Smart Security Manager
Virtual Matrix
User Manual

VER 1.60
PRIOR TO INSTALLATION

What is SSM-VM?

SSM-VM (Smart Security Manager Virtual Matrix) S/W is an SSM (Smart Security Manager) add-on program which interconnects with SSM to control the Video Wall.

The SSM-VM function requires SSM to be installed.

- SSM Virtual Matrix is provided with multi-monitors. Users can manage all monitors fully, and respond to accidents promptly through immediate video monitoring and event image switching.
- This product is an important add-on to a large scale enterprise and expert system.
- SSM-VM provides event-based salvo switching. For the occurrence of critical events, the administrator may set the monitor to automatically display images in the wall spot, monitor spot or tile spot mode.

Please refer to "SSM User Manual" for details on the installation of SSM.
Security Surveillance of SSM-VM Application

Small space

Used in spaces such as commercial buildings, schools, and public institutions (city hall, library, museum, etc.).
Medium space

Used in spaces such as factories, power plants, medical instutions, prisons, and stadiums (baseball stadium, football stadium, sport complex, etc.).

Configuration
**Large space**

Used in spaces such as airports, convention centers, railways, ports, and casinos.

**Configuration**

- **System Manager** (Federated)
- **Transaction Server**
- **Network Switch**
- **Media Gateway**
- **Recording Server**
- **Video Storage** (SAN)
- **VM Decoders**
- **VM Gateway**
- **VM Encoder**
- **VM Manager**
- **HA Server** (Failover)
- **Video Wall Monitor 1**
- **Video Wall Monitor 2**
- **Surveillance room**
- **Console**

**Overview**

Staff only
**System configuration**

- System Manager: Software program which manages the SSM data and account.
- Recording Server: Software program which saves images from cameras on the network.
- Console: Software program used to view saved images and to monitor images in real time.
- HW decoder: Inter-operable with separate Hw decoder equipment.

**S/W composition**

The SSM-VM consists of the following 5 applications.
- VM Decoder: This program displays video.
- VM Gateway: Program used to control the wall and the VM decoder.
- VM Manager: This program is used to control the wall.
- VM Service Manager: Program to manage the running status of VM gateway and VM decoder, server settings and software updates.
- SSM License Manager: Program used to register SSM software license.
**VM configuration**

SSM-VM installation should satisfy the following specifications.

<table>
<thead>
<tr>
<th>System</th>
<th>Recommended specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel i7-4770 @ 3.40Ghz or higher</td>
</tr>
<tr>
<td>RAM</td>
<td>4GB or higher, Video memory 1GB or higher, DirectX 8.1 or higher, Display resolution : 1,280x1,024 or higher, OpenGL compatible, 20GB HDD or higher (A free hardware space of 10 or higher to save long DB for operation after installation), NVidia GTX760 or higher</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minimum specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Intel i5 - 4670 @ 3.40Ghz or higher, RAM 4GB or higher, Video memory 512MB or higher or higher, DirectX 8.1 or higher</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating system</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM Manager, VM Decoder(Windows 7 32/64bit, Windows 8/8.1 32/64bit, Windows 10)</td>
</tr>
</tbody>
</table>
## PRODUCT SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
<td><strong>SSM-VM10</strong></td>
</tr>
<tr>
<td>Interworking software</td>
<td>SSM v1.6</td>
</tr>
<tr>
<td>Max. number of monitors controlled</td>
<td>48</td>
</tr>
<tr>
<td>Assignable VM decoder channel</td>
<td>16</td>
</tr>
<tr>
<td>No. of walls managed by package</td>
<td>3</td>
</tr>
<tr>
<td><strong>Function</strong></td>
<td></td>
</tr>
<tr>
<td>Video stream</td>
<td>Received from SSM (media gateway module) and according to equipment setup Refer to the specifications for each HW decoder</td>
</tr>
<tr>
<td>Live monitoring</td>
<td></td>
</tr>
<tr>
<td>Wall layout (multi monitor)</td>
<td>According to VM Manager setup, Monitor layout configuration</td>
</tr>
<tr>
<td>Monitor merge (screen enlargement)</td>
<td>Supported</td>
</tr>
<tr>
<td>Monitor layout (split screen mode)</td>
<td>(VM decoder) 4:3 mode : 1/4/6/8/9/10/13/16/17/21/25/36/49/64 16:9 mode : 6/12/20/30 Full screen mode * Up to 100 channels are possible for layout and split screen under the multi-monitor environment. (SPD-400) - Up to 4 split screens, *Refer to specifications of SPD-400. (SPD-1600) - Up to 16 split screens, *Refer to specifications of SPD-1600.</td>
</tr>
<tr>
<td>Sequence mode</td>
<td>Wall layout group sequence (setting scales: 10 sec ~ 180 sec) Up to 5 settings, Up to 20 layouts are registered per sequence</td>
</tr>
<tr>
<td>Map monitoring</td>
<td>Map layout split screen, 2D/3D view, Zoom in/out, Showing camera/sensor/alarm icon on the map N/A</td>
</tr>
<tr>
<td>Other functions</td>
<td>OSD On/Off, Wall/Monitor setting synchronization, NVIDIA CUDA decoder is used N/A</td>
</tr>
<tr>
<td>Event monitoring</td>
<td>Wall spot, Monitor spot, Tile spot N/A</td>
</tr>
<tr>
<td>Wall Spot</td>
<td>Up to 5 settings per month, Up to 20 layouts are registered per month N/A</td>
</tr>
<tr>
<td>Monitor / Tile Spot</td>
<td>Up to 5 settings per month N/A</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Setting</strong></td>
<td></td>
</tr>
<tr>
<td>Max. number of walls managed at the same</td>
<td>Up to 3 walls (up to 1 wall per VM10/VM20 license)</td>
</tr>
<tr>
<td>time</td>
<td></td>
</tr>
<tr>
<td>Wall management</td>
<td>Registering and allocating decoders on the wall monitor</td>
</tr>
<tr>
<td></td>
<td>Registering wall layouts and wall sequences</td>
</tr>
<tr>
<td>Event management (including spot setting)</td>
<td>Auto wall layout / monitor layout / tile layout switching, and</td>
</tr>
<tr>
<td></td>
<td>wall spot / monitor spot / tile spot if a designated event occurs</td>
</tr>
<tr>
<td></td>
<td>Event setting (V-Loss, MD, Passing, Entering, Exiting,</td>
</tr>
<tr>
<td></td>
<td>Appear/Disappear, Tampering, Tracking, Face Detection, Audio Detection,</td>
</tr>
<tr>
<td></td>
<td>depending on equipment setting, Alarm-in, external event)</td>
</tr>
<tr>
<td>Other functions</td>
<td>I-Frame on/off, low resolution setting, buffering time setting</td>
</tr>
<tr>
<td>Update</td>
<td>Auto update (auto access to the upgrade server)</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Modules</td>
<td>VM Manager, VM Gateway, VM Decoder</td>
</tr>
<tr>
<td>VM Manager</td>
<td>Virtual Matrix setting tool, Manage up to 3 walls at the same time, Support</td>
</tr>
<tr>
<td></td>
<td>1 wall per VM10/VM20 license</td>
</tr>
<tr>
<td>VM Gateway</td>
<td>Controls the management module of the VM decoder and</td>
</tr>
<tr>
<td></td>
<td>the HW decoder and commands, and checks the license</td>
</tr>
<tr>
<td></td>
<td>1 VM gateway is required per VM10/VM20 license</td>
</tr>
<tr>
<td>VM decoder</td>
<td>Video decoding (S/W decoding) module, Up to 4 monitors</td>
</tr>
<tr>
<td></td>
<td>per PC with VM decoder, Up to 64 channels (4CIF 25fps) or</td>
</tr>
<tr>
<td></td>
<td>100 channels (CIF 25fps), based on the recommended spec.</td>
</tr>
<tr>
<td>Language support</td>
<td>Korean</td>
</tr>
<tr>
<td><strong>System</strong></td>
<td></td>
</tr>
<tr>
<td>Recommended spec.</td>
<td>CPU Intel i7 (Sandy bridge) or higher</td>
</tr>
<tr>
<td></td>
<td>RAM 4 GB or higher, Video memory of 1GB or higher, DirectX 9.1 or higher,</td>
</tr>
<tr>
<td></td>
<td>Display resolution : 1,280 x 1,024 or higher, OpenGL compatible, 20 GB</td>
</tr>
<tr>
<td></td>
<td>HDD or higher (A free hardware space of 10 or higher for saving long DB</td>
</tr>
<tr>
<td></td>
<td>for operation after installation), NVidia GTX760 or higher (GTX960 or</td>
</tr>
<tr>
<td></td>
<td>higher and Driver version 368.69 or higher when CUDA decoder is used)</td>
</tr>
<tr>
<td>Min. spec.</td>
<td>CPU Intel i5 or higher,</td>
</tr>
<tr>
<td></td>
<td>RAM 4GB, Video memory of 512MB</td>
</tr>
<tr>
<td>Operating system</td>
<td>VMM, VMD(Windows 7 32/64bit, Windows 8/8.1 32/64bit, Windows 10, 64 bit</td>
</tr>
<tr>
<td></td>
<td>OS is recommended when CUDA decoder is used)</td>
</tr>
<tr>
<td></td>
<td>VMG(Windows 7 32/64bit, Windows 8/8.1 32/64bit, Windows Server 2008 R2,</td>
</tr>
<tr>
<td></td>
<td>Windows Server 2012, Windows 10)</td>
</tr>
</tbody>
</table>
1. Run the installation file.
   - If a program component is missing, you will see the component installation screen as shown in the image on the right. Before installing the SSM-VM, you have to install all of the components.
   - During the installation of the components, rebooting may be required. In this case, after rebooting, the installation file will start automatically.

2. When the installation screen pops up, click the [Next >] button.
3. Agree to the license policy and click the [Next >] button to proceed to the next step.

4. After entering User Name and Company Name, move to the next screen.

5. Select a Setup Type.
   - If you selected "Install in multiple computer", you can designate your own installation path and modules.
6. Choose the target folder where the installation files will be saved. The default file path is: "C:\Program Files\Wisenet".
   - If you want to change the file path, then choose [Change...] and enter the desired path or select a folder to change to.

7. If you want to proceed to the next step, click the [Next >] button.

8. Select the installation item, and click the [Next >] button to proceed.
9. Click [Install] to begin installation.

10. Installation is in progress.

11. Upon completion, click [Finish] button.
CHECKING FINISHED INSTALLATION

After installation is completed, check that the SSM-VM installation has been finished successfully.

1. Click the <Start> menu.

2. When SSM-VM is installed normally, <HA>, <License Manager> and <SSM-VM> items are shown under the <Wisenet>.
   Under the <SSM-VM>, <VM Service Manager>, <VMD>, <VMG> and <VMM> are displayed.

   - For non-default installation of SSM-VM, only those menu items selected during installation will appear.
   - Refer to "Install".

   - Refer to "SSM Operation Manual" for information on registering the license.

STARTING THE SSM-VM (SMART SECURITY MANAGER VIRTUAL MATRIX)

Each module uses various network ports for auto search and communication. When using a firewall, you should allow these ports.

- If you don’t change network ports additionally, you should allow the following ports by module:
  - VM Decoder : 4510, 9057, 9999, 19190, 19192
  - VM Gateway : 9058, 9066, 9999, 19190, 19191, 19193
  - VM Manager : 9067, 9999, 19191

**VMG execution**

1. Click the VMG execution file to run the VMG.
   When VM Service Manager is running, it will be automatically executed.
   - Execution may take about 10 sec depending on the PC specifications.

2. When execution is completed, the task bar will show the VMG icon. When you want to terminate it, right click on the VMG icon in the task bar, launch the context menu and click <Exit>.
VMD execution

Click the VM Decoder execution file to run the VM Decoder. When VM Service Manager is running, it will be automatically executed.

- A screen on the right hand side appears when the VM Decoder is run properly. After that, using the VM Manager, you can register the VM Decoder to see video on the VM Decoder.

VMM execution

1. Click the VM Manager execution file to execute the VM Manager.
2. If your run the VM Manager, as shown on the right, the Login screen will appear.
VM Manager

LOGIN

SSM/SM (System Manager) address setting

The SSM-VM is the SSM’s add-on program. When you run the SSM-VM for the first time, you need to set the SM address first. Press the SSM/SM (System Manager) address setting button, to set the server address.

- If it is set to <Auto>, System Manager is automatically selected.
- If it is set to <Manual>, System Manager or IP address/port information can be selected from the pull-down menu.
If you select <Manual> and double click on the searched SM, the IP address and port number will be renewed. If the SM that you want to connect to is on another network, then the IP address and port number can be entered manually.

### VM Manager login

Login into the account created in the SSM.

- For SSM user account settings, refer to "Setting SSM User Accounts and Granting Rights To Use Equipment".
- It is possible to log in when an Enterprise license or better is activated on the SM (System Manager) Server to be logged in.
VM Manager screen composition

Logout button
Setting button
Checking the program information
Main screen
Deleting logs
Login account displays
Menu list
Log

Login account displays
Menu list
Log
VM Manager

REGISTRATION

In the menu list, click [Registration] to launch the bottom menu as shown on the right.
- VM Gateway : Register the VM Gateway.
- Wall : Register the monitor wall.
- Decoder : Register the decoder (VM Decoder, HW Decoder).
- Wall Monitor Assignment : Assign the decoder videos to each monitor on the monitor wall.

You should follow all 4 steps above to manage the Video Wall. These steps should be performed in the above order.

You can go back to the previous step or proceed to the next step by clicking the Pre or Next button at the top of the Registration menu.

- When the VM program is installed for the first time and no VM gateway is registered yet, the SSM and VM system configuration are displayed. Check and close the configuration diagrams, and start the program with registration of VM Gateway.

VM Gateway

From the menu list, click [Register] - [VM Gateway] to launch the VM Gateway registration screen. VM Gateway it is necessary for the user to use a decoder and a wall. If you start the SSM-VM, you need to first register the VM Gateway.

VM Gateway supports a duplex configuration. If any problem occurs, it is possible to control Wall through extra VM Gateway.

Please refer to SSM-HA of the SSM manual for more information on a duplex configuration.

Automatic registration

1. Click the [ ] button to search for VM Gateway that are running in the same network.
   - Click the [ ] button to search for VM Gateway again.

2. Select a VM Gateway from the list to add, and click the [Register] button.
3. Click one of the searched VM Gateway and register it. If it is successful, the message box, as shown on the right, will appear.

4. To finish registration and close the window, click [Close] button.

5. The VM Gateway just registered will be added to the VM Gateway list.
   - Depending on network conditions, VM Gateway registration may take some time.

A registered VM Gateway will be marked as <Registered> while performing searches.

Manual registration

1. Click the [ ] button to manually register a VM Gateway.
   - If you use a VM Gateway not in the same network, manual registration may be required.

2. After entering VM Gateway names, descriptions, IP address and port number, click Register to register a VM Gateway in the same way as auto registration.
   - VM Gateway port should be set to 19191.
Editing a VM Gateway

In the device information menu, you can change the description of a VM Gateway.

1. Enter the content to change.
2. Next, click the [Save] button to save the changes.

- VM Gateway must be registered in a single SSM system manager. If VM Gateway is registered in multiple SSM systems, it will cause operating problems.
- SSL is an option that enables encrypted communication among the modules included in the SSM-VM to protect user information. It operates only when the SSL option of the superordinate system manager in which VM gateway is registered is enabled, and applies to all VM decoders under the WM gateway.

Wall

In the menu list, click [Register] - [Wall] to launch the Wall registration screen.

- The VM gateways registered in the previous step are displayed in the wall list. Because walls are controlled through the VM gateway, a VM gateway needs to be selected first.
- Monitor wall cannot be searched on the network. You must register it manually.

Manual registration

Click on [ ] to manually register a Wall.

Manual Registration of Monitor Walls

1. In case of manual registration, if you set the Device Type to Monitor Wall, the screen shown on the right will appear.
2. Enter name, descriptions, and vertical and horizontal lines of actually composed monitor wall and click [Register].
Editing Walls

Editing Monitor Walls

1. Once the user clicks on a Monitor Wall to edit, the Monitor Wall information will be displayed.
2. You can change the number of vertical/horizontal lines, the descriptions and the wall monitor configuration.
3. The wall can be organized with monitors in the same or different sizes.

- The objective of changing the wall monitor configuration is to observe the same configuration of monitors in the S/W. Functionally, monitors do not co-operate with one another.

Ex) Arranging same size monitors.
Select “Same Monitor Size”. This is used to organize the wall using monitors that are physically the same size. The “Screen Merge” function is available in the Layout setting tab.
- Refer to "Layout Setting" for more details.

Ex) A large monitor and a small monitor placed together.
Select “Different Monitor Sizes”. This is used to organize the wall using monitors that are physically different sizes.

If you place your cursor between monitors, as shown in <Figure 1>, your mouse cursor will be changed.
Once this happens, if you drag your mouse and select a cell to merge, then you can create a single large monitor. This function is used to adjust the size to actual configuration.
<Figure 2> illustrates the case where cells 2, 5, and 8 in <Figure 1> are merged to create a single monitor.
After merging cells, the monitor number is restored as shown in <Figure 2>.
If you want to separate merged cells, right click on the areas to separate and select [ ] from the options.
Press the [Apply] button to separate all the merged cells.
After editing, press the [Apply] button in the bottom to save the changes.
Decoder

In the menu list, click [Register] - [Decoder] to launch the decoder registration screen.

- The VM gateways registered in the previous step are displayed in the decoder list. Because decoders are controlled through the VM gateway, a VM gateway needs to be selected first.
- Decoders that SSM-VM supports are VM decoder and HW decoders (SPD-400 and SPD-1600).

Automatic registration

1. Click the [ ] button to search for and register decoders running in the same network.
   - Click the [ ] button to search for decoders again.

2. If you click on one of the searched decoders to register it, it will be added to the decoder list.
   - A VM Decoder can be registered without any ID or password.
   - Depending on the network environment, decoder registration may take some time.

   - The registered decoder is marked as <Registered> while performing searches.

   - If you register a VM Decoder out of decoders, the status of VM Decoder is changed to video outputs in the log in screen as shown on the right.
Manual registration

1. Click the [ ] button to manually register decoders.
   - If you want to use decoders not in the same network, manual registration may be required.

2. After entering decoder name, descriptions, IP address and port number, click Register to register a decoder in the same way as automatic registration.

- If you register a VM Decoder out of decoders, the port number should be set at 19190.

Decoder editing

It is possible to modify name, description, buffering, I-Frame, resolution, decoder, and number of monitors in the device information.

1. Enter the content to change.
   - Buffering Time : When a decoder that supports buffering time setup is selected, the corresponding option is activated. (VMD : 100ms ~ 1000ms, SPD-1600 : On/Off)
   - Decoder: When a graphics card that supports NVIDIA CUDA decoder is used, the corresponding option is activated.
     The maximum channel number to use CUDA decoder is set.
   - Use I-Frame : This function is used to prevent overloading during the multichannel monitoring. The user can set the first channel number to use i-frame.
   - Resolution : If there are many channels, the user can set the number of channels to be applied at low resolution to ensure the seamless data transfer.
   - User-Monitor Count : The maximum number of monitors provided by the selected decoder is displayed. The user can select the number according to the usability.

2. After making changes, click the [ ] button to save them.

- For the decoder monitor under the decoder, you can only change the name and explanation.
Assignment

Each monitor on the wall is assigned a decoder for video outputs.

Device list

1. The VM Gateway and the decoder registered in the device registration screen will be displayed. Other Device is an icon used for External Sources.
   - External Source does not indicate a decoder but a TV, internet or PC.

2. Decoder assignment can be done by using Drag&Drop or pressing the [ ] button. To cancel, press the [ ] button again.

3. The assigned decoder is in highlighted in bold in the device list.
   - If you assign a decoder already assigned to another monitor, the previous assignment information will be automatically replaced.
   - A decoder monitor cannot be assigned to multiple wall monitors.

Other Device

1. If you want to assign the External Source to a monitor, you should assign “Other Device” to a monitor.

2. Now, the message box will appear to prompt you to enter the name of the External Source.

3. Other Device is not highlighted in bold even after assignment.
Wall items can be authorized in each monitor of the wall layout. Wall items include Monitor Layout List, Device List, Monitor Sequence List, Monitor Spot List and Tile Spot List.

- **Monitor Layout List**: Multiple videos can be displayed on a single monitor according to the layout provided by SSM. You can save the video and layout as the monitor layout.
- **Device List**: The recorders and cameras registered in SSM are displayed. The devices accessible may be restricted according to the authority given by SSM. Refer to the appendix for details of device access authority given by SSM.
- **Monitor Sequence List**: If you allocate this function to a specific monitor of the wall layout, you can change the monitor layout periodically for the monitor.
- **Monitor Spot List**: When a specific event occurs, the predefined monitor layout (including the event video) is displayed on the selected monitor.
- **Tile Spot List**: When a specific event occurs, the event videos are displayed one after another in the predefined tile pattern on the selected monitor.
### Management and editing of Wall Layout

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Icon" /></td>
<td>The current wall layout is displayed in the wall.</td>
</tr>
<tr>
<td><img src="image2" alt="Icon" /></td>
<td>Removes the event displays from the selected wall monitor.</td>
</tr>
<tr>
<td><img src="image3" alt="Icon" /></td>
<td>Removes the event displays from all of the wall monitors.</td>
</tr>
<tr>
<td><img src="image4" alt="Icon" /></td>
<td>Retrieves all the camera configuration information displayed in the wall and synchronizes it into the format of wall layout.</td>
</tr>
<tr>
<td><img src="image5" alt="Icon" /></td>
<td>The selected monitor is partitioned if it was merged.</td>
</tr>
<tr>
<td><img src="image6" alt="Icon" /></td>
<td>The monitor is partitioned into basic status when all monitors on the wall were merged.</td>
</tr>
<tr>
<td><img src="image7" alt="Icon" /></td>
<td>Lock the selected monitor. If you click this option, then the monitor selected will have a lock icon. Even if you make multiple selections of cameras or monitor layouts, they will be ignored.</td>
</tr>
<tr>
<td><img src="image8" alt="Icon" /></td>
<td>Return to the last Wall Layout saved.</td>
</tr>
</tbody>
</table>

### Creating and deleting wall layout

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image9" alt="Icon" /></td>
<td>Execute the wall layout in the wall mode, and disable editing until it is stopped. You can edit other wall layouts which are not executed. See “Controlling Wall Mode” for a further description on the wall mode.</td>
</tr>
<tr>
<td><img src="image10" alt="Icon" /></td>
<td>Add a wall layout.</td>
</tr>
<tr>
<td><img src="image11" alt="Icon" /></td>
<td>Delete the selected wall layout.</td>
</tr>
</tbody>
</table>

### Creating and deleting monitor layout

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image12" alt="Icon" /></td>
<td>Add a monitor layout.</td>
</tr>
<tr>
<td><img src="image13" alt="Icon" /></td>
<td>Delete the selected monitor layout.</td>
</tr>
</tbody>
</table>

- The functions ![Icon](image14) and ![Icon](image15) can be set when the user selects “Same Monitor Size” in the Wall tab.
- Wall Mode: In the wall mode, videos are played by wall. Wall modes include Wall Layout, Wall Sequence and Wall Spot.
Creating a Wall layout

1. For wall control, first of all, you need to create a wall layout.
   To create a wall layout click [ ].

2. After clicking, a message box will appear to ask you for the name of the wall layout.

3. After entering the name and clicking on [OK], the wall layout control monitor will be activated.
   - In the bottom, the monitor layout source number is the source number for the monitor and can be selected by clicking the mouse button.
   - The status of the monitor in the wall layout is classified as follows, depending on the previous wall monitor assigned and also depending on the layout item assigned.
     - : Monitor selected by clicking the mouse button.
     - : External Source (displayed if a non decoder device is registered.)
     - : Decoder or External Source not assigned to a monitor.
     - : Decoder assigned to a monitor.
     - : Monitor Sequence assigned to a monitor.
     - : Monitor Spot assigned to a monitor.
     - : Tilt Spot assigned to a monitor.
Wall Layout Editing

The wall set for same monitor size can use the “Screen Merge” function in wall layout editing. “Screen Merger” combines the monitors on the wall so that they display the screen image in various wall layout patterns much larger than the size of an individual monitor.

- A merged monitor cannot be merged with another monitor until it is partitioned to original.

1. The mouse cursor changes when the user hovers the mouse cursor over the monitor border in wall layout.
2. Drag the monitor and drop it in the monitor to merge to create a larger monitor.

3. To partition a merged monitor to its original sizes, select Wall Layout Monitor and click the button.
4. Use the button to quickly partition all wall layout monitors to original size.
Creating a monitor layout

Double click on a monitor in the wall layout viewer, or click the [ ] button to move to the monitor layout viewer screen.

Monitor layout viewer button functions

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Display the current monitor layout.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Removes the event displays from the selected tile.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td>Removes the event displays from the current monitor.</td>
</tr>
<tr>
<td><img src="image4.png" alt="Image" /></td>
<td>Imports an image displayed in the wall monitor into the program.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td>Change monitor layout pattern.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Image" /></td>
<td>Reverting to the last saved monitor layout.</td>
</tr>
</tbody>
</table>

- Tile is an image displayed on the single monitor.
- In the top of the monitor layout, the selected wall layout shape is displayed. If you select and move a monitor in the wall layout viewer, the cell is displayed in pink.
- If you want to edit another monitor while editing the monitor layout, click on the desired monitor to move it to the monitor layout. In this case, the previously edited monitor layout will disappear if you don’t save it.
If you want to save the monitor layout

1. Enter the name and description of the monitor layout.
   - Inputting the "Name" is mandatory.

2. Press the [ ] button to select a pattern to use.
   - A pattern supported by your decoder will be activated and displayed.

3. After you choose a layout, you need to decide which image of which camera should be sent to each tile. To assign a camera to a tile, you can use Drag & Drop or press the left arrow button ( ). To cancel, you can press the right arrow button ( ).
   - After assigning a camera to a tile, click on the assigned tile to see the Device Name/Camera Name displayed in the camera information in the bottom.
   - It is possible to multiple-assign all cameras on the lower layer by assigning sites or devices.

4. In the bottom of the monitor layout viewer, click the [Save] button to add an item saved in the monitor layout. If you click the [Save As] button, the name input window will appear. A new monitor layout for the new name will be created.

5. Click on [Close] to close the monitor layout viewer and go back to the wall layout viewer.
Monitor layout assignment

1. Once you’ve created a monitor layout, you can assign a monitor layout to each monitor. To assign a monitor layout to the Wall Layout monitor, you can use Drag & Drop or press the left arrow button (◀). To cancel, you can press the right arrow button (▶).

2. If you edit and save the monitor selected in the navigator, it will be assigned to the monitor when you close the monitor layout viewer.

3. If you double clicked the monitor in the wall layout to create it, when you close the monitor layout viewer, you will find that the edited monitor layout is already assigned to the monitor.

4. In the Wall Layout viewer, you must press the [Save] button if you want to save the information of the monitor layout assignment to the wall layout.

Camera group assignment

In the wall layout viewer, you can assign devices by using drag and drop or by pressing the left arrow button (◀). To cancel, you can press the right arrow button (▶).

At that time, it is possible to move various Recorders and Cameras at once by multiple-selecting sites or devices. While pressing down the Ctrl key, click on the recorders or cameras in the device for multiple selections.

1. If you move a selected recorder or camera to a specific monitor by using drag and drop or using the arrow button, the monitor layout pattern selection screen will appear.
   - If you make multiple selections, in the bottom, the total number of selected camera(s) will be displayed.

2. If you select the desired pattern in the layout pattern window, the camera group having the Wall Layout name (Wall Layout name_monitor number) will be assigned.
   - Camera Group has a monitor layout format but it belongs to the selected Wall Layout and it cannot be shared by another Wall Layout.
3. After assigning Camera Group, you need to press the [Save] button to save the wall layout's camera group.

Creating a monitor sequence

In the left tree menu, select Wall Layout > Monitor Sequence, and the monitor sequence setting screen is displayed.

- : Add a monitor sequence.
- : Delete the monitor sequence.
- : Save the changed monitor sequence.

The new monitor sequence is named “New Monitor Sequence”.

Editing monitor sequence

Click a created monitor sequence, and Monitor Sequence Viewer is displayed on the right of the screen. If you click Monitor Layout, the list of the monitor layouts created is displayed. You can select one in this list.

You can designate up to 20 monitor layouts, which are displayed in the order shown in numbers.

You can select the time each layout is displayed in 10-second scale. Select Time in the right of the Monitor Sequence Viewer, and adjust the time.

The selected monitor layout is displayed on the Monitor Layout Overview at the bottom of the screen.
You can edit the name of a monitor sequence and add a description on the left of the Monitor Sequence Viewer. A newly created monitor sequence is named “New Monitor Sequence”, which should be renamed.

Click the [Apply] button to save changes and finish editing.

### Allocating monitor sequence

You can check the monitor sequences created on Wall Layout > Layout Management screen.

You can allocate monitor sequences by dragging & dropping or by using the left arrow button. Use the right arrow button to deselect a monitor sequence.

The monitor to which a monitor sequence is allocated is indicated in ■.

### Creating monitor spot

In the left tree menu, select Wall Layout > Monitor Spot to display the monitor spot setting screen.

- ![Add Monitor Spot](image)
- ![Delete Monitor Spot](image)
- ![Apply](image)

The new monitor spot is named “New Monitor Spot”.

---

**VM Manager**

**Name**

New Monitor Sequence

**Description**

![Monitor Sequence Viewer](image)
**VM Manager**

**Editing monitor spot**

Click a created monitor spot, and the monitor layout list and the camera list are displayed on the right of the screen. Monitor Layout List displays monitoring layouts that have been generated thus far, and the Camera List displays cameras and sensors that can be set by event inputs. When monitor layout is selected, the Event List that is interworked with the corresponding layout is displayed in the lower section. When cameras or sensors are selected, the Event List is displayed on the right-hand side. If the corresponding event is selected, when the event occurs, it means that the selected monitor layout is displayed on the upper side.

- Refer to "Event" in "SSM Product Manual" for detailed descriptions of all events.
- External systems and alarms should be set using the SSM Configuration Manager in advance. Refer to "Event" in "SSM Product Manual" for detailed descriptions.

You can edit the name of a monitor spot and add description on the left of the Monitor Layout List. A newly created monitor spot is named “New Monitor Spot”, which should be renamed.

Click the [Apply] button to save changes and finish editing.

**Allocating monitor spot**

You can check the monitor spots created on Wall Layout > Layout Management. You can allocate monitor spots by dragging & dropping or by using the left arrow button. Use the right arrow button to deselect a monitor sequence. The monitor to which a monitor spot is allocated is indicated by ▶️.
Creating tile spot

In the left tree menu, select Wall Layout > Tile Spot to display the tile spot setting screen.

- Add a tile spot.
- Delete the selected tile spot.
- Save the edited tile spot.

The new tile spot is named “New Tile Spot”.

Editing tile spot

Click a created tile spot, and the monitor pattern selection screen and the camera list are displayed on the right of the screen. You can change the monitor pattern for event image with the button below the monitor.

When cameras or sensors are selected, the Event List is displayed on the right-hand side.
If you select an event, the monitor pattern selected at occurrence of the event is displayed.

- Refer to “Event” in “SSM Product Manual” for detailed descriptions of all events.
- External systems and alarms should be set using the SSM Configuration Manager in advance. Refer to “Event” in “SSM Product Manual” for detailed descriptions.

You can edit the name of a tile spot and add description on the left of the screen. A newly created tile spot is named “New Tile Spot”, which should be renamed.
Click the [Apply] button to save changes and finish editing.
Allocating tile spot

You can check the tile spots created on Wall Layout > Layout Management.

You can allocate tile spots by dragging & dropping or by using the left arrow button. Use the right arrow button to deselect a monitor sequence.

The monitor to which a tile spot is allocated is indicated by □.
Searching and sorting wall items

Wall Item List is displayed on the right of Layout Management. Every wall item provides the search and sort function.

- **Search** : Enter a name and click the search button or press the "Enter" key on the keyboard to search the matching items.
- **Sort by Name** : You can sort items by name or by order of registration.
- **Sort in Ascending/Descending Order** : You can sort items in ascending or descending order.
- **Devices** : This menu is meant for devices only, and lists the devices not allocated to the selected wall.
**Event Clear**

When the Video Wall displays images, if an event occurs from an image of a specific tile, the borderline of that specific tile will become colored. Press the button to clear the colored tile within a specific monitor. Press the button to clear events in all tiles in the Wall Layout.

**Monitor switching**

In the wall layout viewer, you can exchange monitor layouts (+ Camera Group) assigned to different monitors.

1. If you place the mouse cursor in the middle of the screen, its shape will change to a hand shape.

2. If you drag and drop it to the monitor that you want to change the layout of, the layout will be changed accordingly.

**Loading the wall status**

In the wall layout edit screen, click on the [ ] button to load the current wall settings into the VM Manager.

The monitor layout applied to each monitor in the actual wall is loaded into the currently selected wall layout. It is useful when a single wall controls multiple VM Manager.

**Loading the monitor status**

In the monitor layout edit screen, click on the [ ] button to load the current monitor settings into the VM Manager.

The equipment and layout shapes applied to each tile in the actual monitor are loaded into the currently selected monitor layout.

⚠️ When you run the spots, if you control a wall in the layout settings, an event can occur and the screen set in the spot could be forcefully displayed in the wall.
WALL SEQUENCE SETTING

Wall sequence is the function used to display multiple wall layouts on a single wall over some time periods.

Creating Wall Sequence

Press the [ ] button to create a wall sequence.

1. The created wall sequence is automatically named "New Wall Sequence".

2. After creating it, you can change the name and descriptions that you want for a wall sequence.

3. Click on the created wall sequence in the list in the bottom of the wall sequence list, and press the [ ] button to delete it.
   • : Saves the changes made to the selected wall sequence.
VM Manager

Wall sequence editing

After creating a wall sequence, you must specify how it will actually operate.

1. If you click on the created wall sequence, the wall sequence information window will be changed as shown on the right side.

2. Change the wall layout items and the time interval to compose a desirable sequence.

3. If you select a wall layout saved in the wall layout item, the wall layout will be displayed in the preview screen in the bottom of the screen.

4. Wall Layout 1 is displayed for 10 seconds, Wall layout 2 is displayed for 20 seconds and Wall layout 3 is displayed for 30 seconds and then finally Wall layout 1 is displayed for 10 seconds in this wall sequence example. Since Wall layout 1 is your final choice wall layout 1 will be displayed in the wall layout preview screen in the bottom of the screen.

   - Wall sequence is switching interval can be adjusted from 10 seconds to 180 seconds in intervals of 10 seconds.

5. If you are finished with editing, press the [Save] button to save the changed wall sequence.
Wall Spot is the function which changes the entire wall layout when a specific event occurs.

Creating Wall Spots

Press the [ ] button to create a wall spot. Its name is automatically set as "New Wall Spot" and can be changed later.

1. Enter name and descriptions and press the [Apply] button in the bottom right to reflect changes.
2. Click on the wall spot created in the wall spot list and press the [ ] button to delete it.

### Editing wall spots

1. Click on a wall spot from the wall spot list you want to edit. The wall layout list will display the currently created wall layout list.

2. Click on the wall layout list to view the wall and the monitor layout (or Camera Group) assigned to each monitor on the preview screen.

3. Camera List displays all cameras and sensors that can be set by event inputs.

4. When cameras or sensors are selected, the Event List is displayed on the right-hand side. If the corresponding event is selected, when the event occurs, it means that the selected Wall layout is displayed on the upper side.

5. You can set the time to automatically return to the previous video after wall layout switches by the wall spot by entering a reset time value.

6. After completing the configuration of all settings, press the [Apply] button to save the changes.

- By clicking the [Clear] button, you can release all events that are currently selected on the Wall layout.
CONTROLLING WALL MODE

Wall Mode changes the entire wall. There are 3 wall modes: Wall Layout, Wall Sequence and Wall Spot. You can manage wall modes with the menus on the top of VM Manager.

You can select one of the wall modes registered, and manage the selected wall mode with the control bar on the right. Click ► to change the control bar status as below. You can stop the wall mode with the ■ button. If you click the [ ] button, you can manually return to the previous state to the wall layout switch by the wall spot.
In the top right of the VM Manager, the Option menu is provided.
- : Adjusting the OSD on the decoder screen.
- : Power Save button (available only when the license is SI version).
- : Designates camera display method in VM Manager language and layout settings.
- : Information button.

**OSD change**

The user can edit the information displayed on the decoder screen in the OSD Setup menu. The parameters to be set are OSD display, text/icon size and date/time.

The user can also set the size of image tile included in map layout to be displayed by VMD.

**VM Manager setting changes**

- How to express tile of camera : In the layout setting menu, select the camera information to be displayed in each tile of the monitor layout viewer.
- Language : VM Manager language is changed to the selected language.
- Camera Name : The camera name designated in the device will be displayed in the layout/sequence/spot settings.

**Software information**

You can check the actual version of VM Manager installed.
VM SERVICE MANAGER

Maintain the execution status of VM Gateway/VM Decoder which are sub modules of SSM-VM and set the address of SSM/SM (system manager). In addition, a function to automatically/manually update the SSM-VM software is provided.

When you boot the PC where VM Gateway or VM Decoder are installed, they will automatically run and an icon will be displayed in the task bar.

Select an icon and right click to launch the menu.

- About : Check the version of VM Service Manager.
- Setting (VMG) : Set the SSM/SM (system manager) address to be accessed by the VM Gateway.
- Setting (VMD) : Set the SSM/SM (system manager) address to be accessed by the VM Decoder.
- Update : Function to manually update the SSM-VM software is provided. You can also set an automatic update confirmation schedule.

⚠️ You can check if any system manager connection information is changed in the settings window.
The SSM-VM (Smart Security Manager Virtual Matrix) is an add-on program used to perform video Wall control in the SSM (Smart Security Manager). The SSM-VM cooperates with each component of the SSM to control the video wall.

The above figure shows the communication wiring for each component and the flows of information through each line. Network should be implemented to ensure communication between the SSM (Media Gateway, System Manager, Console), the VM Manager, the VM Gateway, and the Decoder (VM Decoder, HW Decoder).
SETTING SSM USER ACCOUNTS AND GRANTING RIGHTS TO USE EQUIPMENT

If you want to create a monitor layout and assign cameras in the SSM-VM, the following tasks should be done in the SSM.

- For more details, refer to the "SSM User manual"

**Add Media Gateway**

1. Run the SSM Configuration Manager.

2. Select the Standard Setup.

3. Click Registration in Device to navigate to the Device Click menu. Press [ ] to add Media GW.
4. Click the [Close] button to exit and select the media GW created.

![Device](image1)

5. Press [ ] to search for cameras or recorders connected to the same network.

![Search](image2)

6. Select a device to register and enter ID/password and press [Register] to register it.

![Register](image3)

7. Check if the device registered is properly displayed in the list.

![Displayed](image4)

---

### Add a user group

1. Click User in System to navigate to the User Setting menu.

2. Admin group is basically registered and then click the [ ] button to add a user group.

3. Other user groups apart from the admin group can use the SSM-VM function if the video wall privilege is checked as shown in the figure.

- SSM-VM sub modules registered in different user groups cannot be shared.
Add a user

1. Click User in System to navigate to the User Setting menu.

2. Press the button to add a user.

3. Press [Apply] to save and press Close to exit. Check if the created account is properly displayed.

Creating sites

1. Click Registration in Site to navigate to the Site Setting menu.

2. Press the button to create a site below the uppermost site.

3. Press the [Apply] bottom button to save the created site.
## Site assignment

1. Click Site allocation in Site to navigate to the menu allocating the equipment to the site. Check whether added sites and equipment are properly displayed.

![Site allocation menu](image)

2. Click on the created site and equipment, press the [assign, cancel] button to assign or cancel assignments.

![Assigned equipment](image)

## Layout registration

1. A layout registered (monitor layout) in the SSM is displayed in the VM Manager of the SSM-VM.

![Monitor layout](image)

2. Just the same as with the SSM-VM, press the [create layout] button to add a layout. A layout with the default name, "Layout 1" will be created. (The name can be changed later.)

![Create layout](image)

3. Press the [select] button to select desired layout and press the [Apply] button at the bottom to save it.
Assign a layout

1. Click on Assign Layout to move to the menu where you can assign a layout to user group. Check if the registered layout is properly displayed.

2. Click on a user group/layout and press the [ , ] button to assign or cancel.

- "Setting SSM user accounts and granting rights to use equipment" is the reference used in case the SSM-VM is used with an Administrator Group account. If a user group is created and rights are assigned to equipment and an account belonging to the group is used to log in, then equipment with no permission will not be displayed in the SSM-VM.
- For more detailed descriptions of User Groups, refer to the "SSM User manual".
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