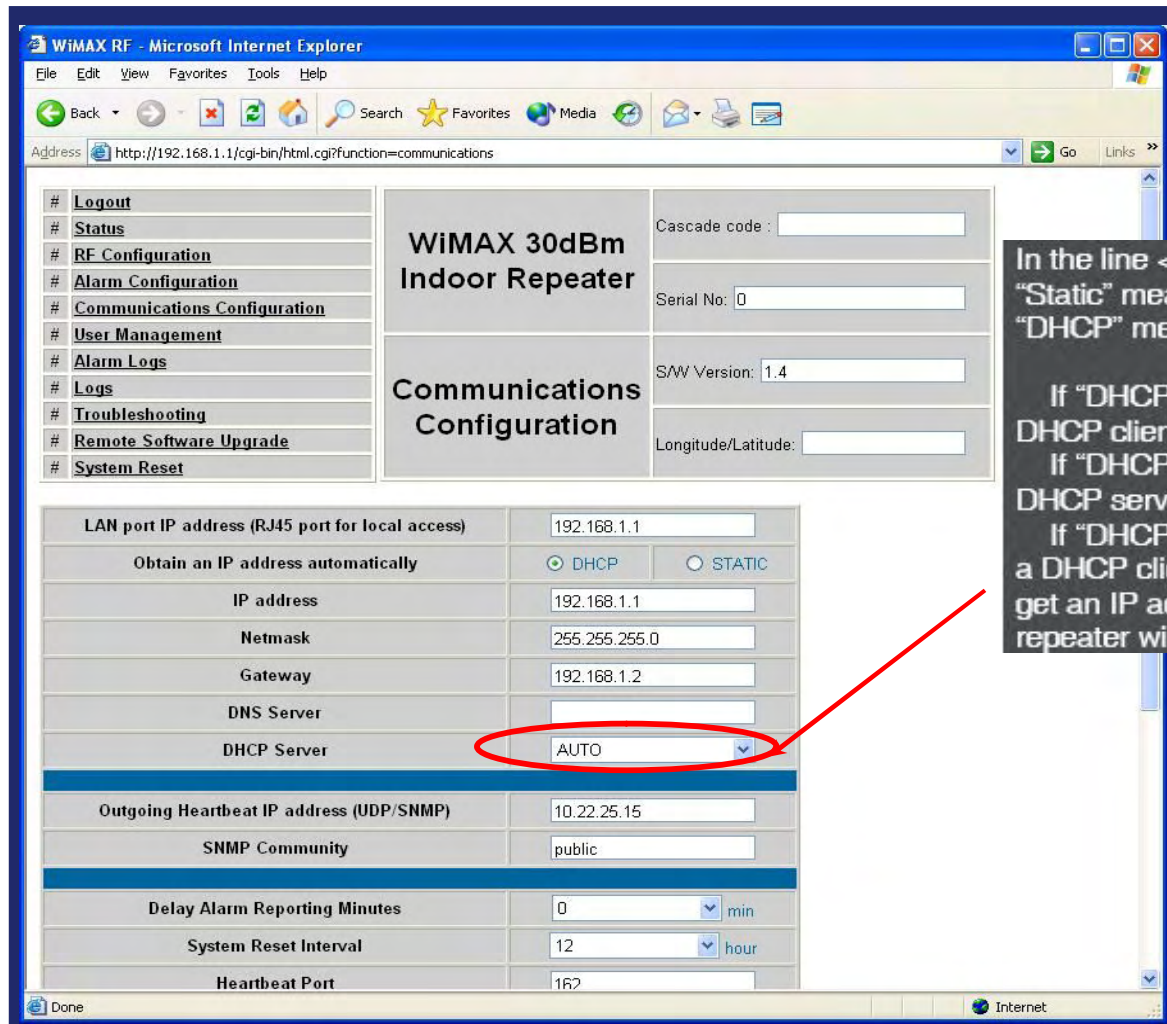
**Alarm Status**

Status	Name	Status	Name
<span style="background-color: green; color: white;"> </span>	RF Power alarm	<span style="background-color: green; color: white;"> </span>	RSSI alarm
<span style="background-color: green; color: white;"> </span>	Undercurrent alarm	<span style="background-color: green; color: white;"> </span>	Overtemp alarm
<span style="background-color: green; color: white;"> </span>	VSWR alarm		

Done Internet

# Communications Configuration

- Click on the Communications Configuration link.
- On this page you can change various values related to IP network. Because Web UI is based on IP network, incorrect configuration may make it impossible to connect to Web UI



In the line <Obtain IP address automatically> "Static" means connection using a fixed IP. "DHCP" means connection using DHCP, where

If "DHCP Server" is "OFF", then the repeater will run as a DHCP client.

If "DHCP Server" is "ON", then the repeater will run as a DHCP server.

If "DHCP Server" is "AUTO", then the repeater will run as a DHCP client first, and then in case the repeater cannot get an IP address from an external DHCP server, the repeater will run as a DHCP server.

## Communications Configuration

- In case that screen resolution is 1024 x 768, you may need to use scroll bars to view all. The installer can input Cascade Code into Repeater ID field, and change current time (see last 2 fields). Changes will not be take effect until you click “Apply” button.

IP address	192.168.1.1
Netmask	255.255.255.0
Gateway	192.168.1.2
DNS Server	
DHCP Server	AUTO
<b>Outgoing Heartbeat IP address (UDP/SNMP)</b>	
Outgoing Heartbeat IP address (UDP/SNMP)	10.22.25.15
SNMP Community	public
<b>Delay Alarm Reporting Minutes</b>	
Delay Alarm Reporting Minutes	0 min
<b>System Reset Interval</b>	
System Reset Interval	12 hour
Heartbeat Port	162
Heartbeat Period minutes	0 min
Alarm Reporting IP address (default the same as Heartbeat)	10.22.25.15
Alarming Port (default the same as Heartbeat)	162
Cascade Code	
Longitude : Latitude <small>ex) N/S 000.000000;E/W 000.000000</small>	
Current Time	01 / 01 _ 00 : 08 _ 1970 <small>ex)month/day_hour.min_year</small> 05/31_16:59_2007

Apply

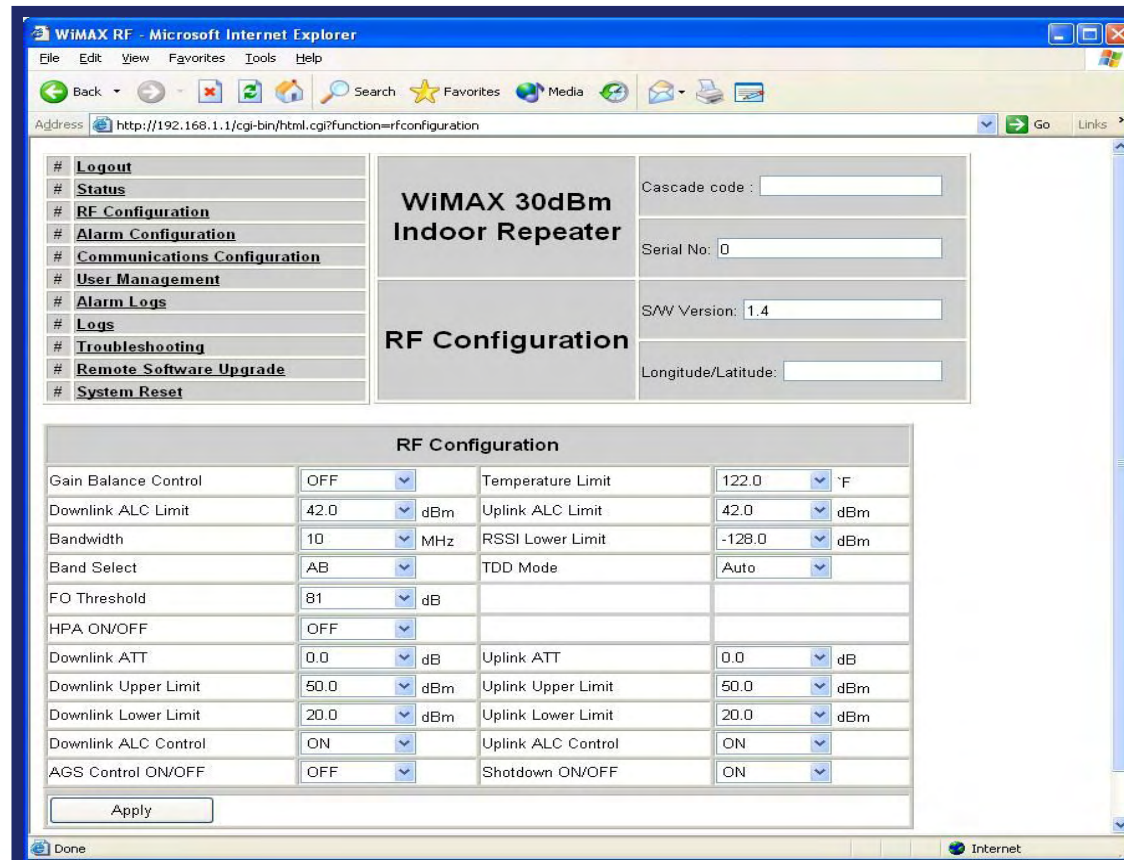
- Caution : Please, follow the example

When heartbeat period minutes is 2  
-> User should input Cascade Code, Longitude, and Latitude information of the site to turn HPA on

When heartbeat period minutes is 0  
-> User does not have to input Cascade Code, Longitude, and Latitude information of the site to turn HPA on. (HPA is automatically ON)

## RF Configuration

- Click the RF Configuration link.
- This menu is where installer will actually configure the Repeater.
- You can change various RF values of the equipment on this page.
- In case that screen resolution is 1024 x 768, you may need to use scroll bars to view all.
- Changes will not take effect until you click “Apply” button.
- The default values in various fields will differ with different models of WiMAX RF Repeaters.



# Automatic Setup Using AGS Function

Set AGS Control to 'ON' and click Apply

The screenshot shows a web browser window titled "WiMAX RF - Microsoft Internet Explorer". The address bar shows the URL: `http://192.168.1.1/cgi-bin/html.cgi?function=rfconfiguration`. The page content includes a navigation menu on the left, a central header for "WiMAX 30dBm Indoor Repeater", and a main configuration table.

**Navigation Menu:**

- # Logout
- # Status
- # RF Configuration
- # Alarm Configuration
- # Communications Configuration
- # User Management
- # Alarm Logs
- # Logs
- # Troubleshooting
- # Remote Software Upgrade
- # System Reset

**WiMAX 30dBm Indoor Repeater**

**RF Configuration**

Fields on the right side of the page:

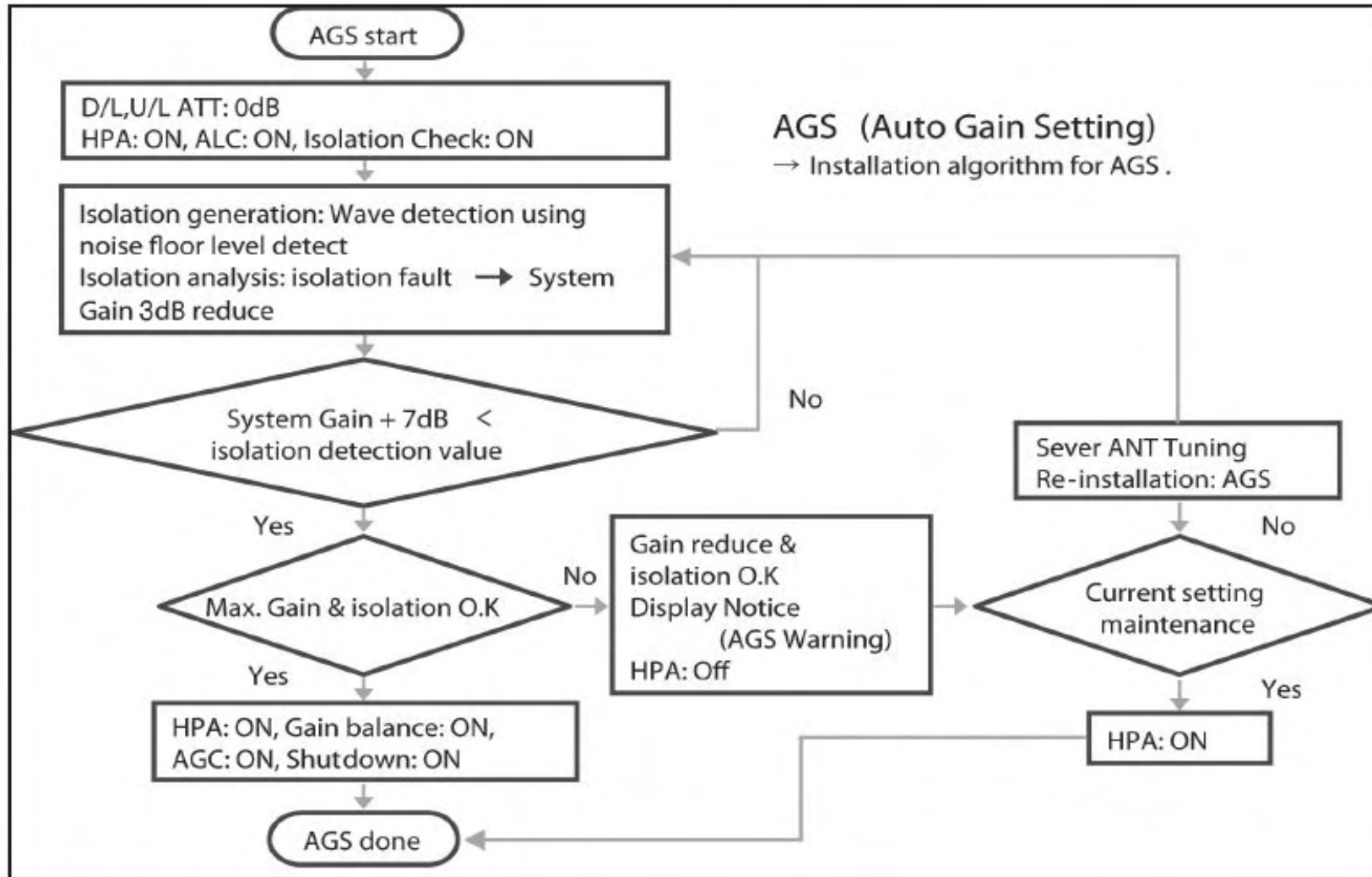
- Cascade code :
- Serial No:
- S/W Version:
- Longitude/Latitude:

**RF Configuration Table:**

Gain Balance Control	OFF	Temperature Limit	122.0 °F
Downlink ALC Limit	42.0 dBm	Uplink ALC Limit	42.0 dBm
Bandwidth	10 MHz	RSSI Lower Limit	-128.0 dBm
Band Select	AB	TDD Mode	Auto
FO Threshold	81 dB		
HPA ON/OFF	OFF		
Downlink ATT	0.0 dB	Uplink ATT	0.0 dB
Downlink Upper Limit	50.0 dBm	Uplink Upper Limit	50.0 dBm
Downlink Lower Limit	20.0 dBm	Uplink Lower Limit	20.0 dBm
Downlink ALC Control	ON	Uplink ALC Control	ON
AGS Control ON/OFF	OFF	Shutdown ON/OFF	ON

An "Apply" button is located at the bottom of the configuration table.

# AGS Flow Chart



# Alarm Configuration

- Click Alarm Configuration link.
- In case that Report Alarms is OFF, all alarms will be disabled. In case that Report Alarm is ON, you can enable and disable individual alarms.

The screenshot shows the 'Wimax RF - Microsoft Internet Explorer' window. The address bar shows 'http://192.168.1.1/cgi-bin/html.cgi?function=alarm'. The page content includes a navigation menu on the left with links like Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs, Logs, Troubleshooting, Remote Software Upgrade, and System Reset. The main content area is titled 'Wimax 30dBm Indoor Repeater Alarm Configuration'. It features a 'Report Alarms' dropdown menu set to 'ON'. Below this is a table with the following data:

Number	Name	State	Active	SNMP Mapping	Last Triggered
0	Downlink upper limit alarm	Normal	Disable	RF Power	
1	Downlink lower limit alarm	Normal	Disable	RSSI	
2	Uplink upper limit alarm	Normal	Disable	RF Power	
3	Uplink lower limit alarm	Normal	Disable	RF Power	
4	RSSI lower limit alarm	Normal	Disable	Overtemp	
5	Sync alarm	Normal	Disable	VSWR	
6	Oscillation alarm	Normal	Disable	RF Power	
7	Downlink VSWR alarm	Normal	Disable	Undercurrent	
8	Downlink device alarm	Normal	Disable	RF Power	
9	Uplink VSWR alarm	Normal	Disable	RF Power	
10	Uplink device alarm	Normal	Disable	RF Power	

# Alarm Configuration

- In case that screen resolution is 1024 x 768, you may need to use scroll bars to view all. Changes will not be made effective until you click “Apply” button.

Report Alarms: ON

List of alarms:

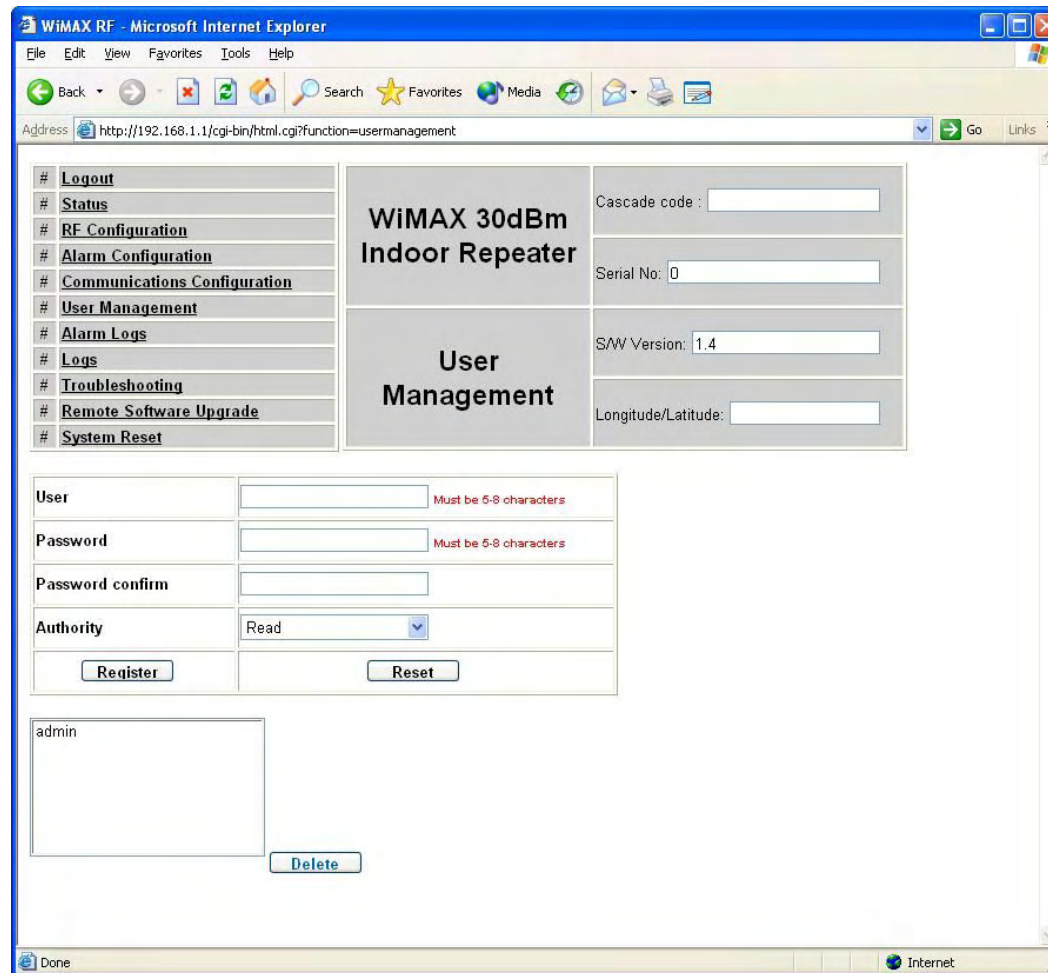
Number	Name	State	Active	SNMP Mapping	Last Triggered
0	Downlink upper limit alarm	Normal	Disable	RF Power	
1	Downlink lower limit alarm	Normal	Disable	RSSI	
2	Uplink upper limit alarm	Normal	Disable	RF Power	
3	Uplink lower limit alarm	Normal	Disable	RF Power	
4	RSSI lower limit alarm	Normal	Disable	Overtemp	
5	Sync alarm	Normal	Disable	VSWR	
6	Oscillation alarm	Normal	Disable	RF Power	
7	Downlink VSWR alarm	Normal	Disable	Undercurrent	
8	Downlink device alarm	Normal	Disable	RF Power	
9	Uplink VSWR alarm	Normal	Disable	RF Power	
10	Uplink device alarm	Normal	Disable	RF Power	
11	Downlink LNA alarm	Normal	Disable	RF Power	
12	Uplink LNA alarm	Normal	Disable	RF Power	
13	DC Current alarm	Normal	Disable	RF Power	
14	AC Current alarm	Normal	Disable	RF Power	
15	Temperature alarm	Normal	Disable	RF Power	

Apply



# User Management

- Click on the User Management link.
- On this page you can create and delete users, change passwords, and assign authorities to individual users.
- Read/Write Authority means that the user can change various values.
- Super User is very similar to an Administrator account.
- **Caution: DO NOT DELETE 'admin'.**



# Alarm Logs

- Click on the Alarm Logs link.
- You can see Alarm Logs regarding Web UI operation. Alarm Logs will maintain a history of up to 30 operations.

The screenshot shows a web browser window titled "WIMAX RF - Microsoft Internet Explorer". The address bar shows the URL: `http://192.168.1.1/cgi-bin/html.cgi?function=alarmlogs`. The page content is divided into several sections:

- Navigation Menu (Left):** A list of links including Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs (highlighted), Logs, Troubleshooting, Remote Software Upgrade, and System Reset.
- Header (Center):** "WiMAX 30dBm Indoor Repeater" and "Alarm Logs".
- Form Fields (Right):** Input fields for Cascade code, Serial No. (0), SW Version (1.4), and Longitude/Latitude.
- Table (Bottom):** A table with 4 columns: Number, Name, Status, and Last Triggered. It contains 8 rows of alarm data.

Number	Name	Status	Last Triggered
1	DC_ALARM	Green	01/01/1970 00:44:57
2	TDD_SYNC_ALARM	Green	01/01/1970 00:44:57
3	DC_ALARM	Red	01/01/1970 00:04:33
4	AC_ALARM	Red	01/01/1970 00:04:33
5	TDD_SYNC_ALARM	Red	01/01/1970 00:04:33
6	RSSI_LOWERLIMIT_ALARM	Red	01/01/1970 00:04:33
7	UPLINK_LOWERLIMIT_ALARM	Red	01/01/1970 00:04:33
8	DOWNLINK_LOWERLIMIT_ALARM	Red	01/01/1970 00:04:33

# Logs

- Click on the Logs link.
- You can see Logs regarding Web UI operation. Logs will maintain a history of up to 30 operations.

The screenshot shows the WIMAX RF web interface in Microsoft Internet Explorer. The address bar shows the URL: `http://192.168.1.1/cgi-bin/html.cgi?function=logs`. The page title is "WIMAX RF - Microsoft Internet Explorer".

The interface features a navigation menu on the left with the following items:

- # Logout
- # Status
- # RF Configuration
- # Alarm Configuration
- # Communications Configuration
- # User Management
- # Alarm Logs
- # Logs
- # Troubleshooting
- # Remote Software Upgrade
- # System Reset

The main content area is titled "WiMAX 30dBm Indoor Repeater" and "Logs". It includes several input fields:

- Cascade code :
- Serial No:
- SW Version:
- Longitude/Latitude:

Below the input fields is a table of logs:

Date & Time	User	Operation	Description
01/01/1970 - 00:09:24	admin	Alarm Logs	Checked
01/01/1970 - 00:09:09	admin	User Management	Accessed
01/01/1970 - 00:08:47	admin	Communications	Checked
01/01/1970 - 00:08:24	admin	Alarm Configuration	Checked
01/01/1970 - 00:08:09	admin	RF Configuration	Checked
01/01/1970 - 00:07:25	admin	Login	Login
01/01/1970 - 00:42:41	admin	Alarm Configuration	Set
01/01/1970 - 00:42:36	admin	Alarm Configuration	Set
01/01/1970 - 00:42:23	admin	Alarm Configuration	Checked
01/01/1970 - 00:40:46	admin	Login	Login
01/01/1970 - 00:01:10	admin	system_download	Checked
01/01/1970 - 00:01:08	admin	Login	Login
01/01/1970 - 00:06:22	admin	system_download	Checked
01/01/1970 - 00:06:21	admin	Login	Login
01/01/1970 - 00:01:22	admin	system_download	Checked

# Troubleshooting Guide

- Click on the Troubleshooting link.
- You can refer to this page for a general troubleshooting guide.
- In case that screen resolution is 1024 x 768, you may need to use scroll bars to view all.

The screenshot shows a Microsoft Internet Explorer window titled "WiMAX RF - Microsoft Internet Explorer". The address bar shows the URL: `http://192.168.1.1/cgi-bin/html.cgi?function=troubleshooting`. The page content is as follows:

**WiMAX 30dBm Indoor Repeater**

**Trouble - Shooting**

Navigation menu (left):

- # Logout
- # Status
- # RF Configuration
- # Alarm Configuration
- # Communications Configuration
- # User Management
- # Alarm Logs
- # Logs
- # **Troubleshooting**
- # Remote Software Upgrade
- # System Reset

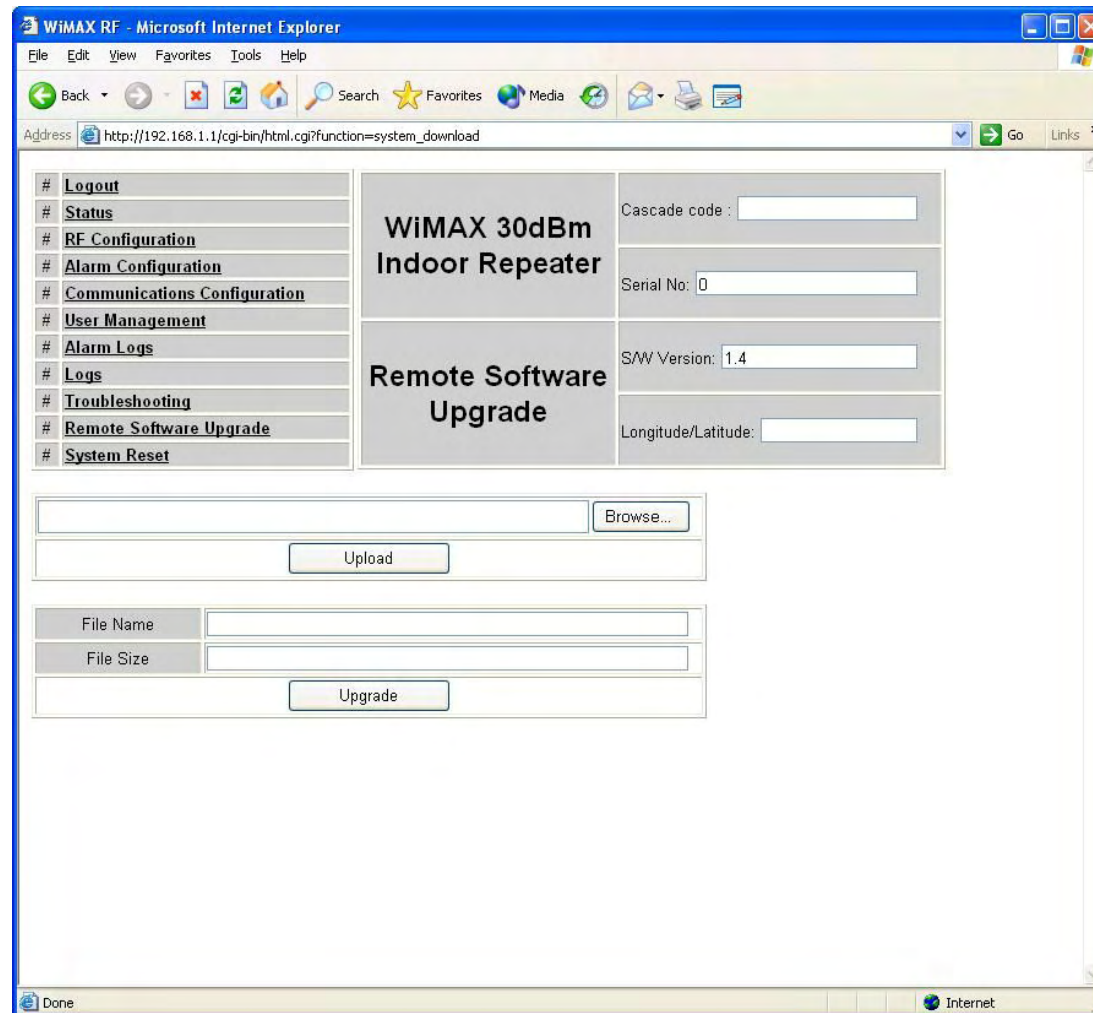
Form fields (right):

- Cascade code :
- Serial No:
- SW Version:
- Longitude/Latitude:

<b>Internal LED Display has no lights on</b>	1. Power Cable is disconnected	1. Check power supply cable
<b>No signal from Repeater (No Output LED's)</b>	1. Internal <b>Data cable</b> connection is loose or damaged 2. Defective RF cabling or loose connection 3. When in shutdown 4. Bad antenna	1. Verify external power supply 2. Verify that internal power supply switch is turned ON 3. Troubleshoot RF cabling and connections 4. Re-Boot the repeater 5. Troubleshoot Antenna
<b>Repeater Shut-Down</b>	Time-Sync alarm	1. Check LED on Time-Sync Module 2. D/L LNA Unit replacement
	VSWR alarm	1. Reboot repeater 2. Check Service ANT connection 3. <b>PAM</b> Unit replacement
	Oscillation alarm	1. Check setup levels 2. Reboot repeater 3. Reset default values 4. <b>NMS</b> Unit replacement
	Uplink over-output alarm	1. Check setup level 2. Reboot repeater 3. Reset default values 4. <b>NMS</b> Unit replacement

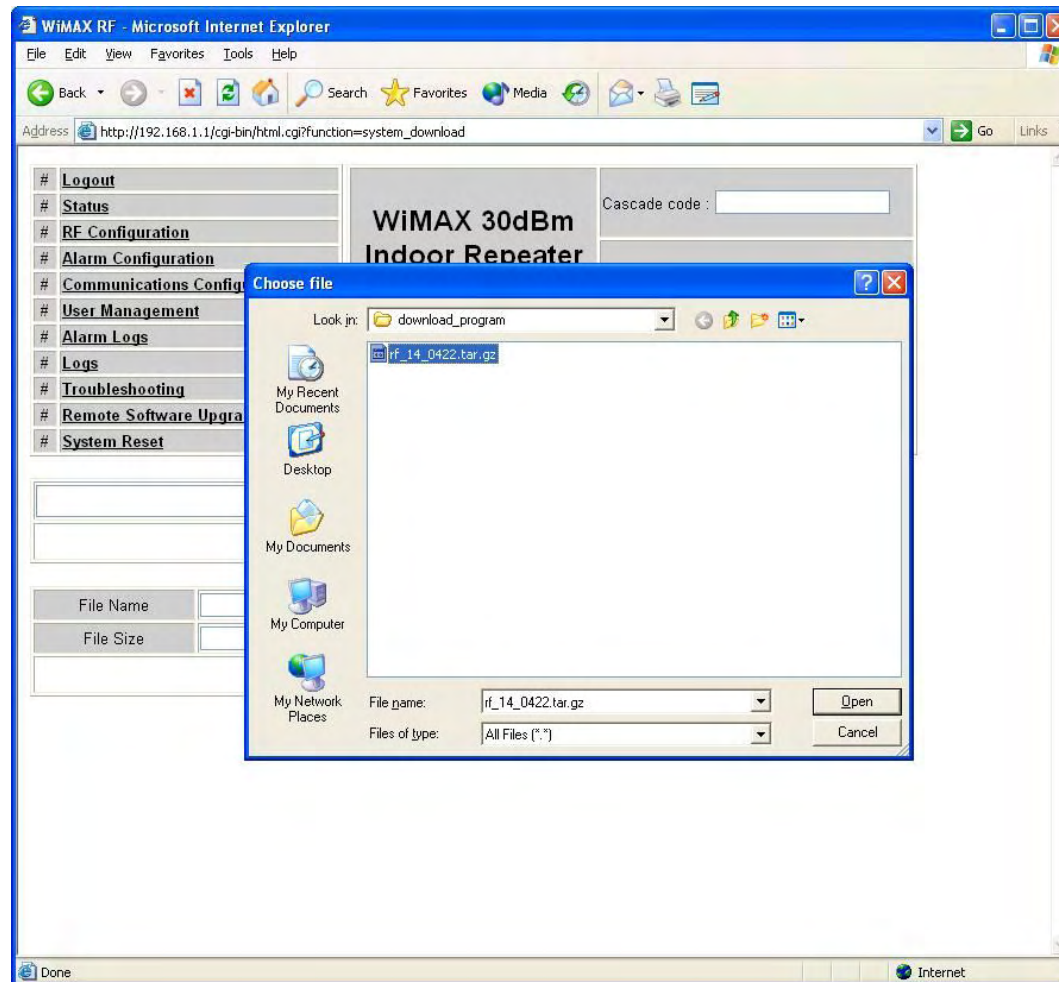
# Software Upgrade

- Click on the Remote Software Upgrade link.
- In case that software upgrade is needed, you should use this page.
- Click Browse button to select the file to upgrade from the laptop.



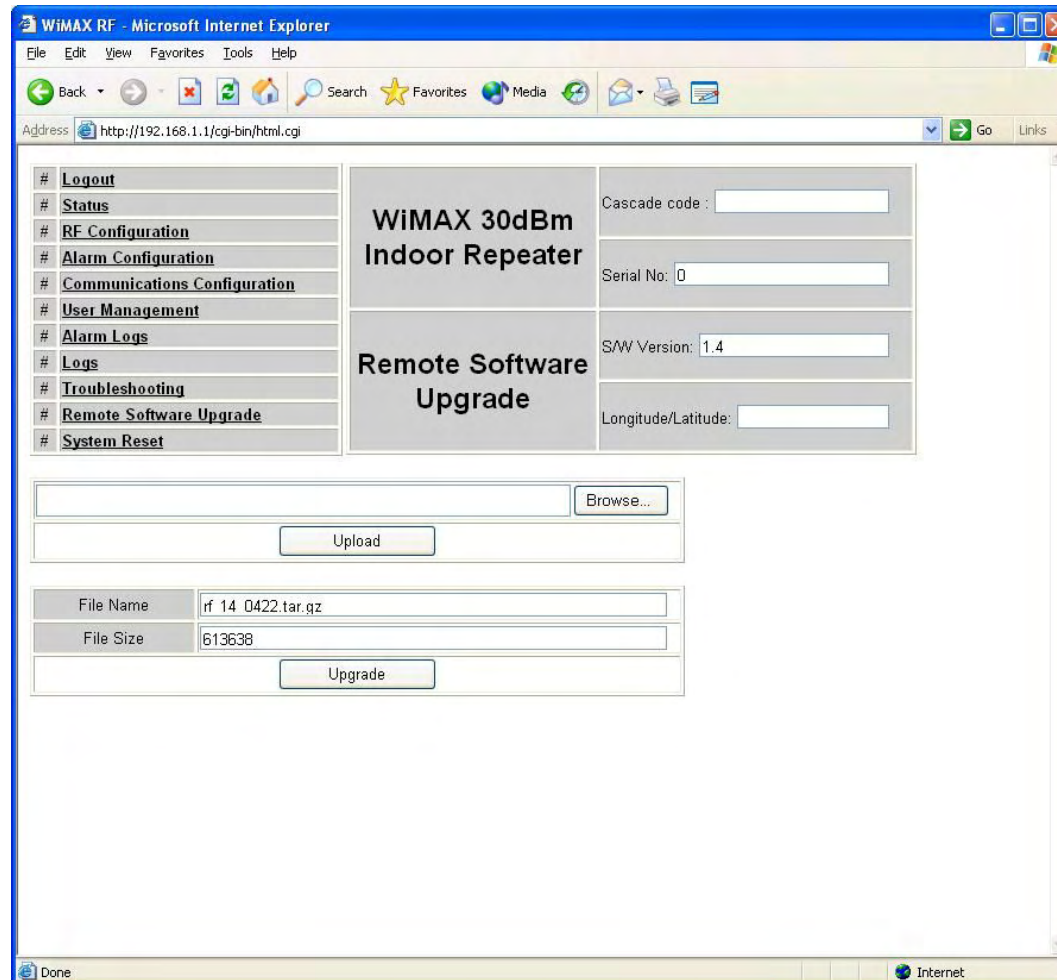
# Software Upgrade

- Choose the file to upgrade provided by GST. After you choose the file, click “upload” to send the file from your laptop to the Repeater.
- **Be careful not to unplug the crossover Ethernet cable during software upgrade.**



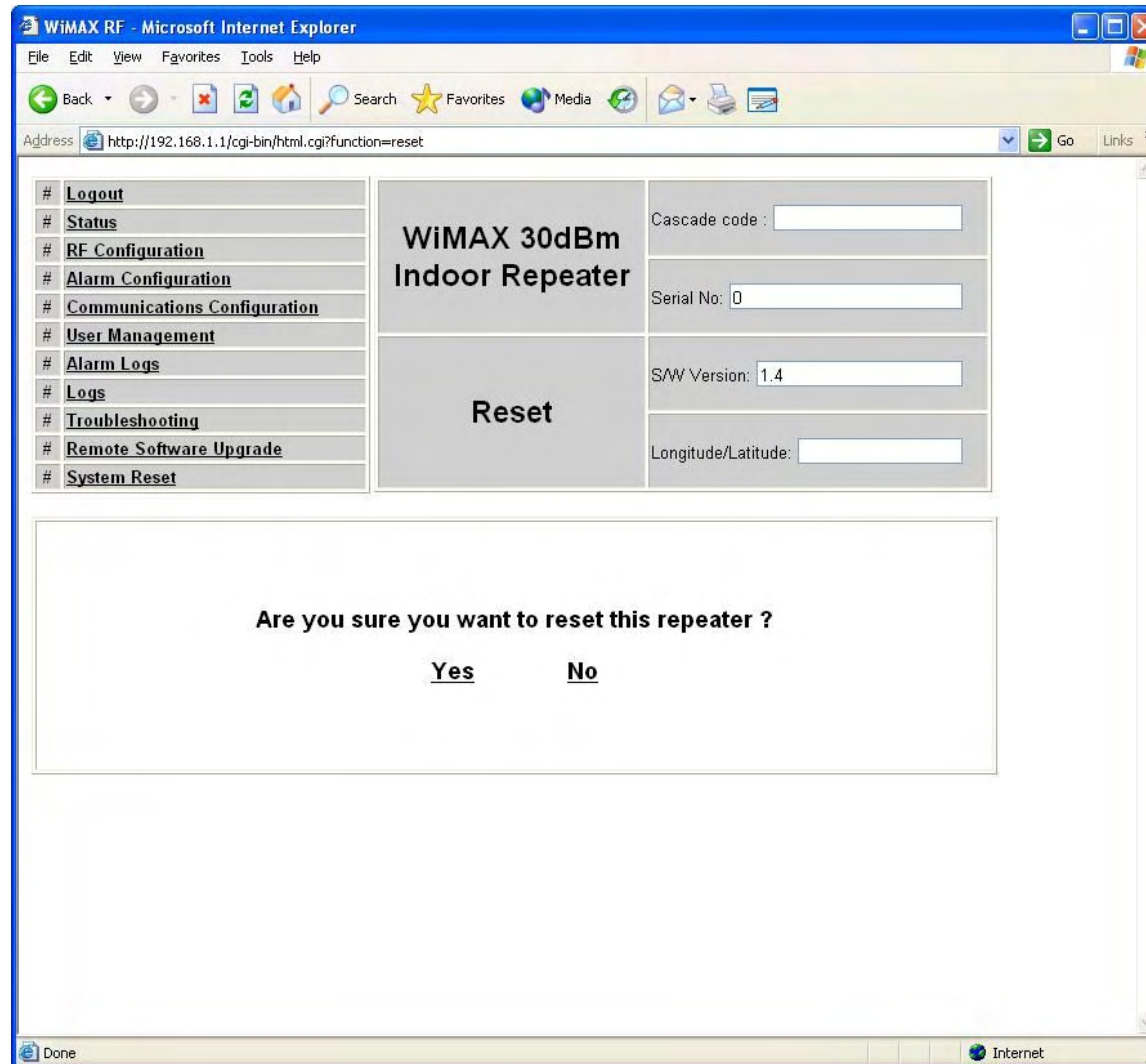
# Software Upgrade

- After uploading is finished, verify that the File Name and the File Size is correct, click “Upgrade” button. Installer should wait about 2 minutes for upgrade to initialize.
- User may then be prompted to log back in to the Repeater.



# Software Reset

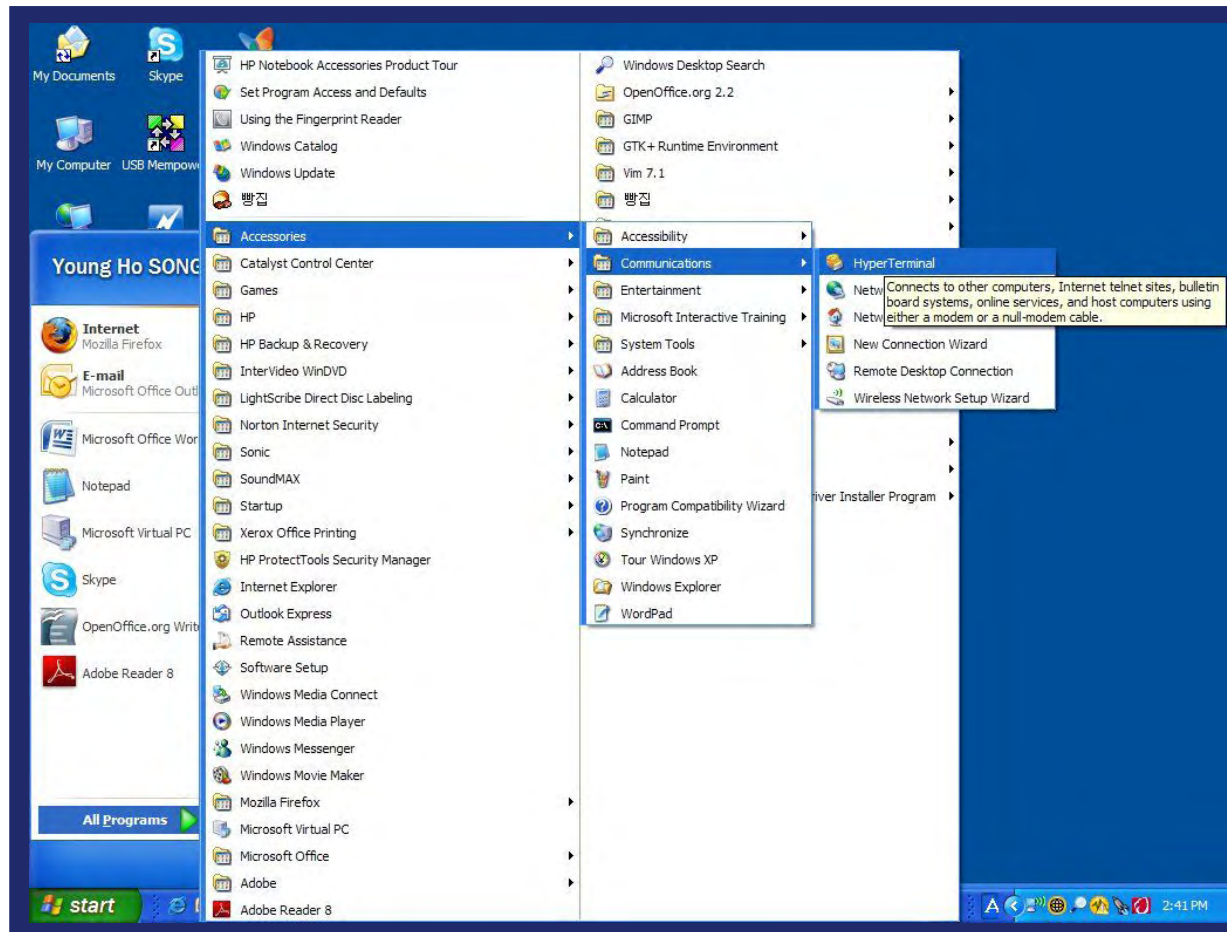
- A software reset is a “soft reboot” of the repeater. To reset the software, click on ‘Software Reset’ and then click ‘Yes’ to reset the software.
- Resetting the software is a good way to clear current alarms.





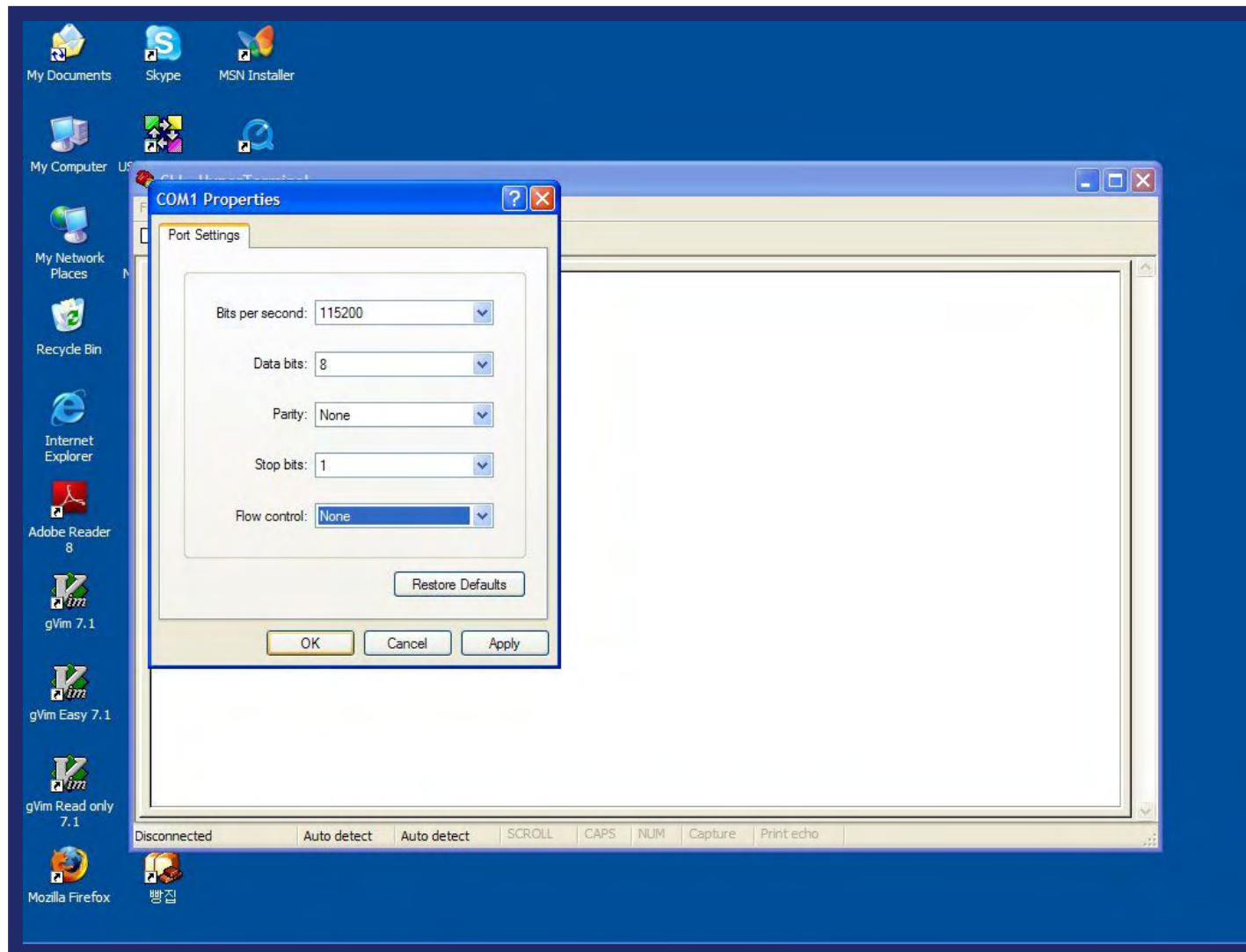
# CLI (Command Line Interface)

- In case that you cannot reach Web UI, you should use CLI. Connect the Repeater's CLI port to your laptop's serial port using RS-232 cable. In case that your laptop does not have a serial port, you may need to use USB to Serial conversion cable. Caution: RS-232 cable or USB to Serial conversion cable is not provided with the equipment. After connection, you can access CLI using HyperTerminal.
- To open HyperTerminal, click "Start", then "Accessories", then "Communications", then "HyperTerminal".



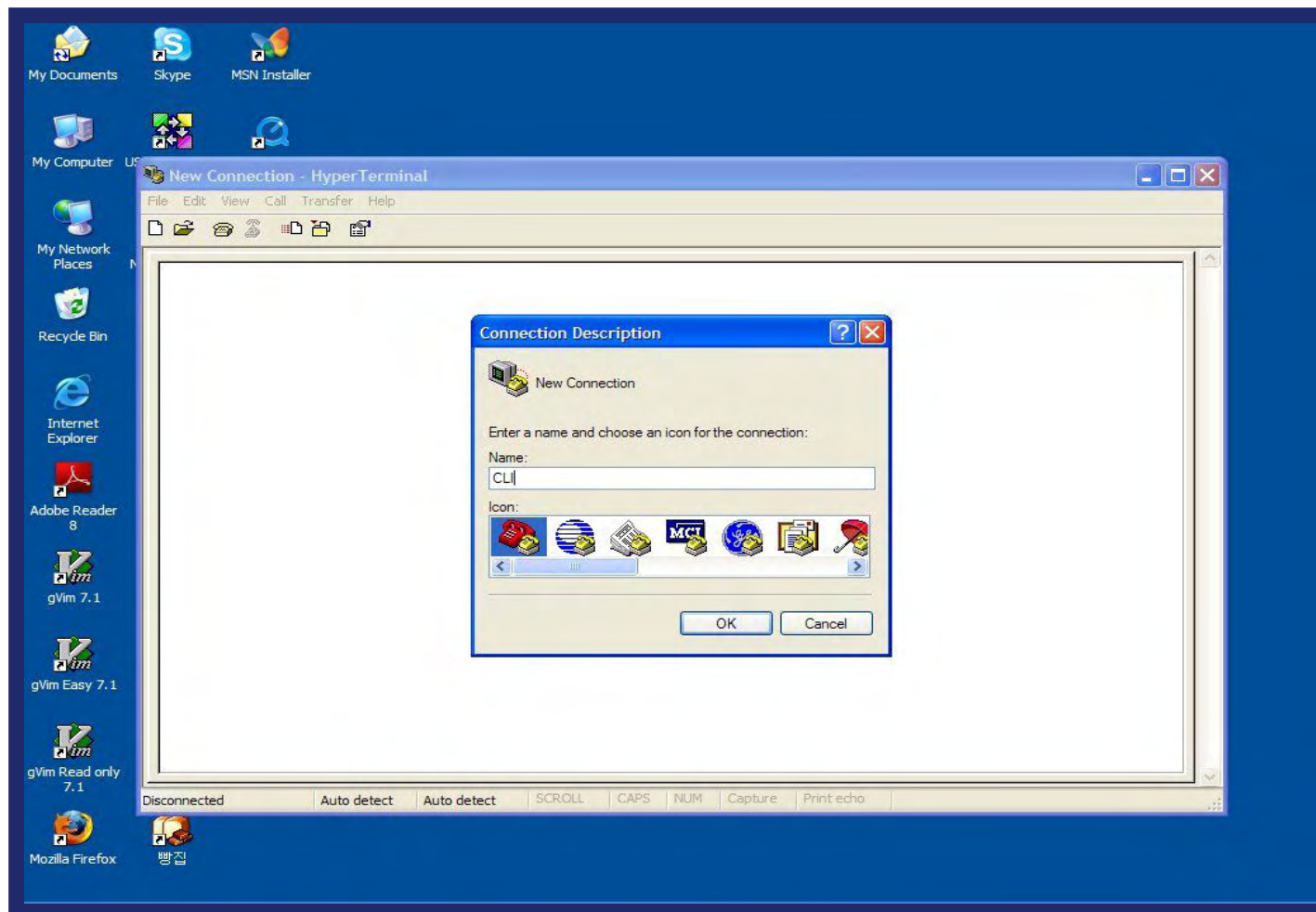
# CLI

- “Bit per second” drop down menu, select “115200”.
- “Flow control” drop down menu, select “None”.
- Click “Apply”.
- Click “OK”.



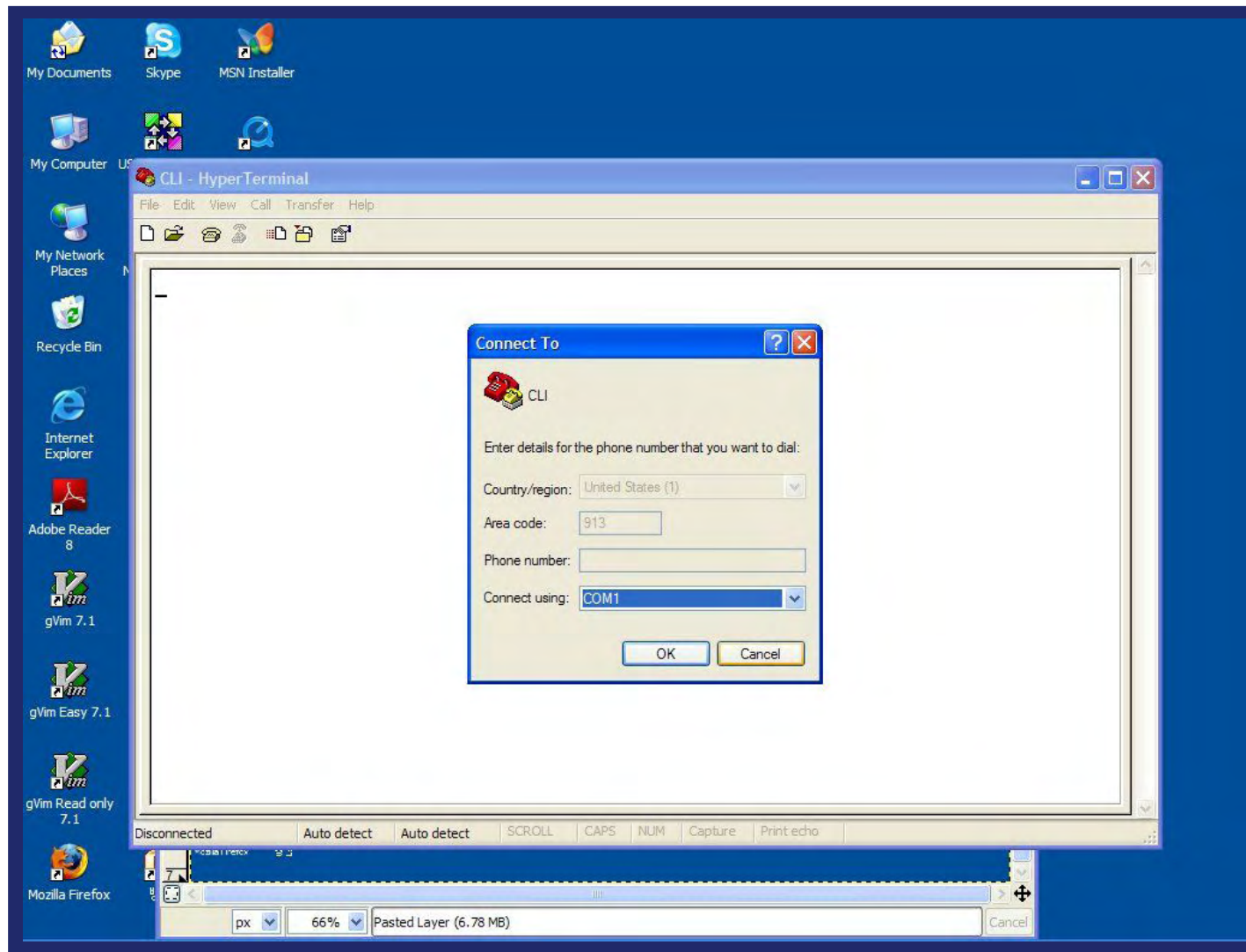
# CLI

- To verify and/or change port number, open “Control Panel”, then “System”, then “Hardware Tab”, then “Device Manager”. Double click “Ports”, then double click “Serial Cable” then click “Port Settings” tab, click “Advanced”, in the COM Port drop down menu, select “COM 1”, click “OK”.
- After verification of port number, open HyperTerminal.
- Enter CLI.
- Click “OK”.



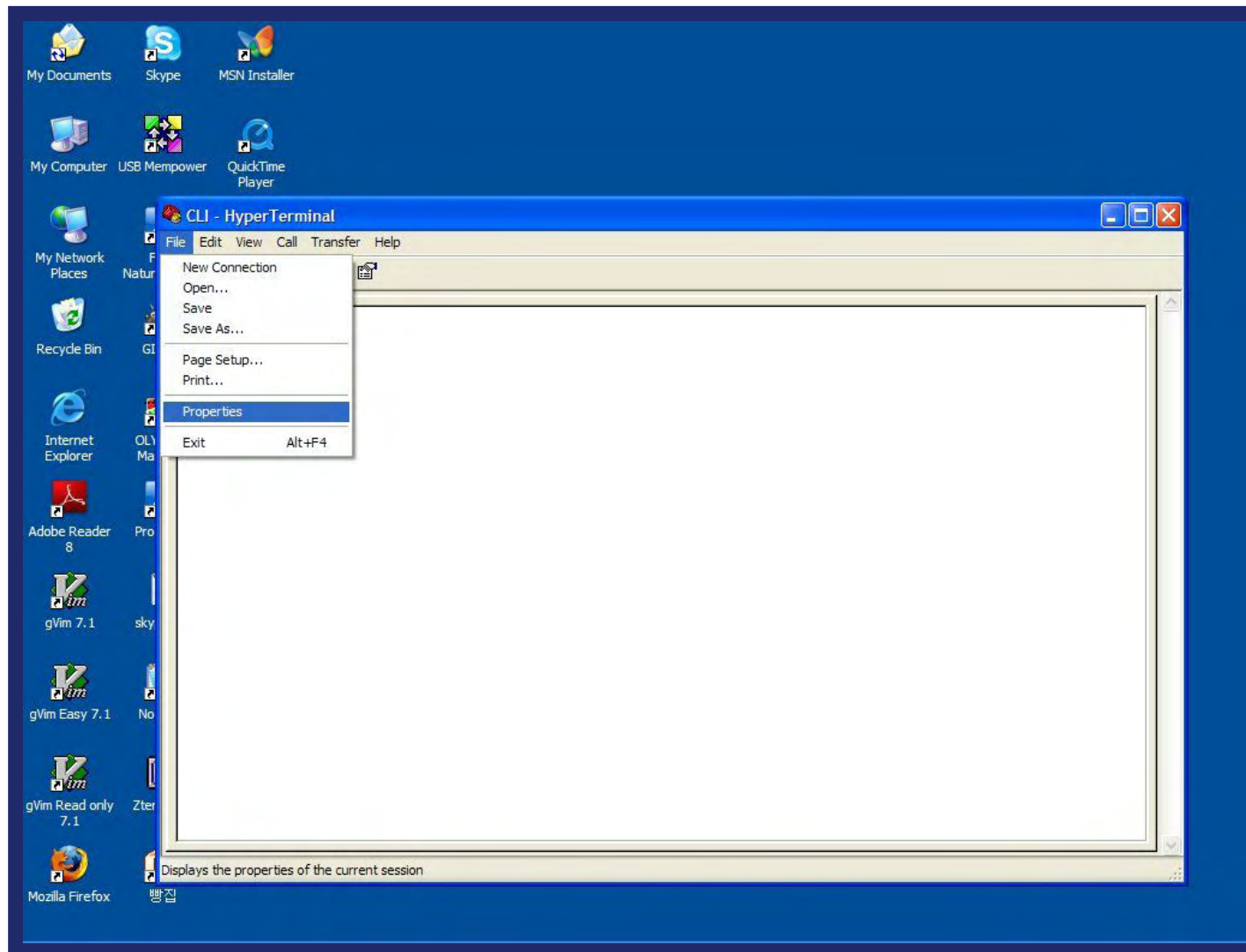
# CLI

- In the “Connect using” drop-down menu, select “COM1”.
- Click “OK”.



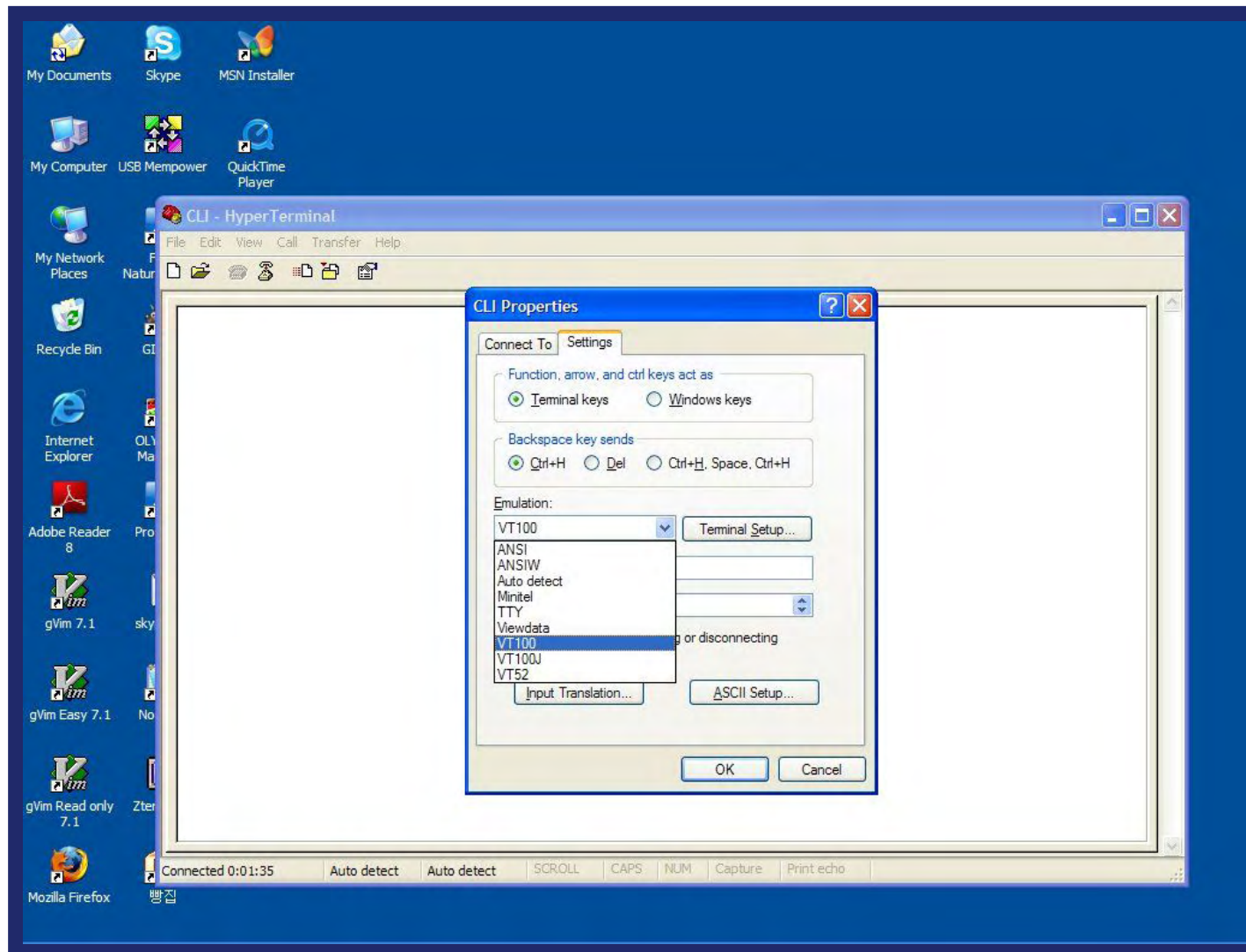
# CLI

- Click “File”, choose “Properties”



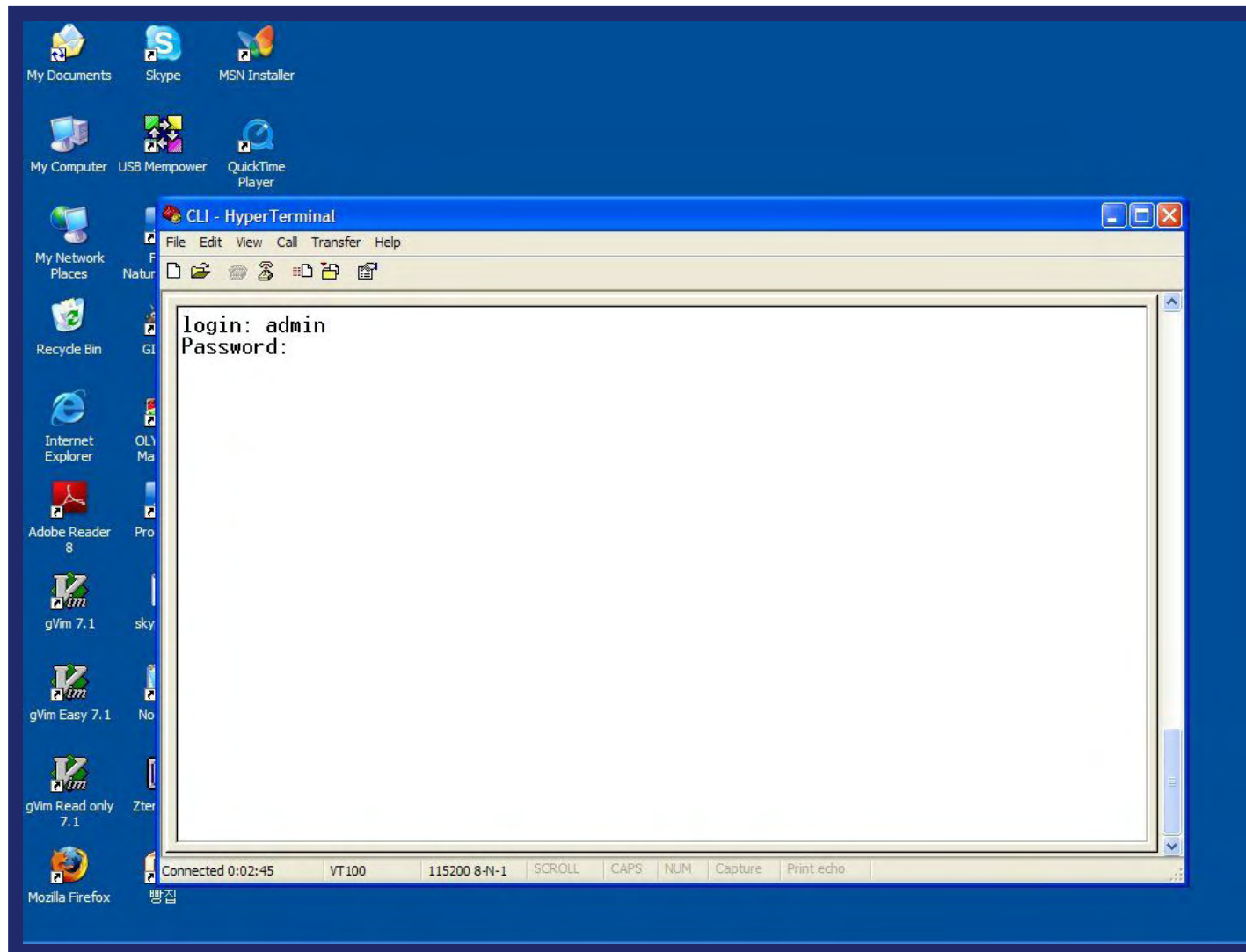
# CLI

- On “Settings” tab
- “Emulation” drop down menu, select “VT100”
- Click “OK”



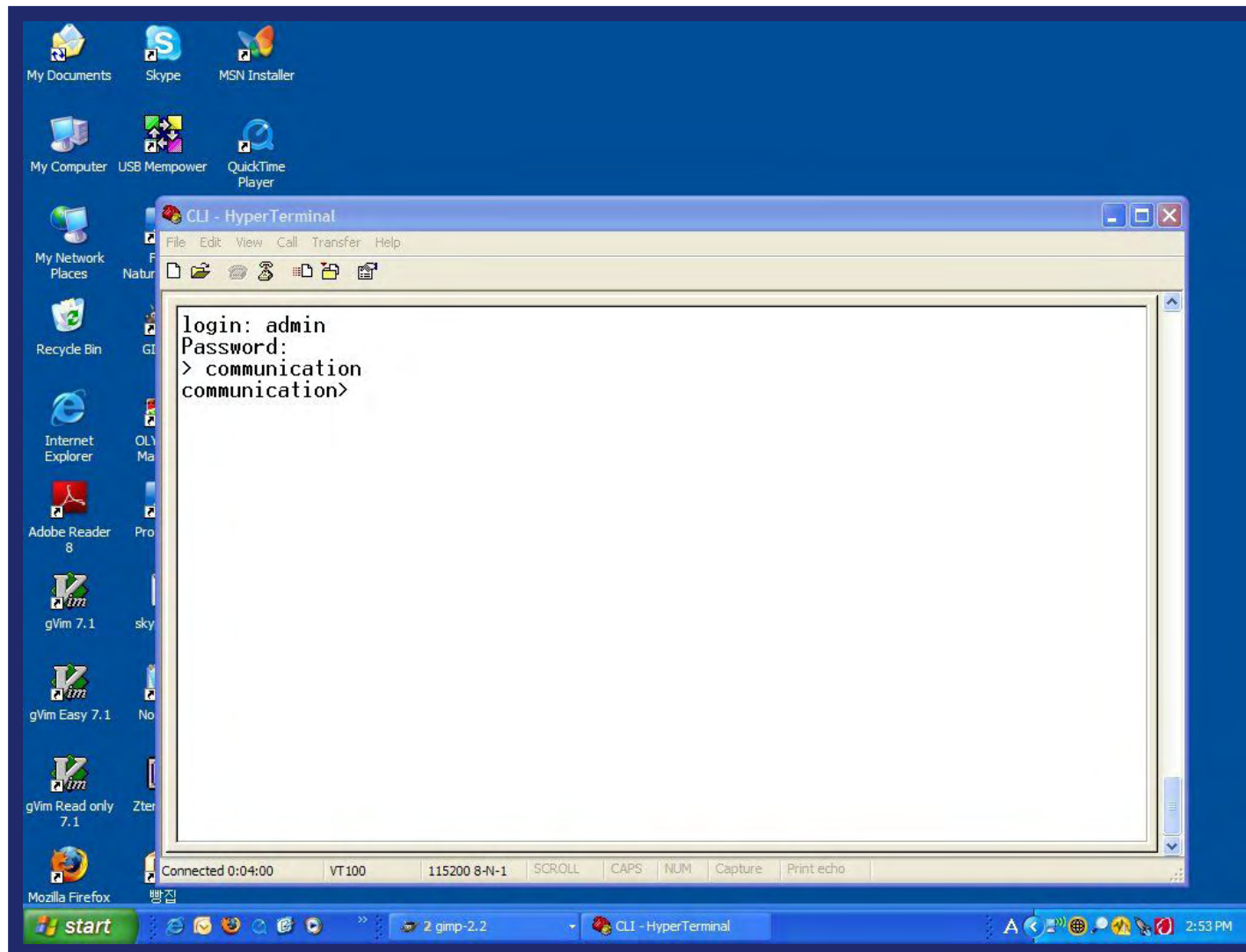
# CLI

- In case that you cannot see login prompt, just press enter key several times.  
Login is “admin” and Password is “admin”.



# CLI

- In order to verify IP network configuration, you should type “communication”.
- Press enter-key.





## CLI

- In order to see values, you should type “get all”, and then press Enter-key.
- You can use LAN\_Port\_IP\_Address to access Web UI as described page 17.
- In case DHCP\_Server is OFF, after “communication>” enter the following text : “set DHCP\_Server ON”, then press enter-key.
- Then enter “commit” text, then press enter-key.



```
CLI - HyperTerminal
File Edit View Cal Transfer Help
login: admin
Password:
> communication
communication> get all
LAN_port_IP_address: 192.168.1.1
Obtain_an_IP_Address_automatically: STATIC
IP_Address: 192.168.1.1
Netmask: 255.255.255.0
Gateway: 192.168.1.2
DNS_Server:
DHCP_Server: OFF
communication> set Obtain_an_IP_Address_automatically DHCP
Obtain_an_IP_Address_automatically: DHCP
communication> set DHCP_Server ON
DHCP_Server: ON
communication> commit_
```

- DHCP ON: Repeater would provide IP address to notebook computer as a DHCP server.
- DHCP OFF: Static IP address will be assigned to repeater.
- Dynamic: Repeater would set to receive IP address from external network equipment.

## MPE Information

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Warning: Exposure to Radio Frequency Radiation The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna should not be less than 50cm during normal operation. The gain of the antenna is 12 dBi. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.