

VPMS v2.0

(VoIP PnP Management System)

Operation Manual

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1. VPMS (VoIP Plug & Play Management System)

1.1. Introduction

To install VoIP Gateway, the installation experts are asked to visit the place of installation and it is not economical and also time consuming. To overcome such shortcomings, Gateway default configuration, automatic Firmware upgrade and debugging are made possible with VPMS (VoIP Plug & Play Management System).

1.2. Features

- Without installation experts or additional installers, VPMS makes possible initial setting of remote VoIP Gateway according to customers' service requests.
- VPMS (VoIP Plug & Play Management System) offers automatic initial configuration and real-time monitoring of gateway. Also, easy and convenient Firmware binary file and configuration change are possible via GUI (Graphic User Interface).
- VPMS operators can check real time condition of remote VoIP gateway as a graph and a table. So, easy monitoring and quick actions are possible.
- VPMS offers Firmware binary file and configuration change of a group or an individual VoIP gateway reducing operator's workload. Also, by keeping configuration change history, VPMS clearly shows the list of configuration changes.
- Without additional programs, built-in Telnet and FTP programs are offered. Also, automatic login is supported without knowing Telnet or Ftp ID and Password of each VoIP Gateway.

1.3. Functions

- **Automatic initial setting**

Without installation experts or additional installers, VPMS makes possible initial setting of remote VoIP Gateway depend on customers' service requests.

- **Gateway monitoring**

VPMS operators can easily monitor the registered Gateway via GUI.

- **Automatic upgrade**

VPMS operator conducts File upload and auto-script via GUI with VPMS program by using existing Auto-upgrade (auto upgrade server) function, which makes possible Firmware binary file and configuration change. Also, configuration changes can be searched.

- **CLI**

With built-in Telnet, VPMS automatically accesses to a specific Gateway and conducts configuration change.

- **Gateway management**

VPMS offers Gateway management (registration, modification, inquiry, deletion, search).

- **Operator management**

VPMS offers VPMS operator account management (registration, modification, inquiry, deletion, search). Also, by offering various operator levels, certain VPMS functions can be regulated.

- **VoIP group management**

VoIP management can be done by groups. So registration, modification, inquiry and deletion of gateway groups are possible.

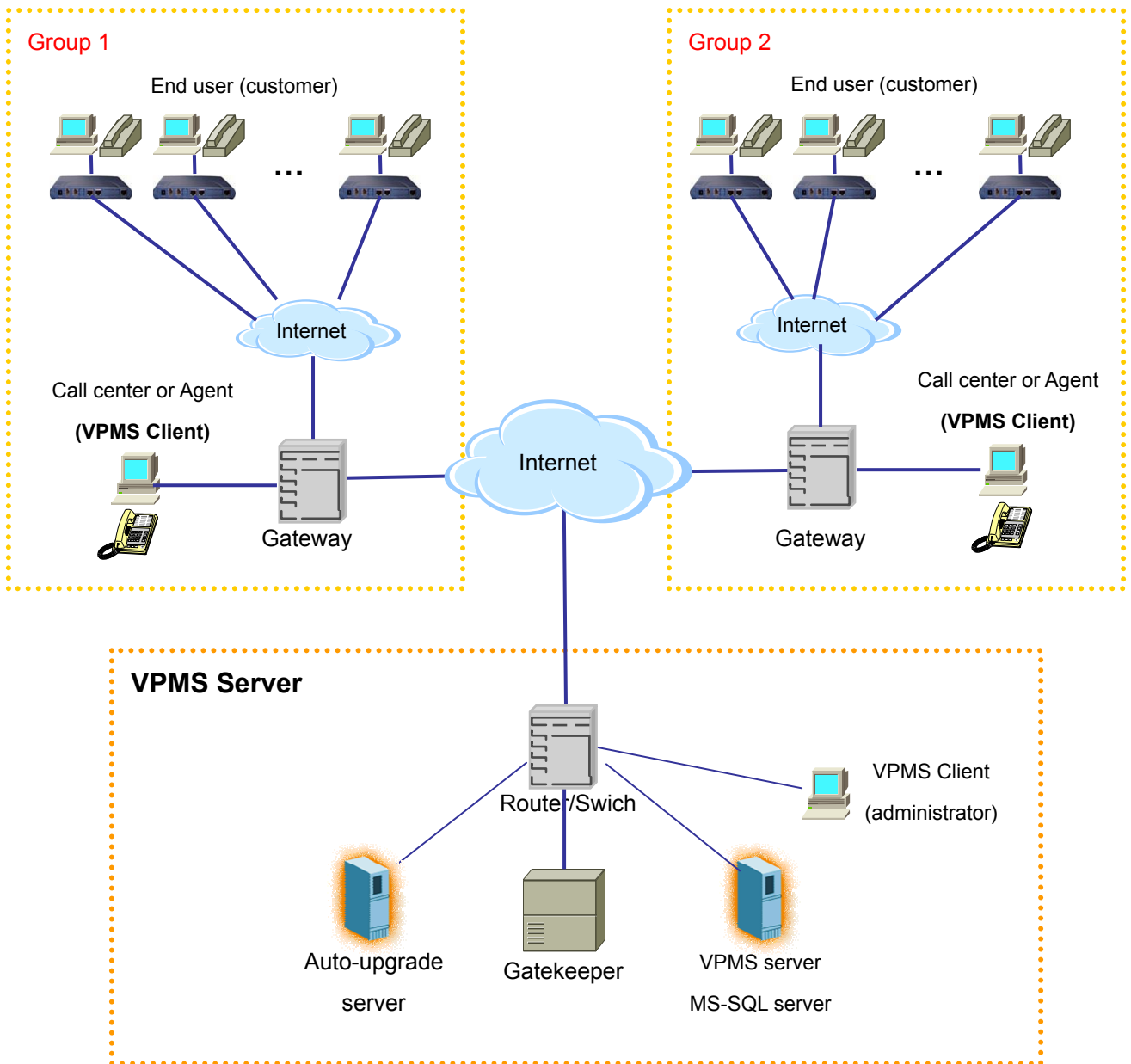
- **Event log view**

VPMS displays Event log of gateways such as initial setting (Only allowed for Admin Users).

- **Gateway condition statistics**

VPMS supports Status Chart function displaying the real-time condition of gateway. Also, the statistical information can be saved and searched by the time.

1.4. Configuration Diagram



[Figure 1-1] VPMS Configuration Diagram

- VPMS system consists of VPMS server, VPMS client and End user.
- VPMS Server consists of VPMS server, DB(MS-SQL) server, Auto-upgrade server and VPMS client. VPMS client has the role of Administrator and monitors the gateways. The VPMS, DB and Auto-upgrade server can be formed as one Server.
- There can be more than one “Group” which has different URL of auto upgrade server or auto configuration.

1.5. VPMS Program Specification

- Server Hardware Specification (Ex : Gateway 1000 pcs)

CPU	Intel Pentium4 1GHz
MEMORY	1 GB
Hard Disk Drive	40GB
OS	Windows 2000 server

- Client Specification

OS	Windows XP, Windows 2000, Windows 9x series
CPU	Intel Pentium series
MEMORY	Over 256 MB recommendable(Min 128MB)

- Software

Database	MS-SQL server 2000 (standard)
Auto-upgrade server	Windows2000 server (IIS, FTP)
VPMS Server	Java JRE 1.4.1(download), VPMS server
VPMS Client	VPMS client
Other	TeraTerm Pro 2.3 (freeware download)

2. VPMS Function process

2.1. Initial setting and subscription

- Before selling gateways to the customers, initial setting is required. The following describes the process of gateway initial setting.

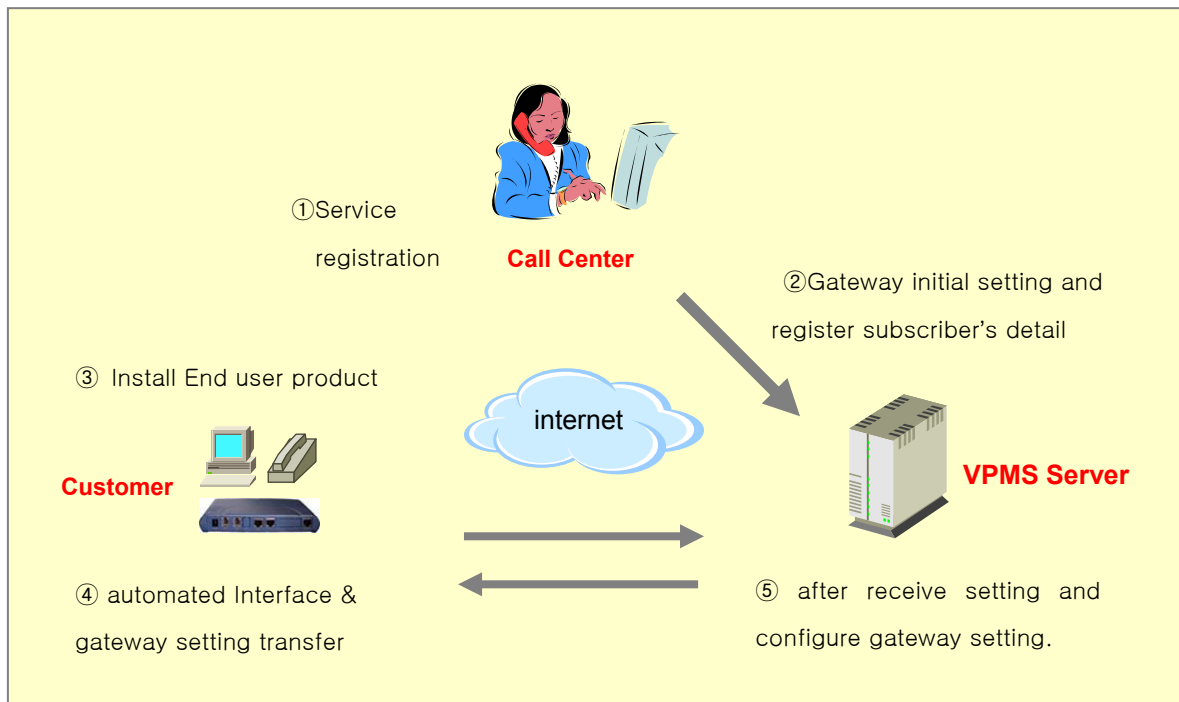
<ol style="list-style-type: none"> 1) Add VPMS server IPAddress(domain) to the gateway. 2) Check the MAC address marked on the box and register gateway from VPMS client program. (Initial setting items: MAC address, Password, H323_id, e164, Model name and etc.) 3) Ship the gateway.
--

- Above process is common for any customers. (Note below details regarding purchasing of gateway)
- Below table describes the way of purchasing gateways and setting information.

How to purchase	Details
By phone call	<p>An individual customer calls to the call center</p> <ul style="list-style-type: none"> ▪ An individual customer talks to Call center and applied for the service. ▪ After initial setting and registration of customer information, ship the product
By Internet	<p>An individual customer requests the product via Internet</p> <ul style="list-style-type: none"> ▪ A customers applies for the service via Internet. ▪ The service request is received at the Call center. After initial setting and registration of customer information, ship the product.
At convenient Store	<p>Purchasing gateway at the Home Shopping and convenient store.</p> <ul style="list-style-type: none"> ▪ Sell the product after the initial setting. ▪ The customer request for the service (along with MAC address) via Internet or telephone call. ▪ The service request is received at the Call center. The user information is added based on MAC address.
At selling agent	<p>An individual customer visits a selling agent and requests for the service.</p> <ul style="list-style-type: none"> ▪ A customer visits a selling agent and request for the service. ▪ The selling agent adds the user information based on MAC address and sells the product.

2.2. Gateway Initial Setting

- Below figure summarizes gateway initial setting process.



[Figure 2-1] Process of gateway initial setting

① **Service subscription** : Customers contact to Call center (Phone, Internet, Agent etc) for service subscription.

② **Gateway initial setting and subscriber detail registration** : MAC address, password, H323 id, e-164 number, model names etc are details on initial gateway setting. And the administrator registers subscriber detail by using VPMS client program.

③ **Subscribers install their gateway** : Subscribers install and connect cables to gateways.

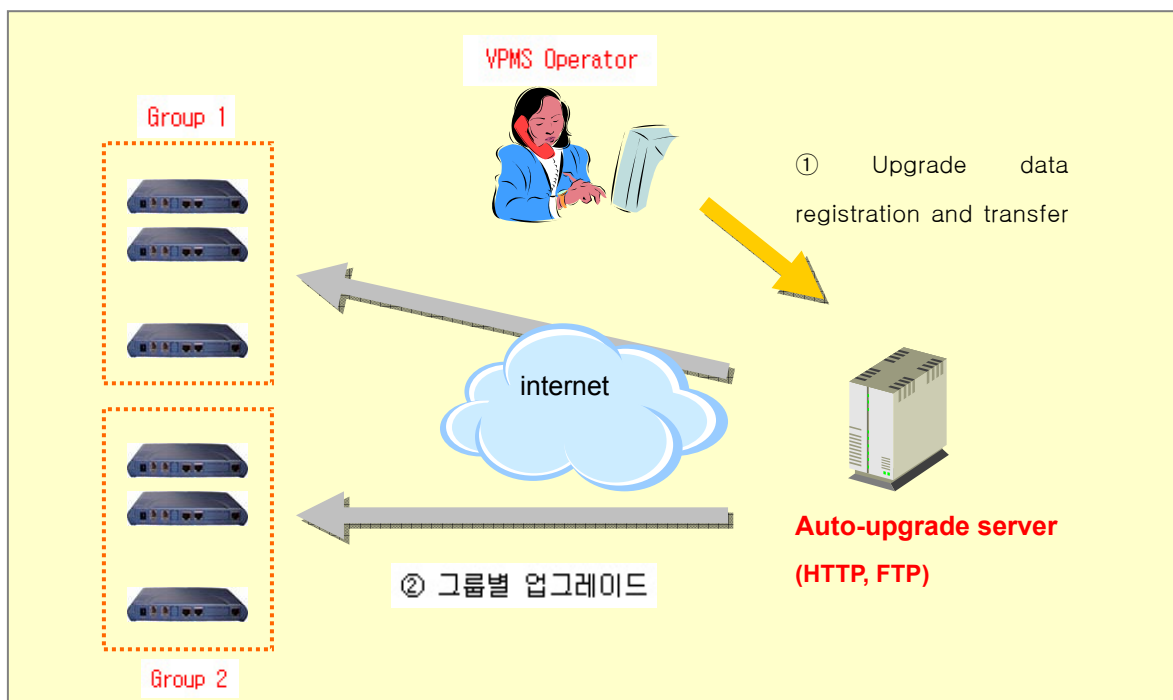
④ **Automatic Interface setting and gateway config transfer** : When the internet cable is connected, Interface is set up automatically, and gateway requires VPMS server to send config information.

⑤ **After receiving gateway config, automatic config setting** : VPMS server receives gateway request signal, collect config information and automatically configure the gateway.

- If the procedure is ok, customer' s gateway will be configured normally and ready for internet telephony.

2.3. Auto-Upgrade Server

- Auto-Upgrade Server provides the functionality to run OS image and script automatically by using the existing auto-upgrade function.
- Below diagram explains Auto-Upgrade Server composition.



① Upgrade data registration and transfer : After VPMS program prepares for the data category which is supposed to be upgraded, data is uploaded from Auto_upgrade server to the group.

② Upgrade for each group : Gateway which is grouped searches through auto-upgrade list file, If necessary, upgrade will be proceeded automatically.

- Administrator configures Auto-upgrade server URL and other setting for VPMS grouping. Thus, upgrade config can be managed on each group basis. Next chapter provides more details.

3. VPMS Initial Screen

VPMS Initial Screen provides Group Summary and Status chart which show the statistical data of each gateway's status.

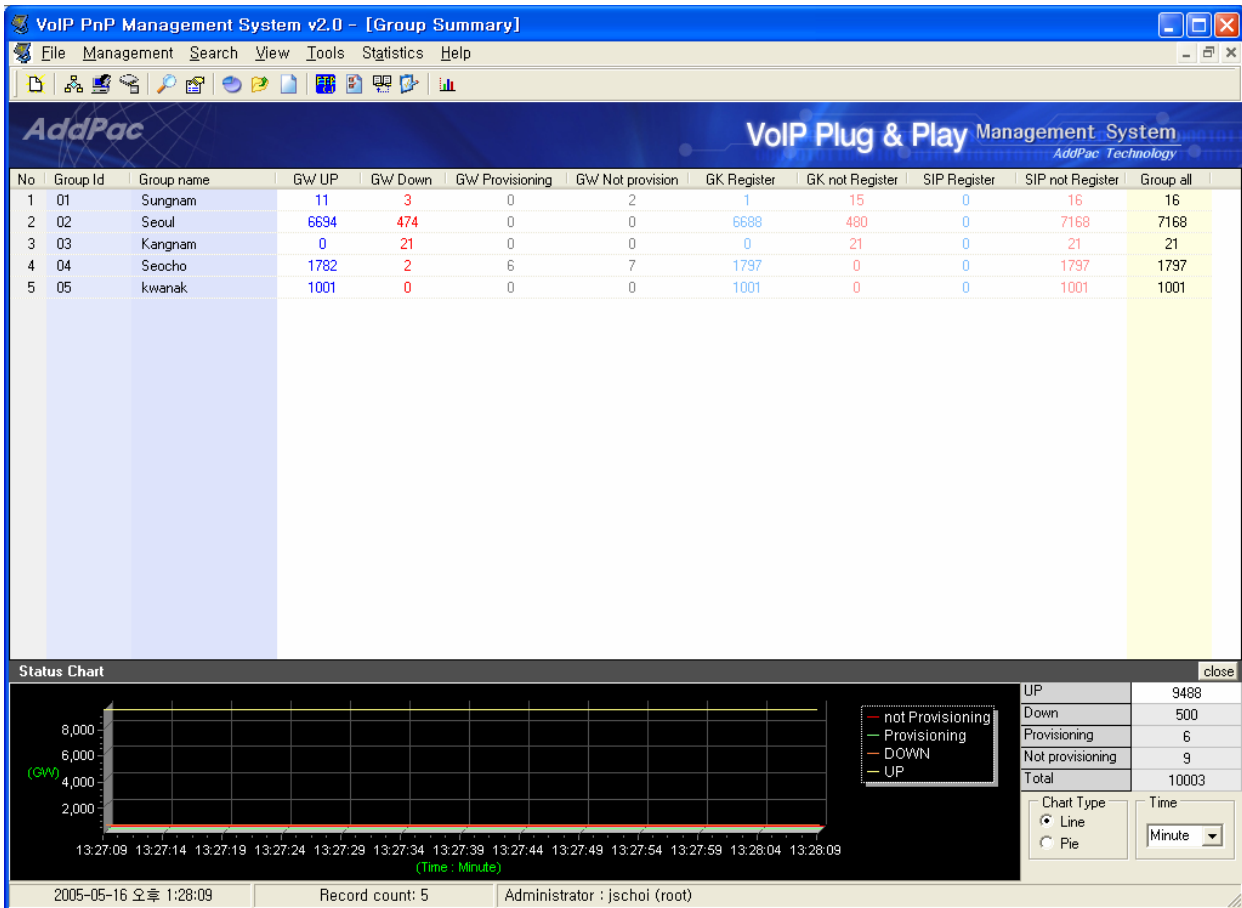


Figure 3-1 VPMS Initial Screen

3.1. Group Summary

Group summary provides statistical data for gateway status on a group basis and user can search gateways by selecting proper data type.

Each data is distinguished by colors so that user can be easily aware of the group status.

No	Group Id	Group name	GW UP	GW Down	GW Provisioning	GW Not provision	GK Register	GK not Register	SIP Register	SIP not Register	Group all
1	01	Sungnam	11	3	0	2	1	15	0	16	16
2	02	Seoul	6694	474	0	0	6688	480	0	7168	7168
3	03	Kangnam	0	21	0	0	0	21	0	21	21
4	04	Seocho	1782	2	6	7	1797	0	0	1797	1797
5	05	kwanak	1001	0	0	0	1001	0	0	1001	1001

Figure 3-2 Group summary Screen

Select group ID or group name to see menu and double click to edit properties of the group.

No	Group Id	Group name	GW UP	GW Down	GW Provisioning	GW Not provision	GK Register	GK not Register	SIP Register	SIP not Register	Group all
1	01	Sungnam	11	3	0	2	1	15	0	16	16
2	02	Seoul	6694	474	0	0	6688	480	0	7168	7168
3	03	Kangnam	0	21	0	0	0	21	0	21	21
4	04	Seocho	1782	2	6	7	1797	0	0	1797	1797
5	05	kwanak	1001	0	0	0	1001	0	0	1001	1001

New Group

Group

Id:

Name:

Description:

Auto upgrade server

URL:

ID: (optional)

Password: (optional)

FTP ID:

FTP Password:

Figure 3-3 New Group Screen

Select and double click the statistical data of the status to list group gateways on each status basis.

VoIP Plug & Play Management System

No	Group Id	Group name	GW UP	GW Down	GW Provisioning	GW Not provision	GK Register	GK not Register	SIP Register	SIP not Register	Group all
1	01	Sungnam	11	3	0	2	1	15	0	16	16
2	02	Seoul	6694	474	0	0	6688	480	0	7168	7168
3	03	Kangnam	0	21	0	0	0	21	0	21	21
4	04	Seocho	1782	2	6	7	1797	0	0	1797	1797
5	05	kwanak	1001	0	0	0	1001	0	0	1001	1001

Gateway Management

MAC address	Group Id	User name	IP address	Model	Version	Status	GK status	GK cause	SIP proxy status	Latest report time
00000001C22	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C23	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C24	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C25	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C26	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C27	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C28	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C29	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C2A	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	
00000001C2B	05		1.1.1.1	AP200B		UP	Registered	Unspecified	not registered	

Figure 3-4 Select Statistical Data for Group

Next table explains the description of status field of groups.

Status Field	Description
GW UP	The number of gateways which are currently up in the group
GW Down	The number of gateways which are currently down in the group
GW Provisioning	The number of gateways which are Provisioning in the group
GK Register	The number of gateways which are registered on GK
GK not Register	The number of gateways which are not registered on GK
SIP Register	The number of gateways which are registered on SIP server
SIP not Register	The number of gateways which are not registered on SIP server
Group all	The number of every gateway in the group

표 3-1 Status field of groups

3.2. Status chart

Status chart helps operators to check the status of gateways as chart type in real time. Basically, operator can find this function on initial screen or choose (View>status) on the pull down menu of the main screen. Operator can also click Status chart button to open as below figure.

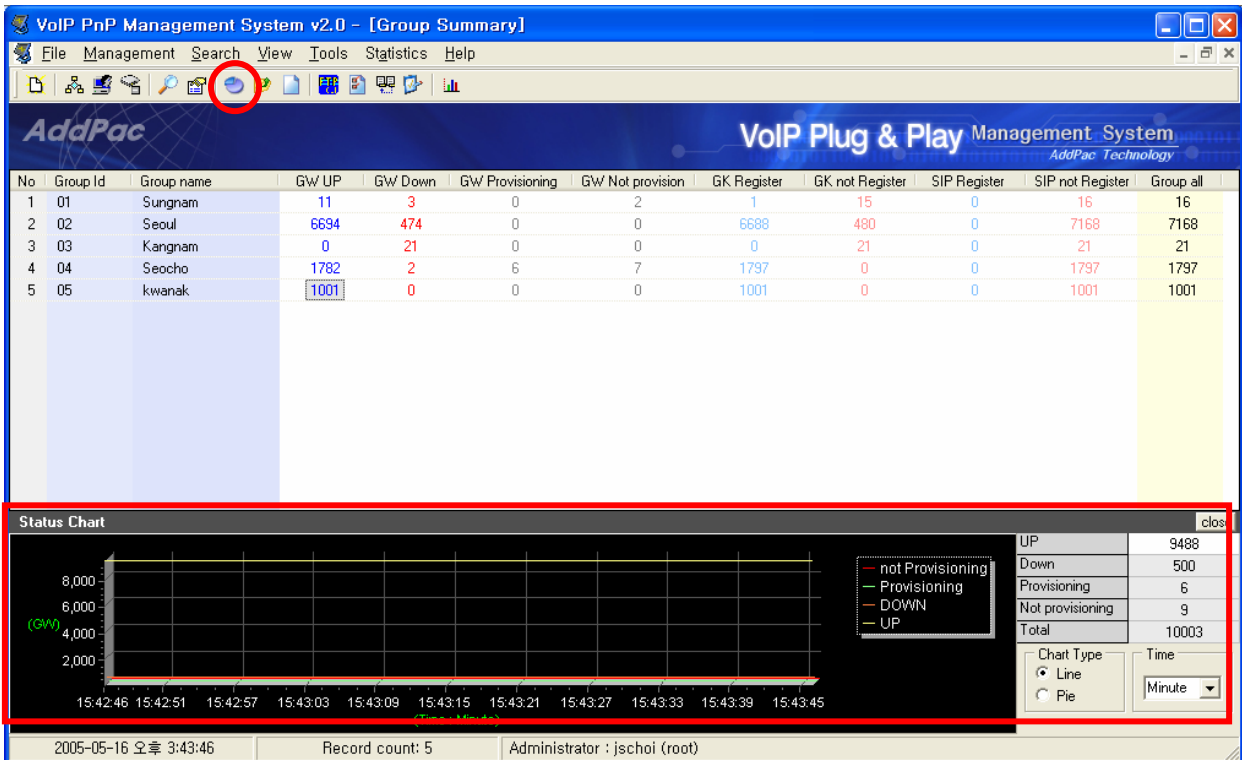


Figure 3-5 Status chart Screen

Status Chart displays Provision condition and interface condition of the gateway as a chart. Chart type Supported chart types are line and pie.

1) Line chart

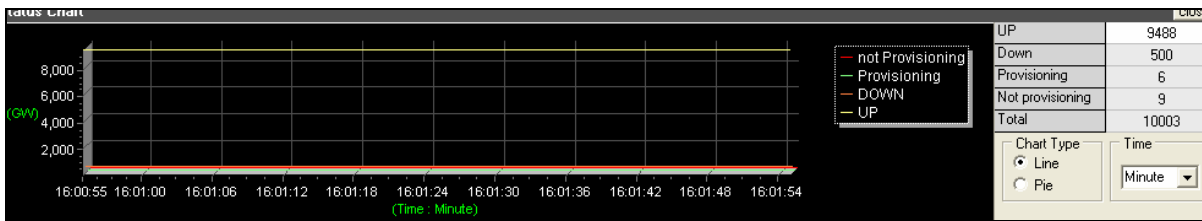


Figure 3-6 Line Graph

- By assigning time interval (Day, 12Hour, Hour, Minute), the gateway information during the time interval can be displayed. X is "Time" and Y is "Gateway".

2) Pie chart

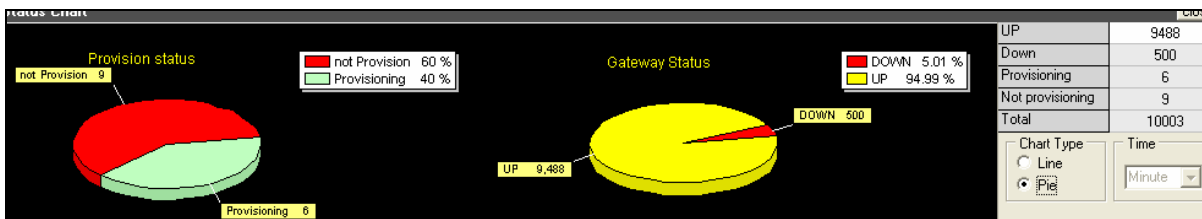


Figure 3-7 Pie Graph

- The above is the Pie chart showing the 4 different status with two graphs. The Legend shows the exact ratio of each status.

4. VPMS Function

4.1. Group Management

Group management makes possible managing the gateways by dividing certain groups. The registration, modification, deletion and search of a certain group are possible. Select [Management]> [Group] from the menu or click the icon as shown below.

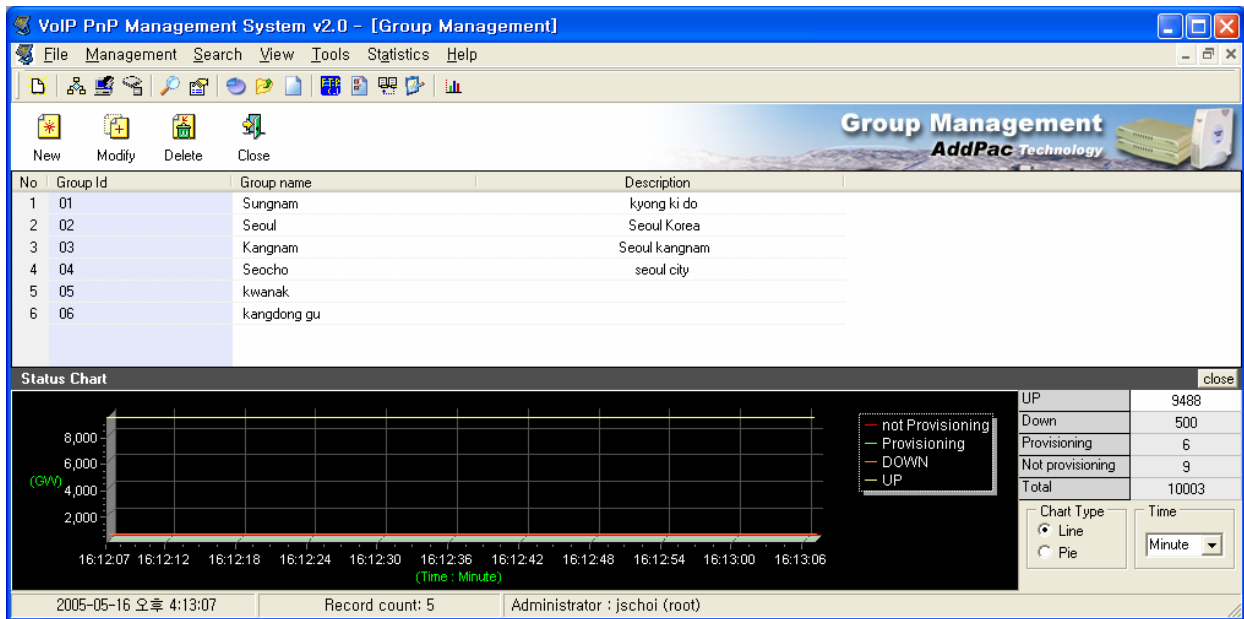
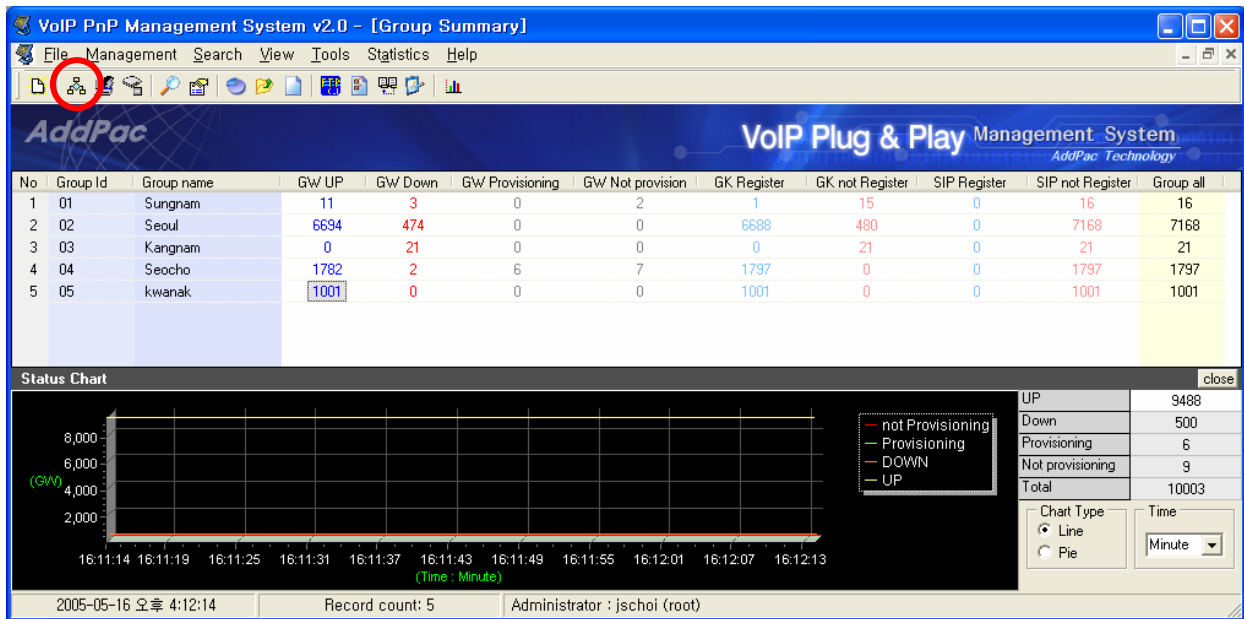
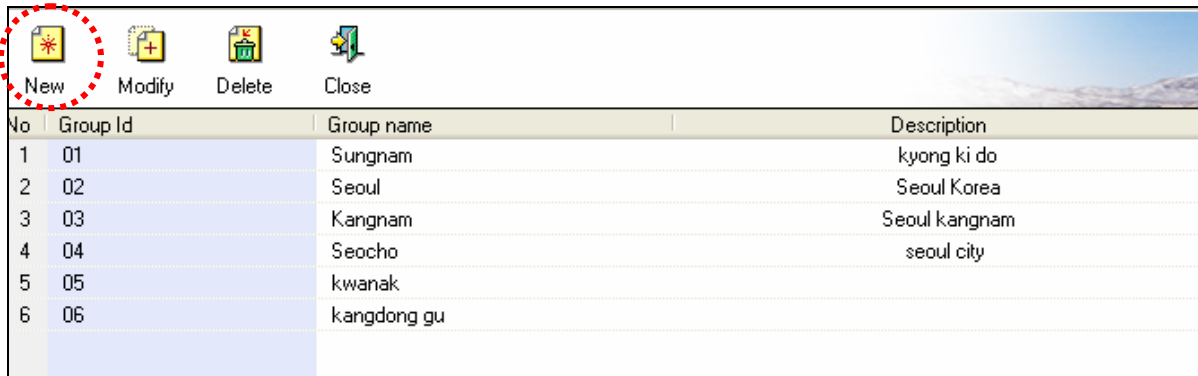


Figure 4-1 Group Management running screen

◆ Group management can be only accessed by **Administrator** account. .

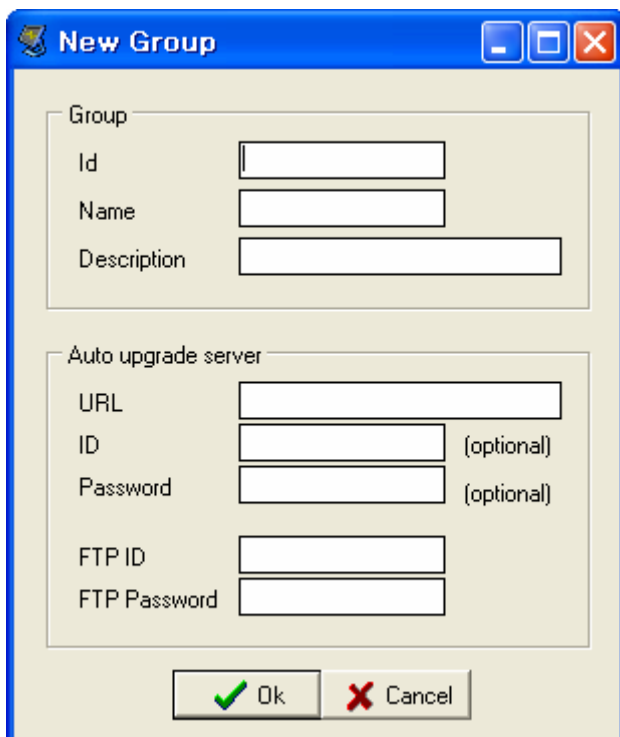
4.1.1. New Group

A new group can be registered. A new group code, group name and Auto-upgarde server information can be registered. Click “New” icon and “New Group” dialog box will be appeared.



No	Group Id	Group name	Description
1	01	Sungnam	kyong ki do
2	02	Seoul	Seoul Korea
3	03	Kangnam	Seoul kangnam
4	04	Seocho	seoul city
5	05	kwanak	
6	06	kangdong gu	

Figure 4-2 Add Group



New Group

Group

Id

Name

Description

Auto upgrade server

URL

ID (optional)

Password (optional)

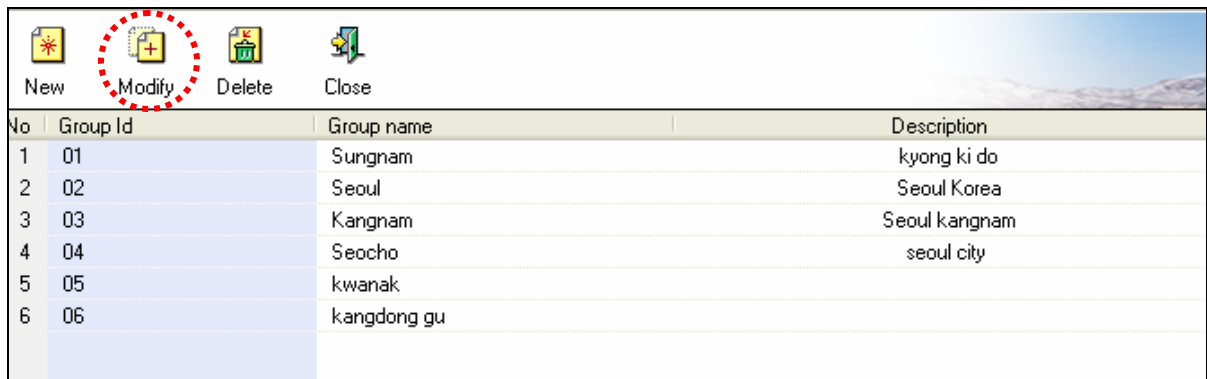
FTP ID

FTP Password

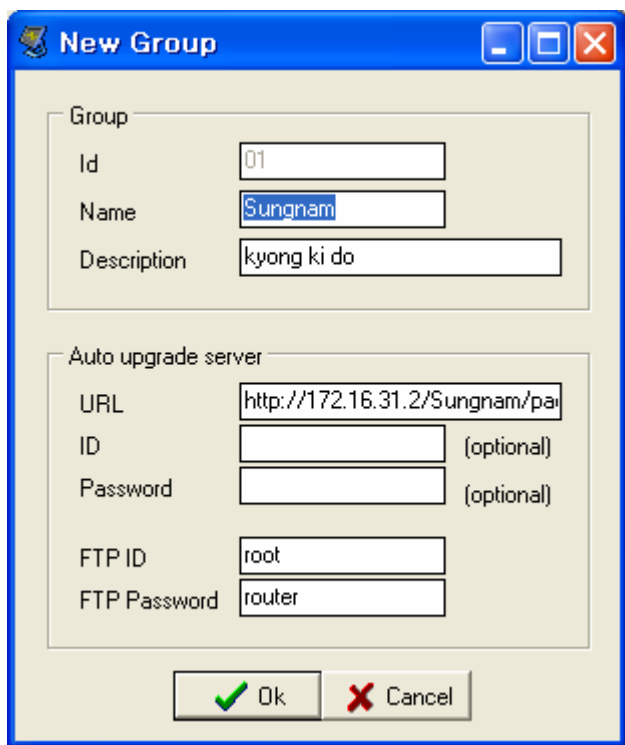
- **Id** : An unqiue code of a certain group
- **Name** : Enter the goup name.
- **Description** : Enter description on the group.
- **URL** : Enter the Auto-upgrade server URL of each group.
(EX: <http://172.1.1.10/group1/packing.lst>)
- **ID** : Enter the Web authentication ID.
- **Password** : Enter the Web authentication password.
- **FTP ID** : Enter FTP authentication ID.
- **FTP Password** : Enter FTP authentication password.

4.1.2. Group Modify

The group information and Auto-upgrade server of a certain group can be modified.



No	Group Id	Group name	Description
1	01	Sungnam	kyong ki do
2	02	Seoul	Seoul Korea
3	03	Kangnam	Seoul kangnam
4	04	Seocho	seoul city
5	05	kwanak	
6	06	kangdong gu	



New Group

Group

Id:

Name:

Description:

Auto upgrade server

URL:

ID: (optional)

Password: (optional)

FTP ID:

FTP Password:

Figure 4-3 Modify Group Screen

4.1.3. Group Delete

It deletes a group code. Selects a group and click “Delete” button.

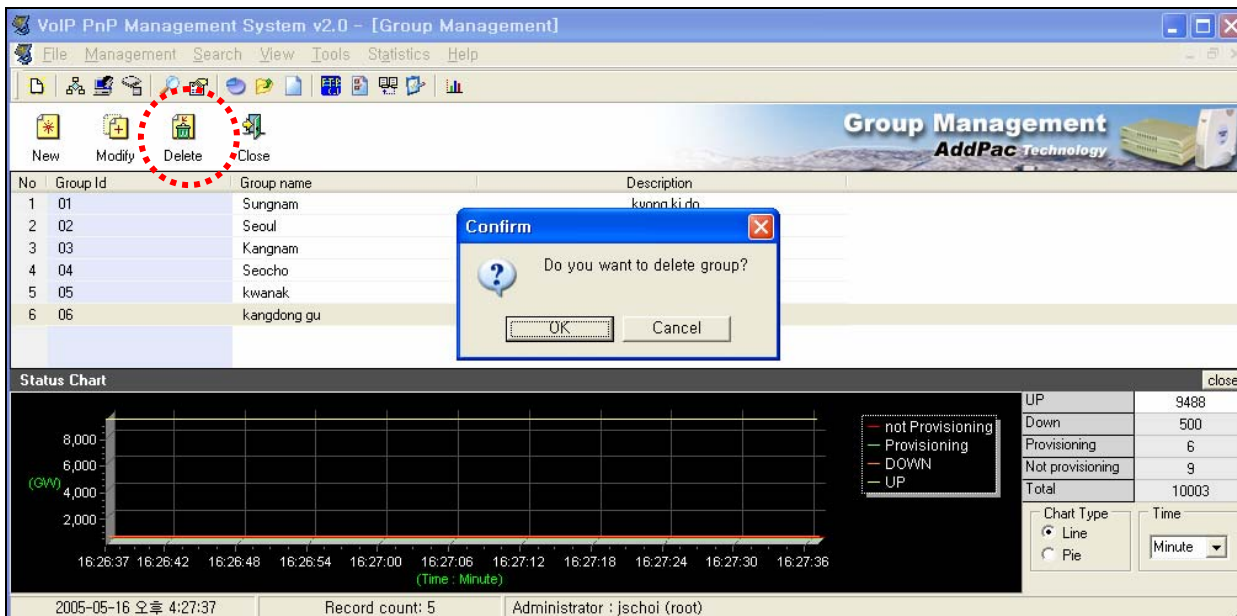


Figure 4-4 Group Delete Screen 1

◆ There is possibility that every gateway which is contained in Group can be deleted. Operator must be careful with this function.

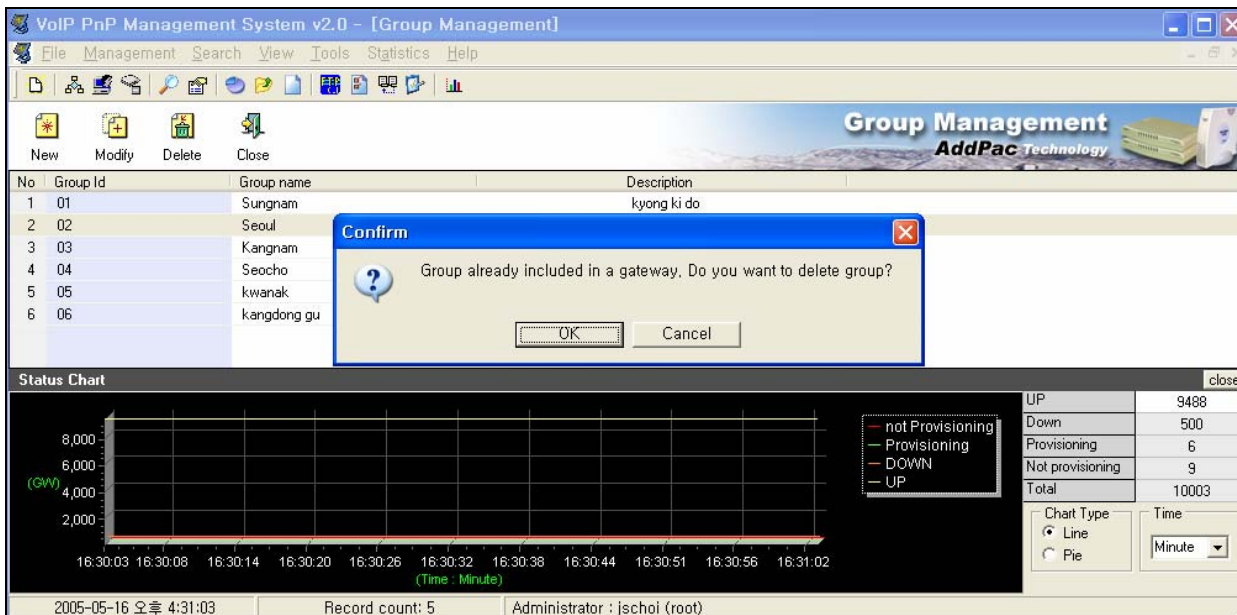


Figure 4-5 Group Delete Screen 2

4.2. Gateway management

Gateway management offers registration, modification, deletion and search of gateway users.

- ◆ User can enter each group's gateway management screen is provided by Group summary.

4.2.1. New Gateway

A new user can be registered. The necessary information includes brief user information, MAC address of gateway and other related information.

Click New gateway button in initial screen or choose New gateway in main menu to register Gateways. Operator can register new gateways by selecting New button in Gateway management of group management.

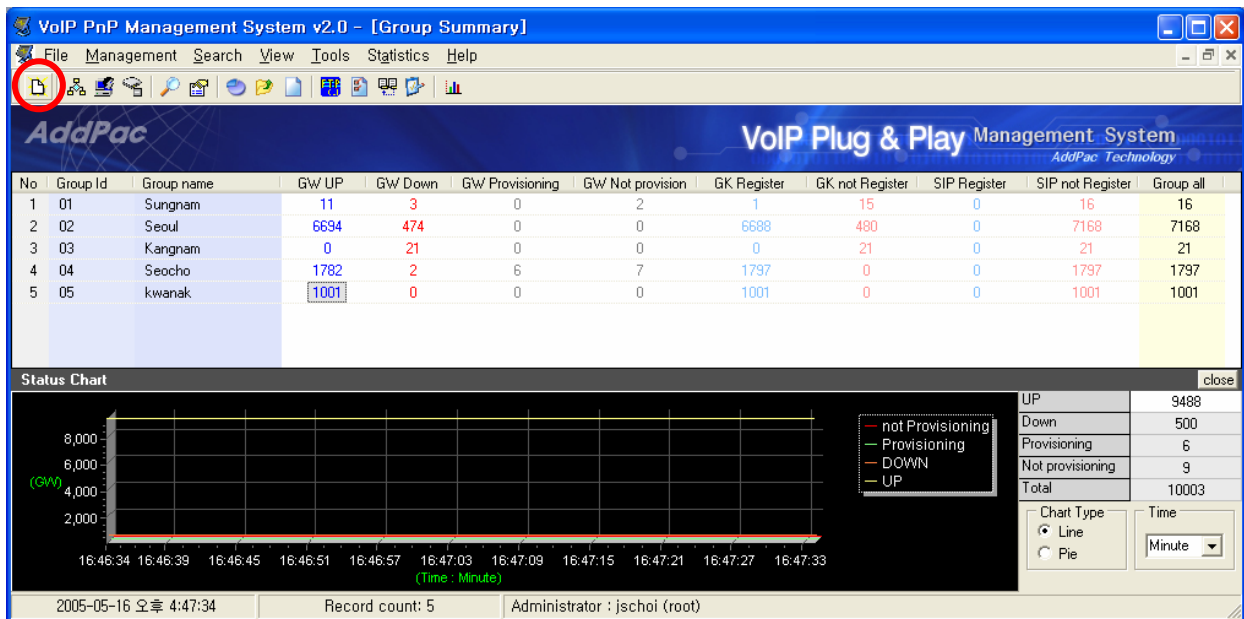


Figure 4-6 Gateway Registration

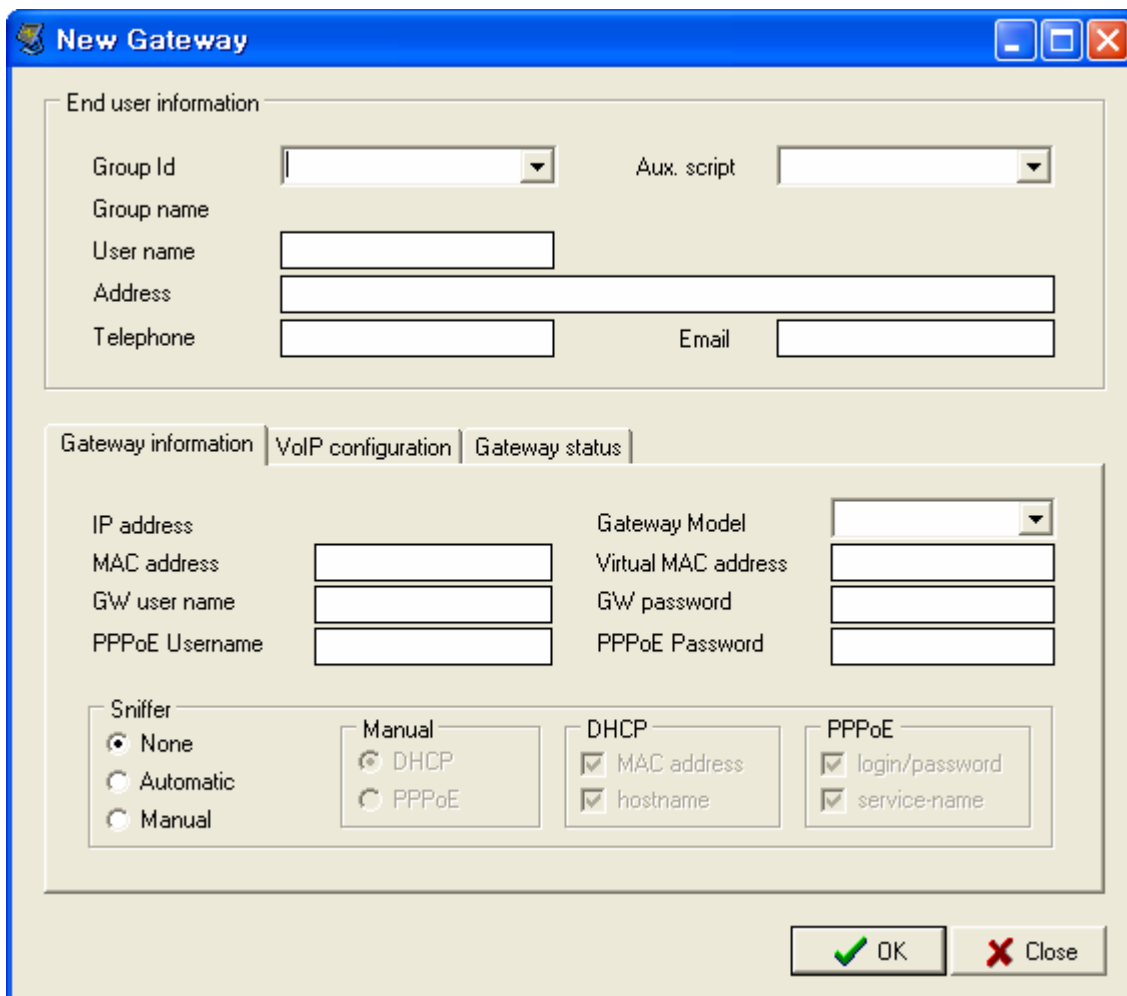


Figure 4-7 Gateway Registration Screen

Field	Description	Option
Group ID	Choose Group Code	Required
Aux.script	Choose Aux.script	Optional
User name	Enter user name	Required
Telephone	Enter telephone number	Optional
Address	Enter address	Optional
Email	Enter e-mail address	Optional
Model	Choose gateway model (Modify the number of slot/port according to model)	Required
MAC address	Enter MAC address	Required
Virtual Mac address	Enter virtual MAC address	Optional
GW username, password	Set gateway's alias	Optional
PPPoE username, password	Configure gateway PPPoE setting	Optional
Sniffer	Set gateway sniffer (none, automatic, manual)	Optional
H.323Id, password	Set H.323 info for subscriber	Optional
SIP username, password	Set SIP info for subscriber	Optional
Dial-peer configuration	Set dial-peer info for subscriber (destination-pattern, username, password)	Optional

图 4-1 Description of gateway registration fields

4.2.2. Modify Gateway

The user and gateway information can be modified.

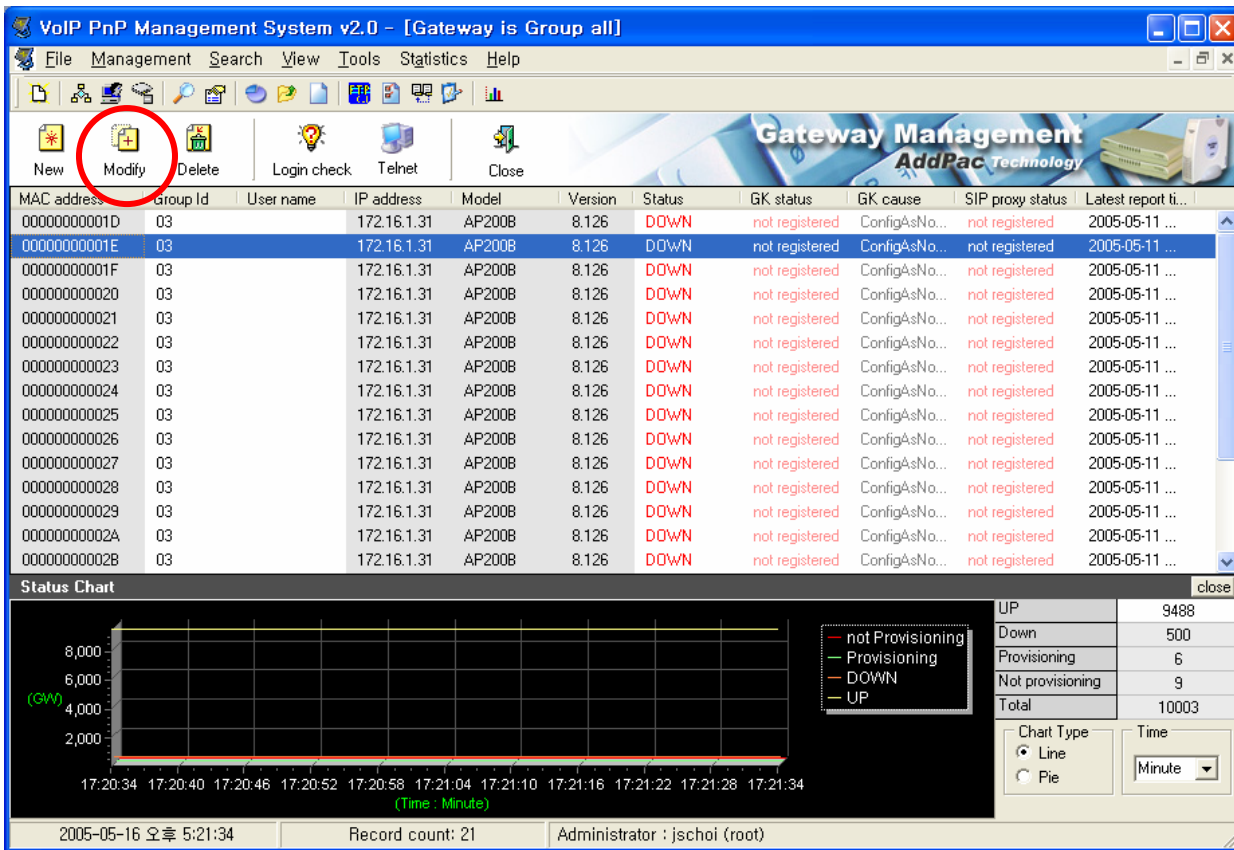


Figure 4-8 Modify Gateway

Select the gateway to be modified, click Modify button or choose Modify on pull down menu.

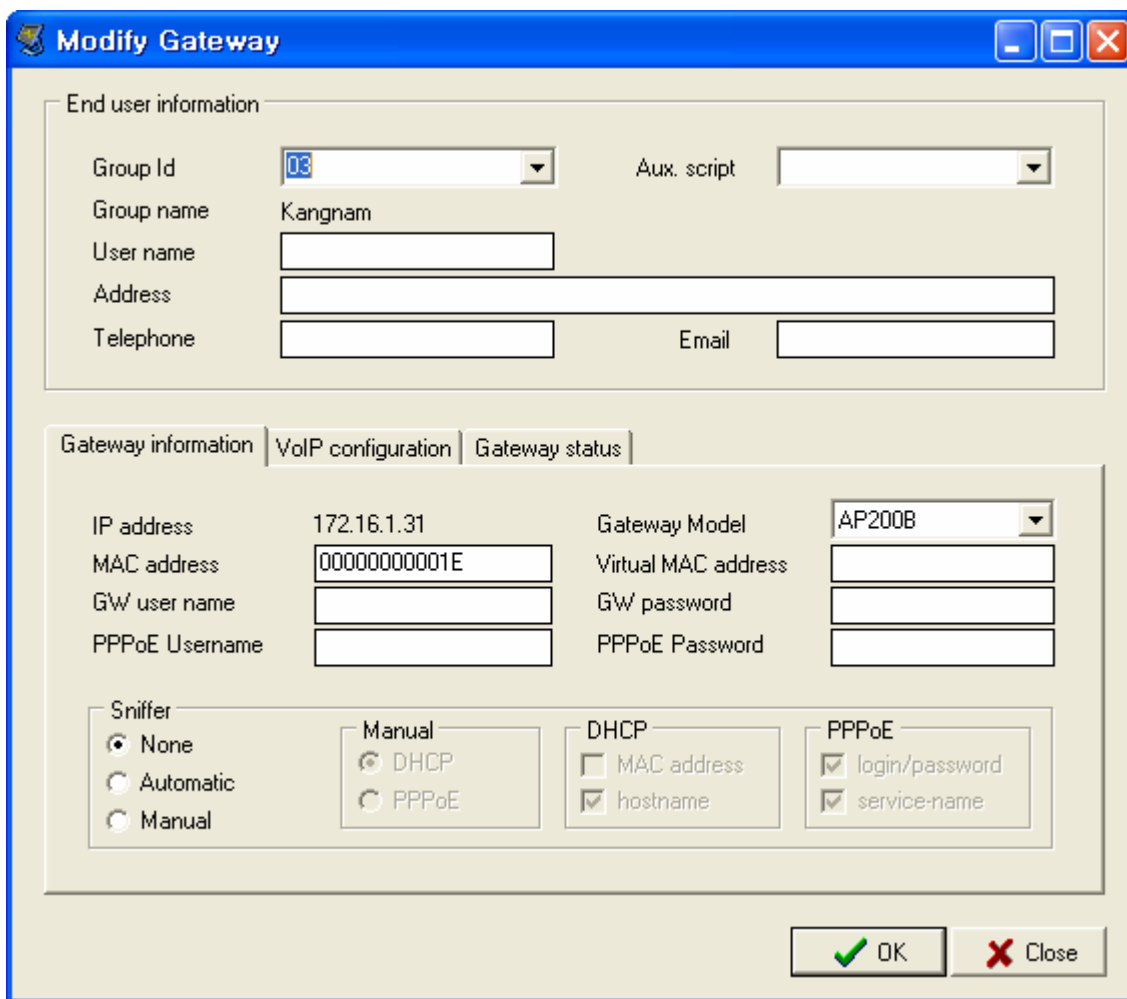


Figure 4-9 Modify Gateway Setting

If the status of registered gateway is “UP”, When modified, new setting can be transmitted to the gateway. If the gateway is not accessible, setting cannot be modified.

◆ **Warning:** Before using VPMS, operator configures gateway setting with CLI, the setting(ex. voice-port) is revised with the VPMS setting.

4.2.3. Gateway Delete

Select a user and click “Delete” button to delete the user.

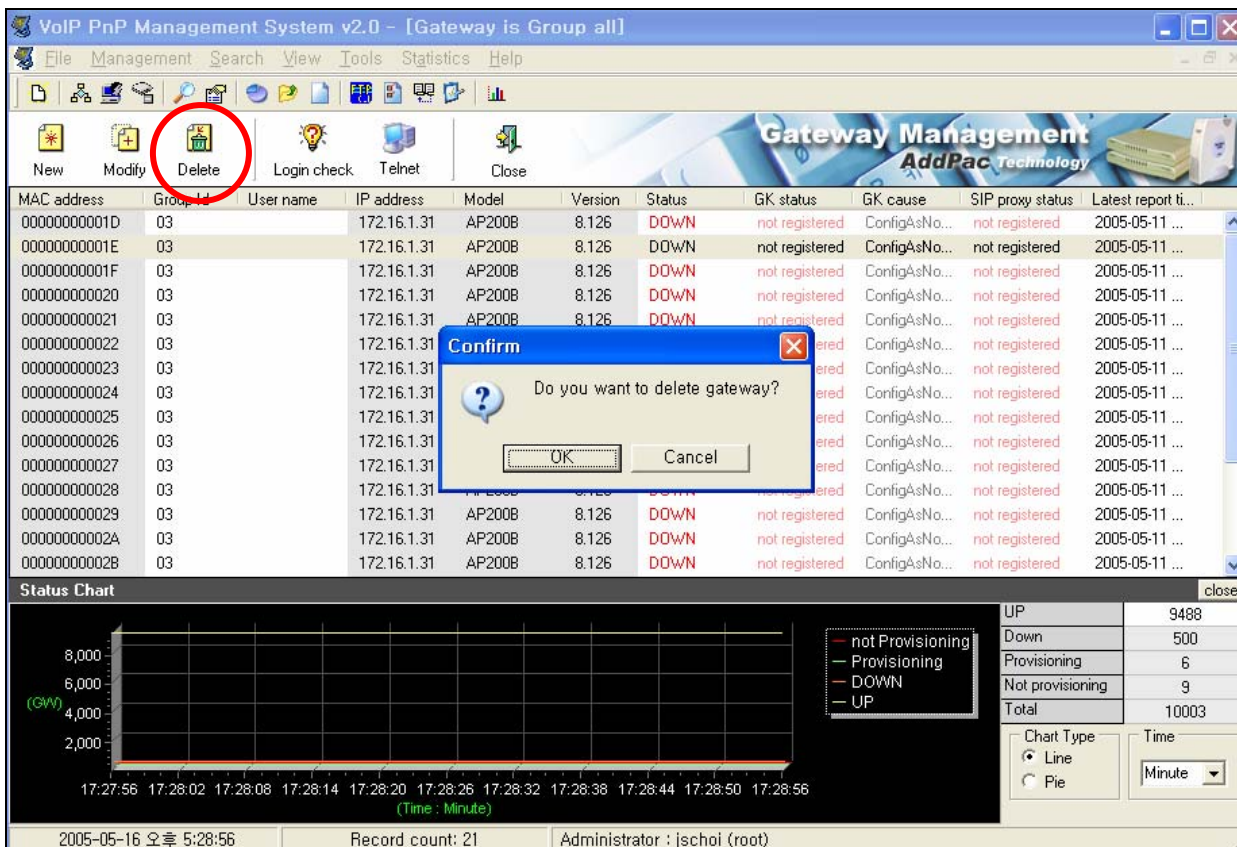


Figure 4-10 Delete Gateway

4.2.4. login Check

Through this function, operator can check if there is no problem with login to a gateway and subscriber' username and passwod. Click Login check button to use.

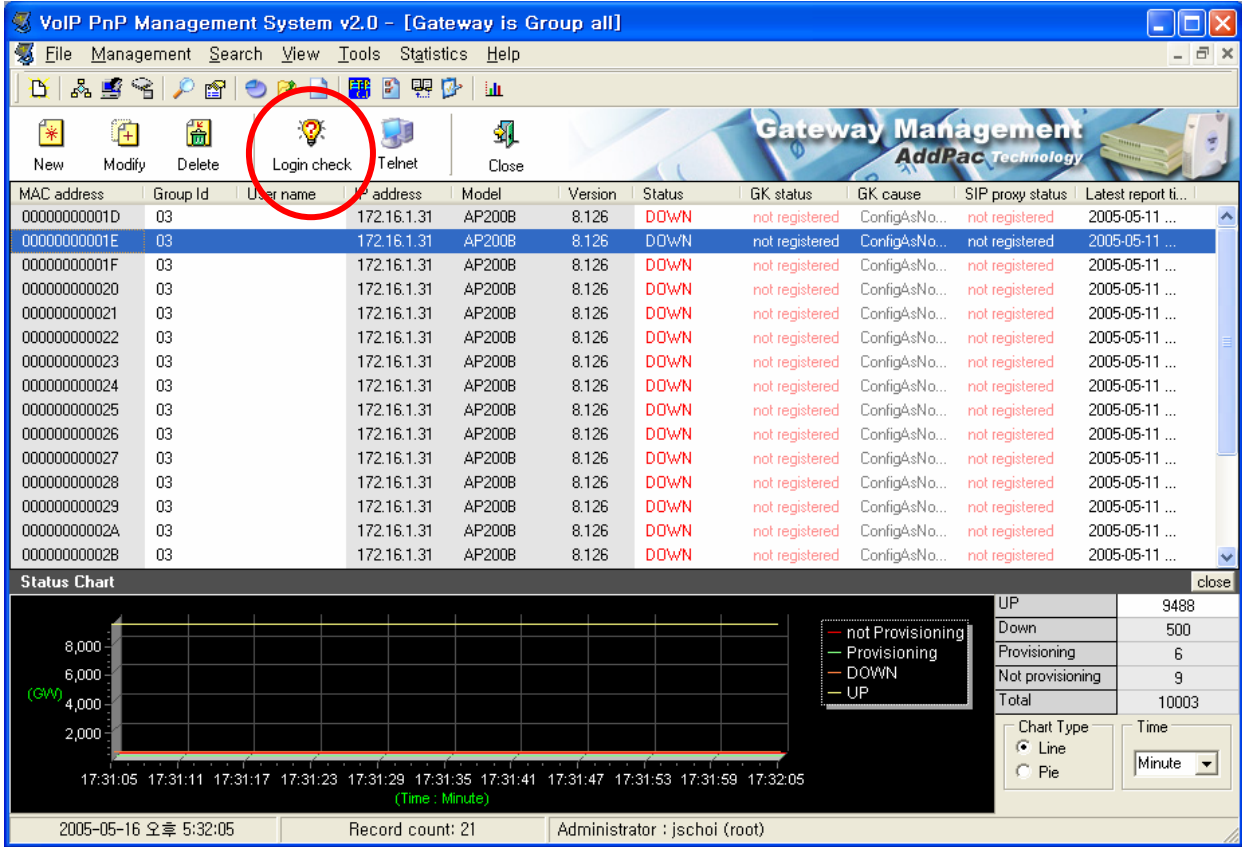
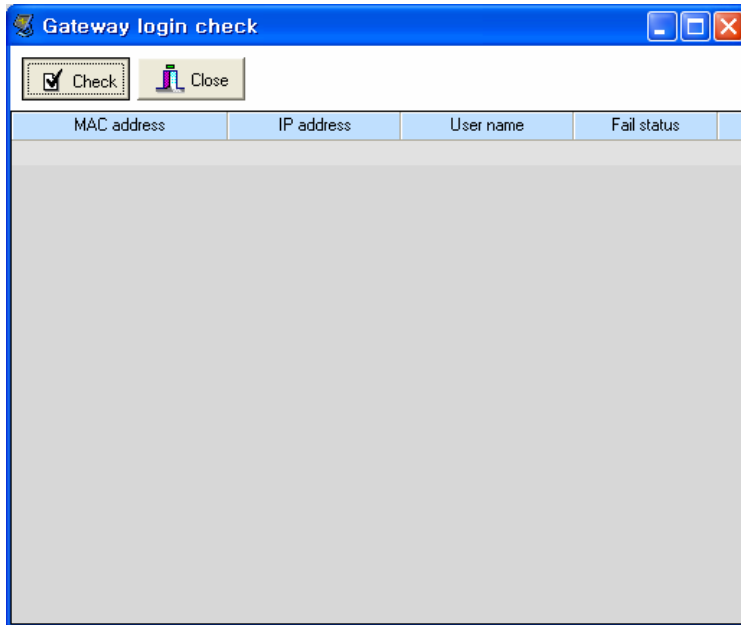


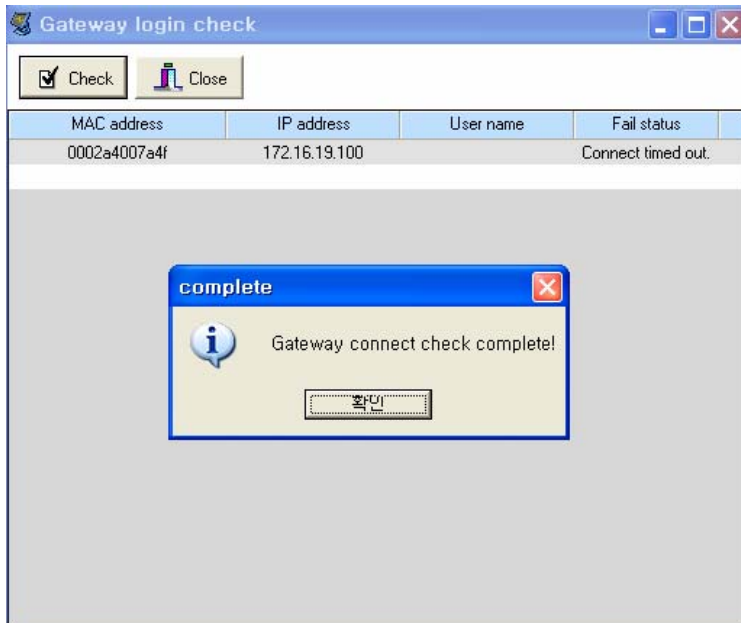
Figure 4-11 Gateway Login Check

- ◆ Only gateways of which status is up can be checked by login check function.

Click Check button to proceed login check for registered user gateway.



If there are gateways which users cannot log in to, connection status and user information are displayed.



4.2.5. Telnet

With Telenet, the operator can access to the user's gateway and diagnosis the gateway condition.

After selecting a user and click "Telnet" button to access to the gateway. If the user status is "Down", the remote access is impossible. Also, Tera term program should be installed at the gateway for the remote access.

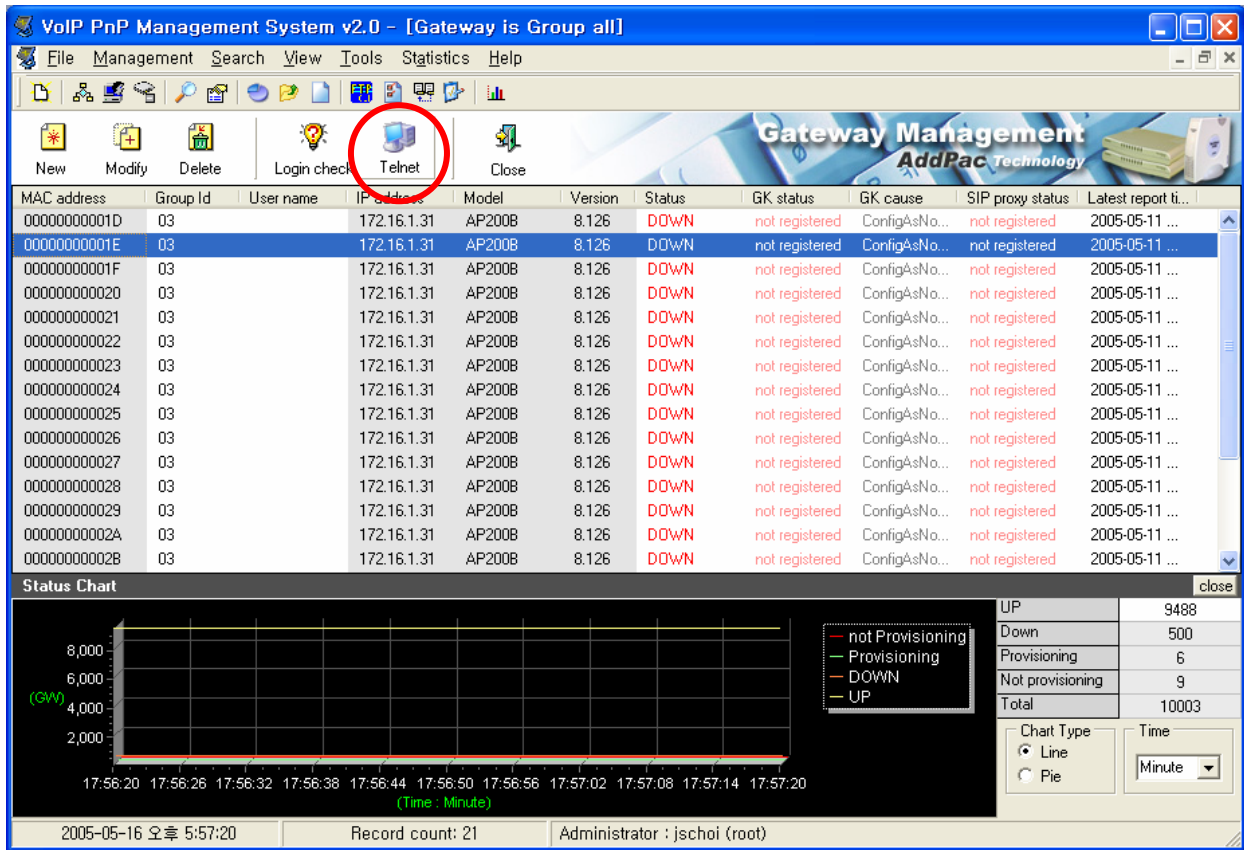


Figure 4-12 Telnet connection screen

At the initial access, set Teraterm program directory.

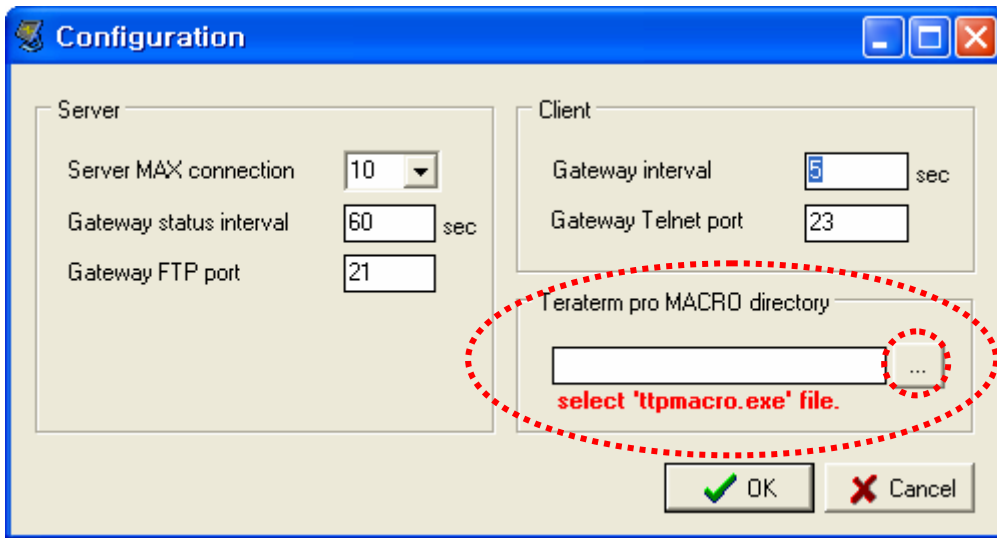
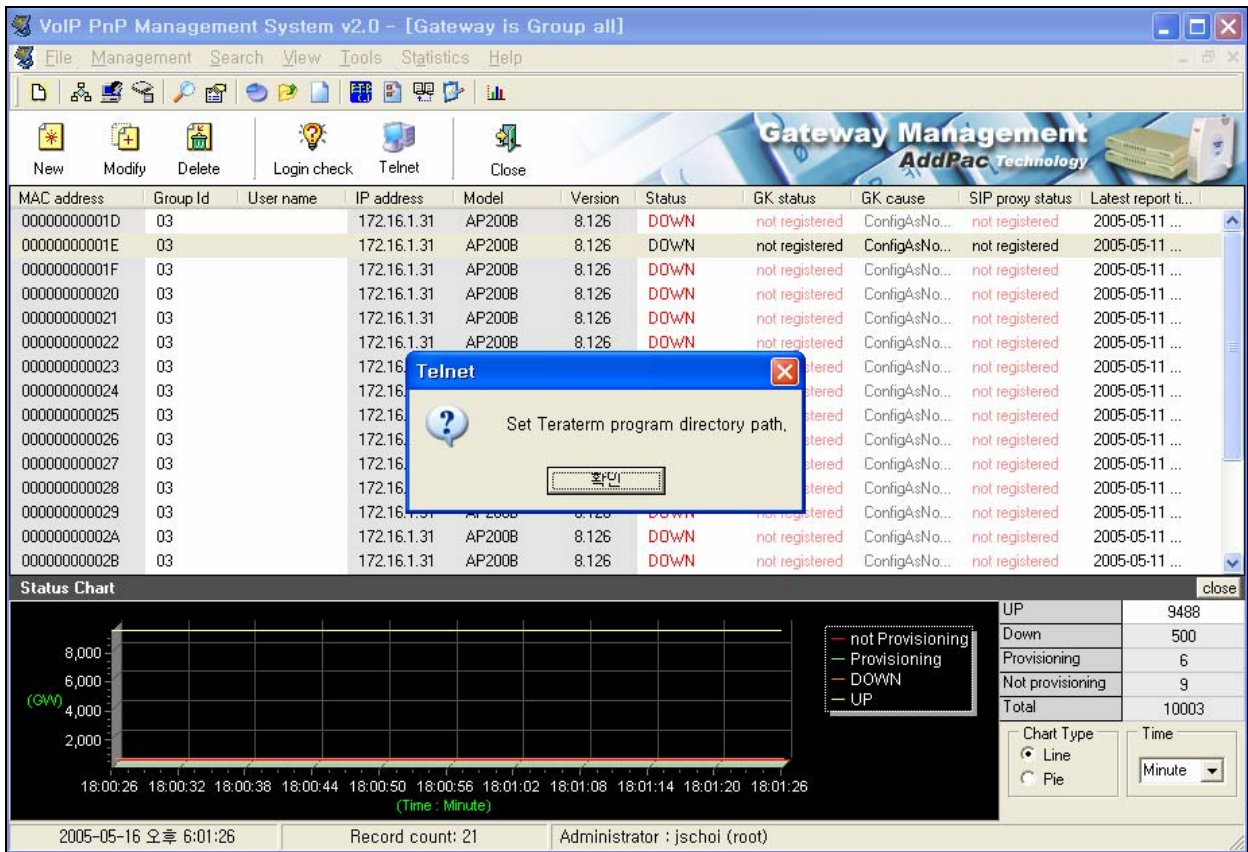


Figure 4-13 Teraterm macro path configuration

The above shows the section to set Tera term macro program path. Click “...” button and select the path where the program (ttpmacro.exe) is located.

Select Macro file and the path will be added as shown below.

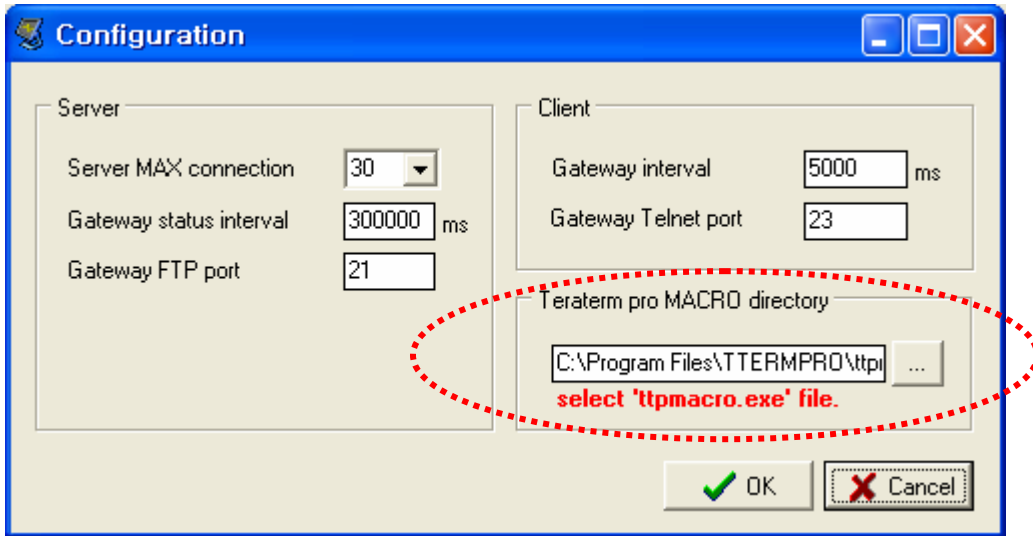


Figure 4-14 Teraterm macro path configuration 2

After the configuration, Click “Telnet” button. The login and gateway running config will be displayed automatically.

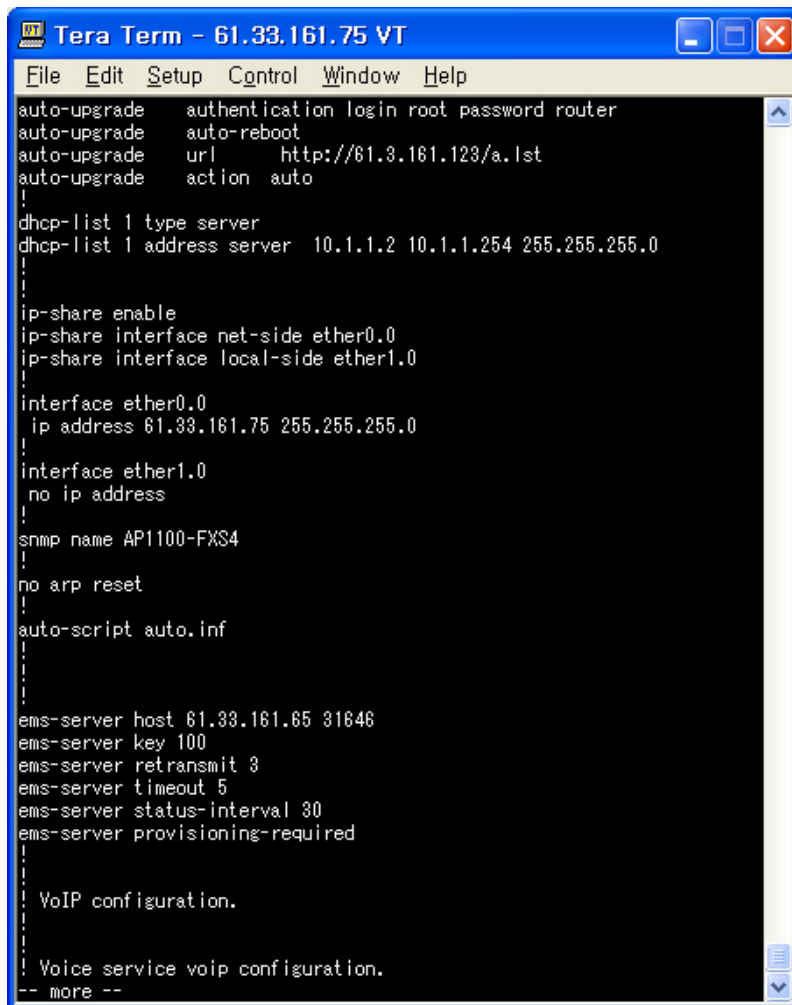


Figure 4-15 Remote telnet connection using Teraterm

4.3. Operator Management

Operator management makes possible registration, modification and deletion of VPMS operators. Select [Management]> [Operator] from the menu or click the icon.

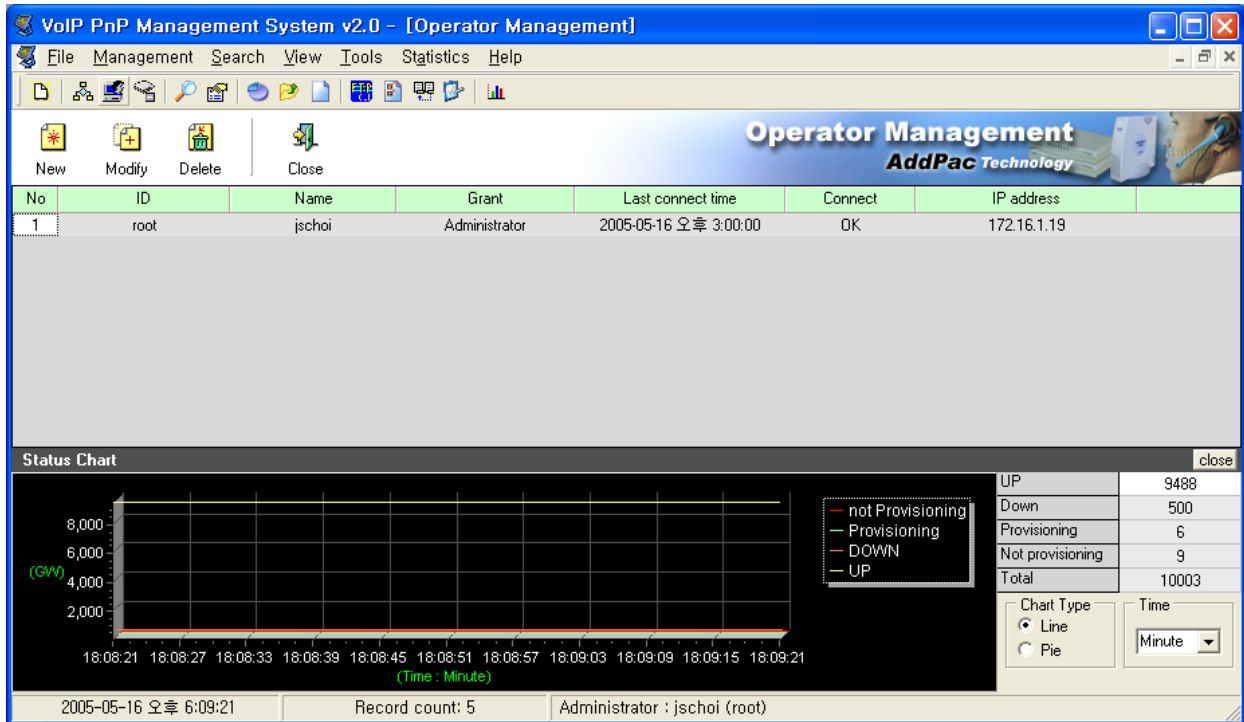
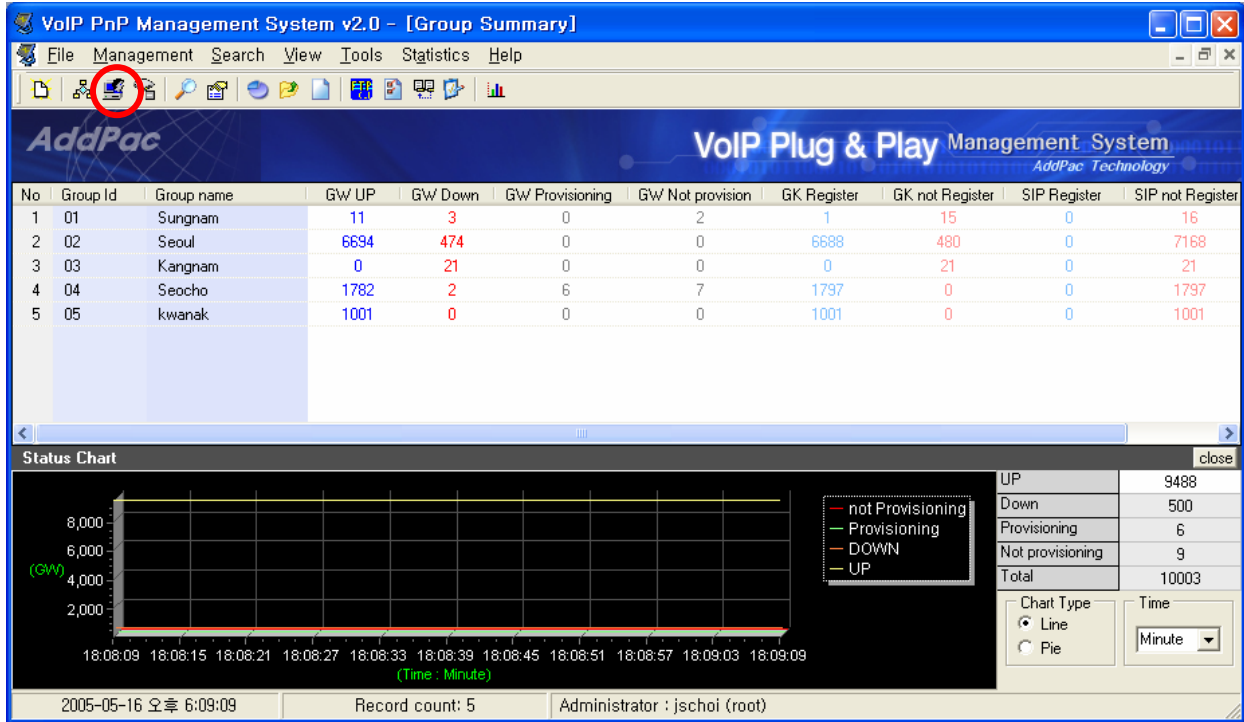
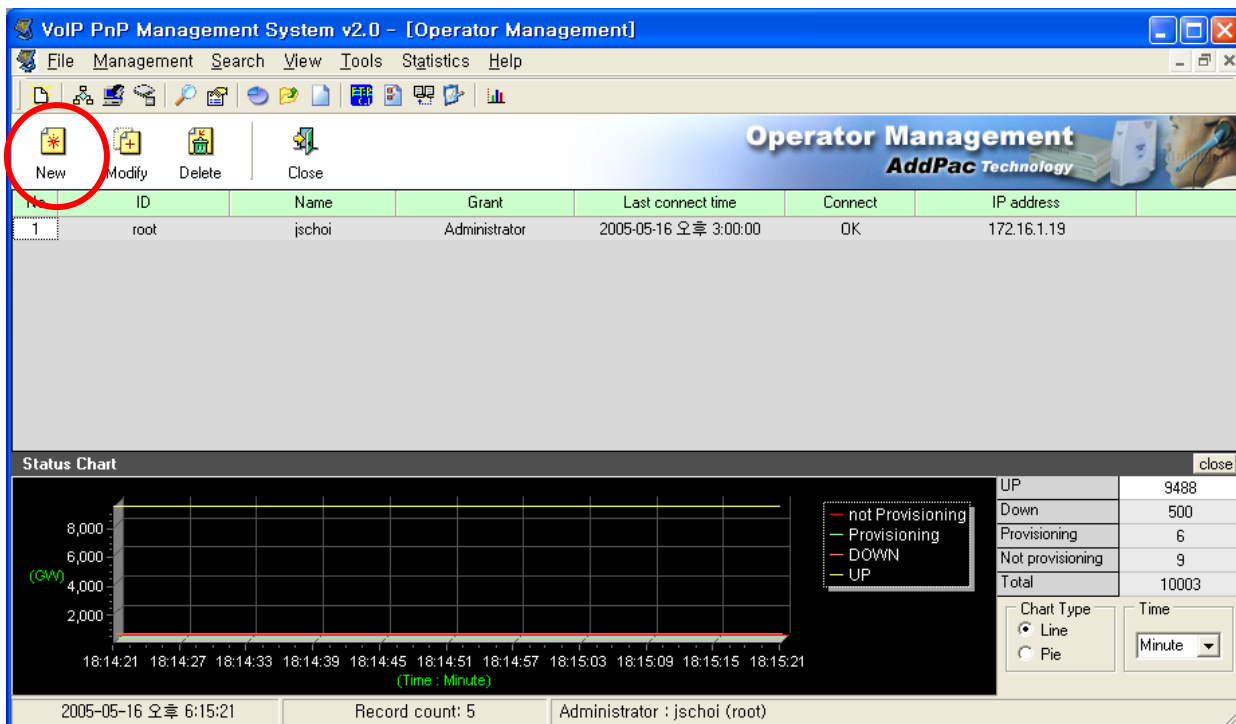


Figure 4-16 Operator management

4.3.1. New Operator

- A new VPMS operator can be registered. The operator ID, password and grant level are configured. Click “New” icon to display “New Operator” window.



- Operator ID : Enter the unique VPMS operator ID.
- Password : Ente the operator password.
- Name : Enter the operator name.
- Grant : Enter the operator level.
- Last connect time: operator last connect time.

The below chart shows the operator grant level and granted functions.

Level \ Functions	Administrator	Power User	General User
Gateway	O	O	△ (only view)
Group	O	X	X
Operator	O	X	X
Upgrade info	O	O	O
Event log info	O	X	X
Search	O	O	O
Search user define	O	O	O
FTP upload	O	O	X
Auto script	O	O	X
Gateway Status	O	O	O
Gateway Statistics	O	O	O

- ◆ Administrator is the operator permitted with all the functions and only one Administrator can access at a time. Operators of other levels can access at the same time.

4.3.2. Operator Modification

The operator information and grant level can be modified.

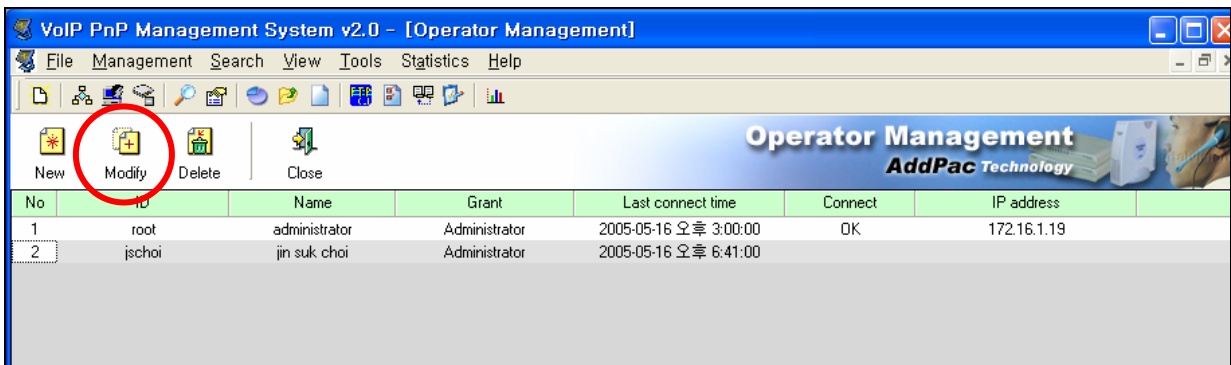


Figure 4-17 Modify Operator



Figure 4-18 Modify Operator

Click “Modify” button from the Operator management window. Then, above “Modify Operator” dialog box will be appeared.

4.3.3. Operator Delete

An operator can be deleted. Select an operator and click “Delete” button.

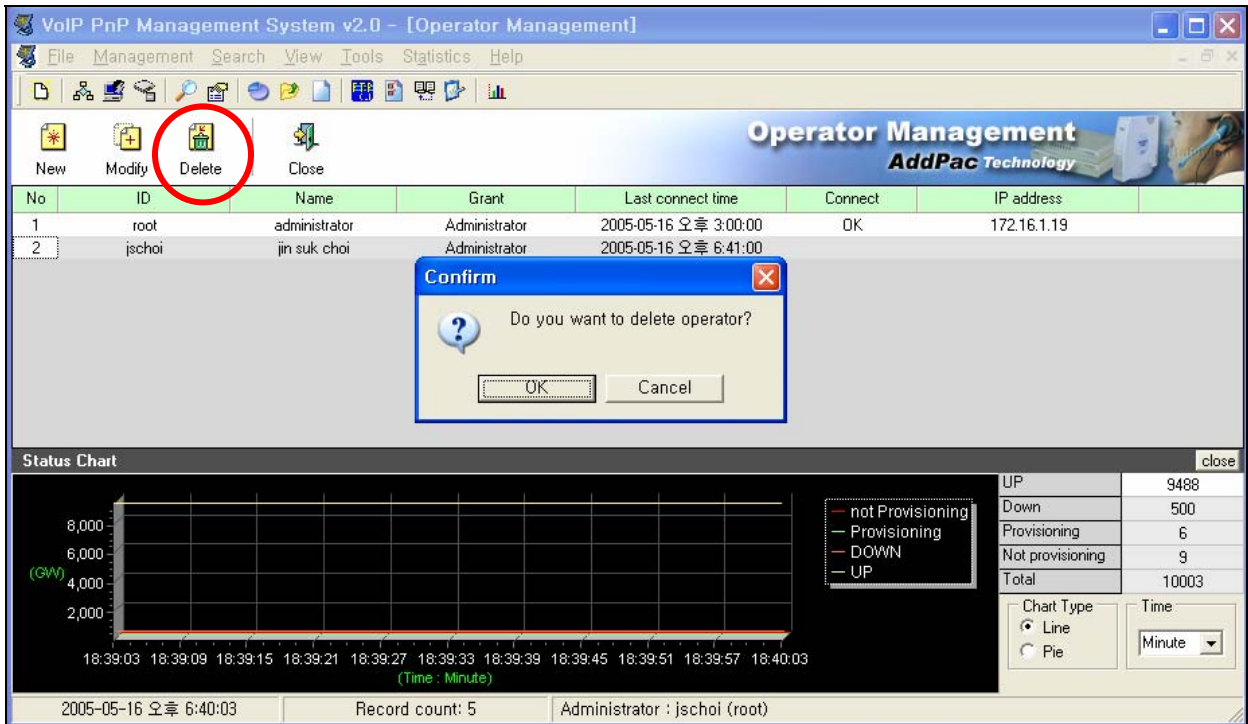


Figure 4-19 Delete Operator

4.4. Model Management

Operator can register gateway model and manage through VPMS with Model Management function. Choose Management>Gateway Model in initial screen or Click the button for Model Management to proceed.

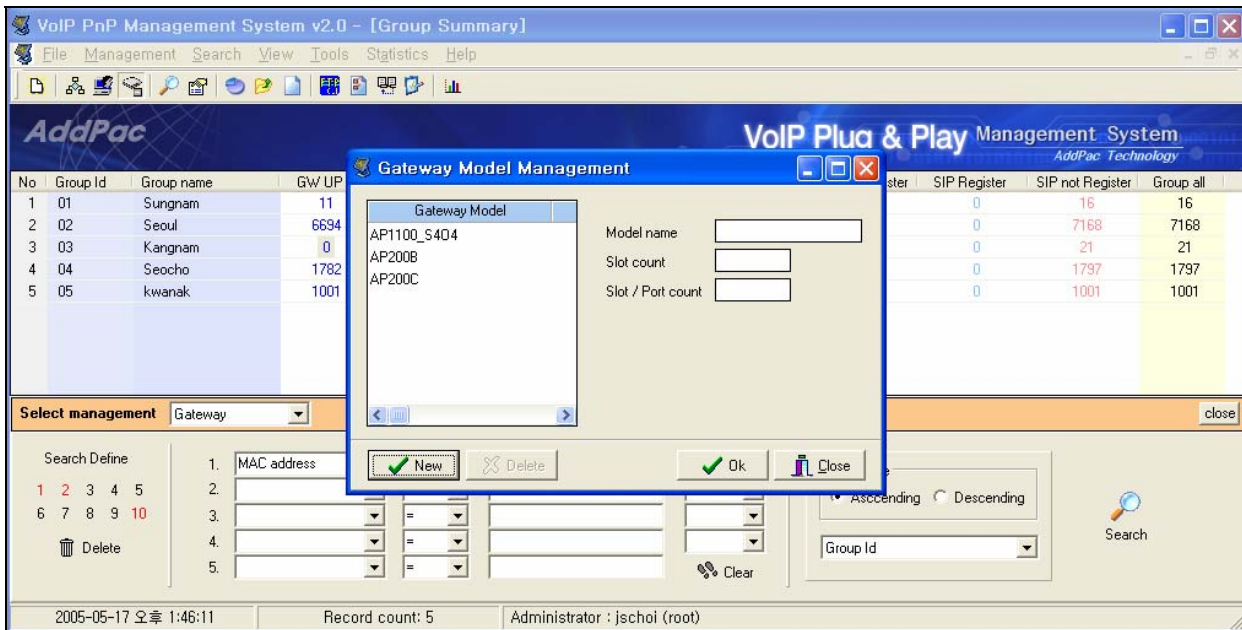
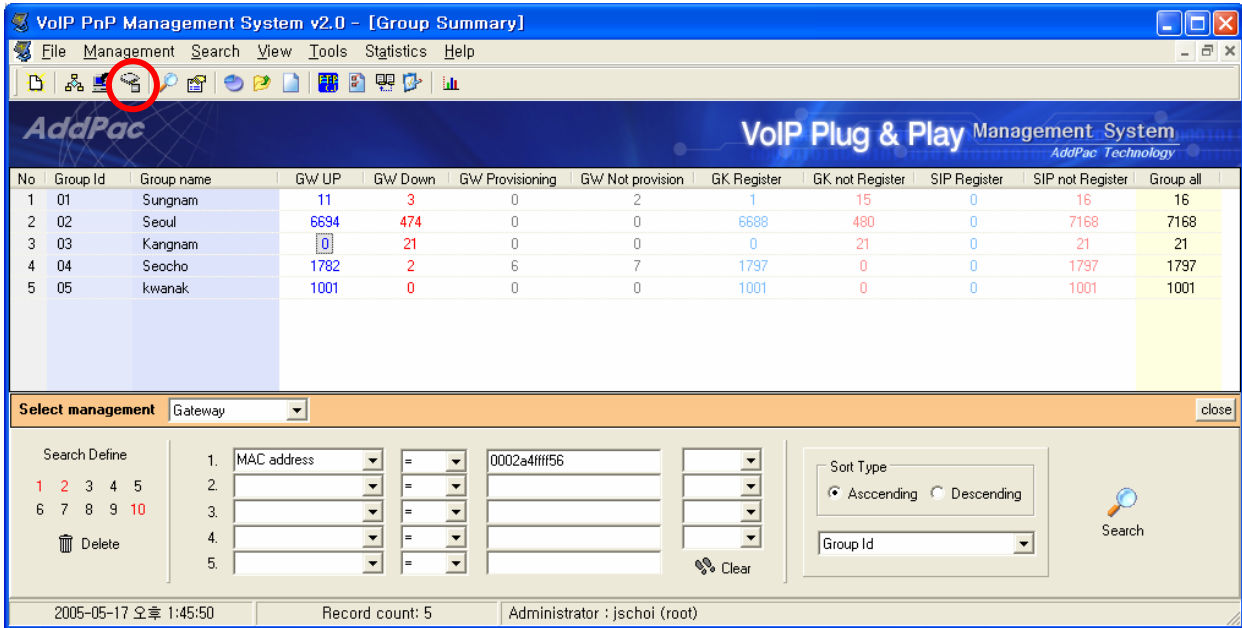


Figure 4-20 Model Management Screen

4.4.1. Register Gateway Model

Two models, AP1100_S404, AP200B are registered as a default setting. Operator can register other models. Choose new button and register data(model name, number of slots, number of ports) in the field.

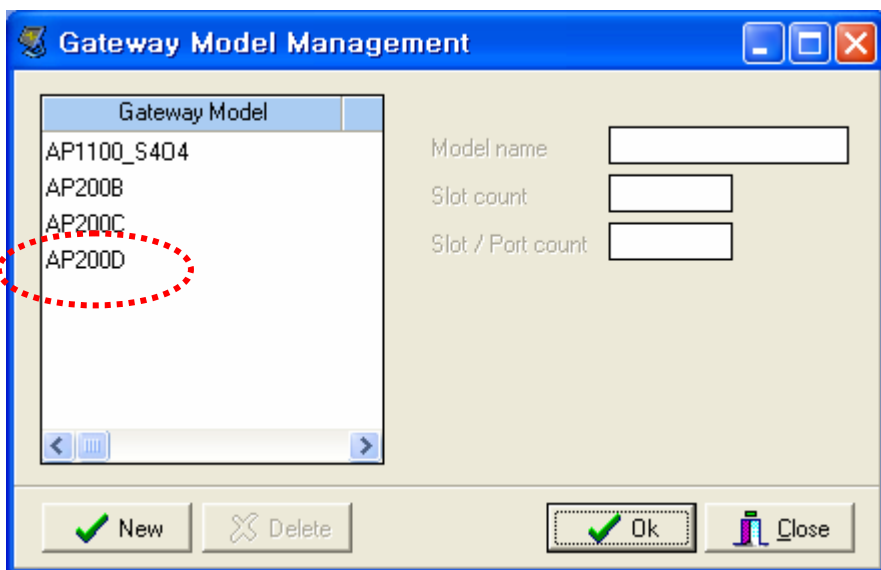
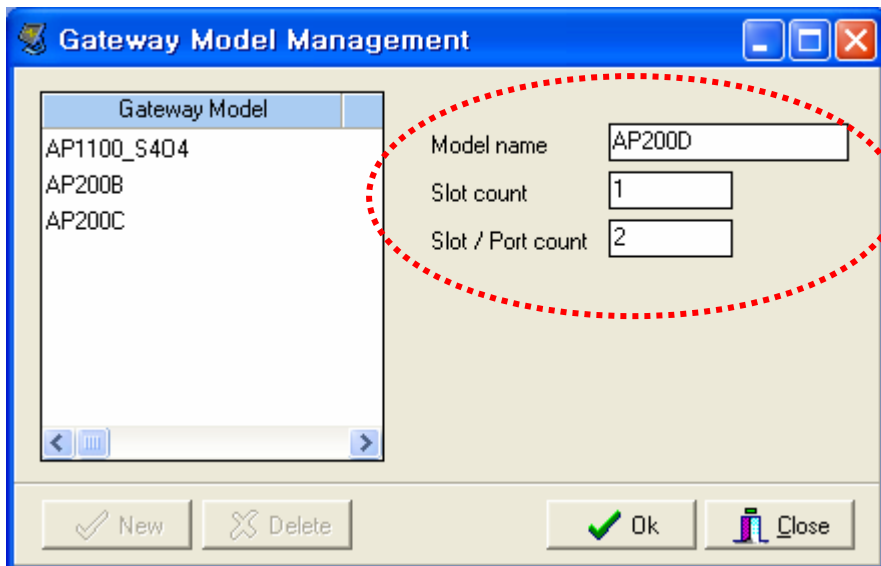


Figure 4-21 Gateway model register screen

4.4.2. Model Modification

Choose a gateway model which is needed to be modified, modify information and click OK.

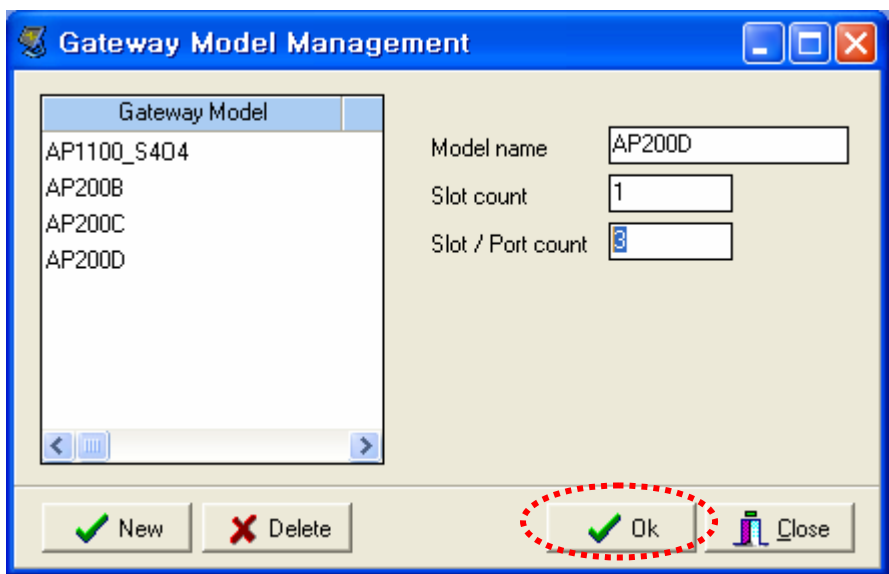
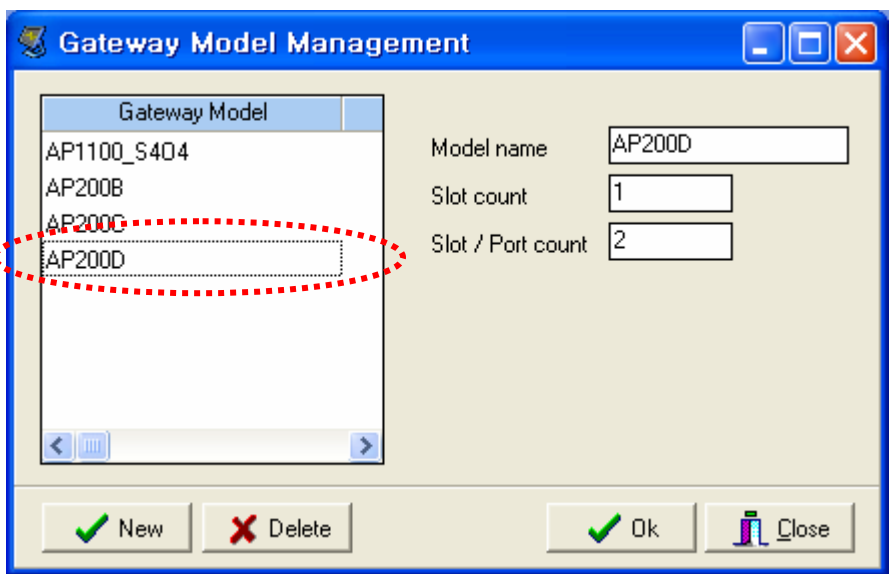


Figure 4-22 Gateway Model Modification

4.4.3. Delete Gateway Model

Choose model which is needed to be deleted. Click Delete button to delete model.

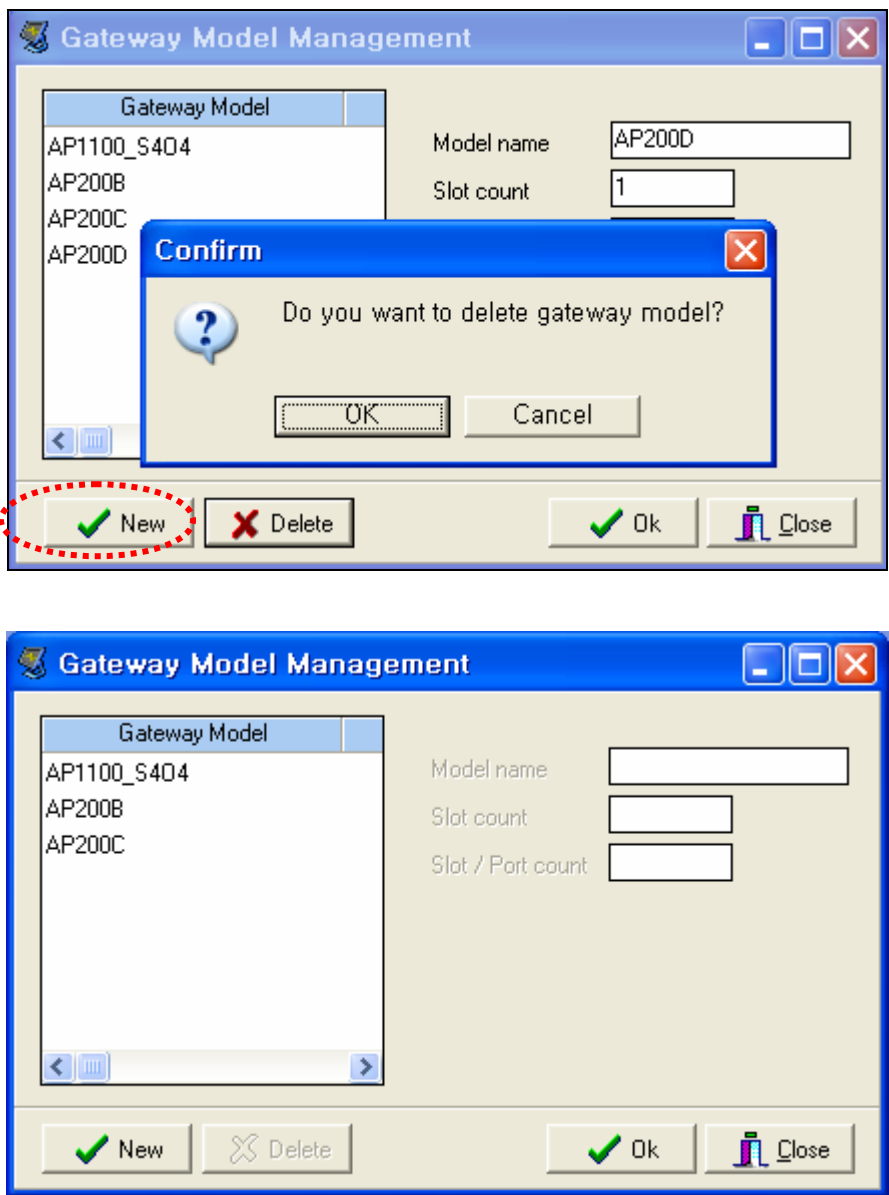


Figure 4-23 Delete Gateway Model

4.5. Search

A desired item of each function can be searched. Click “Search” button as shown below and Gateway Search window is appeared.

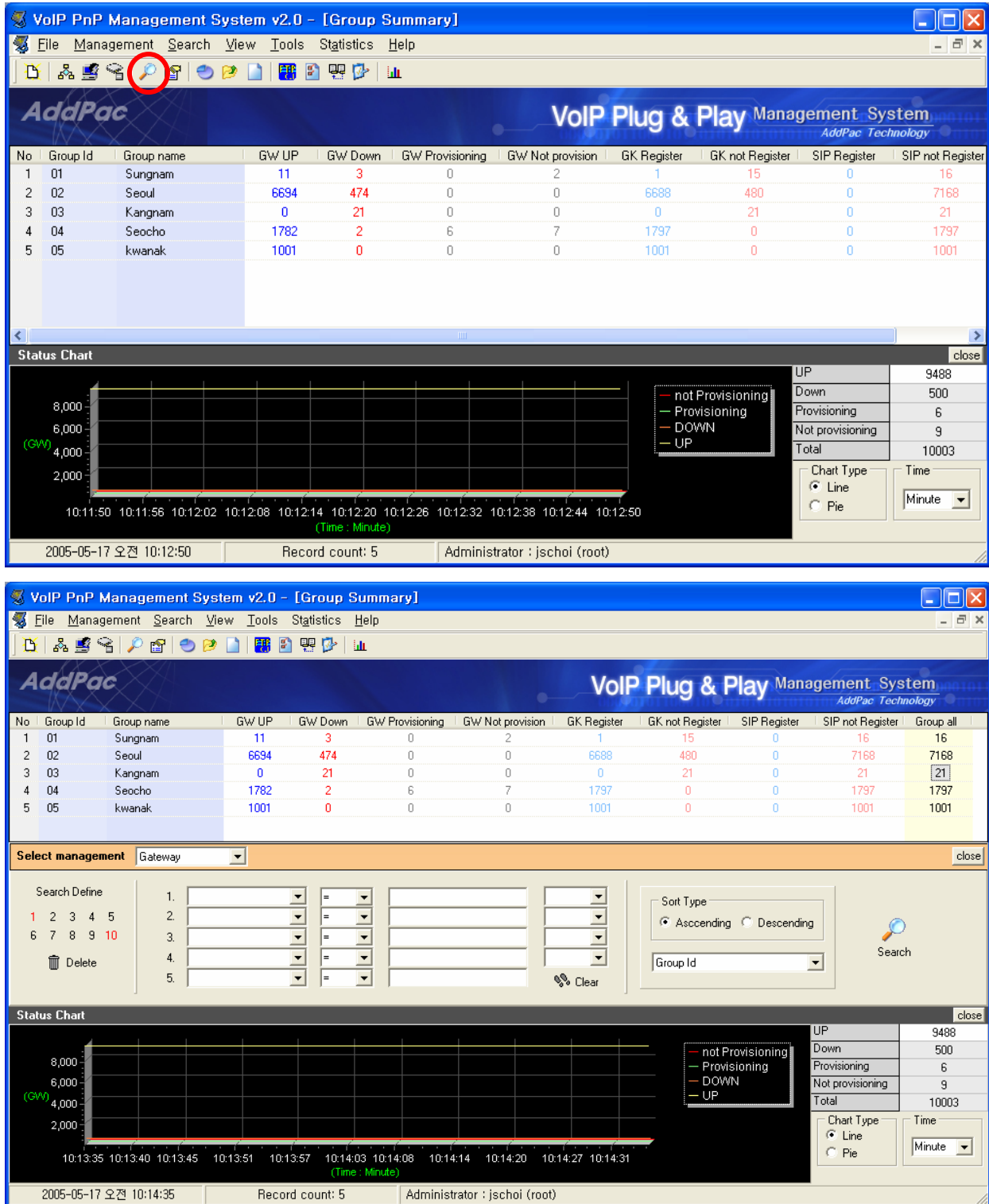


Figure 4-24 Run Search

4.5.1. Enter Search Keyword

Functions can be searched separately(gateway, upgrade info, event log). Also. Max. 5 search terms can be used.

The first field shows each function. The second field shows conditional sentences such as “=, >, <, >=, <= “. The third field is entered by the user. The fourth field consists of “OR and AND” showing whether all the search terms should be satisfied or only one search terms is required.

Operator can initialize search terms by using Clear button. Next chapter(Operator Define query) provides details on Search Define function.

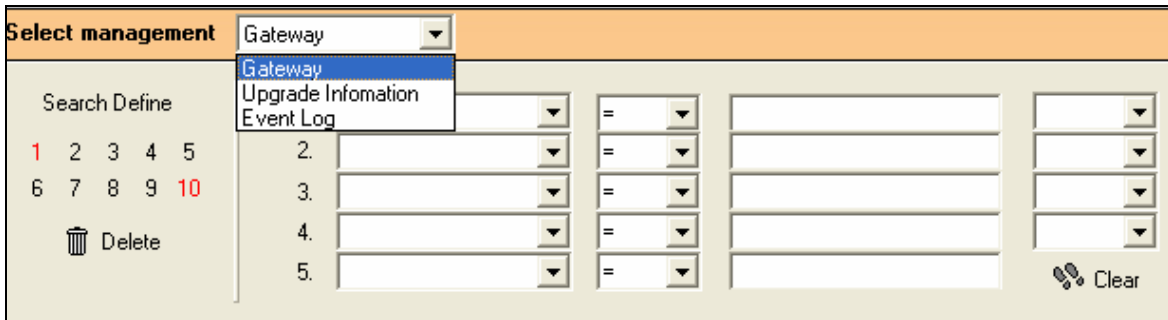


Figure 4-25 Set Search Terms

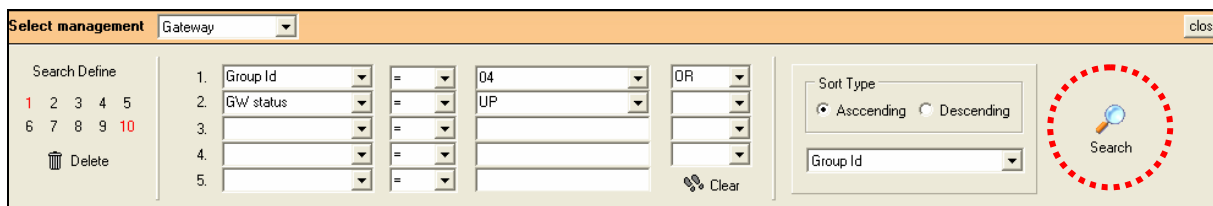


Figure 4-26 Search Screen

Search type shows how to sort the data. Select the field to be sorted and select the sorting type of either ascending or descending.

4.5.2. Examples of Search Terms

This chapter provides explanation on how to search with examples of actual operation..

Term 1) Search Gateway : Group ID is '02' and GW status is UP

The screenshot shows a search interface for 'Gateway'. On the left, there are search slots numbered 1 to 5, with a 'Delete' button below them. The main search area contains five rows of criteria:

- Row 1: Group Id = 02
- Row 2: GW status = UP
- Row 3: (Empty)
- Row 4: (Empty)
- Row 5: (Empty)

 The search logic is set to 'AND'. A 'Clear' button is located at the bottom right.

Figure 4-27 Gateway Search

2) Search Upgrade Information : Group ID is '05' and upgrade Type is 'BIN' upgrade(APOS image)

The screenshot shows a search interface for 'Upgrade Informator'. On the left, there are search slots numbered 1 to 5, with a 'Delete' button below them. The main search area contains five rows of criteria:

- Row 1: Group Id = 05
- Row 2: Type = BIN
- Row 3: (Empty)
- Row 4: (Empty)
- Row 5: (Empty)

 The search logic is set to 'AND'. A 'Clear' button is located at the bottom right.

Figure 4-28 업그레이드 이력 검색

Term 3) Search Event Log : Time of Event is from '2005-05-16 11:20:47' to '2005-05-17 14:42:00'

The screenshot shows a search interface for 'Event Log'. On the left, there are search slots numbered 1 to 5, with a 'Delete' button below them. The main search area contains five rows of criteria:

- Row 1: Datetime > 2005-05-16 11:20:47
- Row 2: Datetime < 2005-05-17 14:42:00
- Row 3: (Empty)
- Row 4: (Empty)
- Row 5: (Empty)

 The search logic is set to 'AND'. A 'Clear' button is located at the bottom right.

Figure 4-29 Search Event Log

4.6. Operator Defined Query

The frequently used search terms of a operator can be saved by 'Operator Defined Query' function. Click "Operator defined query" button and frequently used search term list is displayed. If "Operator defined query" is not saved, there is no data displayed.

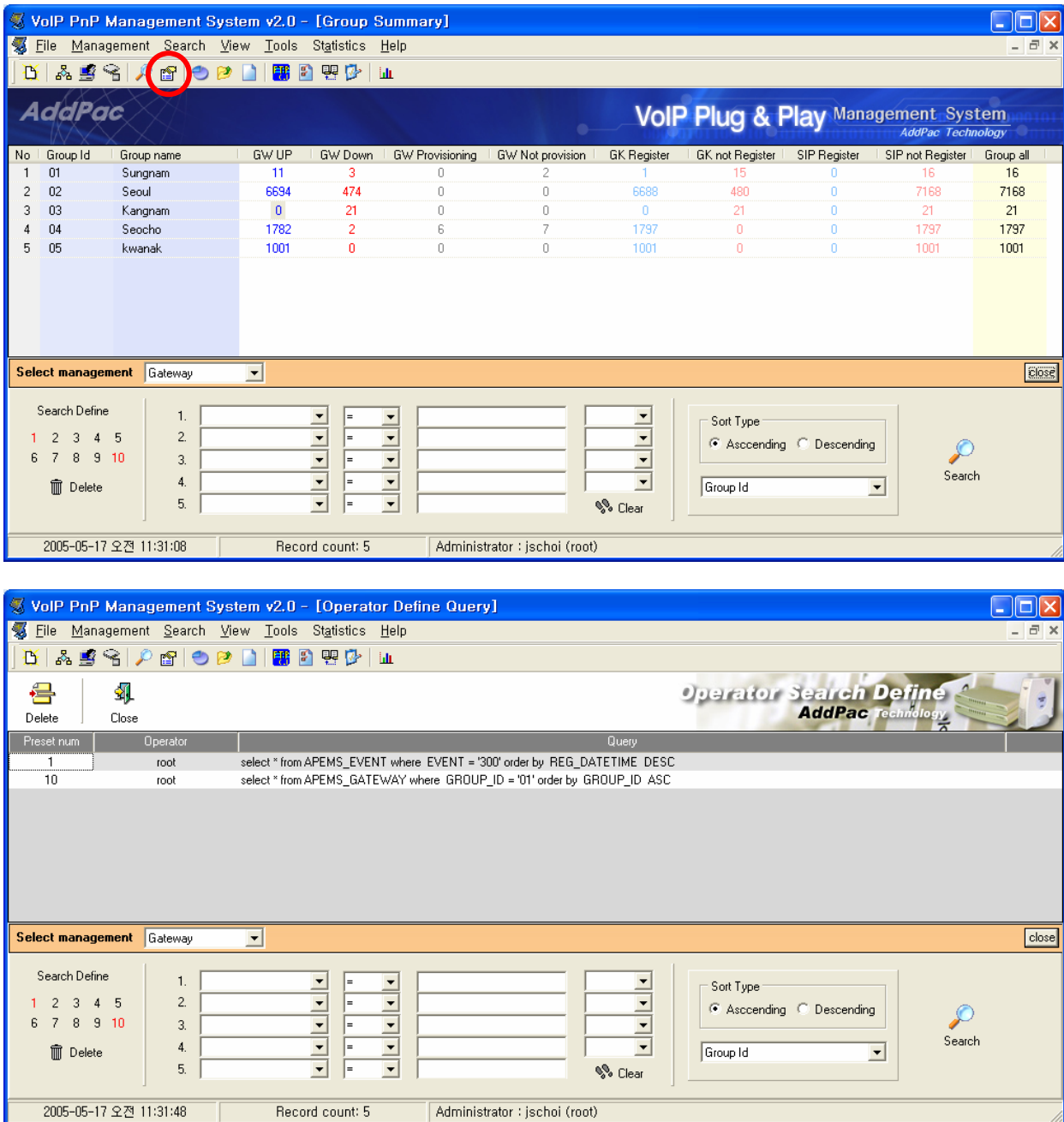


Figure 4-30 Operator defined query

Up to 10 search terms can be assigned for each operator. Preset num, operator ID and Query are included at the list.

4.6.1. Define Search Terms

To save search terms, open the Search window by clicking “Search” button first.

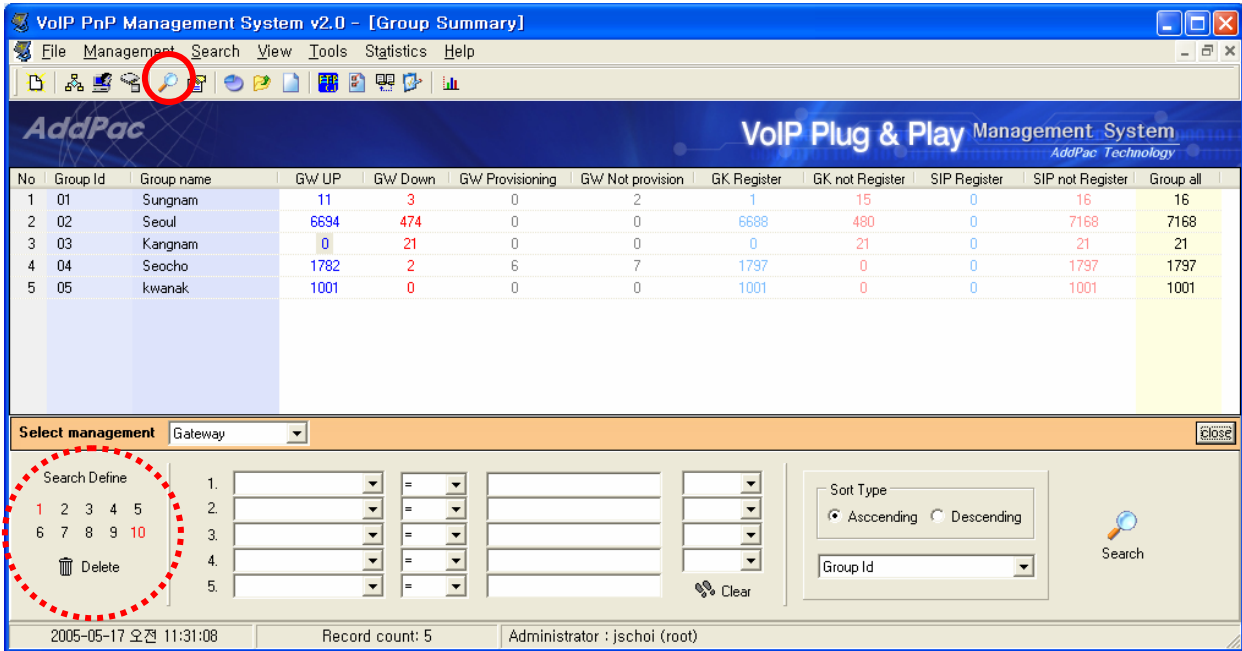


Figure 4-31 Define Search Terms

The numbers on the left side are the buttons for defining and saving search terms. If the number is in red, it means query is saved. If not, there is no saved query.

When the mouse is placed on the number, the search terms are displayed.

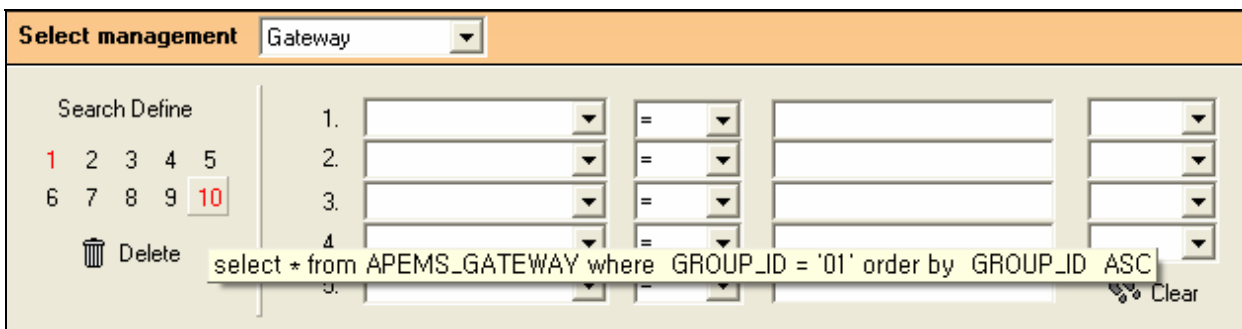


Figure 4-32 Display search define terms

By clicking red numbers, the preassigned search terms are entered at the search window automatically and the number is highlighted.

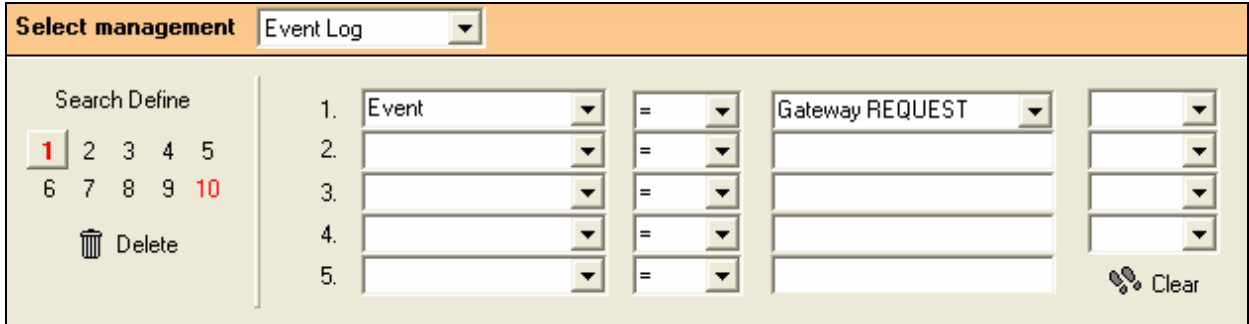


Figure 4-33 Choose Search Terms

After entering search terms and then click unassigned numbers. Then the search terms are saved at the number. The search terms are saved at the Database depend on the operator. It can be check at Operator Define window.

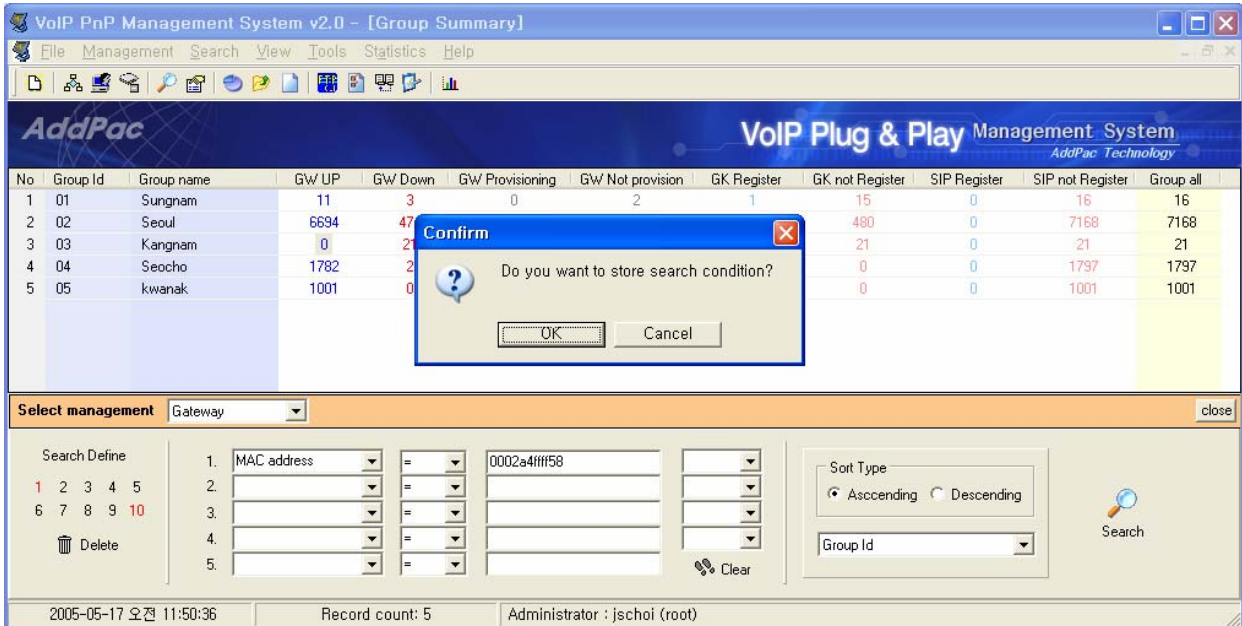


Figure 4-34 Define Search Terms

4.6.2. Query Deletion

The query can be deleted at Search window and also at Operator define window. The below shows how to deleted query by selecting the number and “Delete” button.

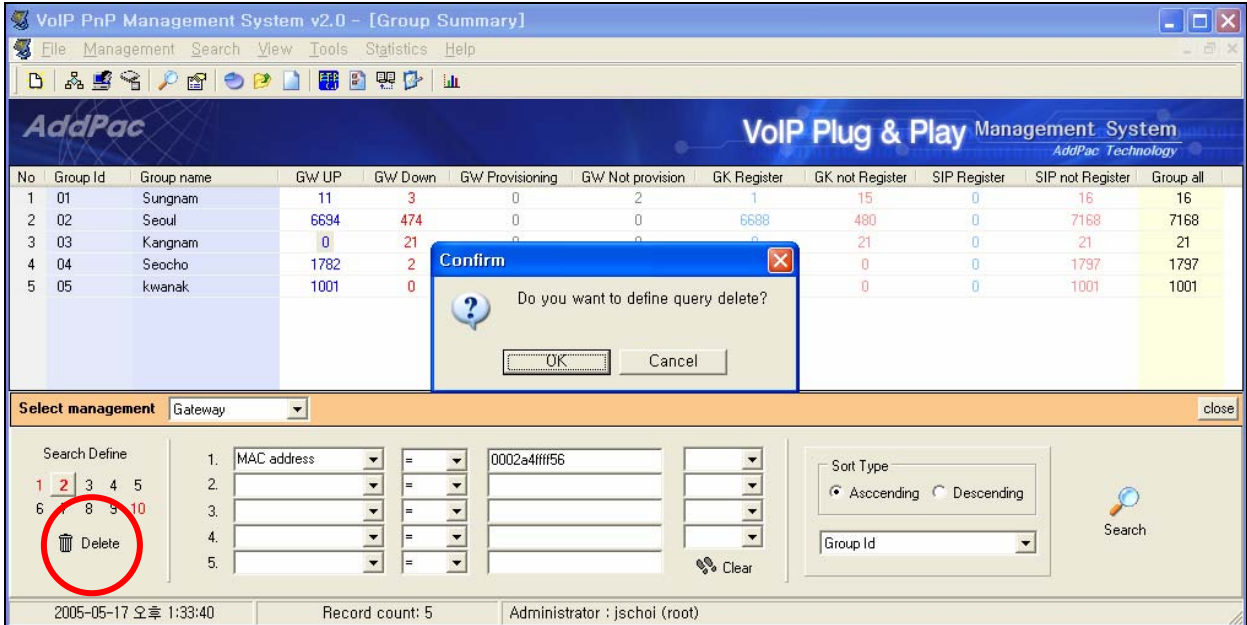


Figure 4-35 Delete Query in Search window

The below shows how to deleted query from Operator define window.

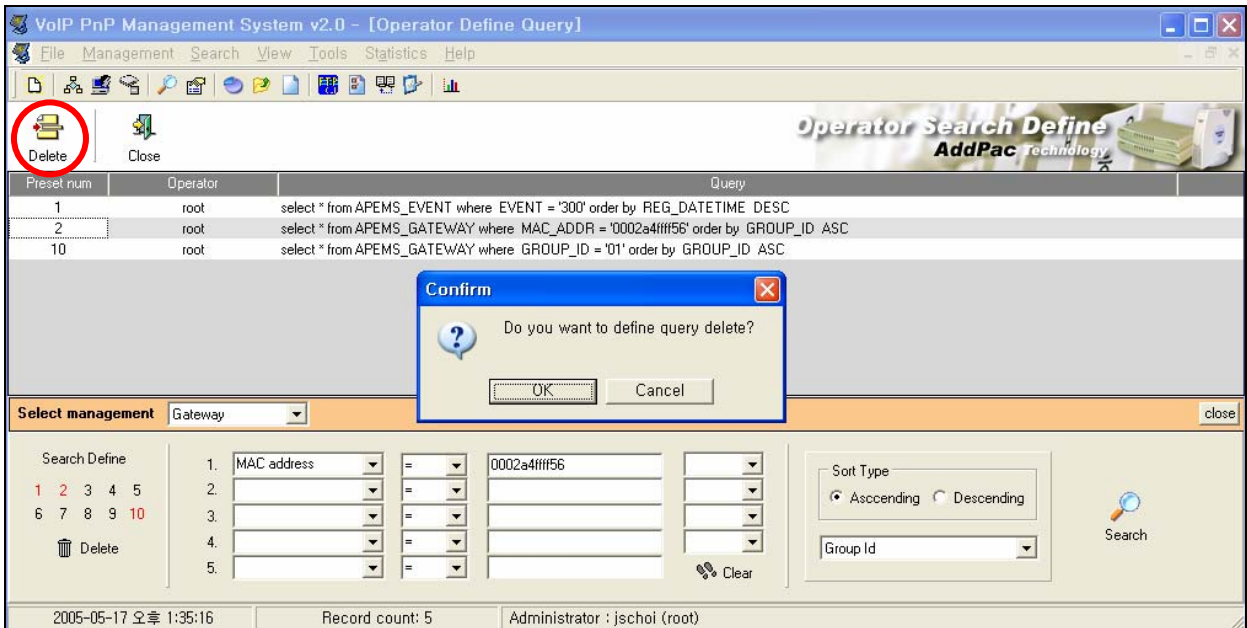


Figure 4-36 Delete query in Operator query define window

4.7. Upgrade Information

Gateway function change or image upgrade history (operator, upgrade data and upgrade details can be displayed. Select [View]> [Upgrade information] or “Upgrade info” button to display upgrade information. The latest upgrade information is displayed on the top.

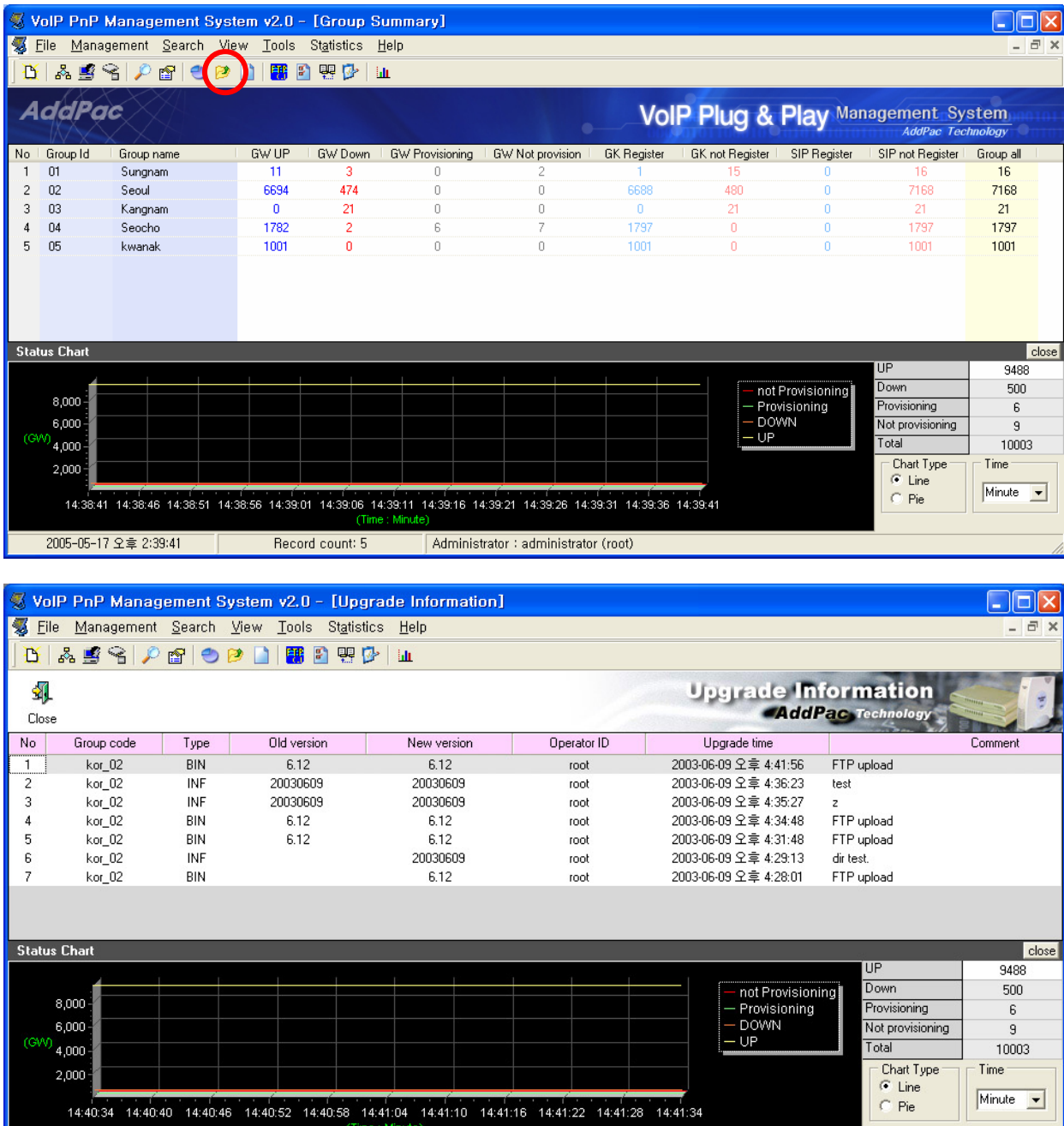


Figure 4-37 Upgrade Information Screen

4.8. Event Log Information

Event Log Info saves the Event between gateway and VPMS Server as a Database. Select [Event Log Information] from the menu or click “Event log” button. The time, type of the Event and IP address are saved at the Database

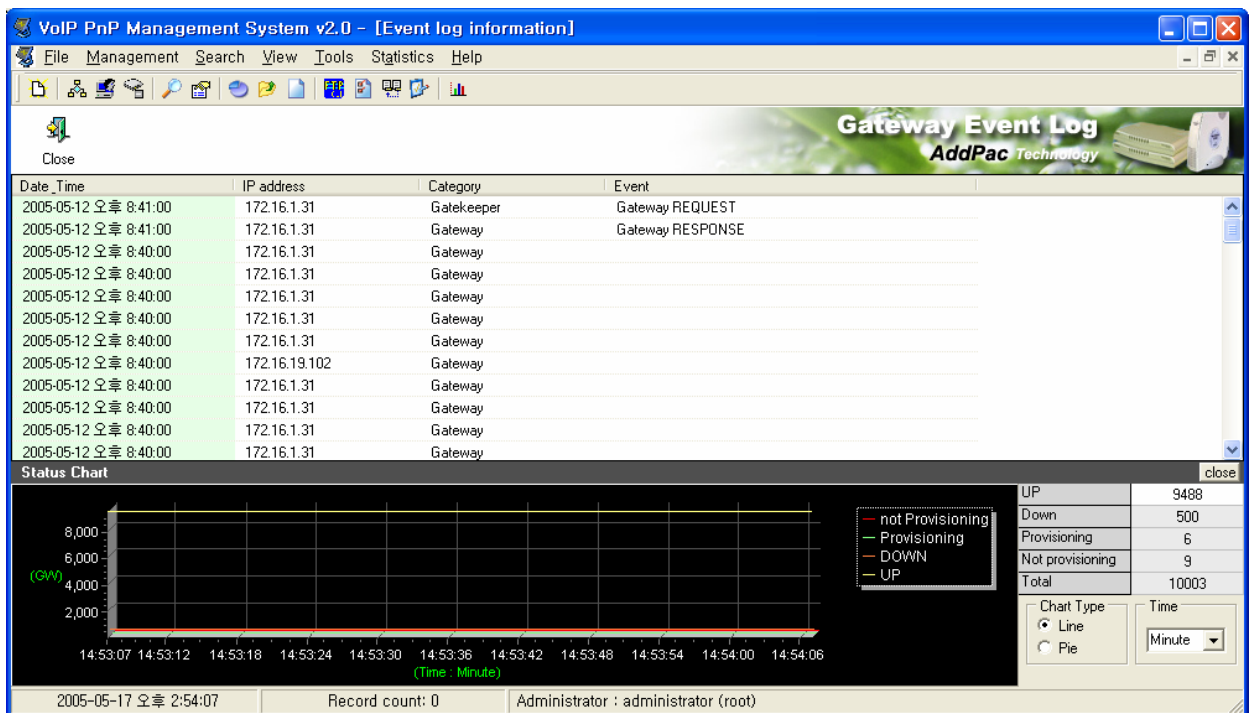
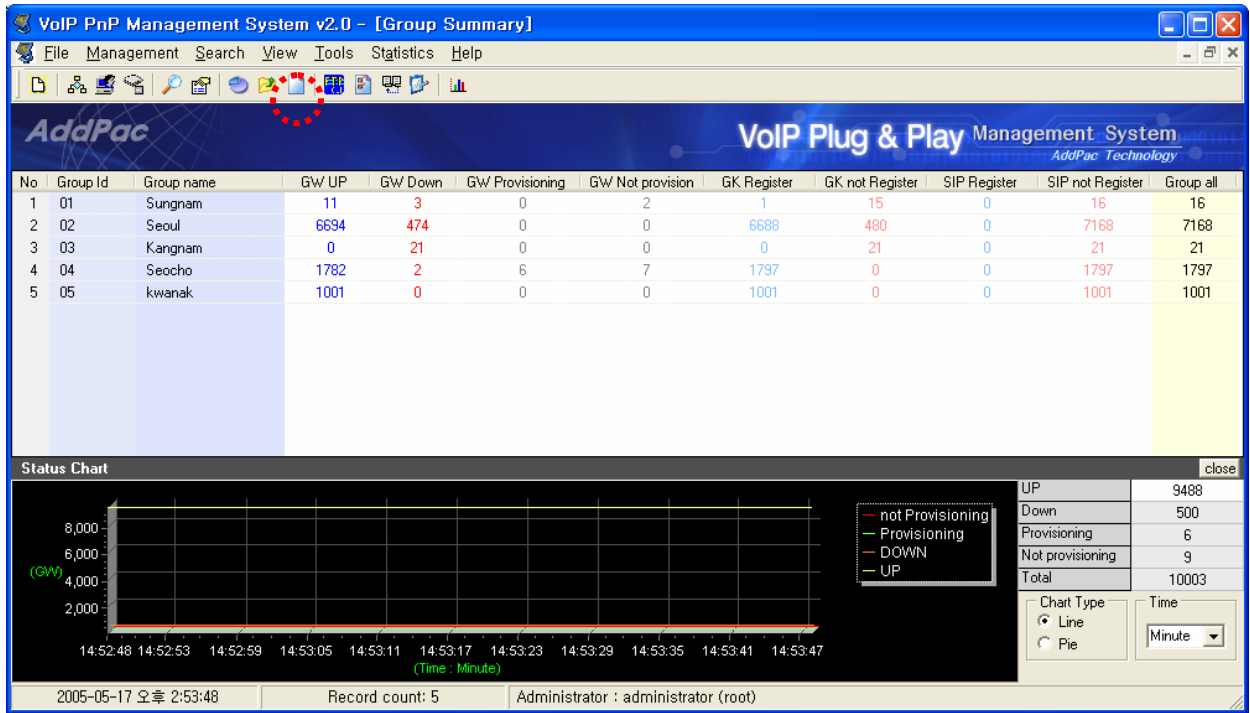


Figure 4-38 Event Log Information screen

4.9. FTP Upload

A specific gateway can be upgraded or Scrip (INF) or Image (BIN) file can be uploaded to the auto-upgrade server with FTP upload function.

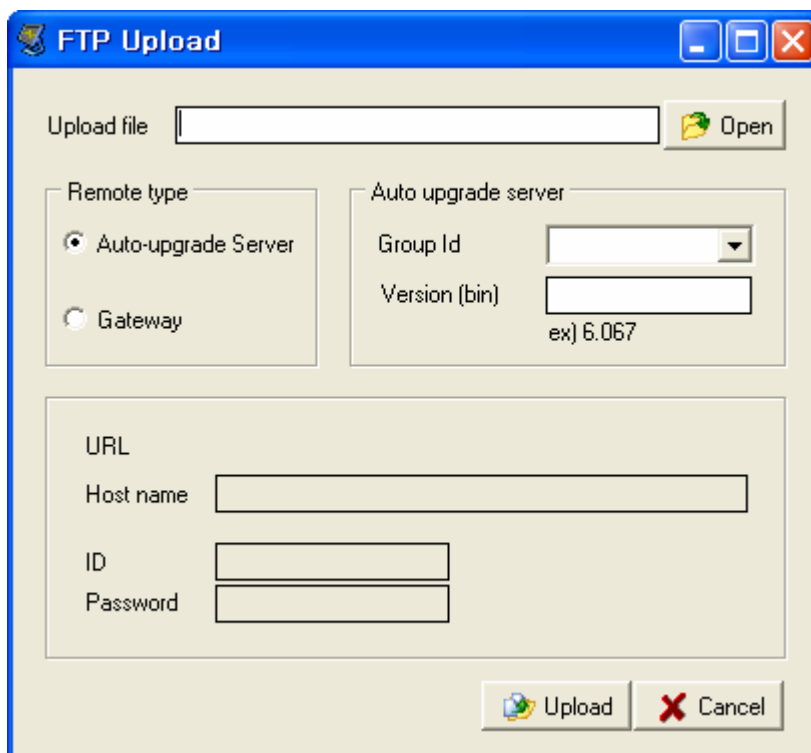
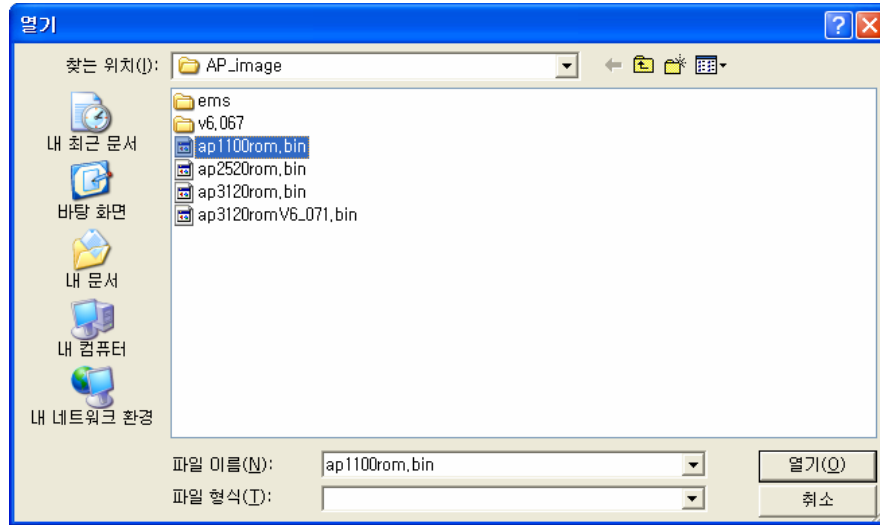


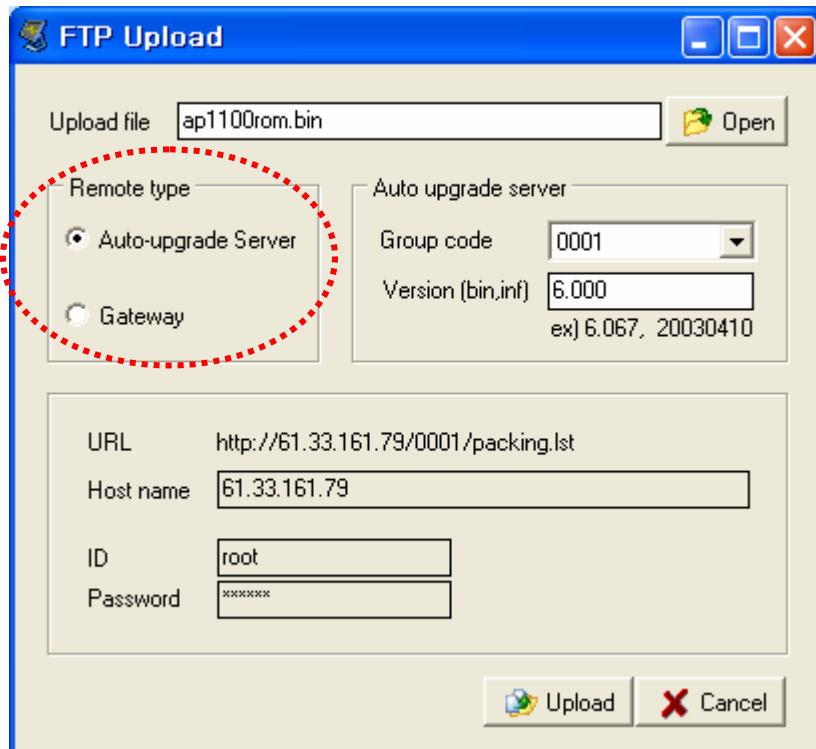
Figure 4-39 FTP upload Screen

To open a file, click “Open” button and the below dialog box is appeared.

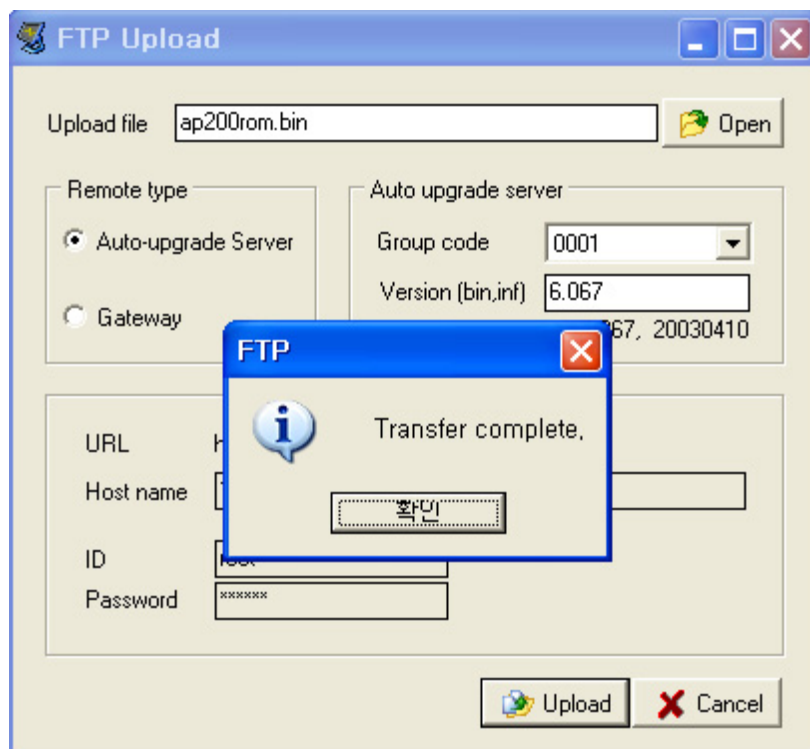


Auto-upgrade server or gateway can be selected for FTP Upload function. In case of selecting gateway, enter the Host ID and password. In case of selecting Auto-Upgrade Server, the URL, Host ID and password are automatically entered by selecting Group code. However, the version should be entered manually.

In case of file upload, the URL shows the upload path. According to below, the URL is “<http://61.33.161.79/0001/packing.lst>”. So Auto-upgrade sever of the group “0001” and “packing.lst” is upgraded. (If “packing.lst” does not exist, the file is created).



When FTP upload is completed, the below dialog box is appeared.



♣ Only Script (INF) file or Image (BIN) file can be uploaded.

4.10. Auto script

To upgrade the functions of gateways, create a script (INF) and execute the script with Auto upgrade server.

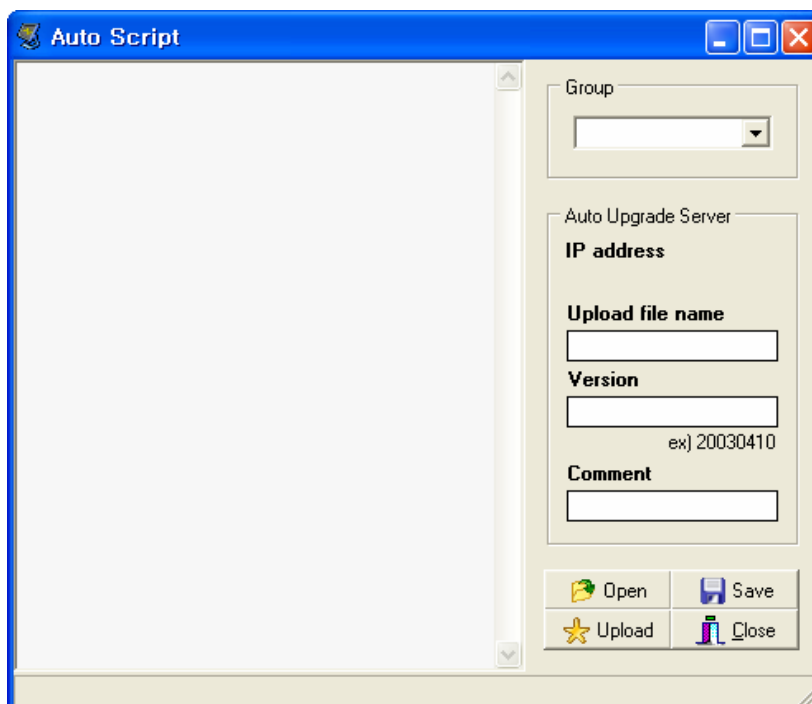
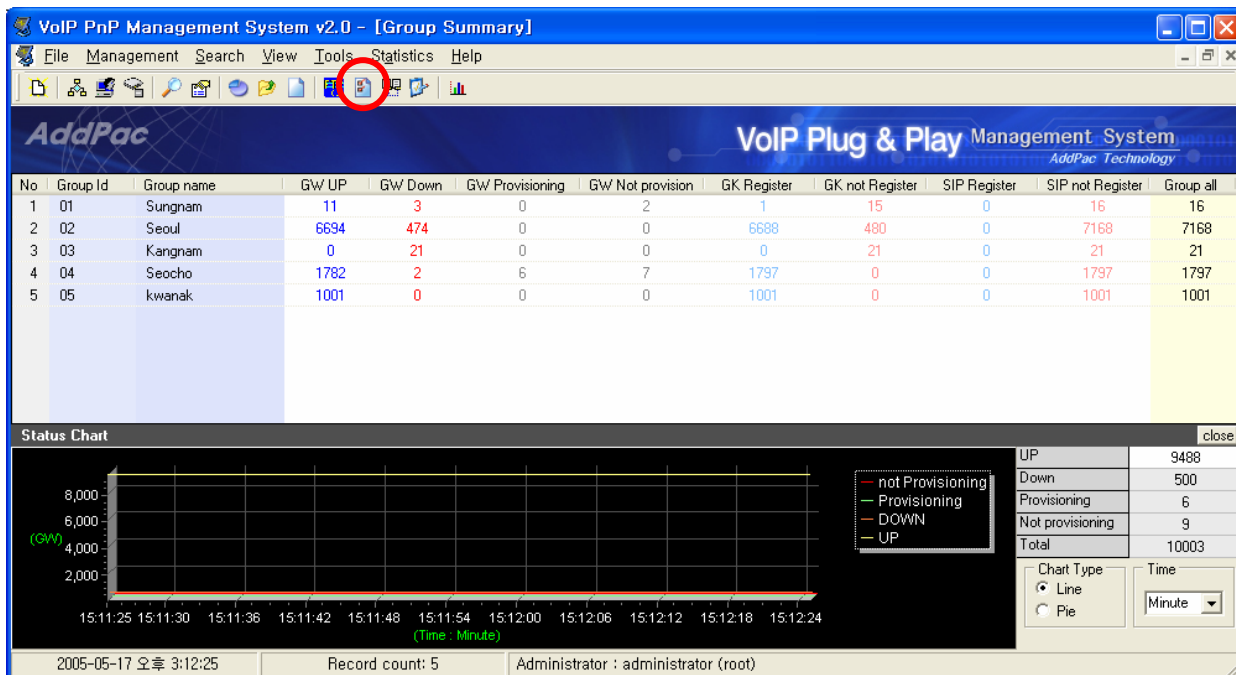
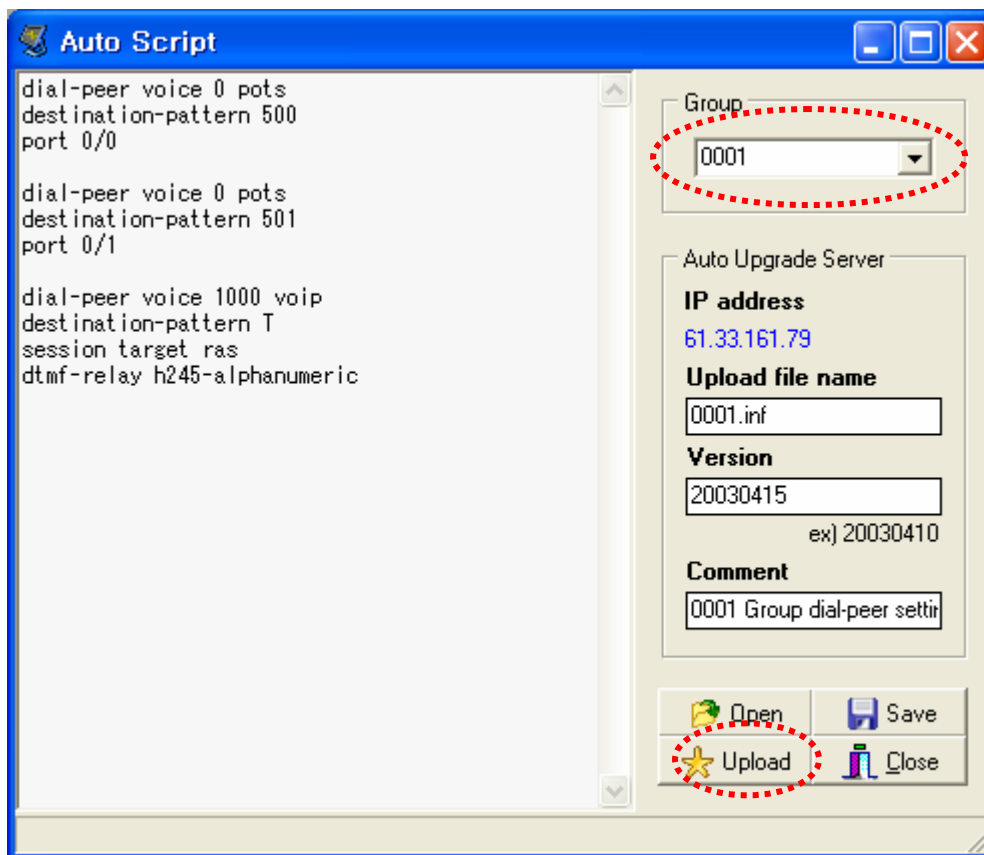


Figure 4-40 Auto-script Screen

Auto script function creates a script of configuration information of gateway and makes possible number of configuration changes as a bundle. Refer to the gateway manual for detailed information on how to create the script.



When a group code is assigned, the auto upgrade server and the script file are displayed. Also, the IP address and the file name are displayed automatically.

- The upload file name can be changed. However, it should be matched with the setting of auto-script. So keep the default file name.
- Version is uploaded to auto upgrade server and updates "packing.lst" file. So to upload, the version of the script should be entered. The script version is marked as a date (20030415).
- Comment describes the details of upgrade. It is added to the Database and can be checked from Upgrade Information.

After changing the script, click "Upload" button to upload the script to Auto upgrade server. When "packing.lst" is updated, the gateways at the group download the script and execute it.

4.11. Auxiliary script

Operator can make out a Aux script and run selectively different from auto-script. Choose Tools>Auxiliary script or click Auxiliary script button to display the screen.

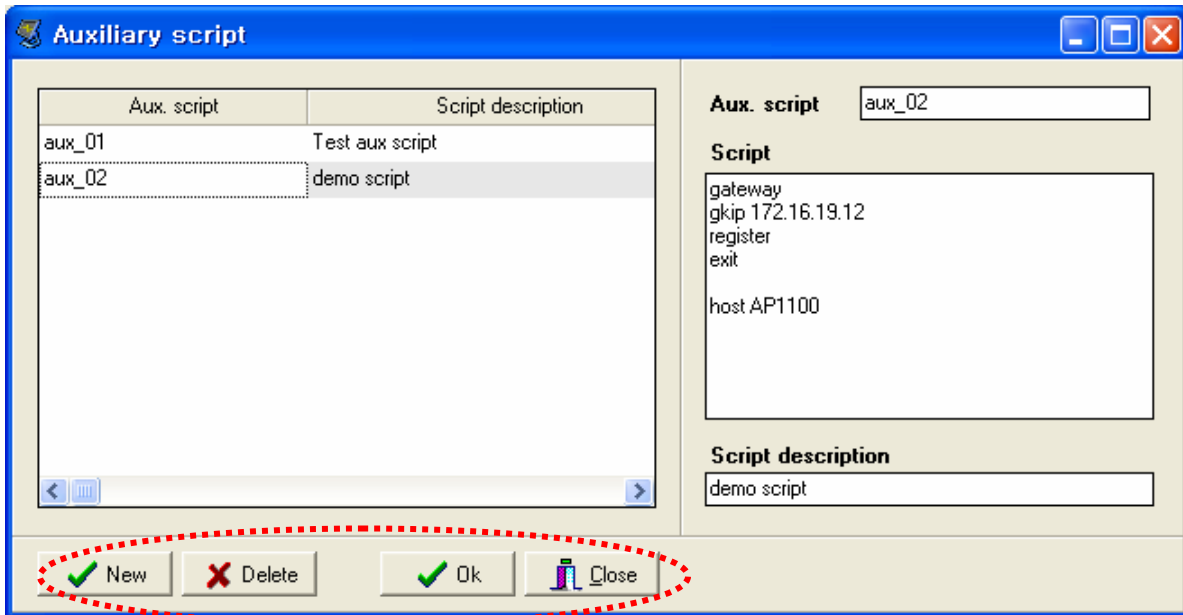
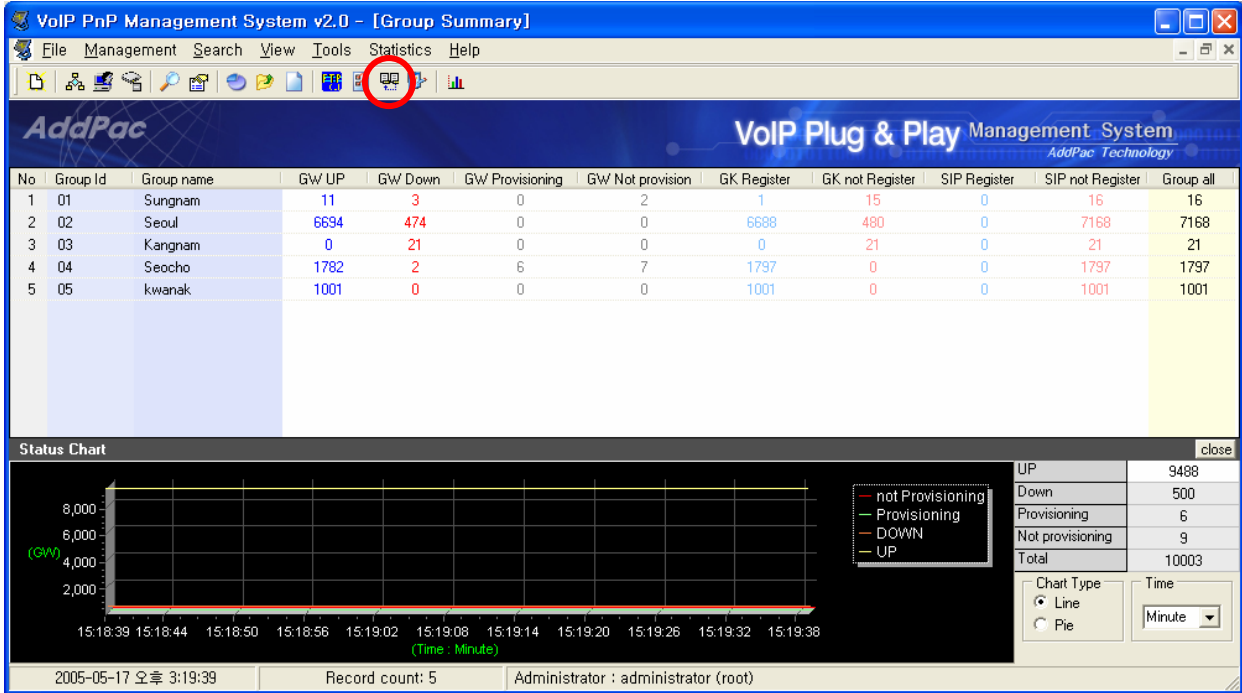


Figure 4-41 Aux.script Screen

Right part of window displays a list of Aux script. Operator can see the details by mouse clicking.

Details on each category are as below.

- Aux script : Enter the name of Aux script.
- script : Make out a script to be run.
- script description : Write brief description on script.

Prepared script can be **registered, modified and deleted** by buttons.

After operator modify the gateway details to register Aux script, Entered Aux script can be applied.

- Initial gateway registration

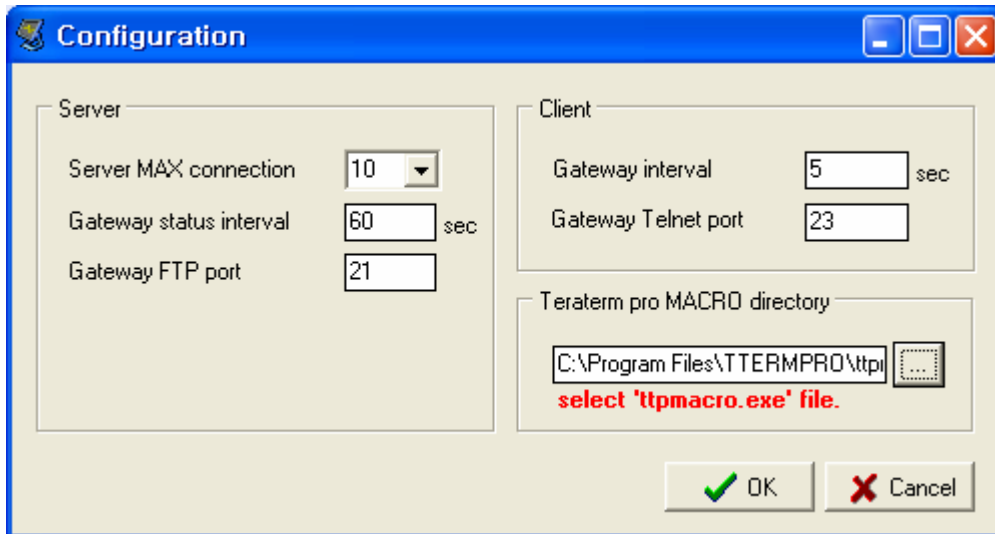
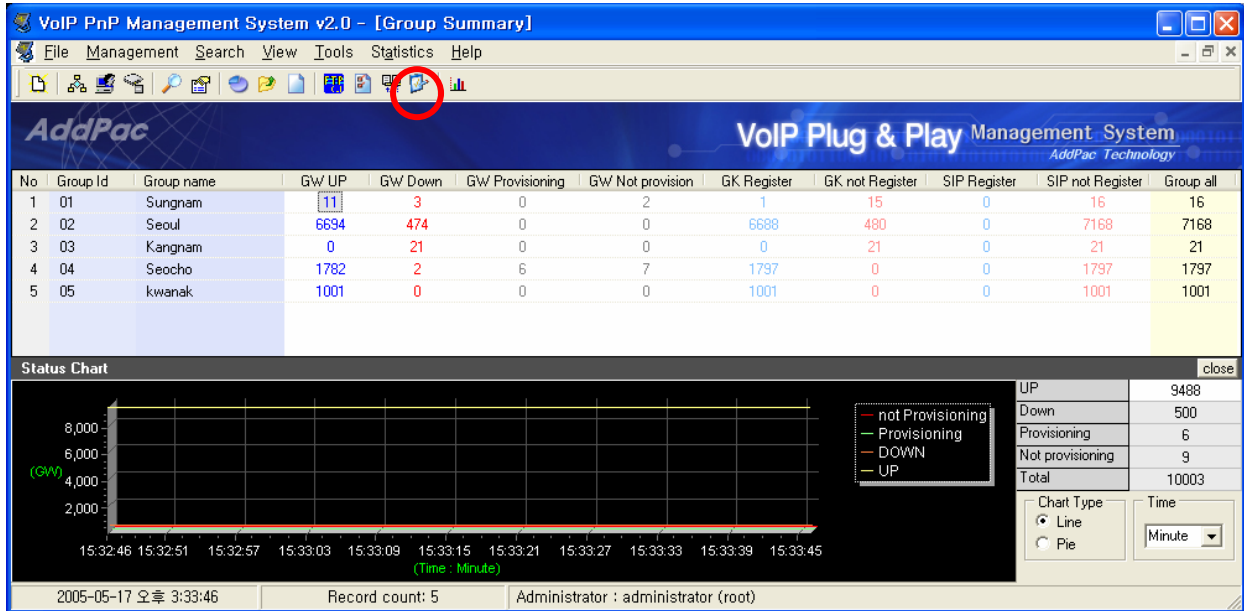
End user information	
Group Id	02
Group name	Seoul
User name	
Address	
Telephone	
Aux. script	
Email	

- Gateway info modification

End user information	
Group Id	01
Group name	Sungnam
User name	jschoi
Address	seoul korea
Telephone	02-568-3848
Aux. script	
Email	jschoi@addpac.com

4.12. Configuration

Configuration configures VPMS server and Client program environment. Select [Tools]> [Configuration] from the menu or click “configuration” button as shown below.



- Server MAX connection means the max. number of gateway can access to VPMS. Also, Gateway FTP port and Gateway status update interval can be configured.
- Client menas Gateway, Event log update interval of VPMS client.
- Teraterm Pro Directory sets the Teraterm program (ttpmacro.exe) path.
- After change the Server information, restart VPMS server program. Then the changed configuration is applied.

4.13. Print

Print function offers preview and printing of each function. Select [File]> [Print] from the menu or click "Print" button.

VoIP PnP Management System v2.0 - [Group Summary]

File Management Search View Tools Statistics Help

Printer Ctrl+P

Exit Ctrl+X

No	Group code	Type	Old version	New version	Operator ID	Upgrade time	Comment
1	0003	INF	Apr 11 2003 1:18PM	Apr 11 2003 3:12PM	root	2003-04-11 오후 3:12:06	sdsad
2	0002	INF	Apr 11 2003 12:56PM	Apr 11 2003 3:04PM	root	2003-04-11 오후 3:04:25	sdsad
3	0003	INF	Apr 11 2003 1:18PM	Apr 11 2003 1:18PM	root	2003-04-11 오후 1:18:19	jong ro packing lst
4	0002	INF	Apr 10 2003 4:22PM	Apr 11 2003 12:56PM	root	2003-04-11 오후 12:56:04	test
5	0002	INF	Apr 10 2003 4:19PM	Apr 10 2003 4:22PM	root	2003-04-10 오후 4:22:22	
6	0002	INF	Apr 10 2003 4:14PM	Apr 10 2003 4:19PM	root	2003-04-10 오후 4:19:15	
7	0002	INF	Apr 10 2003 4:12PM	Apr 10 2003 4:14PM	root	2003-04-10 오후 4:14:22	
8	0002	INF	Apr 10 2003 4:11PM	Apr 10 2003 4:12PM	root	2003-04-10 오후 4:12:14	
9	0002	INF	Apr 10 2003 4:11PM	Apr 10 2003 4:11PM	root	2003-04-10 오후 4:11:54	
10	0002	INF	Apr 10 2003 4:09PM	Apr 10 2003 4:11PM	root	2003-04-10 오후 4:11:40	

Status Chart

UP 9488
Down 500
Provisioning 6
Not provisioning 9
Total 10003

Chart Type: Line (selected), Pie

Time: Minute

2005-05-17 오후 3:39:45 Record count: 5 Administrator: administrator (root)

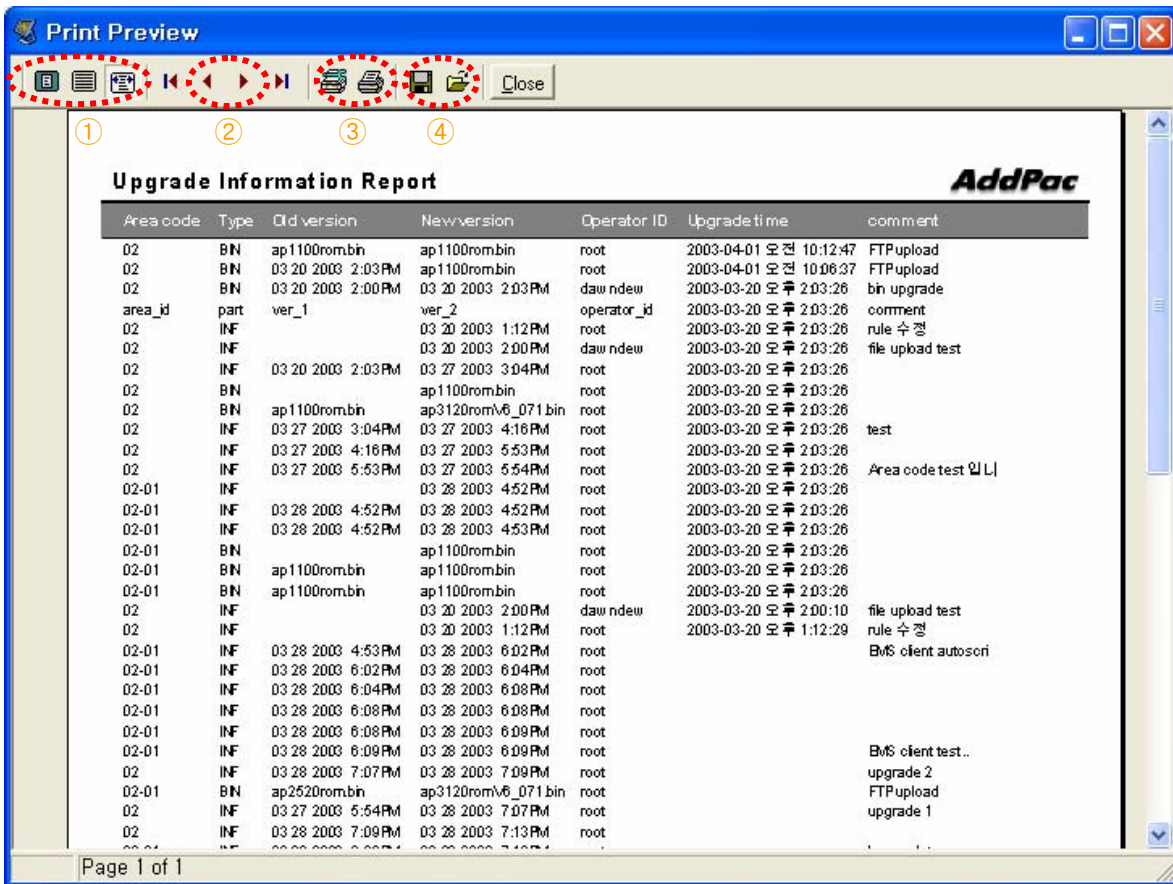
Print Preview

Upgrade Information Report

Group code	Type	Old version	New version	Operator ID	Upgrade time	Comment
0003	INF	Apr 11 2003 1:18PM	Apr 11 2003 3:12PM	root	2003-04-11 오후 3:12:06	not used
0002	INF	Apr 11 2003 12:56PM	Apr 11 2003 3:04PM	root	2003-04-11 오후 3:04:25	not used
0003	INF	Apr 11 2003 1:18PM	Apr 11 2003 1:18PM	root	2003-04-11 오후 1:18:19	cong ro packing lst
0002	INF	Apr 10 2003 4:22PM	Apr 11 2003 12:56PM	root	2003-04-11 오후 12:56:04	test
0002	INF	Apr 10 2003 4:19PM	Apr 10 2003 4:22PM	root	2003-04-10 오후 4:22:22	
0002	INF	Apr 10 2003 4:14PM	Apr 10 2003 4:19PM	root	2003-04-10 오후 4:19:15	
0002	INF	Apr 10 2003 4:12PM	Apr 10 2003 4:14PM	root	2003-04-10 오후 4:14:22	
0002	INF	Apr 10 2003 4:11PM	Apr 10 2003 4:12PM	root	2003-04-10 오후 4:12:14	
0002	INF	Apr 10 2003 4:11PM	Apr 10 2003 4:11PM	root	2003-04-10 오후 4:11:54	
0002	INF	Apr 10 2003 4:09PM	Apr 10 2003 4:11PM	root	2003-04-10 오후 4:11:40	

Page 1 of 1

The below shows the Print Preview of Upgrade Information.



- ① Zoom function. Select how to display the data on the screen.
- ② The buttons for page control.
- ③ Printer setting and printing button.
- ④ Save and open a Report file.

4.14. Gateway Statistics

The gateway status can be saved as Log. Then the log can be searched according to the date and displayed as a list or graph. Select [Statistics]> [Gateway Statistics] from the menu or click “Gateway Statistics” button.

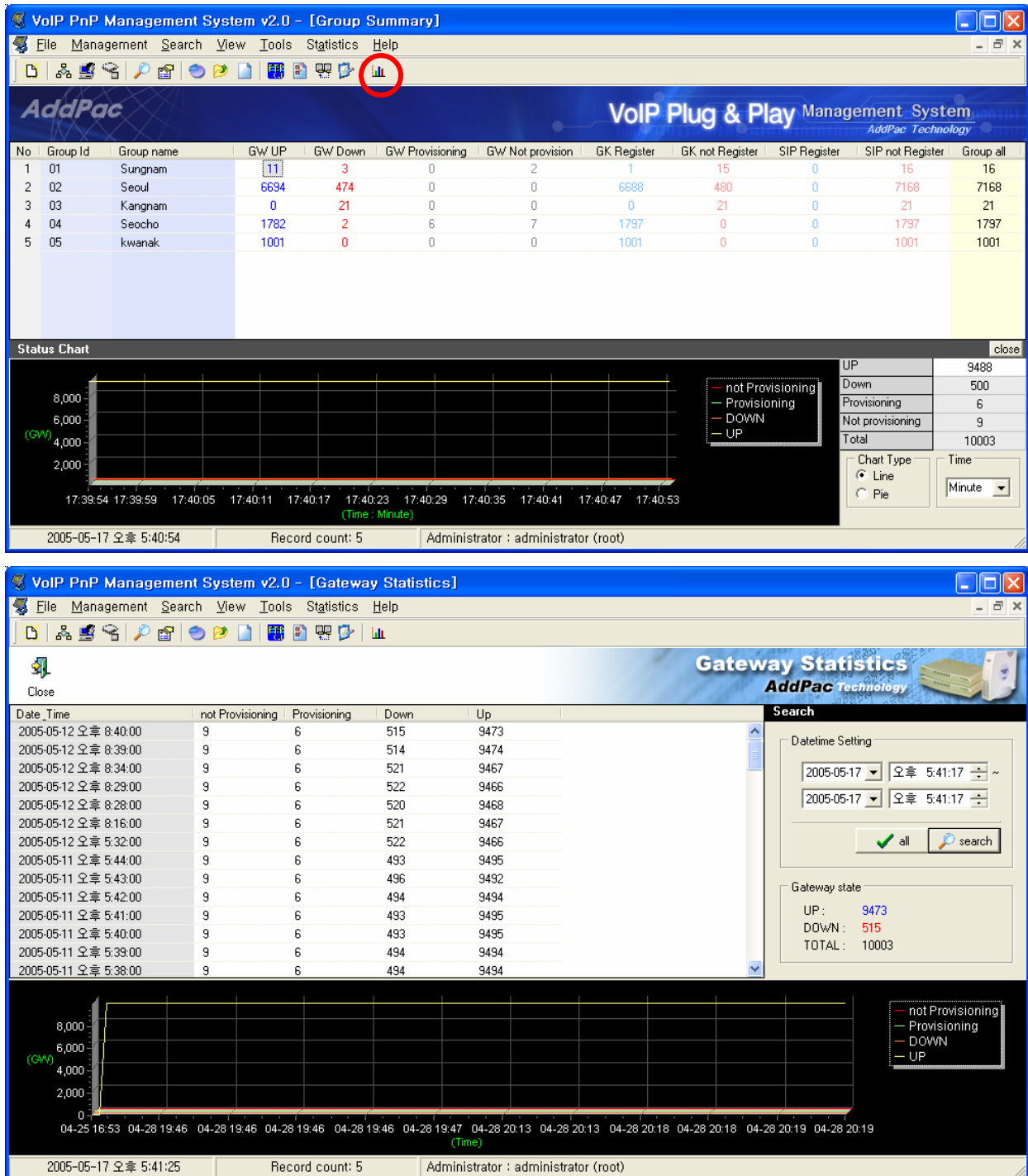


Figure 4-42 Gateway Statistics Running Screen

Date_Time	not Provisioning	Provisioning	Down	Up
2005-05-12 오후 8:40:00	9	6	515	9473
2005-05-12 오후 8:39:00	9	6	514	9474
2005-05-12 오후 8:34:00	9	6	521	9467
2005-05-12 오후 8:29:00	9	6	522	9466
2005-05-12 오후 8:28:00	9	6	520	9468
2005-05-12 오후 8:16:00	9	6	521	9467
2005-05-12 오후 5:32:00	9	6	522	9466
2005-05-11 오후 5:44:00	9	6	493	9495
2005-05-11 오후 5:43:00	9	6	496	9492
2005-05-11 오후 5:42:00	9	6	494	9494
2005-05-11 오후 5:41:00	9	6	493	9495
2005-05-11 오후 5:40:00	9	6	493	9495
2005-05-11 오후 5:39:00	9	6	494	9494

Figure 4-43 Gateway Status Statistics Screen

The above shows the 4 different status (not Provision, Provision, DOWN, UP) of gateway. The latest data is displayed on the top and the number of gateway in each status is displayed.

- The below chart describes 4 different status of gateway.

Status	Contents
Not Provision	Gateway is in standby mode before VPMS registration
Provision	Gateway is registered at VPMS
DOWN	Gateway Interface is disconnected
UP	Gateway Interface is connected

표 4-2 Gateway Status

- As shown below Gateway status information can be searched.

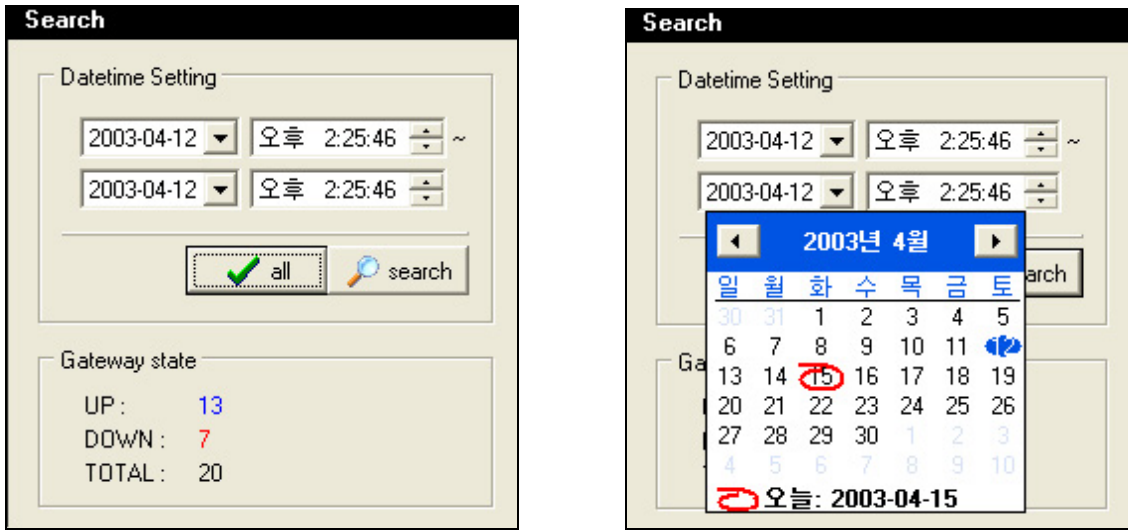


Figure 4-44 Gateway Statistics Data Search Screen

- Datetime Setting sets starting and ending time of searching.
- All button searches all the data.
- Gateway state shows the number of gateways in “UP / DOWN” status.

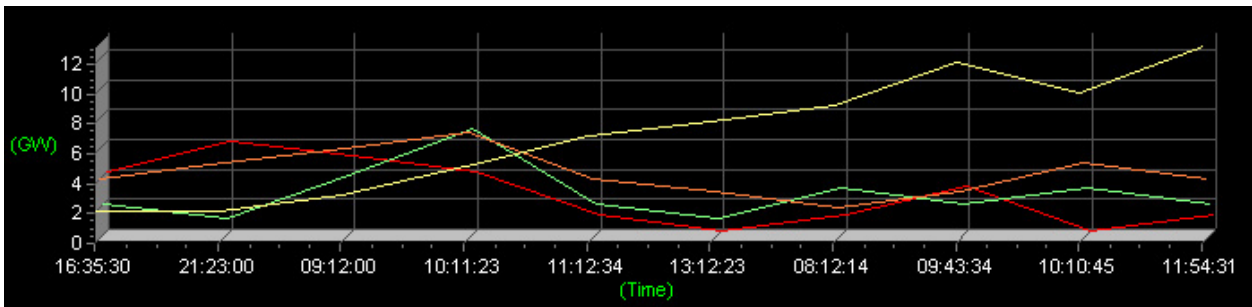


Figure 4-45 Gateway Statistics Data Graph

- Chart shows the graphical information with 4 different status data.
- “X” is “Time” and “Y” means “number of gateway.

5. An Example of VPMS Operation Scenario

5.1. An Example Configuration

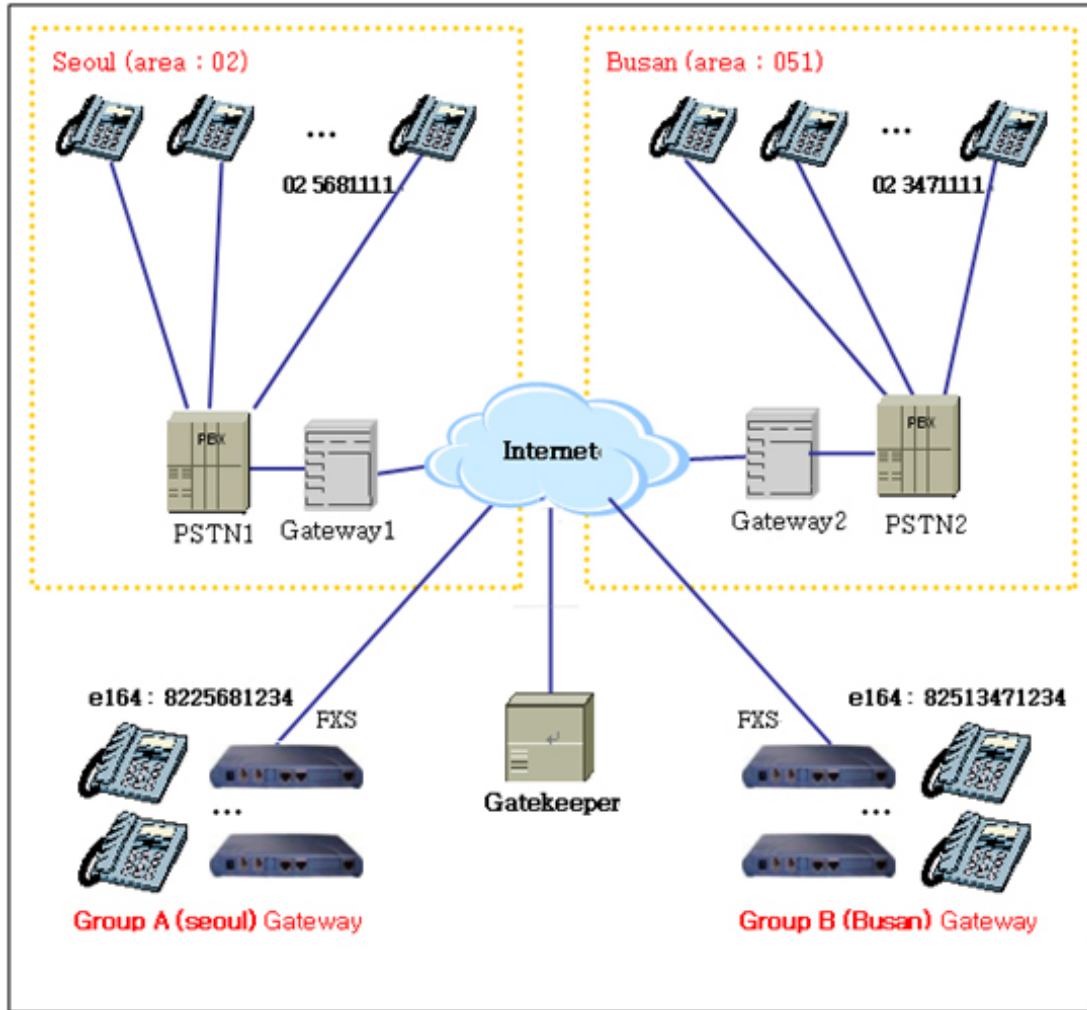


Figure 5-1 An Example of VPMS Configuration

Above configuration shows that there are two groups divided by area code and the different area code made different configuration. So, the group A and the group B have their own configuration that is a unit of management in VPMS.

Assumptions of above configuration are described as follows.

- When a gateway in group A calls a gateway in group B or PSTN user in Busan via backbone gateway, he has to digit full E.164 number which includes area code.
- When a gateway calls a gateway in same group or same area, he can digit without area code .
- To meet above scenario, below configuration script is build up for each group .

[Group A (Seoul) configuration script]

```
dial-peer voice 1000 voip
destination T
session target ras
translation out-going called-number 0      ... translation-rule 0 is applied to all outgoing call.
!
translation-rule 0
rule 0 [1-9]..... 02%01%07           ... attach area code when user digits local call.
!
gateway
gkip 211.200.12.3 1719 128
gkip 211.200.12.4 1719 254
register                                     ... register Gatekeeper address.
!
voice service voip
announcement language english             ...voice announcement language setting(default Korean)
announcement
```

[Group B (Busan) 설정 script]

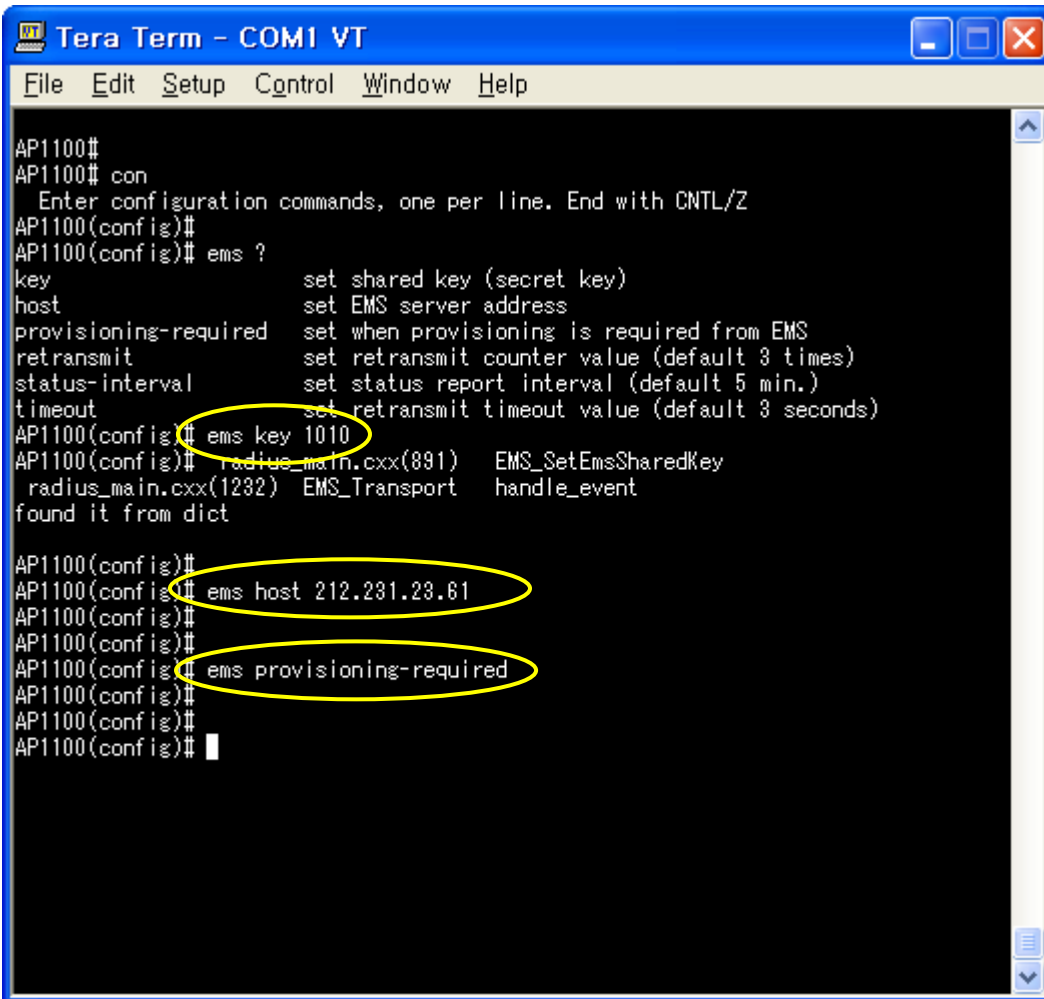
```
dial-peer voice 1000 voip
destination T
session target ras
translation out-going called-number 0      ... translation-rule 0 is applied to all outgoing call.
!
translation-rule 0
rule 0 [1-9]..... 051%01%07         ... attach area code when user digits local call.
!
gateway
gkip 211.200.12.3 1719 128
gkip 211.200.12.4 1719 254
register                                     ...register Gatekeeper address.
!
voice service voip
announcement language english             ... voice announcement language setting(default Korean)
announcement
```

- On above script, Group A and Group B have **the different area codes**. When Operator make out the script as above and run the auto-script, gateways included in group will be modified as above setting.
- The explanation for how to configure VPMS is provided at next chapter .

5.2. Group A Gateway Initial Setting

Gateway initial setting must be done before being sent to customers. Group A and B in Chapter 4.1 has no difference except the area code. The explanation Group A(Seoul) shall be proceeded.

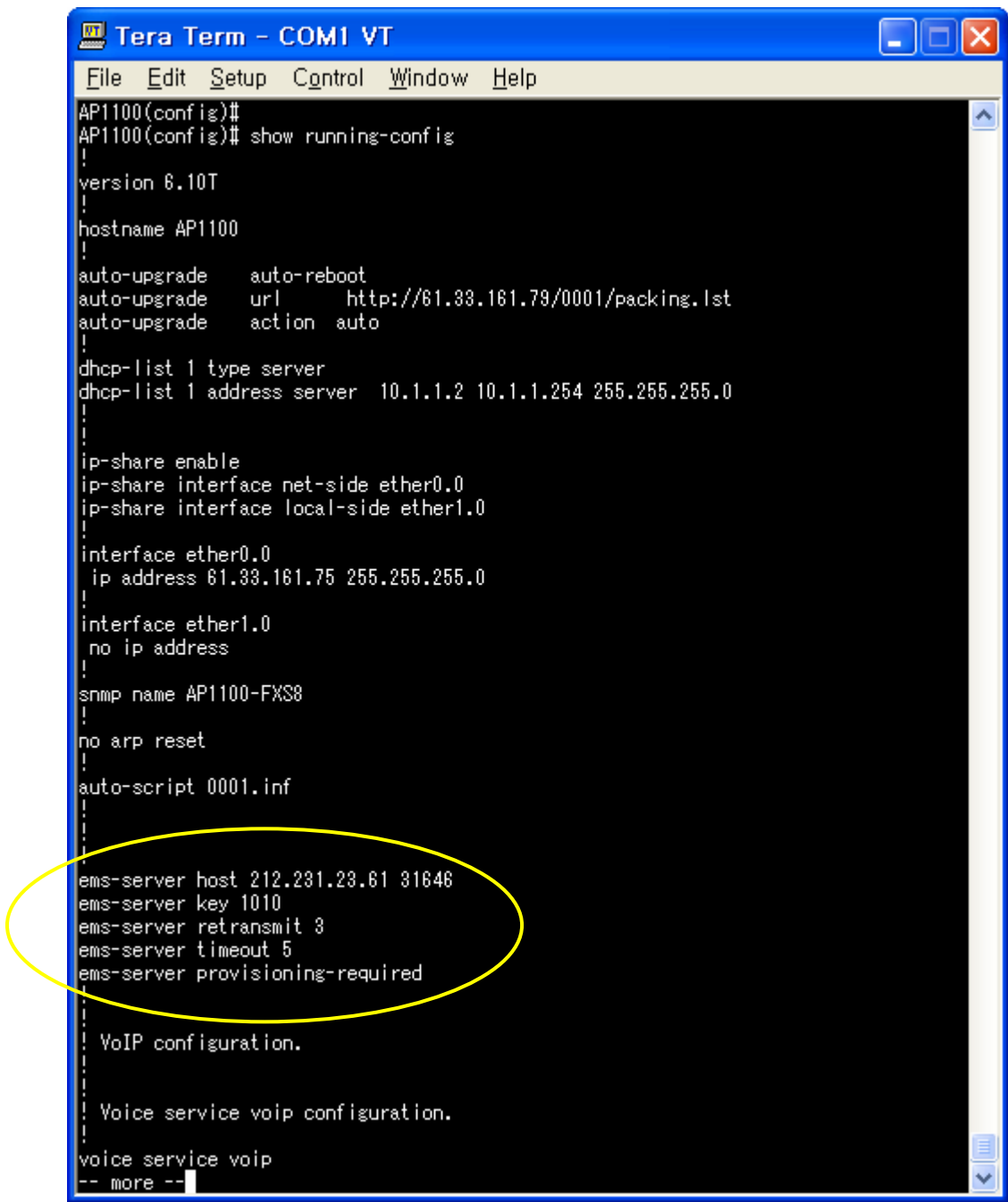
- 1) Enter gateway VPMS setting and the host.



```
Tera Term - COM1 VT
File Edit Setup Control Window Help
AP1100#
AP1100# con
  Enter configuration commands, one per line. End with CNTL/Z
AP1100(config)#
AP1100(config)# ems ?
key                set shared key (secret key)
host               set EMS server address
provisioning-required set when provisioning is required from EMS
retransmit         set retransmit counter value (default 3 times)
status-interval    set status report interval (default 5 min.)
timeout           set retransmit timeout value (default 3 seconds)
AP1100(config)# ems key 1010
AP1100(config)# radius_main.cxx(891) EMS_SetEmsSharedKey
radius_main.cxx(1232) EMS_Transport handle_event
found it from dict
AP1100(config)#
AP1100(config)# ems host 212.231.23.61
AP1100(config)#
AP1100(config)# ems provisioning-required
AP1100(config)#
AP1100(config)#
AP1100(config)#
```

- 2) Connect a serial port of computer to gateway console using Tera Term.
- 3) After logging in, Operator enters configure mode(con) and set shared key(ems key "string"), VPMS server address(ems host xxx.xxx.xxx.xxx), toggle to provisioning is required (ems provisioning-required).

- 4) Confirm VPMS setting with “show running-config” command.



5.3. Gateway Group Registration

Group should be registered before operator registering subscribers. Next procedure is to register Group A (Seoul) in 4.1 chapter.

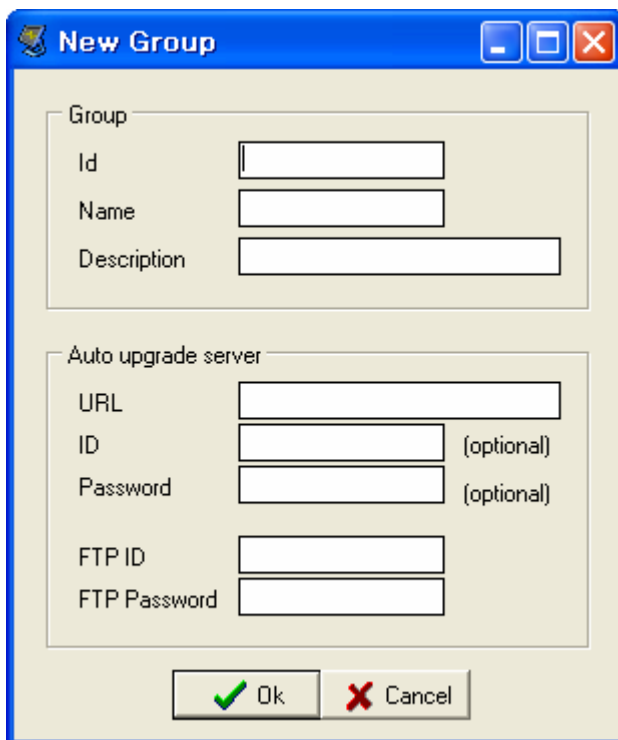
1) Run Group Management in VPMS Client.

No	Group Id	Group name	GW UP	GW Down	GW Provisioning	GW Not provision	GK Register	GK not Register	SIP Register	SIP not Register	Group all
1	01	Sungnam	11	3	0	2	1	15	0	16	16
2	02	Seoul	6694	474	0	0	6688	480	0	7168	7168
3	03	Kangnam	0	21	0	0	0	21	0	21	21
4	04	Seocho	1782	2	6	7	1797	0	0	1797	1797
5	05	kwanak	1001	0	0	0	1001	0	0	1001	1001

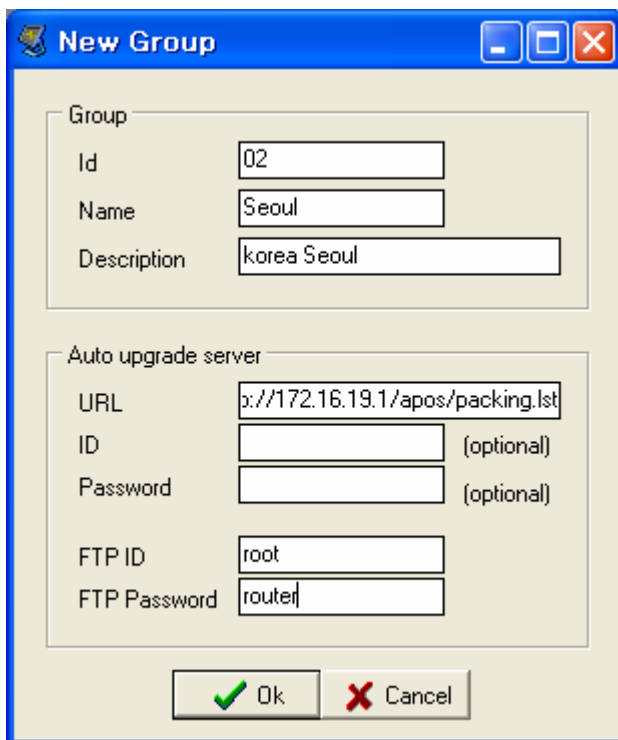
2) Click New button to generate new Group.

No	Group Id	Group name	Description
1	01	Sungnam	kyong ki do
2	02	Seoul	Seoul Korea
3	03	Kangnam	Seoul kangnam
4	04	Seocho	seoul city
5	05	kwanak	

1) Group can be registered in new group screen.



2) Enter group info which comes under Group A, and click OK to add it to Group.

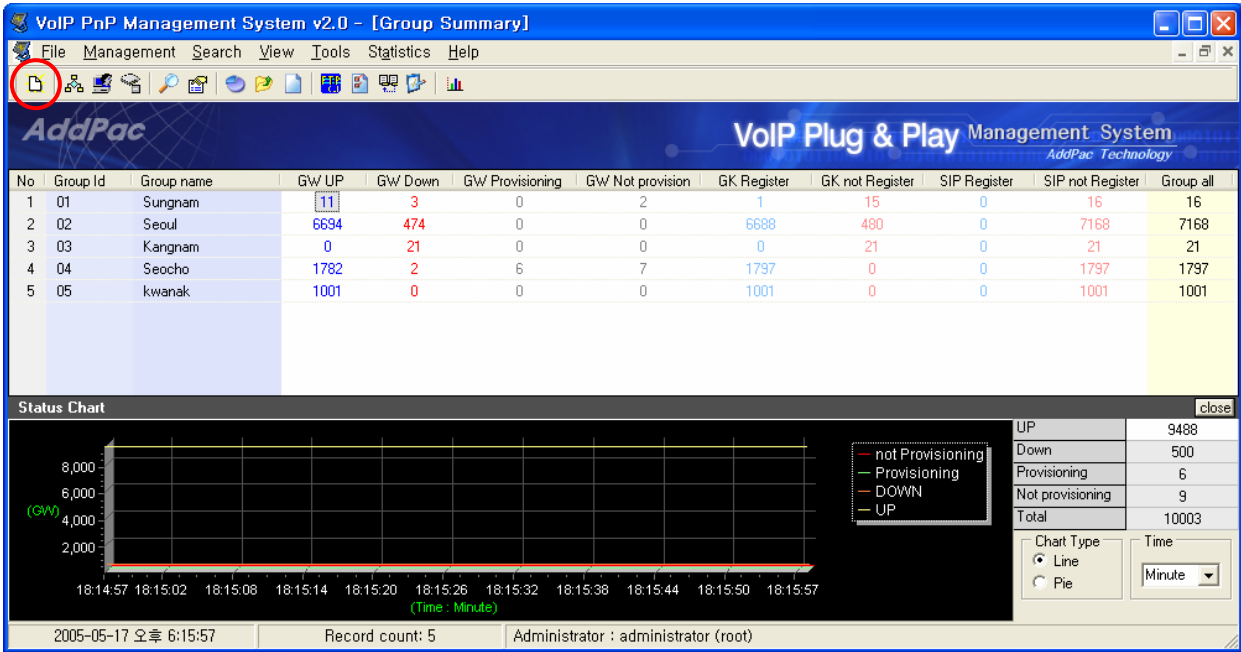


- Enter Group info, auto upgrade server inputs auto upgrade server info which comes under the group. If the info is wrong, Auto-upgrade function cannot be run..

5.4. Input Gateway Initial Data

Before delivering, gateway initial data has to be inputted into VPMS database.

- 1) Note the MAC address of the gateway.
- 2) Add the new gateway from VPMS client program. Click “New” button.



- 3) The dialog box to enter gateway information is appeared.

The 'New Gateway' dialog box is shown with the following sections:

- End user information:**
 - Group Id: [Dropdown]
 - Aux. script: [Dropdown]
 - Group name: [Text]
 - User name: [Text]
 - Address: [Text]
 - Telephone: [Text]
 - Email: [Text]
- Gateway information:**
 - IP address: [Text]
 - MAC address: [Text]
 - GW user name: [Text]
 - PPPoE Username: [Text]
 - Gateway Model: [Dropdown]
 - Virtual MAC address: [Text]
 - GW password: [Text]
 - PPPoE Password: [Text]
- Sniffer:**
 - None
 - Automatic
 - Manual
- Manual:**
 - DHCP
 - PPPoE
- DHCP:**
 - MAC address
 - hostname
- PPPoE:**
 - login/password
 - service-name

Buttons for 'OK' and 'Close' are located at the bottom right.

- 4) Enter the user information.

New Gateway

End user information

Group Id: 02 Aux. script: []

Group name: Seoul

User name: []

Address: []

Telephone: [] Email: []

Gateway information | VoIP configuration | Gateway status

IP address: [] Gateway Model: AP200B

MAC address: 2000a4567643 Virtual MAC address: []

GW user name: [] GW password: []

PPPoE Username: [] PPPoE Password: []

Sniffer: None Automatic Manual

Manual: DHCP PPPoE

DHCP: MAC address hostname

PPPoE: login/password service-name

OK Close

New Gateway

End user information

Group Id: 02 Aux. script: []

Group name: Seoul

User name: []

Address: []

Telephone: [] Email: []

Gateway information | VoIP configuration | Gateway status

H.323 SIP User Agent

H.323 id: jschoi02

Password: []

dial-peer configuration			
Slot/Port	e164	User name	User password
0 / 0	8225681234		
0 / 1			

OK Close

- Enter Group code, MAC address, password, H323id, e164 and Model.
- Set code “ 02” and e164 “ 8225681234” which comes under Group-A.
- The other user information can be added when the user is requested for the servicing by matching the MAC address.
- **After registering user information, you can ship the product to the user.**

5.5. End-customer Gateway Setting

- 1) After receiving the gateway, the customer installs the gateway.
- 2) If the customer does not apply for the service, they should applied for the service (via telephone or Internet) first. The user information and MAC address of the gateway are required to apply for the service.
- 3) Connect existing Internet line to the WAN (LAN0) port of the gateway. Then connect the LAN (LAN1) port to PC LAN port with the supplied LAN cable.
- 4) Refer to the Voice Finder user manual for more detailed information.
- 5) When the power is supplied to the gateway connected to the Internet, the gateway connects to VPMS with the gateway information (MAC address and IP address). If there is no reply from the VPMS, the gateway regularly tries to access VPMS.

5.6. Gateway Info generation and Installation

- 1) VPMS server waits for the gateway requesting for the basic information of the gateway. When the request is received, VPMS looks up for the gateway information from VPMS Database based on MAC address.
- 2) VPMS server monitors the IP address and condition of the gateway. Also, it saves the data at the Database.
- 3) The below chart shows the gateway status displayed on VPMS before and after installation.

< Before installation – GW status : Not provisioning>

No	Group code	User name	IP address	H323 ID	GW status	GK status	GK Cause
1	0001	James Dean	61.33.161.76	James75	UP	not registered	ConfigAsNoRegistration
2	0001	Tom cruise		Tom_cruisei	Not provisioning	not registered	Unspecified
3	0003	John lenon		voip.23.23.23.23	Provisioning	not registered	Unspecified
4	0002	Bon Jovi		voip.88.221.39.8	Not provisioning	not registered	Unspecified
5	0001	marlen		voip1281	Not provisioning	not registered	Unspecified

< After installation – GW status : Provisioning → UP>

No	Group code	User name	IP address	H323 ID	GW status	GK status	GK Cause
1	0001	James Dean	61.33.161.76	James75	UP	not registered	ConfigAsNoRegistration
2	0001	Tom cruise		Tom_cruisei	Not provisioning	not registered	Unspecified
3	0003	John lenon		voip.23.23.23.23	Provisioning	not registered	Unspecified
4	0002	Bon Jovi		voip.88.221.39.8	Not provisioning	not registered	Unspecified
5	0001	marlen	61.33.161.75	voip1281	Provisioning	not registered	Unspecified

No	Group code	User name	IP address	H323 ID	GW status	GK status	GK Cause
1	0001	marlen	61.33.161.75	voip1281	UP	not registered	ConfigAsNoRegistration
2	0001	James Dean	61.33.161.76	James75	UP	not registered	ConfigAsNoRegistration
3	0001	Tom cruise		Tom_cruisei	Not provisioning	not registered	Unspecified
4	0003	John lenon		voip.23.23.23.23	Provisioning	not registered	Unspecified
5	0002	Bon Jovi		voip.88.221.39.8	Not provisioning	not registered	Unspecified

4) **After registering the initial gateway information, VPMS server creates the necessary data for the gateway. Then configures the gateway with auto-script function.**

- The below is the example script of setting for the gateway.
(H323id, password, Auto-upgrade server setting, Auto-script setting and etc.)

```

gateway
h323-id jschoi02
register

dial-peer voice 0 pots
destination-pattern 8225681234
port 0/0

auto-upgrade auto-reboot
auto-upgrade url http://172.16.19.1/apos/packing.lst
auto-upgrade action auto
user change root router router
auto-script 02.inf
no ems pro
write
    
```

5) **When the auto-script is completed properly, the gateway does not ask for Provisioning signal and regularly sends gateway information to VPMS server.**

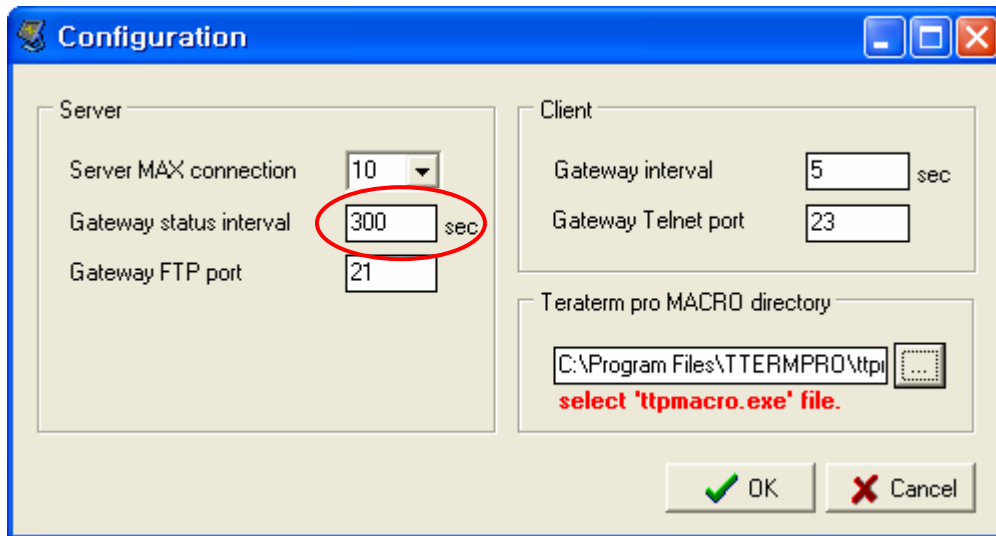
(The interval of sending gateway information can be configured “configure>ems>status-interval. The default interval is 5 min. So to change the interval, all the gateways should be changed (with auto-script function), and change the gateway status interval with VPMS client program configuration.

- status-interval configuration (300 sec)

```

AP1100(config)# ems ?
key                set shared key (secret key)
host              set EMS server address
provisioning-required set when provisioning is required from EMS
retransmit        set retransmit counter value (default 3 times)
status-interval   set status report interval (default 5 min.)
timeout           set retransmit timeout value (default 3 seconds)
AP1100(config)# ems status-interval ?
<10 - 86400>      timeout value (second)
AP1100(config)# ems status-interval 300
    
```

- Gateway status interval configuration (300 sec)



The latest gateway update time is displayed. The gateway status can be checked from Gateway management or status chart showing real time gateway status as a graph.

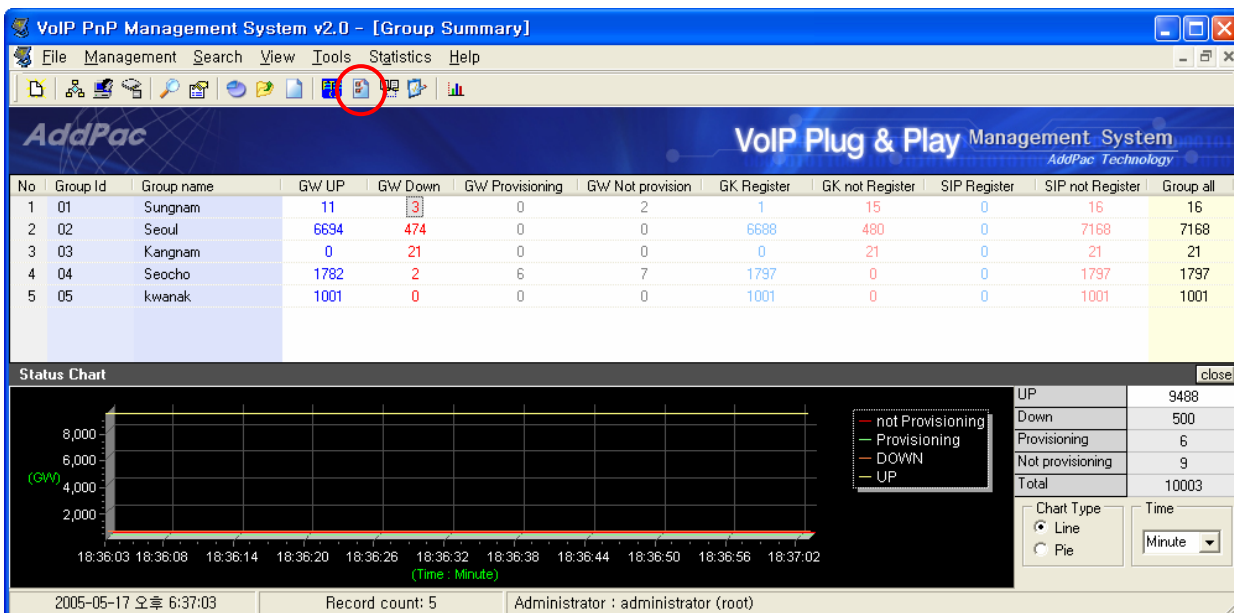
MAC address	Group Id	User name	IP address	Model	Version	Status	GK status	GK cause	SIP proxy status	Latest report time
000000000008	01		172.16.1.31	AP200B	jschoi77	DOWN	not registered	ConfigAsNo...	not registered	2005-05-12 오후 8:39:00
0002a4ffff58	01		172.16.19.1...	AP1100_S4...	8.126	DOWN	not registered	ConfigAsNo...	not registered	2005-05-02 오후 5:39:00
000000002710	01		1.1.1.1	AP200B		DOWN	Registered	Unspecified	not registered	

UP	9488
Down	500
Provisioning	6
Not provisioning	9
Total	10003

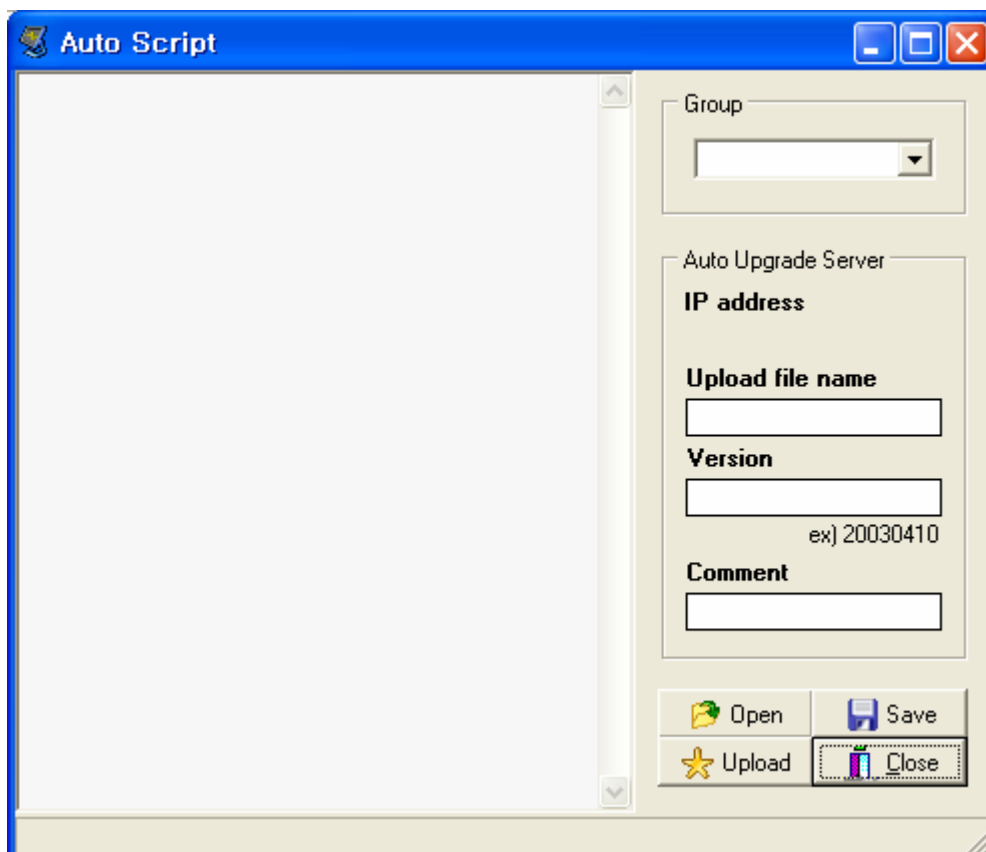
5.7. Group A Gateway Upgrade

5.7.1. Auto script upgrade

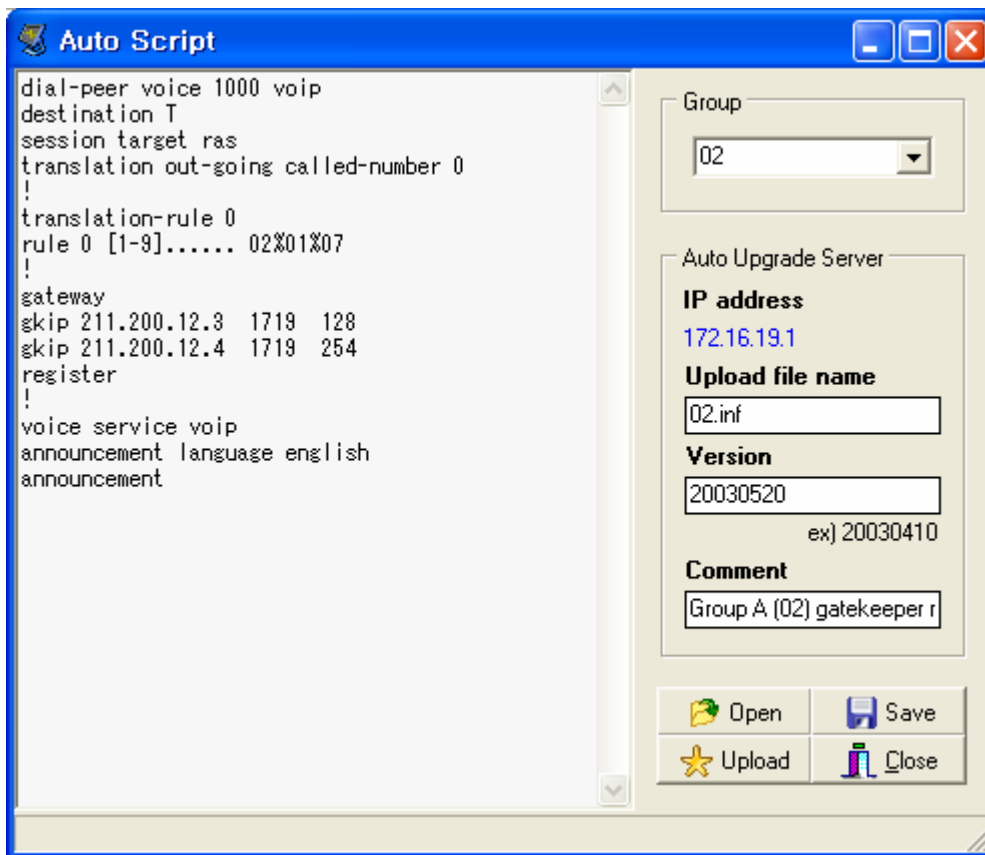
1) Start Auto-script of Client program.



2) Below window will be shown.



4) Make a script of **Group A (Seoul)** by editing directly or open it from file.



- Select group code.
- Do not change upload file name. Leave Upload file name as it is, “ Group code.inf” .
- Set version information. For example, it could be date and time.
- Set comment. This can be seen as log.
- Script can be saved and restored.

5) Push ‘ **Upload**’ button then upload this script to the Auto upgrade server’ s URL address.

6) Since the URL of Group code “ 02” is “ /apos/packing.lst” , **02.inf** file is uploaded to /apos directory and automatically create **packing.lst** file which stores below information.

- If packing.lst exists, the specific item has to be updated.
- Contents of packing.lst file is as below. .

```
./02.inf 20030520 20 Mar 2003 18:34:09
```

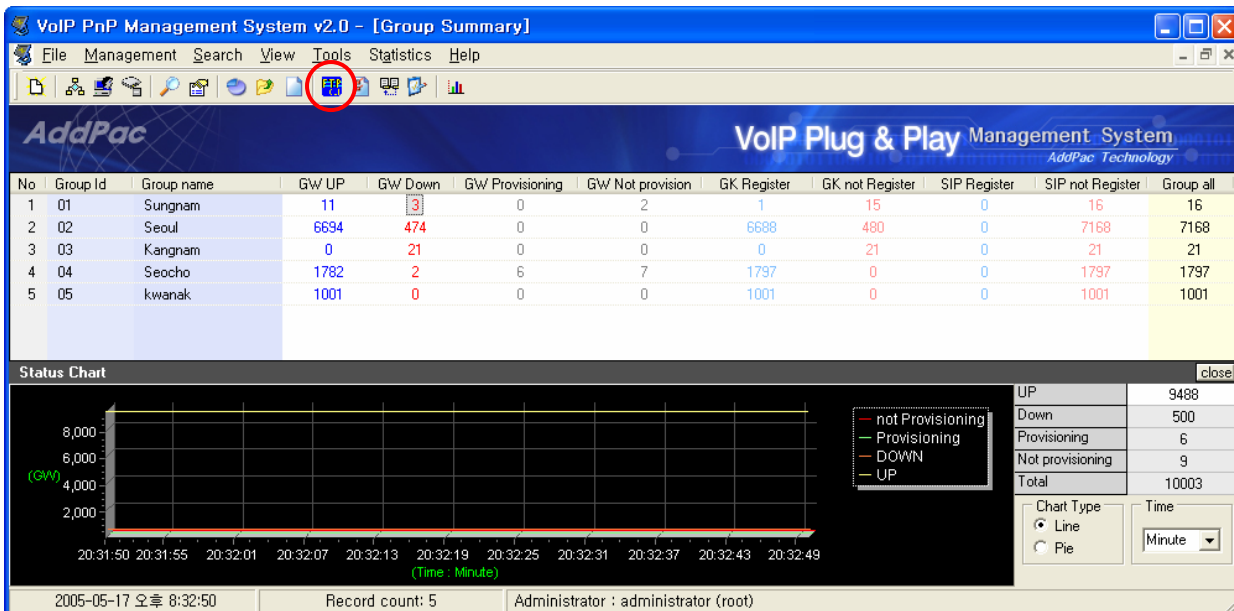
7) Gateway refers to **packing.lst** from auto upgrade server and run “ **02.inf**” script.

8) After the gateways of **Group A (Seoul : 02)** set as initial configuration, the gateway will download this script.

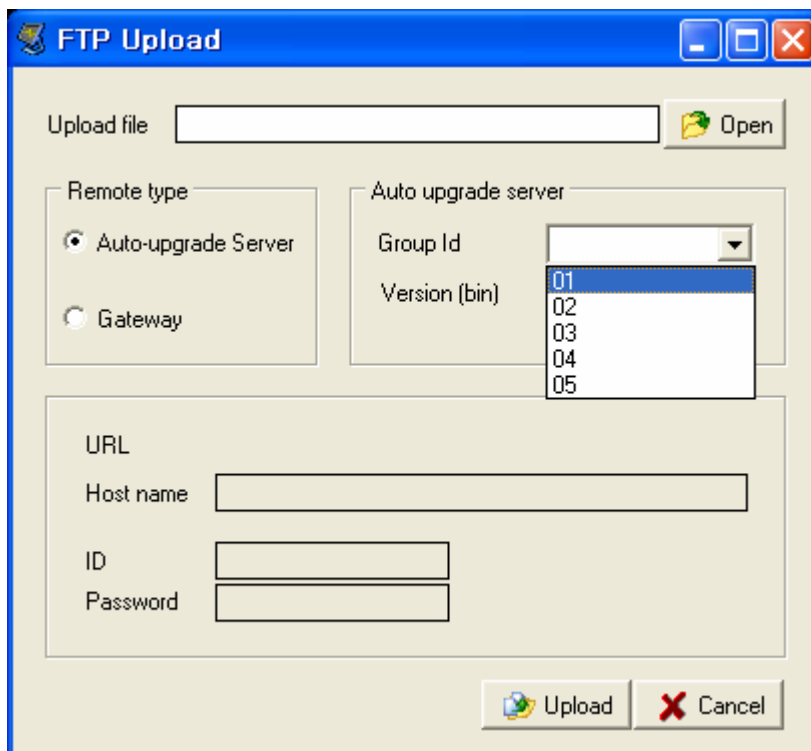
- The gateway which comes under Group A (Seoul : 02) is registered to Gatekeeper automatically, and a subscriber which has the gateway dial “ 5681111” , PSTN number in same Seoul area, area code(02) is automatically inputted to call. in Seoul area PSTN network phone number “ 5681111” .

5.7.2. APOS Image upgrade

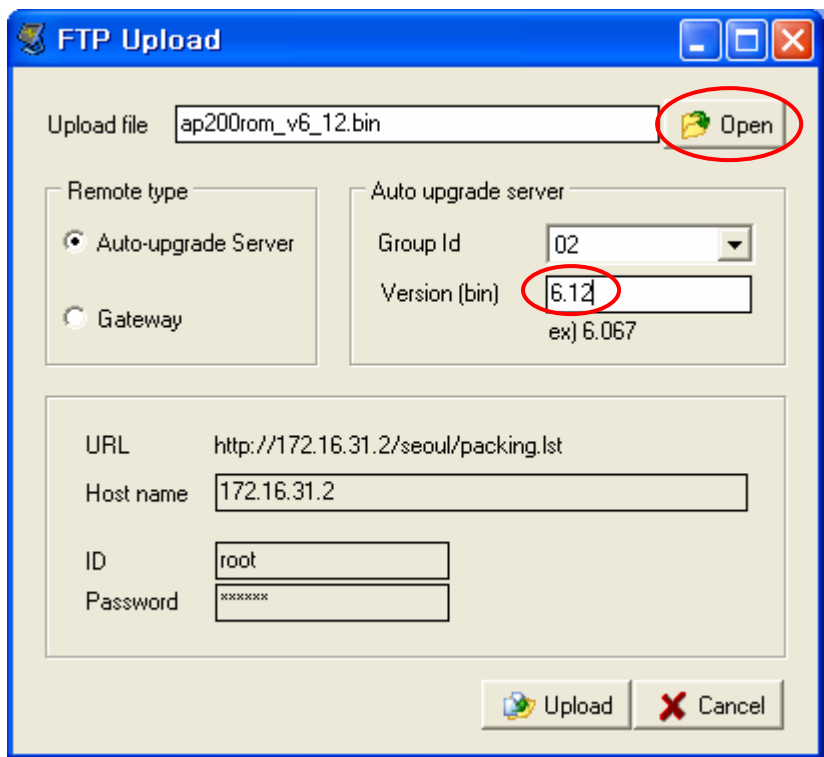
1) Execute FTP upload.



2) Choose Group code to be upgraded, and Group info can be entered automatically.



3) Click Open button, Choose APOS image to upgrade and enter Version information.



4) Push **Upload** button then, the APOS image will be uploaded to the Auto upgrade server by FTP.

5) Since URL for Group code “ 02” is “ /apos/packing.lst” , “ ap200rom_v6_12.bin” is uploaded into APOS directory, packing.lst is automatically generated.

- The contents of packing.lst file is as below.

```
./ap200rom_v6_12.bin 6.12 23 May 2003 21:08:37
```

6) Gateway refers to **packing.lst** from auto upgrade server and download “ ap200rom_v6_12.bin” image.