Video Storage Server

User's Manual

Version 3.2

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1.   Overview

Video Storage Server (VSS) is a network recording software capable of simultaneously storing up to 16 network video cameras to a PC's local storage via LAN/WAN network connection. VSS is specially designed to reduce front end video camera workloads as well as to help deploy large scale surveillance scenarios. Combining VSS with CMS/iCMS, remote monitoring, controlling, storage and management for multiple surveillance locations is easily manageable.
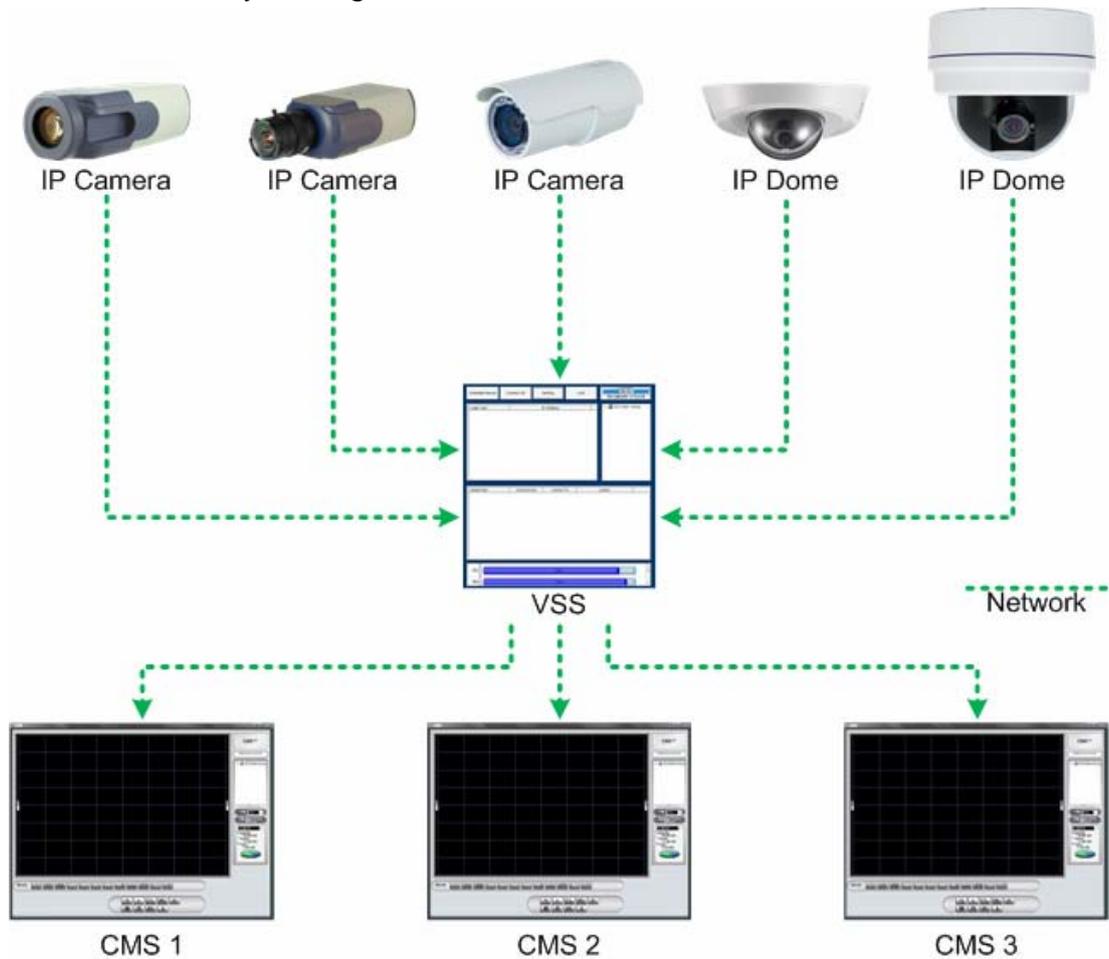
Features:

- **Connect Multiple Sites** – Managed up to 16 channels
- **Video Record** – Instant / scheduled / motion recording
- **Dual Streaming** – Main Stream for recording, Sub Stream for CMS/iCMS/remote preview
- **Support ONVIF configuration**
- **Multiple Language Support**

1.1   System Requirement

The following chart shows recommended computer system:

Operating Systems	Windows XP, Windows Vista, Windows 7	
CPU	Minimum: Intel® Core™ 2 Duo 2.4 GHz	Recommended: Intel® Core™ i5-2500K 6MB Cache 3.3 GHz
RAM Memory	Minimum: 1GB	Recommended: 4GB
HDD	Minimum: 80GB	Recommended: 1TB
Ethernet	Minimum: 100 BaseT	Recommended: Gigabit LAN
Tested Setup	CPU: Intel® Core™ i5-2500K (6MB Cache, 3.3 GHz); RAM: DDR3 4GB; OS: Windows 7 Professional; Ethernet: Gigabit LAN; Mainboard Chip: Intel H6X	

NOTE: If the operating system is Windows Vista or Windows 7, some functions (such as Record, Auto Reboot, etc) will not work properly due to User Account Control (UAC). Follow steps below to solve this problem.

Step 1. If a previous version of VSS is installed, export setting files of VSS before installing the new version VSS.

Step 2. Due to UAC, user account in Windows Vista or Windows 7 cannot properly run applications that will write in "C:\Program Files\" folder. Therefore, VSS will be installed in "C:\" folder instead.

Step 3. Once the new version VSS is installed, import the setting files back to VSS.

2.   Software Installation

Follow the steps below to install VSS to the local computer.

Step 1. There are 2 ways to start the installation.

> **Option 1.** Download the compressed file and extract it. Click on the VSSSetup.exe file to start the installation.
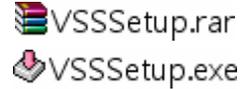
> **Option 2.** If VSS will be installed via a CD, the installation will startup automatically when the CD is inserted into the CD-Rom. The <VSS Setup Menu> window will be displayed. Choose <INSTALL VSS> to start installing VSS. Choose <VSS USER'S MANUAL> to open the user's manual. Choose <EXIT> to exit the <VSS Setup Menu>.

> **NOTE:**
> 1. If an older version of the VSS had been installed in the local computer, a message box will be shown during the installation. Click <OK> to uninstall the previous version.
> 2. After clicking <OK>, an un-installation confirmation dialog will be displayed. Click <Uninstall> to uninstall the older version and continue with the next step.

Step 2. Select the components that are going to be installed. It is strongly recommended to select the <Start Menu Shortcuts> to create shortcuts in the Start Menu and on the Desktop. Otherwise when the program is to be opened, it will have to be found under the path: "\VSS\EXE\VSS.exe". Click <Next> to go to next step.
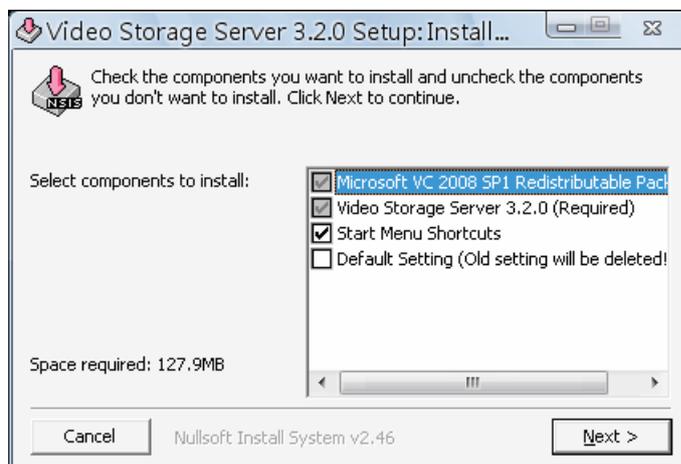
The components of the VSS Installation Setup are:

a. Microsoft VC 2008 SP1 Redistributable Package: This is an upgrade package required for correctly running VSS.

b. Video Storage Server 3.2.0 (Required): The VSS main program must be installed.

c. Start Menu Shortcuts: Check the box to create shortcuts in the Start Menu and on the Desktop.

d. Default Setting (Old setting will be deleted!): Check the box to load default setting, or uncheck it to load the old setting of previous installed VSS.

Step 3. The VSS main program will be the first program to be installed. Choose a folder to install the VSS or it will be installed to a default destination folder "\VSS\". Click <Install> to start the Installation; or click <Back> to go back to the previous step.

Step 4. When the Software Installation is completed, click <Close> to exit.

3.   Software Upgrade

VSS software can be upgraded automatically or manually. Refer to the following sections for details.

3.1   Automatic Software Upgrade

To enable automatic software upgrade, right click on VSS icon in the system tray and check "Auto Upgrade".

If automatic software upgrade is enabled, VSS will connect to the FTP Server and check for upgrade once a month. If no upgrade is available, VSS will continue normal process. If upgrade is detected, please follow the steps below to proceed.

Step 1. A message box will pop up to inform that there is upgrade available. Click <OK> to download the upgrade software and continue to the next step. Otherwise, click <Cancel> to abort and continue to normal VSS process.

Step 2. Choose a destination folder to save the file. Then a window will pop up and show the downloading status. Click <Abort> to terminate the download and VSS will be started as usual.

When the download is completed, the installation of the new version of VSS can be started following the same procedures described in section ***Software Installation***.

NOTE: If the upgrade file is not completely downloaded or is broken, an error message will be displayed.

NOTE: A release note will also be downloaded together with the setup file. A message window will pop up to show the file path where the release note is saved.

3.2 Manual Software Upgrade

To manually upgrade software, click on the <Setting> button and click on <Software Upgrade> at the bottom. Then follow the steps in the previous section to complete the download and installation.
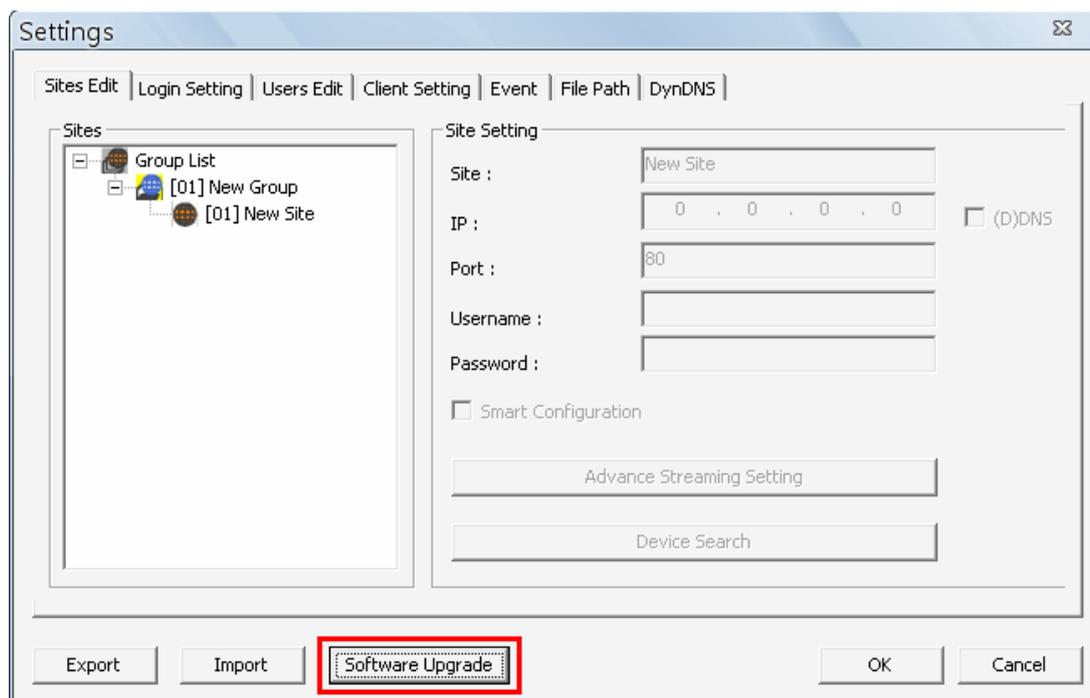
4. Start Up VSS

There are 3 ways to start VSS. Note that method A and B are only available if the "Start Menu Shortcuts" component is installed. Please see section ***Software Installation*** for more information.

Method A. Click Start menu and select Programs. Then find "VSS" from the listed programs.

Method B. Double click on the shortcut icon on the desktop.

Method C. Go to "\VSS\EXE\" and double click on VSS icon.

4.1 Starting Up

If VSS is started for the first time, select a desired language for the interface. The available languages are listed in the scroll box. Click <OK> to confirm the selection.

NOTE: If the system memory or CPU frequency is less than the requirement, the error message will be displayed.

4.2 Login

The default username & password are: "**admin**" and "**1234**". Enter the default username and password, then check <Save user name and password> to save time from entering username and password every time VSS starts. Click <OK> to login.

The username and password accounts can be added or removed under the <Users Edit> tab in <Setting> configuration window. Refer to the ***Users Edit*** section for more information.

NOTE: If wrong username or password is entered for 3 times, an error message will be displayed, and VSS will be closed automatically after <OK> is clicked. Restart VSS to enter the correct username and password.

5. VSS Main Window

The main window of VSS is as the below.
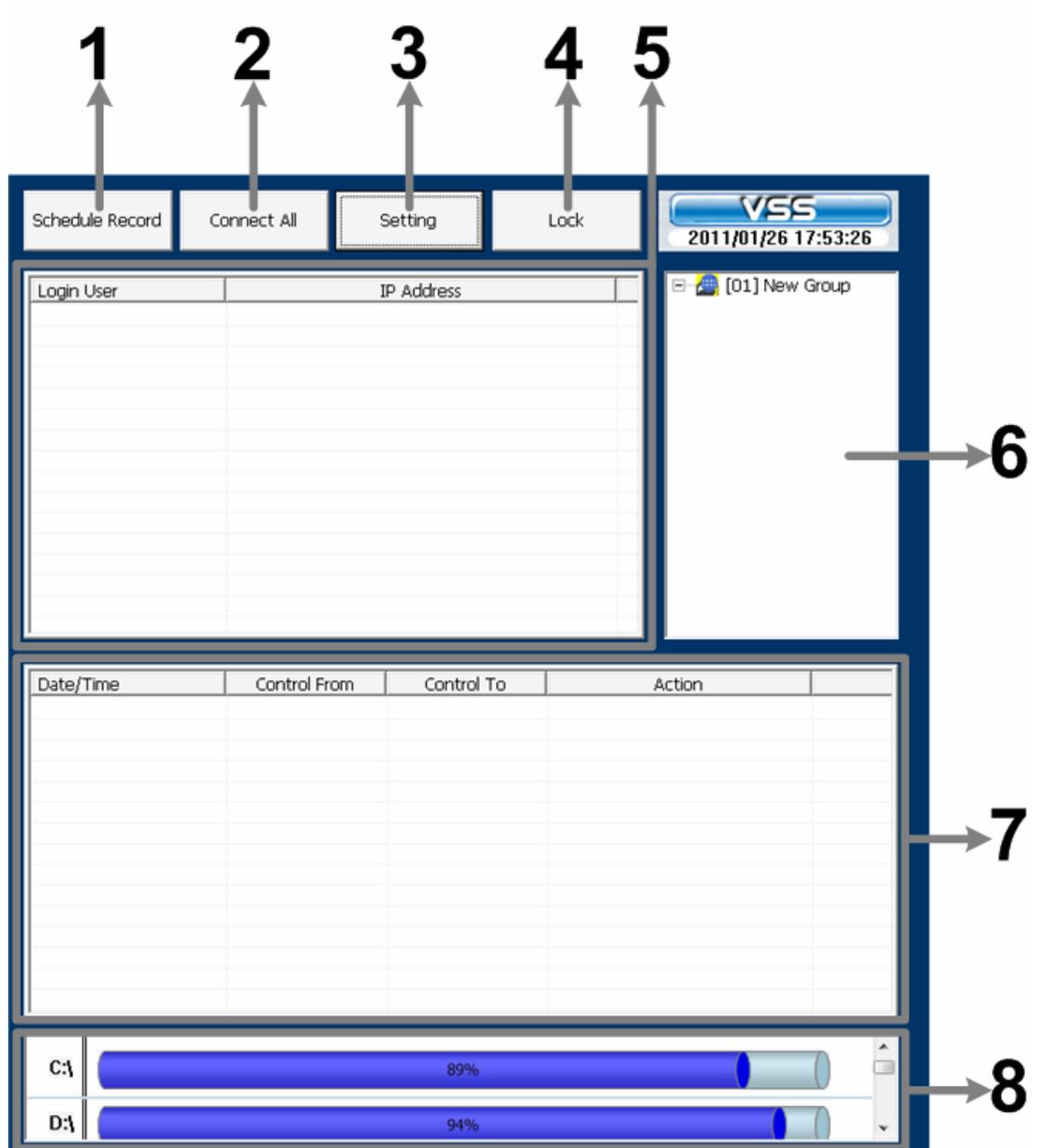
1	Schedule Record
2	Connect All Sites
3	Setting
4	Lock
5	CMS/iCMS Client Login Info
6	Site Tree
7	System Log Data
8	HDD Info

The usage and function of each button will be briefly described as follows.

Schedule Record
Click on the <Schedule Record> button to schedule the recording time frame for the connected sites.

Connect All Sites
Click on the <Connect All> button to re-establish connection to all sites in the site tree.

Setting
Click on the <Setting> button to setup the configuration. Refer to section ***Configure VSS*** for detailed information.

Lock
Click on the <Lock> button to lock VSS to protect the works on VSS when users need to be away from the computer for a while. This function is the same as the computer's screensaver. See section ***Lock Function*** for more detailed information.

CMS/iCMS Client Login Info
A list of login CMS/iCMS Clients will be shown in this area. The information includes the login users' account names, and IP addresses. The listed CMS/iCMS Clients will not exceed maximum number of connection setup in <Client Setting>. Refer to section ***Client Setting*** for more details.

⚠️ **NOTE:** If CMS/iCMS Clients have been idled for more than 4 minutes, VSS will automatically kick off the connections.

Site Tree
The site tree displays the site(s) of current start group. Right click on the "site" and select <ReConnect> to re-establish connection to the site. The <DisConnect> option allows users to only disconnect a certain site. The <Record> option gives users freedom to instantly record videos of the selected site. Details of this function will be explained later in section ***Instant Record Function***. The <Configuration> option allows to edit camera settings. Refer to section ***Configuration Menu of the IP Cameras*** for more details.

By right clicking on the group icon, the options shown as on the right allows users to expand or hide the site tree.
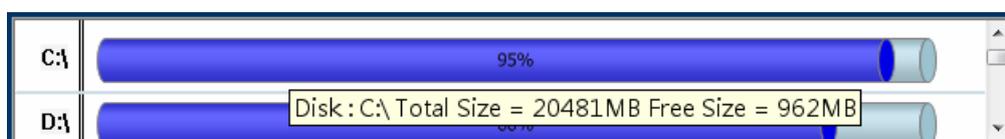
> Expand Tree
> Hide Tree

System Log Data

The operational and system logs of VSS and CMS/iCMS Clients will be listed in this area.

HDD Info

Move the cursor to the display bar of a HDD, then a hint message with a brief information of the selected HDD will be shown.

5.1　VSS Icon in the System Tray

When VSS has been started up, VSS icon will always be shown in the system tray. Right click on VSS icon and the menu items will be shown as on the right.

> ✔ Auto Upgrade
> ✔ Minimize To Tray
> **Open Video Storage Server**
> Help

If <Minimize To Tray> is checked, VSS window will shrink to VSS icon in the system tray when it is minimized. The taskbar button will also disappear.

To restore VSS window, double click on VSS icon and the taskbar button will also appear at the same time. Alternatively, right click on VSS icon and select <Open Video Storage Server > and VSS window will be restored.

Select <Help> will pop up the PDF file of the User's Manual.

6.   Configure VSS

Click on the <Setting> button and a window as below figure will be displayed.
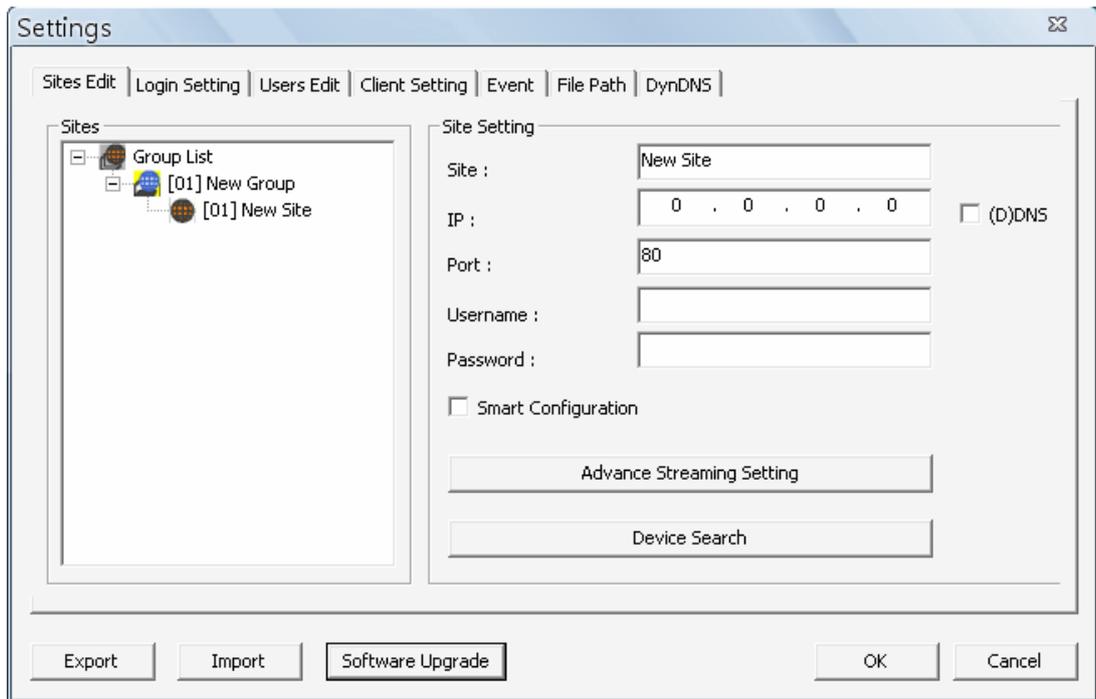
The configuration items of VSS and their brief description are listed as below:

Sites Edit	Setup and management of connection groups and sites.
Login Setting	Setup login options of VSS.
Users Edit	Setup and management of login accounts.
Client Setting	Setup and management of CMS/iCMS Clients.
Event	Setup event recording duration.
File Path	Setup directory of recorded videos.
DynDNS	Setup a static domain name for dynamic IP

The following subsections will guide users to setup VSS step by step.

6.1 Sites Edit

VSS supports up to 10 groups, with at most 16 IP devices can be added to each group. If more than 16 IP devises are added, error message will be displayed. This section will guide users to setup and manage connection groups and sites.

⚠️ **NOTE:** The supported IP devices are NH and NV series IP cameras.

6.1.1 Groups Settings

Add Groups

Right click on <Groups List>, and select <Add a group> to add a group. The bottom two menu items allow users to expand or hide all groups.
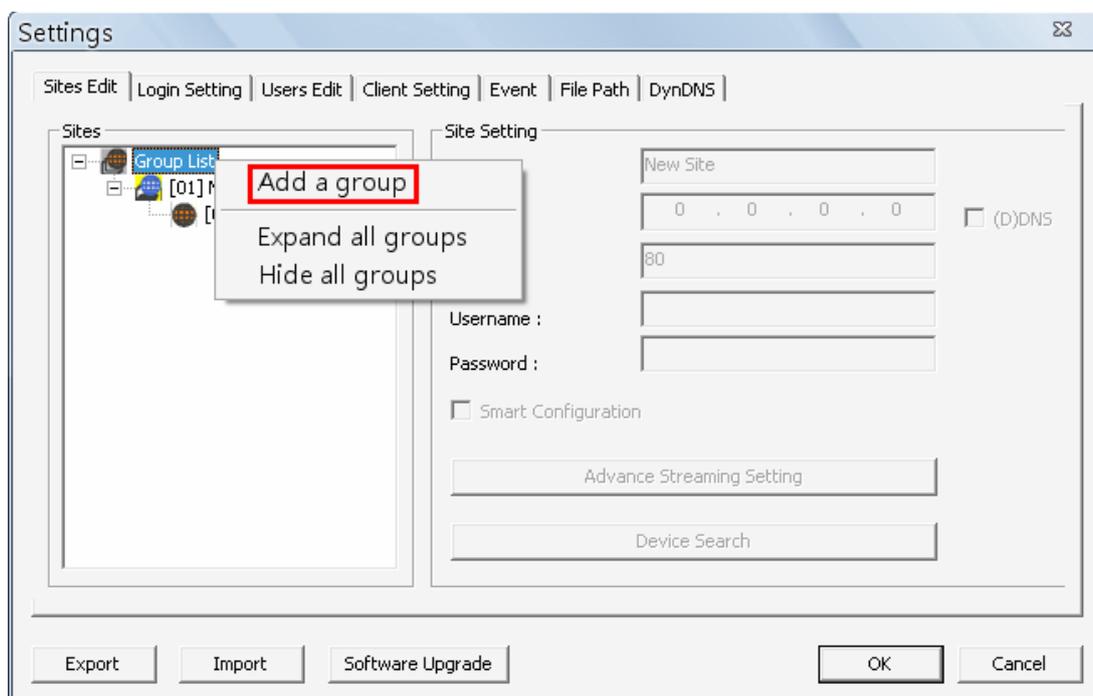
Rename / Remove Groups

Right click on a preferred group and select <Rename> to change name of the group. Also, right click and select <Remove> can remove the selected group.
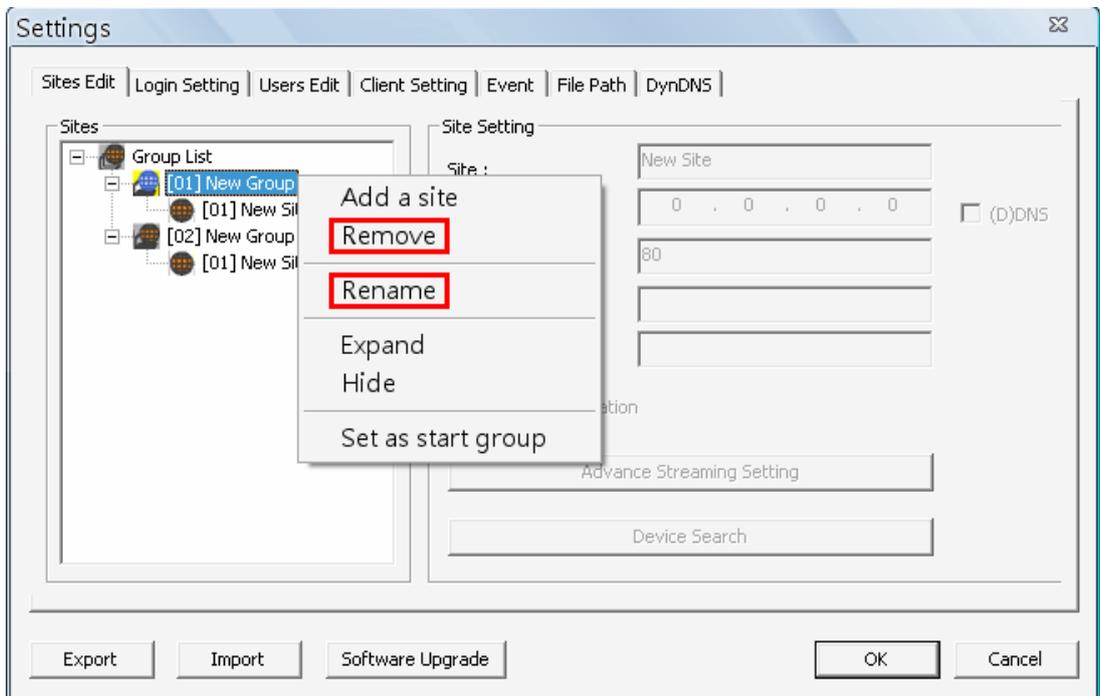
Set Start Group

"Start Group" is the group that will be connected after starting up VSS. Right click on a preferred group and select <Set as start group> from the pull-down menu. The start group icon will be different, as shown below.
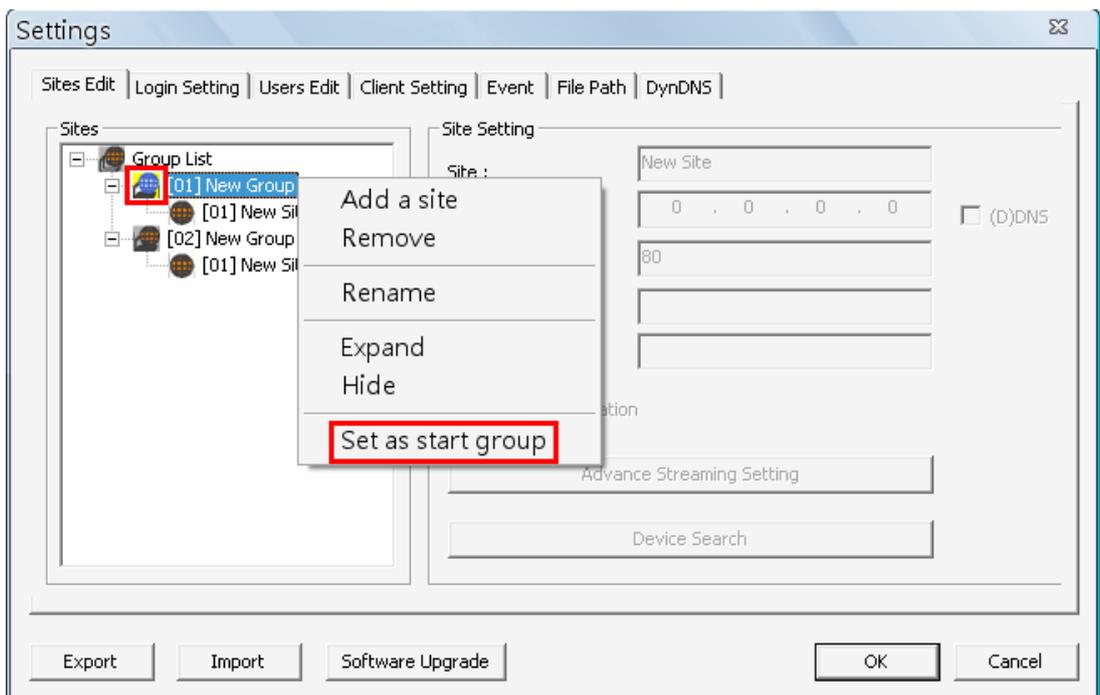
Expand / Hide Groups

To expand or hide a group, right click on the group and select <Expand> or <Hide>.
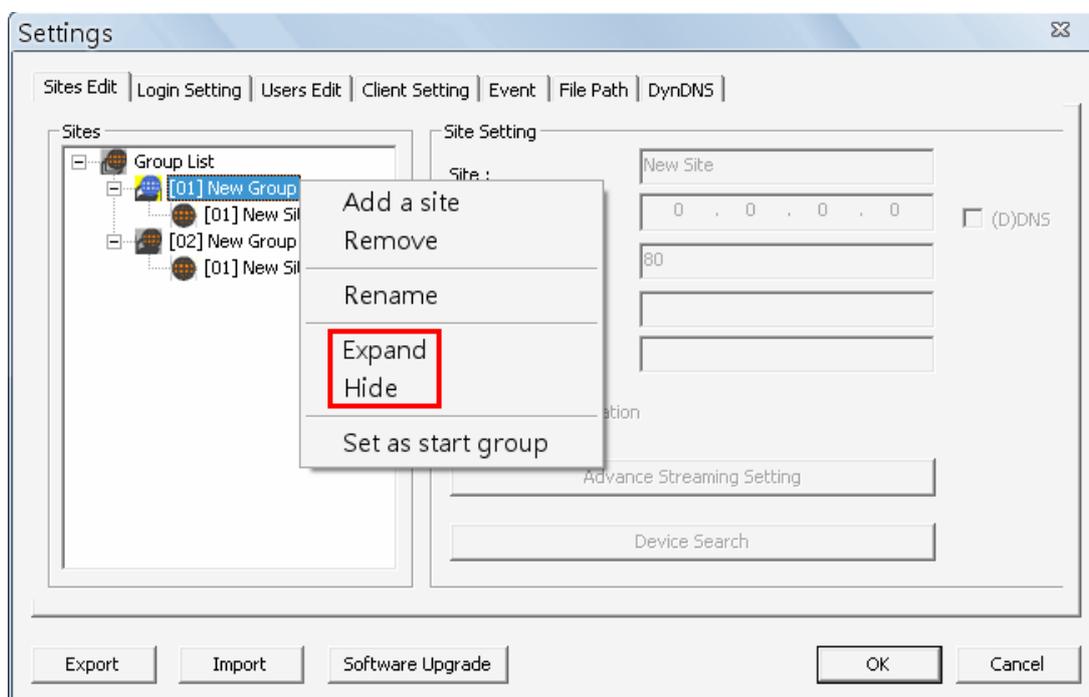
6.1.2   Site Settings

This section is the instruction of the management of sites, including addition, removal and configuration of sites.
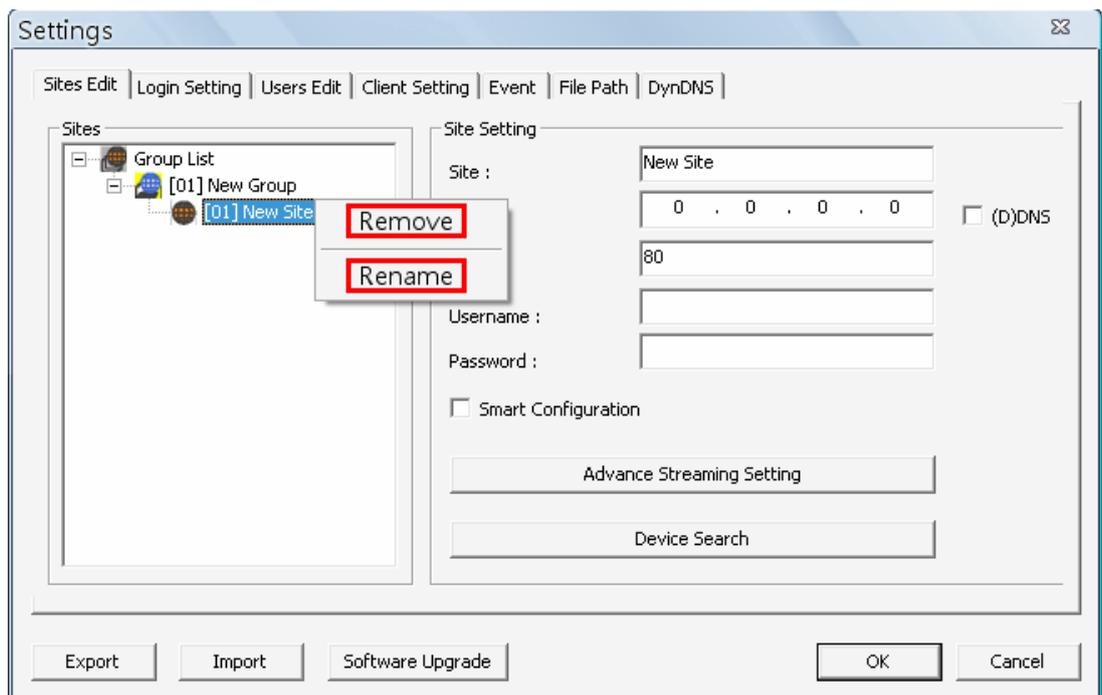
Add Sites

Right click on a group, and select <Add a site> to add a new site to the group.
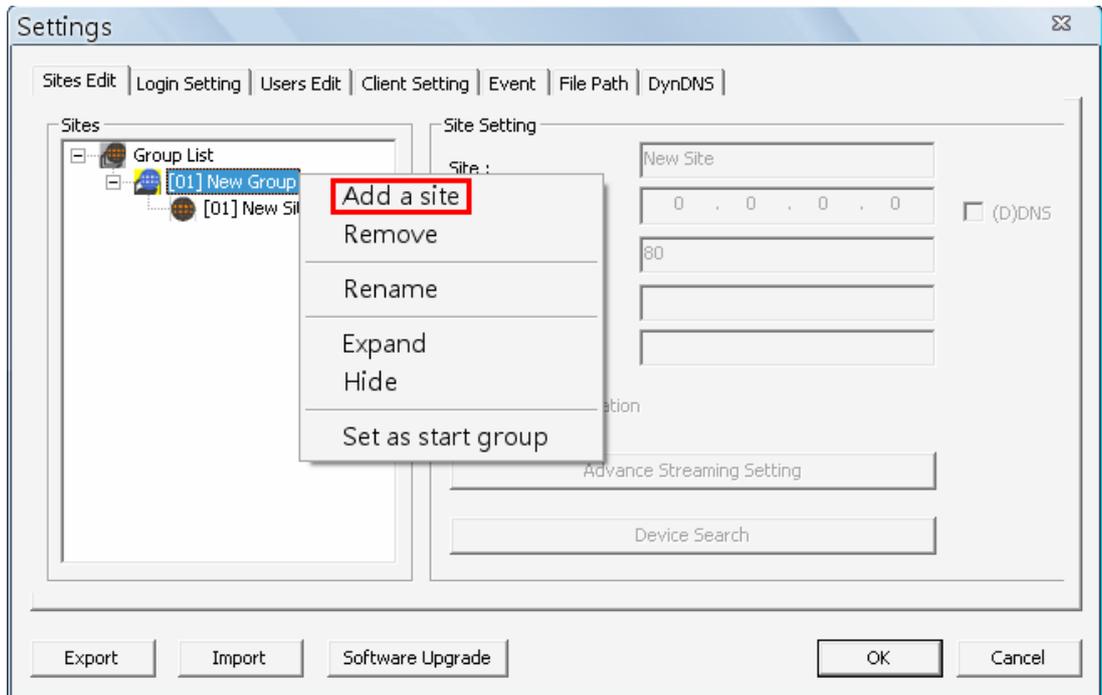
Remove / Rename Sites

Right click and select <Remove> / <Rename> to remove / rename the site.

Input IP Address and Port – Manually or Device Search

Users can manually input IP address and port of a site, or via Device Search.

VSS can search for IP address of supported IP Cameras in the LAN network. The ports used for device search are 6666 and 6667. Please make sure that these two ports are not in-use nor blocked by firewall or virus scan software.

Follow steps below to search for IP Camera(s):

Step 1. Click the <Device Search> button to open up the Search window.
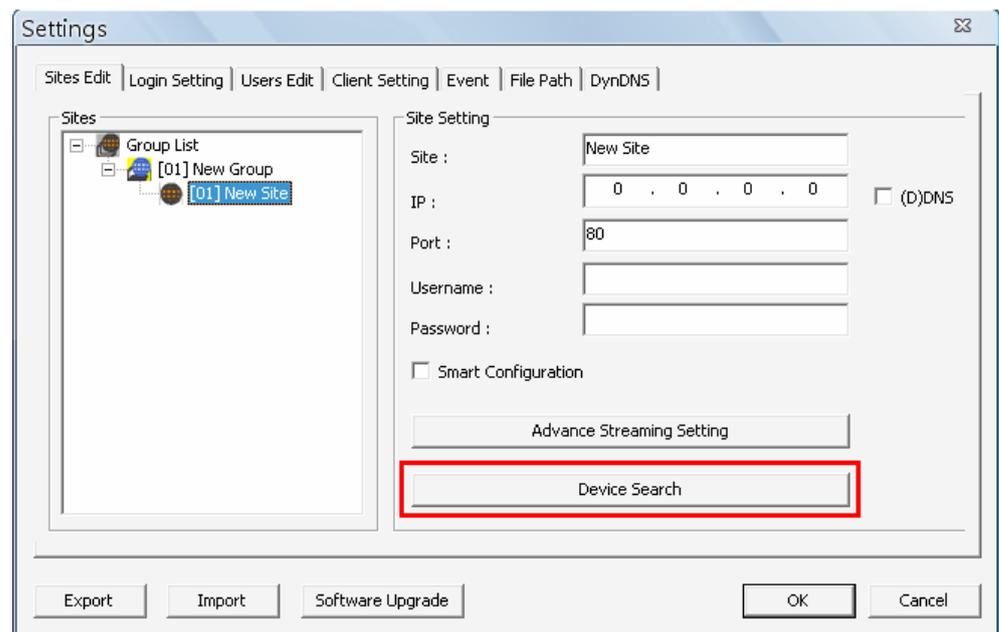
Step 2. The list will show supported IP Camera(s) found in the LAN network. Select from the list and **Double Click** on any device to add it to the new site.
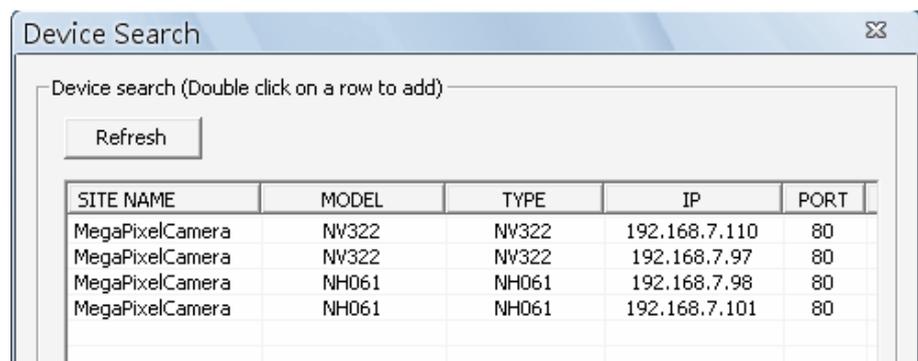
⚠ **NOTE:** The Device Search function can only be used to search for devices within the same LAN. For example, if the PC's IP address is 192.168.**1**.5, and a connected IP camera has an IP address of 192.168.**1**.7, VSS will be able to find the IP camera. However, if there is another IP camera connected to another LAN network such as 192.168.**3**.6, VSS (whose IP is 192.168.**1**.5) will not be able to find the IP camera in another LAN network.

DDNS Address

The IP address of an IP camera can also be entered with a DDNS address. Check the box <(D)DNS> as marked below, and type in the DDNS address. An example of the DDNS address looks like: *********.ddns.iview-ddns.com**
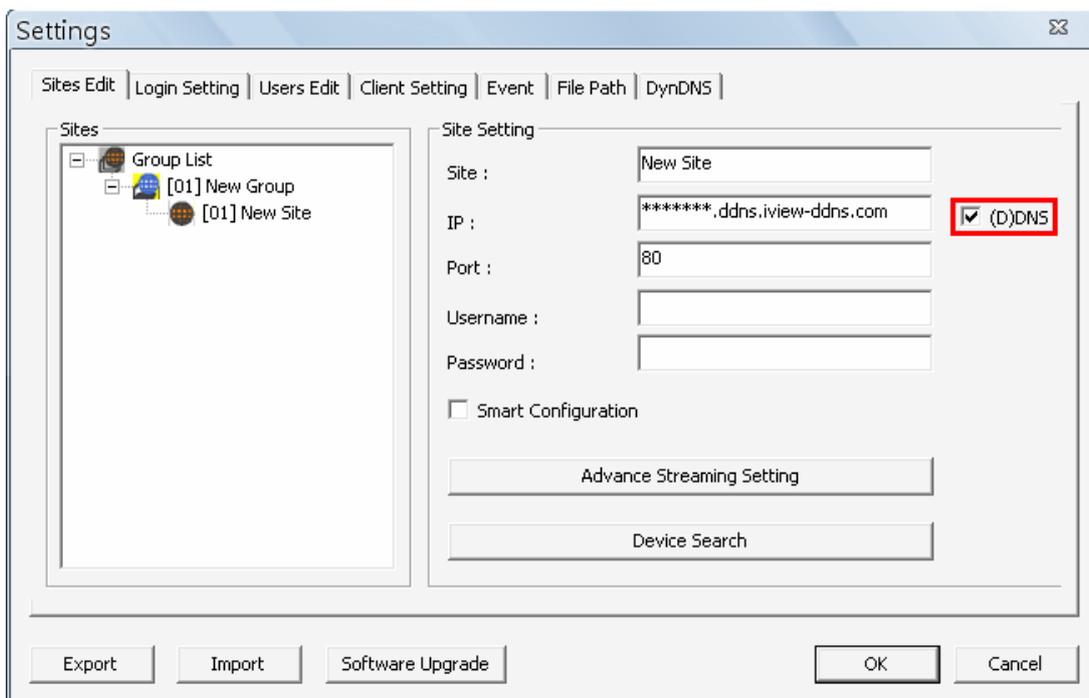

Input Username and Password

After the IP Camera's IP address and port are filled-in, then enter the IP Camera's username and password.

Smart Configuration

For users who wish to enable smart configuration, check the box in front of <Smart Configuration>. VSS will logon to the IP camera twice to retrieve two different types of video streams. The main stream is H.264 with higher resolution, which will be the recording format at VSS site. On the other hand, the sub stream is H.264 with lower resolution, which will be the live display format for the CMS/iCMS Client site.
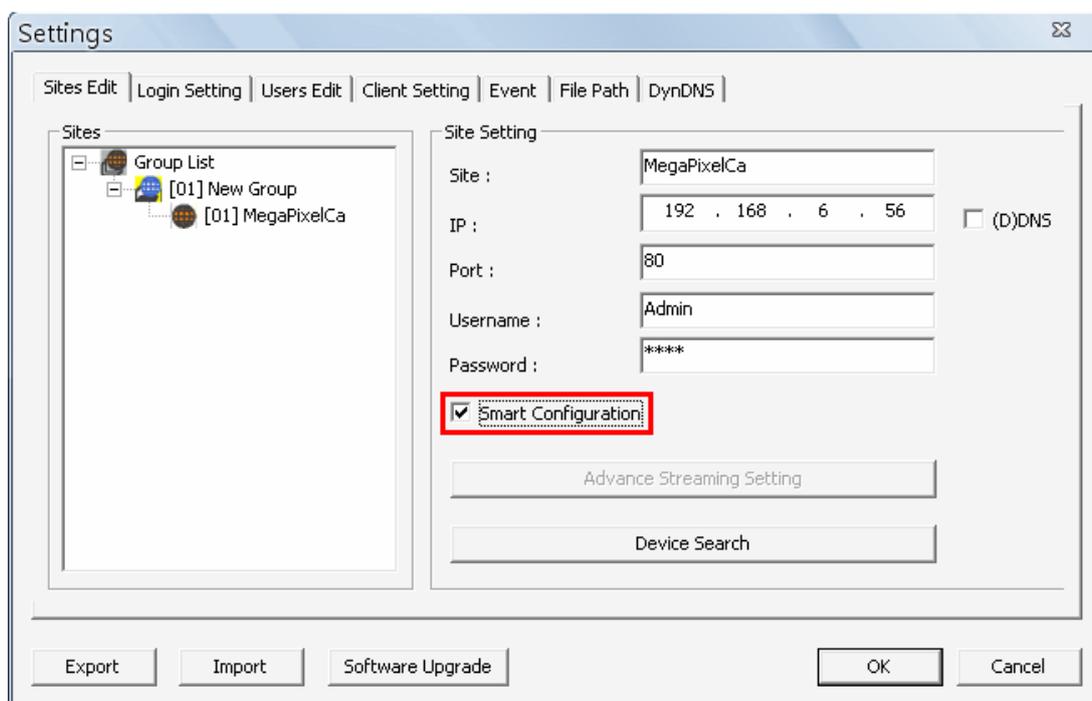
NOTE: When smart configuration is enabled, <Advance Streaming Setting> will be disabled in the mean time.

Advance Streaming Setting

Users can also manually setup dual stream function via clicking on <Advance Streaming Setting>. The setup window will be as below.


NOTE: In order to setup <Advance Streaming Setting>, Smart configuration has to be set disabled.

Step 1. Check the box in front of <Enable> under Sub Stream section to enable dual stream. Otherwise, uncheck to disable dual stream function.

Step 2. Select preferred stream type and resolution for both the main stream and the sub stream.

Step 3. Check the box in front of <Record> under Main Stream section **OR** Sub Stream section to select the recording format at VSS site.

Step 4. Click on <OK> to confirm and save the setting. A popup window will be displayed to notify users that the setting is changed.

6.2 Login Setting

Users can edit options regarding login settings in this section. Administrator username and password is required to edit login setting.
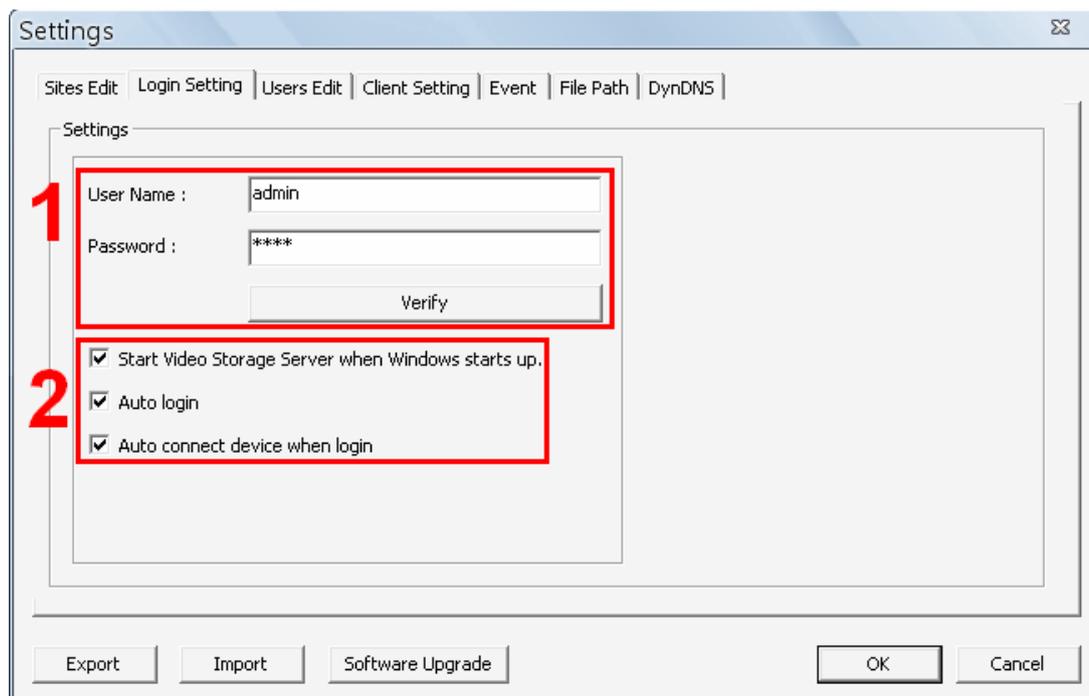
<u>Verify Account</u>

As shown in the above picture, the box marked "1" is where users can enter a set of username and password to be used for auto login. The <Verify> button can help users to check if the username and password are correct. A message box will be displayed to inform the result of verification.

Automatic Actions

The box marked "2" contains the options regarding automatic actions. Clicking the first option "Start Video Storage Server when Windows starts up." to request the computer to open VSS in the mean time when the system startup. Note that the other two options "Auto Login" and "Auto connect device when login" will be checked at the same time. Nonetheless, it is still users' choice to determine the favorite setting.

A message window will be shown when VSS is auto opening after the system started up. Click "Cancel" can terminate opening VSS.

Click the second option "Auto Login" to automatically login when VSS starts. Remember to enter and verify username and password in box 1.

Click the third option "Auto connect device when login" to automatically connect to the sites in the start group when VSS starts. Detection of internet connection will be performed before hand and a message window will be displayed. Click <Stop> to terminate the detection and auto connection will not be initiated.
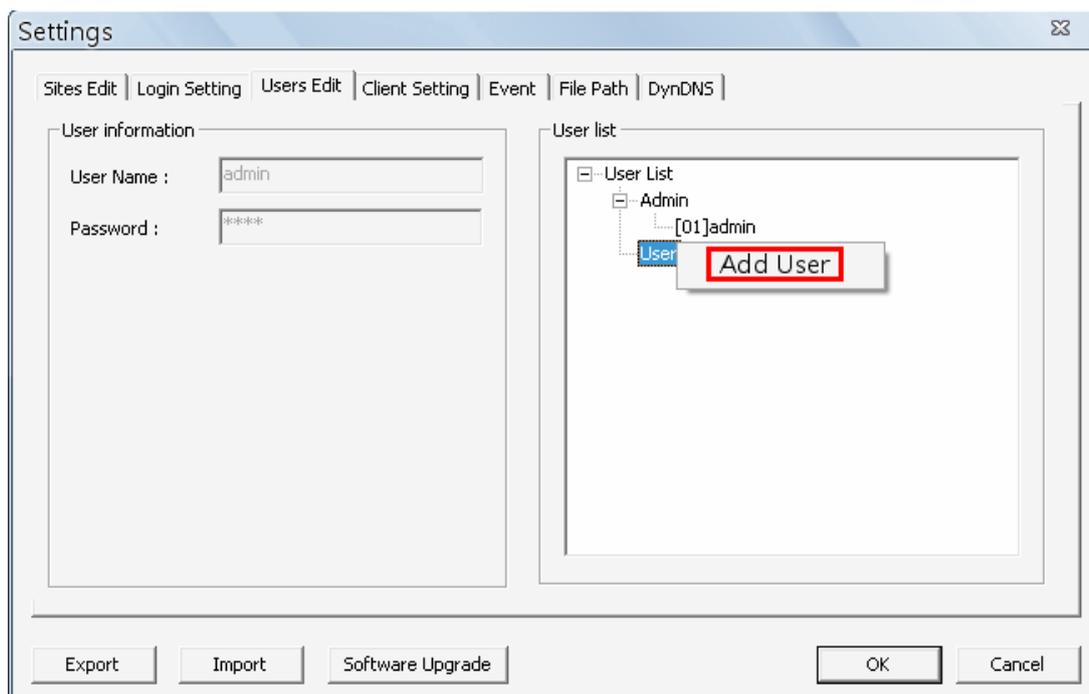
6.3   Users Edit

<Users Edit> is for the management of login accounts in VSS. The default username and password are "**admin**" and "**1234**".
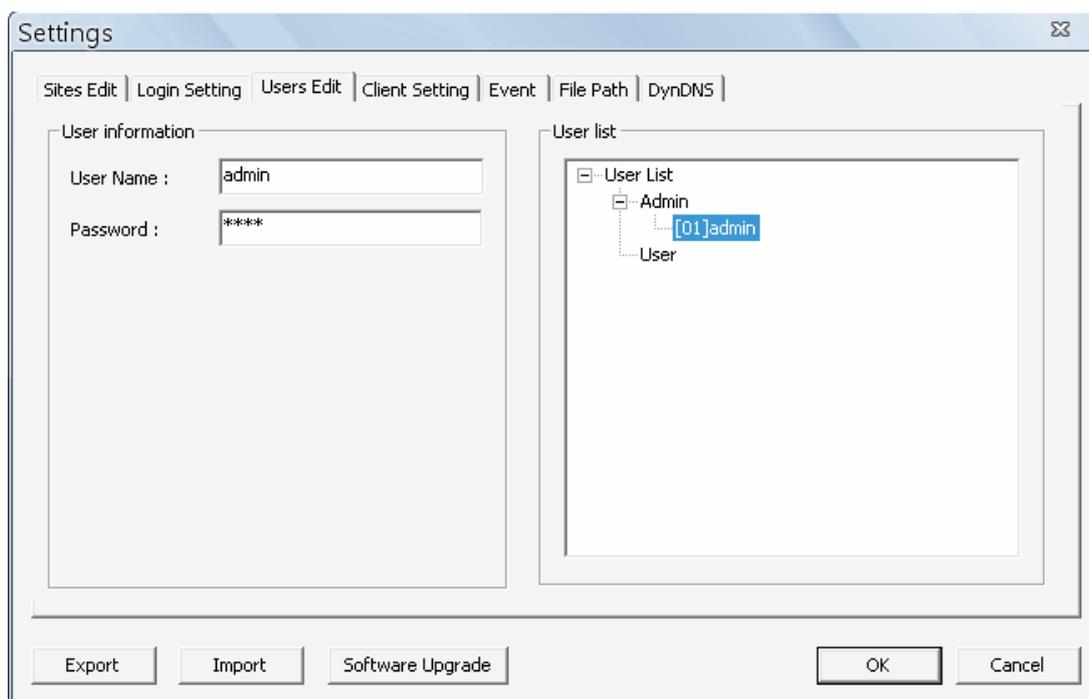
⚠ **NOTE:** Only accounts under the <Admin> group have the privilege to change all the settings.
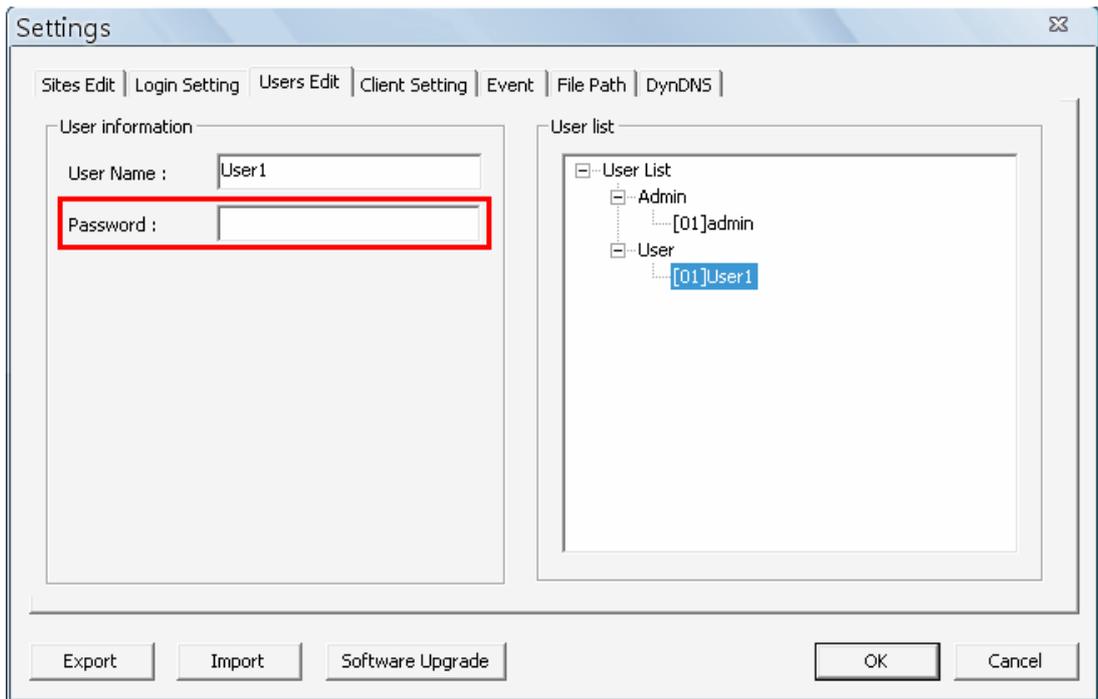
Add Accounts

Right click on "Admin" or "User" and select <Add User> to add a new account.
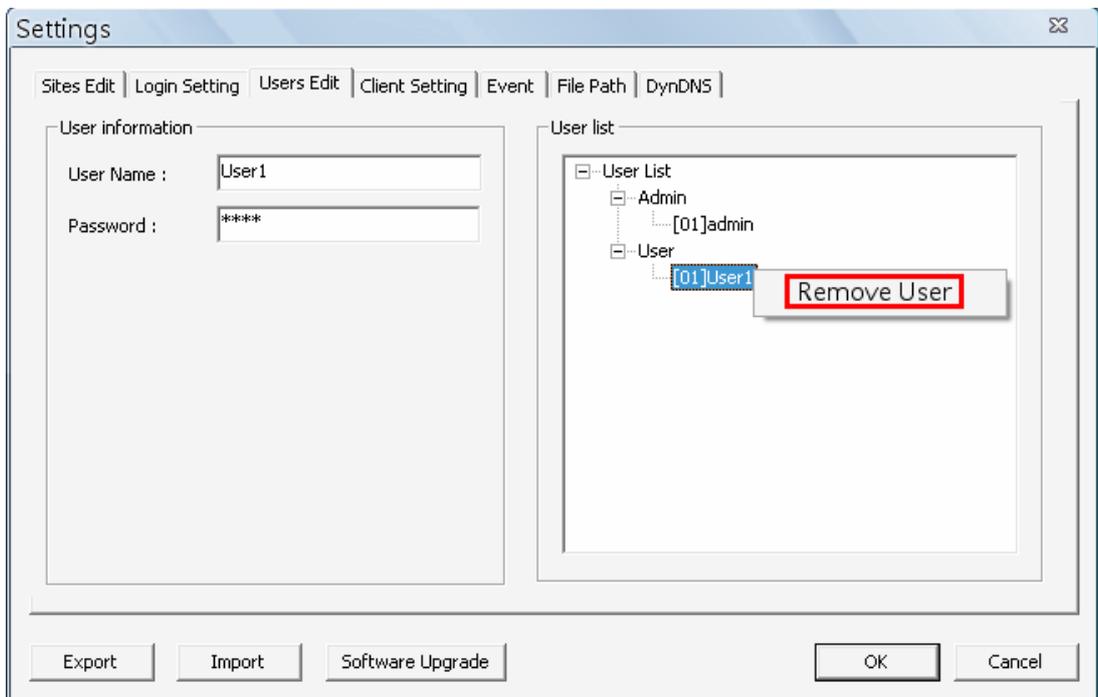
Setup Password and User Name

After the new account is added, "Password" **MUST** be set for this account before users can go to the next step. When "Password" is set, "User Name" can be changed if users wish to. Note that "User Name" is case sensitive.

Add Accounts

Right Click on an account and select <Remove User> to remove the account.

NOTE: The account currently used to login cannot be deleted.

6.4   Client Setting

In <Client Setting> tab, users can specify white and black lists of CMS/iCMS Clients' IP addresses, connect port, and maximum connections of CMS/iCMS Clients. In addition, users can choose to save system log data in selected folder.

On the left hand side, input IP addresses of CMS/iCMS Clients and click on <Add to white list> or <Add to black list> to add the specific IP addresses to the white or black list. The added item can be found in the list below the buttons. If users wish to delete any item, click on the item first and click on <Delete> to do so. In addition, click on <Allow All> to allow free access. Alternatively, click on <Block All> to block all access.

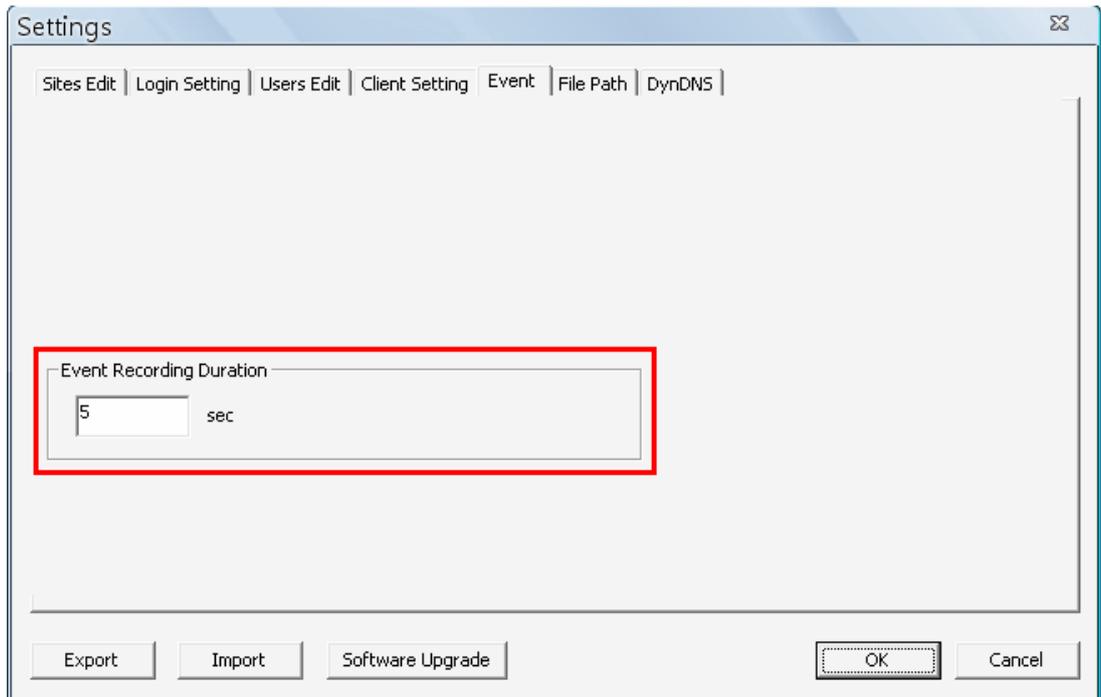Users can specify "Connect Port" and maximum number of connections on the right hand side.

⚠ **NOTE:** The maximum number of connections cannot exceed "5".

Check the box in front of "Save Log" and select a folder to save the system log data in a text file.

6.5   Event

The <Event> tab enables users to specify recording duration of event videos, when event videos are scheduled to be recorded.

Under <Event Recording Duration>, input recording duration of event videos. Note that the measurement is in seconds.

6.6　　File Path

In <File Path> tab, users can specify destination folder(s) for recorded videos. The preset folder is \VSS\Record\. Then users can choose whether to enable circular recording.
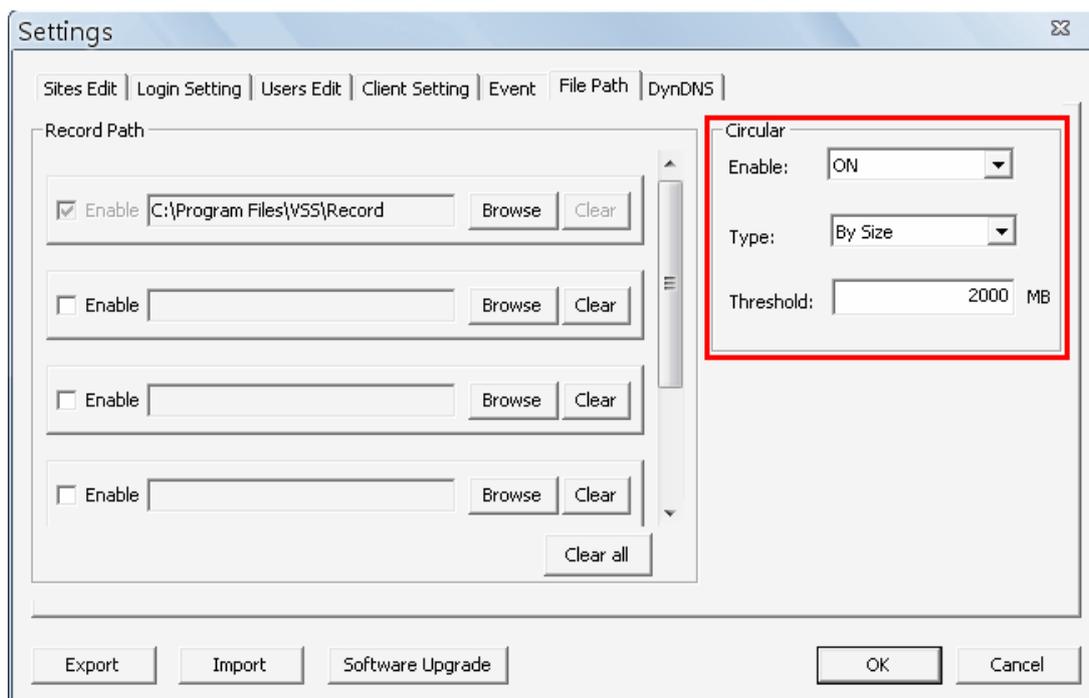
Select Destination Folders

The number of selectable folders equals to the number of HDDs the PC connects to, excluding HDDs with capacity less than 2GB. Check the box in front of "Enable" and click on <Browse> to select more destination folders. Each folder should be from different HDD or an error message will be displayed. Note that if a HDD with less than 2GB capacity is selected, an error message will also be shown. Click on <Clear All> will delete all folders except the first preset folder.

In each folder, subfolders will automatically be created with folder name "RecordFolder********", which ******** represents an 8-digit serial number. Each subfolder can store up to 500 videos. Once a subfolder is full, a new subfolder with a subsequent number will be created and new files will be stored to the new subfolder.

Circular Function

The <Circular> function is used to adjust the HDD space usage of VSS. Select <ON> to enable circular function and choose type to be <By Size> or <By Percentage>. Then specify the value of threshold. Note that the threshold value cannot be less than 2GB by size or 2% by percentage.

For example, when the threshold is set to 2GB, and there are 20GB free disk space remaining in the HDD, VSS can only access the HDD no more than 18GB. When the free disk size is smaller than threshold:

1. If the circulation of files is performed at first time, VSS will start to overwrite the earliest recoded data. Next time when VSS starts up, the circulation of files will continue from where it was up to.
2. If the destination folders are reset, new folders will be created to store new files. The old files will be deleted and rewritten with new files.

6.7   DynDNS

For users who are using dynamic IP addresses, DynDNS can help to link the dynamic IP addresses to static domain names. This way the IP addresses setting will not need to be changed all the time at the CMS/iCMS Client sides. Before setup DynDNS, users have to register their own free accounts at the website http://www.dyndns.com/. Users will receive a pre-determined hostname from the website after successfully registered. Input the username, password, and hostname in DynDNS setup page.


Synchronize IP

There are three options for users to synchronize their dynamic IP addresses to their assigned domain names:

1. Synchronize IP automatically when Video Storage Server starts up
2. Synchronize IP in a 30 minutes interval
3. Manual synchronize IP

Users can select preferred options according to their application.

6.8 Export or Import Settings

The export/import function provides users the option to backup the settings as needed.
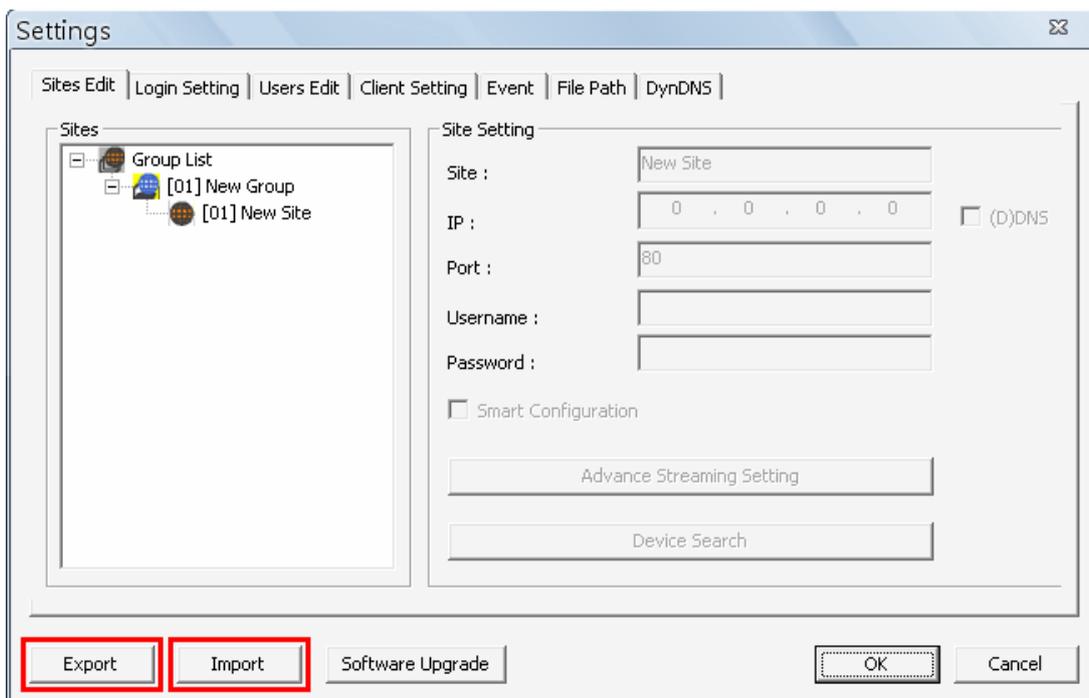
To export the configuration, click on <Export> button and select a destination folder to save the *.zip file.

To import a configuration, click on <Import> button and find the *.zip file that was previously saved.

⚠ **NOTE:** An error message will pop up if the imported configuration has any group with more than 16 IP devices.

⚠ **NOTE:** After a configuration is imported and <OK> button is clicked, the configuration will be loaded immediately and VSS will reconnect to the sites in the start group.

7.   Operation of VSS

The brief descriptions of VSS main window layout and buttons are explained in section ***VSS Main Window***. This section will introduce operational functions of VSS.

7.1   Instant Record Function

VSS also allows instant record function. Users can record live videos of IP Cameras to the local computer instantly.

Right click on a **Site** and select <Record> → <Start Instant Recording> to start recording. When users want to stop recording, right click and select <Record> → <Stop Instant Recording>.
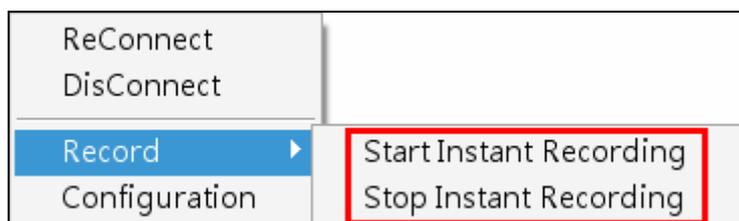
If time difference between VSS and the recording site is more than 1 day, a warning message will be displayed.

NOTE: If the connection to the recording site is disturbed and then reconnected, the recording will be terminated without resumption.

7.2 Configuration Menu of the IP Cameras

The Configuration Menu of the IP Cameras allows users to change streaming setting and image property of the IP Cameras.

Right click on the **Site** and select <Configuration> to open the Configuration Menu window. Please note that the Configuration Menu window will only be available when the IP Camera is currently connected.

ReConnect
DisConnect

Record ▶
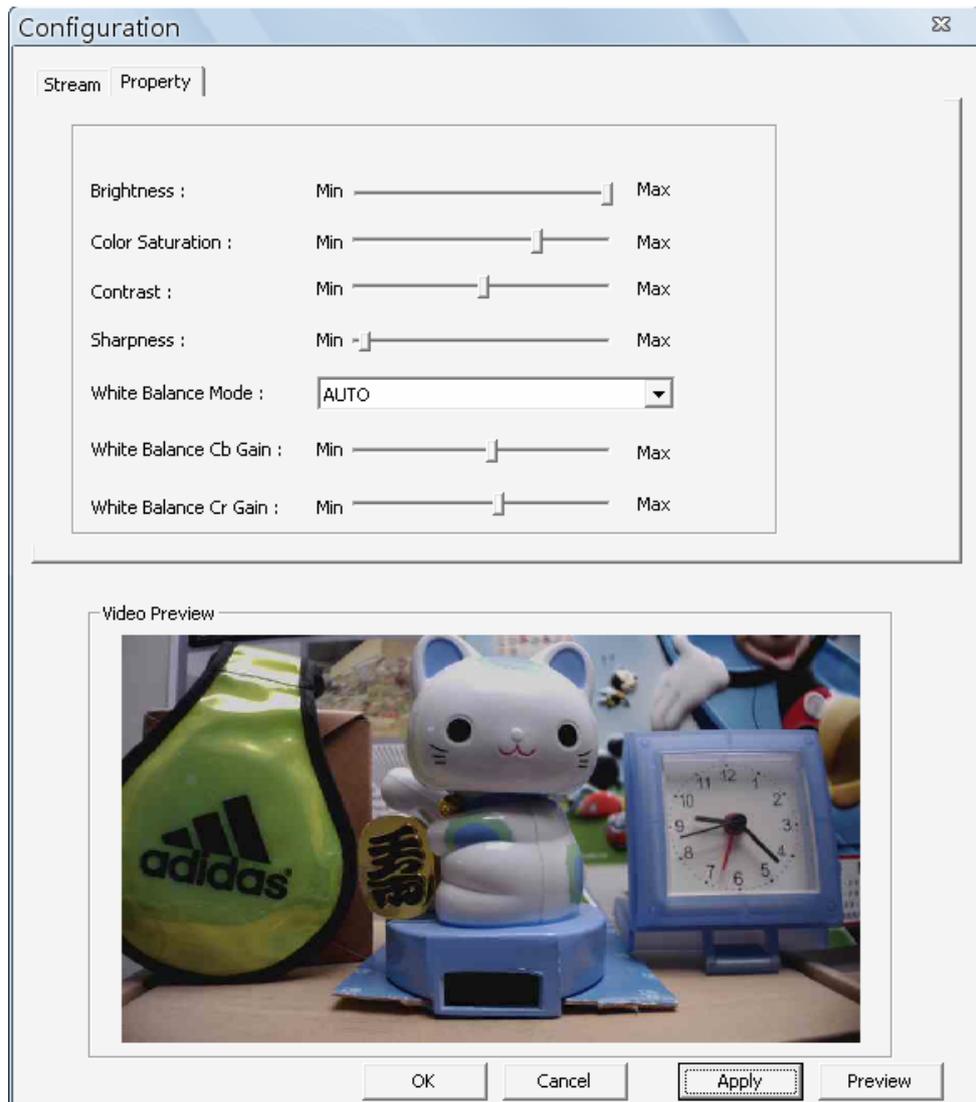Configuration
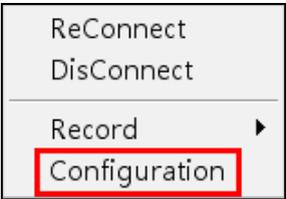
In the Configuration Menu window, the <Stream> tab allows users to change the Main/Sub stream type and resolution of the IP Camera. It is the same as in the <Advance Streaming Setting> in section **Site Settings**.
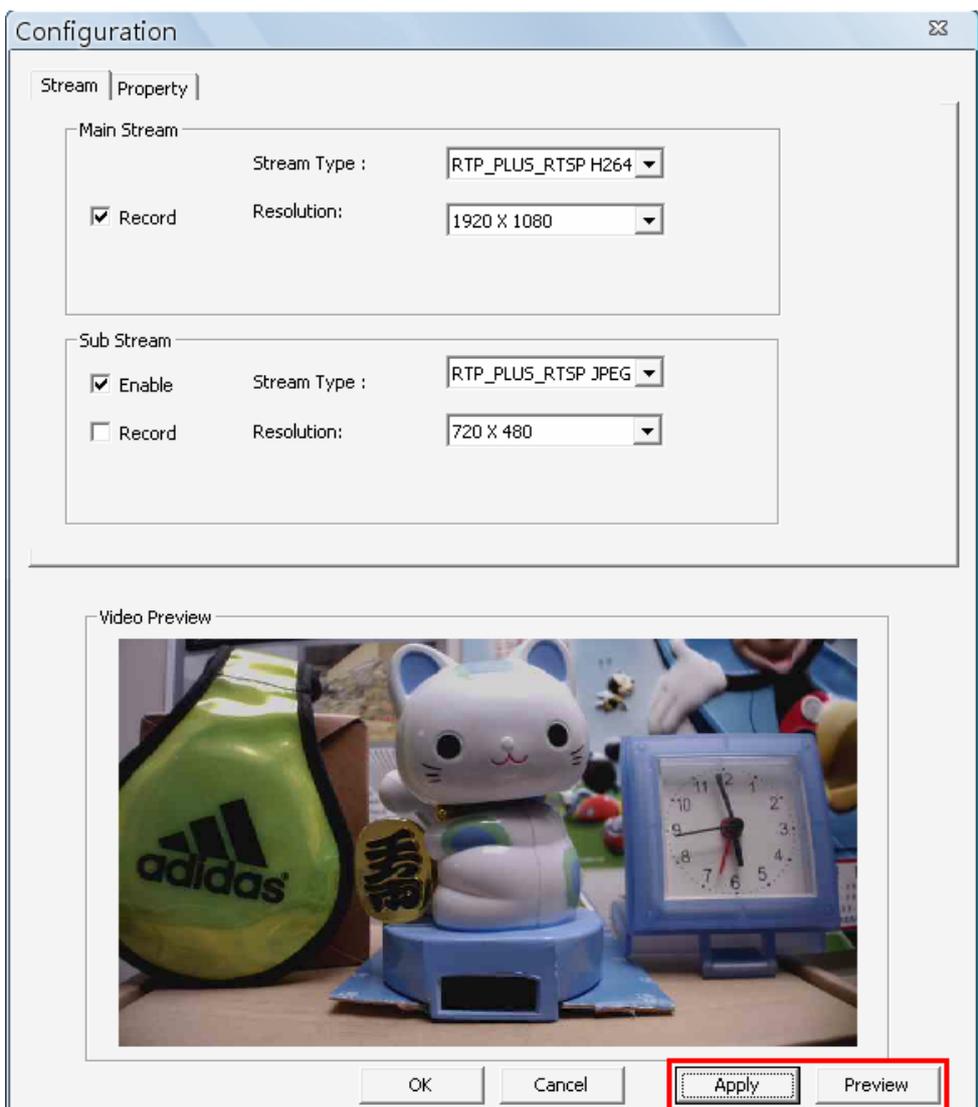
In addition, users can click <Preview> to see the effect of the setting, and then click <Apply> to confirm the streaming settings directly.

The <Property> tab, as shown below, allows users to change the image quality related settings. <Preview> and <Apply> functions are also available here. The change of settings will be applied to the webpage of the IP Camera as well.


NOTE: Only A5S IP Cameras with software version "**d20110323NS**" or later support the configuration function.
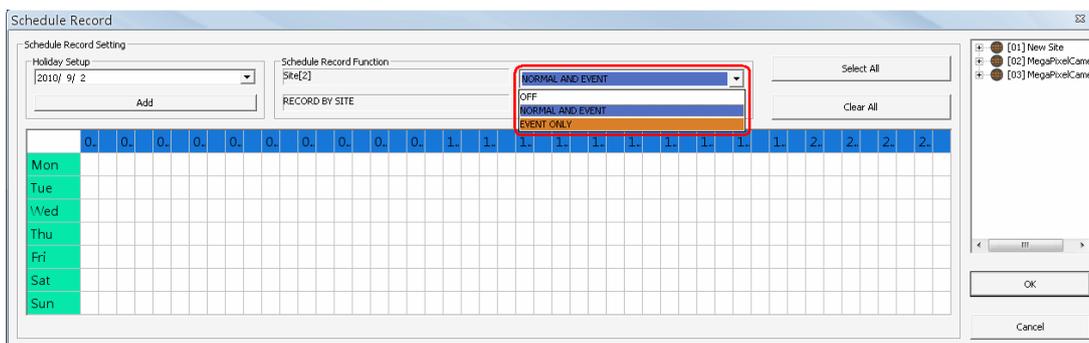
7.3 Schedule Record Function

Users can schedule specific time to record the **connected** devices' videos to the local computer. Schedule Record window will be displayed after clicking on the <Record> button.

The current setting site will be shown on the top of the Schedule Record window, as circled in the picture below. Alternatively, users can click on the <Select All> or <Clear All> buttons to setup all sites to always record or always not record at once.
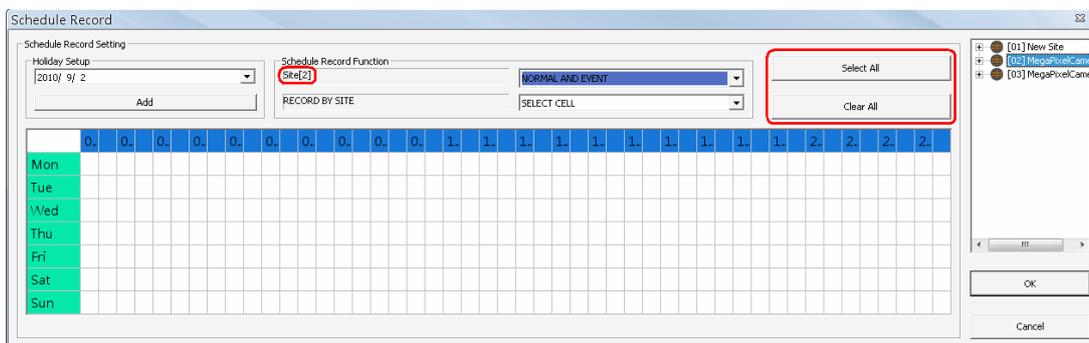
Select Video Types

The scroll-down menu circled below shows the recording video types.

<OFF>

Select this to switch off the schedule record function.
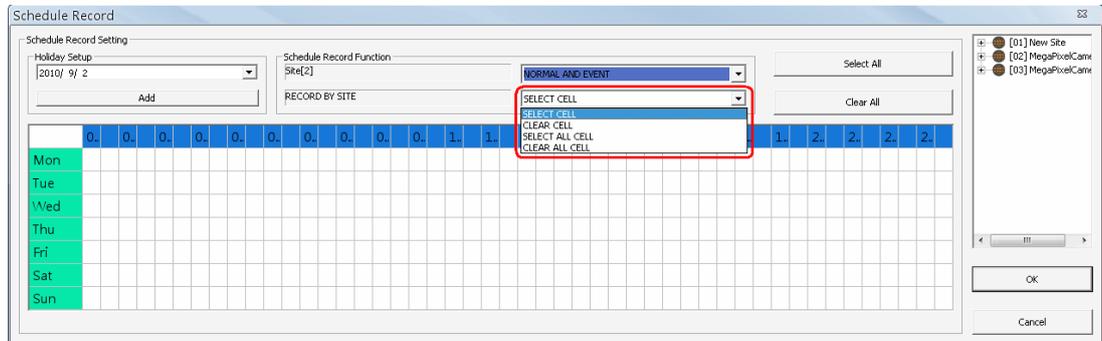
<NORMAL AND EVENT>

Schedule to record both the normal and event videos within the selected time frame.

<EVENT ONLY>

Schedule to record only the event videos within the selected time frame.

Select / Clear Cells

The scroll-down menu circled below shows the selecting options.

<SELECT CELL>

Choose this to select any cell from the table.

<CLEAR CELL>

Choose this to clear any cell from the table.

<SELECT ALL CELL>

Choose this to select all cells from the table.

<CLEAR ALL CELL>

Choose this to clear all cells from the table.

Follow steps below for an example of setting schedule record for VSS.

Schedule Recording Times

Step 1. Select a site or a channel from the box on the right by a single click. When a site is selected, the same setting of schedule record will be applied to all channels. Click on a channel to set unique schedule record for the particular channel. In this example, schedule of a site will be set. Select a site in box 1, and set the recording option to <NORMAL AND EVENT> in box 2.
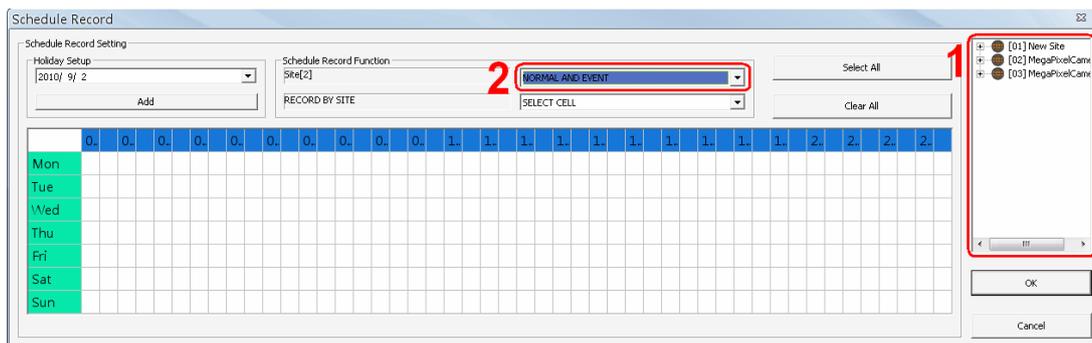
Step 2. Assuming that the site will be scheduled to start recording video from 2:00 to 4:30 on Tuesday and Wednesday. Since the duration of each cell is 30 minutes, click on the cell under 02 for Tuesday and drag to the cell under 04 for Wednesday; and the color of the cells will be changed to purple indicating that both normal and event videos are going to be recorded during the selected times.
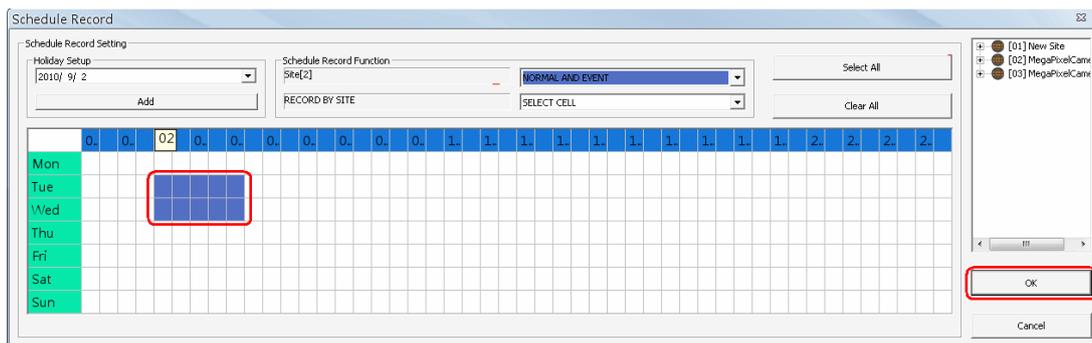
Step 3. After the time frames are selected, click <OK> to save and exit the Schedule Record window.

Cancel Scheduled Recording Times

If the user want to cancel a time frame from selected schedule, for instance, 3:00~3:30, set the selecting option to <CLEAR CELL> in box 1. Click and drag the cells under 03 from Tuesday to Wednesday. The cells will be blank which indicates that VSS is not going to record anything. Click on <OK> to save and exit the Schedule Record window.
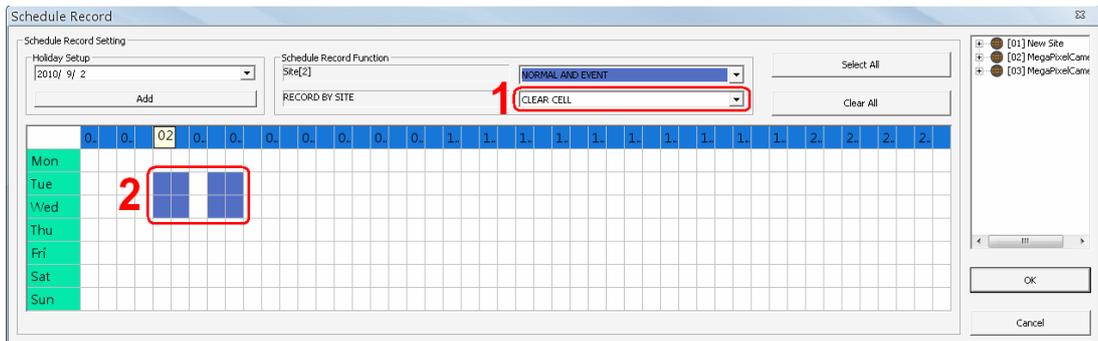

Select/Clear All Cell

If users want to set the schedule to record at all times, click on the circled blank cell located on top left corner of the table or set the selecting option to <SELECT ALL CELL>. If users want to reset the schedule of the site, set the selecting option to <CLEAR ALL CELL>. Click on <OK> to save and exit Schedule Record window.

Select/Clear Cell by Date/Time

Another way to select or clear time frame is by clicking on the Day or Time tabs. For example, when users click on <Tue> tab, the color of all Tuesday cells will be changed and the site is scheduled to record normal and event videos every Tuesday. When users click on 5:00~5:30 tab, color of all 5:00~5:30 from Monday to Sunday will be changed. Click on <OK> to save and exit Schedule Record window.
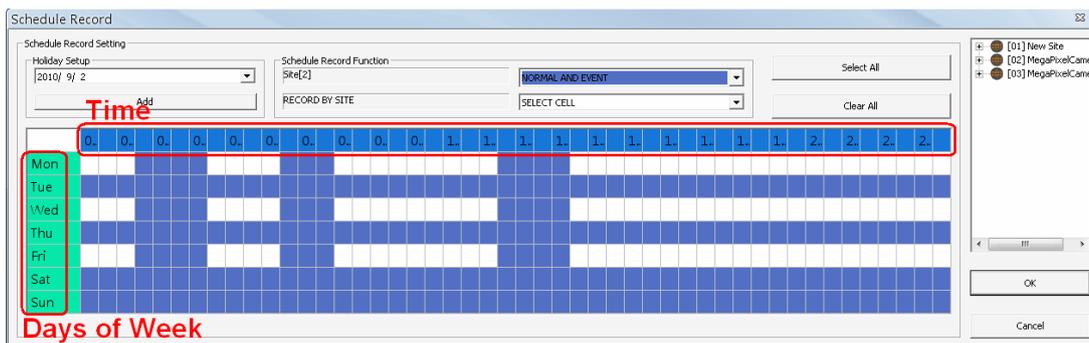
Special Schedule of a Specific Date

If users wish to setup a special schedule for a specific date, simply select a date from the pull-down menu of <Holiday Setup> and click on <Add> button. At the bottom of the <Schedule Record> window, users can find a new row of the added date as shown below. Setup the schedule for that date, and the schedule record will only run once for that special day.
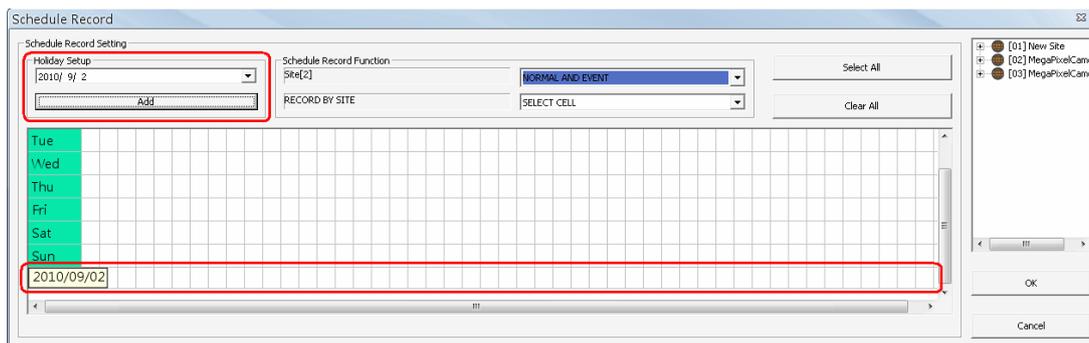
7.4   Lock Function

The Lock function allows users to protect VSS from unauthorized use when there is need to be away from the computer for a while. When VSS is locked, all functions (including setting and operation) are not available.

Click on the <Lock> button and a confirmation message will be displayed. Click "Yes" to confirm.

Once users confirmed to lock VSS, the <Lock> button will be changed to <Unlock> and all other buttons will be grayed out. When users click on the <Unlock> button, the unlock window will be displayed for users to enter username and password to unlock.

To unlock, there are two scenarios as listed below:

	Login Account	Accounts Able to Unlock	Note
1	User Level	- Login User - Any Administrator	The access authority will still be User's limit.
2	Admin Level	- Login Administrator	If password is changed, use new password to unlock.

NOTE: If VSS is forced to be closed while it's locked, VSS system will still be locked when it is started up again.

NOTE: If the password of the current login account is changed, use the new password to unlock.

Appendix A: Troubleshooting

The followings are some common situations when the user is having difficulty with VSS.

1. VSS does not work properly. How can it be recovered or where can I ask for help?

    Please try the following ways to recover it first.
    A. Please check if the computer meets the system requirement.
    B. If VSS automatically closes when it's starting up or connecting to sites, please send the files stored in \VSS\VSS_Setting\ under improper operation condition. Afterwards, re-install VSS and check to install **Default Setting** during installation. Remember not to import old setting files. This will tell whether if the old setting data are corrupted.
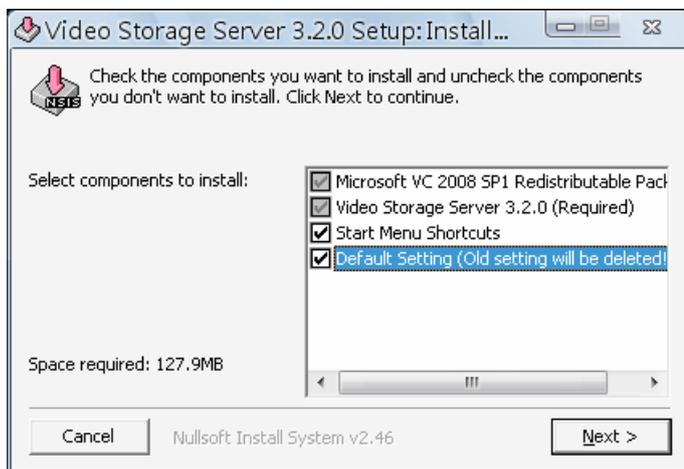
    C. If VSS cannot successfully connect to sites, check the followings.
       ● Confirm IP, port, username, and password of the sites. Users can connect to the sites via IE browser to verify the sites exist and are connectable.
       ● Close firewall and virus scan software and try to connect again. If the problem is due to the blocking of the firewall or virus scan software, please change their settings.
       ● If the connection still failed, please send the IP address to our engineer.

    NOTE: When users need to ask for the engineer's help, please send a copy of the files stored in \VSS\Log\ as well.

2. VSS takes up too many HDD space.

We have found that the preset of the virus scan software "NOD32" will automatically create a temporary file under windows system temporary folder when VSS connects to sites. This temporary file will automatically increase the size which causes the HDD became lack of space.

Please go to the control center of the NOD32 and disable **IMON**. Then the problem should be resolved. The following pictures are examples.