

RF Configuration Menu FAQ's

• What is the relationship between AGC (Auto Gain Control) and ALC (Auto Limit Control)?

ALC is for custom installations, and AGC is automatically used when AGS is turned on which is for normal installations. If the repeater is having difficulties with isolation check, or if you want to "power down" the repeater ALC should be manually set. Attenuation may also be added for reducing power levels. ALC also provides optional U/L and D/L settings.

- The relationship between AGC and ALC is that they both will control the output power, but in different ways. AGC will take priority over ALC, meaning if AGC is on, ALC cannot be used.
- If you want to use the ALC function, AGC should be turned off.
- The difference is that ALC will reduce max gain by the set value even if the input signal decreases. AGC will limit the total output power to a set value while still allowing the repeater to fluctuate to max gain if input signal gets weaker.

• What does the Shutdown ON/OFF control?

- An internal wave-detection is checking the noise level. If the repeater cannot secure isolation it will go through a process of turning itself off, and turning back on while doing isolation checking.
- If it is impossible for the repeater to secure isolation after 30 minutes, the repeater will shut down and stay shutdown. The items that may automatically require the repeater to shut down are:
 - > VSWR Alarm, Over Power Alarm, and Over Input Alarm

• What is Gain Balance Control?

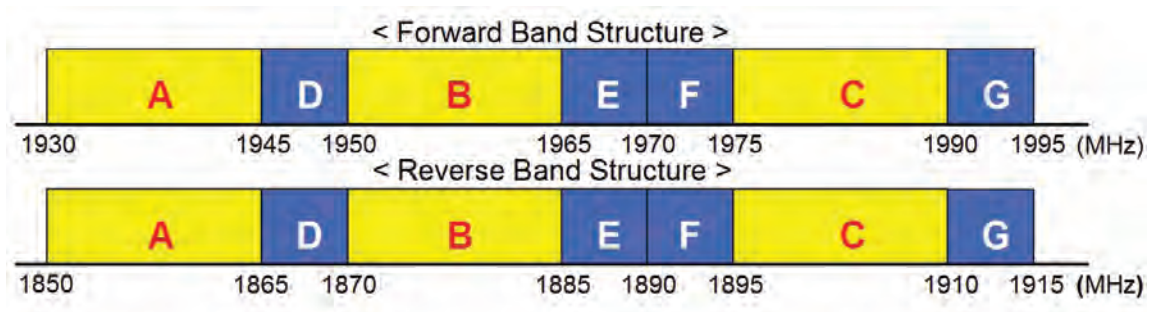
- Gain Balance Control will always keep the UL and DL ATT the same while using AGC. GBC should always be left on to prevent damage to BTS while using AGC.
- This is used for BTS to cell phone power control.

RF Configuration Menu

- This table is for reference only and not critical for installation.
- > CDMA Band Selection Algorithm

ITEM	BANDWIDTH	NOTE
Band Select	5MHz	Any of these bandwidths from A to F can be chosen
	10MHz	
	15MHz	
	20MHz	
	5MHz + 5MHz	
	5MHz + 5MHz + 5MHz	
	10MHz + 5MHz	
	15MHz + 5MHz	

- CDMA Band Structure



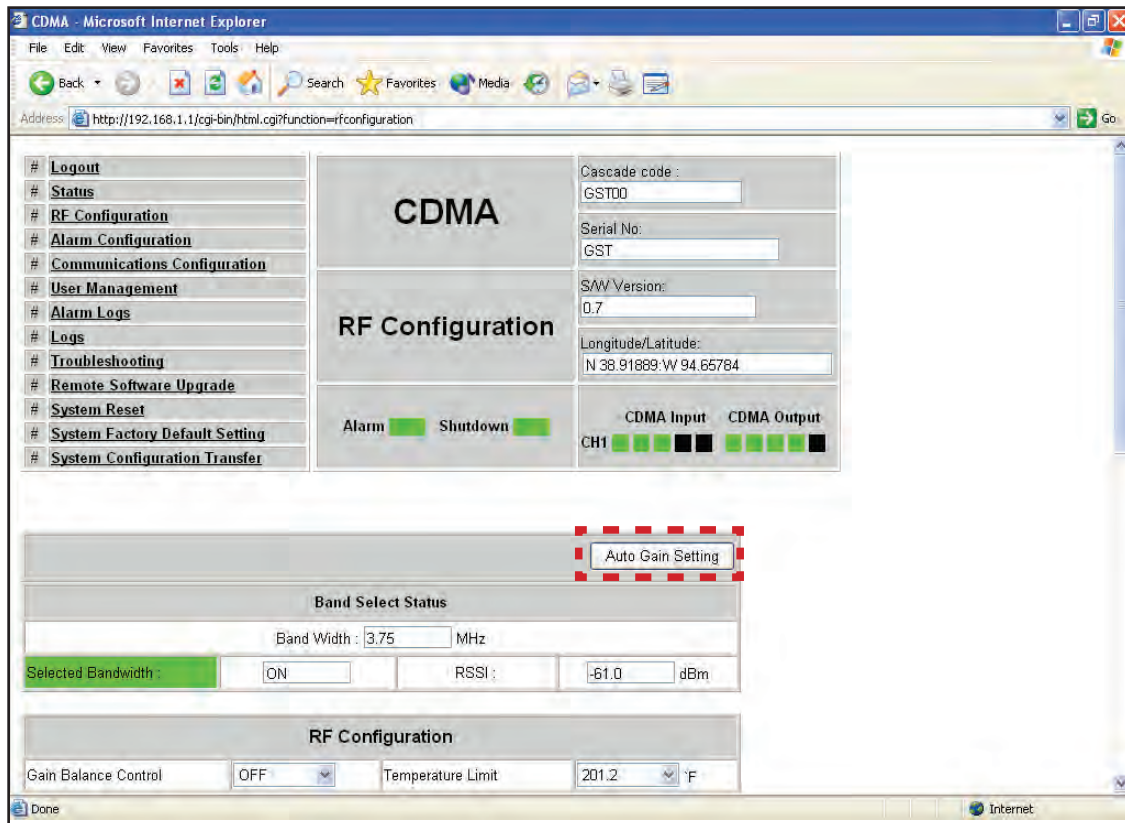
RF Configuration Menu

- Also, by adding Channel Select Function, it enables users to select bands sophisticatedly.
- When you select a single channel has a 1.25MHz bandwidth.
- Can select up to 15 channel and has a maximum 18.75MHz bandwidth.

A1				A2				A3				D			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
B1				B2				B3				E			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
425	450	475	500	525	550	575	600	625	650	675	700	725	750	775	800
F				C1				C2				C3			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
825	850	875	900	925	950	975	1000	1025	1050	1075	1100	1125	1150	1175	1200
G															
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
1225	1250	1275													

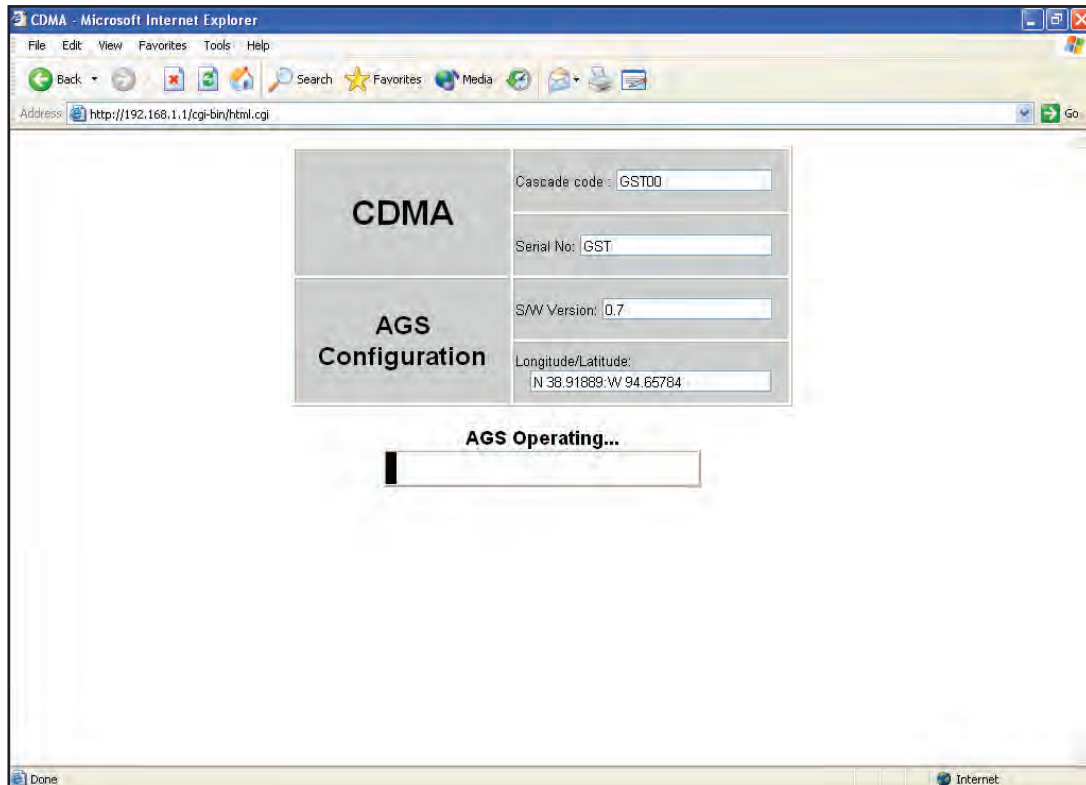
RF Configuration Menu

- For normal setup, GST recommends using the Auto Gain Setting.
- User may configure gain and secure isolation by switching Auto Gain Setting to “ON”.
- Click “Apply”.
- The default values in various fields will differ with different models of CDMA Repeater.

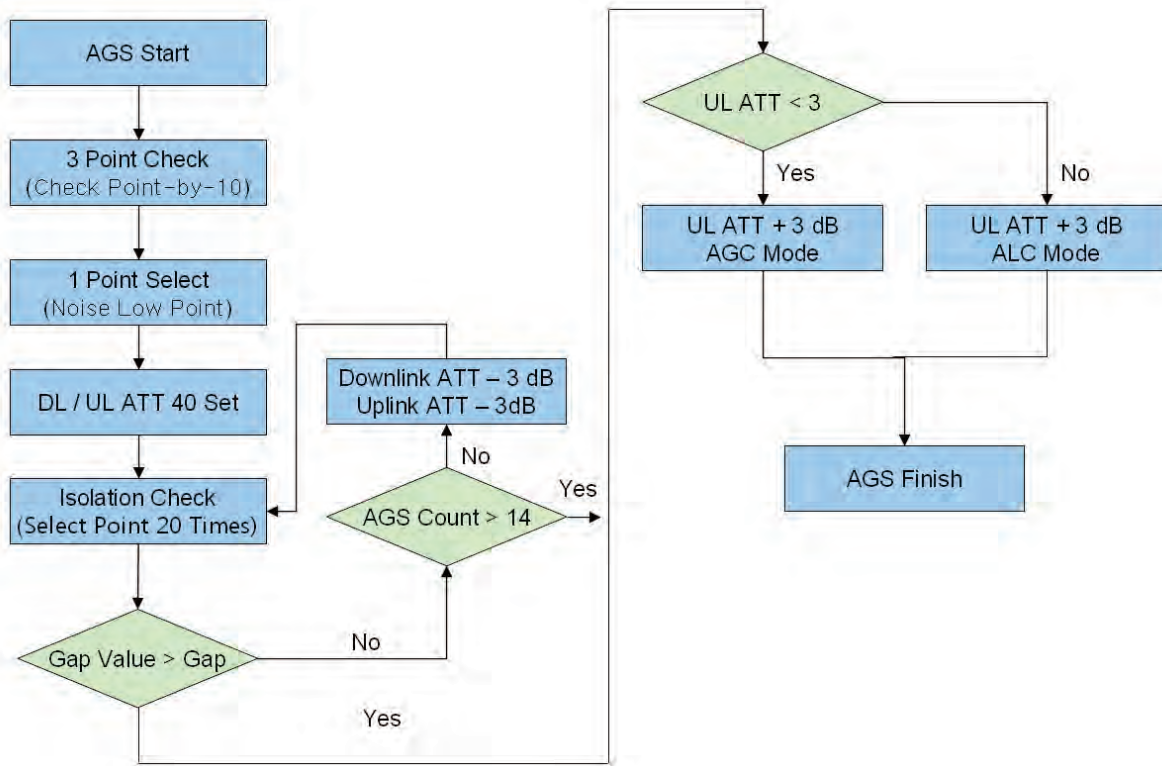


RF Configuration Menu

- After setting AGS to ON and clicking Apply, the screen below will be displayed while AGS is initializing.
- After AGS is completed, click “Click Result”.
The equipment will set AGC, Gain Balance and HPA “ON”, and then provide normal service.
If automatic setup works you will see the Status page. (ALC “ Off ”)

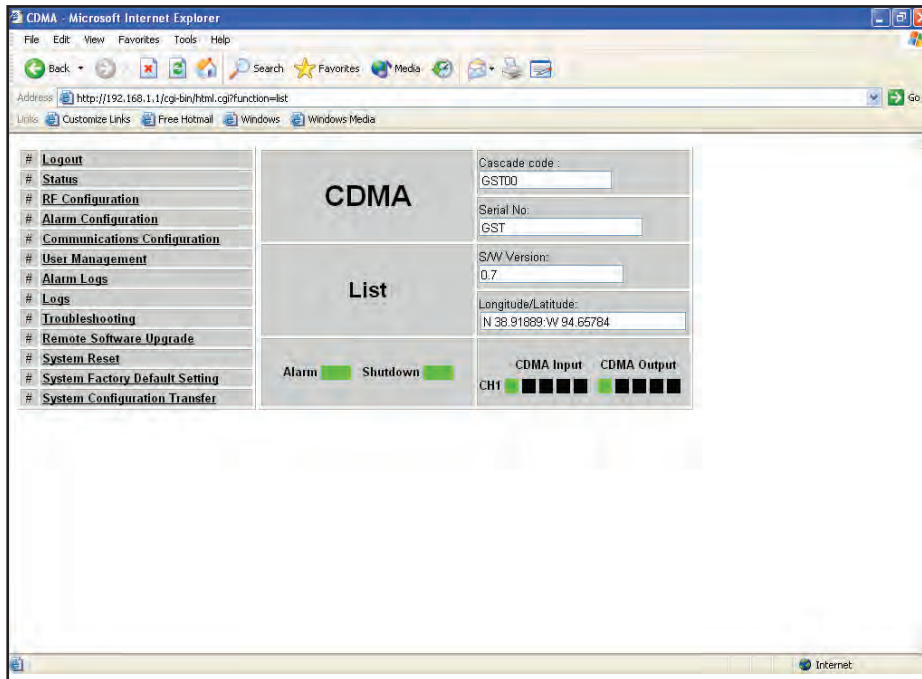


AGS Flow Chart



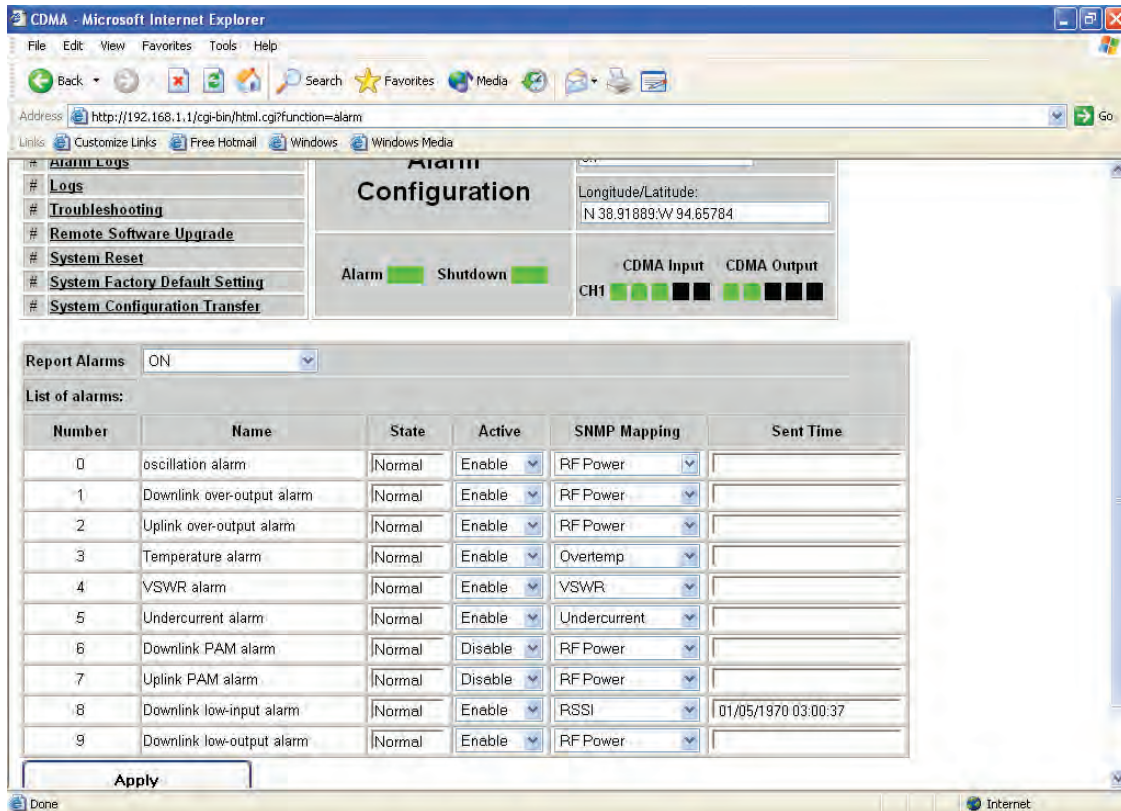
RF Configuration Menu

- If AGS process fails, it is most likely one of 3 issues:
 - > 1st) too weak input signal, 2nd) too strong input signal, or 3rd) the Donor and Service antennas are too close to each other. To resolve, antenna tuning is required.
- In case of 30dBm, if isolation is below Gain +7dB, i.e. 97dBc, this warning will be displayed.



Alarm Configuration Menu

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



Alarm Configuration

Longitude/Latitude:
N 38.91889;W 94.65784

Alarm Shutdown

CDMA Input CDMA Output
CH1

Report Alarms: ON

List of alarms:

Number	Name	State	Active	SNMP Mapping	Sent Time
0	oscillation alarm	Normal	Enable	RF Power	
1	Downlink over-output alarm	Normal	Enable	RF Power	
2	Uplink over-output alarm	Normal	Enable	RF Power	
3	Temperature alarm	Normal	Enable	Overtemp	
4	VSWR alarm	Normal	Enable	VSWR	
5	Undercurrent alarm	Normal	Enable	Undercurrent	
6	Downlink PAM alarm	Normal	Disable	RF Power	
7	Uplink PAM alarm	Normal	Disable	RF Power	
8	Downlink low-input alarm	Normal	Enable	RSSI	01/05/1970 03:00:37
9	Downlink low-output alarm	Normal	Enable	RF Power	

Apply

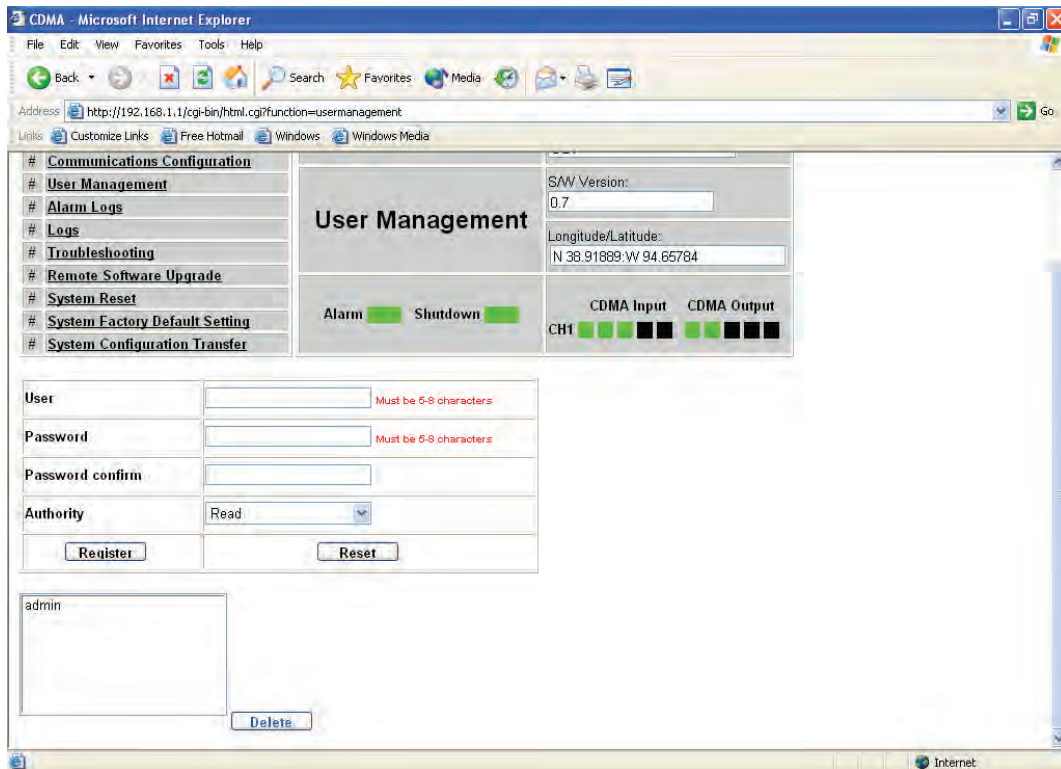
User Management Menu

- Click on the User Management link.
- On this page you can create and delete users, change passwords, and assign authorities to individual users.
- Read will only all the user to view information on the menu pages, but cannot make any changes.
- Read/Write Authority means that the user can view and change various values.
- Super User is very similar to an Administrator account.



CAUTION

DO NOT DELETE 'admin'



CDMA - Microsoft Internet Explorer

Address: http://192.168.1.1/cgi-bin/html.cgi?function=usermanagement

Navigation: # Communications Configuration, # User Management, # Alarm Logs, # Logs, # Troubleshooting, # Remote Software Upgrade, # System Reset, # System Factory Default Setting, # System Configuration Transfer

User Management

SW Version: 0.7

Longitude/Latitude: N 38.91889; W 94.65784

Alarm Shutdown

CDMA Input CDMA Output

CH1

User: Must be 5-9 characters

Password: Must be 5-9 characters

Password confirm:

Authority: Read

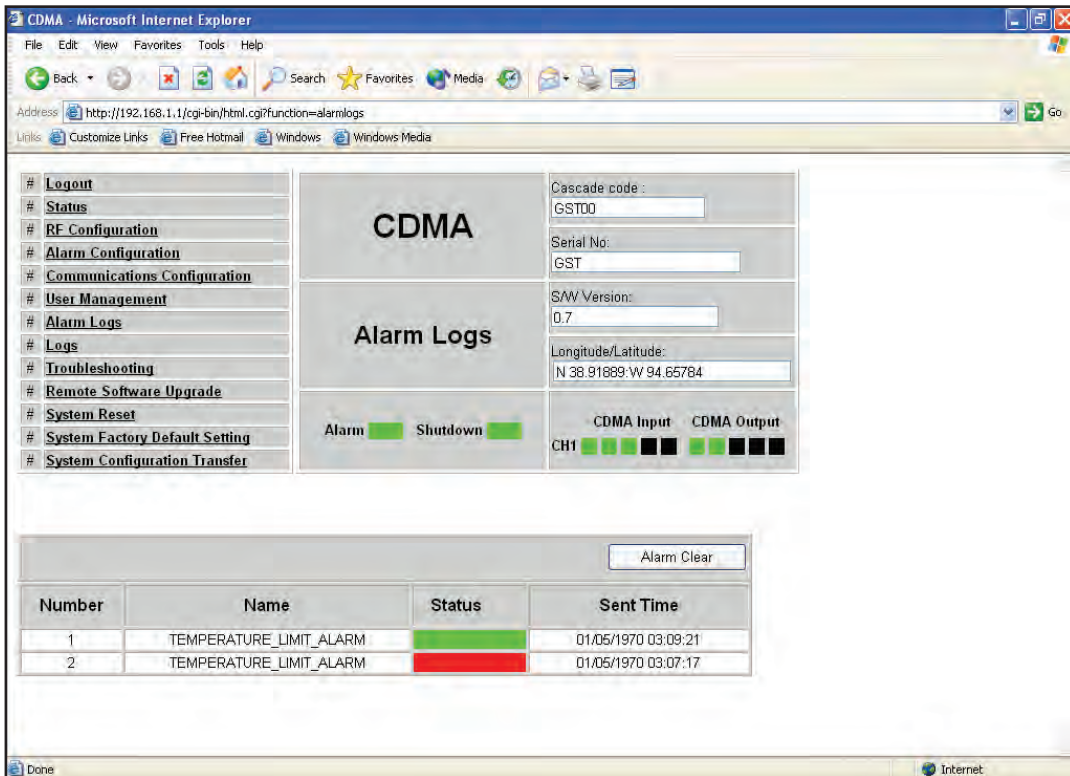
Register Reset

admin

Delete

Alarm Logs

- Click on the Alarm Logs link.
- You can see a history of reported and reset Alarms.
When an alarm is reported, the name and time of the alarm is displayed along with its current status. Red color means that the alarm is reported, and green color means that the alarm has returned to normal status.
- After an Alarm condition lasts for the “Delay Alarm Reporting Minutes” set in RF Configuration page, the Alarm will be reported.



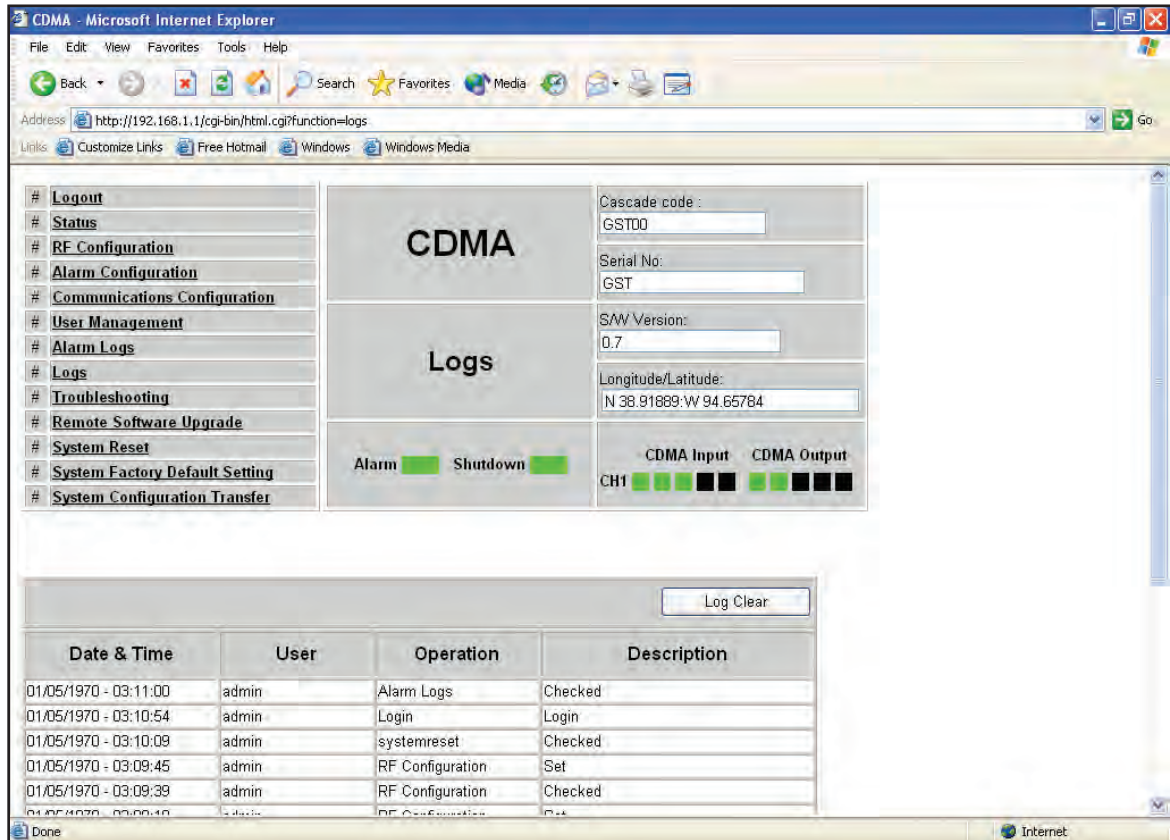
The screenshot shows a web browser window titled "CDMA - Microsoft Internet Explorer". The address bar displays "http://192.168.1.1/cgi-bin/html.cgi?function=alarmlogs". The page content is organized into several sections:

- 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, # System Reset, # System Factory Default Setting, and # System Configuration Transfer.
- CDMA Alarm Logs Header:** A large grey box with "CDMA" and "Alarm Logs" text. Below this, there are status indicators for "Alarm" (green) and "Shutdown" (green).
- Configuration Fields (Right):** A series of input fields for "Cascade code" (GSTD0), "Serial No." (GST), "SAW Version" (0.7), and "Longitude/Latitude" (N 38.91889; W 94.65784). Below these are "CDMA Input" and "CDMA Output" sections, each with a row of colored squares (green and black).
- Alarm Clear Button:** A button labeled "Alarm Clear" is located above the alarm log table.
- Alarm Log Table:** A table with four columns: "Number", "Name", "Status", and "Sent Time".

Number	Name	Status	Sent Time
1	TEMPERATURE_LIMIT_ALARM	Green	01/05/1970 03:09:21
2	TEMPERATURE_LIMIT_ALARM	Red	01/05/1970 03:07:17

Logs

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



The screenshot displays the CDMA configuration web interface. The browser window shows the URL `http://192.168.1.1/cgi-bin/html.cgi?function=logs`. The interface includes a navigation menu on the left with the following items: Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs (selected), Logs, Troubleshooting, Remote Software Upgrade, System Reset, System Factory Default Setting, and System Configuration Transfer.

The main content area is divided into two sections: **CDMA** and **Logs**. The **CDMA** section contains the following fields:

- Cascade code: GST00
- Serial No: GST
- SW Version: 0.7
- Longitude/Latitude: N 38.91889;W 94.65784

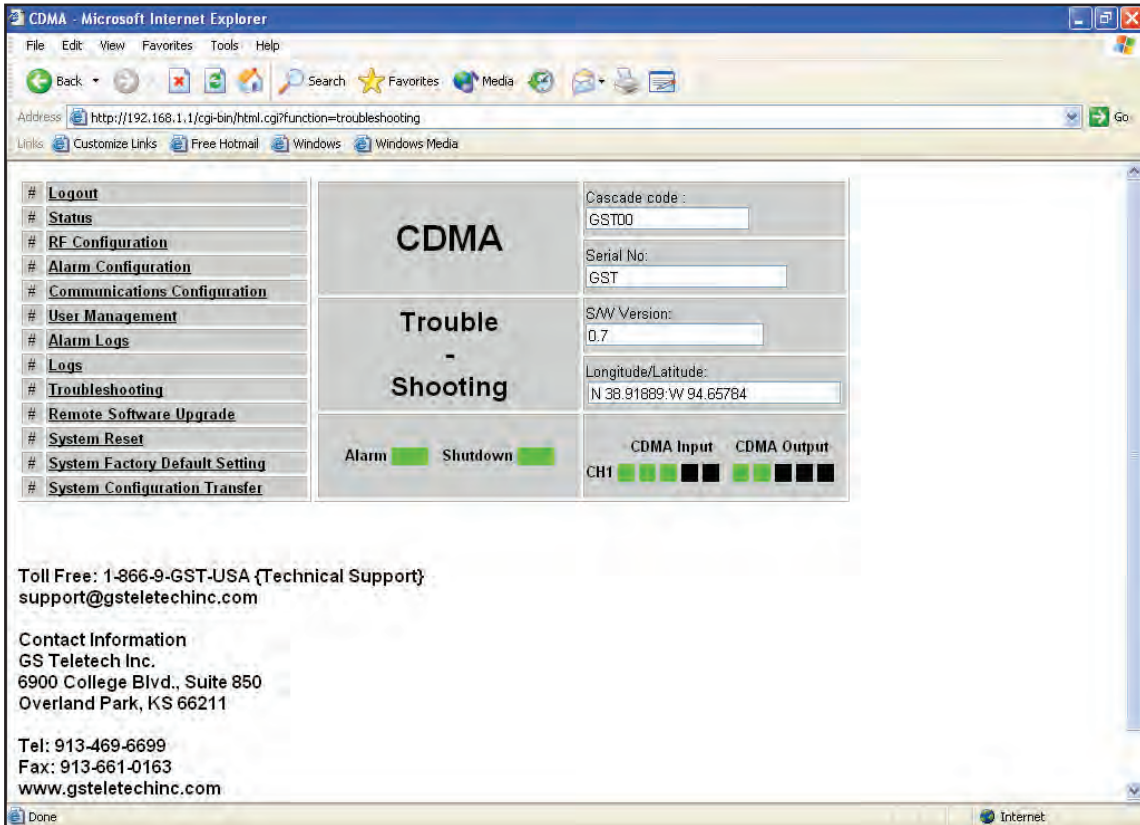
Below these fields are status indicators for **Alarm** and **Shutdown**, both shown as green boxes. To the right, there are indicators for **CDMA Input** and **CDMA Output**, each with a row of four colored squares (green, black, green, black).

A **Log Clear** button is located above the log table. The log table contains the following data:

Date & Time	User	Operation	Description
01/05/1970 - 03:11:00	admin	Alarm Logs	Checked
01/05/1970 - 03:10:54	admin	Login	Login
01/05/1970 - 03:10:09	admin	systemreset	Checked
01/05/1970 - 03:09:45	admin	RF Configuration	Set
01/05/1970 - 03:09:39	admin	RF Configuration	Checked
01/05/1970 - 03:09:10	admin	RF Configuration	Set

Troubleshooting

- 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 browser window with the address bar displaying `http://192.168.1.1/cgi-bin/html.cgi?function=troubleshooting`. The page content is organized into several sections:

- Navigation Menu:** A vertical list of links including Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs, Logs, Troubleshooting (highlighted), Remote Software Upgrade, System Reset, System Factory Default Setting, and System Configuration Transfer.
- CDMA Troubleshooting Section:** A central area with the text "CDMA Troubleshooting" and "Trouble Shooting".
- Form Fields:** On the right side, there are input fields for "Cascade code" (containing "GST00"), "Serial No." (containing "GST"), "SAW Version" (containing "0.7"), and "Longitude/Latitude" (containing "N 38.91889; W 94.65764").
- Status Indicators:** Below the form fields, there are "Alarm" and "Shutdown" indicators, each with a green bar. To the right, there are "CDMA Input" and "CDMA Output" indicators, each with a row of four colored bars (green, black, green, black).

At the bottom of the page, the following contact information is provided:

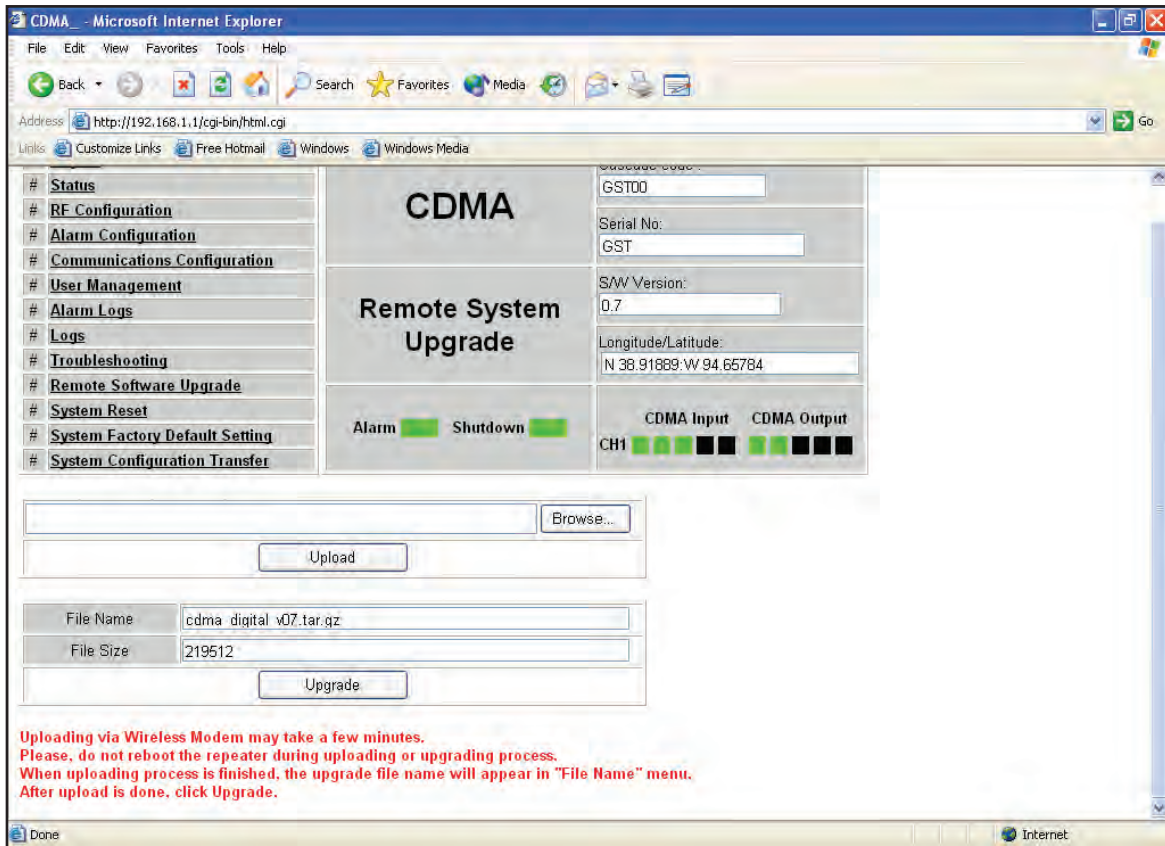
Toll Free: 1-866-9-GST-USA (Technical Support)
support@gsteletechinc.com

Contact Information
GS Teletech Inc.
6900 College Blvd., Suite 850
Overland Park, KS 66211

Tel: 913-469-6699
Fax: 913-661-0163
www.gsteletechinc.com

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.



The screenshot shows a web browser window titled "CDMA - Microsoft Internet Explorer" with the address bar displaying "http://192.168.1.1/cgi-bin/html.cgi". The main content area is titled "CDMA Remote System Upgrade". On the left, there is a navigation menu with links: # Status, # RF Configuration, # Alarm Configuration, # Communications Configuration, # User Management, # Alarm Logs, # Logs, # Troubleshooting, # Remote Software Upgrade, # System Reset, # System Factory Default Setting, and # System Configuration Transfer. The central area displays system information: "GST00", "Serial No: GST", "S/W Version: 0.7", and "Longitude/Latitude: N 38.91889; W 94.65784". Below this, there are status indicators for "Alarm" and "Shutdown" (both green), and "CDMA Input" and "CDMA Output" (CH1) with green and black bars. At the bottom, there is a file upload section with a "Browse..." button, an "Upload" button, and a table showing "File Name: cdma digital v07.tar.gz" and "File Size: 219512". An "Upgrade" button is located below the table. A red warning message at the bottom states: "Uploading via Wireless Modem may take a few minutes. Please, do not reboot the repeater during uploading or upgrading process. When uploading process is finished, the upgrade file name will appear in 'File Name' menu. After upload is done, click Upgrade."

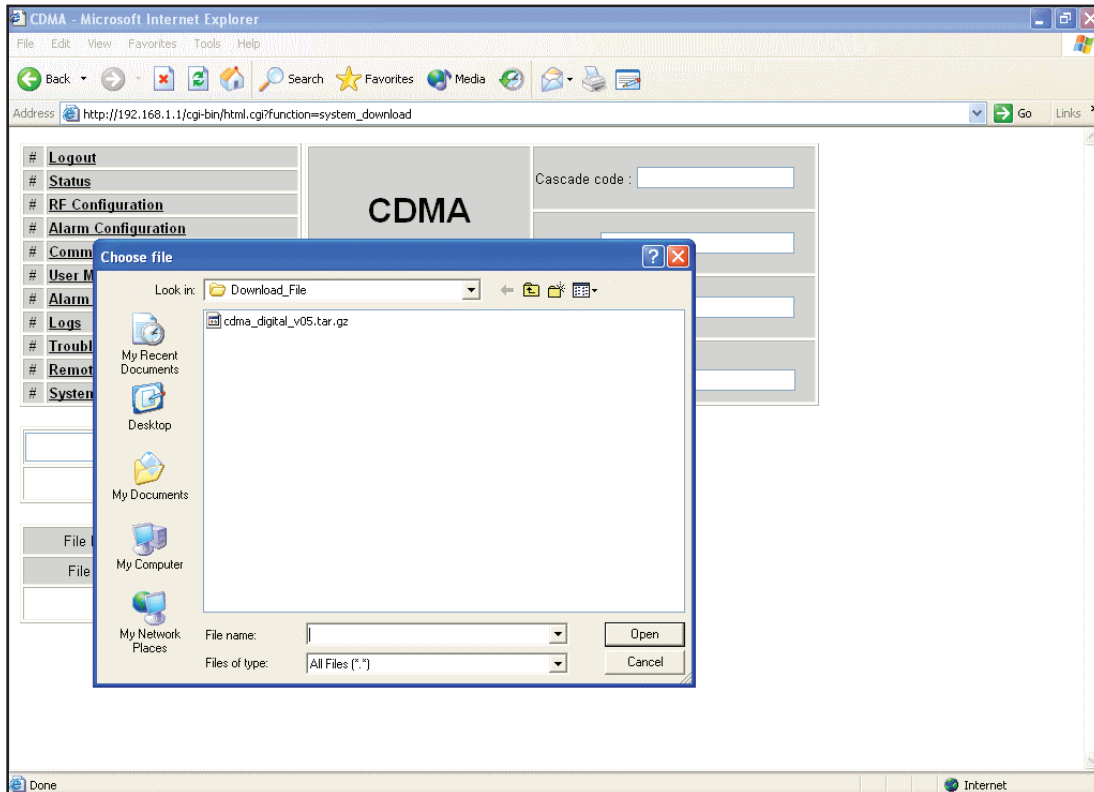
Software Upgrade

- Choose the file to upgrade provided by GST.
After you choose the file, you should click “upload” to send the file from your laptop to the repeater.



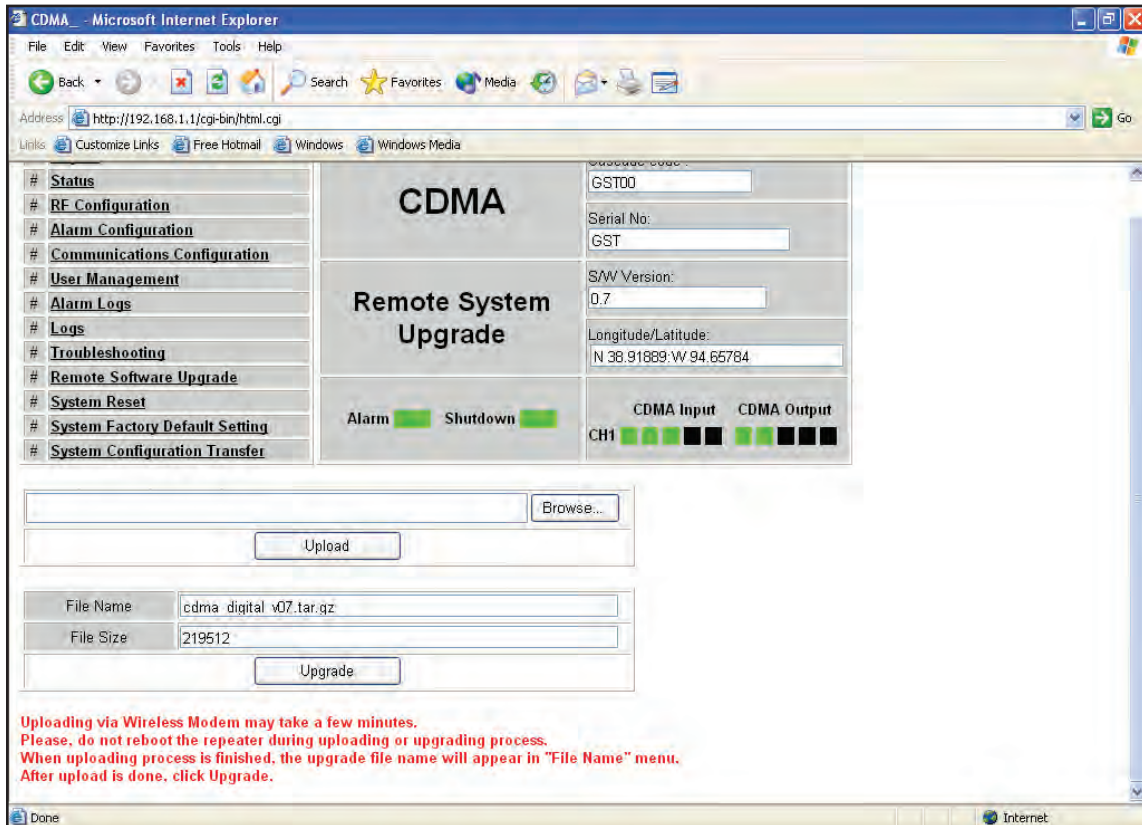
CAUTION

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, then click “Upgrade” button. The lights on the repeater will change color during upgrade which will take about 2 minutes for the upgrade to initialize. The lights will go back to normal when upgrade is done.
- User may then be prompted to log back into the Repeater.

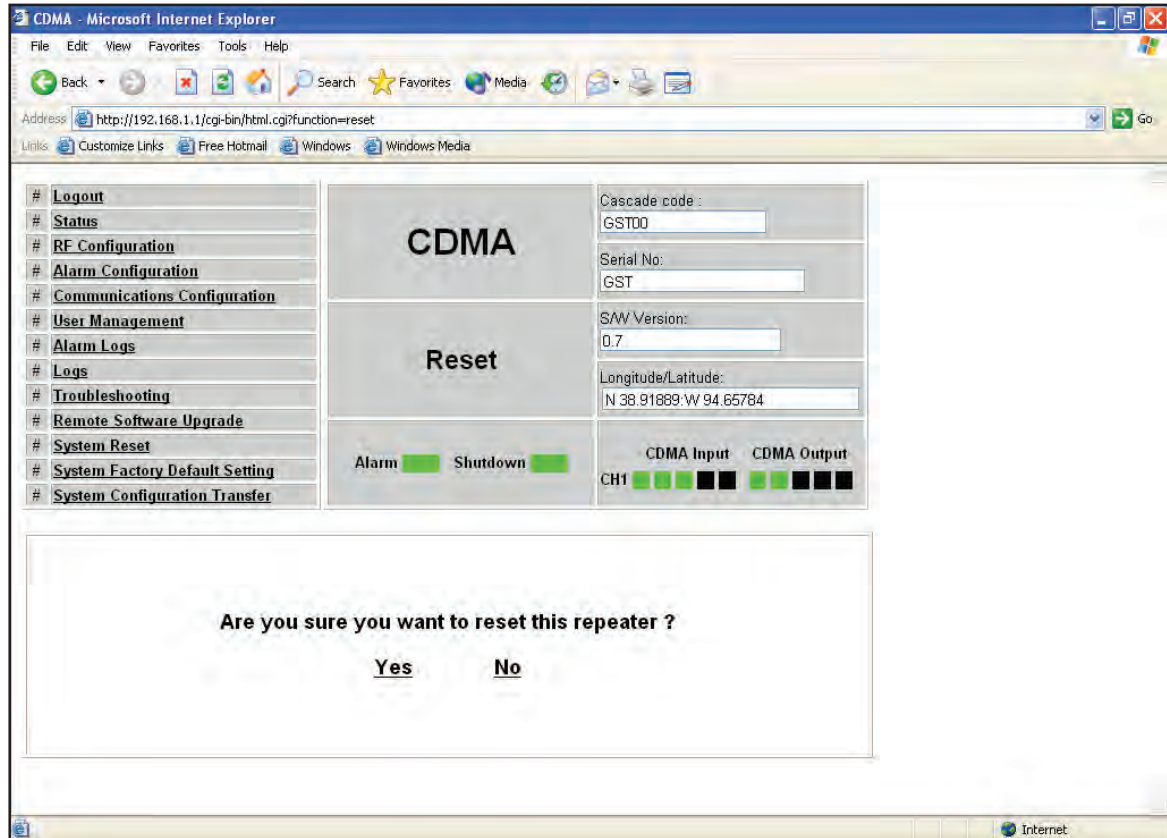


The screenshot shows a web browser window titled "CDMA - Microsoft Internet Explorer" with the address bar displaying "http://192.168.1.1/cgi-bin/html.cgi". The main content area is titled "CDMA Remote System Upgrade". On the left, there is a navigation menu with links to various system functions. The central panel displays system information such as "GST00", "Serial No: GST", "S/W Version: 0.7", and "Longitude/Latitude: N 38.91889; W 94.65784". Below this, there are status indicators for "Alarm" and "Shutdown", and a "CDMA Input/Output" section for "CH1" with a row of colored LEDs. At the bottom, there is a file upload section with a "Browse..." button, an "Upload" button, and a form showing "File Name: cdma digital v07.tar.gz" and "File Size: 219512". An "Upgrade" button is located below the file size field. A red warning message is displayed at the bottom of the page.

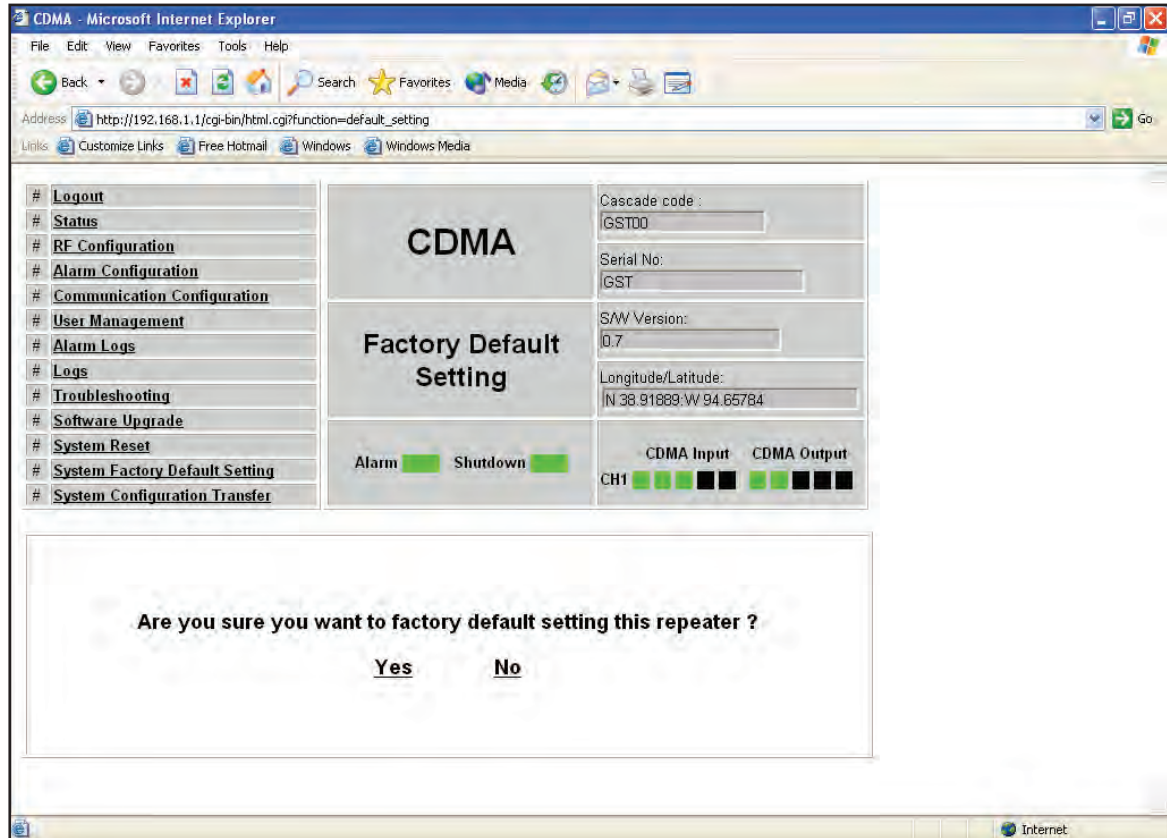
**Uploading via Wireless Modem may take a few minutes.
Please, do not reboot the repeater during uploading or upgrading process.
When uploading process is finished, the upgrade file name will appear in "File Name" menu.
After upload is done, click Upgrade.**

System Reset

- Click 'No' to return to the 'List' menu.
- Click 'Yes' to reset the repeater via a soft-boot. This will not change any of the current settings.



Factory Default Setting



CDMA - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.1.1/cgi-bin/html.cgi?function=default_setting

Links [Customize Links](#) [Free Hotmail](#) [Windows](#) [Windows Media](#)

# Logout	<h2>CDMA</h2>	Cascade code : GST00
# Status		Serial No: GST
# RF Configuration	<h2>Factory Default Setting</h2>	SAW Version: 0.7
# Alarm Configuration		Longitude/Latitude: N 38.91689-W 94.65784
# Communication Configuration	Alarm <input checked="" type="checkbox"/> Shutdown <input checked="" type="checkbox"/>	CDMA Input CDMA Output
# User Management		CH1 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
# Alarm Logs		
# Logs		
# Troubleshooting		
# Software Upgrade		
# System Reset		
# System Factory Default Setting		
# System Configuration Transfer		

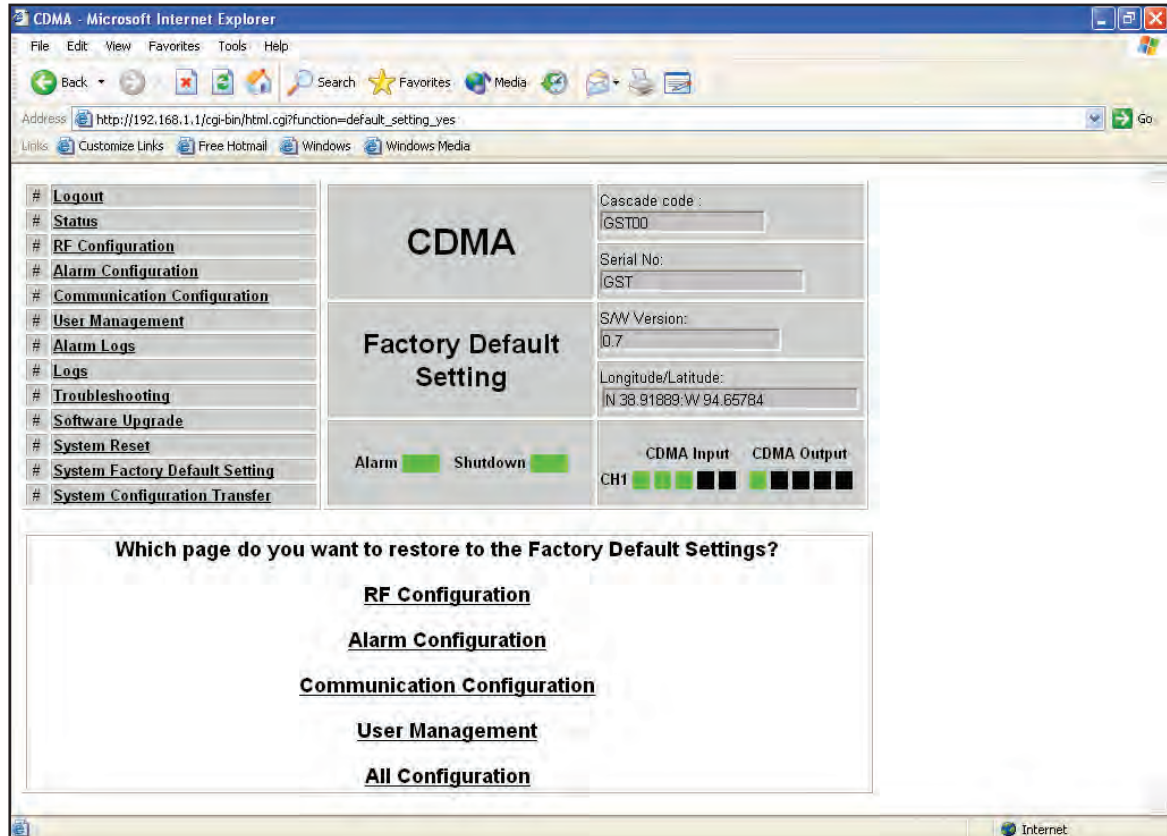
Are you sure you want to factory default setting this repeater ?

[Yes](#) [No](#)

Internet

Configuration Transfer

- Configuration Transfer function is for downloading and uploading set values of the repeater.



CDMA - Microsoft Internet Explorer

Address: http://192.168.1.1/cgi-bin/html.cgi?function=default_setting_yes

Links: Customize Links, Free Hotmail, Windows, Windows Media

[Logout](#)

[Status](#)

[RF Configuration](#)

[Alarm Configuration](#)

[Communication Configuration](#)

[User Management](#)

[Alarm Logs](#)

[Logs](#)

[Troubleshooting](#)

[Software Upgrade](#)

[System Reset](#)

[System Factory Default Setting](#)

[System Configuration Transfer](#)

CDMA

Cascade code : GST00

Serial No: GST

SAW Version: 0.7

Longitude/Latitude: N 38.91689-W 94.65784

Alarm Shutdown

CDMA Input CDMA Output

CH1

Which page do you want to restore to the Factory Default Settings?

[RF Configuration](#)

[Alarm Configuration](#)

[Communication Configuration](#)

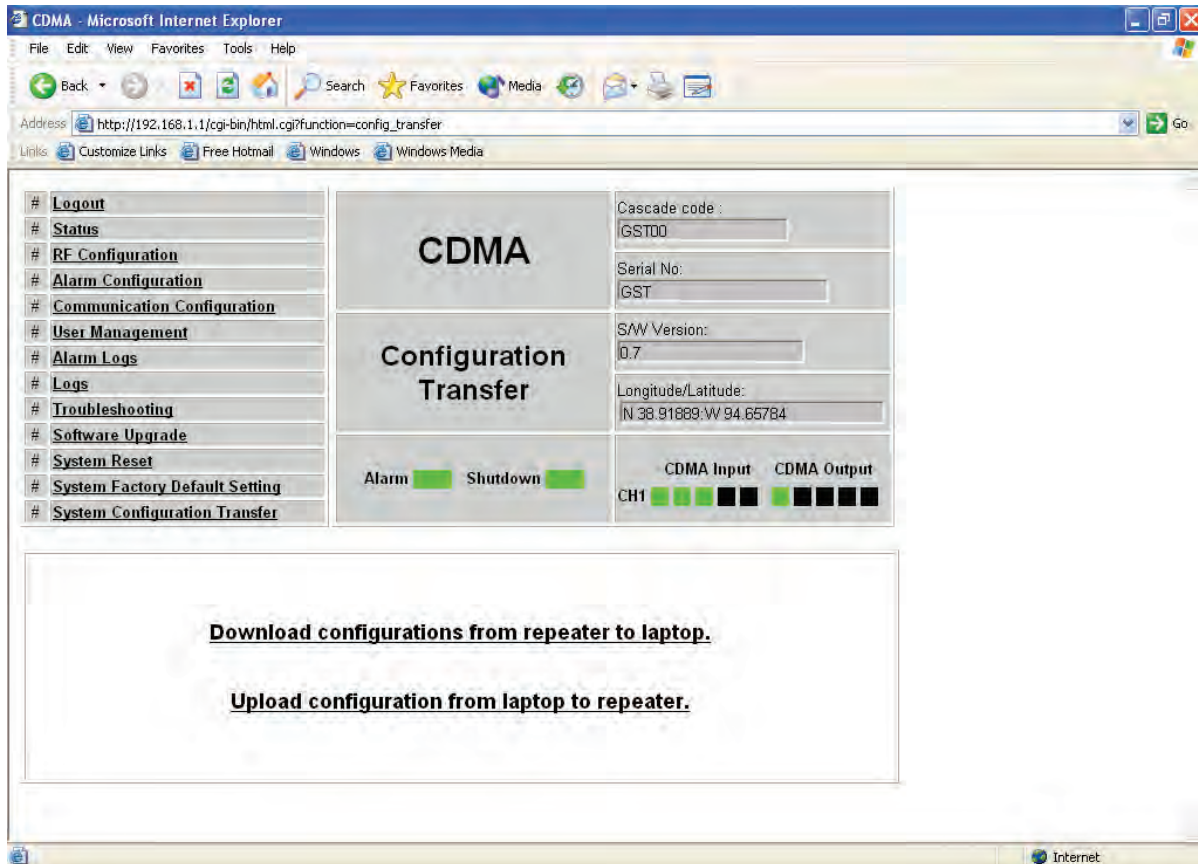
[User Management](#)

[All Configuration](#)

Internet

Configuration Transfer

- Configuration Transfer function is for downloading and uploading set values of the repeater.



CDMA - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address http://192.168.1.1/cgi-bin/html.cgi?function=config_transfer Go

Links Customize Links Free Hotmail Windows Windows Media

# Logout	<h2>CDMA</h2> <h3>Configuration Transfer</h3> <p>Alarm <input checked="" type="checkbox"/> Shutdown <input checked="" type="checkbox"/></p> <p>CDMA Input CDMA Output</p> <p>CH1 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p>	Cascade code : GST00
# Status		Serial No: GST
# RF Configuration		SW Version: 0.7
# Alarm Configuration		Longitude/Latitude: N 38.91889; W 94.65784
# Communication Configuration		
# User Management		
# Alarm Logs		
# Logs		
# Troubleshooting		
# Software Upgrade		
# System Reset		
# System Factory Default Setting		
# System Configuration Transfer		

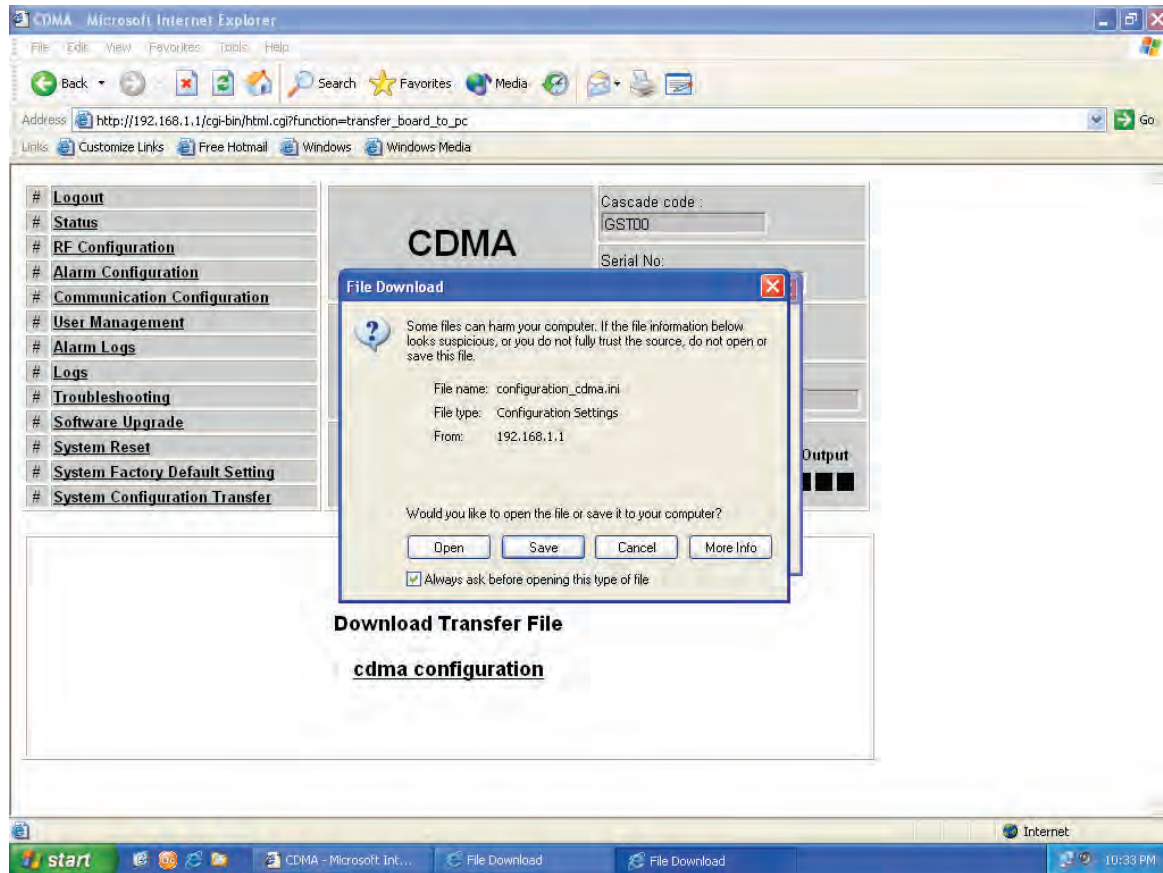
Download configurations from repeater to laptop.

Upload configuration from laptop to repeater.

Internet

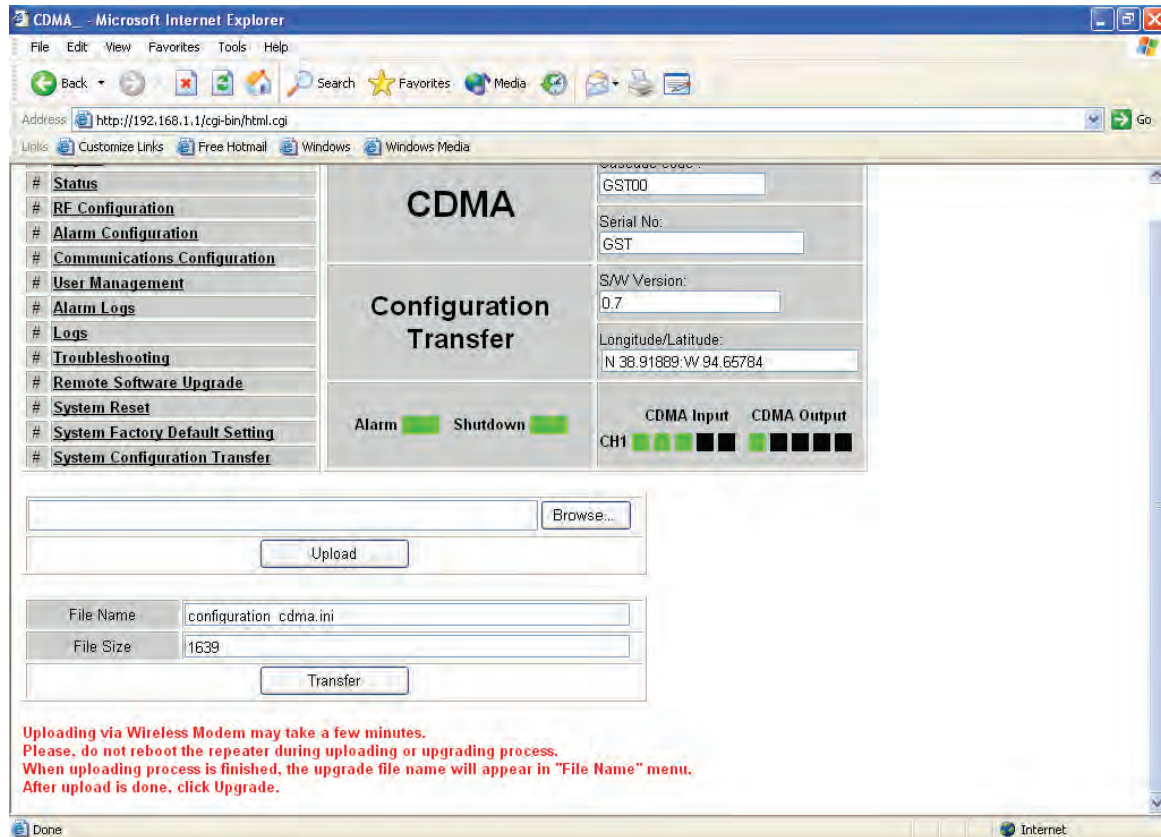
Configuration Transfer : Download

- Downloading process of set values.



Configuration Transfer : Upload

- Uploading process of set values.



CDMA Configuration Transfer

Alarm Shutdown

CDMA Input CDMA Output

CH1

File Name: configuration_cdma.ini
File Size: 1639

Transfer

**Uploading via Wireless Modem may take a few minutes.
Please, do not reboot the repeater during uploading or upgrading process.
When uploading process is finished, the upgrade file name will appear in "File Name" menu.
After upload is done, click Upgrade.**

CLI (Command Line Interface)

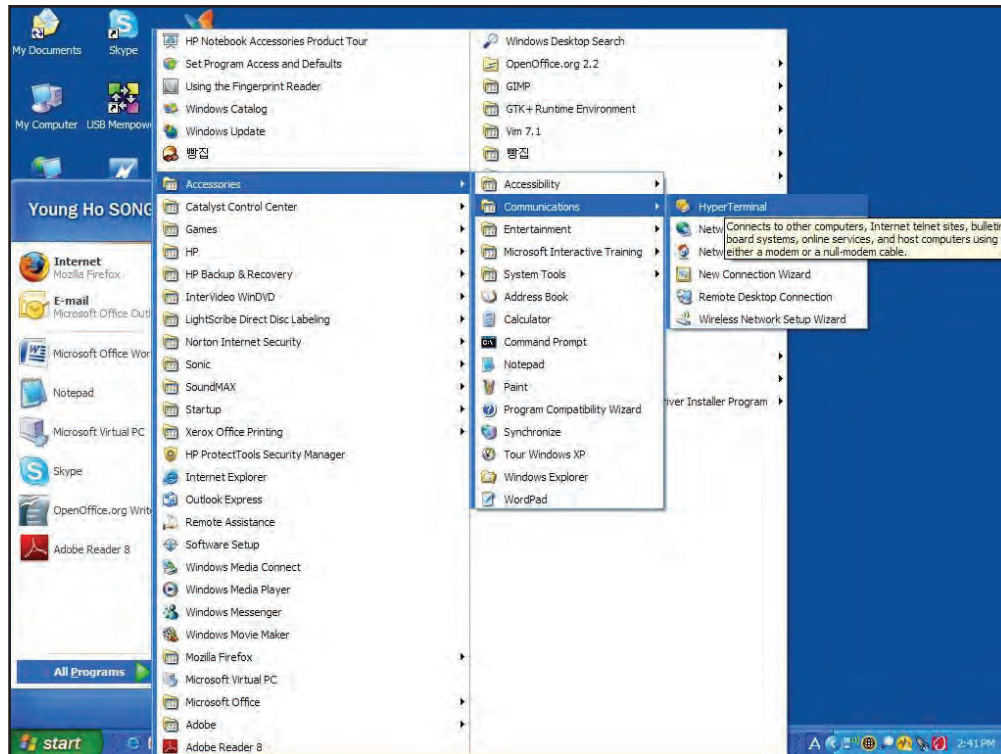
- In case that you cannot reach Web UI, you should use CLI.
You should connect the equipment's CLI port to your laptop's serial port using RS-232 cable.
In case that your laptop does not have a serial port, you may need to use USB to Serial conversion cable.



CAUTION

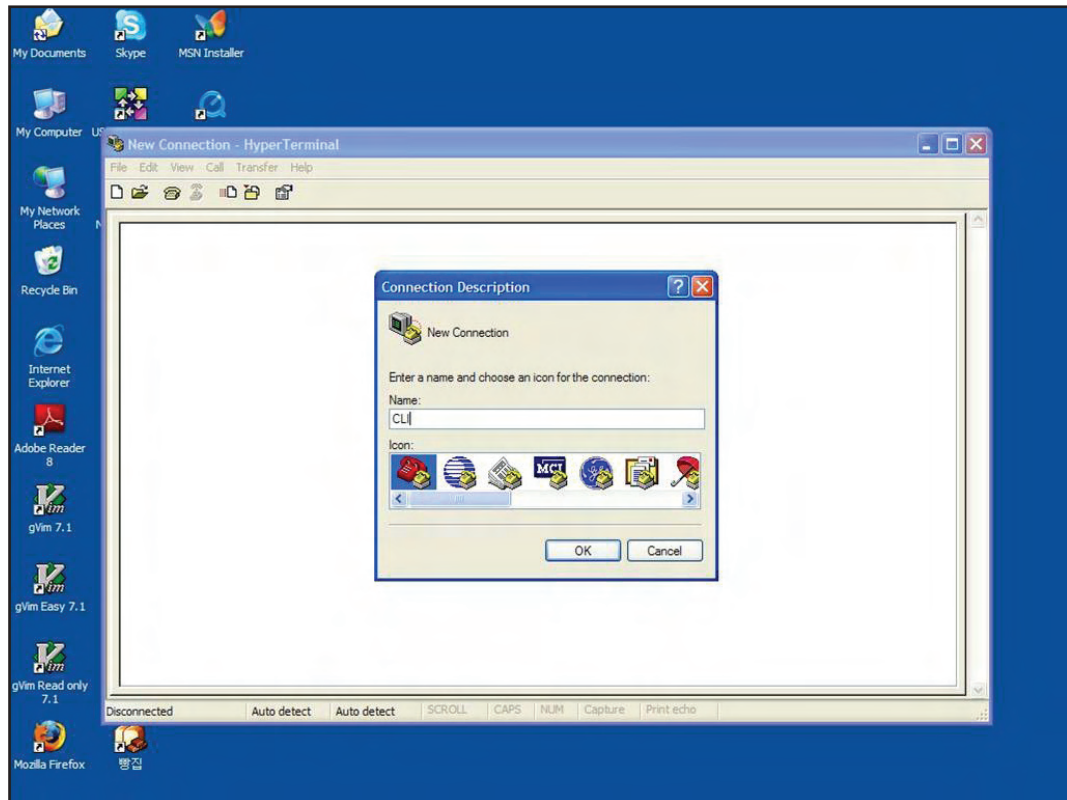
RS-232 cable or USB to Serial conversion cable is not provided with the equipment.
After connection, you can access CLI using HyperTerminal.

- To open HyperTerminal, click “Start”, then “Accessories”, then “Communications”, then “HyperTerminal”.



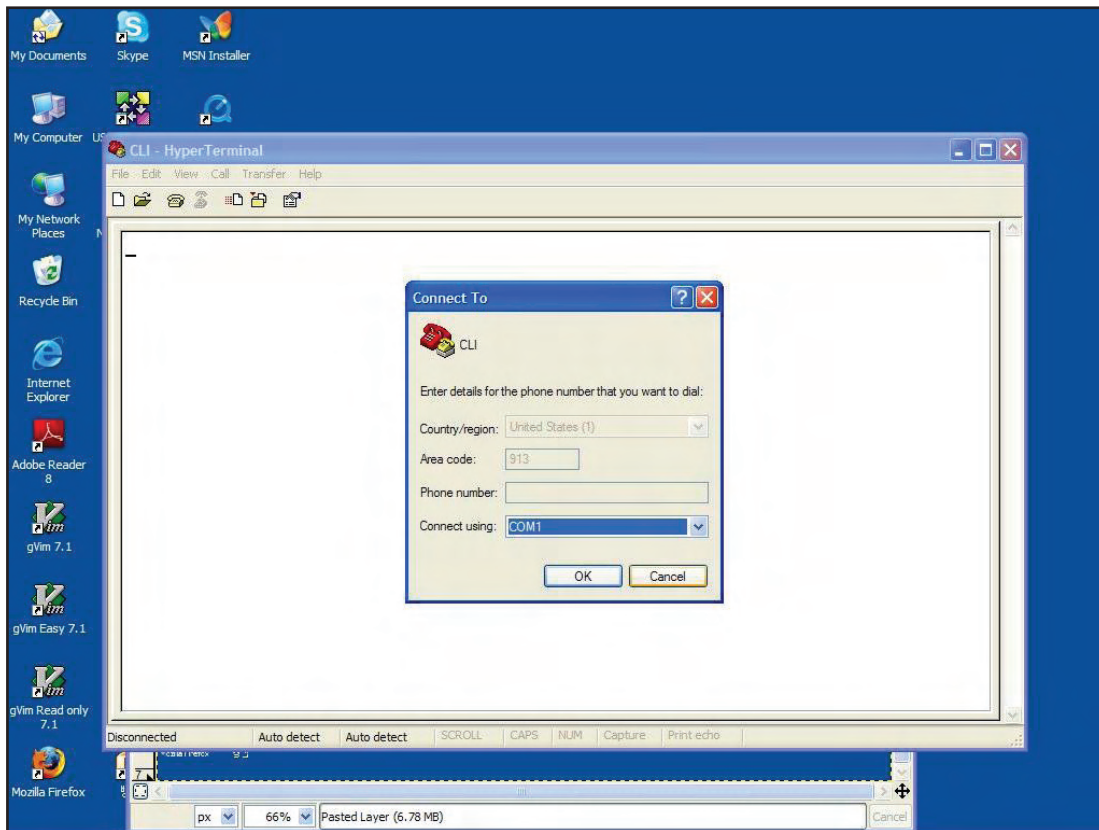
CLI

- 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”.



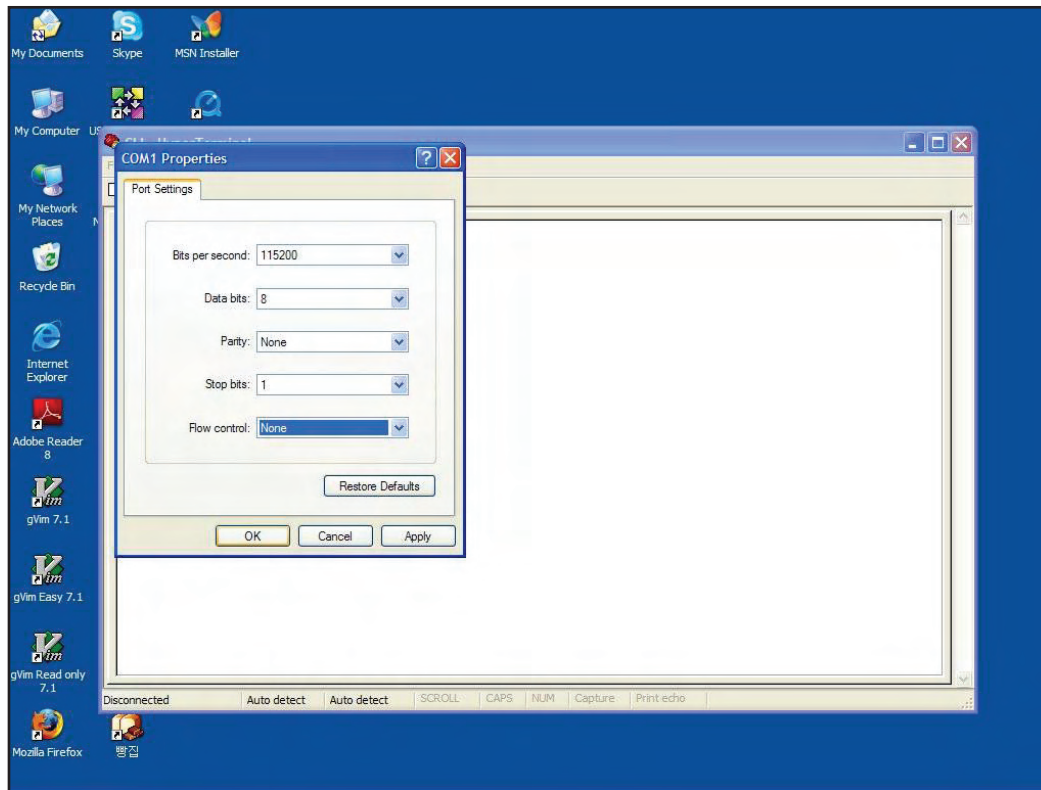
CLI

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



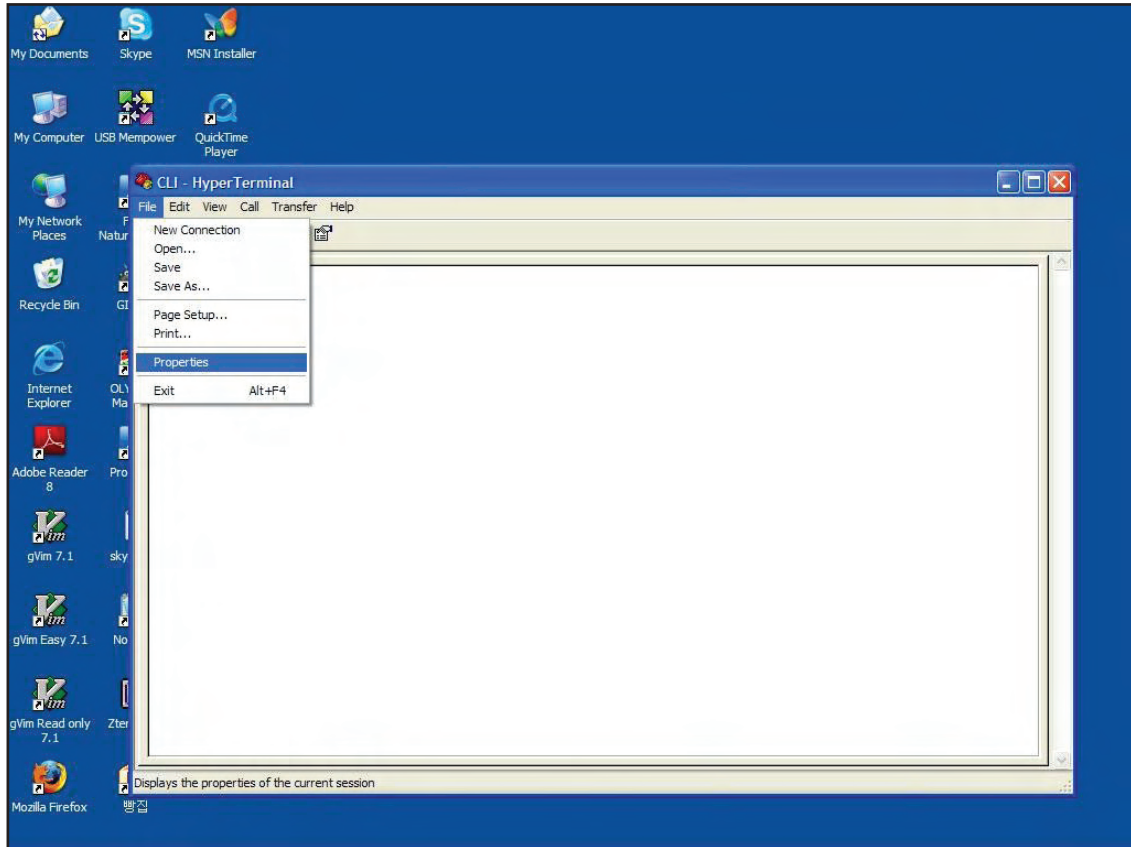
CLI

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



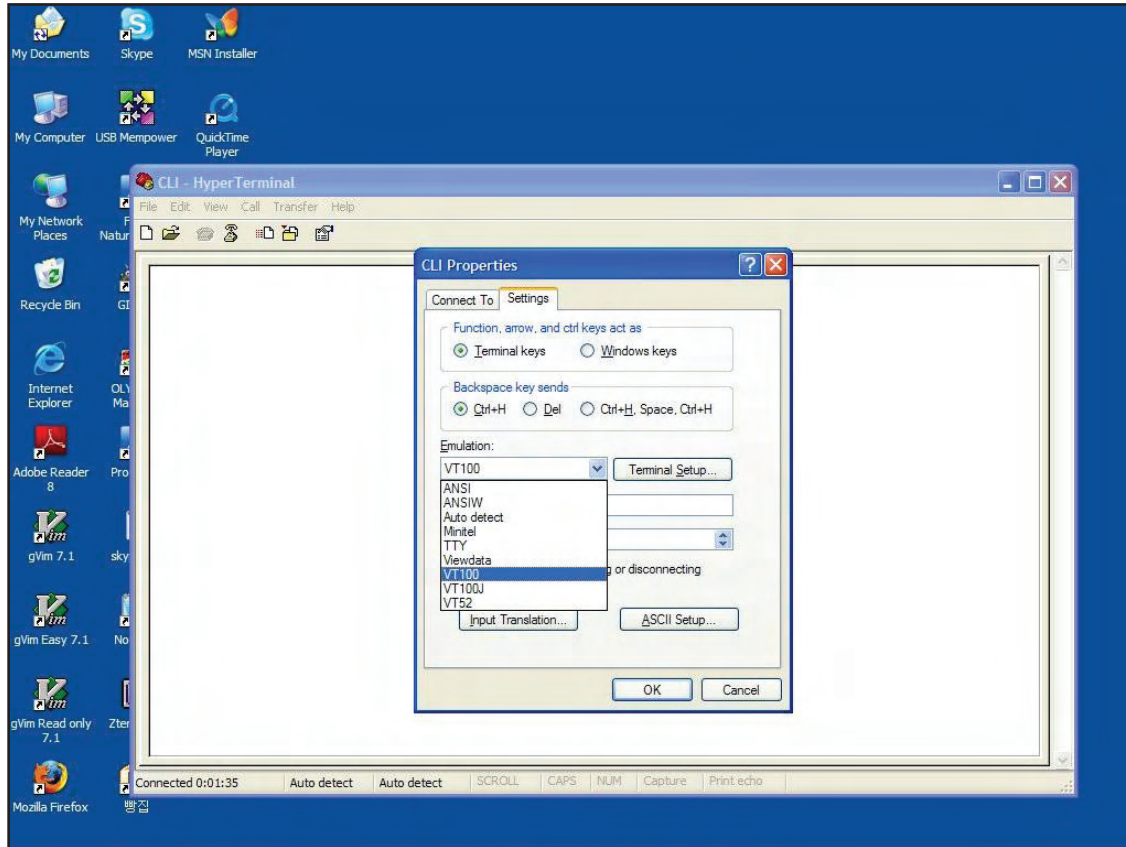
CLI

- Click “File”, choose “Properties”



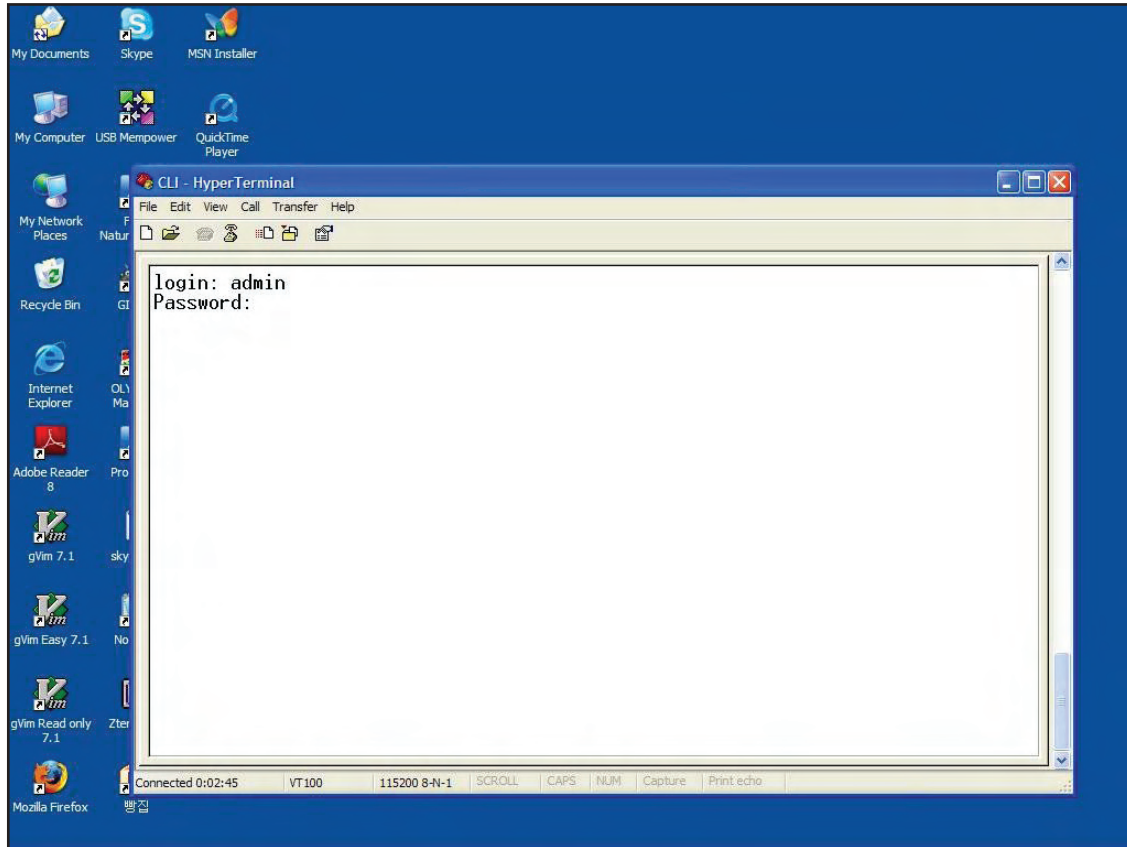
CLI

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



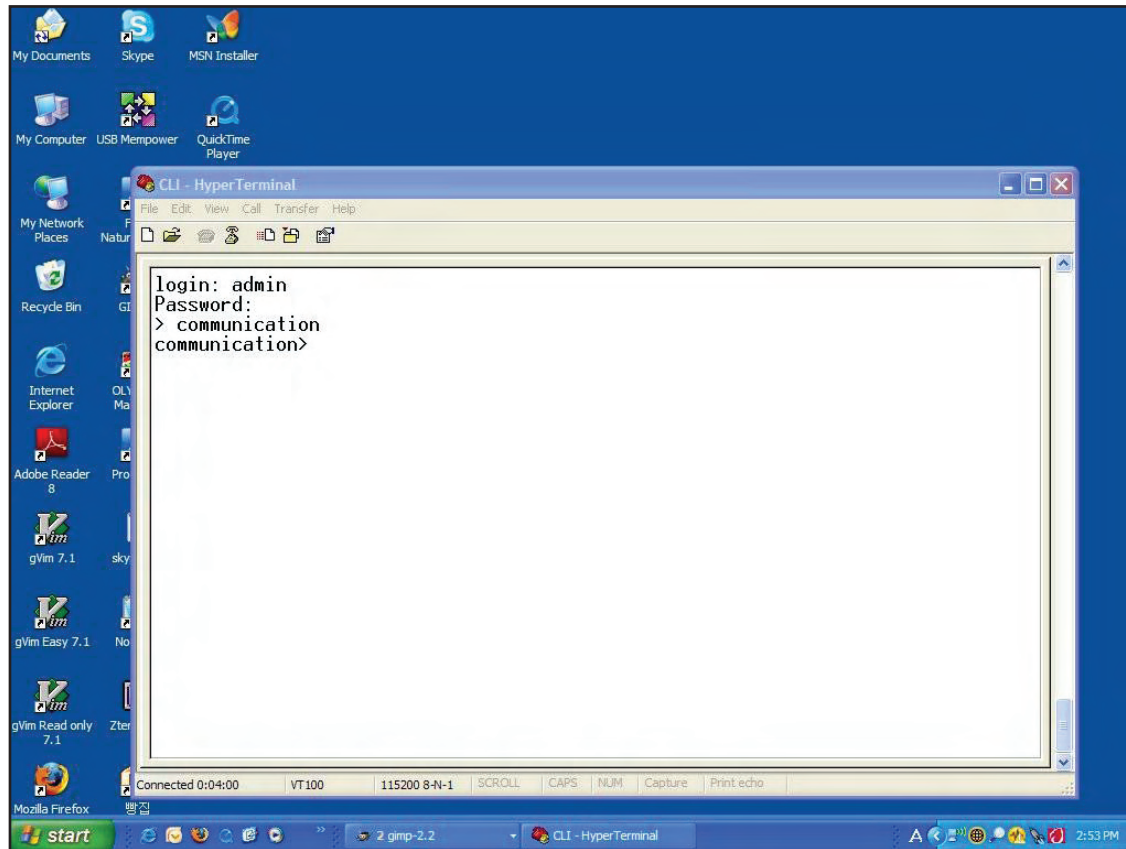
CLI

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



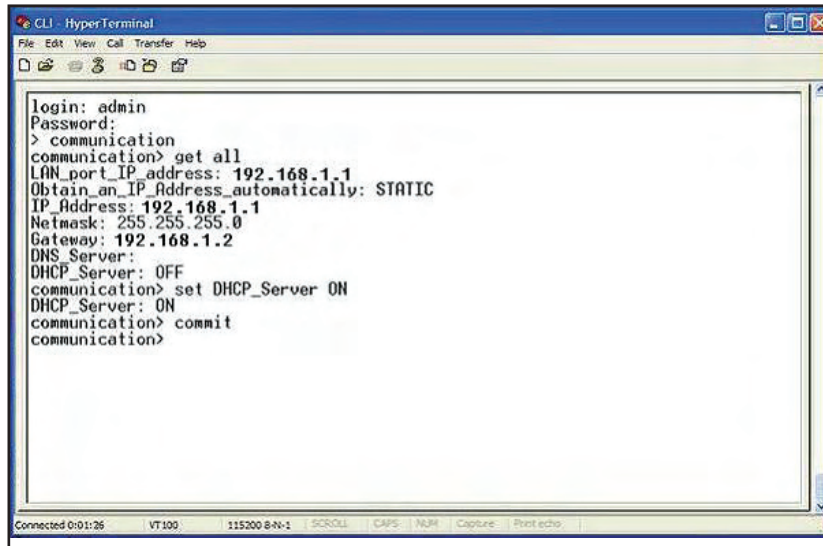
CLI

- 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 the enter-key.
- You can use LAN_Port_IP_Address to access the Web UI as described on page 22.
- In case Obtain_an_IP_Address_automatically is STATIC or DHCP_Server is OFF, at the “communication>” prompt enter the following text:
 - “set Obtain_an_IP_Address_automatically DHCP”, then press the enter-key.
 - “set DHCP_Server ON”, then press the enter-key.
 - “commit”, then press the enter-key.



```
CLI - HyperTerminal
File Edit View Call 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 DHCP_Server ON
DHCP_Server: ON
communication> commit
communication>
```

Connected 0:01:26 | VT 100 | 115200 8-N-1 | SCROLL | COPS | NUM | Capture | Print echo

GST Technical Support

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Phone: 913-469-6699



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Specifications and features of this installation guide are subject to change without notice or obligation.

Global IT Leader

GST

MPE Information



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 36cm 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.