Digital AV Broadcast System for Schools

User's Manual

silex technology

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WA106840XX

Index

1. Introduction 1

1-1. Introduction 1

Disclaimers 1

Trademarks 1

1-2. Safety Instructions 2

1-3. Product Information and Customer Services 5

Product Information 5

Customer Support Center 5

2. Product Specification 7

2-1. Features and System Structure 8

Features 8

System Structure 9

2-2. Parts and Functions 10

2-3. Product Specification 15

Interface 15

2-4. Usage Notes 17

Copyrights for Video/Audio Content 17

2-5. Setting Management Software 18

SX Smart Manager Pro for MV-500 18

Software Installation 19

Obtaining License Key 19

3. Installation and Setup 21

3-1. Installation and Setup Steps 21

3-2. Preparation for Setup 22

Required Items 22

Installing Setting Management Software on Your PC 23

Connecting MV-500T/MV-500R and PC on the Same Network 27

Creating MV-500T's Configuration File 28

Creating MV-500R's Configuration File 33
3-3. Installation 38
Required Items 39
MV-500T Installation 40
MV-500R Installation 42
3-4. Configuration File for Setup 45
4. Multicast Real-time Streaming 49
4-1. Video/Audio Distribution 50
4-2. Streaming Data Priority 51
Knowing MV-500T's IP Address 52
Transmitter Priority Setting in MV-500R 53
4-3. Data Source Change 57
5. Program Preset Function 59
5-1. Program Making and Playing Flow 60
5-2. Creating Program 61
5-3. Creating Contents 64
Data Format 64
Creating Content 65
Adding and Converting Content Data 67
5-4. Creating Package 69
Creating a new package 69
Registering a content to calendar 70
Creating Schedule Model 72
Using Schedule Model 74
5-5. Transferring Program to MV-500R 76
Adding Devices to Device List 76
Transferring Data to Devices 78
5-6. Video/Audio Playback 82
6. Maintenance Functions 83
6-1. Device Monitoring with Setting Management Software 84

Monitoring MV-500T/MV-500R Status 84
Naming MV-500T/MV-500R 86
Group Tag 88
Adding MV-500T/MV-500R to Group 91
6-2. Setting Change 93
Required Items 93
Connecting MV-500T/MV-500R and PC on the Same Network 94
Editing Configuration File 95
6-3. Restart 100
Using Setting Management Software 100
Hard Reboot 102
6-4. Factory Reset 103
Using Setting Management Software 103
Using RESET Switch 105
6-5. Firmware Update 109
Knowing Firmware Version 109
Downloading Firmware 110
Upgrading Firmware 111
6-6. Maintenance in Web Interface 113
How to Access Webpage 113
Status Page 115
Setting Page 119
Device Management Page 126
6-7. Adjusting Image Position 132
Screen Adjustment with Setting Management Software 132
Screen Adjustment from MV-500T Webpage 134

A. Appendix 135

A-1. Setting Items 135
A-2. Link with Classroom Access Point 146
How to Connect Classroom Access Point 146
Display Priority 147

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1. Introduction

Thank you for purchasing MV-500T (transmitter) / MV-500R (receiver).
This manual provides information on how to configure and use MV-500T /MV-500R. Please read the **1-2. Safety Instructions** carefully before using MV-500T /MV-500R.

1-1. Introduction

MV-500T/MV-500R has a "multicast real-time streaming function" that transfers video/audio from a PC or video camera to the connected display over an IP multicast, and a "program preset function" that plays a video of the storage device using MV-500R only.
This document describes how to configure and use MV-500T/MV-500R to establish a digital AV broadcasting system at school.

Disclaimers

- The unauthorized transfer or copying of the content of this manual, in whole or in part, without prior written consent is expressly prohibited by law.
- The content of this manual is subject to change without notice.
- This manual was prepared to accurately match the content of each OS, but the actual information shown on the computer monitor may differ from the content of this manual due to future OS version upgrades, modifications, and other changes.
- Although every effort was made to prepare this manual with the utmost accuracy, Silex Technology will not be held liable for any damages as a result of errors, setting examples, or other content.

Trademarks

- AMC Manager® is a registered trademark of Silex Technology.
- Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- Other company names and product names contained in this manual are trademarks or registered trademarks of their respective companies.

1-2. Safety Instructions

This page provides the safety instructions for safe use of MV-500T/MV-500R.
To ensure safe and proper use, please read the following information carefully before using MV-500T/MV-500R.

<Indication of the warning>

	Warning	"Warning" indicates the existence of a hazard that could result in death or serious injury if the safety instruction is not observed.
	Caution	"Caution" indicates the existence of a hazard that could result in serious injury or material damage if the safety instruction is not observed.

<Meaning of the symbols>

	This symbol indicates the warning and caution. (Example: "Danger of the electric shock")
	This symbol indicates the prohibited actions. (Example: "Disassembly is prohibited")
	This symbol indicates the actions users are required to observe. (Example: "Remove the AC plug from an outlet")

Warning

	*When unplugging the power plug of the evaluation board, do not pull the cord. The cord may be damaged and it may result in fire or electrical shock. Be sure to hold the plug when disconnecting it.
	• Do not disassemble or modify the product. It may cause fire, electrical shock or malfunction. • Do not disassemble or modify the AC adaptor that comes with the product. It may cause fire, electrical shock or malfunction.
	• Do not place any objects on top of AC adaptor, and do not cover it up with anything. Also, do not use the AC adaptor on top of the heat/moisture retaining materials (carpet, sponge, cardboard, styrofoam, etc.). The accumulated heat may result in fire or malfunction. • Do not roll up or wrap the AC cord. It may cause fire or an electrical shock. • Do not plug or unplug the AC adaptor or any other cables with wet hands. It may cause an electrical shock or malfunction. • Keep the cords and cables away from children. It may cause an electrical shock or serious injury. • Do not cover up the vents on the product. The temperature inside may rise and cause fire or malfunction.
	• Do not move the product when the AC adaptor is connected to it. The cable of AC adaptor may be damaged, and which may result in fire or electric shock. • For use of the devices connected to the product, please follow all warnings, cautions and notices given by that manufacturer and carefully use them in a proper manner. Failure to follow these instructions may cause fire, electrical shock or malfunction. • If a ground wire is supplied with your device to use with, connect it to the ground terminal in order to prevent an electrical shock. Do not connect the ground wire to gas pipe, water pipe, lighting rod or telephone ground wire. It may cause malfunction. • Use the correct power voltage. Improper voltage may cause fire or an electrical shock.

Caution

- Do not place any objects on the cable or bend, twist, or pull it excessively.
- Do not use or store MV-500T/MV-500R under the following conditions. It may cause malfunction.
  - Locations subject to vibration or shock
  - Shaky, uneven or tilted surfaces
  - Locations exposed to direct sunlight
  - Humid or dusty places
  - Wet places (kitchen, bathroom, etc.)
  - Near a heater or stove
  - Locations subject to extreme changes in temperature
  - Near strong electromagnetic sources (magnet, radio, wireless device, etc.)
- When installing the product to a high position, make sure that the product is firmly fixed so it does not drop for weight of the cables.

- When removing MV-500T/MV-500R, disconnect the AC plugs of both MV-500T/MV-500R and the other devices you are using with.
- Verify all codes or cables are plugged correctly before using MV-500T/MV-500R.
- When MV-500T/MV-500R will not be used for a long time, unplug the power cables of MV-500T/MV-500R and the other devices you are using with.

When unplugging the power plug of the evaluation board, do not pull the cord. The cord may be damaged and it may result in fire or electrical shock. Be sure to hold the plug when disconnecting it.

1-3. Product Information and Customer Services

Product Information

The services below are available from the Silex Technology's website.
For details, please visit the Silex Technology's website.

Silex Technology's website
(URL) https://www.silextechnology.com/

- Latest firmware download
- Latest software download
- Latest manual download
- Support information (FAQ)

Customer Support Center

Customer Support is available for any problems that you may encounter.
If you cannot find the relevant problem in this manual or on our website, or if the corrective procedure does not resolve the problem, please contact Silex Technology Customer Support .

Contact Information	
USA	support@silexamerica.com
Europe	support@silexeurope.com

Note

- Refer to the Silex Technology's website (https://www.silextechnology.com/) for the latest FAQ and product information.

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2. Product Specification

MV-500T (Transmitter) connects to a video source such as PC or a video camera. MV-500R (Receiver) connects to a display. The MV-500T encodes video signals (images/audio) and simultaneously sends the data to MV-500R, which decodes and displays the data.

2-1. Features and System Structure

MV-500T/MV-500R have the following features.

Features

[Video/Audio Control]

- Video codec: "JPEG-XR"
- Audio codec: 16-bit stereo + mono PCM (sampling rate: 32 KHz / 44.1 KHz / 48 KHz)
- Different screen resolutions (640 x 480 - 1920 x 1080)
- Frame rate: Max. 30 fps
- Video and audio synchronization (Lip-sync)
- microSD data: MV-500R can play video data inside a microSD memory without MV-500T.

[Network Control]

- Multicast data distribution (data distribution to multiple MV-500Rs)
- MV-500R's clock adjustment function that gets the time information from MV-500T. With this function, multiple MV-500Rs play the content in sync.
- Wired LAN (10Base-T/100Base-TX/1000Base-T)
- MV-500T's network interface selecting function that sends the data only to the network interface to which MV-500R is being connected. The function will reduce the traffic in a network where no MV-500R has been connected.
- SX Smart Manager Pro for the remote management function.
  (Max. 32 units of MV-500R can be controlled via MV-500T.)

[Others]

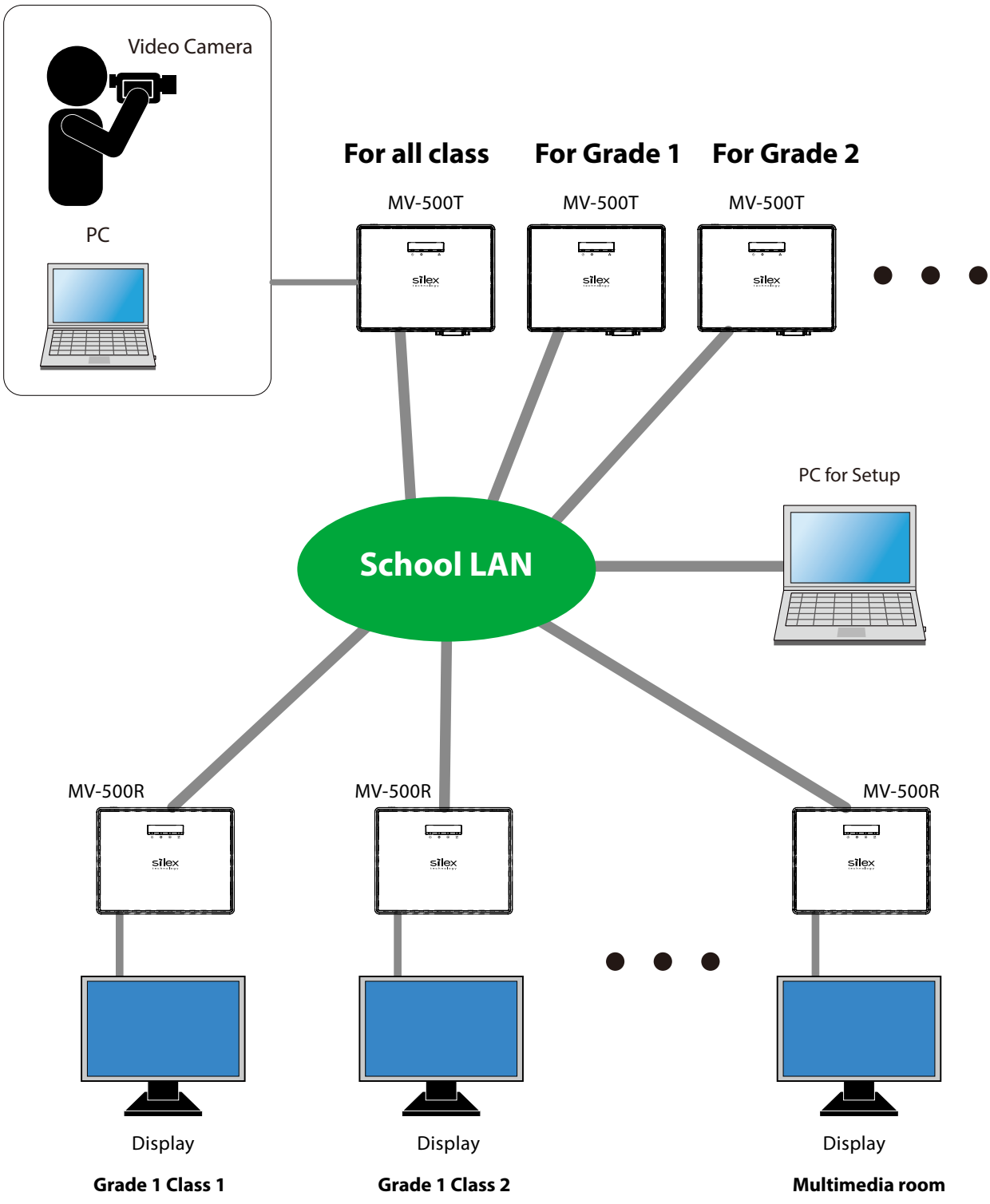
- Device configuration on embedded web pages.
- Silex's tools: AMC Manager® E model (comprehensive wireless LAN management software, sold separately), and AMC Finder (product search utility, download for free)
- AMC Manager® E model allows you to remotely control and monitor Silex products, change the settings and upgrade the firmware at once.

Note

- For details about AMC Manager® E Model, see Silex website.

System Structure

This is an example structure of a school digital AV broadcast system using MV-500T/MV-500R.

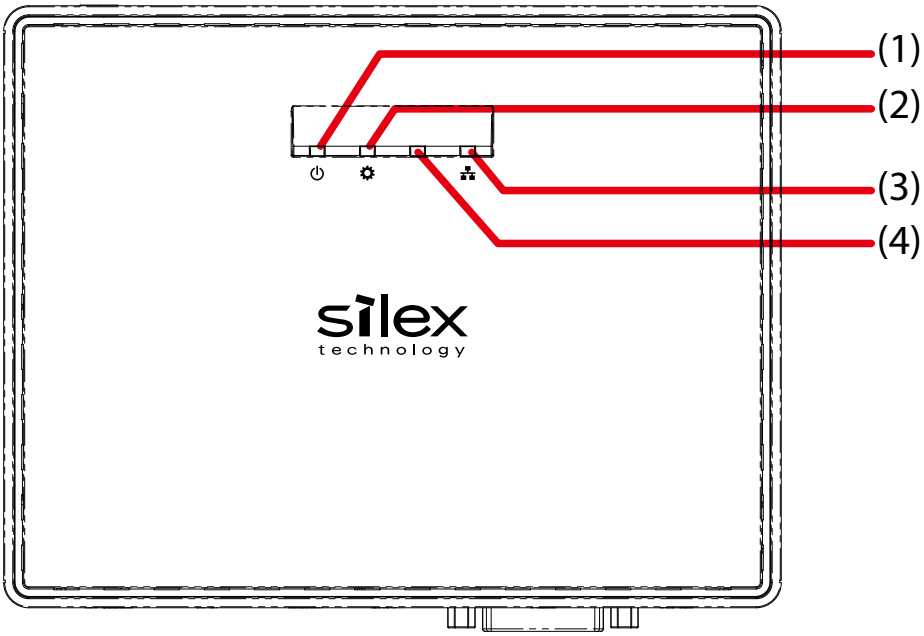


2-2. Parts and Functions

MV-500T (Transmitter)

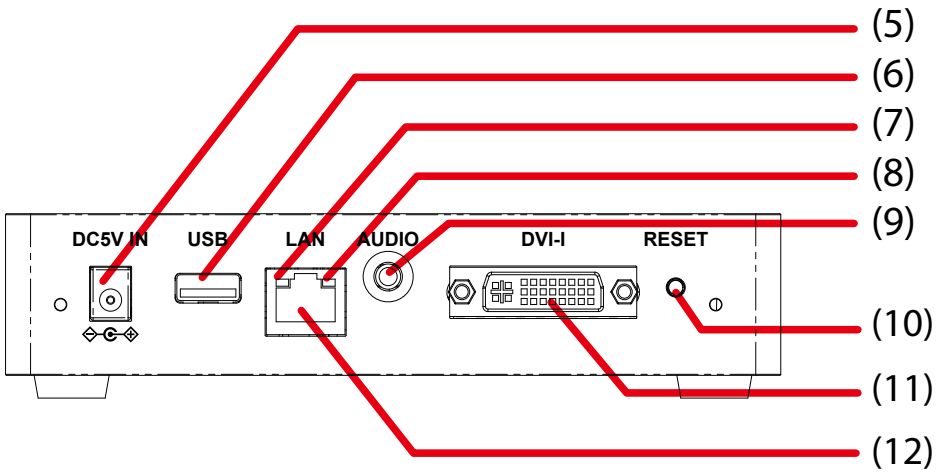
MV-500T hardware and the component functions are shown here:

(Top)



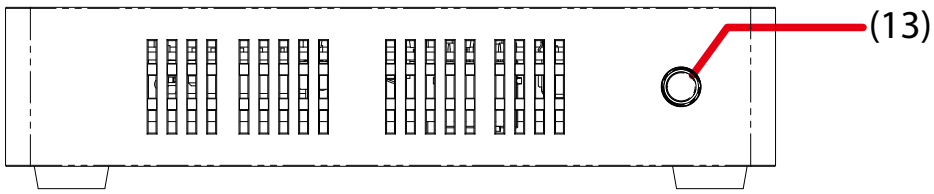
		Description	
(1)	PWR LED (Green / Orange / Red)	Green - Solid	MV-500T is powered on.
		Red - Blinking	The firmware is being uploaded.
(2)	STAT LED (Green / Orange / Red)	Green - Blinking	Video coding in progress (Tx digital)
		Orange - Blinking	Video coding in progress (Tx analog)
		Red - Solid	Resolution error
(3)	LAN LED (Green / Orange)	Green - Solid	Gigabit Link
		Orange - Solid	10/100Base Link
		Off	No link
(4)	LED	Not used	

(Front Panel)



		Description	
(5)	Power Connector	Connects to the AC adapter.	
(6)	USB Port	Not used.	
(7)	Status LED (Yellow)	Solid on	Receiving packets (The LED turns on for 0.5 seconds every time a packet arrives.)
		Off	Not receiving packets
(8)	Link LED (Green / Orange)	Green - Solid	Gigabit Link
		Orange - Solid	10/100Base Link
(9)	Audio Output Jack	Connects to an audio cable (audio output plug).	
(10)	RESET Switch	Resets MV-500T to the factory default settings. (For more details, see **6-4. Factory Reset**)	
(11)	DVI-I Connector	Connects to a DVI cable.	
(12)	Network Port	Connects to a network cable.	

(Back Panel)

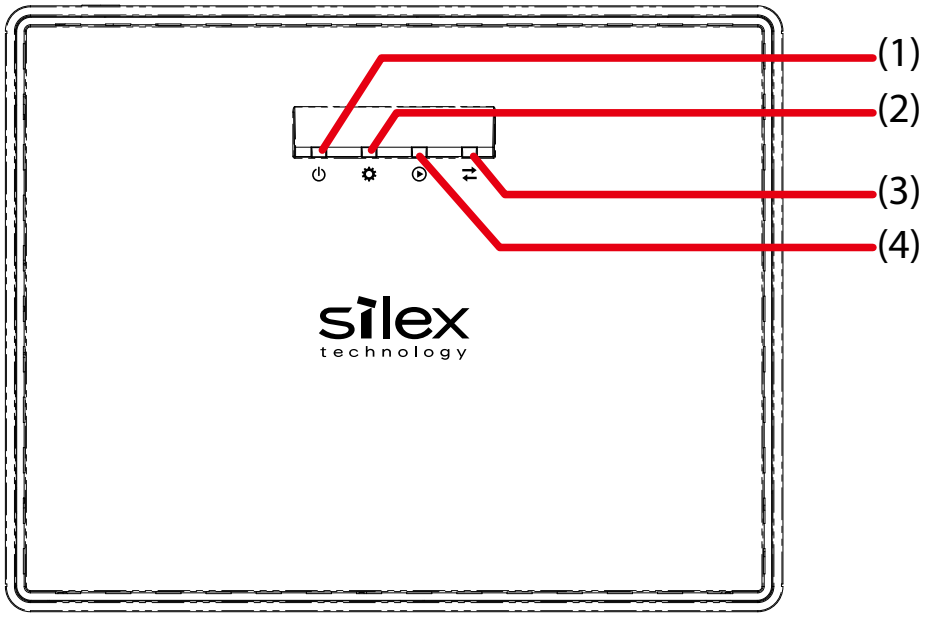


		Description
(13)	Push Switch	Not used.

MV-500R (Receiver)

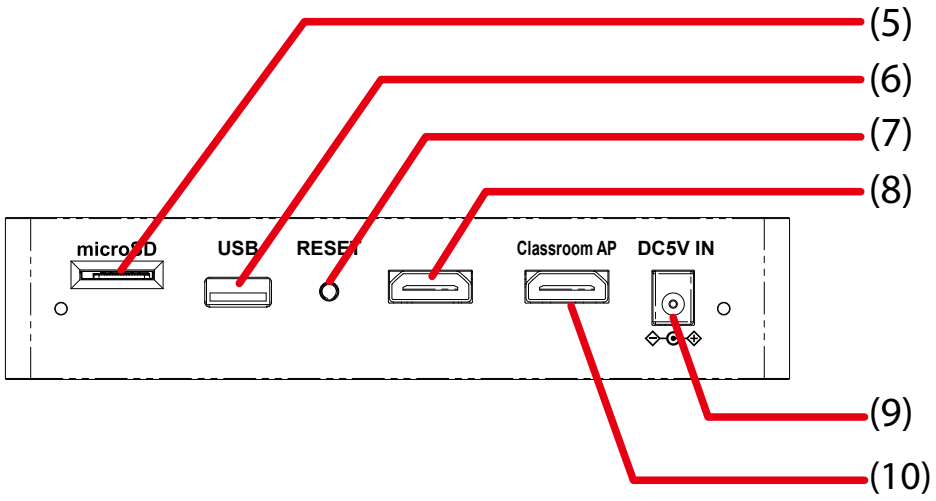
MV-500R hardware and the component functions are shown here:

(Top)



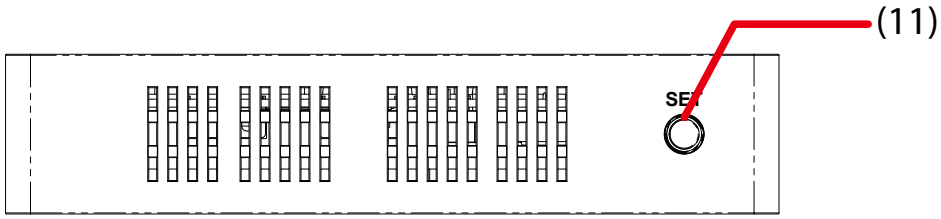
		Description	
(1)	Power LED (Green / Orange / Red)	Orange - Solid	MV-500R is powered on.
		Red - Blinking	MV-500R is restarting.
		Red - Solid	The firmware is being uploaded.
(2)	Status LED (Green / Orange / Red)	Green -Blinking	The bulletin board function is being effective.
		Orange - Blinking	Booting in process
(3)	Device LED (Green / Orange / Red)	Shows the status of a device connecting to the "Classroom AP" HDMI port.	
		Green - Solid	MV-500R allows access from the connected device.
		Orange - Solid	The connected device has been authenticated.
		Red - Solid	MV-500R does not allow access from the connected device.
		Off	Nothing is connected.
(4)	Play Mode LED (Green / Orange / Red)	Green - Blinking	MV-500R is not playing anything or is playing the video data of a device connected to the "Classroom AP" HDMI port.
		Orange - Blinking	MV-500R is playing a preset program. (The program preset function is working.)
		Red - Blinking	MV-500R is playing streaming content. (The multicast real-time streaming is working).

(Front Panel)



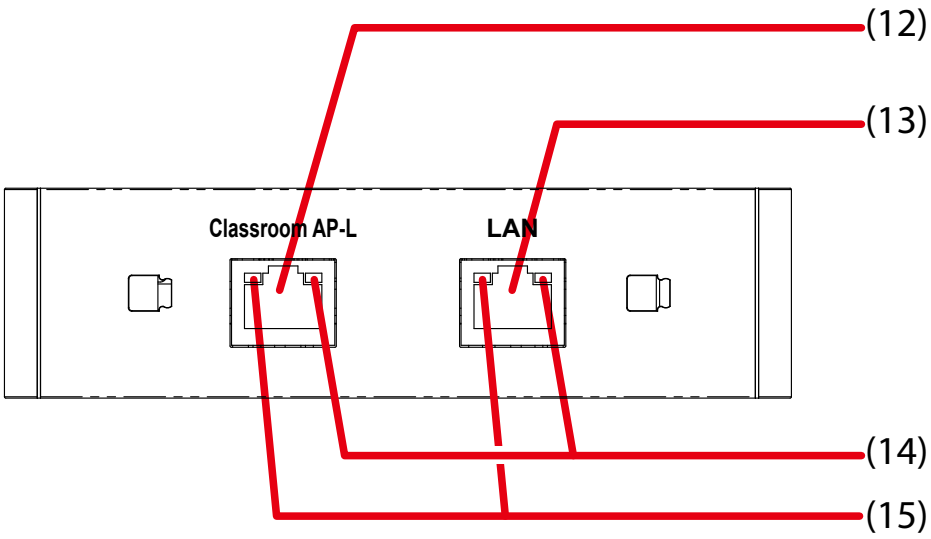
		Description
(5)	microSD Slot	Saves the content data to a microSD card that you inserted.
(6)	USB Port	Not used.
(7)	RESET Switch	Resets MV-500R to the factory default settings. (For more details, see **6-4. Factory Reset**)
(8)	HDMI Connector	Connects to an HDMI cable.
(9)	Power Connector	Connects to the AC adapter.
(10)	HDMI Connector	Connects to an HDMI cable. This port is for a classroom access point (AP).

(Back Panel)



		Description
(11)	Push Switch	Switches transmitters that are executing the multicast real-time streaming function. This function is enabled only when **Node List Method** is set to **Dynamic**. The **Static** option disables this function and MV-500R cannot switch transmitters.

(Side)



		Description	
(12)	Network Port	Connects to a network cable. This port is for a classroom AP.	
(13)	Network Port	Connects to a network cable.	
(14)	Link LED (Green / Orange)	Green - Solid	Gigabit Link
		Orange - Solid	10/100Base Link
(15)	Status LED (Yellow)	On	Receiving packets. (The LED turns on for 0.5 seconds every time a packet arrives.)
		Off	Not receiving a packet.

2-3. Product Specification

Interface

MV-500T (Transmitter)

<table>
<tr><td rowspan="4">Interface</td><td>Video</td><td>DVI-I x 1
(Use a conversion cable for analog RGB In/Out)</td></tr>
<tr><td>Audio</td><td>3.5 Stereo Mini Jack x 1</td></tr>
<tr><td>Ethernet</td><td>10BASE-T/100BASE-TX/1000BASE-T Auto-negotiation</td></tr>
<tr><td>USB</td><td>USB2.0 x1</td></tr>
<tr><td colspan="2">Video In/Out Support</td><td>Screen resolution auto-detect
<table>
<tr><th>Supported</th><th>Digital</th><th>Analog
(*See Note)</th></tr>
<tr><td>VGA(640x480)</td><td>Yes</td><td>Yes</td></tr>
<tr><td>480p(720x480)</td><td>Yes</td><td>Yes</td></tr>
<tr><td>SVGA(800x600)</td><td>Yes</td><td>Yes</td></tr>
<tr><td>XGA(1024x768)</td><td>Yes</td><td>Yes</td></tr>
<tr><td>720p(1280x720)</td><td>Yes</td><td>No</td></tr>
<tr><td>WXGA(1280x768)</td><td>Yes</td><td>No</td></tr>
<tr><td>WXGA(1280x800)</td><td>Yes</td><td>No</td></tr>
<tr><td>SXGA(1280x1024)</td><td>Yes</td><td>No</td></tr>
<tr><td>FWXGA(1360x768)</td><td>Yes</td><td>No</td></tr>
<tr><td>WSXGA(1600x1024)</td><td>Yes</td><td>No</td></tr>
<tr><td>Full-HD(1920x1080)</td><td>Yes</td><td>No</td></tr>
</table>
(*Note) Use a 15-pin D-sub to DVI-I conversion adapter or cable for the analog connection.</td></tr>
</table>

MV-500R (Receiver)

<table>
<tr><td rowspan="4">Interface</td><td>Video/Audio</td><td>HDMI in, HDMI out</td></tr>
<tr><td>Ethernet</td><td>10BASE-T/100BASE-TX/1000BASE-T Auto-negotiation x 2</td></tr>
<tr><td>USB</td><td>USB2.0 x1</td></tr>
<tr><td>microSD</td><td>microSD, microSDHC</td></tr>
<tr><td colspan="2">Video Output Support</td><td>Screen resolution auto-detect
<table>
<tr><th>Supported</th><th>Digital</th></tr>
<tr><td>VGA(640x480)</td><td>Yes</td></tr>
<tr><td>480p(720x480)</td><td>Yes</td></tr>
<tr><td>SVGA(800x600)</td><td>Yes</td></tr>
<tr><td>XGA(1024x768)</td><td>Yes</td></tr>
<tr><td>720p(1280x720)</td><td>Yes</td></tr>
<tr><td>WXGA(1280x768)</td><td>Yes</td></tr>
<tr><td>SXGA(1280x1024)</td><td>Yes</td></tr>
<tr><td>FWXGA(1360x768)</td><td>Yes</td></tr>
<tr><td>WSXGA(1600x1024)</td><td>Yes</td></tr>
<tr><td>Full-HD(1920x1080)</td><td>Yes</td></tr>
</table></td></tr>
</table>

Video

Interface	DVI-I Analog : RGB Digital : DV/HDMI(HDCP is not supported for video content.)
Codec	JPEG-XR
Resolution	VGA(640 x 480) - Full-HD(1920 x 1080) Auto-detect
Frame Rate	30 fps -1 fps
Setting	Image position adjustment

Audio

Interface	3.5 Stereo Mini Jack
Codec	PCM 16-bit Stereo/Mono
Sampling Rate	32 KHz, 44.1 KHz, 48 KHz

USB

Standard	USB 2.0 Hi-Speed (USB 3.0 Super Speed operates in the compatibility mode.)
Memory	Max. 32 GB
File System	FAT, FAT32
Partition	1 partition only
Device Insertion/Removal without shutting down the product	Prohibited

Note: MV-500T/MV-500R do not use USB.

microSD

Supported Media	microSD, microSDHC
Memory	microSD: Max. 2 GB, microSDHC: Max. 32 GB
File System	FAT, FAT32
Partition	1 partition only
Device Insertion/Removal without shutting down the product	Prohibited

2-4. Usage Notes

Copyrights for Video/Audio Content

You need to obtain consent from a copyright owner to distribute the owner's creative material using MV-500T/MV-500R. Using a copyright work (content) without the appropriate permission will infringe the law.

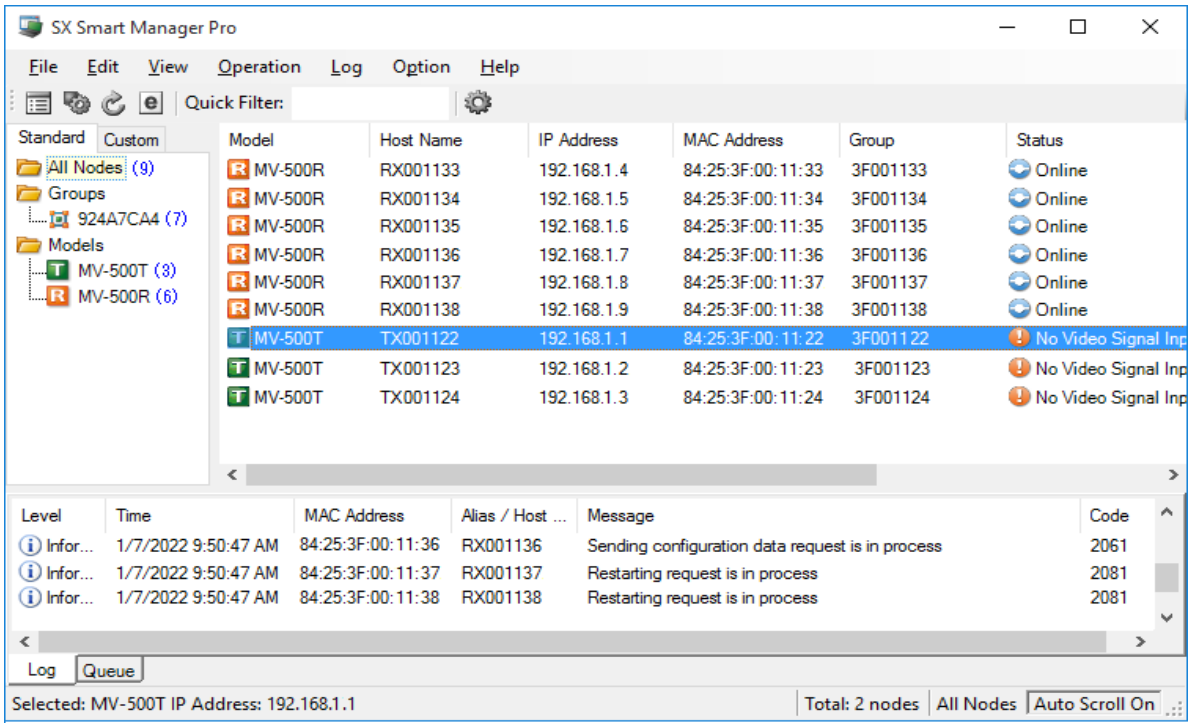
2-5. Setting Management Software

SX Smart Manager Pro for MV-500

SX Smart Manager Pro for MV-500 (hereafter referred to as the setting management software) allows the user to remotely monitor the status of devices in an IP network, set up MV-500T/MV-500R, and manage the digital AV broadcast system for schools.

This user guide explains how to create a configuration file for the initial setup of MV-500T/MV-500R using the setting management software.

SX Smart Manager Pro for MV-500's Main Window



Supported OS	Windows 10 (32-bit/64-bit) Windows 8 (32-bit/64-bit) Windows 7 (SP1 or later, 32-bit/64-bit) Windows Vista (SP2 or later, 32-bit/64-bit) Windows XP (SP3 or later, 32-bit only)

Note

- Place the setup PC on the same LAN environment as MV-500T/MV-500R's. The setting management software has to communicate with them to obtain the setup information if you want to create or update their configuration files.

Software Installation

The setting management software is included in CD-ROM "**SX Smart Manager Pro for MV-500 CD**" that comes with MV-500T (Transmitter).

Obtaining License Key

You must obtain User ID and License key of the setting management software. Please contact us. For the contact information, refer to **1-3. Product Information and Customer Services - Customer Support Center**.

TIP

- It will take you a few days to receive the user ID and license key after your request is sent.

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3. Installation and Setup

This section guides you through the installation and setup of MV-500T/MV-500R as a digital AV broadcast system for schools. Prepare configuration files in advance.
You only need to import the files into MV-500T/MV-500R at the use location to complete the setup.

3-1. Installation and Setup Steps

Here is the installation and setup steps to use MV-500T/MV-500R as a digital AV broadcast system for schools.

1. Create configuration files for MV-500T/MV-500R.

2. Install MV-500T/MV-500R in a school where you want to set up a digital AV broadcast system.

3. Change MV-500T/MV-500R's settings using the configuration files you created.

3-2. Preparation for Setup

Create a configuration file for MV-500T/MV-500R.

Required Items

Use the setting management software to create configuration files for MV-500T/MV-500R. Get one unit each of MV-500T and MV-500R, which you will use as information sources when you create configuration files with the setting management software.

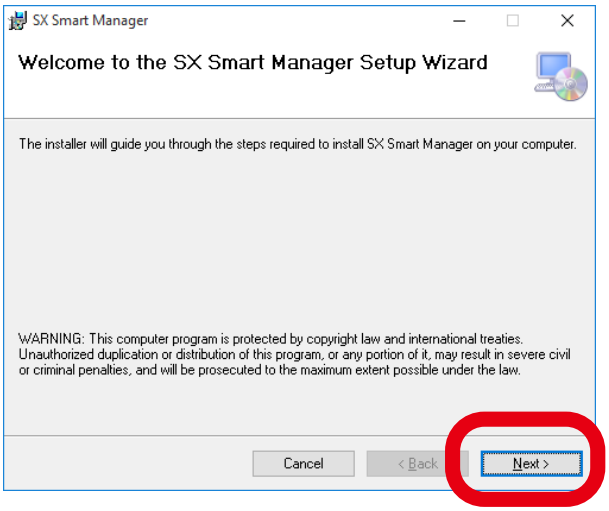
MV-500T (Transmitter)	Prepare one transmitter.
MV-500R (Receiver)	Prepare one receiver.
Setting management software	Prepare **SX Smart Manager Pro for MV-500 CD** that came with MV-500T (Transmitter). [Supported OS] • Windows 10 (32-bit / 64-bit) • Windows 8 (32-bit/64-bit) • Windows 7 (SP1 or later, 32-bit / 64-bit) • Windows Vista (SP2 or later, 32-bit / 64-bit) • Windows XP (SP3 or later, 32-bit only)
Software license key	Prepare the license key of the setting management software.
PC for configuration	Prepare a PC that has a wired LAN port to set up MV-500T/MV-500R.
Network cable	Prepare network cables (Category 5e or greater) to connect PC and MV-500T/MV-500R for the setup. - Since MV-500T/MV-500R support Auto MDI/MDI-X, you can use either the straight-through or the crossover network cables. - You can use an Ethernet hub or directly connect MV-500T/MV-500R to the PC.
Ethernet hub	Use an Ethernet hub to connect MV-500T/MV-500R and the PC. It is not needed when you use your existing network environment.

Installing Setting Management Software on Your PC

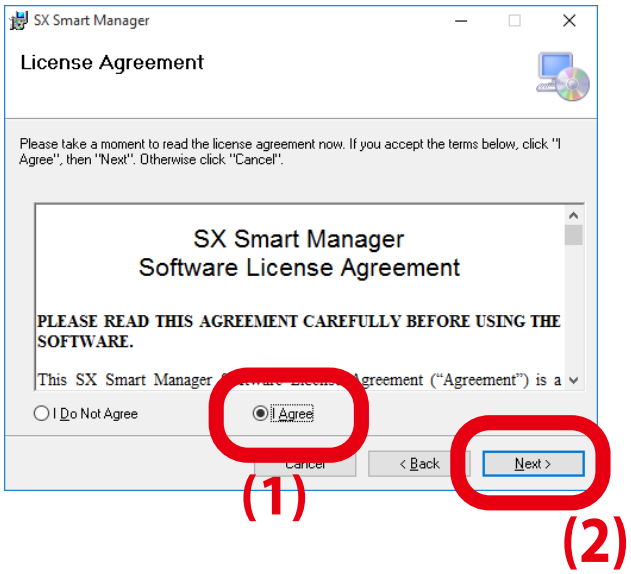
Install the setting management software on a PC for creating configuration files (hereafter referred to as the setup PC or simply the PC).

1. Insert CD-ROM **SX Smart Manager Pro for MV-500** into the setup PC and execute **SxSmartManager_XXX.msi**.

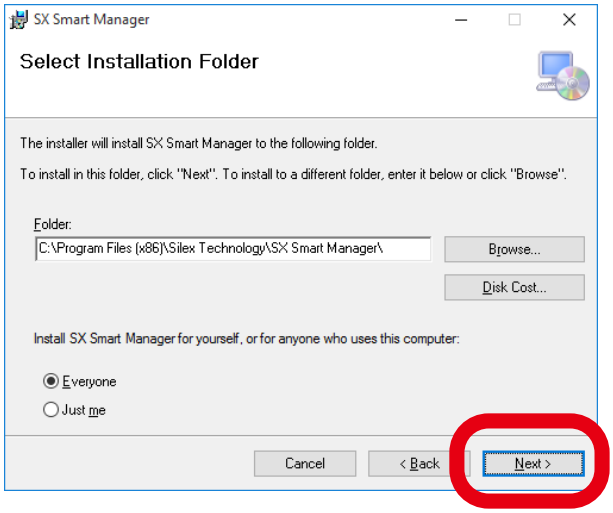
2. The welcome window appears.
Click **Next**.



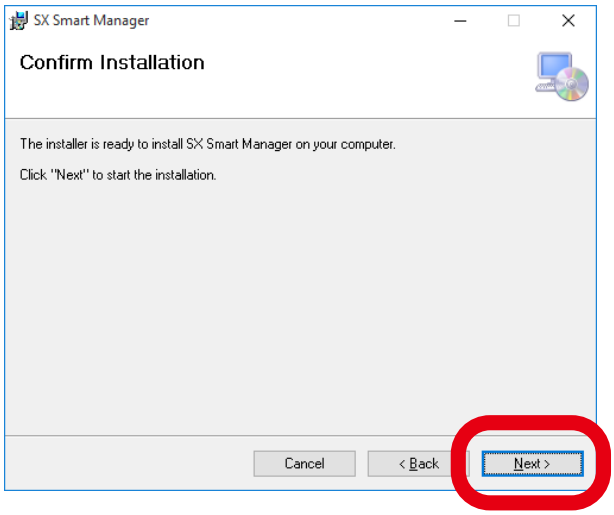
3. The software license agreement window appears.
Read the license agreement, check **I Agree** if accept it, and click **Next**.



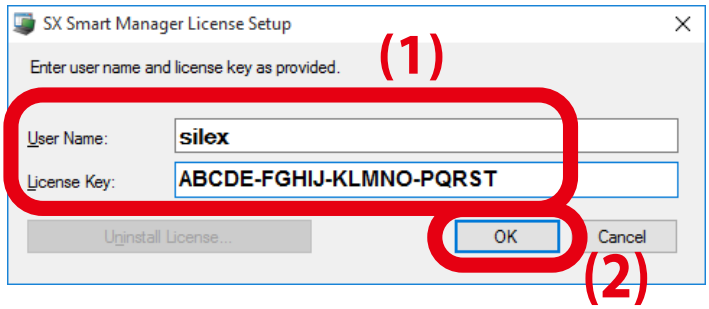
4. The installation path will be confirmed.
Click **Next**.



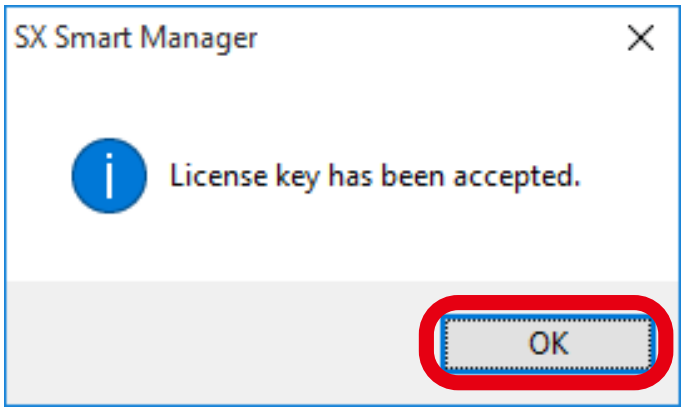
5. The confirmation dialog appears.
Click **Next**.



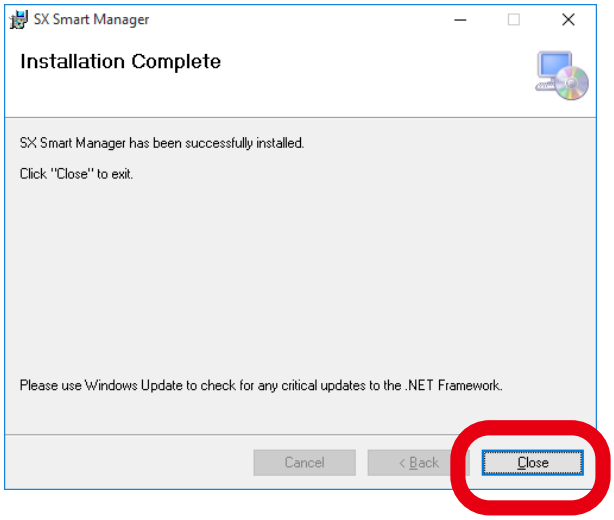
6. You will ask to enter the license.
Enter your SX Smart Manager **User Name** and **License Key**, and click **OK**.



7. The confirmation dialog will appear after the license key is verified.
Click **OK**.

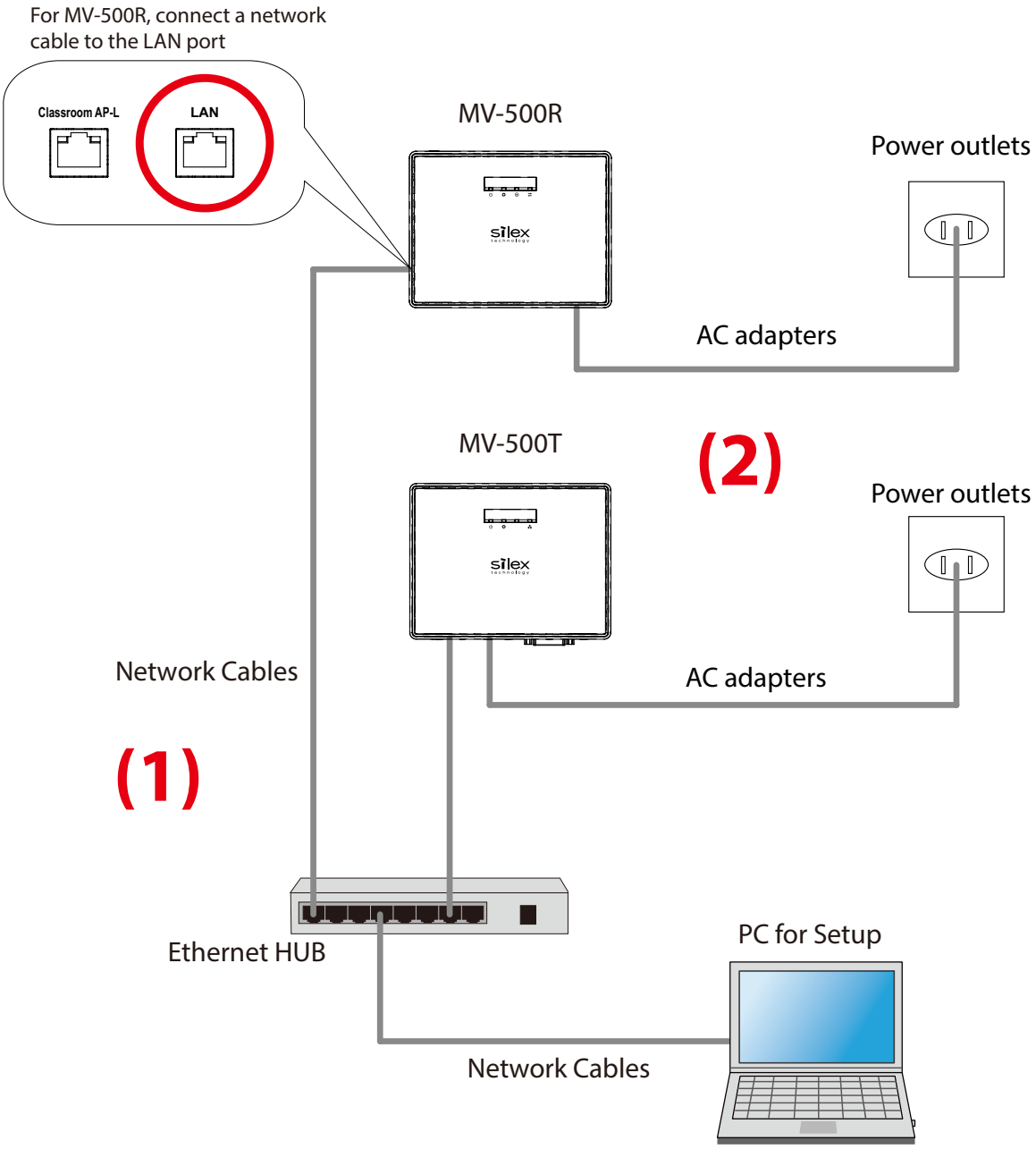


8. The installation complete window will appear.
Click **Close**.



Connecting MV-500T/MV-500R and PC on the Same Network

Use an Ethernet hub to connect MV-500T and MV-500R with the setup PC on the same LAN. Connect them with network cables, and plug the AC adapters of MV-500T/MV-500R into power outlets. Since these MV-500T/MV-500R are for obtaining the setting information, they do not require a display unit or a video source to be connected.



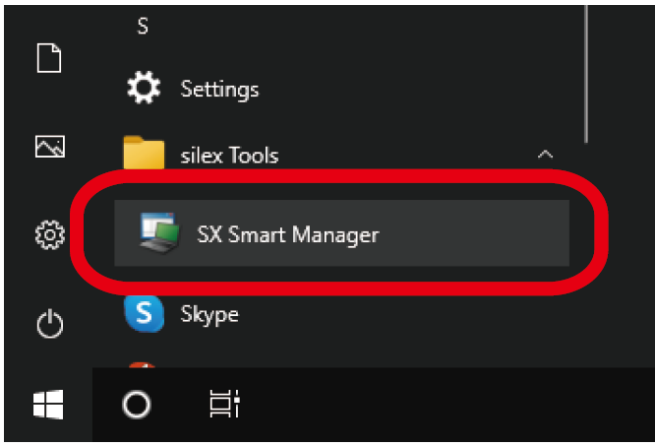
TIP

- When a static IP address is assigned to the PC, temporarily enable **Obtain an IP address automatically** on the PC.

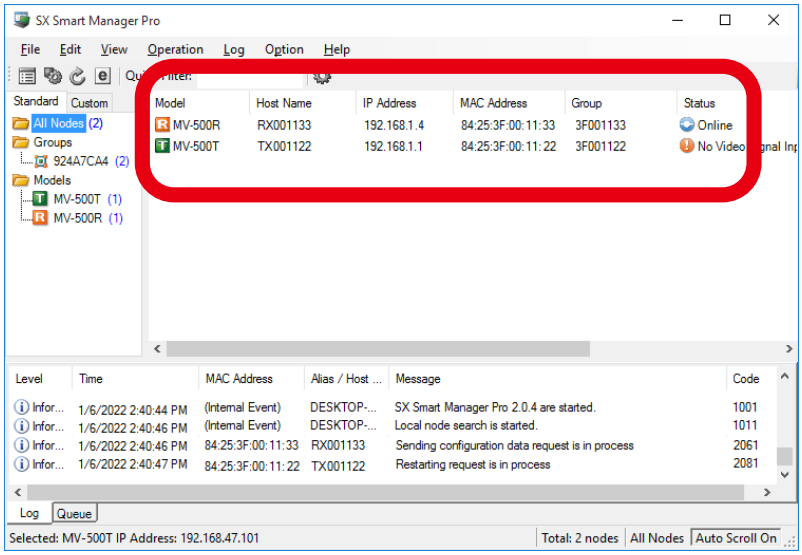
Creating MV-500T's Configuration File

Use the setting management software to create configuration files for MV-500T.

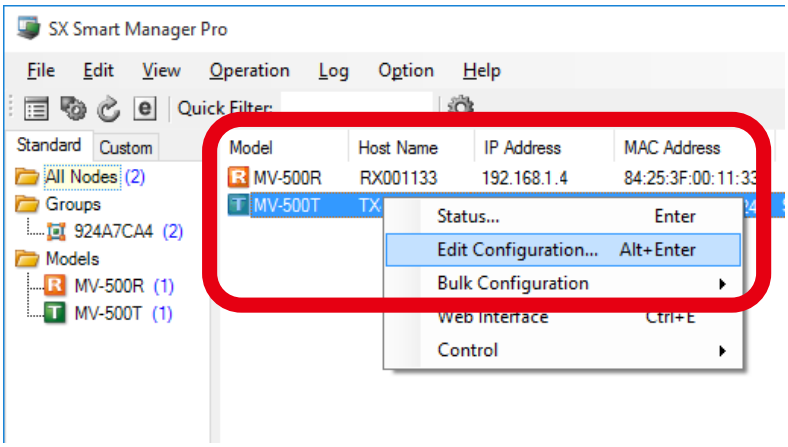
1. Choose **SX Smart Manager** from the start menu of the setup PC.



2. The setting management software starts.
The node list shows MV-500T/MV-500R connected on the same network.



3. Create a configuration file for MV-500T that you will set up.
Click MV-500T in the node list, right click and select **Edit Configuration**.



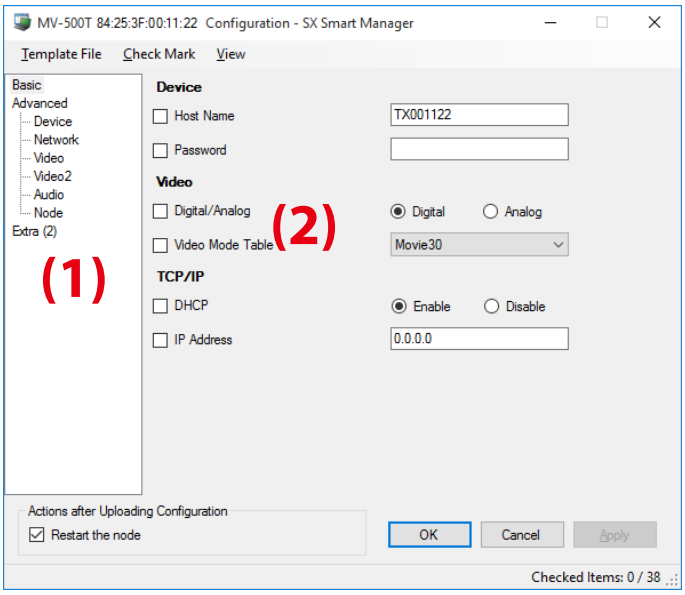
Note

- You can see **Edit Configuration** in a different way, select MV-500T in the node list, and click **Operation** - **Edit Configuration** on the menu bar.

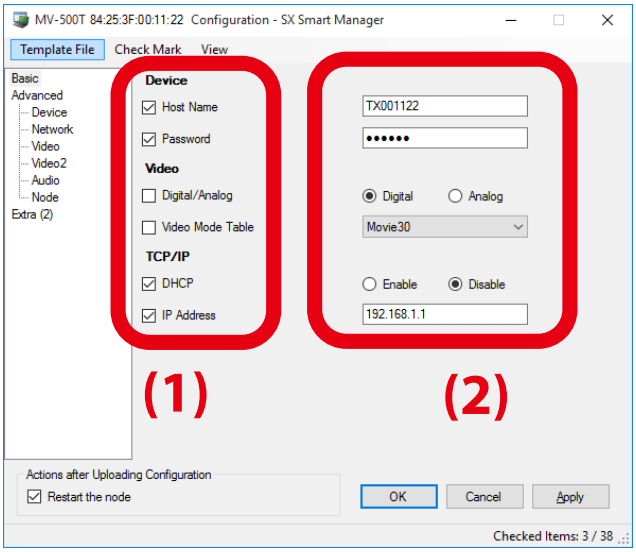
TIP

- As you try to access MV-500T/MV-500R's setting webpage or maintenance page, the login page appears. Enter **root** as the user name and your MV-500T/MV-500R's root password. (**Note that no password is set as factory default**.)

4. The MV-500T's configuration window appears.
Selecting a category on the left shows the configuration items on the right.



5. Tick the items that you want to configure, and enter the values.



TIP

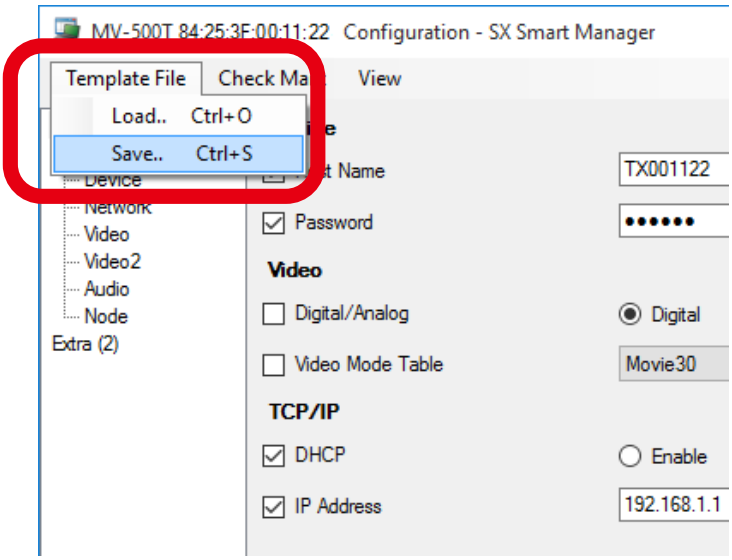
- Do not click **OK** or **Apply**. If you do so, the selected MV-500T will save these values to its memory.

Note

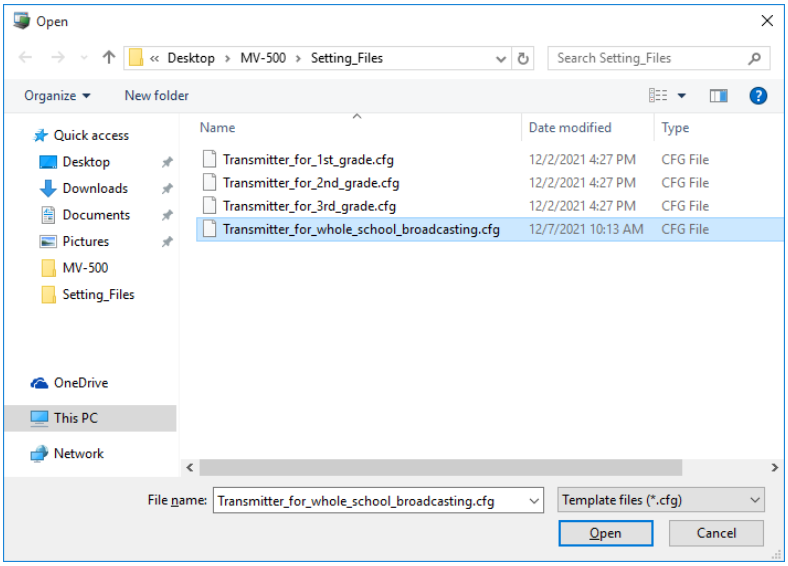
- For details about the setting values, see **A-1. Setting Items**.
- The factory default settings have already included the host name of MV-500T/MV-500R. It is a character string using the last 6 digits of the MAC address. You can use the default host name. If you change it, make sure that the new name is unique and not used by other network devices.
- **Digital/Analog** and **Video Mode Table** are the video settings.
  Change **Digital/Analog** based on input signals from the video source.
  Change **Video Mode Table** to set the balance between video smoothness and image quality. The table below shows the setting values. You should not change the default setting unless you have no choice but to change it.

Option	Performance
Custom	The Custom mode works based on the information set in the Advanced Configuration page.
Movie30	The Movie mode should be selected if you want to give priority to video smoothness. The numbers following the option name "Movie" indicate the number of images to be updated per second. The greater the number is, the smoother the video becomes, and the smaller the number is, the higher the image quality becomes. ・Movie30 is suitable for playing videos including scrolling text messages. ・Select Movie20 or Movie15 if you want to focus on motion but not want to lose the image quality.
Movie20	
Movie15	
Picture10	The Picture mode should be selected if you want to give priority to the image quality. The numbers following the option name "Picture" indicate the number of images to be updated per second. The greater the number is, the higher the quality becomes, and the smaller the number is, the smaller the communication loads become. If you want to reduce communication loads and get the stable audio quality, select Picture5. To increase the update cycles, select Picture1.
Picture5	
Picture3	
Picture2	
Picture1	

6. After updating all the values, click **Template File** - **Save** on the menu bar.

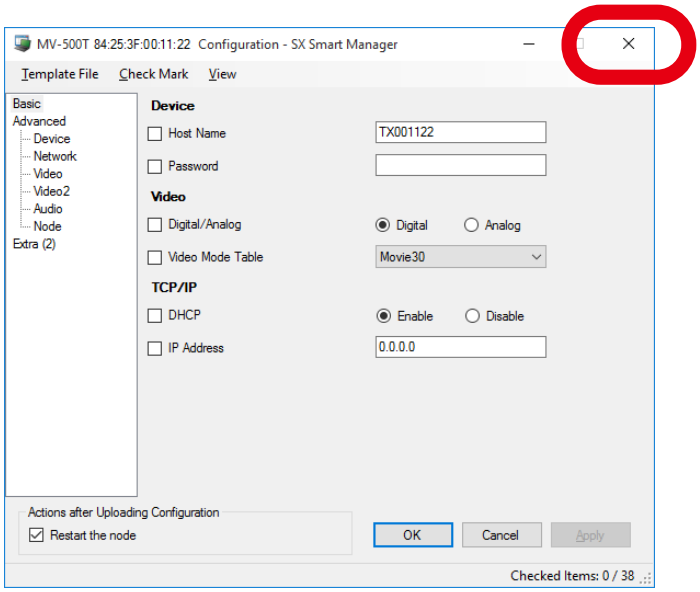


7. The file save dialog appears.
Name the file to save as a configuration file for MV-500T.



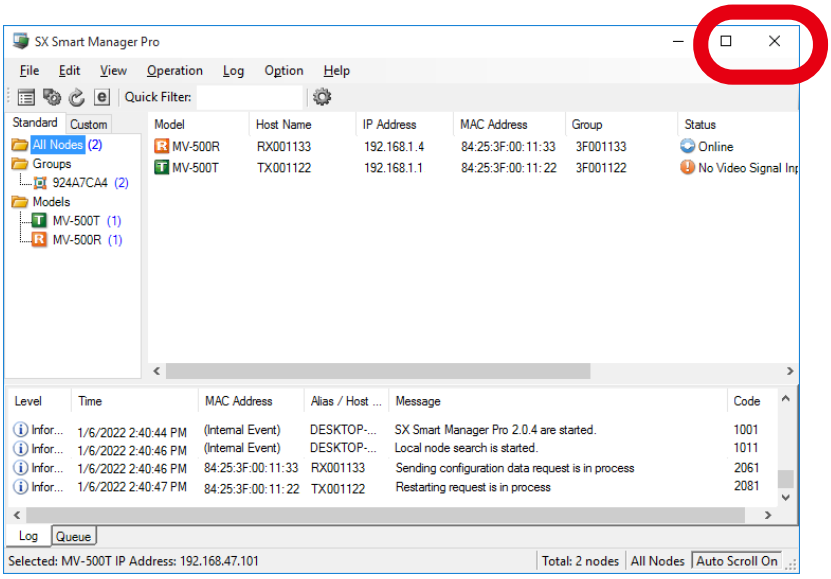
8. The MV-500T's configuration window appears again.

- To create another configuration file, repeat **Step 4** through **Step 8**. Create the required number of configuration files.
- After creating all the configuration files, click ✕ (close) on the top right of the window.



9. The main window of the setting management software appears again.

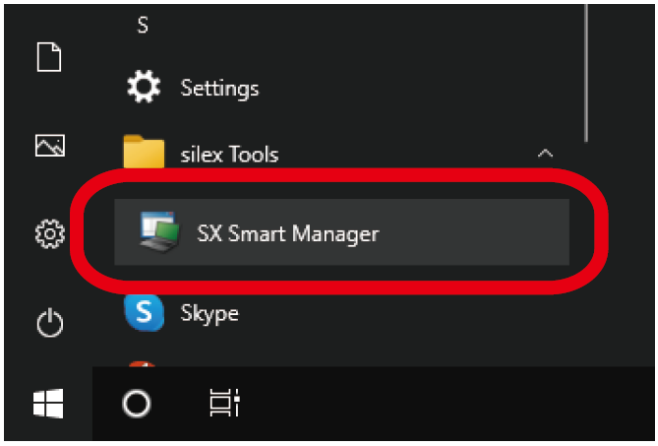
- To create configuration files for MV-500R, go to **Step 3** in **Creating MV-500R's Configuration File**.
- To finish creating configuration files, click ✕ (close) on the top right to quit the setting management software. Unplug the AC adapter of MV-500T/MV-500R from the power outlet.



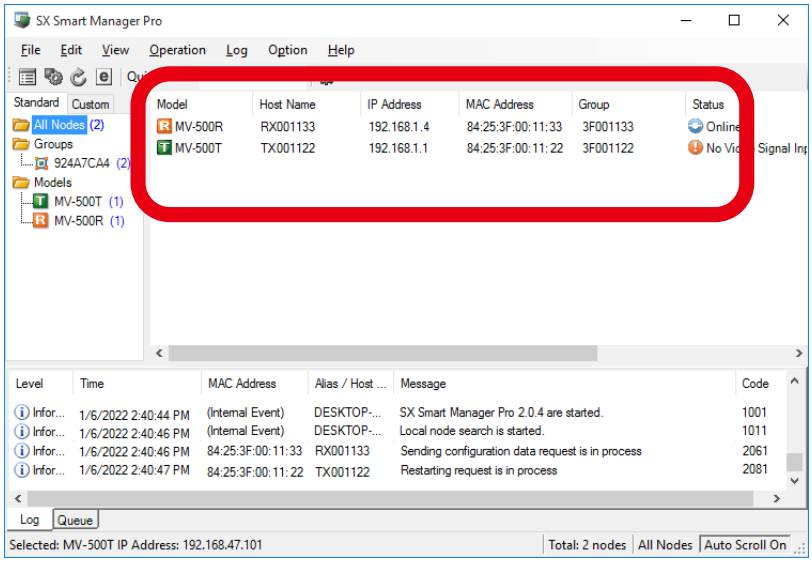
Creating MV-500R's Configuration File

Use the setting management software to create configuration files for MV-500R.

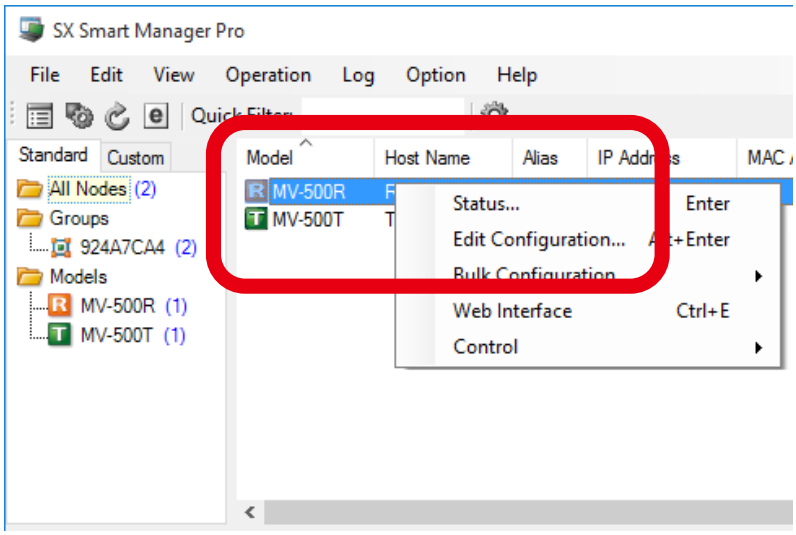
1. Click **SX Smart Manager** on the start menu of the PC.



2. The setting management software starts.
The node list shows MV-500T/MV-500R connected on the same network.



3. Create a configuration file for MV-500R that you will set up at school.
Click MV-500R in the node list, right click and select **Edit Configuration**.



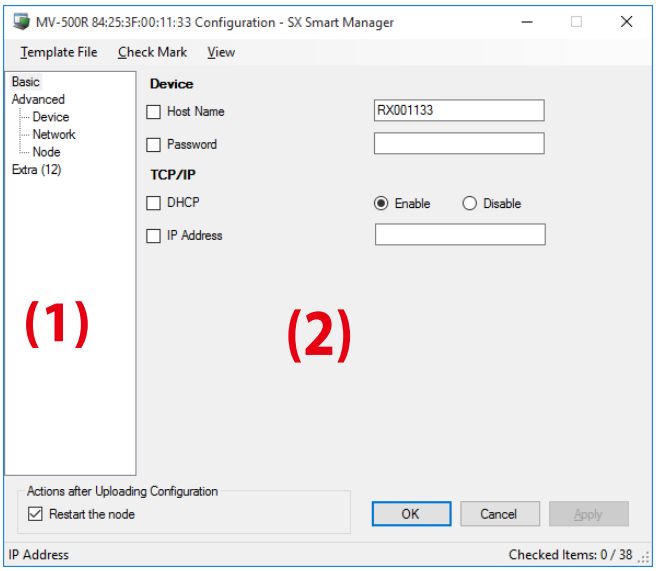
TIP

- As you try to access MV-500T/MV-500R's setting or maintenance webpages, the login page appears. Enter **root** as the user name and your MV-500T/MV-500R's root password. (**Note that no password is set as factory default.**)

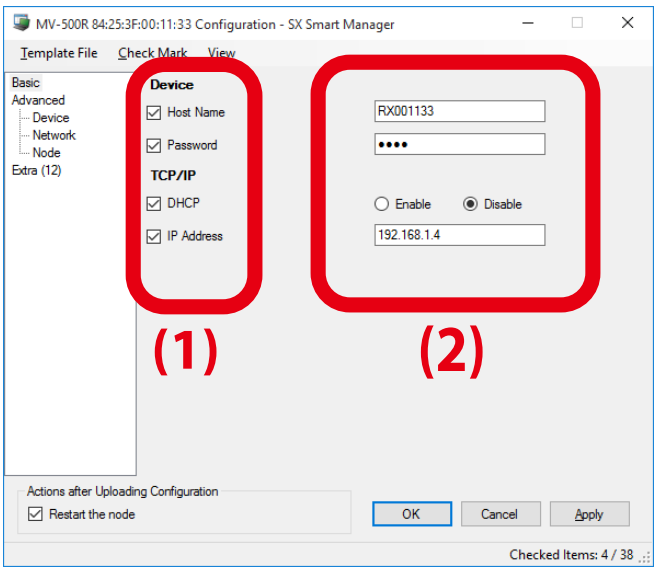
Note

- You can see **Edit Configuration** in a different way, select MV-500R in the node list, and click **Operation** - **Edit Configuration** on the menu bar.

4. The MV-500R's configuration window appears.
Selecting a category on the left shows the configuration items on the right.



5. Tick the items that you want to configure, and enter the values.



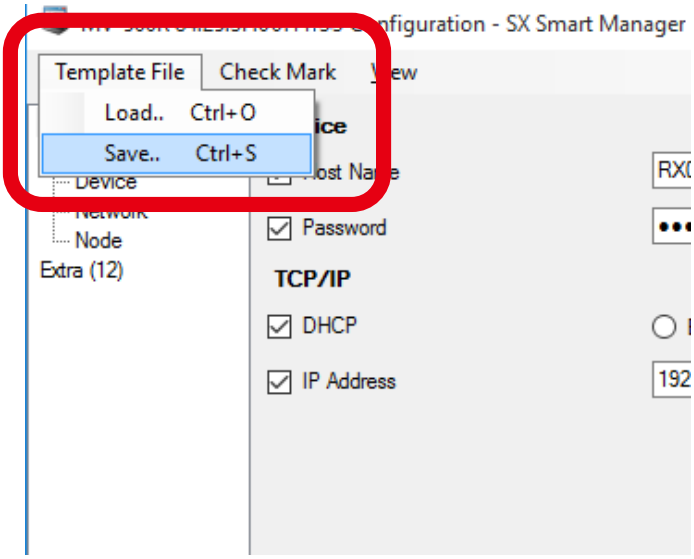
TIP

- Do not click **OK** or **Apply**. If you do so, the selected MV-500R will save these values to its memory.

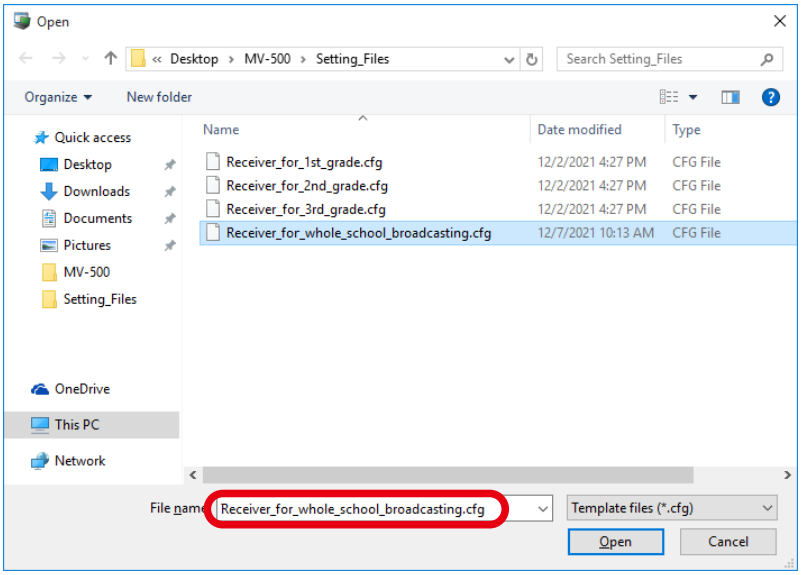
Note

- For details about the setting values, see **A-1. Setting Items**.
- The factory default settings have already included the host name of MV-500T/MV-500R. It is a character string including the last 6 digits of the MAC address. You can use the default host name. If you change it, make sure that the new name is unique and not used by other networked devices.
- You can change the priority of receiving data in the node setting page.
  With this setting, MV-500R will receive data from the prioritized transmitter if multiple transmitters execute the multicast real-time streaming function at the same time. For more details, see **4-2. Streaming Data Priority**.

6. After updating all the values, click **Template File** - **Save** on the menu bar.

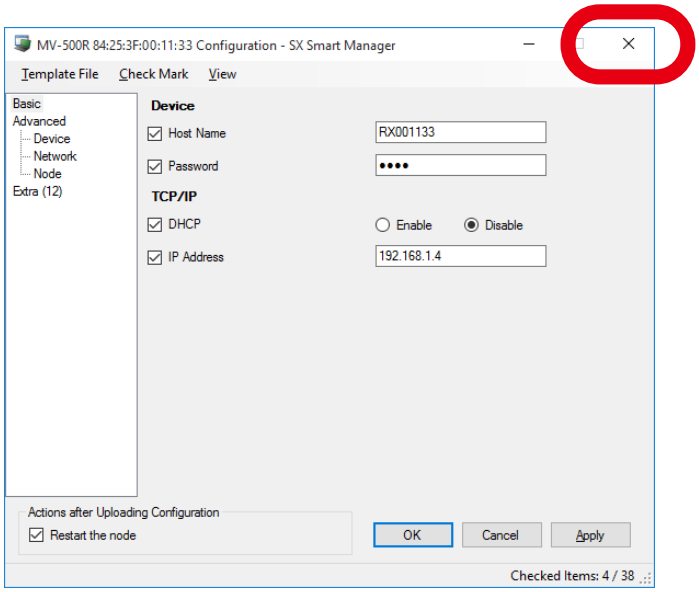


7. The file save dialog appears.
Name the file to save as a configuration file for MV-500R.



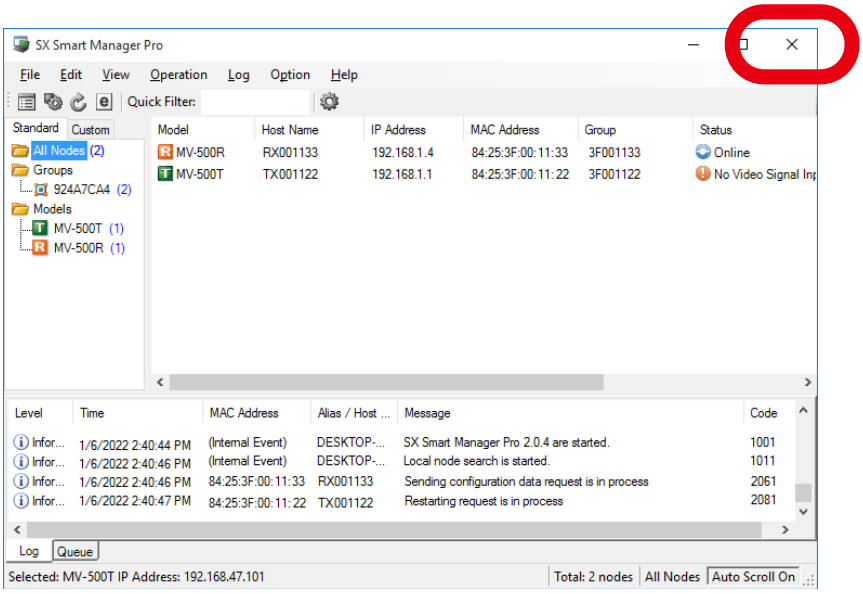
8. You will see the MV-500R's configuration window again.

- To create another configuration file, repeat **Step 4** through **Step 8**. Create the required number of configuration files.
- After creating files, click ✕ (Close) on the top right of the window.



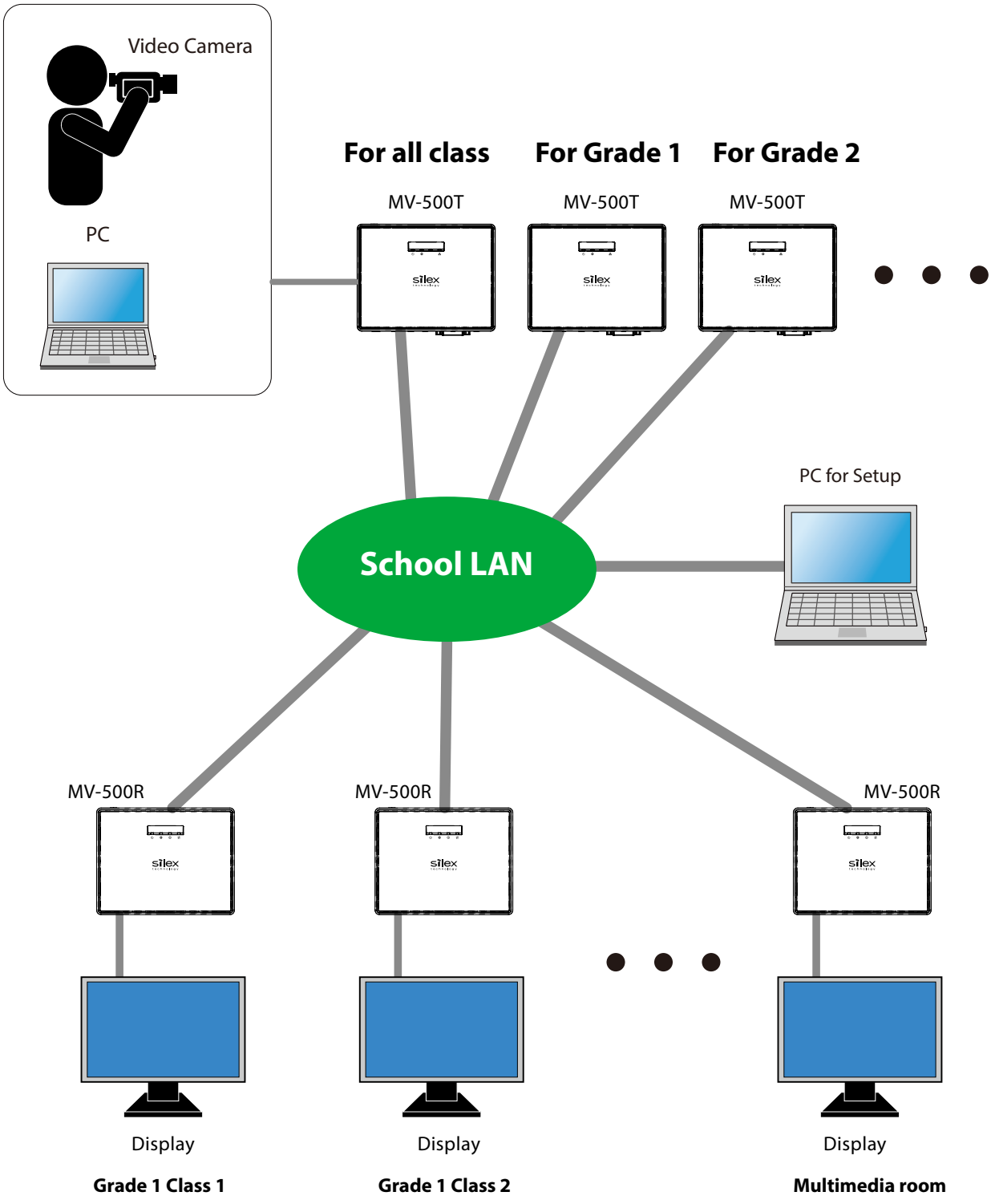
9. You will see the main window of the setting management software again.

- To create configuration files for MV-500T, go to **Step 3** in Creating MV-500T's Configuration File.
- To finish creating configuration files, click ✕ (Close) on the top right to quit the setting management software. Unplug the AC adapter of MV-500T/MV-500R from the power outlet.



3-3. Installation

Install MV-500T/MV-500R as a digital AV broadcast system in classrooms and connect them to the school LAN as the following network diagram shows.



Required Items

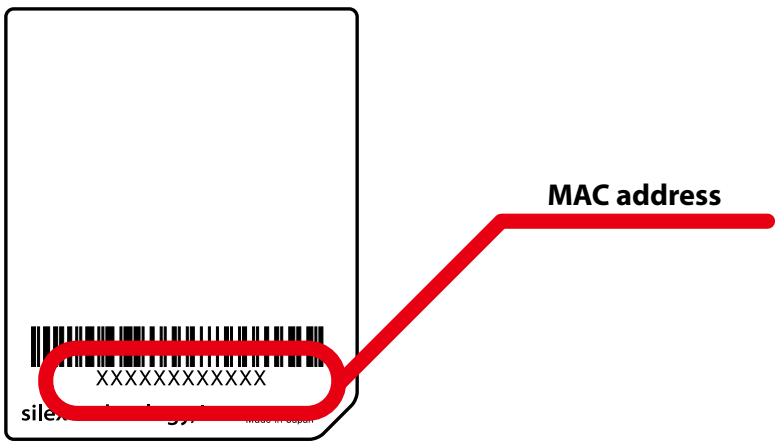
Prepare the following equipment to establish a digital AV broadcast system at school.

MV-500T (Transmitter)	Prepare as many MV-500Ts as you need in the system.
MV-500R (Receiver)	Prepare as many MV-500Rs as you need in the system. You can connect a display to each MV-500R.
Video source	Prepare video cameras or PC that have a DVI-I (DVI-D or Analog RGB) interface and their output screen resolutions are supported by MV-500T. [Note] MV-500T does not support HDCP. You cannot use HDCP-compliant media players.
Display	Prepare displays that are equipped with an HDMI interface and can work with screen resolutions that are supported by MV-500T/MV-500R. (You need as many displays as MV-500R.)
Display cable	[MV-500T (Transmitter)] Prepare display cables that are equipped with DVI-D connectors (male to male) and protected against noise. You need a display cable for each MV-500T. [MV-500R (Receiver)] Prepare as many HDMI cables as MV-500R.
Audio cable	Prepare audio cables that are equipped with stereo mini plug connectors and are protected against noise. You need an audio cable for each MV-500T.
PC (for set-up)	Prepare a PC that has a wired LAN port and the setting management software installed to set up MV-500T/MV-500R.
Network cable (for set-up)	Prepare network cables (category 5e or greater) to connect MV-500T/MV-500R and your PC. - Since MV-500T/MV-500R support Auto MDI/MDI-X, you can use either the straight-through or the crossover network cables.
Configuration file	The configuration files are the ones you created in **3-2. Preparation for Setup** containing the setting information of MV-500T/MV-500R.
microSD card	Prepare microSD cards if necessary. Each MV-500R requires a microSD card to work with the program preset function.

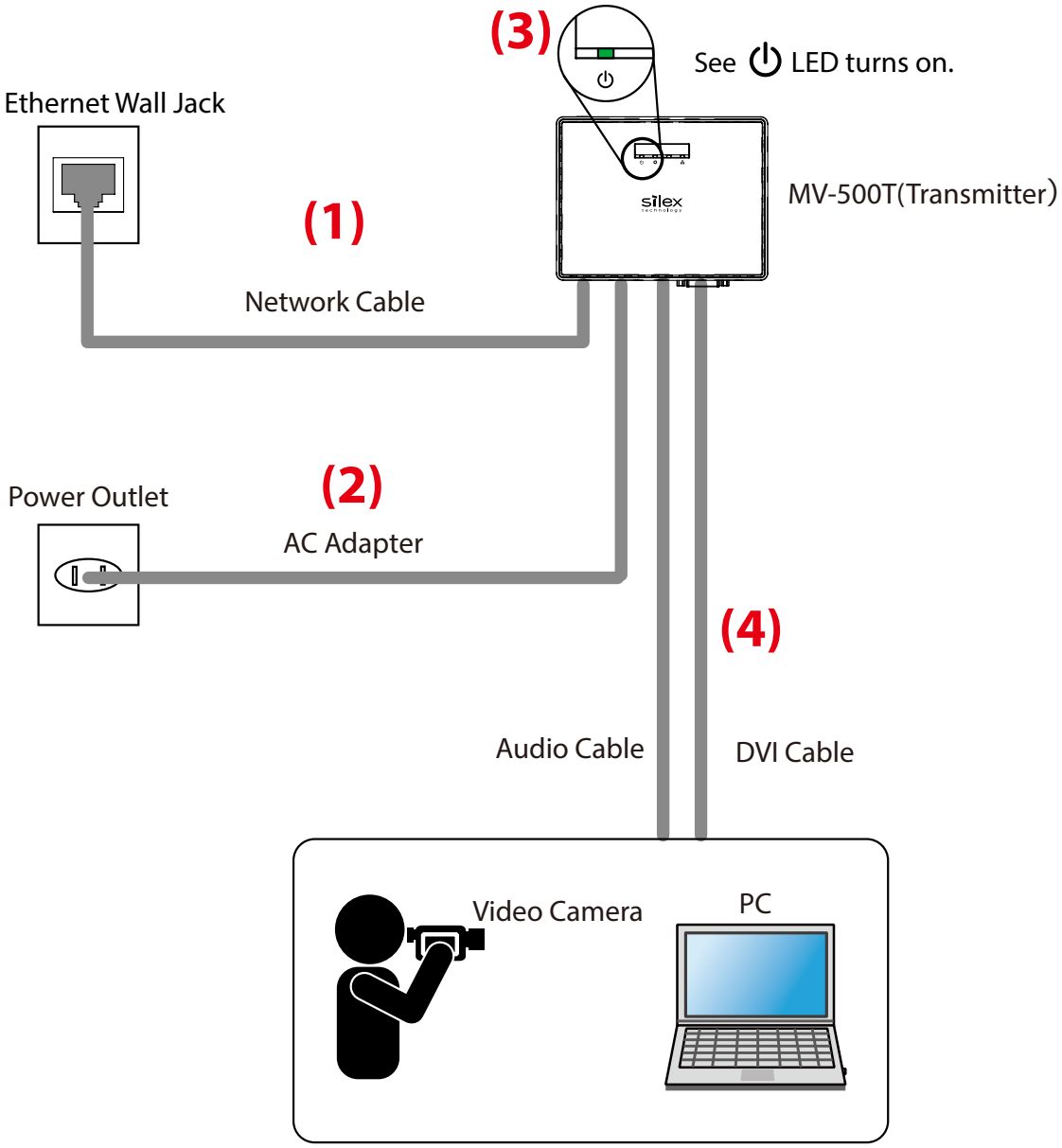
MV-500T Installation

Install MV-500Ts in the faculty's office or broadcasting rooms, and connect them to the school LAN.

1. You need to know the MAC address of the MV-500T, written on the bottom label, for the setup procedure in **3-4. Configuration File for Setup**. Make a note of the MAC address and the installed location.



2. Connect MV-500T to an Ethernet wall jack for the school LAN using a network cable. Connect the AC adapter to the MV-500T and a power outlet. After you see the top ⏻ LED turns on, connect MV-500T to a video source (a video camera or PC) using a DVI cable and an audio cable.



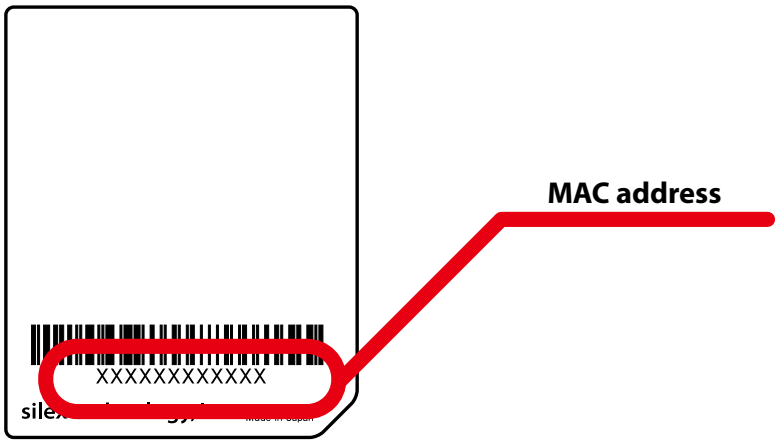
TIP

- It may take 30 seconds before the top ⏻ LED turns on.

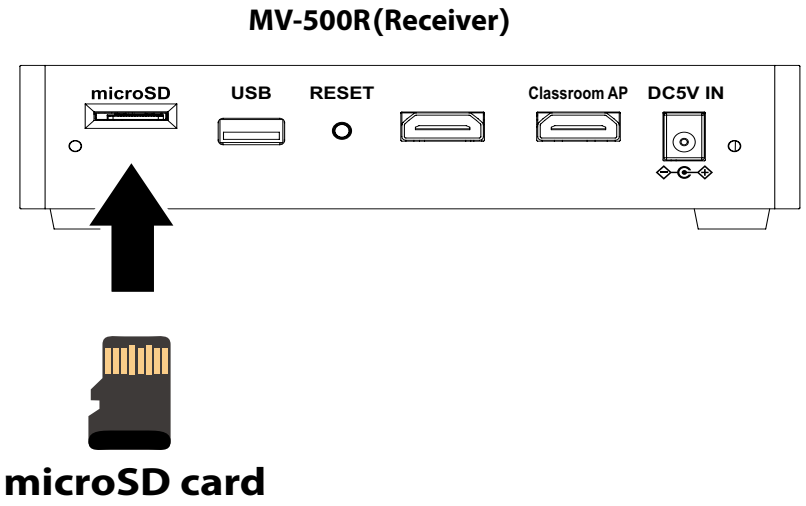
MV-500R Installation

Install MV-500R in classrooms and audiovisual rooms for school AV broadcasting, and connect them to the school LAN.

1. You need to know the MAC address of the MV-500R, written on the bottom label, for the setup procedure in **3-4. Configuration File for Setup**. Make a note of the MAC address and the installed location.



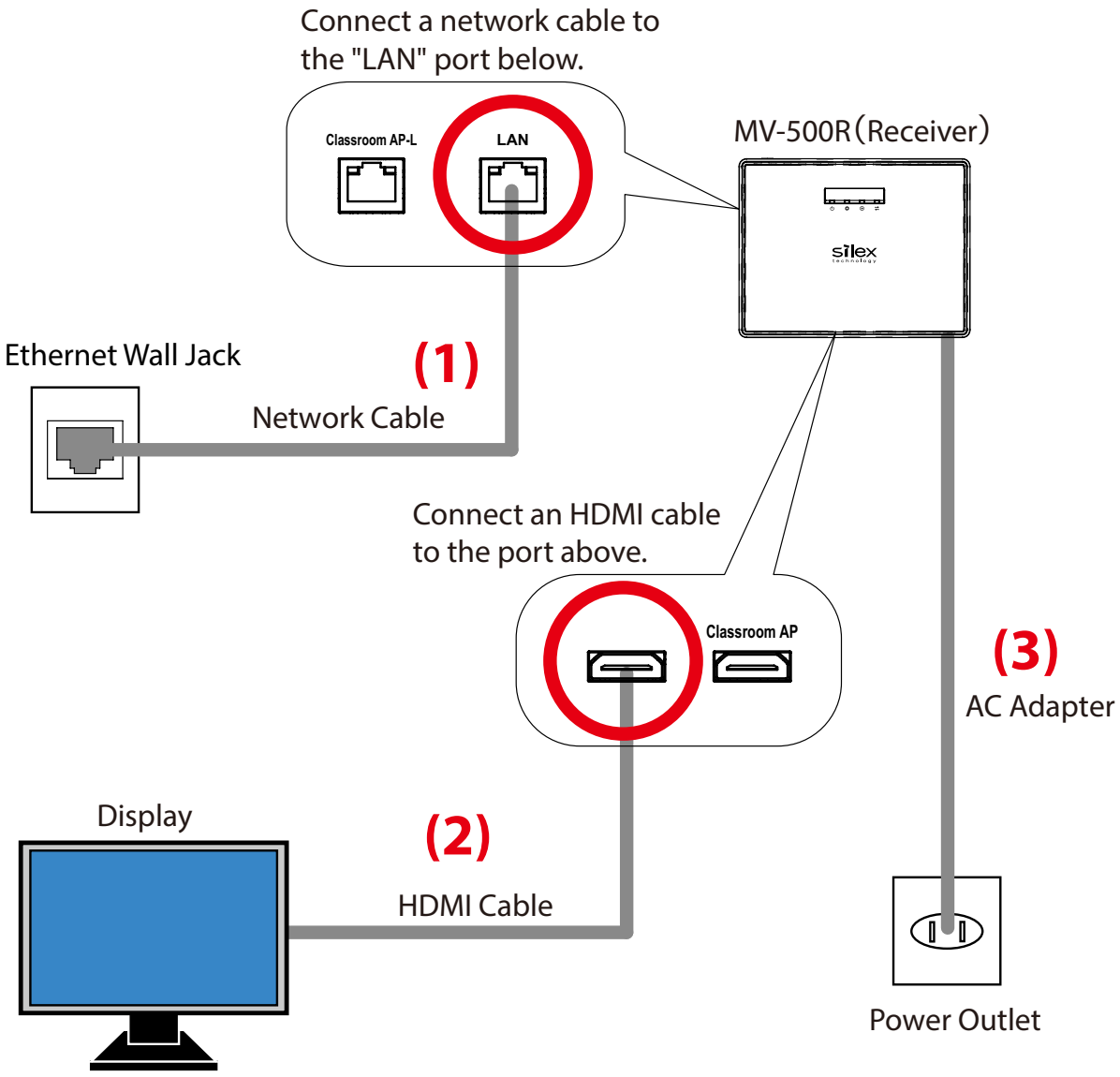
2. The program preset function, which allows MV-500R to play content by itself, requires a microSD card as a content storage. Make sure that your microSD card is facing the right direction as shown below, and insert it into the card slot.



Note

- MV-500R does not come with a microSD card. Please purchase it separately.

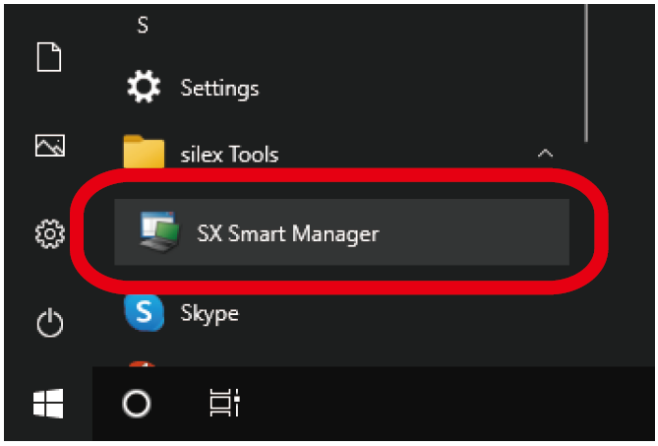
3. Connect MV-500R to an Ethernet wall jack for the school LAN using a network cable. One end of the network cable must be inserted into the right LAN port of MV-500R. Connect a display to the MV-500R with an HDMI cable. One end of the cable must be inserted into the left HDMI port of MV-500R. Connect the AC adapter to the MV-500R and a power outlet.



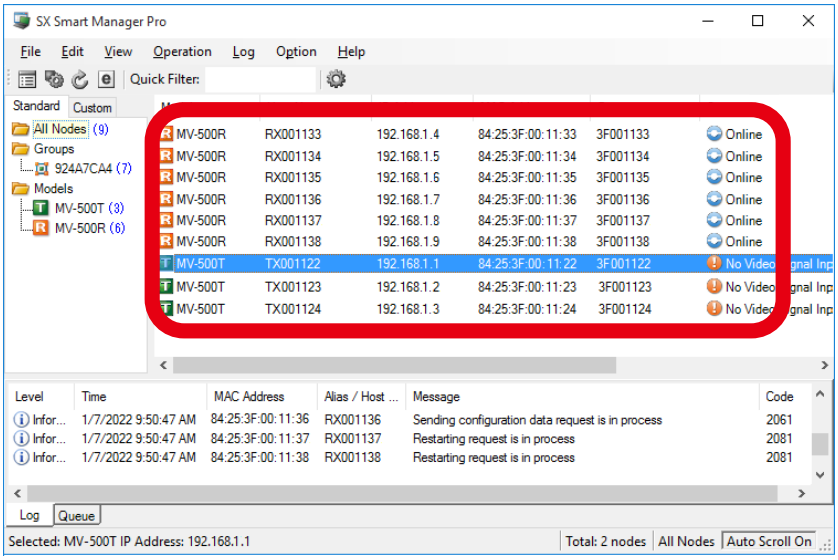
3-4. Configuration File for Setup

Set up MV-500T/MV-500R using configuration files that you have created beforehand.

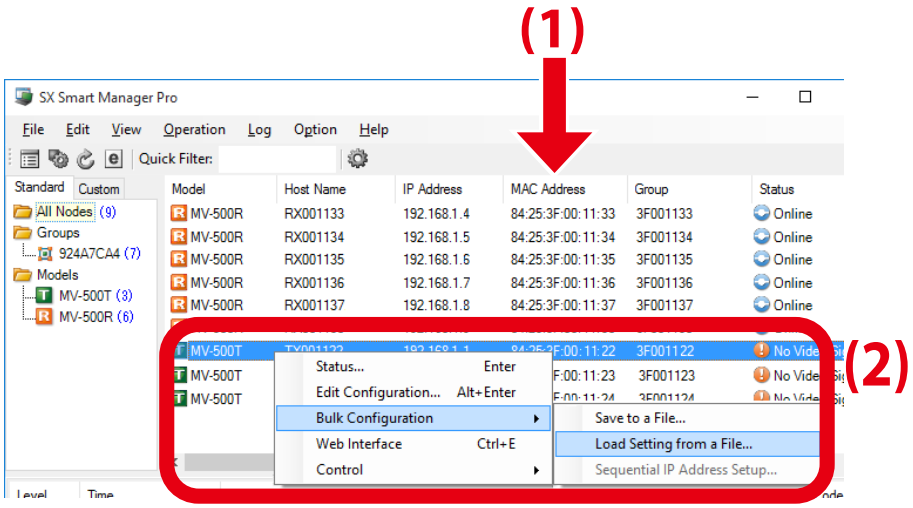
1. Click **SX Smart Manager** on the start menu of the PC. Make sure that the PC is connecting to the network of MV-500T/MV-500R.



2. The setting management software starts. The node list shows MV-500R and MV-500T on the same network.



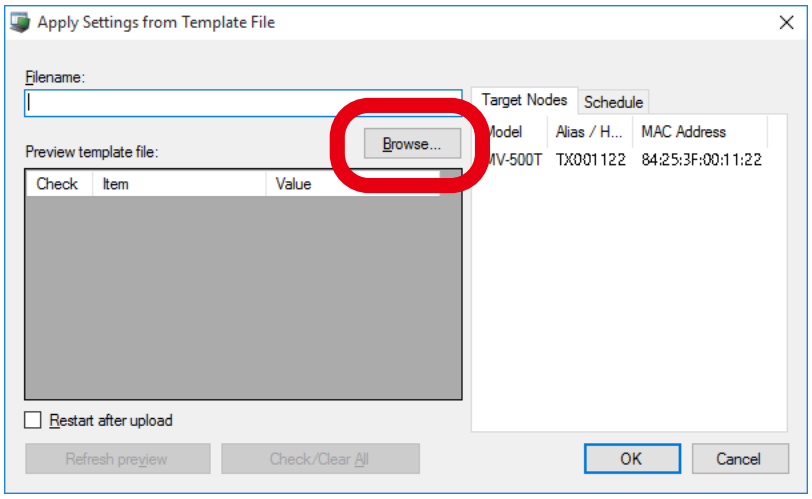
3. Look for MV-500T/MV-500R that you want to set up. To do so, check the MAC address in your notebook. Find the same MAC address from the list, right click and select **Bulk Configuration** - **Load Setting from a File** from the menu.



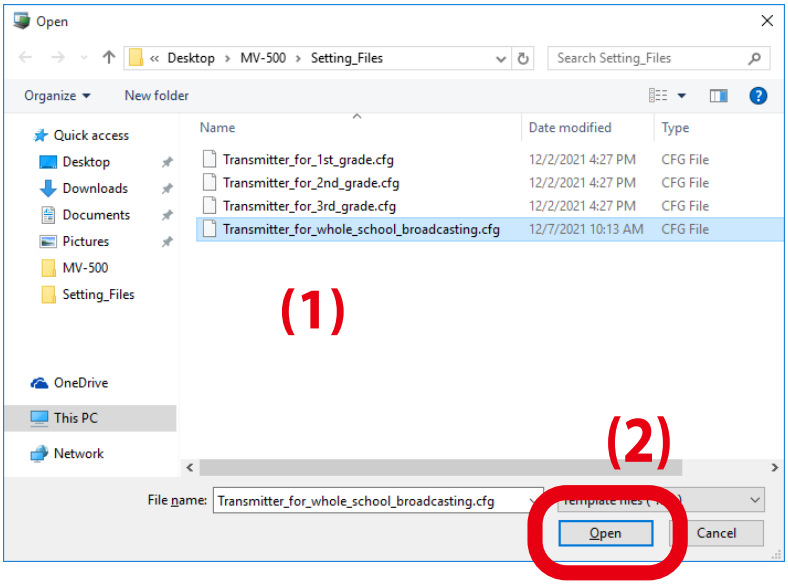
Note

- You can see **Apply Setting from Template File** in a different way, select MV-500T/MV-500R and click **Operation -Bulk Configuration - Load Setting from a File** on the menu bar.

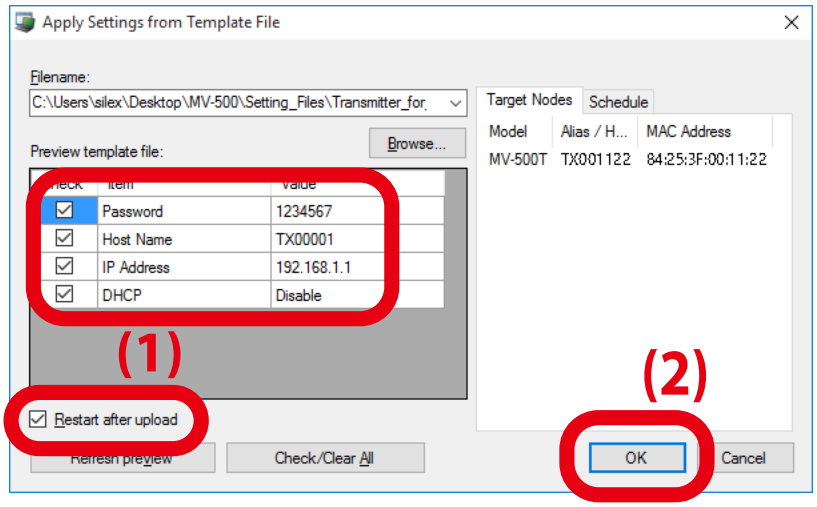
4. The **Apply Setting from Template File** window appears.
Click **Browse**.



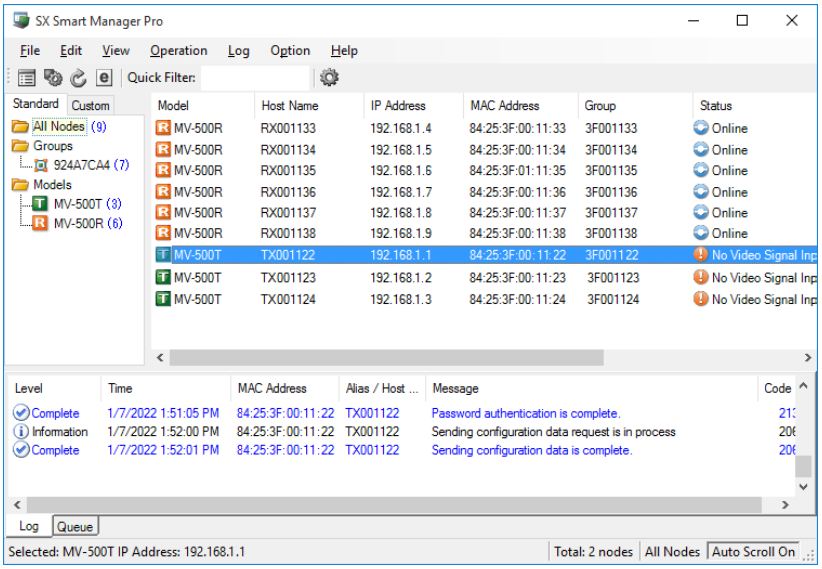
5. The file dialog window appears.
Select a configuration file that you created in **3-2. Preparation for Setup** and click **Open**.



6. You will see the setting information saved in the selected file. Tick the setting items and **Restart after upload**, and click **OK**.

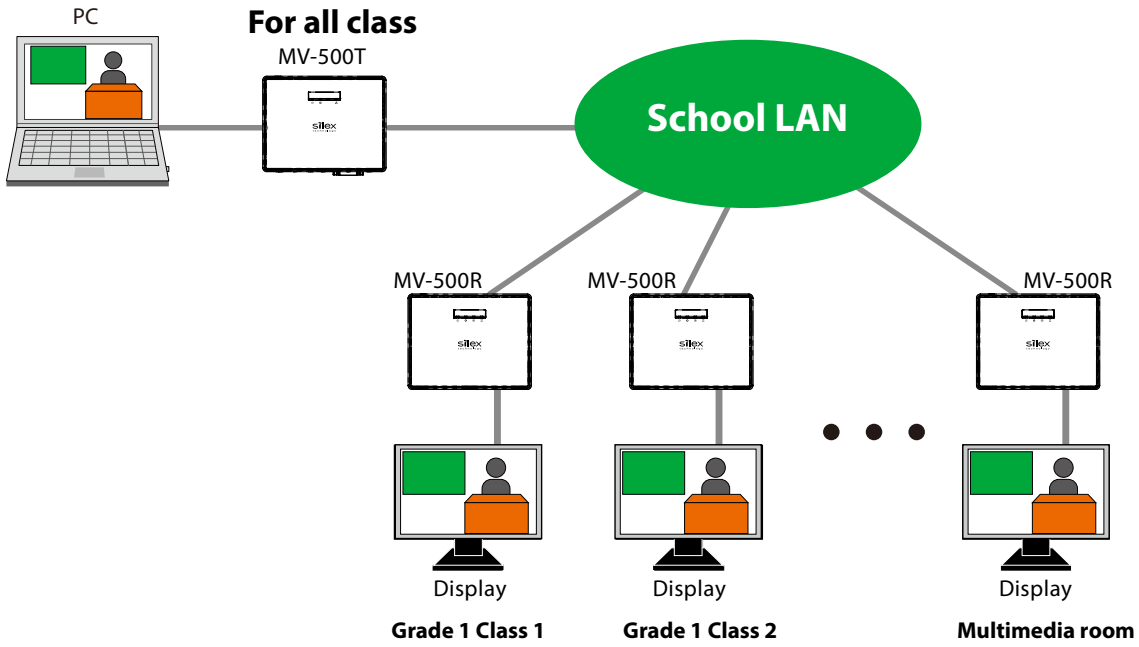


7. MV-500T/MV-500R will be updated with the selected configuration file and will restart automatically. The new settings will take effect after the restart.



The device configuration has been completed. Repeat **Step 3** through **Step 7** for all the MV-500T and MV-500R installed in your digital AV broadcast system for school.

8. MV-500T/MV-500R have been installed and set up for your environment. As you play content using a video camera or PC connected to MV-500T, MV-500R shows the data on the display.



4. Multicast Real-time Streaming

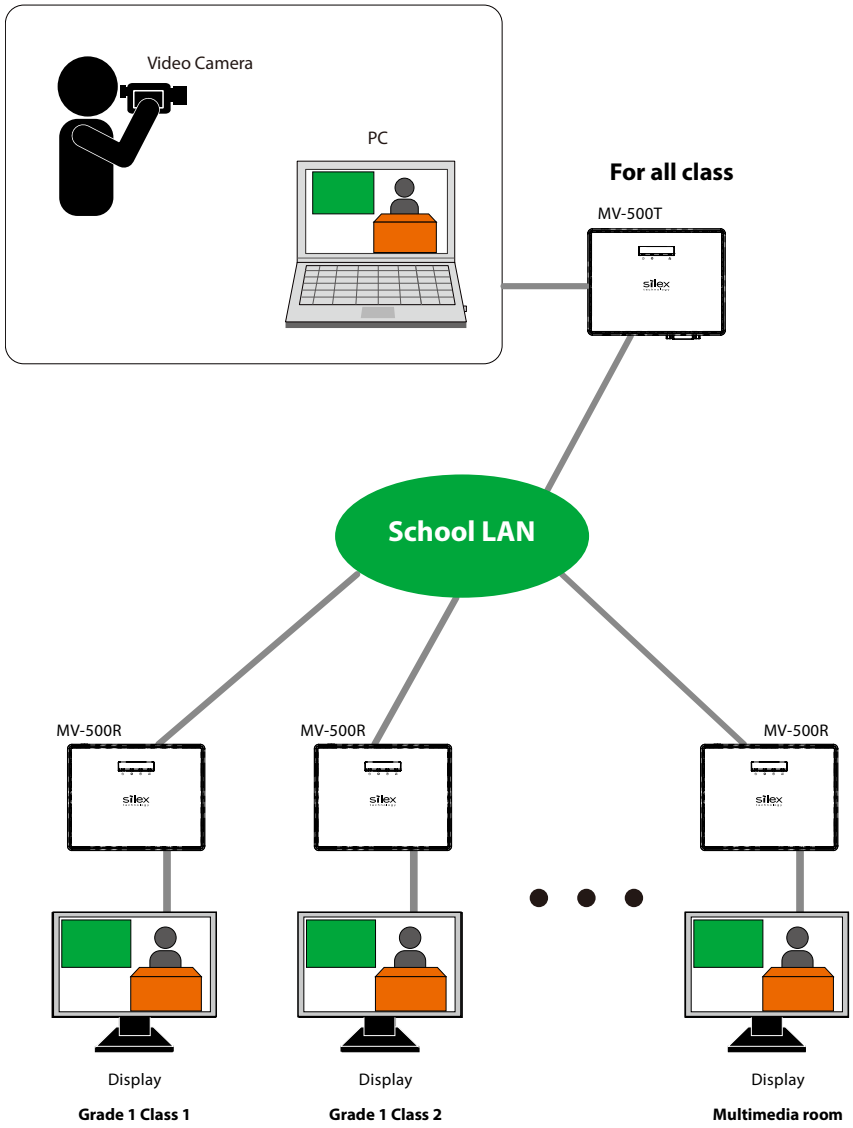
This chapter guides you through the multicast real-time streaming function. With the function, MV-500T encodes signals (videos/audio) from the video source, such as movies shot by a video camera or created by a PC, and distributes the codec data to MV-500R in real time. MV-500R decodes and plays the content on the connected display in the classroom.

4-1. Video/Audio Distribution

With the multicast real-time streaming function, you only need to control a video camera or PC connected to MV-500T. After you complete the setup steps in the previous chapter, MV-500R plays content on the connected display.

If you stop playing content (stop sending video signals to MV-500T), MV-500R will show the preset standby screen and be in the standby mode until you start playing content again.

[**Multicast Real-Time Streaming Image**]



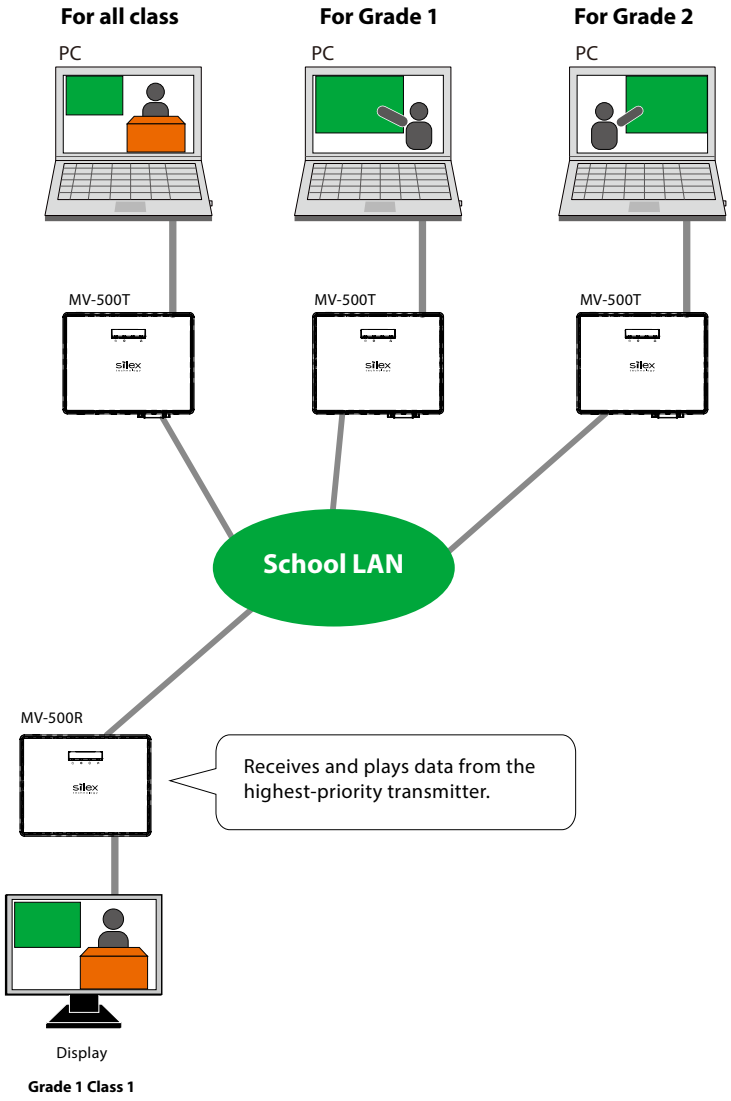
Note

- MV-500R plays first-come streaming data when multiple MV-500T's execute the multicast real-time streaming function at the same time.

4-2. Streaming Data Priority

You can set transmitters' priorities for MV-500R. The setting has MV-500R receive data from a higher-priority transmitter when multiple transmitters perform multicast streaming at the same time.

[Prioritized Streaming Image]



TIP

- The priorities will be set by IP address of MV-500T. Do not change the IP addresses while the system is operating. Use static IP addresses for MV-500T. Even though you use DHCP to assign IP addresses, retain the same IP addresses.

Note

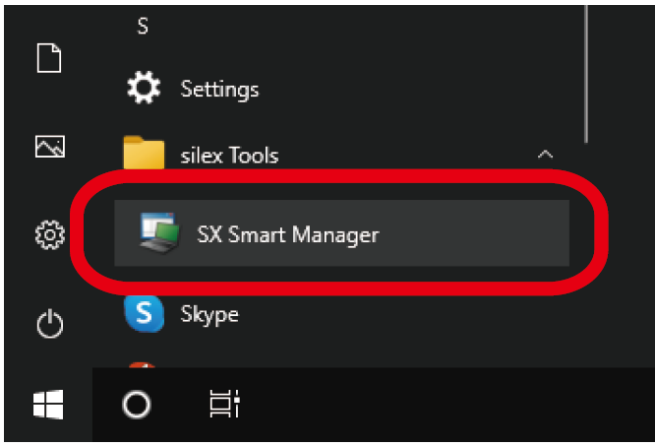
- When a higher priority transmitter sends data to MV-500R that is currently playing another transmitter's content, the MV-500R will play the higher-priority data.
- When the current data is stopped, MV-500R will automatically play the next higher-priority data.

Knowing MV-500T's IP Address

Use the IP address of MV-500T to identify priority transmitters. You need to know transmitters' IP addresses beforehand.

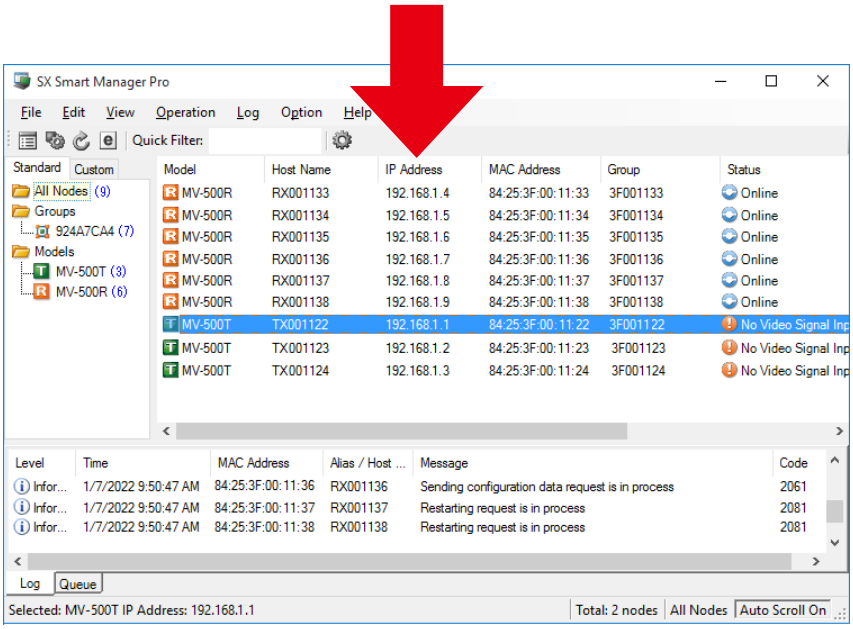
To do so, use the setting management software on the setup PC.

1. Click **SX Smart Manager** on the start menu.



2. The setting management software starts.
Make a note of IP addresses of the transmitters in the node list.

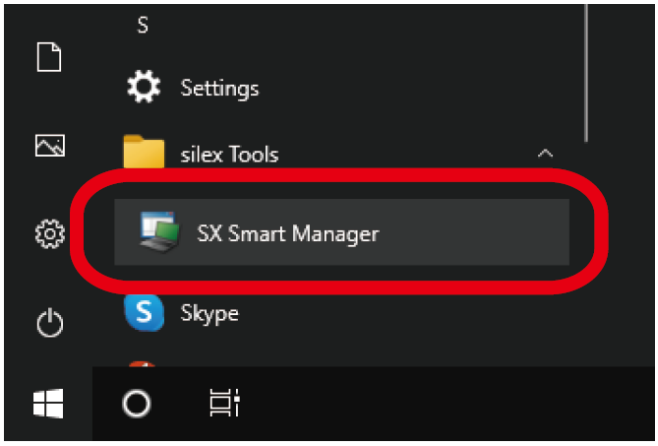
IP Address



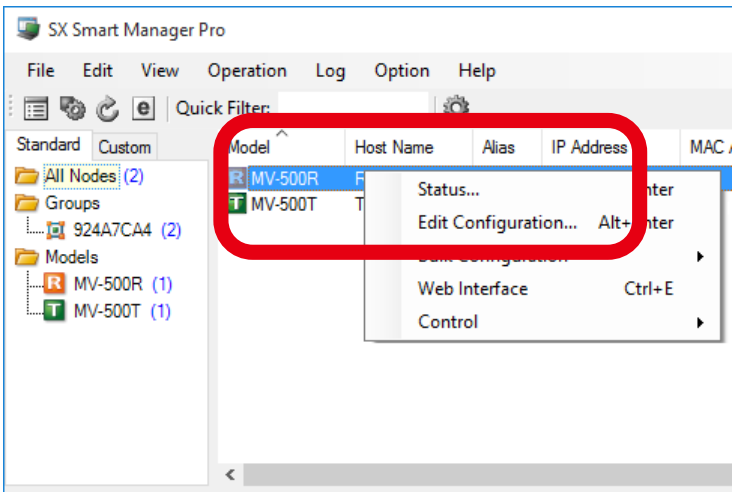
Transmitter Priority Setting in MV-500R

Change MV-500R's setting for transmitters' priorities.

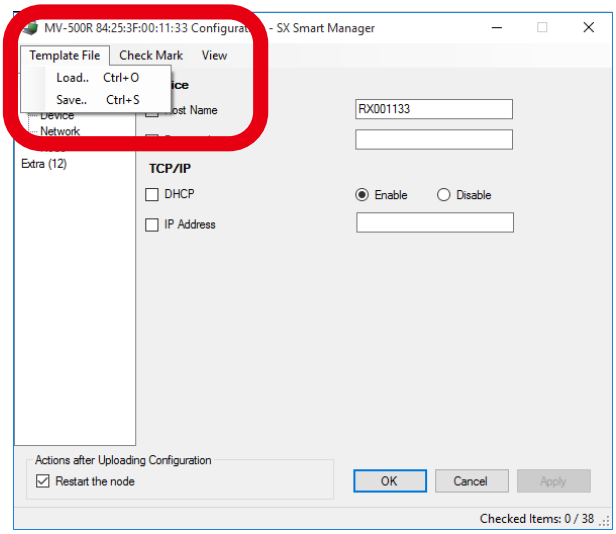
1. Click **SX Smart Manager** on the start menu of the PC.



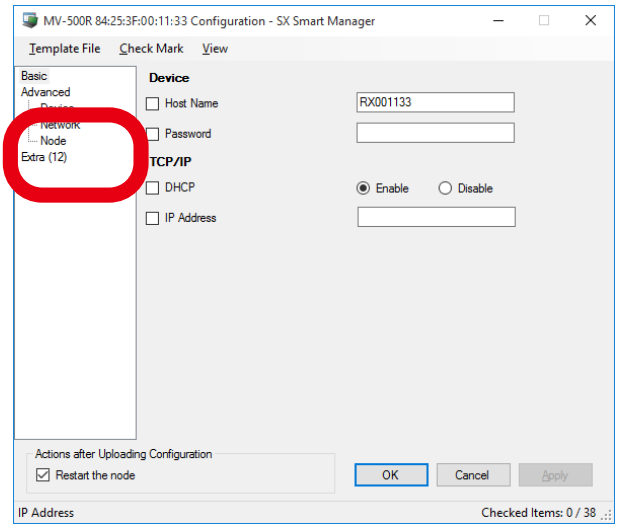
2. The setting management software starts.
Right click MV-500R in the node list and click **Edit Configuration**.



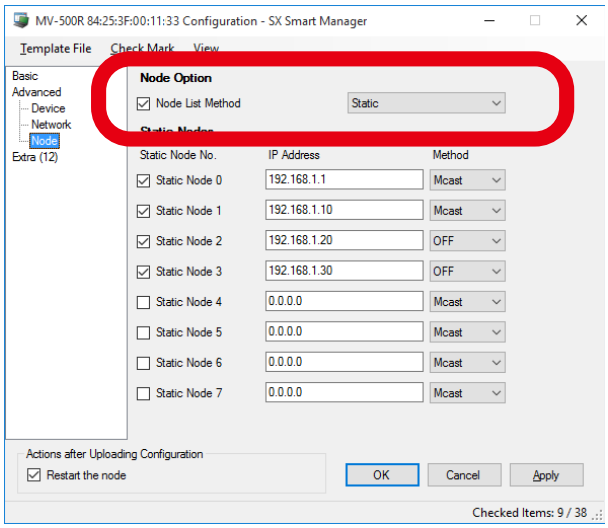
3. The setting window of the MV-500R appears.
Click **Template File - Load** to choose a configuration file for MV-500R that you will update the setting.



4. The setting window shows the imported information. Click **Node** on the left category menu.



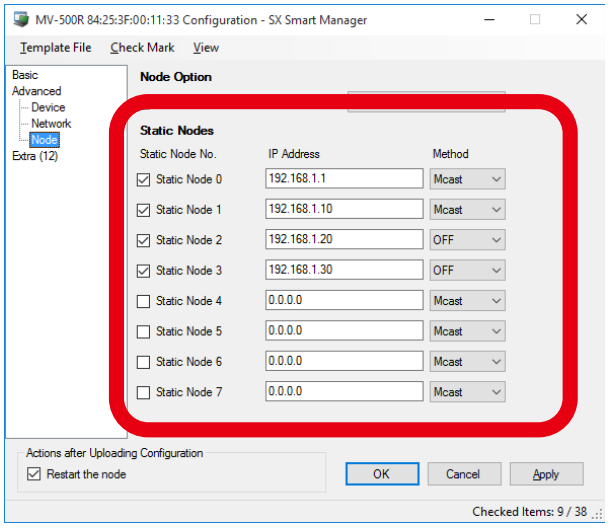
5. The node setting window appears.
Tick **Node List Method** and choose **Static**.



Note

- When you do not set transmitters' priorities, tick **Node List Method** and then choose **Dynamic (Multicast)**.

6. Enter a transmitter's IP address to each static node field. You can save max 8 IP addresses. Static node 0 is the highest priority, and Static node 7 is the lowest. To receive data from these transmitters, choose **Mcast** under **Method**.
Select **OFF** to avoid receiving data from the transmitter.



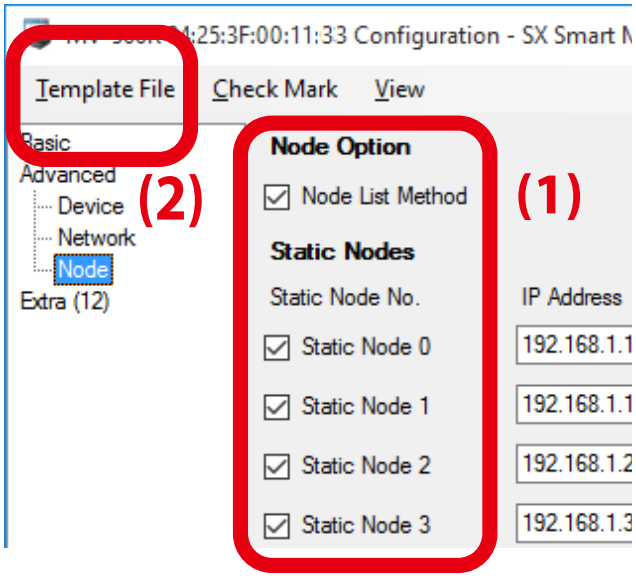
Note

- Setting Example:

Number	IP Address	Method
Static Node 0	192.168.1.1	Mcast
Static Node 1	192.168.1.10	Mcast
Static Node 2	192.168.1.20	OFF
Static Node 3	192.168.1.30	OFF

- The MV-500R receives data from the transmitter set to Static node 0 before others.
- If the MV-500R receives data from Static node 0 while playing Static node 1's data, it will start playing Static node 0's data.
- The MV-500R does not receive data from Static node 2 and 3.

7. Make sure that you ticked **Node List Method** and each static node which you want to update. Click **Template File - Save** on the menu bar.



TIP

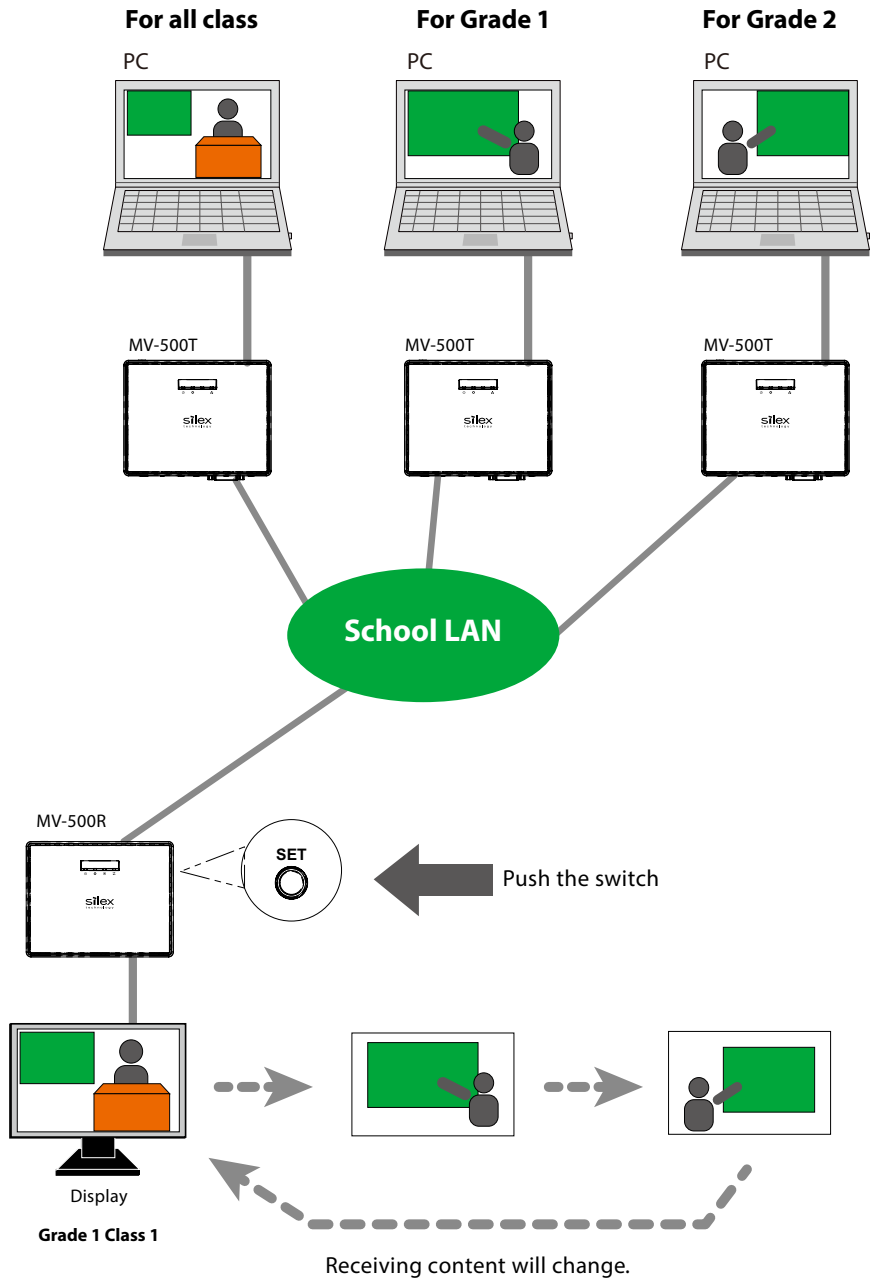
- If you click **OK** or **Apply**, all the values will rewrite the MV-500R that you are now selecting. Click **Template File - Save** to save the new values as a configuration file.

8. Transmitters' priorities were saved as a configuration file.
See **3-4. Configuration File for Setup** to update MV-500R with the new settings.

4-3. Data Source Change

You can switch receiving content with MV-500R's push switch when multiple transmitters perform multicast streaming at once.

[Content Change Image with Push Switch]



TIP

- When you have enabled the transmitter priority function in **4-2. Streaming Data Priority**, you cannot use this switch function.

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5. Program Preset Function

This chapter guides you through the program preset function that allows MV-500R to play delivered content by itself at a specific time. You will need our original software **silex Media Transporter E model** (hereafter referred to as the content delivery software) to create content, set time frames, and distribute the data to MV-500R.

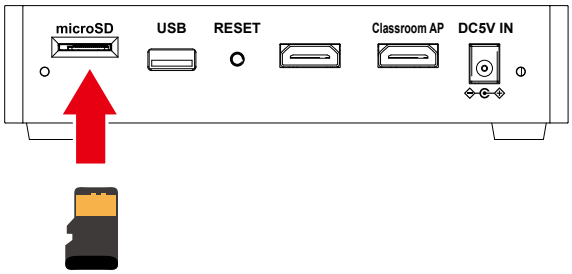
Note

- You can download the content delivery software from Silex's website. See also **silex Media Transporter E model User's Manual**.

TIP

- You need a microSD card to save content for the program preset function.
- MV-500T/MV-500R do not come with a microSD card. Please purchase it separately.
- Make sure that your microSD card is facing the right direction, and insert it into the card slot.

MV-500R(Receiver)



microSD card

Supported Media	microSD, microSDHC
Memory	microSD：Max. 2GB, microSDHC：Max. 32GB
File System	FAT, FAT32
Partition	1 partition only
Device Insertion/Removal without shutting down the product	Prohibited

5-1. Program Making and Playing Flow

Here is a flow to play content with MV-500R according to schedule.

1. Create a new program. (**Create Project** window)

2. Create content. (**Select Contents** window)

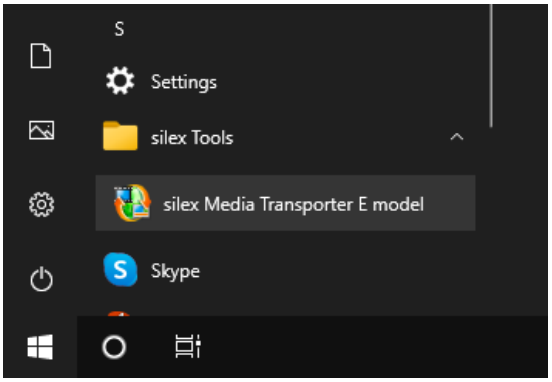
3. Schedule the program (set by minute). (**Schedule Setting** window)

4. Transfer the program and schedule to MV-500R. (**Transfer** window)

5. Play the program (video/audio) with MV-500R alone.

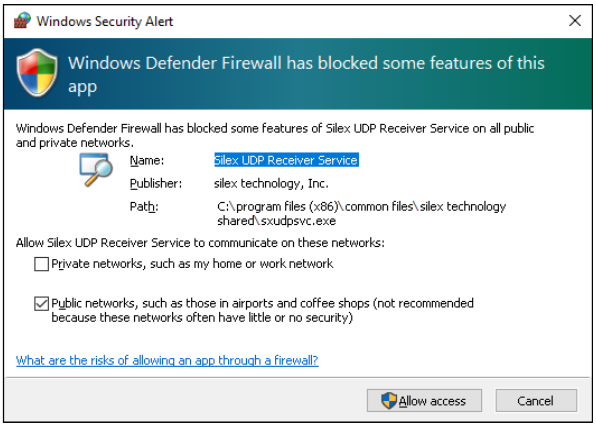
5-2. Creating Program

1. Click the Start button and select **silex Tools** - **silex Media Transporter E model.**

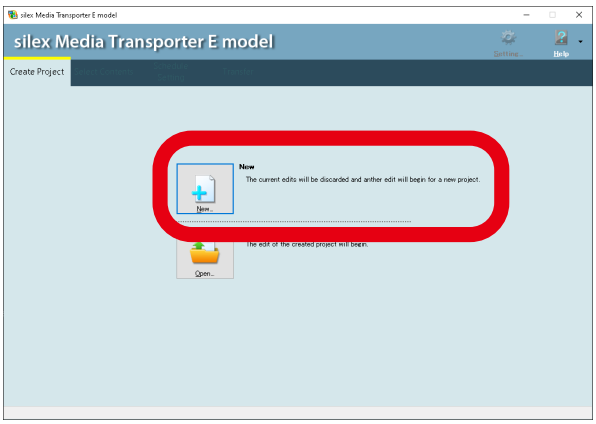


Note

- Windows 7:
  Click **Start - (All) Programs - silex Tools - silex Media Transporter E model**.
- Windows 8:
  Right click on the start screen, click **All apps** on the bottom app bar, and select **silex Tools -silex Media Transporter E model**.
- For Windows 8.1:
  Click the arrow bottom at the bottom left of the start screen and select **silex Tools - silex Media Transporter E model**.
- If the **Windows Security Alert** appears, click **Allow access**.



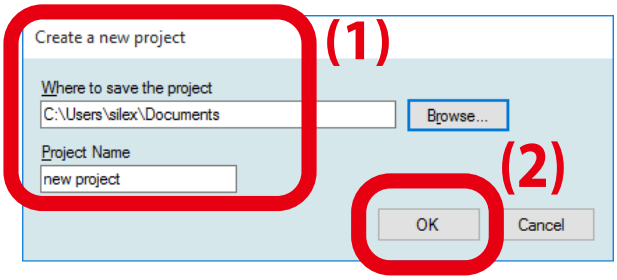
2. The **Create Project** window appears. Click **New**.



Note

- To open a previously created program, click **Open** in the window.

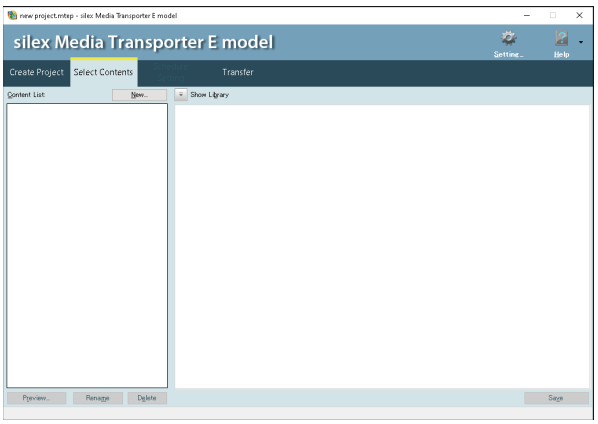
3. In the **Create a new project** window, specify the path where you want to save the program, and name the program. Click **OK**.



TIP

- For the save location, specify a drive where enough space is left to save programs.
- Avoid using the following characters in program names: ¥, /, :, *, ?, ", <, >, |

4. The **Select Contents** window appears.



5-3. Creating Contents

This section describes how to convert videos and images into playable files for MV-500R in the **Select Contents** window.

Data Format

The following table shows the supported data formats.

File Category	Data Format
Video	Microsoft AVI (.avi) Windows Media Video (.wmv) MPEG-4 (.m4v, .mp4, .mov) (*1) PowerPoint (.ppt, .pptx) (*2)
Still image	Microsoft Bitmap (.bmp) Portable Network Graphic (.png) Joint Photographic Experts Group (.jpg, .jpe, .jpeg) HTML (.html, .htm) (*3)
Audio	Microsoft Windows WAVE (.wav) Windows Media Audio (.wma) MP3 (.mp3) Audio Data Transport Stream (.aac) MPEG-4 (.m4a)

*1 ： .mov files must be converted into the above MPEG-4 formats.
*2 ： Microsoft PowerPoint 2010 or later versions are supported.
*3 ： To set a web page, specify the file or the URL.

Note

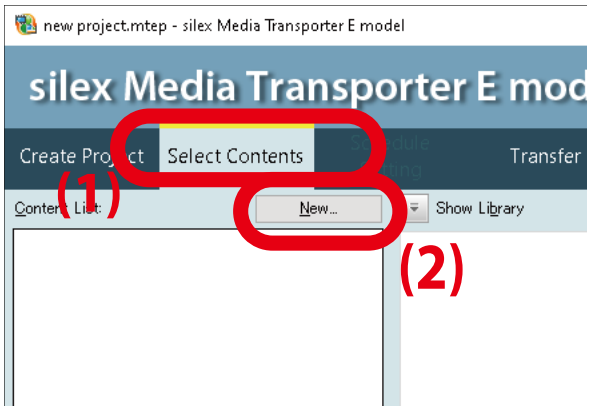
- Files under DRM (Digital Right Management function) files and other copyrighted files are not supported.
- Videos and audio must be non-DRM files that can be played back by the media player.
- The supported video frame rates are between 1 fps and 30 fps.
- The following audio formats are supported.

Format	
Sampling rates	32kHz, 44.1kHz, 48kHz
Sampling bits	16 bits
Channels	1 channel (mono) 2 channels (stereo)

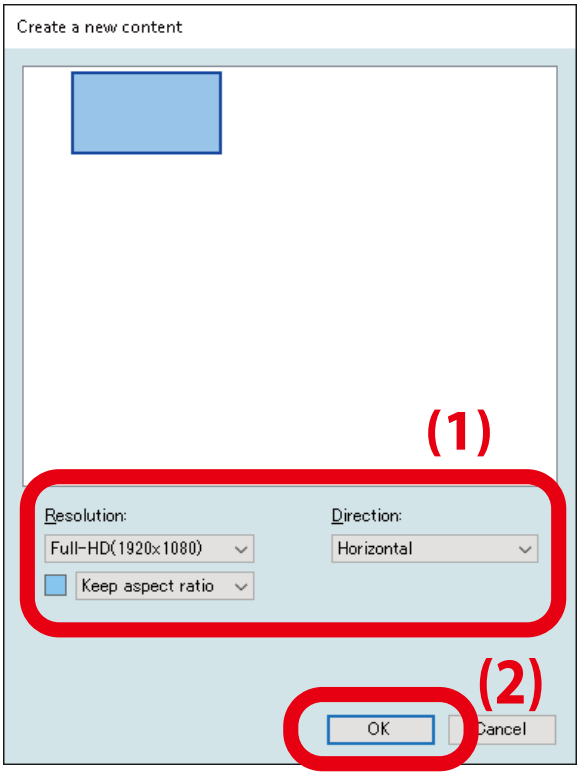
The content delivery software will show an error message if you try to convert an unsupported file.

Creating Contents

1. Open the **Select Contents** tab and click **New**.



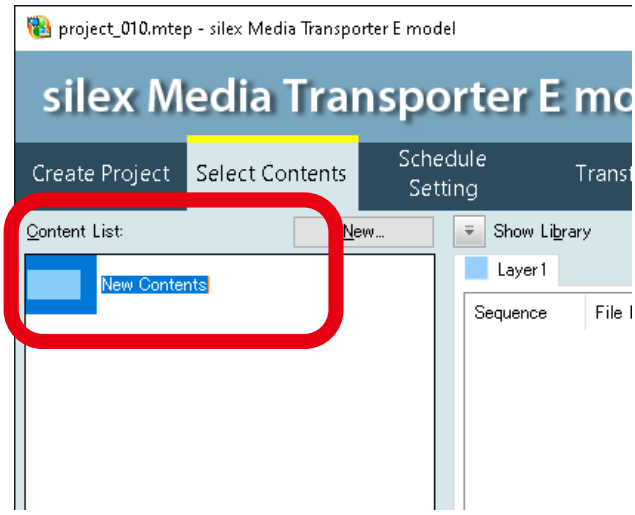
2. Select **Resolution**, **Direction**, and **Keep aspect ratio** or **Full screen** in the window. Click **OK**.



Note

- To display content that is oriented in portrait, choose **Vertical** as the orientation.
  For a display that rotates clockwise, choose **Vertical - turn right**.
  For a display that rotates counterclockwise, choose **Vertical - turn left**.

3. The **Content List** shows the newly created content. Name it and hit **ENTER**.

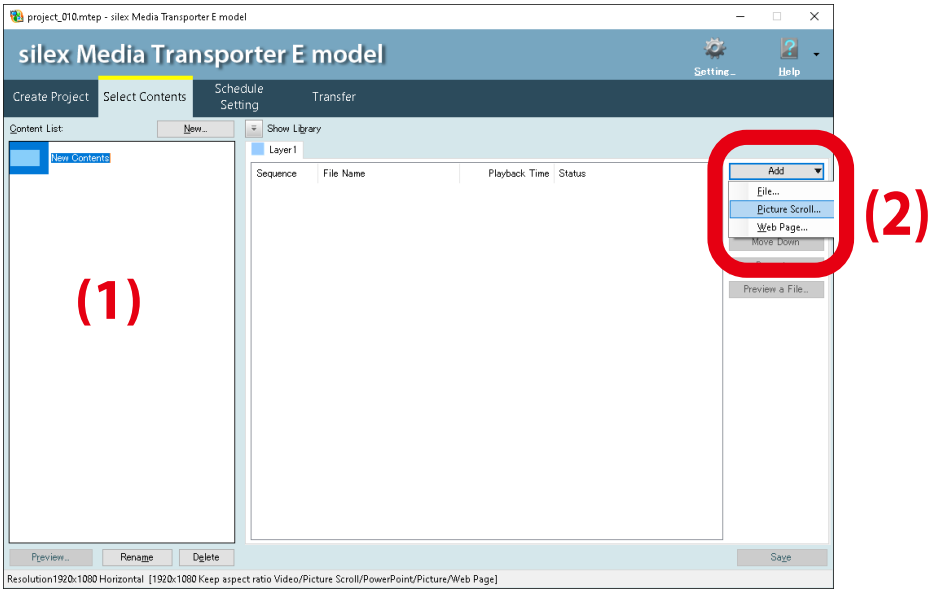


Note

- You can create up to 500 content items.

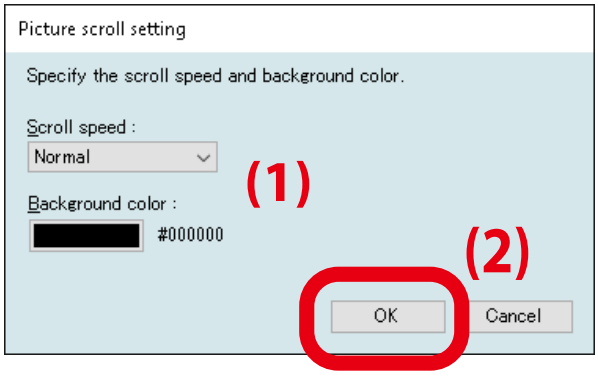
Adding and Converting Content Data

1. Click the name of content that you want to edit in the **Content List**. Click **File** under **Add ▼** to add video or still image files. **Picture Scroll** is for still-image scrolling effects, and **Web Page** is for adding web pages.

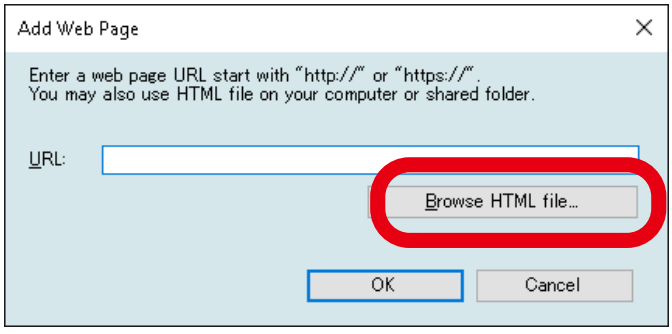


Note

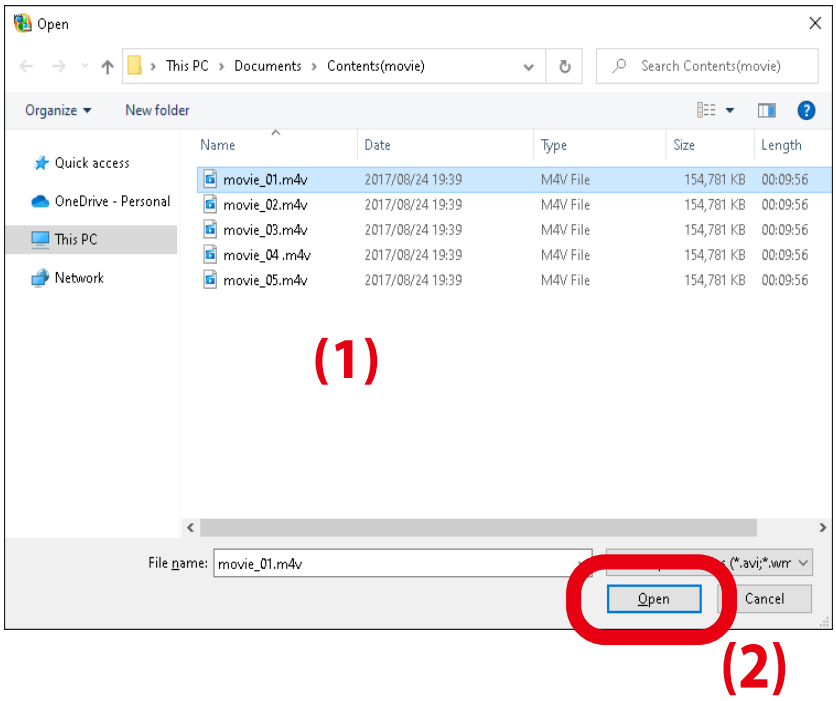
- If you click **Picture Scroll**, the following window will appear. Select the **Scroll speed** and the **Background color**, and click **OK**.



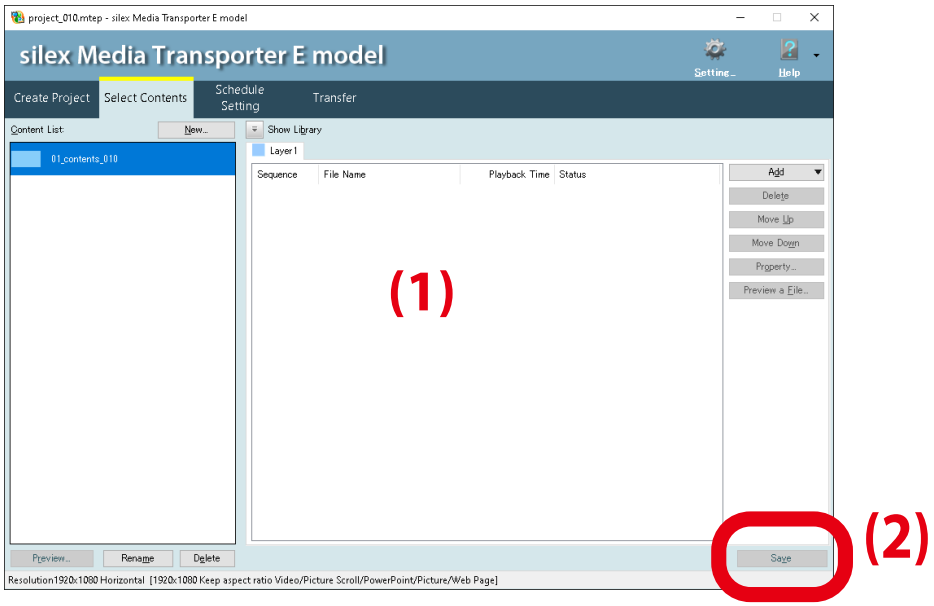
- If you click **Web Page**, the following window will appear. Click **Browse HTML file**.



2. Select a file in the dialogue, and click **Open**.



3. The selected file will be listed in the play list of the content. Click **Save**



Note

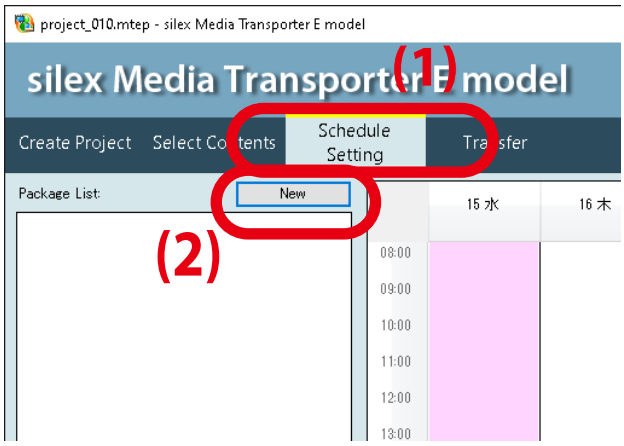
- Repeat **Step 1** and **Step 2** to add multiple files.

5-4. Creating Package

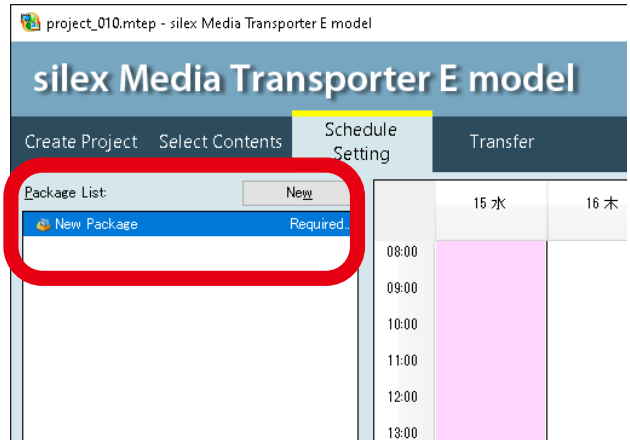
This section describes how to register the content to a package using the schedule setting screen.

Creating a new package

1. Open the **Schedule Setting** tab and click **New**.



2. A new schedule will be added to the **Package List**. Name it and hit **ENTER**.

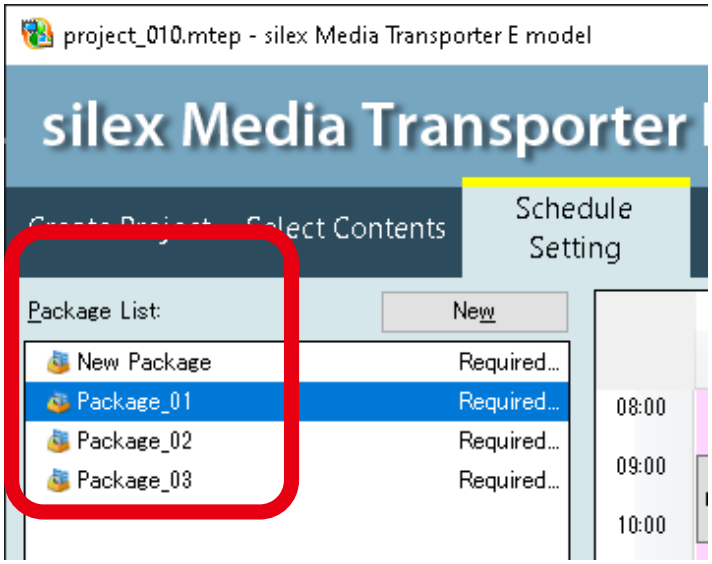


Note

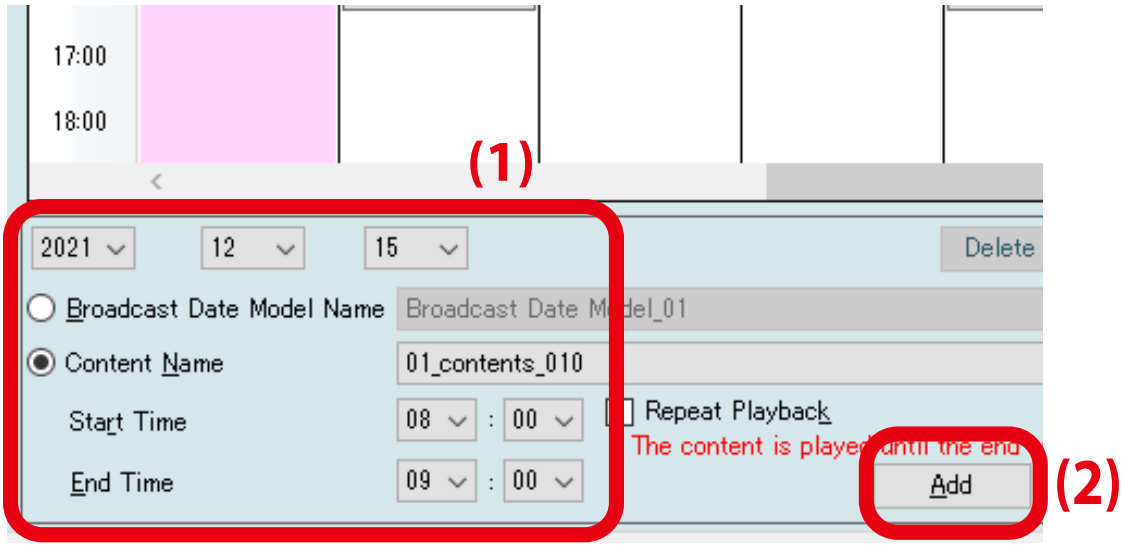
- You can create up to 100 plans.

Registering a content to calendar

1. Choose a play schedule from the **Package List**.



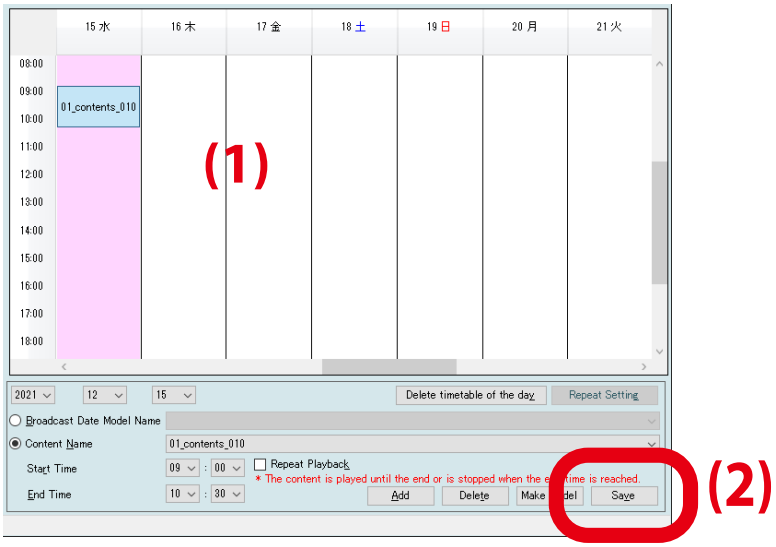
2. Select the name of content under **Content Name** in the schedule setting panel to add to the schedule. Specify the play date (year-month-date format) and start/end time. Click **Add**.



Note

- To repeat short content that ends before the end time, tick **Repeat Playback**, which plays the content again and again until the end time comes.

3. The added content will appear on the calendar.
Click **Save**.



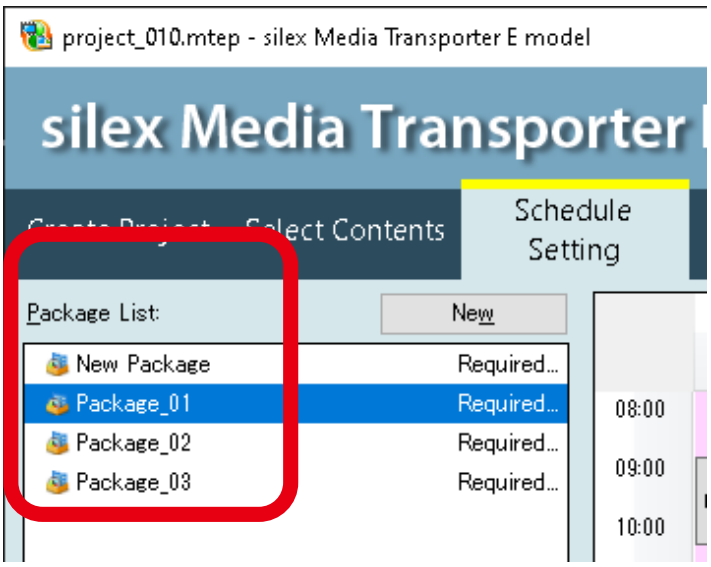
Note

- Repeat **Step 2** and **Step 3** to add multiple content files.

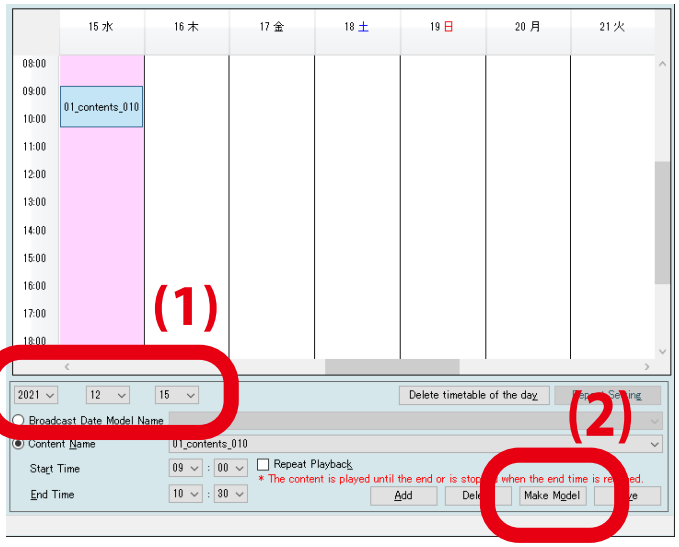
Creating Schedule Model

You can save settings of a day as a schedule model. Making the same settings available for other days will ease scheduling when you want to play the same content every day or every week at the same time.

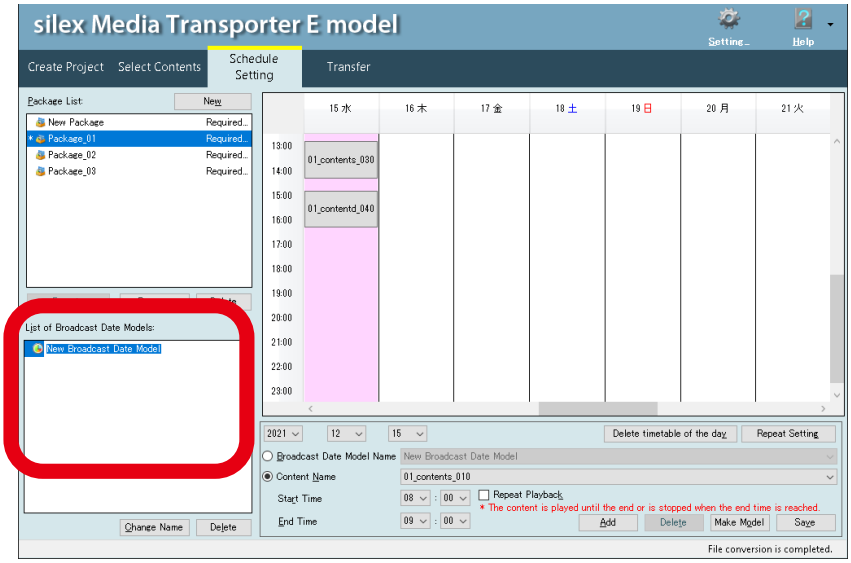
1. Choose a program to edit under the **Package List**.



2. Select a date which you want to copy as a schedule model in the setting panel, and click **Make Model**.



3. The **New Broadcast Date Model** will show the new schedule model. Name it and hit **ENTER**.



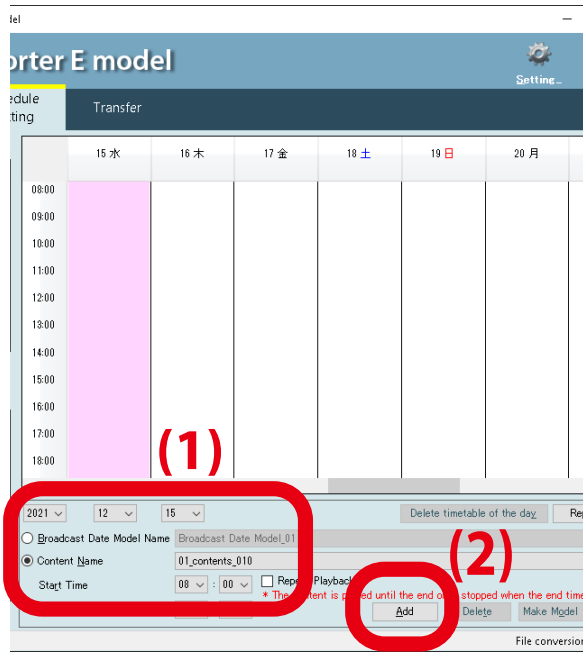
Note

- Up to 366 broadcast date models can be created.

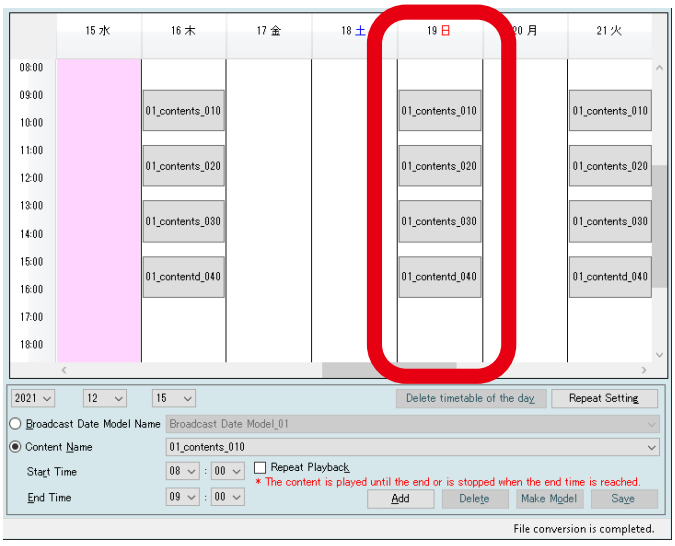
Using Schedule Model

Copy the settings of a schedule model into a specific day. With the repeat setting, you can copy the model to every day or specified days of week.

1. Specify a play date in the schedule setting panel, and select a schedule model to copy under **Broadcast Date Model Name** . Click **Add**.



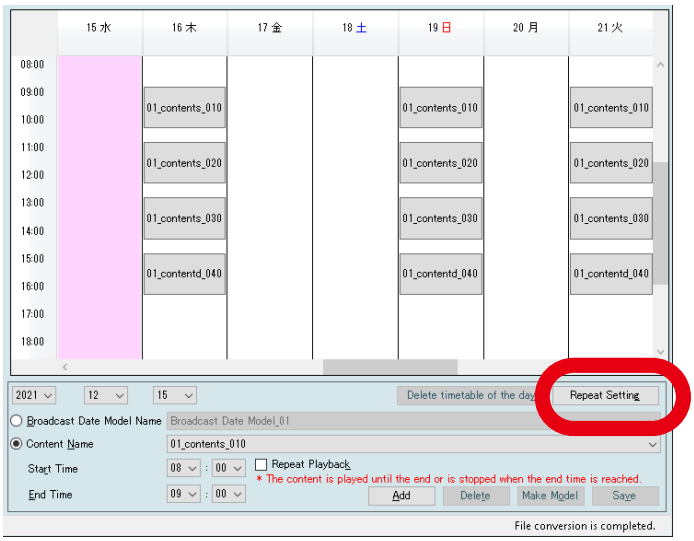
2. The schedule model will be copied to the specified date.



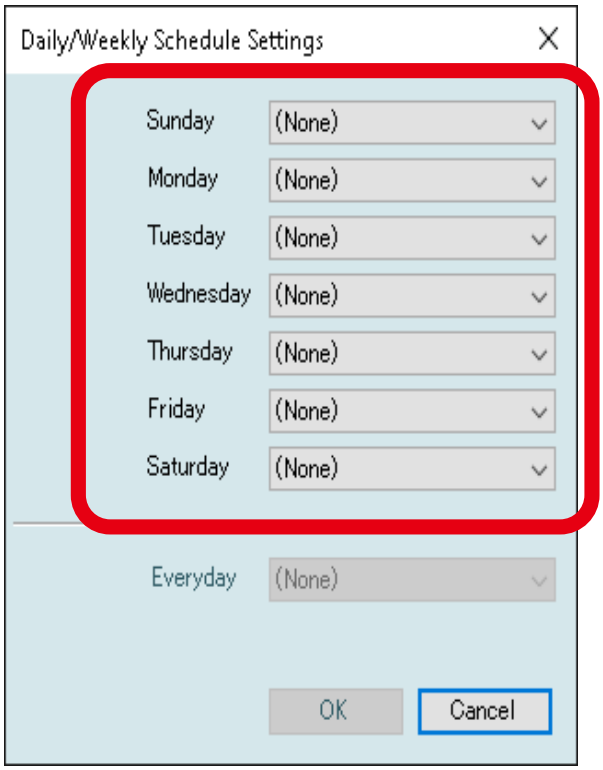
Note

- To set a weekly schedule, click **Repeat Setting**. In the daily/weekly schedule setting window, copy the schedule model into particular days of week.
- The repeat setting takes effect from the current date to the end of the fiscal year (March 31st).

1. Click **Repeat Setting** in the schedule setting panel.



2. The **Daily /Weekly Schedule Settings** window appears. Choose a schedule model for everyday or particular days of week.



5-5. Transferring Program to MV-500R

Send created programs to MV-500R.

Note

- The created programs will be converted into a data format supported by the content player.

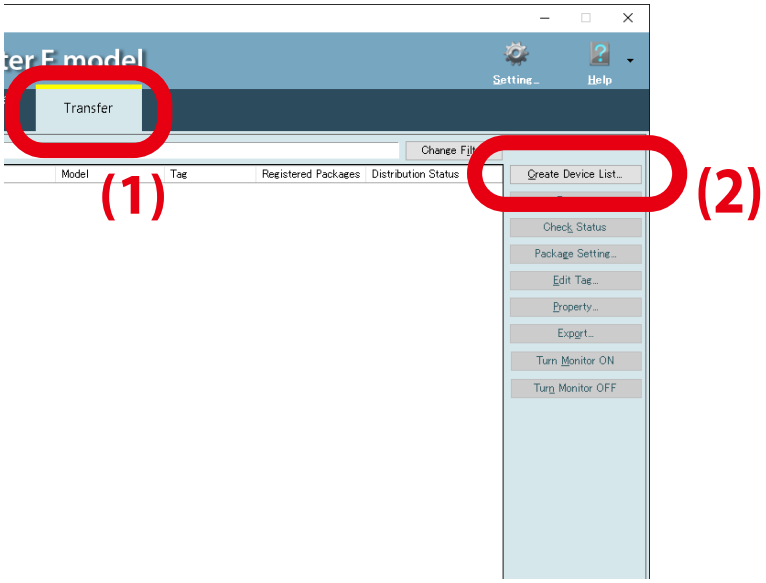
Adding Devices to Device List

All MV-500R's have to be registered to the device list in order to receive programs. When the setup PC and MV-500R are on the same LAN, you can use the auto-search function to add the receivers.

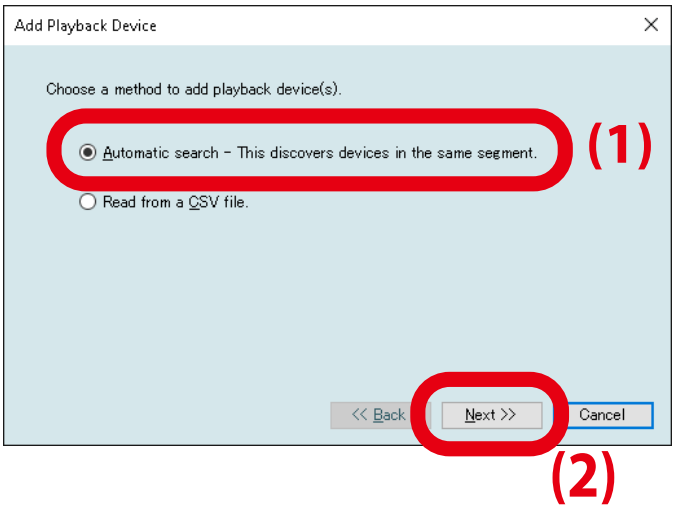
TIP

- Before sending programs to MV-500R, make sure the following:
  1. The setup PC is connecting to MV-500R's LAN.
  2. MV-500R's have been powered on.
  3. The content delivery software on the PC is configured to communicate with the networked MV-500R's.
  4. A microSD card has been inserted into each MV-500R and has enough empty space to save programs.

1. See the **Transfer** tab and click **Create Device List**.



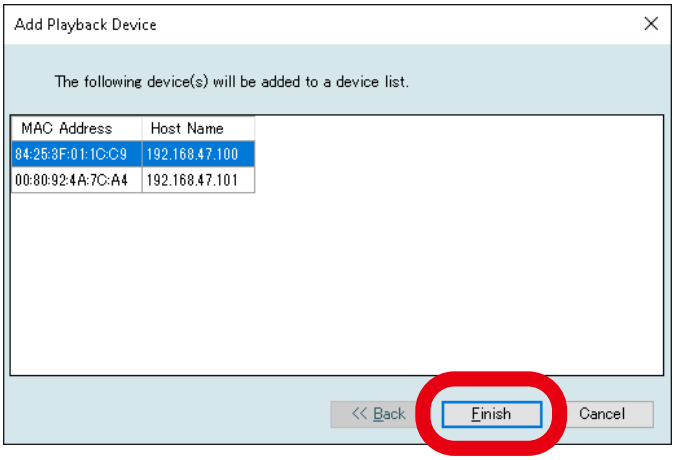
2. The **Add Playback Device** appears. Select **Automatic search** and click **Next**.



Note

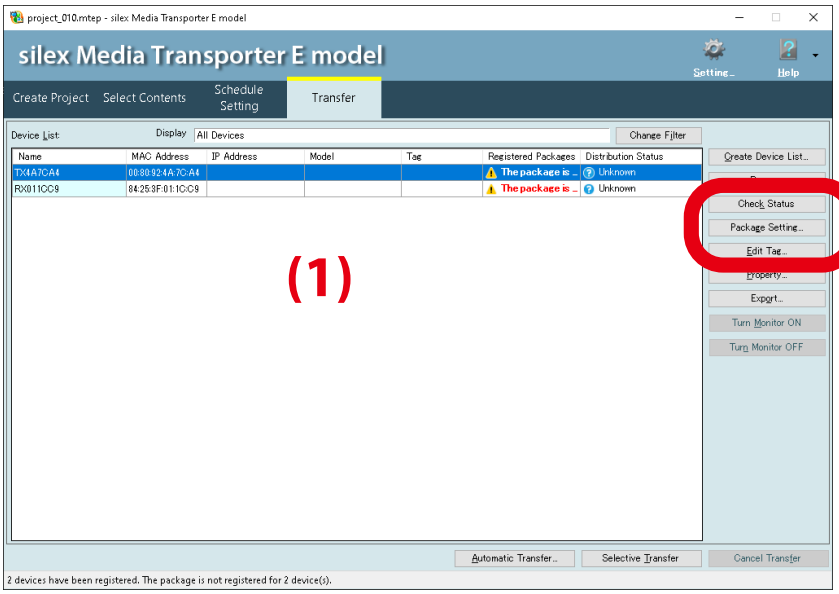
- To add MV-500R with the other option: **Read from a CSV file**, refer to **silex Media Transporter E model User's Manual**.

3. When all the MV-500R in the network are found, click **Finish**.

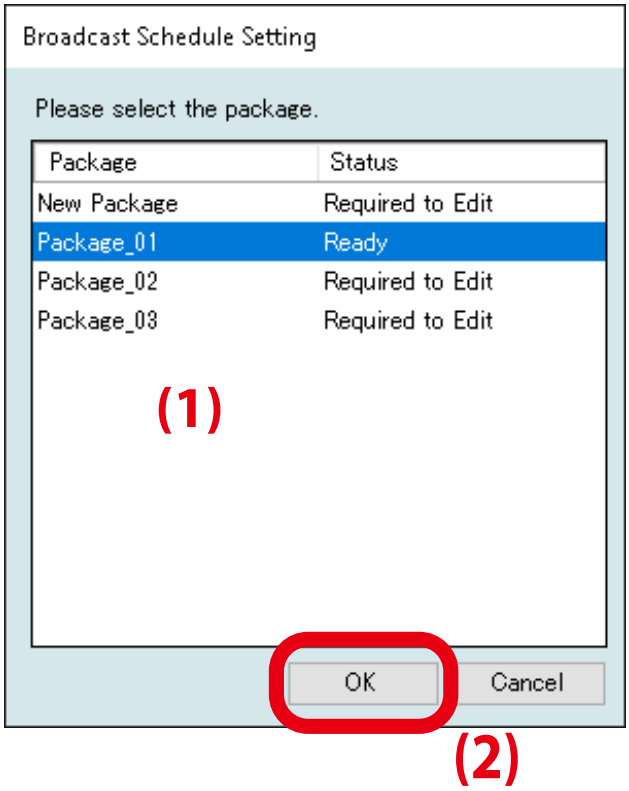


Transferring Data to Devices

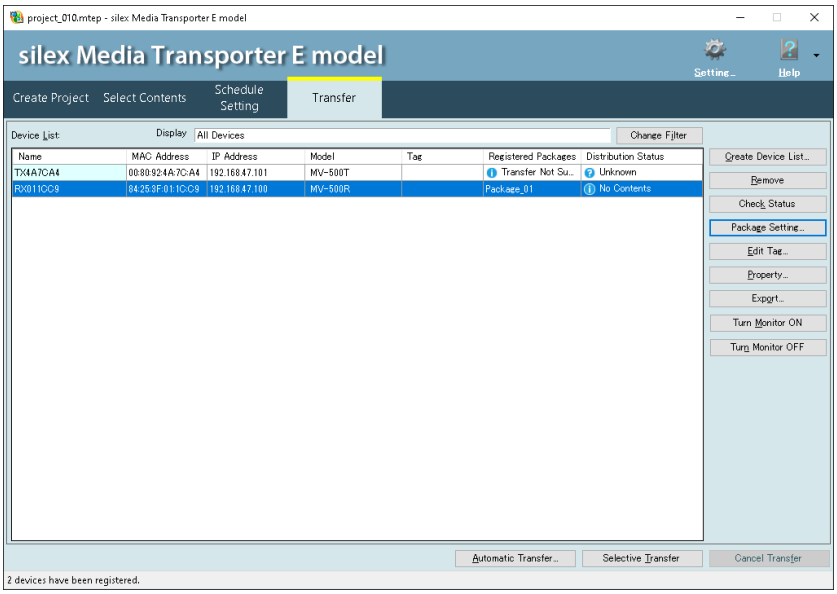
1. Select MV-500R to which you want to send a program, and click **Package Setting**.



2. Select a program to send and click **OK**.



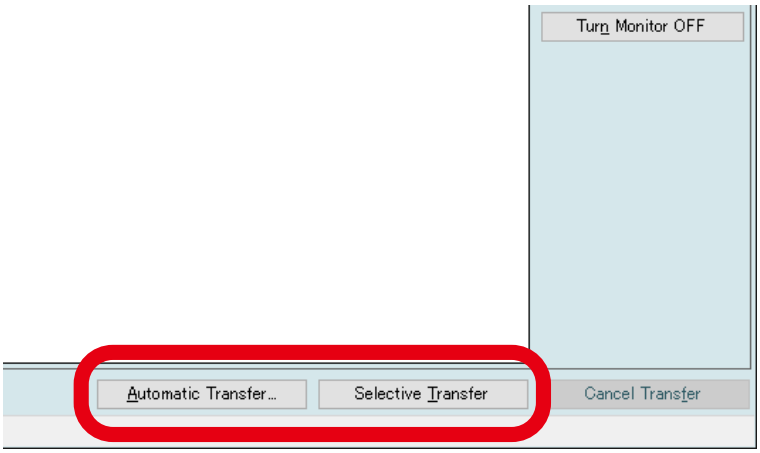
3. If data transfer is ready, you will see the name of the program under **Registered Packages** of the selected MV-500R.



4. Send the program to MV-500R.

The **Automatic Transfer** button automatically picks up appropriate MV-500R's, and sends the program to them.

The **Selective Transfer** button sends the program to MV-500R's selected in the device list.

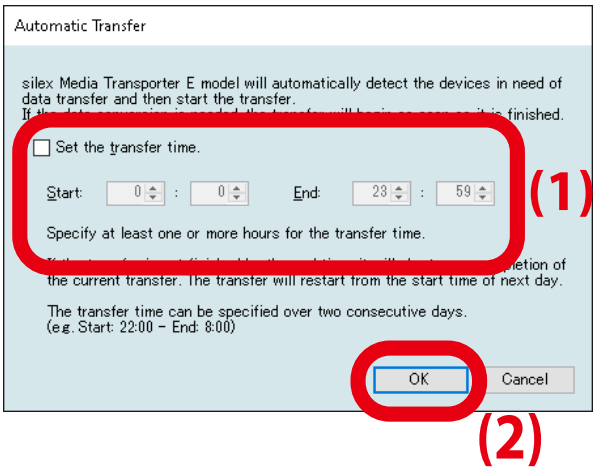


TIP

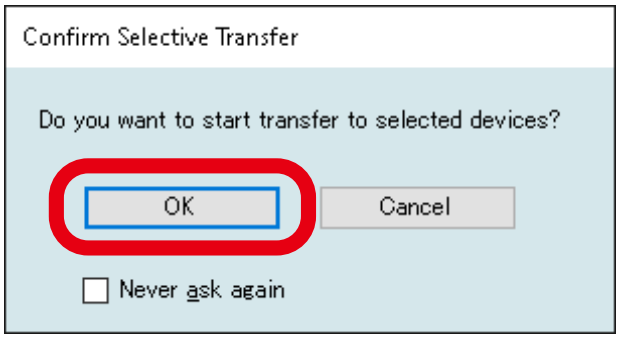
- Do not remove or insert a microSD card or turn off MV-500R during data transfer. The saved data or microSD card might be corrupted.

Note

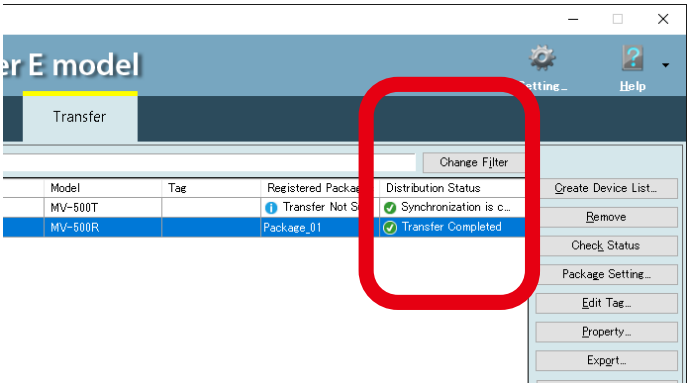
- To select multiple MV-500R's in the device list, click MV-500R's while holding down **Ctrl**.
- If a password has been set to the MV-500R, click **Property** to register the password.
- The **Automatic Transfer** button shows the following window. To send a program immediately, click **OK**. To send one at a specific time, tick **Set the transfer time**, set the start and end time, and click **OK**.



5. The **Confirm Selective Transfer** window appears. Click **OK**.



6. The **Distribution Status** shows **Transfer Completed** after the program is completely sent to the receiver(s).



TIP

- If the **Distribution Status** shows **Storage Device IO Error**, remove and insert the microSD card after you power off the receiver. If you still see the error, the saved data may be broken. In this case, reformat the microSD card on your PC.
- If the status is still showing the error after the card is formatted, the card may be broken. Try to use another microSD card.

5-6. Video/Audio Playback

MV-500R plays content alone based on the program schedule.

- Do not remove the microSD card while MV-500R is playing content. If it is removed, power off the MV-500R, and then turn it on again.

6. Maintenance Functions

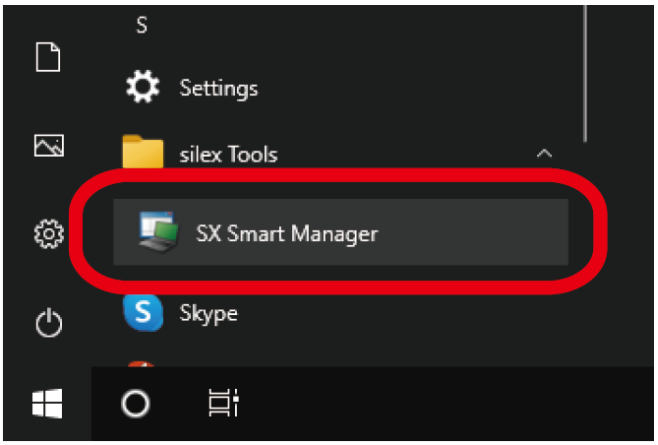
This chapter guides you through the maintenance functions of MV-500T/MV-500R.

6-1. Device Monitoring with Setting Management Software

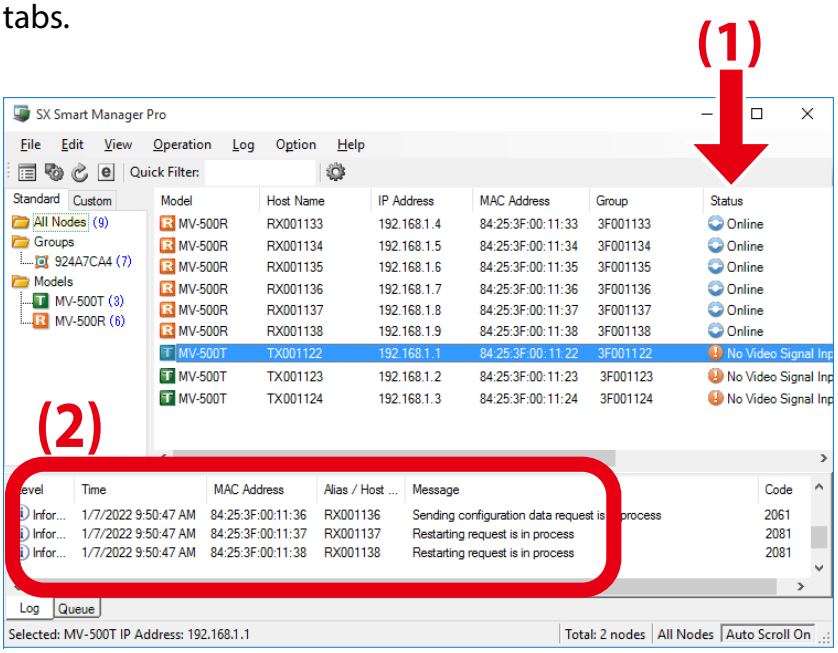
The setting management software allows you to monitor the operation status of MV-500T/MV-500R. The software has to be installed on a PC connecting to the same LAN of MV-500T/MV-500R.

Monitoring MV-500T/MV-500R Status

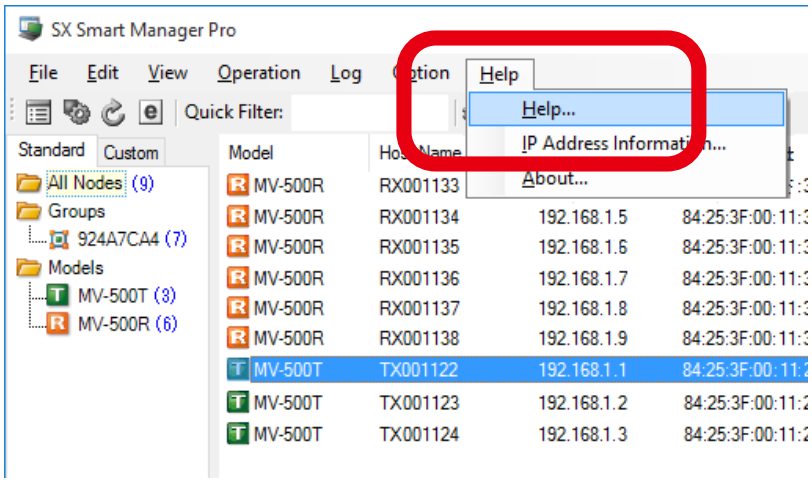
1. Click **SX Smart Manager** on the start menu of the PC.



2. The setting management software starts.
The node list shows MV-500T and MV-500R on the same network. Their operation status appears under **Status** of the node list and in the message window of the **Log**/**Queue** tabs.



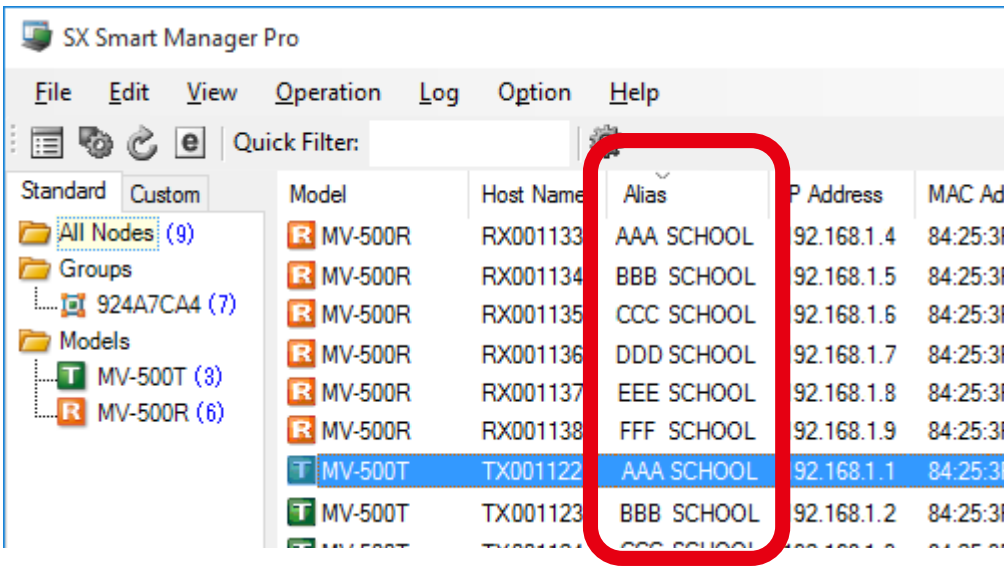
3. The Help window explains the status and other information. Click **Help - Help**.



Naming MV-500T/MV-500R

The following steps show you how to give another name to the listed MV-500T/MV-500R. These names appear under **Alias**.

[Alias Setting Example]



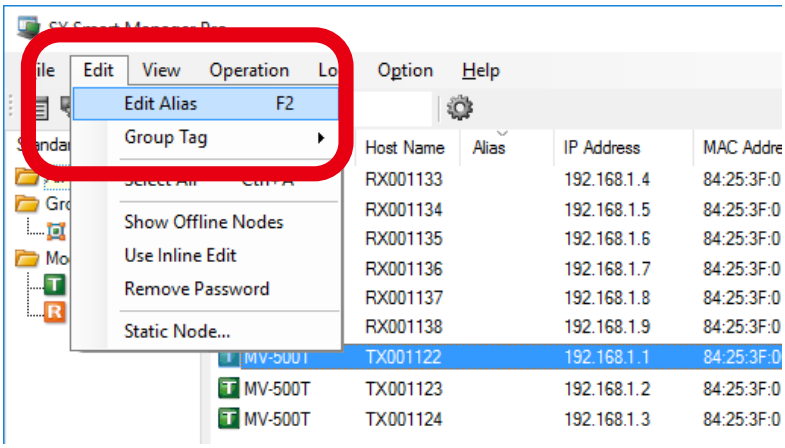
TIP

- These Alias can be saved only to the setting management software in use, not to MV-500T/MV-500R. These names cannot be deleted when you factory reset the products.
- The other setting management software cannot display these Alias since MV-500T/MV-500R do not keep them in the memory.

Note

- You can give any name to them (e.g. ABC Elementary All Class Tx, ABC Elementary Grade 1 Class 1 Rx).

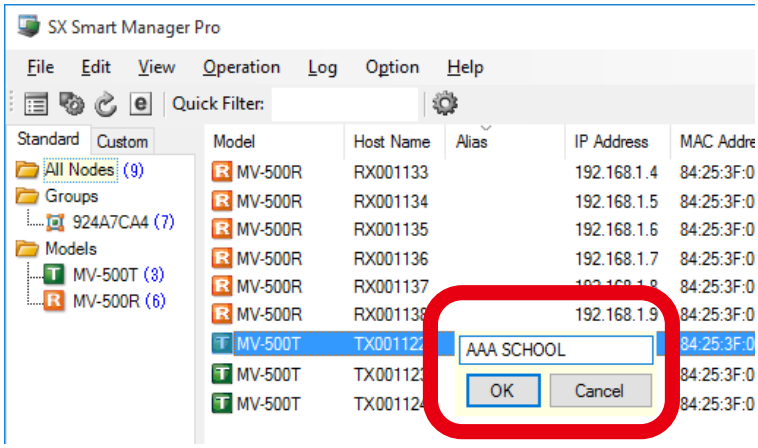
1. Choose one that you want to name, and click **Edit - Edit Alias** on the menu bar.



Note

- When **Edit - Use Inline Edit** has been ticked on the menu, you can click the **Alias** field of a device to enter a name.

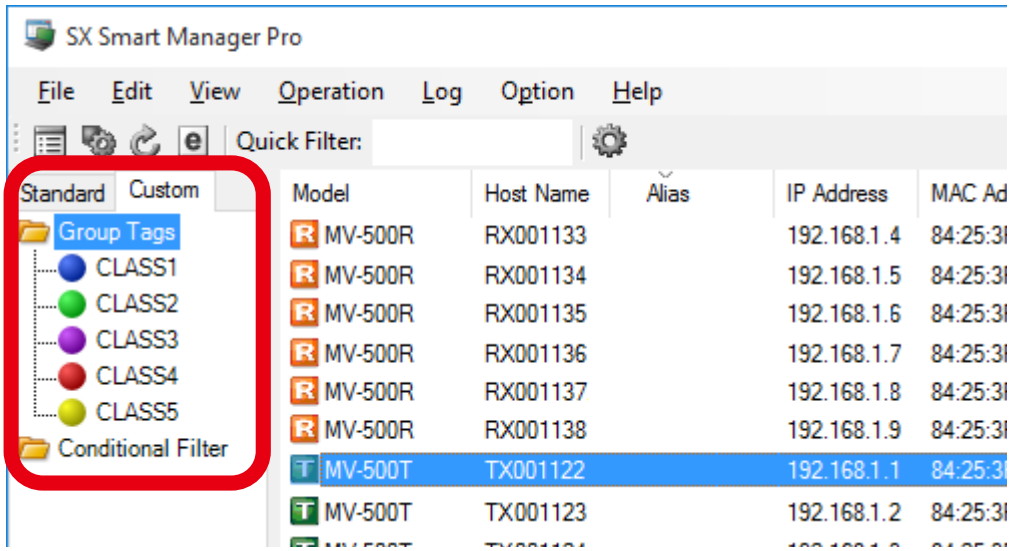
2. The input box appears under **Alias**. Type any name and click **OK**.



Group Tag

The following steps explain how to add groups to the node list. You can group MV-500T/ MV-500R to display them by group.

[Group Setting Example]



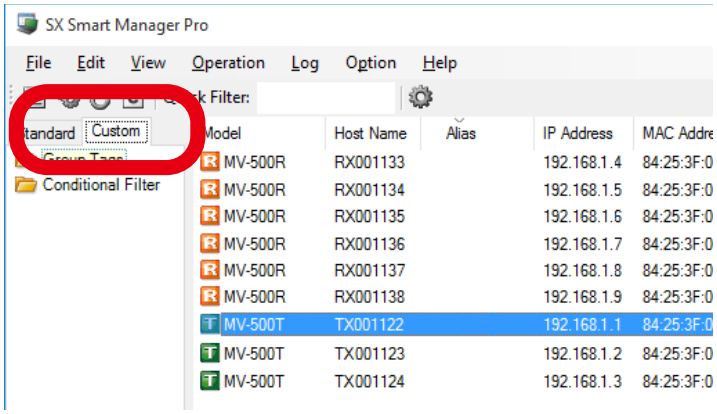
TIP

- The created groups and the grouping information are saved only to the setting management software in use, not to MV-500T/MV-500R. The information cannot be deleted when you factory reset the products.
- The other setting management software cannot display the group information since MV-500T/MV-500R do not keep it in the memory.

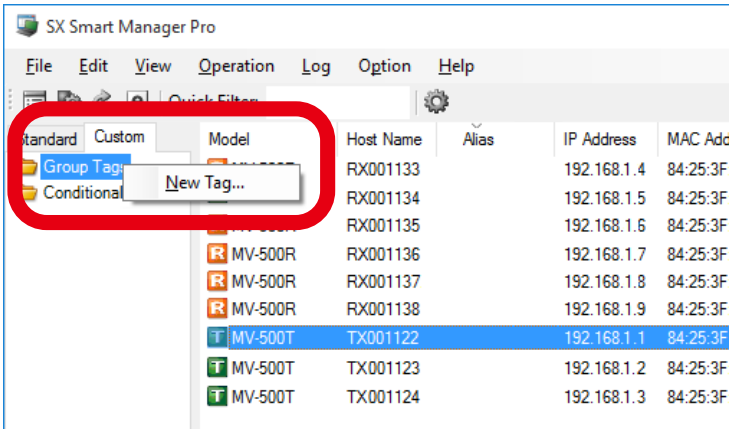
Note

- You can give any name to the groups (e.g. District 1, District 2).

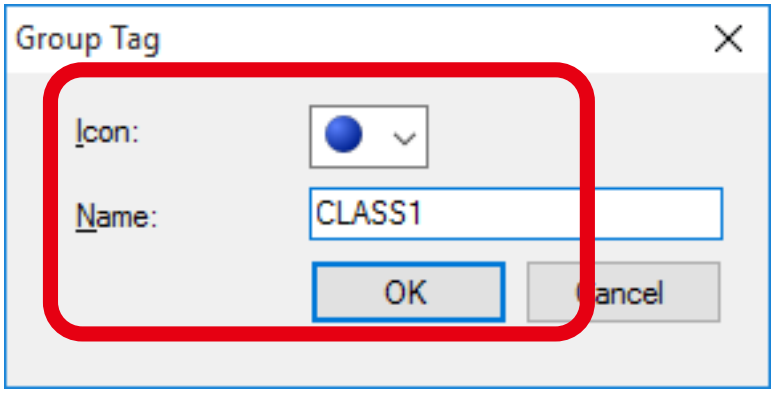
1. Click the **Custom** tab in the filtering function area.



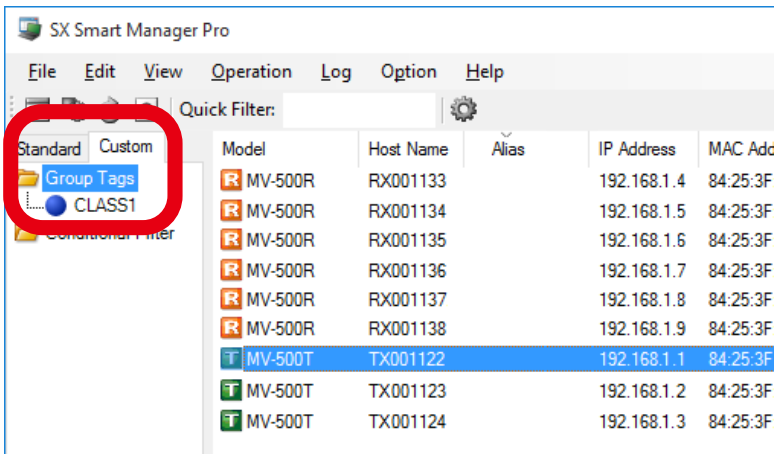
2. Right click the **Group Tags**, and click **New Tag**.



3. The edit window of **Group Tags** appears.
Choose an icon, type a group name, and click **OK**.



4. A group will be created.



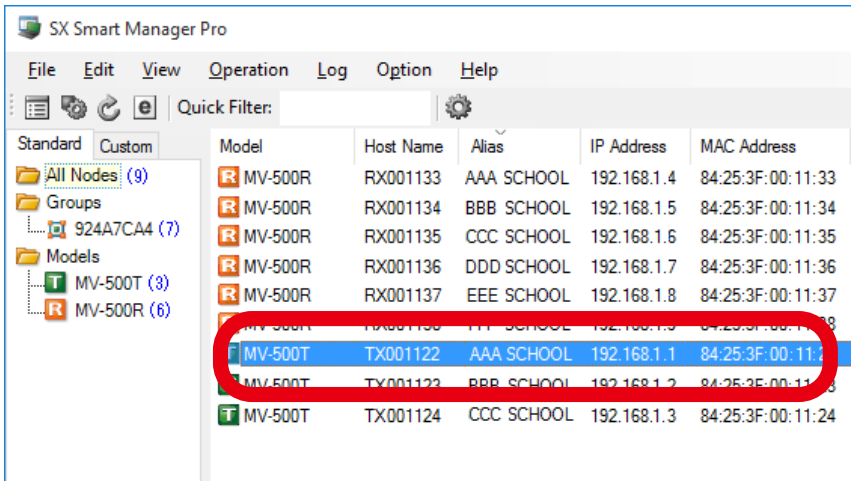
Adding MV-500T/MV-500R to Group

The following steps explain how to add MV-500T/MV-500R to a created group. You can view the products by group.

Note

- MV-500T/MV-500R can join more than one group.

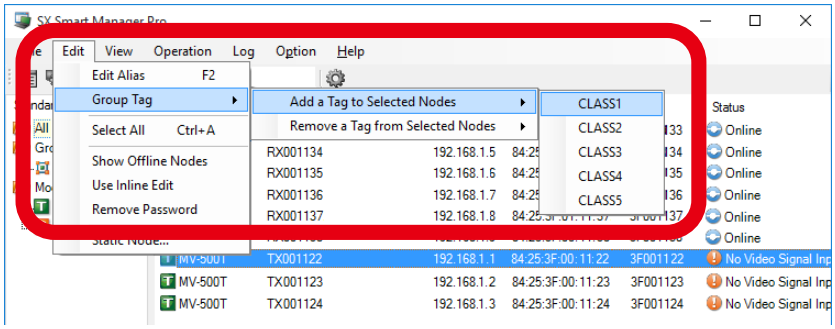
1. Select MV-500T/MV-500R to group from the node list.



Note

- You can select more than one MV-500T/MV-500R at once.

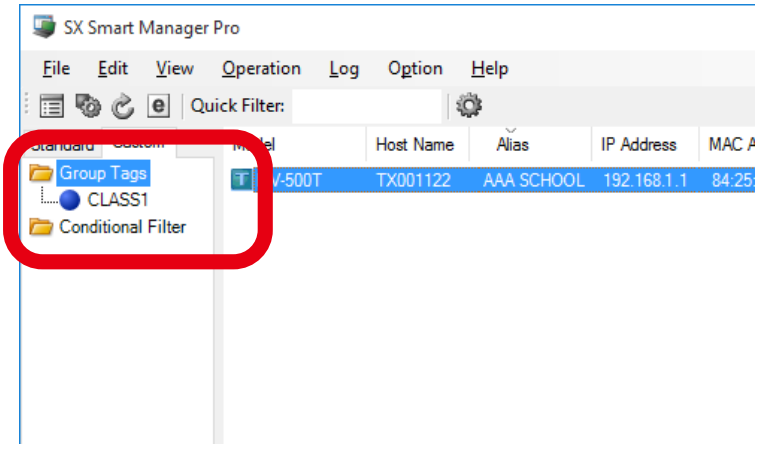
2. Select **Edit - Group Tag - Add a Tag to Selected Nodes** from the top menu, and click one of the groups to which you will add MV-500T/MV-500R.



Note

- The menu shows groups that you created.

3. The selected MV-500T/MV-500R will be added to the group.
Click the group tag to display only the added MV-500T/MV-500R in the node list.



6-2. Setting Change

To change the settings of installed MV-500T/MV-500R, use the configuration files. You need to create a new configuration file or edit an existing file to create a new one. This section explains how to edit an existing file.

- You need the following items beside the setting management software to edit the configuration files. Connect the setup PC and MV-500T/MV-500R on the same LAN. MV-500T/MV-500R will be used as an information source to edit configuration files.

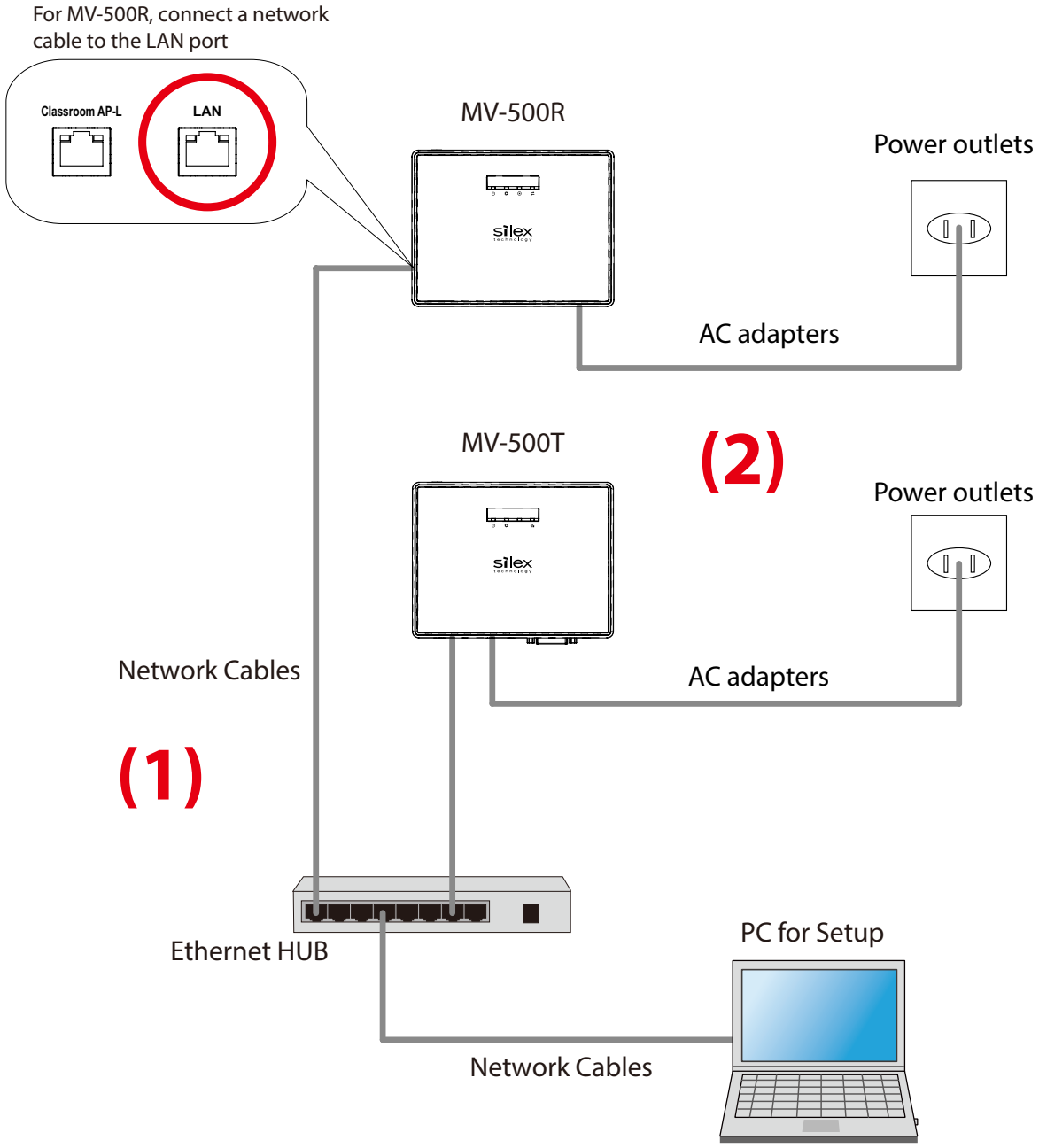
Required Items

Use the setting management software to create configuration files for MV-500T/MV-500R. Prepare either a transmitter or a receiver depending on whose configuration file you will edit.

MV-500T (Transmitter)	Prepare one unit when you want to edit MV-500T's configuration files.
MV-500R (Receiver)	Prepare one unit when you want to edit MV-500R's configuration files.
PC for setup	Prepare a PC with the setting management software installed and is equipped with a wired LAN port.
Network cable	Prepare network cables (Category 5e or greater) to connect PC and MV-500T/MV-500R for configuration. • Since MV-500T/MV-500R support Auto MDI/MDI-X, you can use either the straight-through or the crossover network cables. • You can use an Ethernet hub or directly connect MV-500T/MV-500R to the PC.
Ethernet hub	Use an Ethernet hub to connect MV-500T/MV-500R and the PC. It is not needed when you use your existing network environment.

Connecting MV-500T/MV-500R and PC on the Same Network

Use an Ethernet hub to connect MV-500T and MV-500R with the PC on the same LAN. Connect them with network cables, and plug the AC adapters of MV-500T/MV-500R into power outlets. Since these MV-500T/MV-500R are for obtaining the setting information, they do not require a display unit or a video source to be connected.



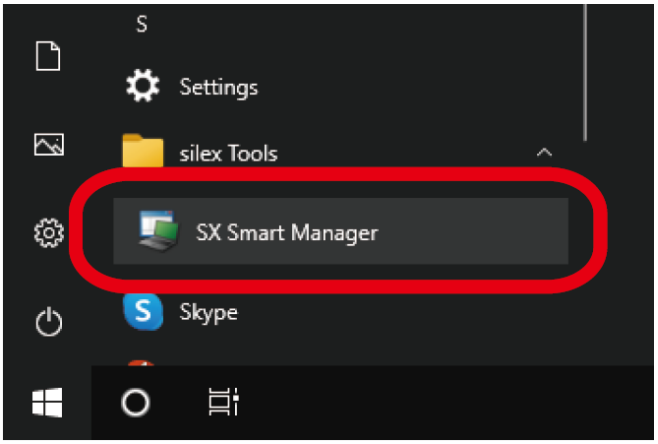
TIP

- When a static IP address is assigned to the PC, temporarily enable **Obtain an IP address automatically** on the PC.

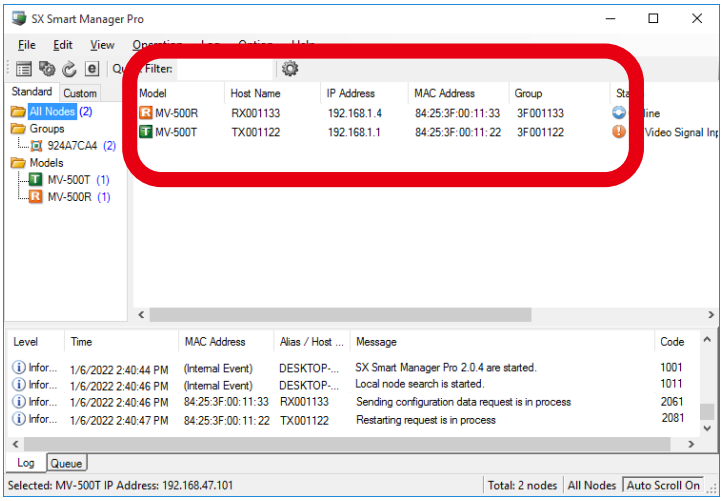
Editing Configuration File

Create a configuration file of MV-500T/MV-500R by using the setting management software. For the following steps, MV-500T is being used as an example.

1. Click **SX Smart Manager** on the start menu of the PC.

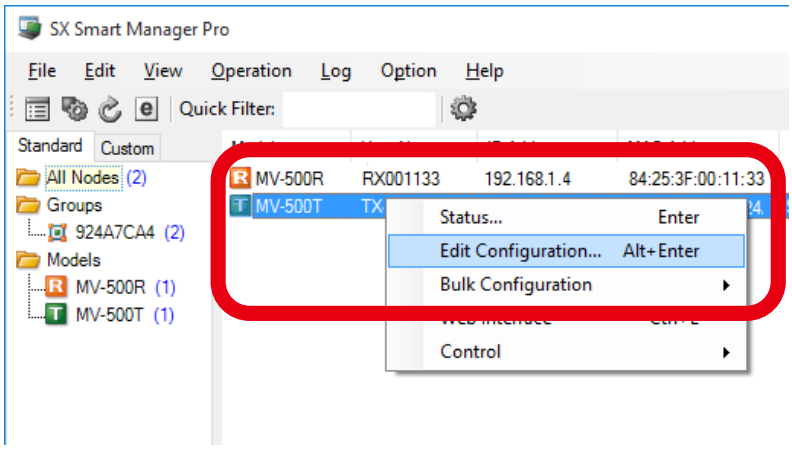


2. The setting management software starts.
The node list displays MV-500T/MV-500R connected on the same network.



3. Create a configuration file for MV-500T.

Right click MV-500T in the node list, and choose **Edit Configuration**.



TIP

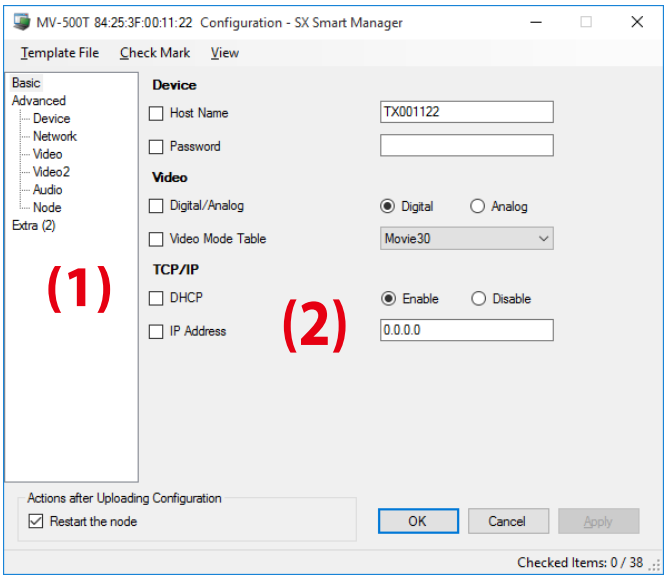
- As you try to access MV-500T/MV-500R's setting or maintenance webpages, the login page appears. Enter root as the user name and your MV-500T/MV-500R's root password. (Note that no password is set as factory default.)

Note

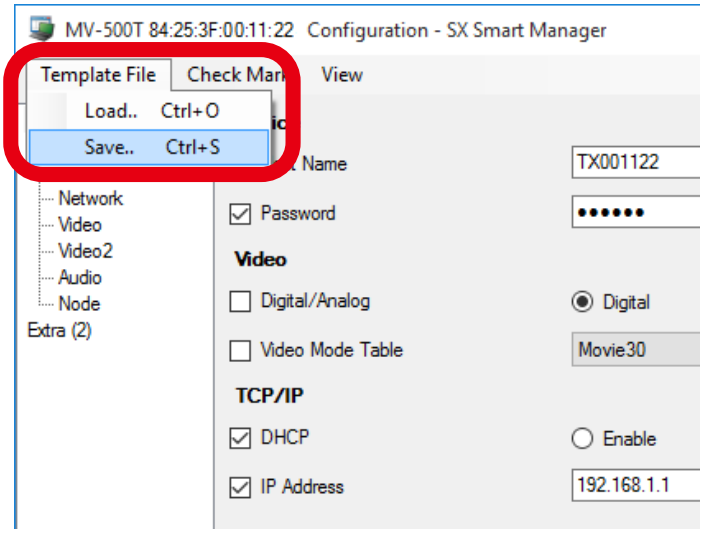
- You can view the **Configuration** window in a different way; select MV-500T in the node list, and click **Operation** - **Edit Configuration** on the menu bar.

4. The MV-500T's Configuration window appears.

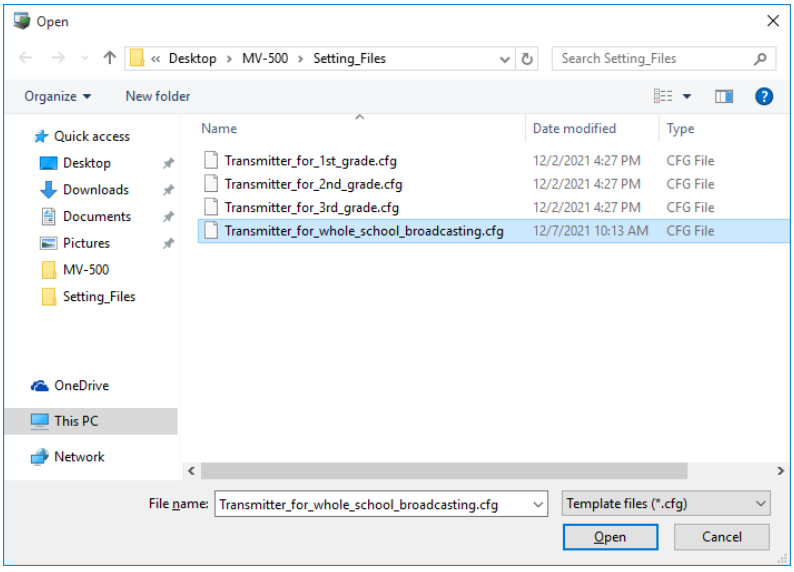
Click a category on the left to see the particular configuration items on the right.



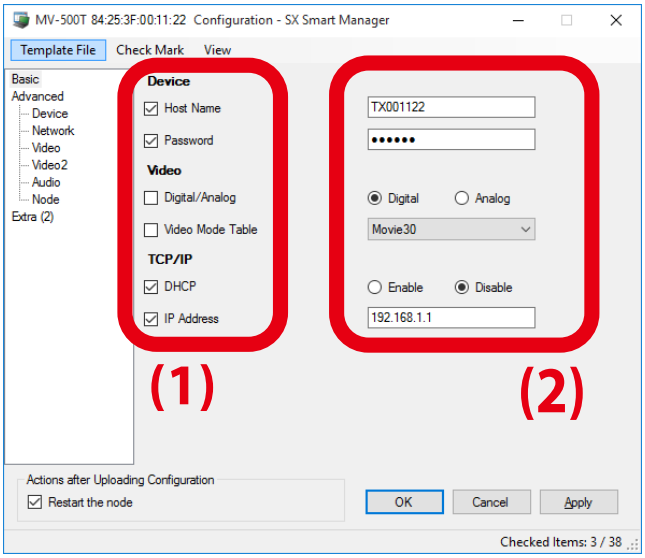
5. Click **Template File - Load** on the menu bar.



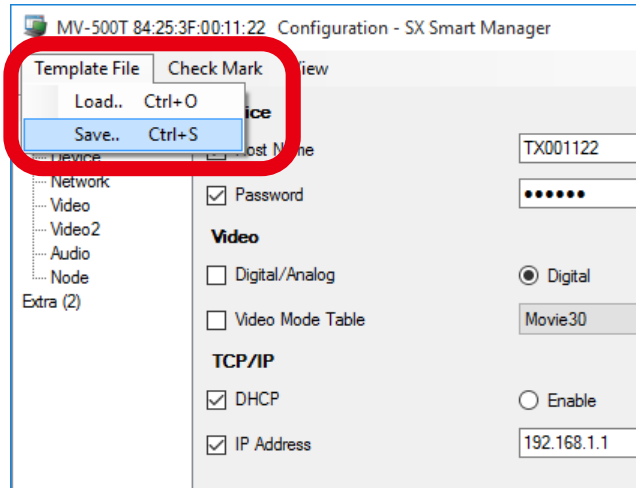
6. The file dialog appears. Choose a configuration file to edit.



7. The window displays the imported information. Tick boxes of the items that you want to change, and enter their values.



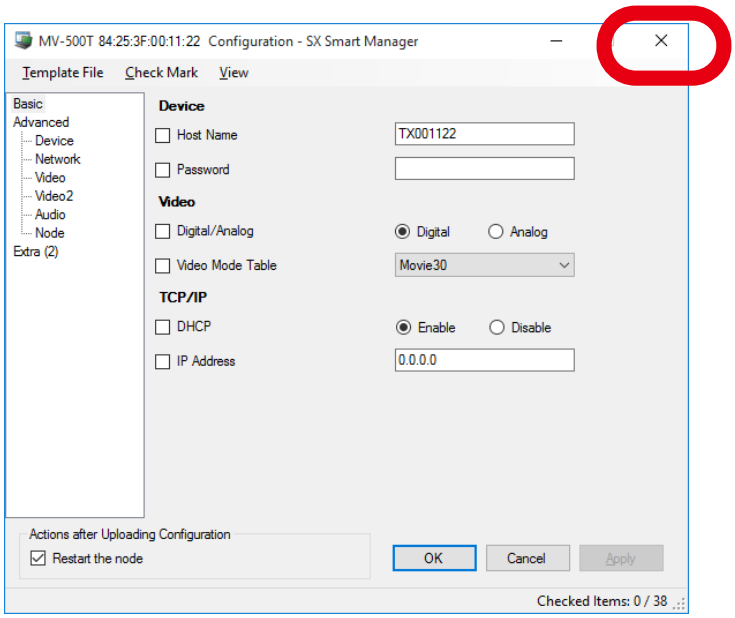
8. After updating the items, click **Template File - Save** on the menu bar.



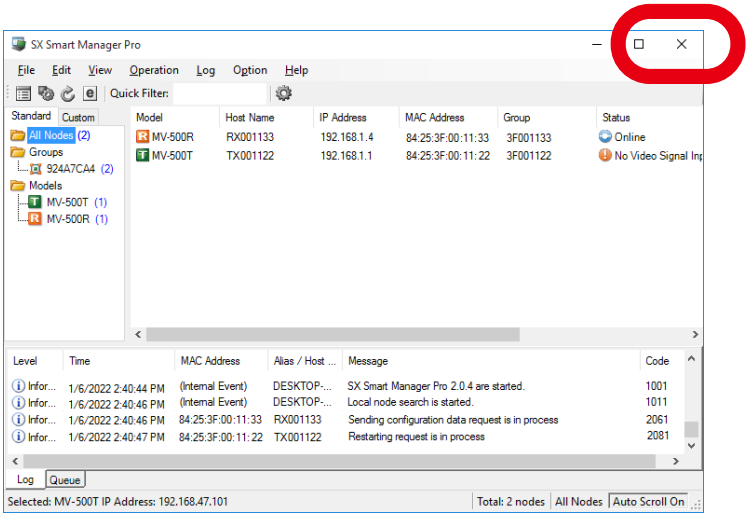
TIP

- Do not click **OK** or **Apply**. If you do so, the selected MV-500T will save these values to its memory.

9. Go back to the **Configuration** window.
Click ✕ (Close) on the top right of the window.



10. See the main window of the setting management software.
Click ✕ (Close) on the top right to quit the setting management software. Unplug the AC adapter of MV-500T from the power outlet.



11. The configuration file has been edited. Update MV-500T/MV-500R with the file according to **3-4. Configuration File for Setup**.

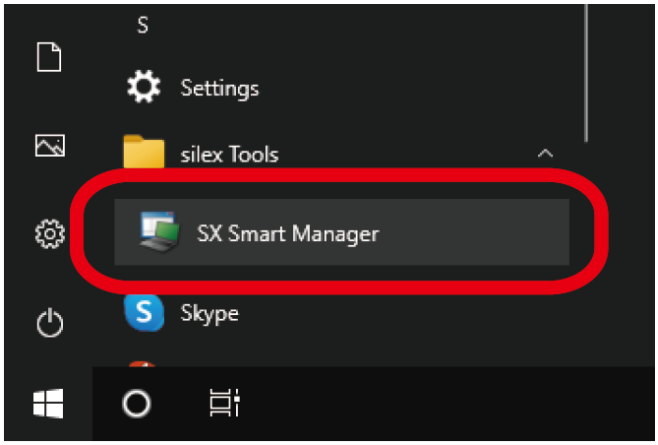
6-3. Restart

This chapter explains how to restart MV-500T/MV-500R.

Using Setting Management Software

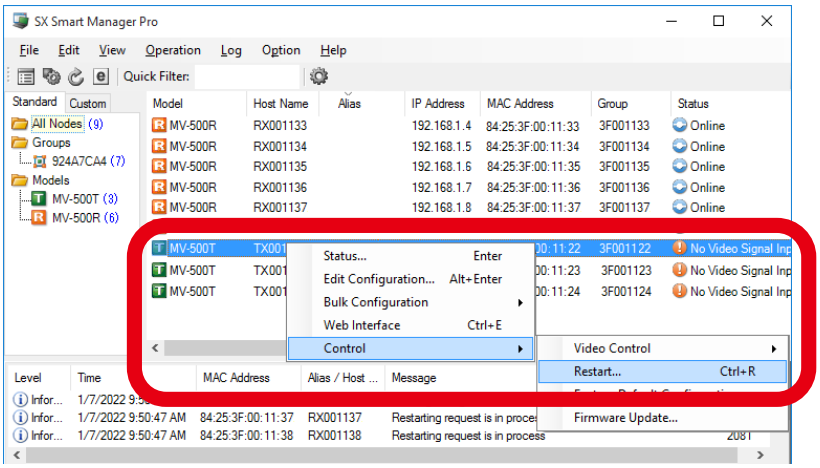
You can restart MV-500T/MV-500R from the setting management software.

1. Click **SX Smart Manager** on the start menu of your setup PC that is connecting on the same network.



2. The setting management software starts.

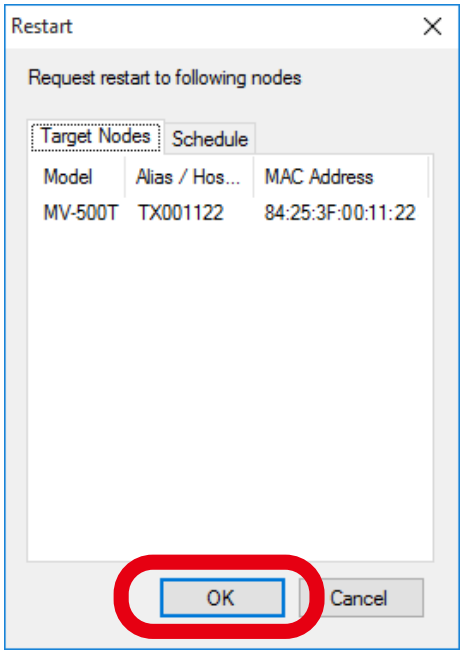
The node list displays the networked MV-500T/MV-500R. Look for the one that you want to restart, right click on it and select **Control - Restart** from the menu.



Note

- You can select more than one MV-500T/MV-500R to restart at once.
- You can also click **Operation - Control - Restart** on the menu bar.

3. The restart window appears. Click **OK**.



Note

- To schedule a restart, click the **Schedule** tab and specify the date and time.

Hard Reboot

MV-500T and MV-500R are not equipped with a power switch. Unplug and plug the AC adapter to restart them.

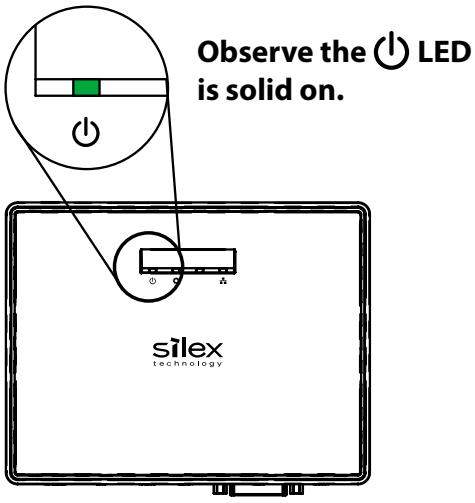
1. Unplug the AC adapter of MV-500T/MV-500R from a power outlet.

2. Plug the AC adapter to a power outlet.

3. When MV-500T/MV-500R has restarted completely, the top LED comes on as follows.

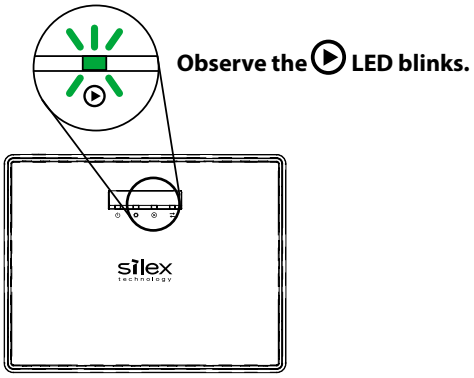
[MV-500T (Transmitter)]

The top ⏻ LED is on.



[MV-500R (Receiver)]

The top ⏵ LED is blinking.



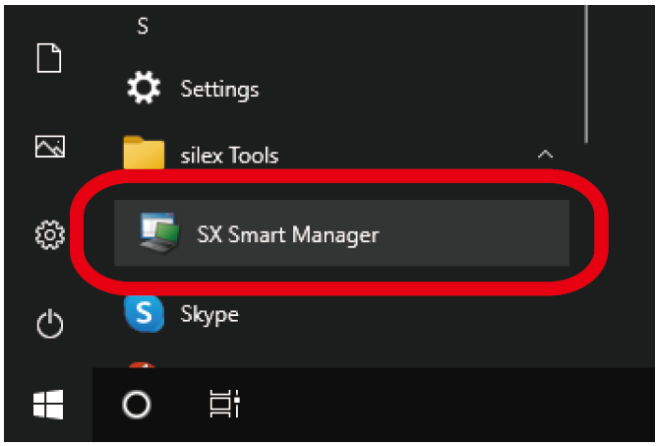
6-4. Factory Reset

This chapter explains how to reset MV-500T/MV-500R to the factory default settings.

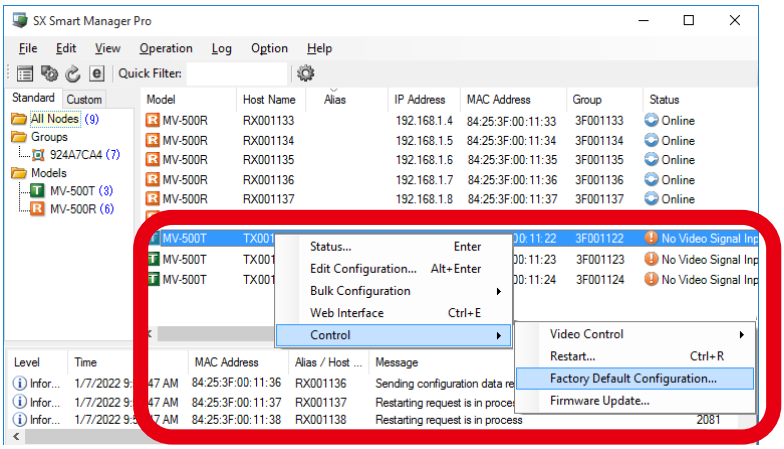
Using Setting Management Software

You can factory reset MV-500T/MV-500R by using the setting management software.

1. Click **SX Smart Manager** on the start menu of your PC that is connecting on the same network.



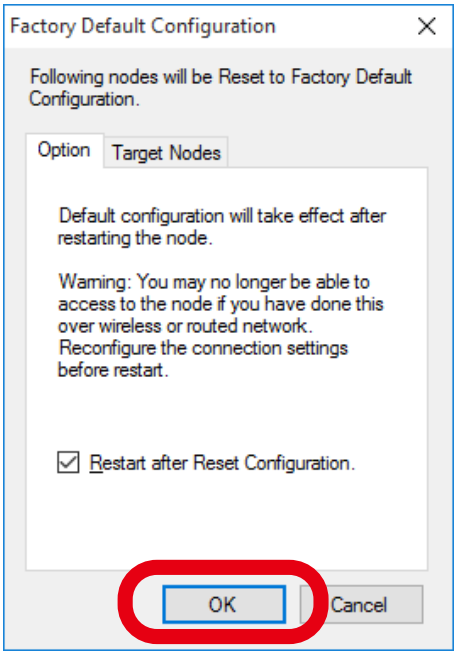
2. The setting management software starts. The node list displays networked MV-500T/MV-500R. Look for the one you want to factory reset, right click it and select **Control - Factory Default Configuration** from the menu.



- You can select more than one MV-500T/MV-500R to factory reset at once.
- You can also click **Operation - Control - Factory Default Configuration** on the menu bar.

Note

3. The **Factory Default Configuration** window appears. Click **OK**.



- If you want a restart later, untick **Restart after Reset Configuration**.

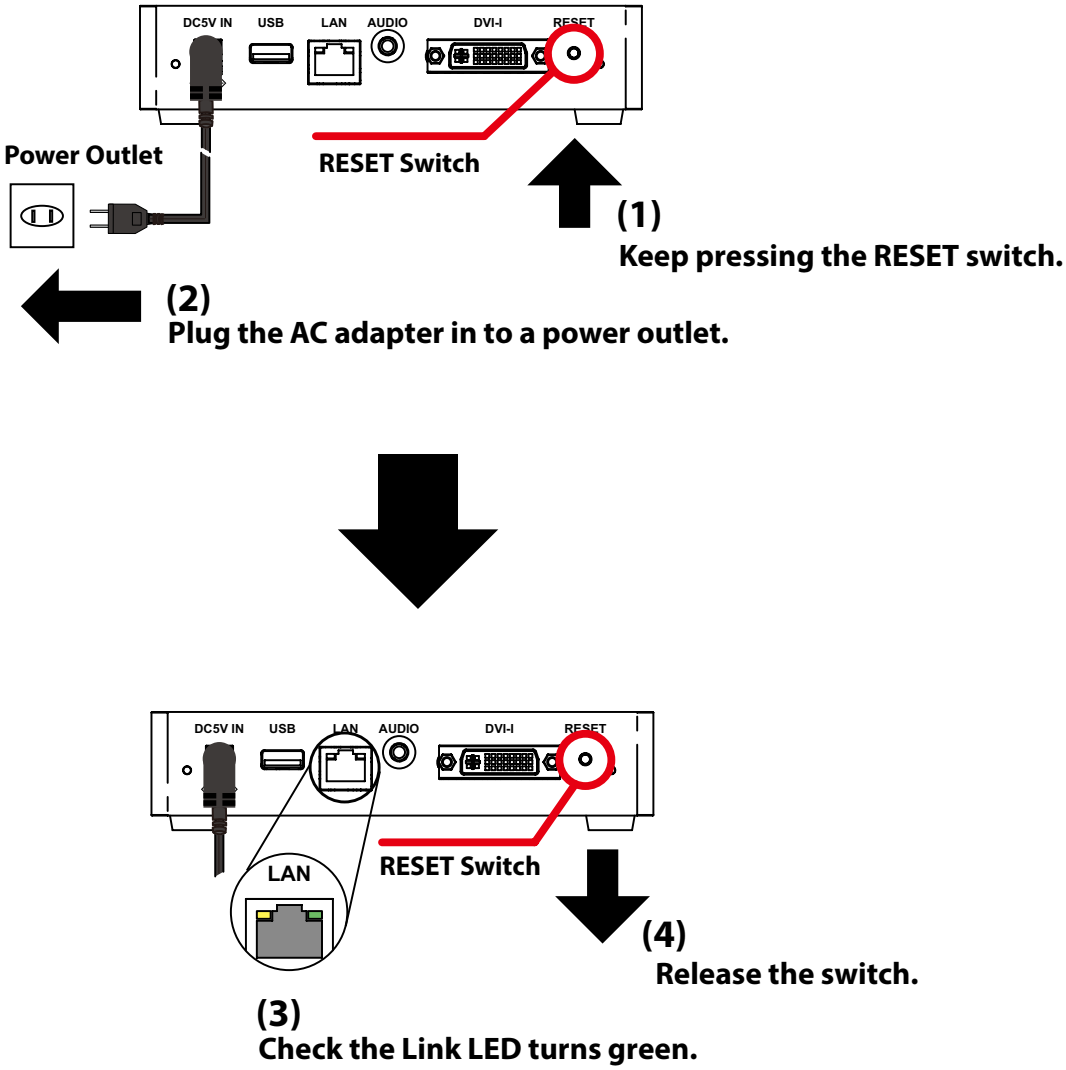
Note

Using RESET Switch

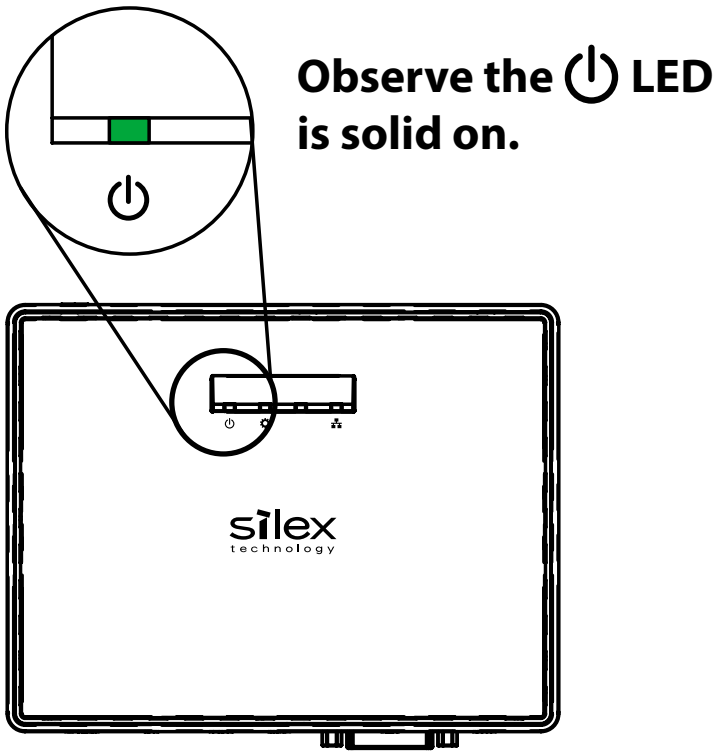
This section guides you through a factory reset with MV-500T/MV-500R's RESET switch.

[MV-500T (Transmitter)]

1. Plug the AC adapter into a power outlet while pressing the RESET switch on the front panel. The Link LED (orange) and the Status LED (yellow) at the network port will come on. When the Link LED changes from orange to green, release the RESET switch.

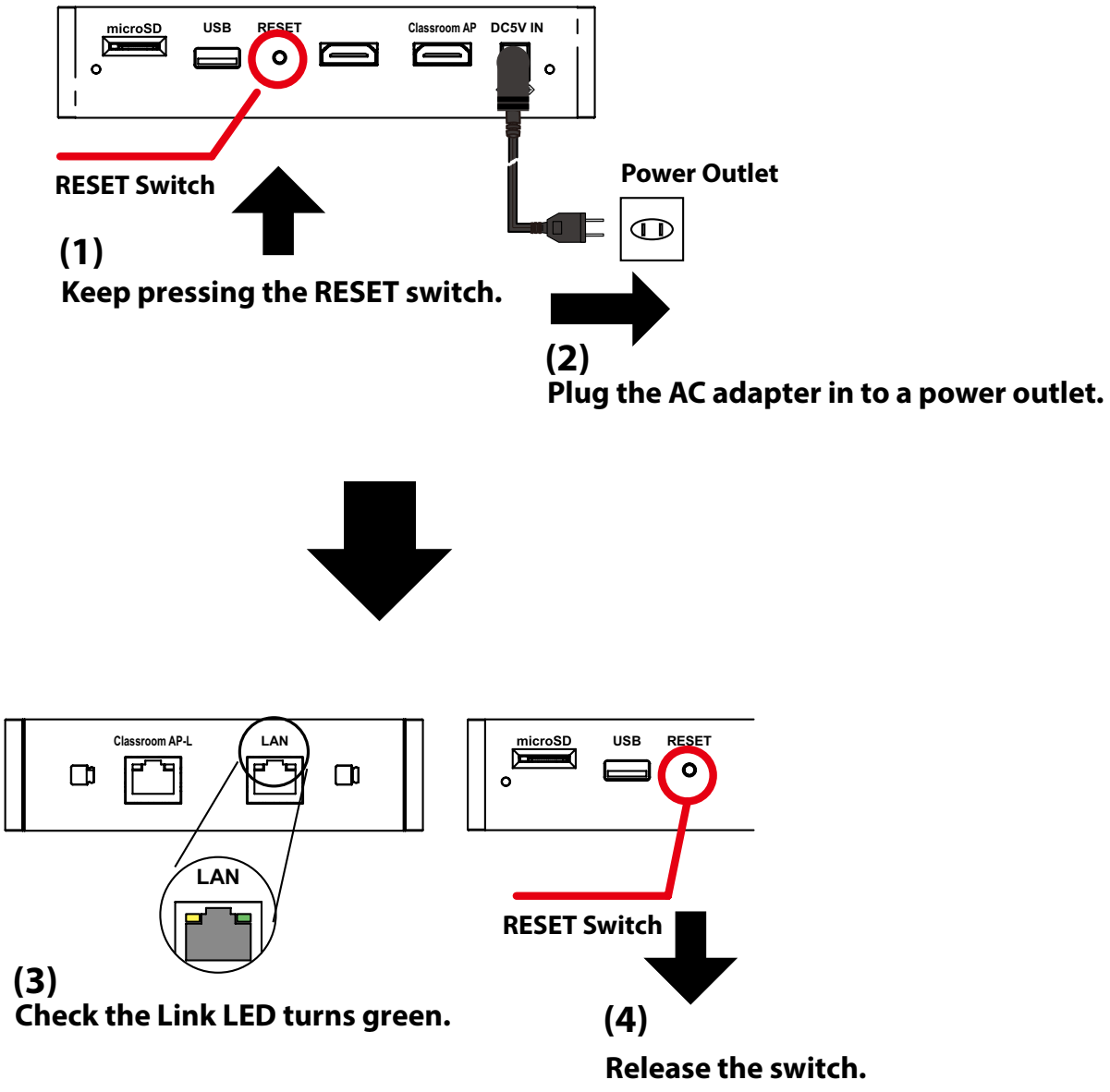


2. After the factory reset, MV-500T automatically restarts. Make sure that the top ⏻ LED is on after the restart.

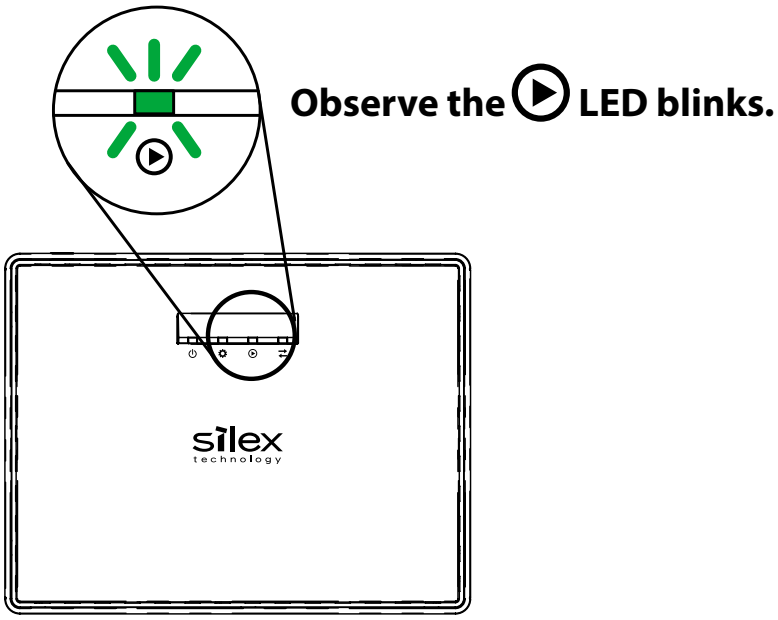


[MV-500R (Receiver)]

1. Plug the AC adapter into a power outlet while pressing the RESET switch on the front panel. The Link LED (orange) and the Status LED (yellow) at the network port will come on. When the Link LED changes from orange to green, release the RESET switch.



2. After the factory reset, MV-500R automatically restarts. Make sure that the top ▶ LED is blinking after the restart.



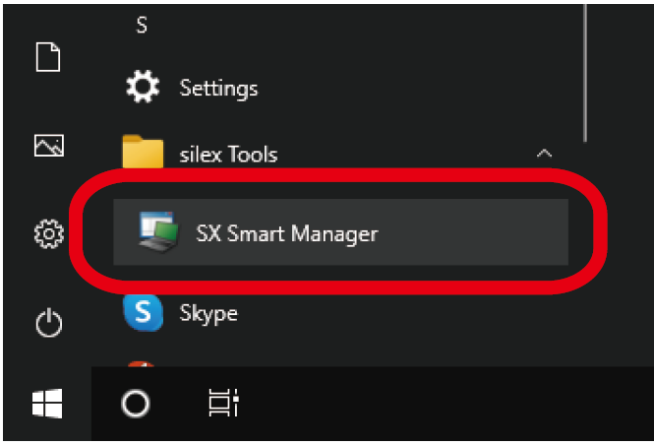
6-5. Firmware Update

This section describes how to update the firmware. You can download the latest one from Silex's web site.

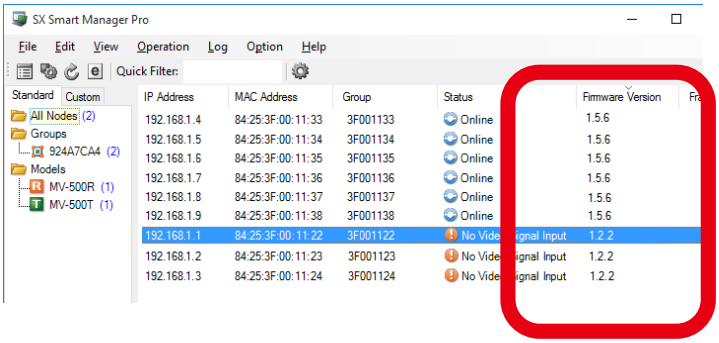
Knowing Firmware Version

Use the setting management software to find out the firmware's version number.

1. Click **SX Smart Manager** on the start menu of the PC on the same network.



2. The setting management software starts.
The node list displays the MV-500T/MV-500R connecting on the network, and the **Firmware Version** field shows their version numbers.



Downloading Firmware

The latest firmware is published on Silex's website. Take the steps below to download the latest one.

How to download the firmware file:

1. Access our website below.

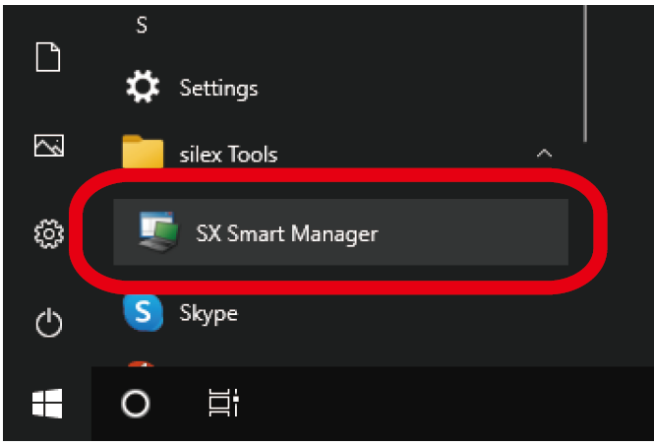
URL	
USA / Europe	https://www.silextechnology.com/

2. Go to the support section and download the firmware file.

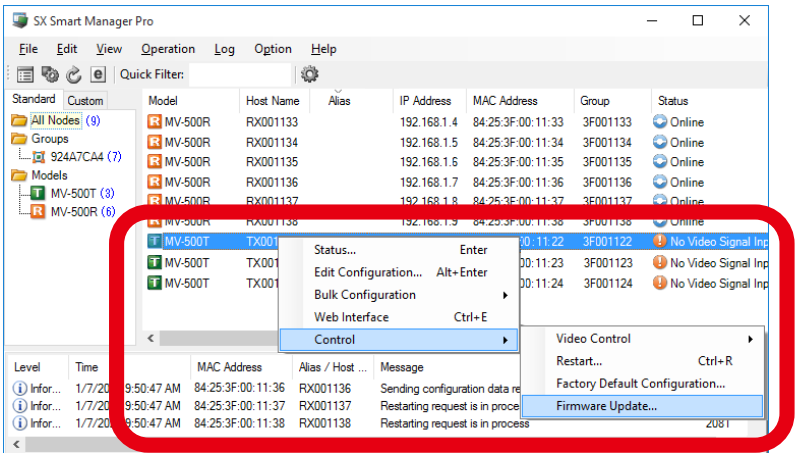
Upgrading Firmware

Use the setting management software to upgrade MV-500T/MV-500R's firmware.

1. Click **SX Smart Manager** on the start menu of the setup PC on the same network.



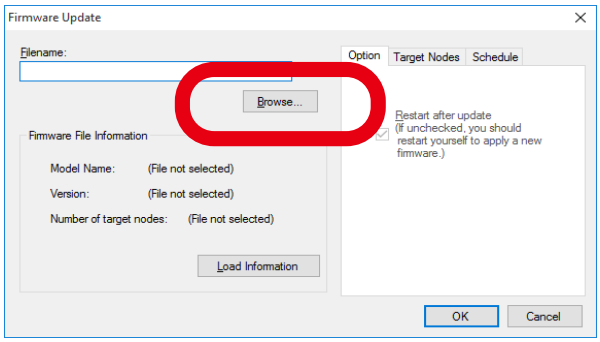
2. The setting management software starts. The node list displays MV-500T/MV-500R on the network. Select one that you want to upgrade the firmware, right click on it and choose **Control - Firmware Update**.



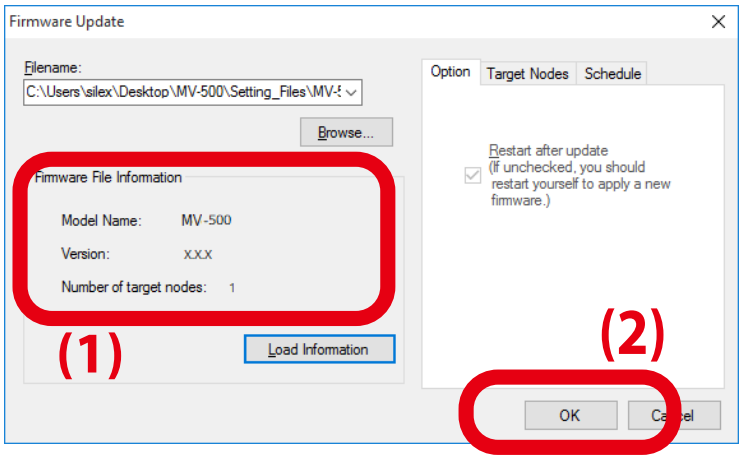
Note

- You can select more than one MV-500T/MV-500R to upgrade their firmware at once.
- You can also click **Operation - Control - Firmware Update** on the menu bar to upgrade the firmware.

3. The **Firmware Update** window appears. Click **Browse** and select the firmware that you downloaded.



4. The window displays the information of the firmware you selected. Click **OK**.



Note

- To schedule a restart, click the **Schedule** tab and specify the date and time.

6-6. Maintenance in Web Interface

You can access the environment settings of MV-500T/MV-500R using a web browser. Use a PC on the same network.

The following web browsers are recommended:

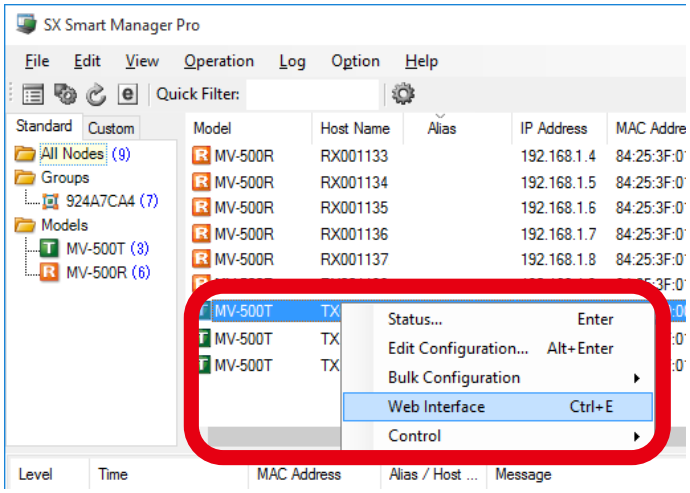
- Microsoft Internet Explorer 8 or later

Note

- The following images are screenshots of Internet Explorer 11 on Windows 10. These webpages may appear different depending on OS and versions of browsers.
- MV-500T's webpage screenshots are used in the following examples unless otherwise described, and are slightly different from MV-500R's.

How to Access Webpage

1. Select MV-500T/MV-500R in the node list of the setting management software and open the webpage. Right click on it and select **Web Interface**.



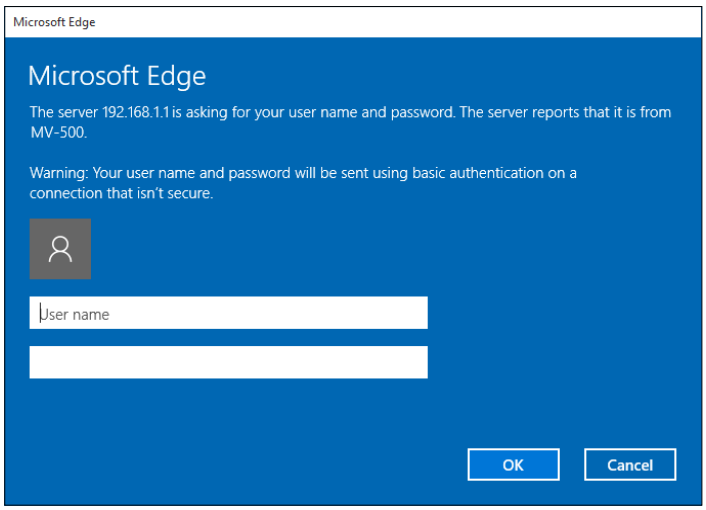
Note

- You can also click **Operation - Web Interface** on the menu bar to access the webpage.
- If you know the IP address of the device, you can enter the IP address in the address bar of a web browser to access the webpages.

2. Your web browser opens and shows the MV-500T/MV-500R's webpage.

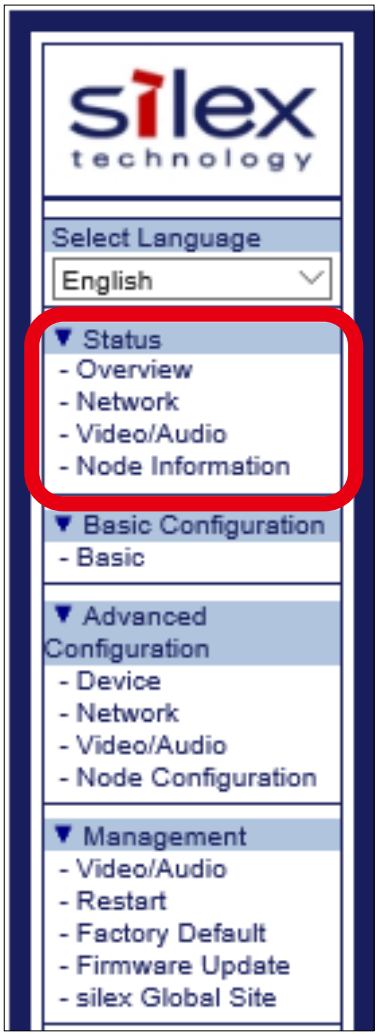
TIP

・When you try to access the setting page, device management or maintenance page, the login page opens. Enter root as the user name and your MV-500T/MV-500R's root password. (Note that no password is set as factory default.)



Status Page

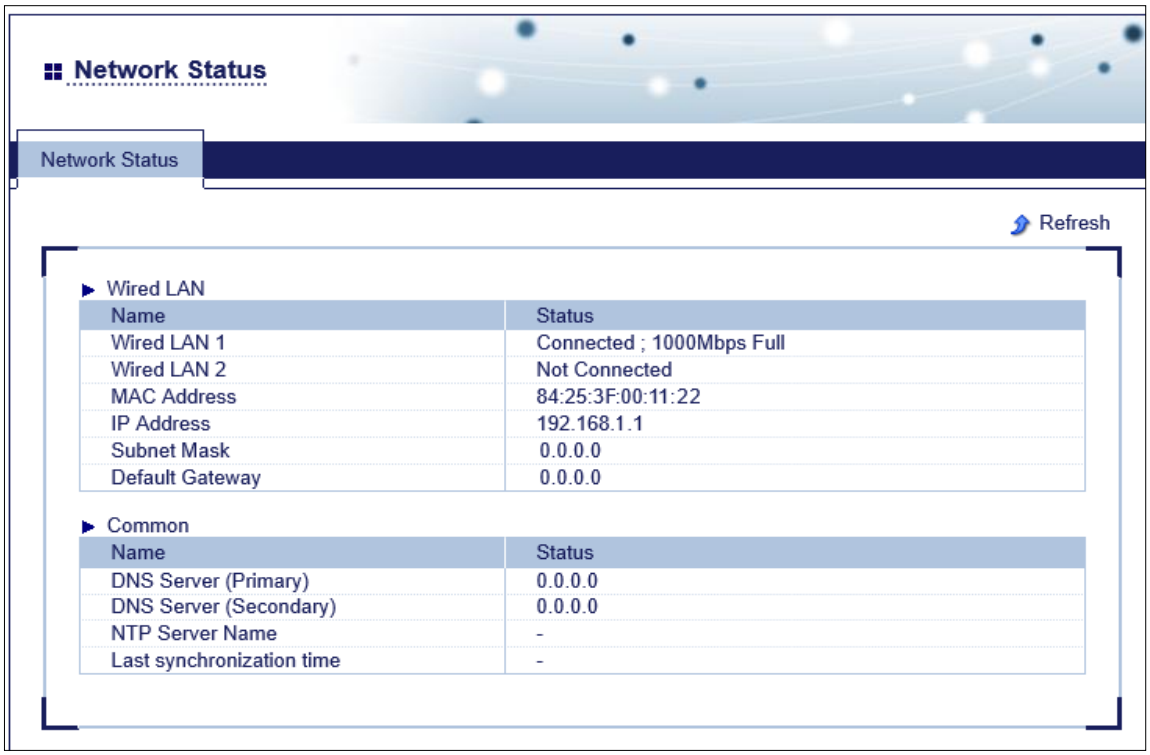
The status page shows MV-500T/MV-500R's operation status. Click the left menu to see the details of the status information.



■ Overview

This page shows MV-500T/MV-500R's services, network conditions, and system information.

■ Network Information



This page shows the wired LAN connection status.

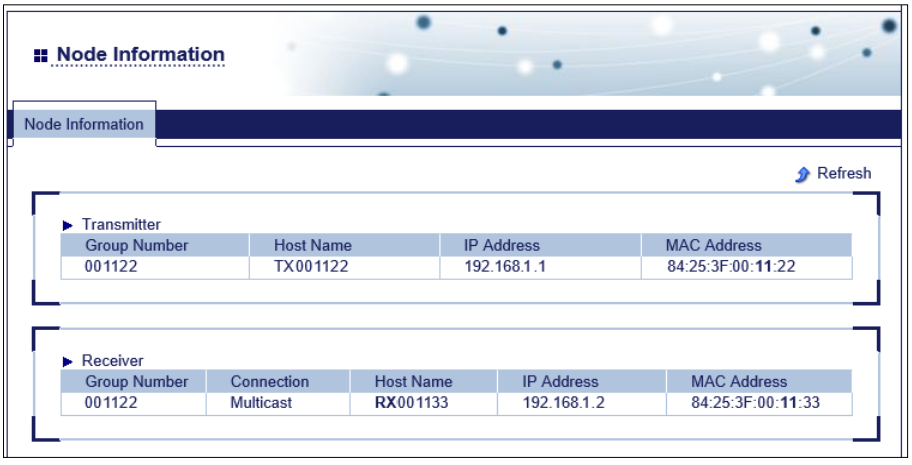
■ Video/Audio Information

This page shows how video and audio data is being sent and played back.

■ Store and Play Status (MV-500R only)

This page shows the current status of the store and play function.

■ Node Information



This page shows all the nodes that are connecting on the same network.

Setting Page

You can update the environment settings on the settings pages that consist of **Basic Configuration** for the fundamental settings and **Advanced Configuration** for the detailed settings.

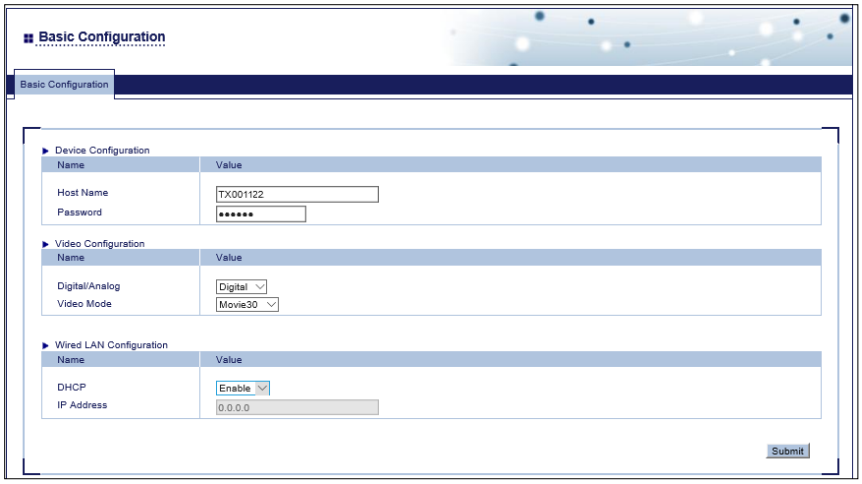
To change the settings, go to the particular setting page, enter new values and click **Submit**.

The following pages briefly explain each setting page. For details of the setting items, see **Appendix A-1 Setting Items**.

Note

- The following images are screenshots of MV-500T's webpages, which consist of different setting items from MV-500R's

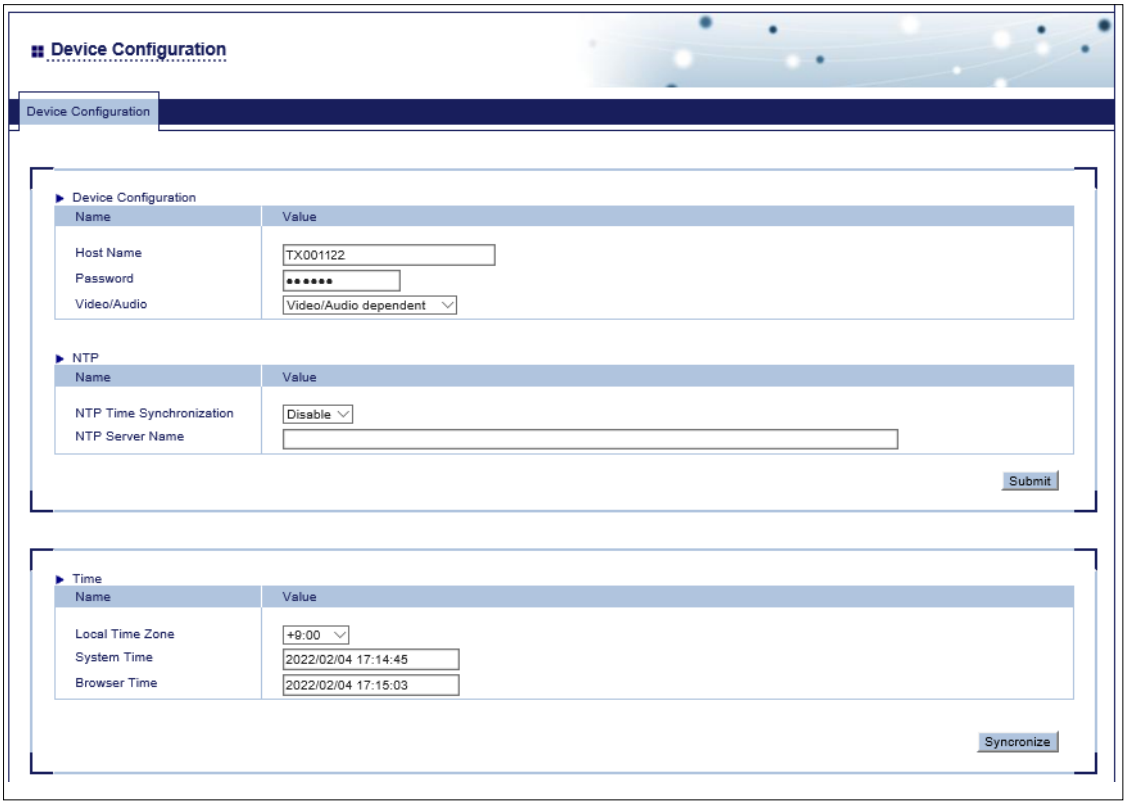
■ Basic Configuration



Enter MV-500T/MV-500R's information required for the operation.

■ Advanced Configuration - Device Configuration

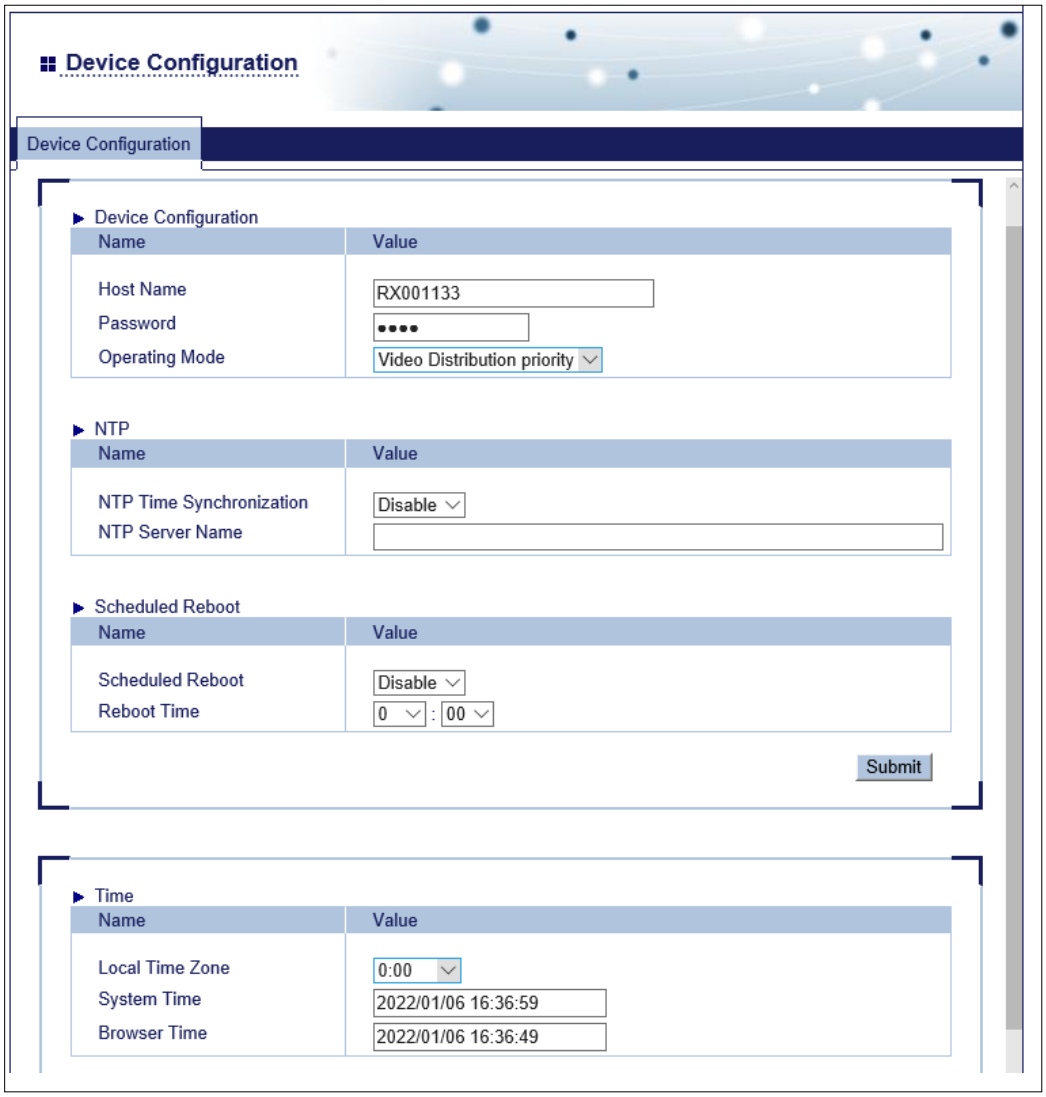
(MV-500T)



You can change the following values:

- Host name and password
- Execution of video/Audio transmission
- NTP server setting for the device system time
- Time information of the web browser to update the system time

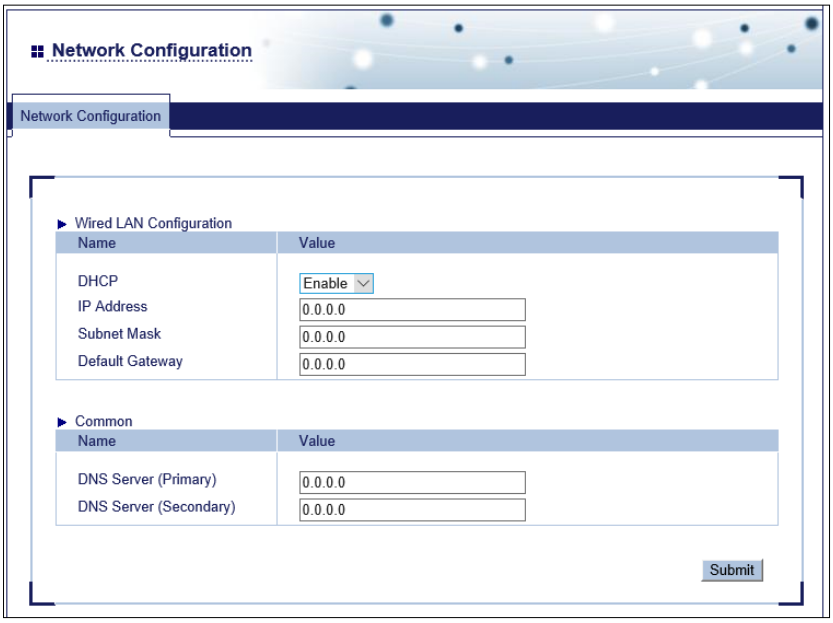
(MV-500R)



You can change the following values:

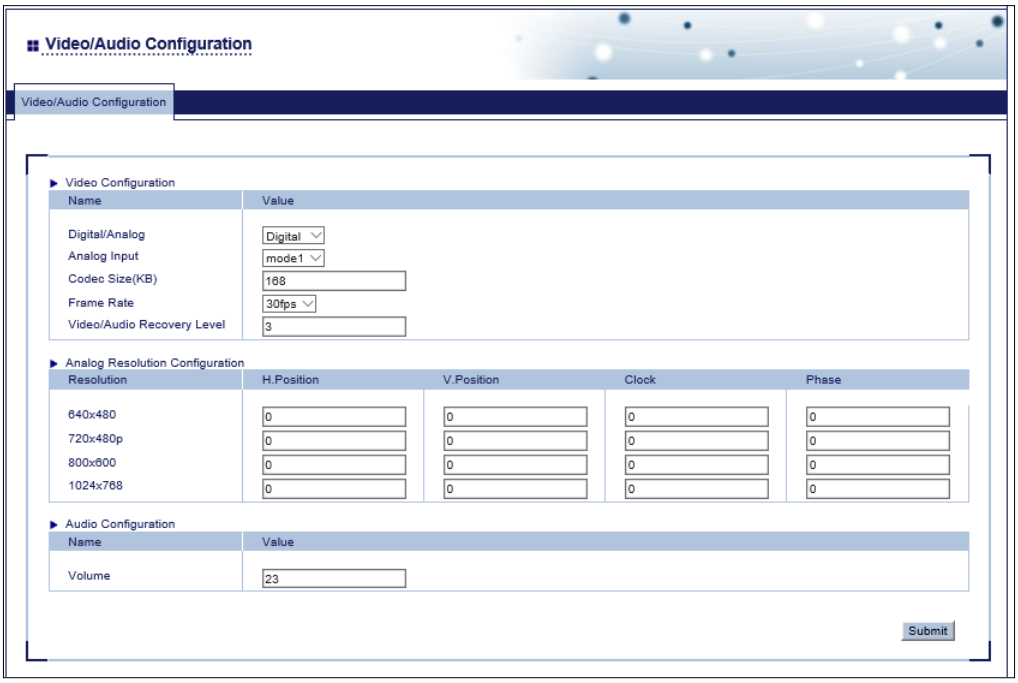
- Host name and password
- Priority of Multicast distribution function over Store and Play function
- NTP server setting for the device system time
- Time information of the web browser to update the system time
- Periodic restart schedule

Advanced Configuration - Network Configuration



Enter the network information.

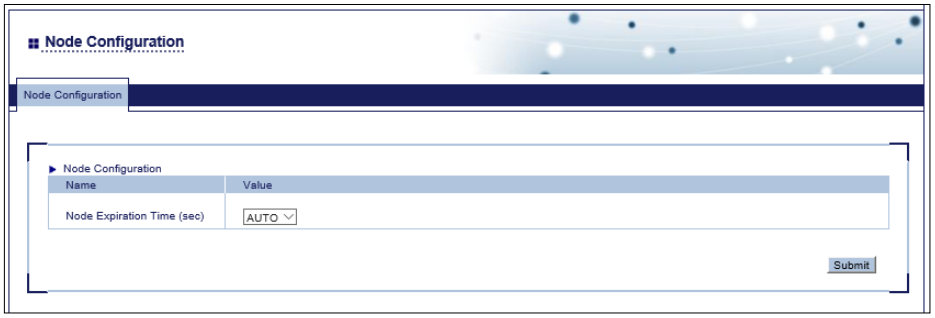
Advanced Configuration - Video/Audio Configuration



Enter parameters for video and audio signals.

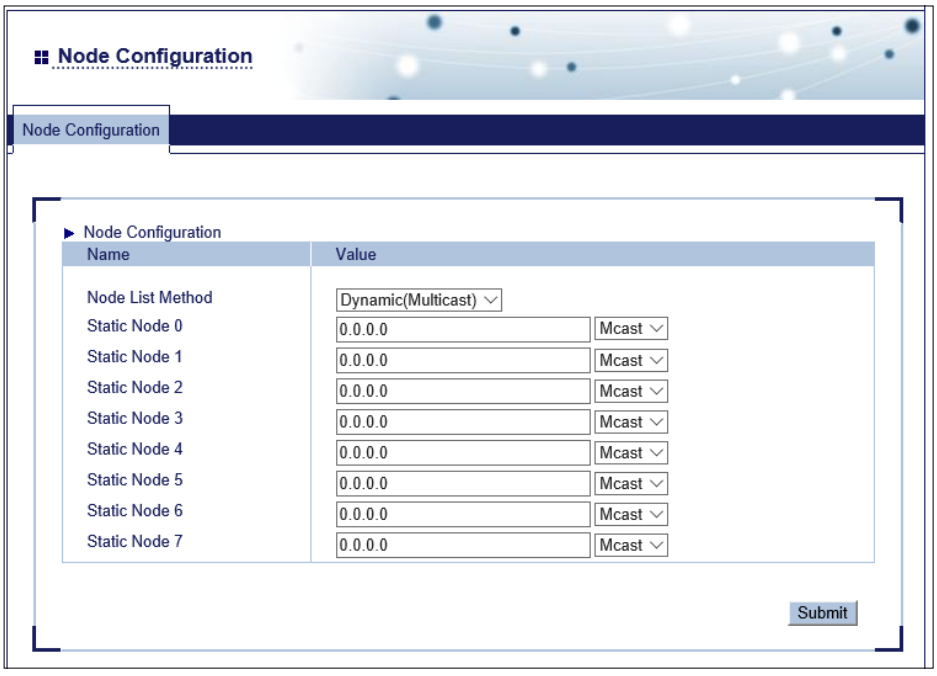
■ Advanced Configuration - Node Configuration

(MV-500T)



Set the length of time for MV-500T to determine whether or not a disconnected node can return to the network.

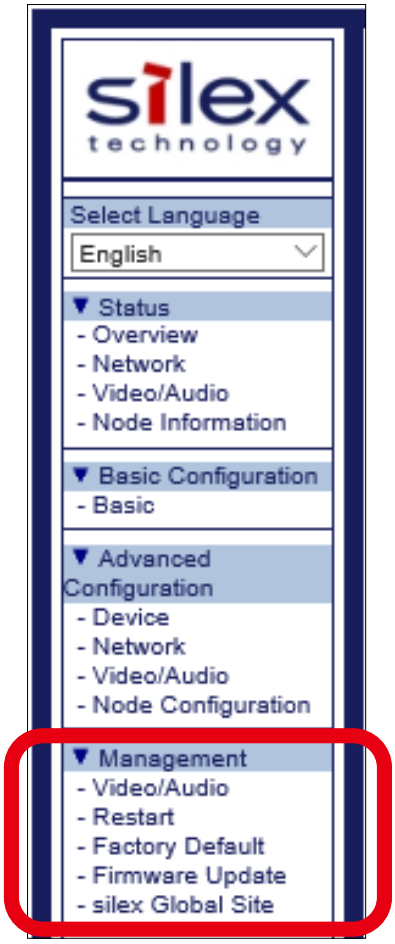
(MV-500R)



Specify how the MV-500R connects with transmitters.

Device Management Page

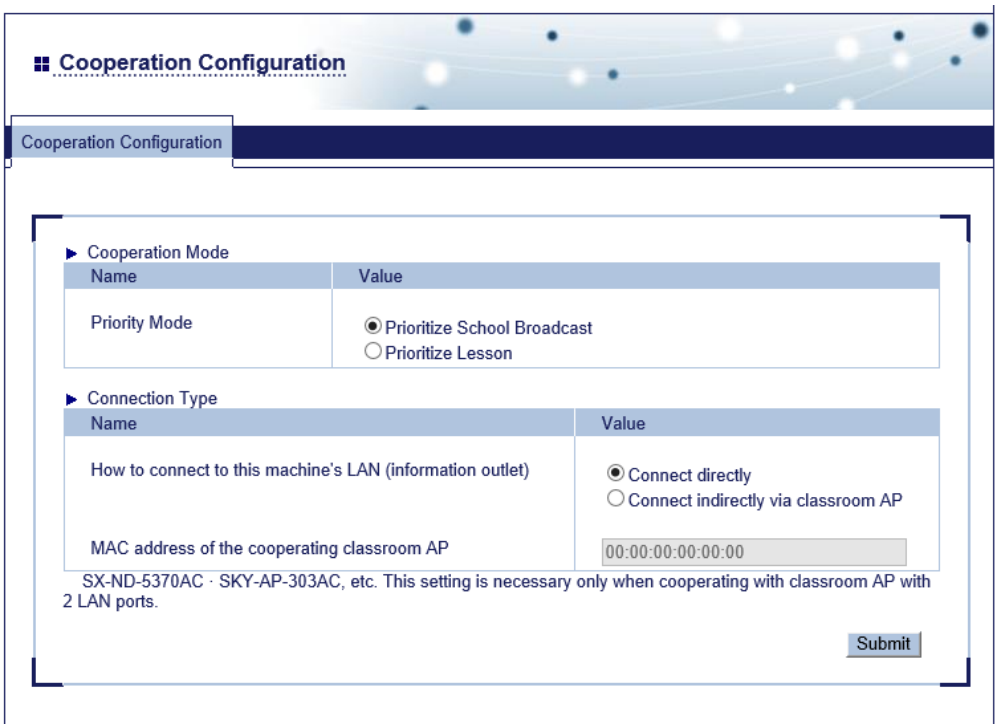
You can remotely control MV-500T/MV-500R on the device management pages. Click the left menu to access the management tools.



Note

- The following images are screenshots of MV-500T's webpages, which consist of different setting items from MV-500R's.

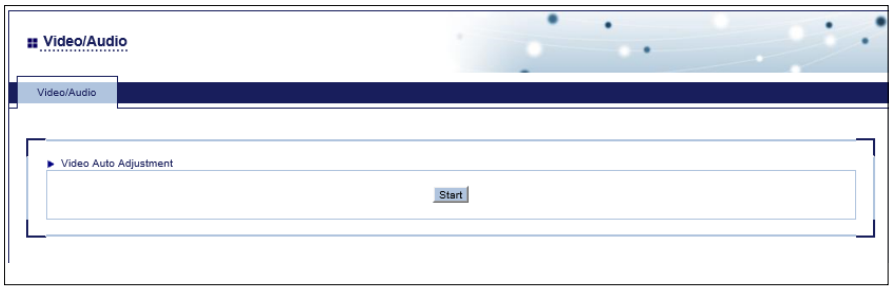
■ Cooperation Configuration (MV-500R only)



You can give a preference to MV-500 (Prioritize School Broadcast) or a classroom access point (Prioritize Lesson).

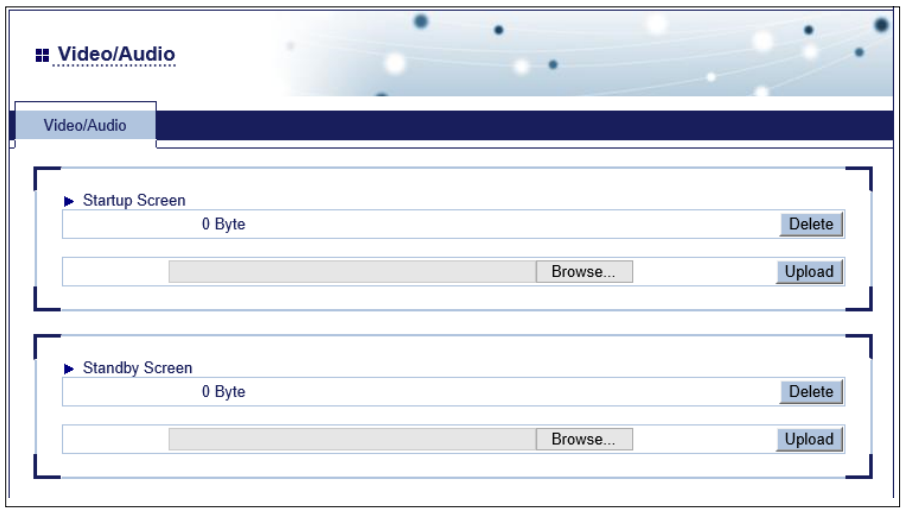
■ Video/Audio

(MV-500T)



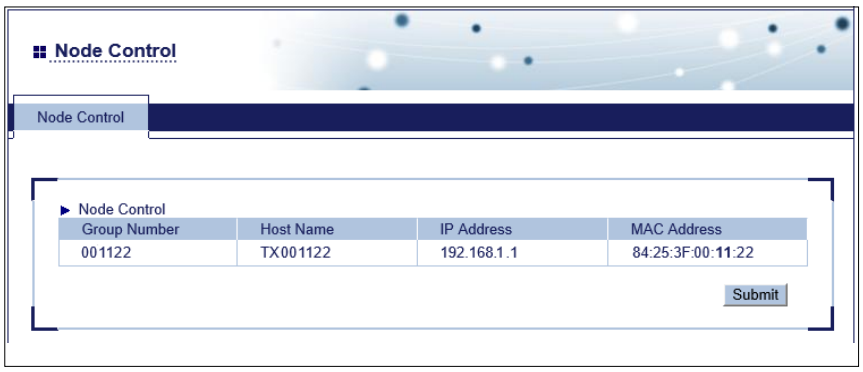
You can execute the screen auto-adjustment function for MV-500T.

(MV-500R)



You can upload screen images for MV-500R: one is displayed at the start and the other is displayed when video signals are interrupted.

■ Node Control (MV-500R only)



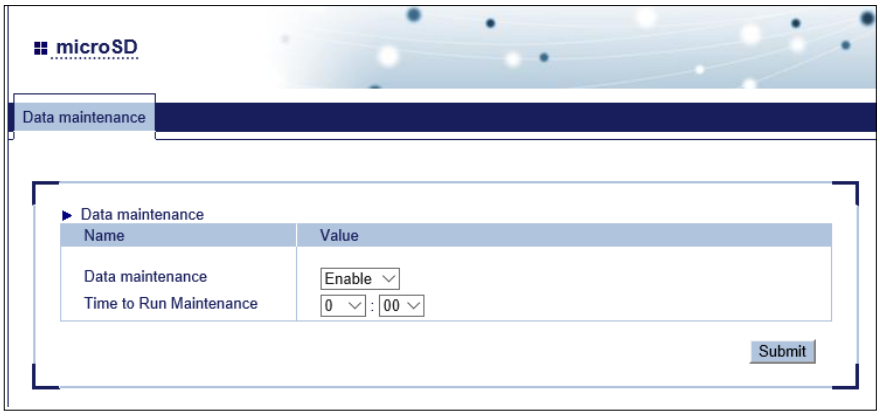
You can switch transmitters as a video source.

> **TIP**
> • This function can work only when the **Node List Method** is set to **Dynamic**. The **Static** option disables the function and does not allow you to switch transmitters.

■ Restart

Click **Yes** to restart MV-500T/MV-500R.

■ microSD (MV-500R only)

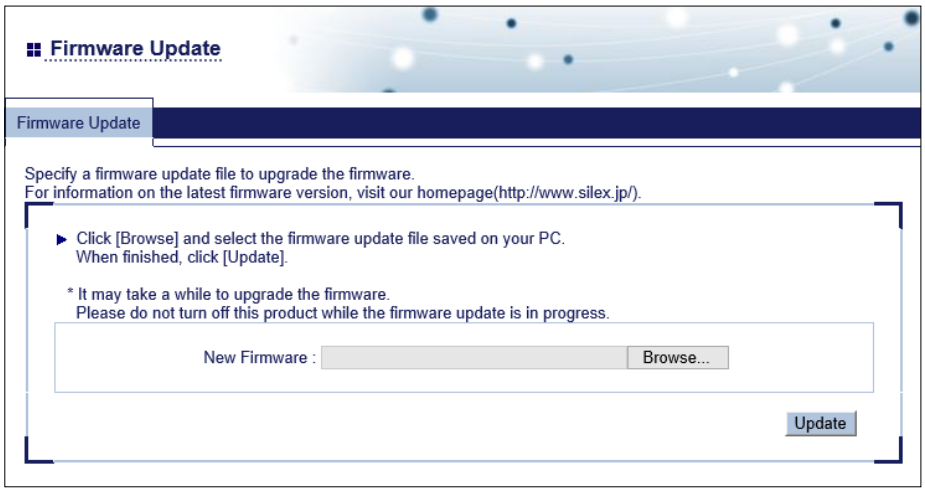


You can enable the process of safeguarding the data in the inserted microSD card.

■ Factory Default

Click **Yes** to reset MV-500T/MV-500R to the factory default settings.

■ Firmware Update



You can update MV-500T/MV-500R's firmware to the latest one available on Silex's web site. (You must download it beforehand.)
Click **Browse** and choose the firmware update file.
Click **Update** to start updating the firmware.

■ silex Global Site

Click **silex Global Site** on the left menu to open Silex's web site.

6-7. Adjusting Image Position

This chapter explains how to fix misalignment of images sent by MV-500T.

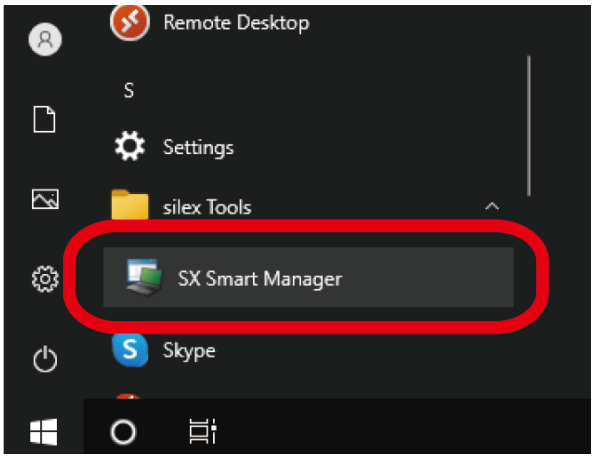
TIP

- This adjustment takes effect while MV-500T are connecting to a video source via an analog cable.
- This is only for misalignment of images. Do not go through the following steps when images are displayed in an appropriate position.

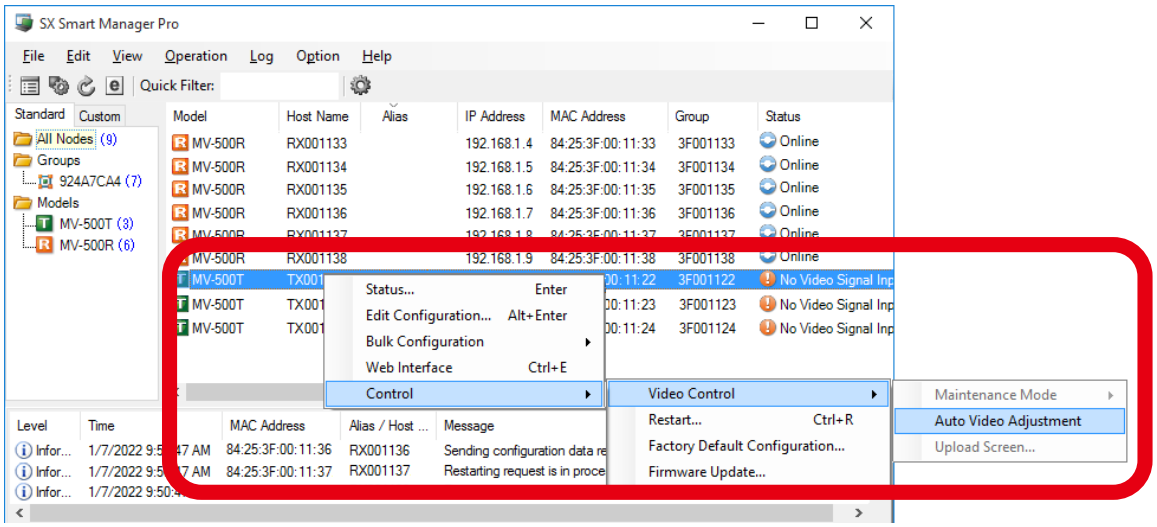
Screen Adjustment with Setting Management Software

1. Connect a video camera or PC to MV-500T by using an analog cable. Play a video (or a still image) and pause it. Display a blank white image in Full-screen mode.

2. Click **SX Smart Manager** on the start menu of the PC。



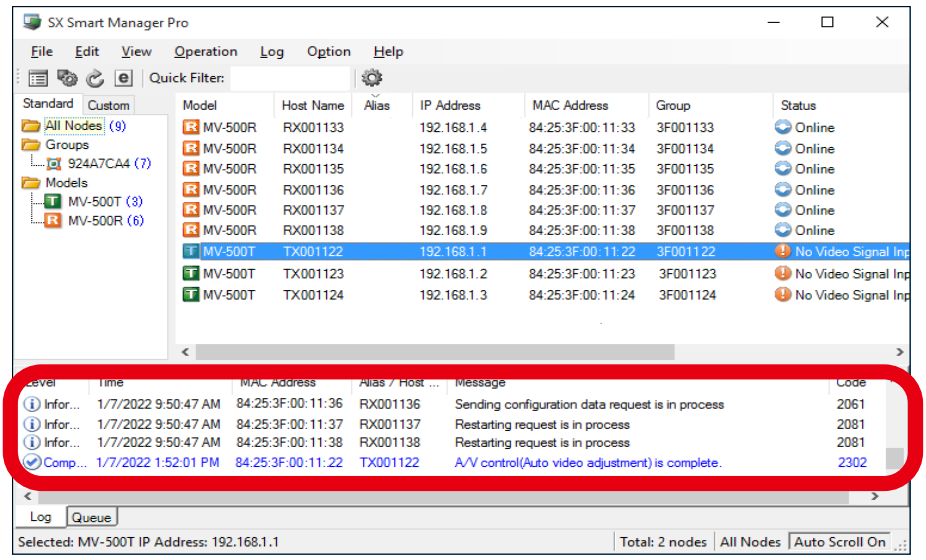
3. Choose MV-500T that you want to correct a misalignment of the images, right click and select **Control - Video Control - Auto Video Adjustment** from the menu.



Note

- You can also select **Operation** - **Control - Video Control - Auto Video Adjustment** on the menu bar to adjust the screen for the selected MV-500T.

4. When the screen auto-adjustment function ends successfully, the log/message area displays the end message.



Screen Adjustment from MV-500T Webpage

1. Connect a video camera or PC to MV-500T by using an analog cable. Play a video (or a still image) and pause it. Display a blank white image in Full-screen mode.

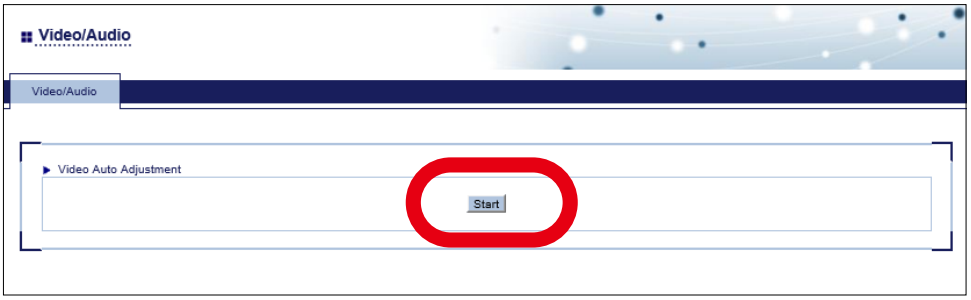
2. Access MV-500T's webpage.

Note

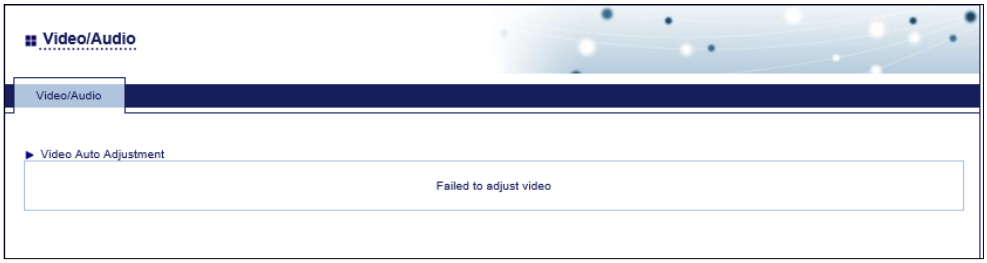
- See **How to Access Webpage** in **6-6. Maintenance in Web Interface**.

3. Click **Management - Video/Audio** on the left menu.

4. Click **Start** under **Video Auto Adjustment** to start the video auto-adjustment function.



When the video auto-adjustment function ends successfully, the following massage appears.



A. Appendix

A-1. Setting Items

Some of the setting items take effect only for MV-500T or MV-500R. In the following tables, MV-500T and MV-500R are referred to as TX and RX respectively.

Device Configuration

Host Name		TX: Yes RX: Yes	
		SX Smart Manager setting item	Basic Advanced
		Web page setting item	Basic Advanced
Description	Sets the host name.		
Value/Range	Any character string (up to 15 alphanumeric characters)		
Default value	Prefix (TX for MV-500T and RX for MV-500R) + Last 6 digits of the MAC address		

Password		TX: Yes RX: Yes	
		SX Smart Manager setting item	Basic Advanced
		Web page setting item	Basic Advanced
Description	Sets the password.		
Value/Range	Any character string (up to 7 alphanumeric characters or symbols)		
Default value	None		

(Continued) Device Configuration

Operating Mode	TX: No RX: Yes	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Gives a preference to MV-500T's data or the stored content in the microSD card.	
Value/Range	Video Distribution priority / Store & Play priority / Video Distribution only / Store & Play only	
Default value	Video Distribution priority	
Note	Video Distribution priority: Plays the received data first when MV-500R finds content to play in the microSD card and receives data from MV-500T at the same time. Store & Play priority: Plays the microSD card's content first when MV-500R finds content to play in the microSD card and receives data from MV-500T at the same time. Video Distribution only: Plays only the data received from MV-500T. The microSD card's content will not be played back. Store & Play only: Plays the only content stored in the microSD card. The received data will not be played back.	

Video/Audio	TX: Yes RX: No	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Specifies the import mode for video/audio data.	
Value/Range	Video/Audio dependent / Video only / Audio only / Video/Audio independent / Video/Audio disabled	
Default value	Video/Audio dependent	

NTP

NTP Time Synchronization	TX: Yes RX: Yes
SX Smart Manager setting item	Extra (MV-500R only)
Web page setting item	Advanced

Description	Enables/Disables the time synchronization using the NTP function.
Value/Range	Enable / Disable
Default value	Disable

NTP Server Name	TX: Yes RX: Yes
SX Smart Manager setting item	Extra (MV-500R only)
Web page setting item	Advanced

Description	Specifies the host name or IP address of the NTP server.
Value/Range	Any character string (up to 63 characters) or IP address (0.0.0.0 - 255.255.255.255)
Default value	None

Scheduled Reboot

Scheduled Reboot	TX: No RX: Yes
SX Smart Manager setting item	Extra
Web page setting item	Advanced

Description	Enables/Disables the restart function at the specified time.
Value/Range	Enable / Disable
Default value	Disable
Note	To enable this function, enable **NTP Time Synchronization** and specify **NTP Server Name** so that the system clock is synchronized with NTP. If **NTP Time Synchronization** is set to **Disable**, **Scheduled Reboot** will not be executed.

Reboot Time	TX: No RX: Yes
SX Smart Manager setting item	Extra
Web page setting item	Advanced

Description	Specifies the time for **Scheduled Reboot**.
Value/Range	0:00 - 23:50 (set by 10 minutes)
Default value	0:00

Time

Local Time Zone	TX: Yes RX: Yes	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Sets the time zone.	
Value/Range	-12:00 to +12:00 (set by one hour)	
Default value	+9:00	

System Time	TX: Yes RX: Yes	
	SX Smart Manager setting item	None
	Web page setting item	Advanced
Description	Synchronizes the system clock with time information sent by a web browser.	
Value/Range	Note: This setting item synchronizes the system clock only with time information sent by a browser, not with a fixed value.	
Default value	None	
Note	The system clock will stop when the internal battery that stores the date and time is dead after MV-500T/MV-500R is off for a long time. Until MV-500T/MV-500R is powered on and the clock battery is recharged, this System Time will keep the date and time when the battery is dead.	

Network Configuration - Wired LAN Configuration

DHCP		TX: Yes	RX: Yes
		SX Smart Manager setting item	Basic Advanced
		Web page setting item	Basic Advanced
Description	Enables/Disables DHCP for IP address assignment.		
Value/Range	Enable/Disable		
Default value	Enable		

IP Address		TX: Yes	RX: Yes
		SX Smart Manager setting item	Basic Advanced
		Web page setting item	Basic Advanced
Description	Sets the IP address.		
Value/Range	0.0.0.0 - 255.255.255.255		
Default value	0.0.0.0		

Subnet Mask		TX: Yes	RX: Yes
		SX Smart Manager setting item	Advanced
		Web page setting item	Advanced
Description	Sets the subnet mask.		
Value/Range	0.0.0.0 - 255.255.255.255		
Default value	0.0.0.0		

Default Gateway		TX: Yes	RX: Yes
		SX Smart Manager setting item	Advanced
		Web page setting item	Advanced
Description	Sets the default gateway.		
Value/Range	0.0.0.0 - 255.255.255.255		
Default value	0.0.0.0		

Common

DNS Server (Primary)	TX: Yes RX: Yes	
	SX Smart Manager setting item	Extra
	Web page setting item	Advanced
Description	Sets the primary DNS server address.	
Value/Range	0.0.0.0 - 255.255.255.255	
Default value	0.0.0.0	

DNS Server (Secondary)	TX: Yes RX: Yes	
	SX Smart Manager setting item	Extra
	Web page setting item	Advanced
Description	Sets the secondary DNS server address.	
Value/Range	0.0.0.0 - 255.255.255.255	
Default value	0.0.0.0	

Video Configuration

Video Mode Table	TX: Yes RX: No	
	SX Smart Manager setting item	Basic
	Web page setting item	Basic
Description	Gives a priority to video smoothness or image quality.	
Value/Range	Custom / Movie30 / Movie20 / Movie15 / Picture10 / Picture5 / Picture3 / Picture2 / Picture1	
Default value	Movie30	
Note	To set **Custom** in the **Basic Configuration**, the video parameters must be defined in the **Advanced Configuration**.	

Digital/Analog	TX: Yes RX: No	
	SX Smart Manager setting item	Basic Advanced
	Web page setting item	Basic Advanced
Description	Selects Digital or Analog depending on input signals from a video source.	
Value/Range	Digital / Analog	
Default value	Digital	

(Continued) Video Configuration

Analog Input	TX: Yes RX: No
SX Smart Manager setting item	Advanced
Web page setting item	Advanced

Description	Selects the mode to identify analog video signals.
Value/Range	mode1 (PC mode) / mode2 (TV mode)
Default value	mode1
Note	Difference of the modes: <mode1 (PC mode)> - Sets the screen in 640 x 480 for videos in an analog resolution of 640 x 480 or 720 x 480. <mode2 (TV mode)> - Sets the screen in 720 x 480 for videos in an analog resolution of 640 x 480 or 720 x 480.

Codec Size(KB)	TX: Yes RX: No
SX Smart Manager setting item	Advanced
Web page setting item	Advanced

Description	Sets the image size (image quality) per video frame.
Value/Range	32 to 1024 (KBytes)
Default value	168

Frame Rate	TX: Yes RX: No
SX Smart Manager setting item	Advanced
Web page setting item	Advanced

Description	Sets the frame rate for the sending videos.
Value/Range	30fps / 20fps / 15fps / 10fps / 5fps / 3fps / 2fps / 1fps
Default value	30fps

Video/Audio Recovery Level	TX: Yes RX: No
SX Smart Manager setting item	Advanced
Web page setting item	Advanced

Description	Sets a level to compensate for the network data losses in video/audio distribution. The larger value reduces video/audio lags that occur because of data losses. The smaller value reduces the latency of video/audio but may cause communication interruption in the wireless network. Leave the default value in most cases.
Value/Range	0 to 3
Default value	3

Video/Audio Configuration - Analog Resolution Configuration

H. Position	TX: Yes	RX: No
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Sets the horizontal video capture position for each resolution. The position moves to left with the smaller value and to right with the larger value.	
Value/Range	-100 to 100	
Default value	0	

V. Position	TX: Yes	RX: No
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Sets the vertical video capture position for each resolution. The position moves up with the smaller value and moves down with the larger value.	
Value/Range	-50 to 50	
Default value	0	

Clock	TX: Yes	RX: No
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Sets the sampling frequency of the video signals.	
Value/Range	-128 to 127	
Default value	0	

Phase	TX: Yes	RX: No
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Changes the clock phase that samples video signals.	
Value/Range	0 to 31	
Default value	0	

Video/Audio Configuration - Audio Configuration

Volume	TX: Yes RX: No	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Sets the audio volume (recording) level.	
Value/Range	0 (muted) to 45	
Default value	23	

Node Configuration

Node Expiration Time (sec)	TX: Yes RX: No	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Sets the time limit of disconnected nodes to return to the network.	
Value/Range	AUTO / 60 / 300 / 1800 / 3600	
Default value	AUTO	

Node List Method	TX: No RX: Yes	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Chooses the node detection method.	
Value/Range	Dynamic(Multicast) / Dynamic(Unicast) / Static	
Default value	Dynamic(Multicast)	
Note	Choosing **Static** requires the configuration of nodes from Node 0 to Node 7.	

Static Node 0 – 7	TX: No RX: Yes	
	SX Smart Manager setting item	Advanced
	Web page setting item	Advanced
Description	Specifies IP addresses for **Static Node**.	
Value/Range	0.0.0.0 to 255.255.255.255	
Default value	0.0.0.0	

Cooperation Configuration

Priority Mode	TX: No RX: Yes	
	SX Smart Manager setting item	None
	Web page setting item	Management
Description	Gives a preference to MV-500 (Prioritize School Broadcast) or a classroom access point (Prioritize Lesson) for coming video signals.	
Value/Range	Prioritize School Broadcast / Prioritize Lesson	
Default value	Prioritize School Broadcast	

How to Connect to this machine's LAN (information outlet)	TX: No RX: Yes	
	SX Smart Manager setting item	None
	Web page setting item	Management
Description	This needs to be set when the device link has been configured and the connecting device is one of Silex's classroom APs equipped with two LAN ports . You can choose either connecting MV-500R or the classroom AP to an Ethernet wall jack. This setting item is available with the firmware v1.5.0 or later.	
Value/Range	Connect directly / Connect indirectly via classroom AP	
Default value	Connect directly	

MAC address of the cooperating classroom AP	TX: No RX: Yes	
	SX Smart Manager setting item	None
	Web page setting item	Management
Description	When **How to Connect to this machine's LAN** has been set to Connect indirectly via classroom AP the specified MAC address will be searched. This setting item is available with the firmware 1.5.0 or later.	
Value/Range	00:00:00:00:00:00 - FF:FF:FF:FF:FF:FF	
Default value	00:00:00:00:00:00	

Data maintenance

Data maintenance		TX: No RX: Yes
	SX Smart Manager setting item	None
	Web page setting item	Management
Description	Enables/Disables the data safeguarding function that reduces data loss for microSD card. This setting takes effect after a restart.	
Value/Range	Enable/Disable	
Default value	Enable	

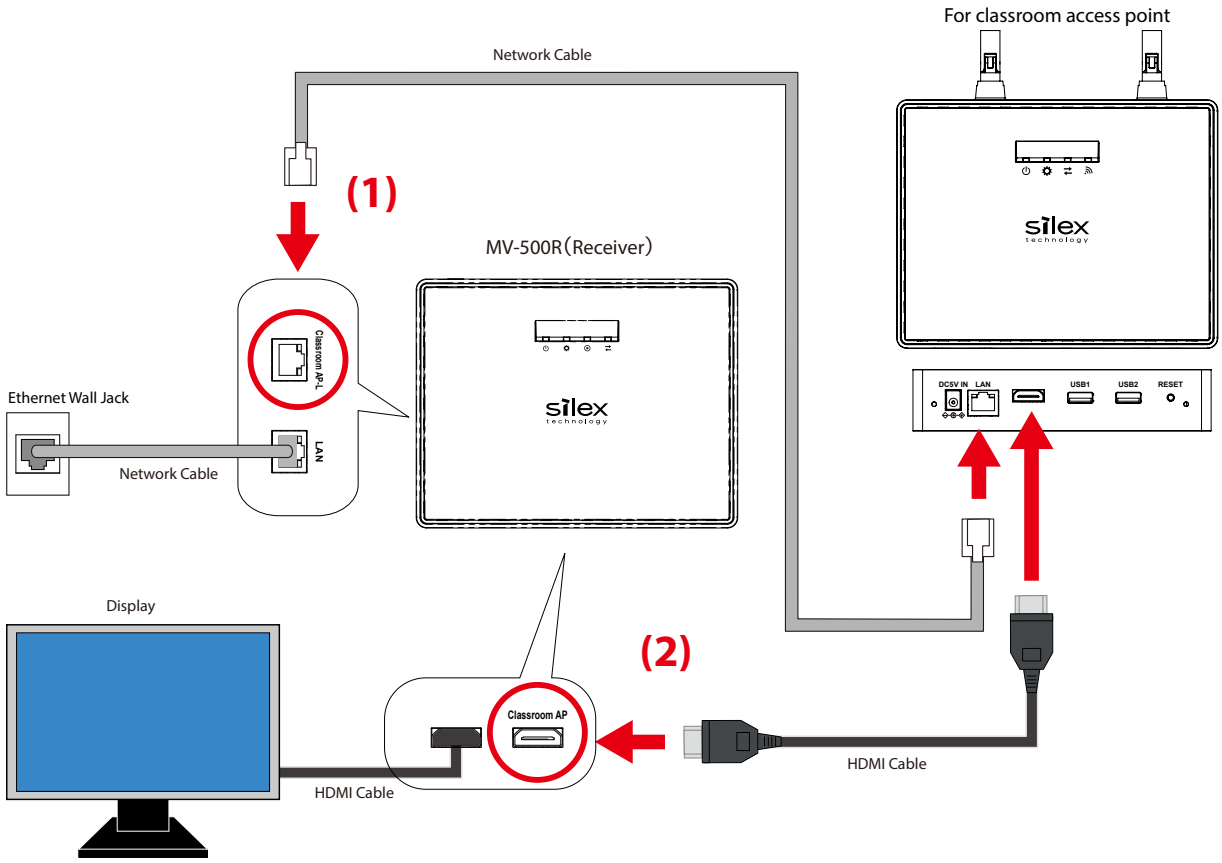
Time to Run Maintenance		TX: No RX: Yes
	SX Smart Manager setting item	None
	Web page setting item	Management
Description	Specifies the time for the data safeguarding process. This setting takes effect after a restart.	
Value/Range	0:00 - 23:50 (Set by 10 minutes)	
Default value	0:00	

A-2. Link with Classroom Access Point

MV-500R can be linked with Silex's classroom access points. See Silex's web site (https://www.silextechnology.com/) for what models are supported.

How to Connect Classroom Access Point

Connect a classroom access point to MV-500R as the following diagram shows. Insert one end of a network cable into MV-500R's **Classroom AP-L** network port, and the other end into the access point's LAN port. Insert one end of an HDMI cable into MV-500R's **Classroom AP HDMI** connector, and the other end into the access point's HDMI port.



TIP

- MV-500R and the classroom access point must be connected with an HDMI cable and a network cable, otherwise the display cannot show videos from the access point.

Display Priority

The priority is given to videos sent from the school AV broadcast system. When multicast real-time streaming data arrives or the Program Preset Function plays a scheduled program while MV-500R is playing images sent from a classroom access point, it will display videos from the school AV broadcast system.

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