Auto Tracking Software Operation Manual

Introduction

Auto Tracking Software is application software that runs on a Windows PC.

By operating this software on a PC to which a Panasonic remote camera is connected, tracking of persons shot by the remote camera can be assisted.

Main Functions

The main functions of this software are as described below.

1. Tracking assist for tracking target

The tracking of a person selected from the images shot by the remote camera can be assisted.

A stable tracking operation can be performed by the face authentication function that detects the face of the set person and the human body detection by deep learning.

2. Auto detection of tracking target

The face or movement of a person in the images shot by the remote camera can be detected automatically and tracked.

3. Setting the display position of the tracking target

You can set the position on the screen on which the tracking target is to be displayed.

4. Setting the Zoom magnification during tracking

The zoom magnification of the camera image during tracking can be set.

5. PTZ control of the remote camera

Pan/Tilt control and Zoom position control can be performed for the remote camera.

The limitation of the working range of Pan/Tilt can be set or canceled.

6. Registering/calling the remote camera preset

The Pan/Tilt/Zoom position of the remote camera can be registered or called as a preset.

Configuration of the Software

This software is available in two versions, namely, the standalone version that is to be used on a single PC, and the Web application version that is to be used on a combination of a server PC and a client PC. You may install either of these according to your operating environment.

<Notes>

• This is paid software.

To enable you to test the functions of the software, we offer a trial period of 30 days from the day of start of the trial of this software. Therefore, you can use it for free during this period, but you must purchase the key code (license) after the expiry of the trial period, and activate the software.

For details on how to activate the software, see the section on activation in this manual.

Caution

• This software detects and tracks a single target, such as the lecturer of a lecture recording, and does not track a single target among several targets, and is also not meant to be used when there are several moving objects within the camera angle.

• Since this software uses image processing, the target may be wrongly detected. In order to deal with situations where the target is wrongly detected, use this software in an environment in which the correction task can be performed by the operator.

• Depending on the shooting environment (camera angle, distance, and speed), the camera may not be able to track the target (the tracking target may be lost). In order to deal with situations where the target is lost, use this software in an environment in which the correction task can be performed by the operator.

Operating Environment

The below-mentioned environment is necessary for using this software:

●Required Spec

CPU: Core i5-3320M (2.60 GHz) or above

Memory: 4 GB or above

Display: 1600 x 900 or above

OS: Windows 7 Professional (SP1), Ultimate (SP1) 32 bit/64 bit

Windows 8.1 32 bit/64 bit

Windows 10 32 bit/64 bit

●Recommended Spec

    CPU: Core i7-4710MQ (2.50 GHz) or above

    Memory: 8 GB or above

    Display: 1920 x 1080 or above

    OS: Windows 7 Professional (SP1), Ultimate (SP1) 64 bit

        Windows 8.1 64 bit

        Windows 10 64 bit

    In case of human body detection by deep learning

    NVIDIA GPU

     Pascal architecture

       NVIDIA GeForce GTX 1050Ti or higher

       NVIDIA Quadro P2000 or higher

     Turing architecture

       NVIDIA GeForce RTX 2060 or higher

    Or

    Core i 7 CPU with more than 4 physical cores

   * If using a GeForce RTX for the GPU, please use Windows 10 for the operating system.

● Web browser (only Web application version)

     Google Chrome

●Remote camera

    Panasonic remote camera

      AW-UE150

      AW-UE70

      AW-HE130

      AW-HE40

      AW-HE42

<Notes>

  • If you are using the Web application version, you must install Google Chrome. You may download and install it from the Google Website.

  • Use the latest version of the remote camera firmware. You can download the firmware from the following Website:

    http://pro-av.panasonic.net/en/

  • Panasonic recommends a wired network connection between the PC and remote camera.
   In the case of a wireless connection, sufficient tracking performance may not be achieved.

  • When using GPU for human body detection through deep learning, you must install CUDA Toolkit in the server pc.

    When using a GPU with Pascal architecture, please download and install CUDA Toolkit 8.0 from the website below.

     https://developer.nvidia.com/cuda-80-ga2-download-archive

When using a GPU with Turing architecture, please download and install CUDA Toolkit 10.1 from the website below.

https://developer.nvidia.com/cuda-10.1-download-archive

About the Descriptions in this File

- The illustrations and screen displays in this file may be different from those in reality.

- In this file, a personal computer is mentioned as a "PC".

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Description of Screens

View Screen

The View screen shown below appears when you start this software.

The View screen is configured by the following four areas and displays the list of registered remote cameras together with information such as thumbnails, etc.

- View/Main common part
- Camera list display control part
- Camera list display
- Camera controller (when display is ON)
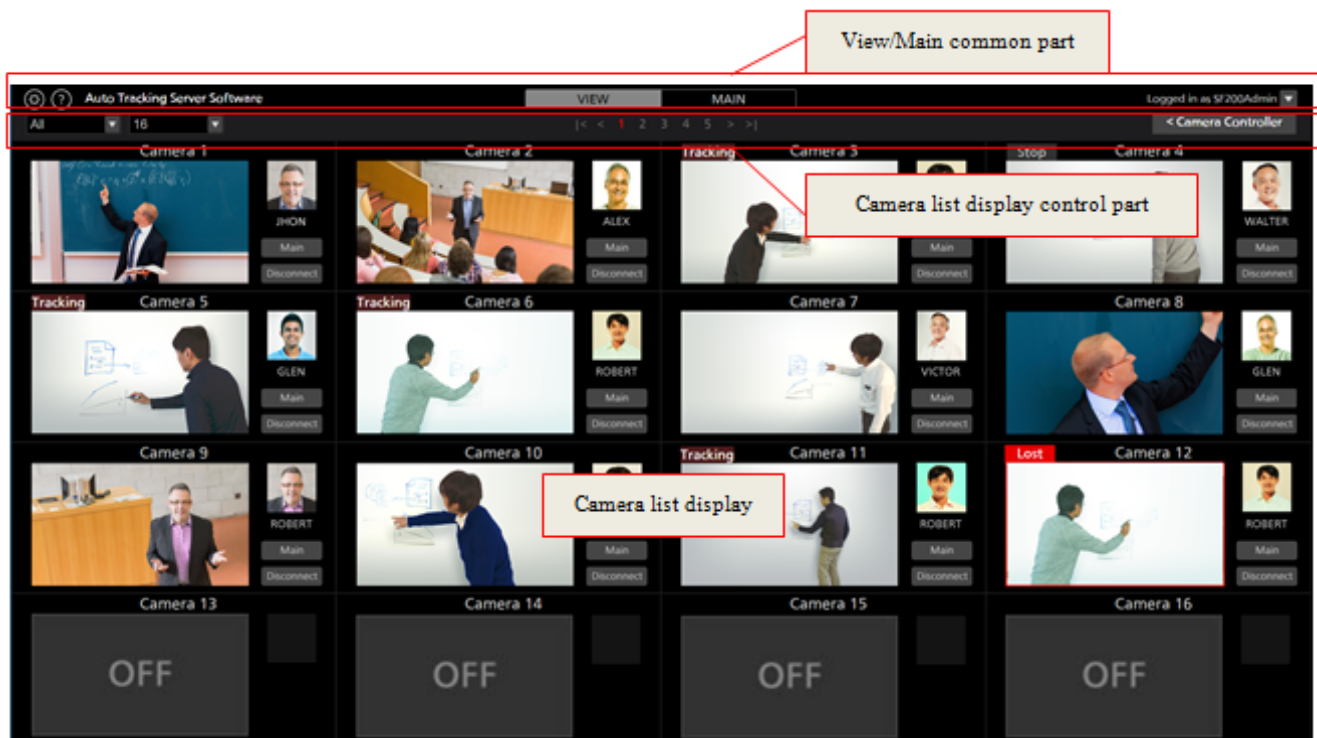
View screen (Camera controller display OFF)
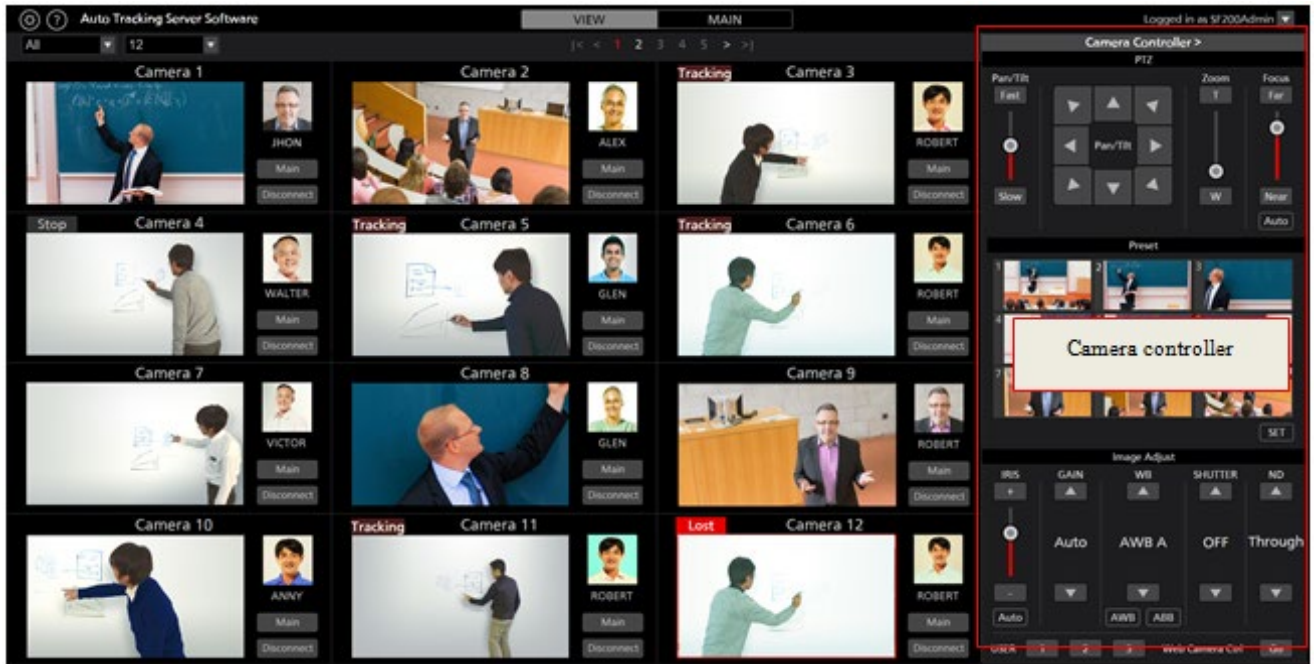
View screen (Camera controller display ON)

• View/Main common part

The display of the top part of the screen is common in both View screen and Main screen.

①**Settings button**

Used to move to the Settings screen.

②**Help button**

Used to display the help file (this document) under another tab of the Web browser.

③**View/Main selection tab**

Used to switch between the View screen and Main screen.

④**Logout/Version menu**

Click ▼ to view the menu described below.

Logout: Used to log out from this software and return to the login screen.

Version: Used to view the version information of this software.

• Camera list upper part

Buttons are arranged in the upper part of the camera list display for switching the list display.

①**List for selecting the display count from the list of cameras**

The number of cameras to be displayed per page is changed from a drop-down list.

②**Page selection button**

Used to select a page in the camera list display.

③**Show/hide camera controller selection button**

Used to show or hide the camera controller.

• **Camera list display**

Display contents of each camera in the camera list display. The background of the selected camera appears in red color.

① **Status display**

Displays the status of the camera.

Lost: This is the state in which the tracking target has been lost

Tracking: This is the state during tracking

Stop: This is the state prior to the start of tracking

Disconnect: This is the state in which a connection has not been established with the camera

② **Camera name display**

Displays the name of the registered camera.

③ **Thumbnail image display**

Displays the thumbnails of camera images.

If the camera is not found (the power is OFF, or the camera is not connected to the network, etc.), "OFF" is displayed.

④ **Tracking target face image display**

Displays the face image of the person selected as the tracking target.

⑤ **Tracking target name display**

Displays the name of the person selected as the tracking target.

⑥ **Main screen display button**

Used to switch to the Main screen.

⑦ **Connect/Disconnect button**

Used to connect or disconnect the remote camera.

• **Camera controller**

The camera controller provides various operating functions of the camera. The camera selected in the camera list display is the operating target.

For details on the operating method, refer to the "Operation of the Camera Controller" section of this manual.

①**PTZ control part**

You can perform Pan/Tilt/Zoom control for the remote camera.

②**Focus control part**

You can perform Focus control for the remote camera.

③**Preset control part**

You can perform Preset control for the remote camera.

④**Image Adjust part**

You can adjust the images shot by the remote camera.

⑤**USER button**

This button does not function in the current version.

⑥**Web Camera Ctrl button**

Click the Go button to open the Web management screen of the remote camera on the Web browser.

Main Screen

If you click the Main tab at the top of the screen, the Main screen appears.

The Main screen is configured by the following three areas:

    • Camera list display

    • Tracking operation area

    • Camera controller

Main screen

• Camera list display

In the camera list display area of the Main screen, each camera is arranged vertically.
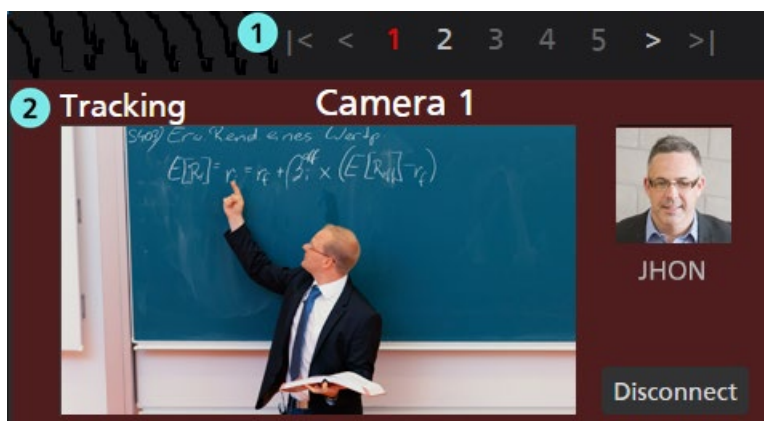
①**Page selection button**

    Used to select a page in the camera list display.

②**Camera list display**

    Displays the status of each camera.

This area is same as that on the View screen except that the Main button does not exist.

• **Tracking operation area**

The buttons for performing the tracking operation are arranged in this area. The camera selected in the camera list display is the operating target.

①**Camera name**

Displays the registered name of the camera for which operations are to be performed.

The background becomes red in color if the tracking target is lost out of sight.

②**Camera image**

The image acquired from the remote camera is displayed.

③**Tracking target display**

This is a rectangular display that shows the tracking target.

・When the tracking method is Template matching

The blue-framed rectangle shows the position of the tracking target.

Also, if the face of the tracking target is detected, a yellow-framed rectangle is displayed.

No frame is displayed if a tracking target does not exist, or if the tracking target is lost sight of.

・When the tracking method is Deep Learning (CPU) or Deep Learning (GPU)

The blue-framed rectangle shows the position of the tracking target and the red-framed rectangle shows the detected human.

Also, if the face of the tracking target is detected, a yellow-framed rectangle is displayed.

No frame is displayed if a tracking target does not exist, or if the tracking target is lost sight of.

④**Mask area setting slider**

Used to set the mask area (the area that is not used during detection within the camera images) when detecting the tracking target.

The area can be set at both the top and bottom of the screen.

⑤**Tracking Start/Stop button**

This button is used to set whether to perform the Pan/Tilt operation of the remote camera if a tracking target exists.

ON (red color):

The Pan/Tilt operation is performed in accordance with the movement of the tracking target.

OFF (gray color):

The Pan/Tilt operation is not performed.

⑥**Tracking setting button**

Click to view the Tracking Setting window.

⑦**Face Recognition ON/OFF button**

This button is used to set the operation of the face recognition function.

ON (red color):

The face recognition function is used.

A process is performed for comparing the face of the person that is set as the recognition source and the face detected in the camera images, and only the face determined to be of the same person is set as the target of the tracking process.

If the recognition source has not been set, all faces detected in the camera images are set as the target of the tracking process regardless of whose face it is.

OFF (gray color):

The face recognition function is not used.

⑧**Face setting display**

The face photograph and name of the person set as the recognition source of face recognition is displayed.

⑨**Select Face button**

Used to display the Select Face window.

In the Select Face window, you can select the face data to be used as the recognition source of face recognition.

⑩**Auto Face Search checkbox**

When checked, a comparison process is performed between the face of the person registered for face authentication and the face detected in the camera video. When any person is detected, the person is set as a target of the tracking process.

⑪**Add Face button**

The Add Face screen for registering the face data for face authentication is displayed.

⑫**Target Position Set button**

Used to set the operation when a camera image is left-clicked.

ON (red color):

When you left-click the camera image, the display position of the tracking target changes to the clicked position.

OFF (gray color):

When you left-click the camera image, the object that exists at that position is set as the tracking target.

⑬**Angle specification button**

This button specifies the angle of view during tracking.

Upper Body :

Sets the angle of view so that the part of the body of the tracking target above the chest is displayed.

Full Body :

Sets the angle of view so that almost the entire body of the tracking target is displayed.

Full :

Sets the angle of view so that the tracking target and its surroundings are displayed.

OFF :

Retains the current angle of view.

⑭**Pan/Tilt Limitation ON/OFF button**

This button is used to set the Pan/Tilt limitation of the camera. The limitation in each direction can be set to ON/OFF with the use of the four Top/Bottom/Left/Right buttons.

• **Camera controller**

The function is same as that on the View screen.

• **Tracking Setting window**

This window appears when you click the Setting button in the Tracking field of the Main screen.

You can make settings regarding the tracking operation in this window.
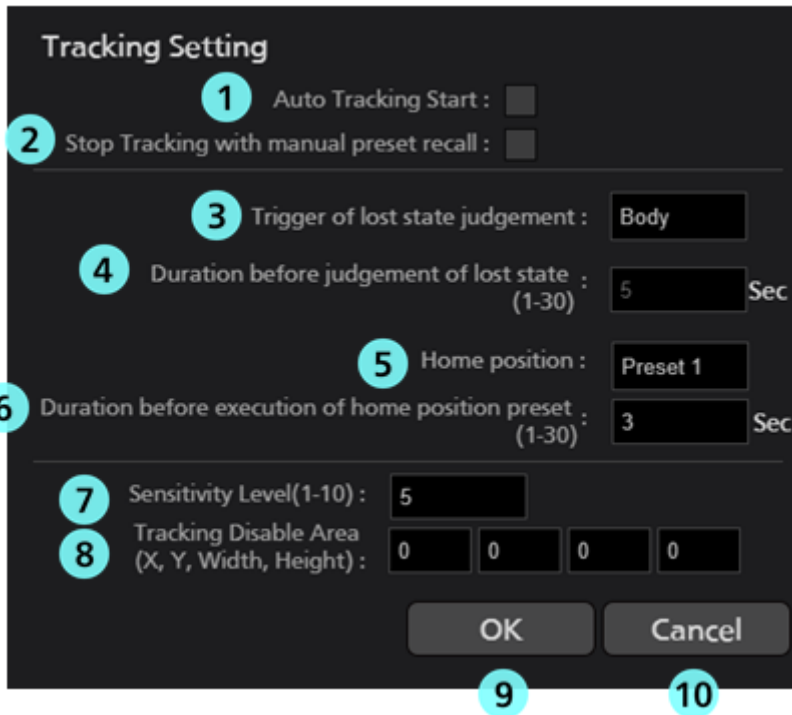
①Auto Tracking Start

Set the operation to be performed when the tracking target is detected.

If the check mark is ON, the tracking operation of the camera starts automatically when the tracking target is detected.

②Stop Tracking with manual preset recall

Sets the operation to be performed when a preset is called.

If the check mark is ON, tracking operation is stopped when a preset is called.

③Trigger of lost state judgement

Sets the subject for lost state judgment.

Body:

Triggers lost state judgment when no body is detected.

Face:

Also triggers lost state judgment when no face is detected for a specified time even after a body has been detected.

④Duration before judgement of lost state

Sets the time (in seconds) before the judgment of lost state is made after a face is no longer detected when Face is selected in trigger of lost state judgement.

You can set a value in the range of 1 to 30.

⑤Home position

Set the operation to be performed when the tracking target is lost.

NONE:

The camera position remains the same after the tracking target is lost.

Preset 1 to Preset 9:

When the stipulated time elapses after the tracking target is lost, the camera position is returned to the specified preset position.

⑥**Duration before execution of home position preset**

When the Home position is set to Preset 1 to Preset 9, set the time (secs.) from when the tracking target is lost until when the camera position is returned to the preset position.

You can set a value in the range of 1 to 30.

⑦**Sensitivity Level**

Set the sensitivity of the tracking operation of the camera with respect to the movement of the tracking target as a value in the range of 1 to 10.

The higher the value, the higher the sensitivity.

⑧**Tracking Disable Area**

Set the area in which the tracking operation of the camera is not to be performed.

You can set the width up to 640 and the height up to 360.

The camera does not perform the tracking operation when the tracking target moves inside the area set here.

This area can also be set by right-clicking on the camera image and dragging.

When canceling the setting, right-click outside the range of the camera image.

⑨**OK button**

Used to enable the setting and close the window.

⑩**Cancel button**

Used to cancel the setting and close the window.

• **Select Face window**

This window appears when you click the Select Face button on the Main screen.

On this window, you can set the face of the person that is the tracking target.
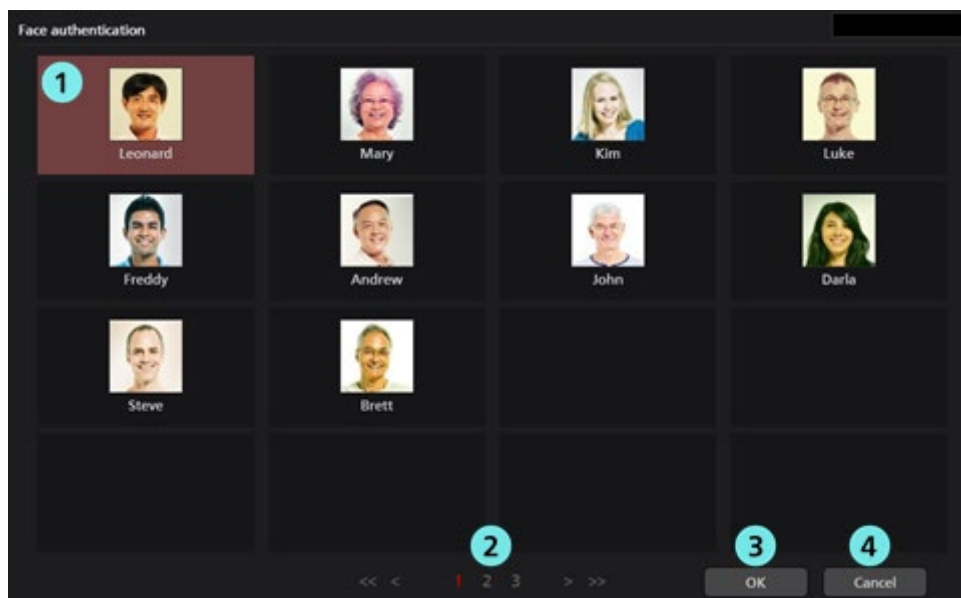
①**Face data list display**

This is a list of the registered face data.

You can select or cancel the face data by clicking. The background of the selected face data appears in red color.

②**Page selection button**

You can select a page in the face data list display.

③OK button

Used to enable the setting and close the window.

④Cancel button

Used to cancel the setting and close the window.

Settings - Camera Screen

This screen is used to make the settings of the remote camera used in this software.

Click the Settings button at the top left of the screen, and then click the Camera tab at the center of the screen to move to this screen.

For details on the remote camera settings, refer to "Default Settings - Remote Camera Installation Settings" in this manual.
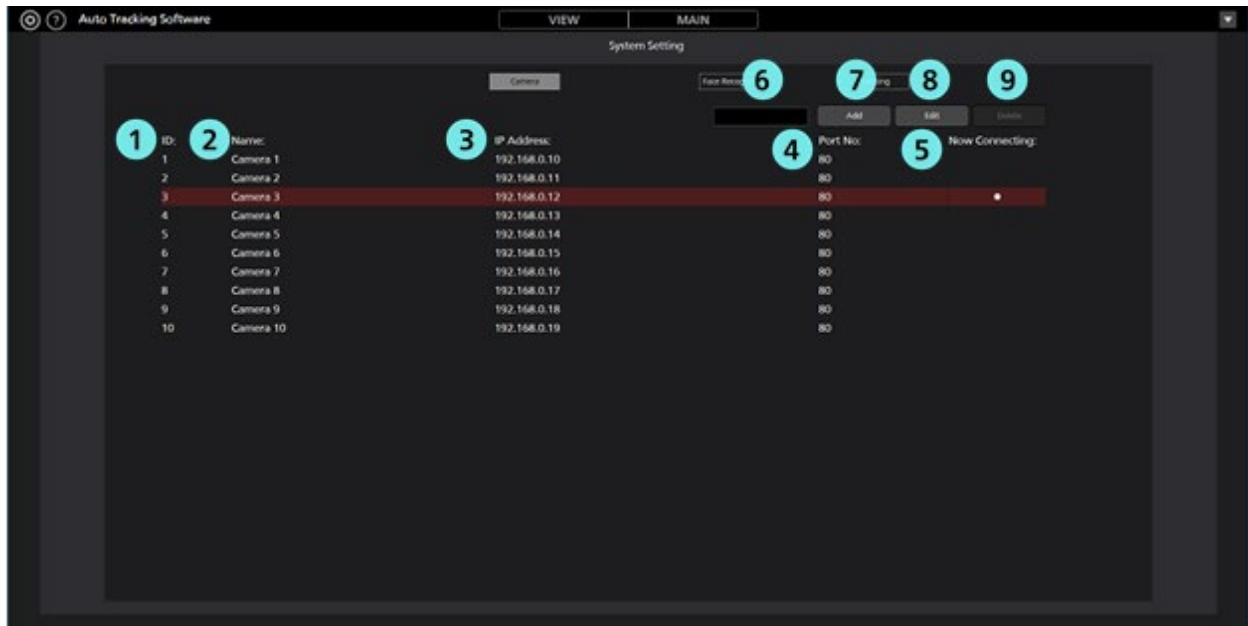
①ID

Displays the registration number of the registered camera.

②Name

Displays the name of the registered camera.

③IP Address

Displays the IP address of each camera.

④Port No.

Displays the port number that each camera uses for communication.

⑤Now Connecting

A ● mark is displayed for the camera to which a connection is being established.

⑥Search box

Used when searching the camera by name.

If you enter a string, only the cameras that include the string in the name are displayed in the list.

To return the display to the original display, clear the entered contents.

⑦Add button

Used to move to the Register Camera screen.

⑧Edit button

Used to move to the Edit Camera screen.

⑨**Delete button**

Used to delete the selected camera.

<Note>

You cannot delete a camera to which a connection is being established.

You cannot delete a camera registered in categories.

• **Register/Edit Camera screen**

The display moves to this screen when you click the Add button/Edit button.

You can register a new camera and edit already-registered camera information.

①**Name**

Enter any optional remote camera name.

②**IP Address**

Enter the IP address of the remote camera.

③**Port No.**

Enter the port number that the remote camera uses for communication.

④**Login**

Enter the user name of the remote camera.

⑤**Password**

Enter the password of the remote camera.

⑥**Height**

Set the height at which the remote camera is installed in cm/feet.

⑦**Distance**

Set the distance from the position where the remote camera is installed up to the position where the tracking target mainly exists in cm/feet.

⑧**Max Zoom**

Set the maximum Zoom magnification of the remote camera.

You can set a value in the range of 0 to 100.

⑨**Angle Zoom (Upper Body)**

Set the Zoom magnification when Upper Body is selected in the Angle specification of the Main screen.

You can set a value in the range of 0 to 100.

The set Zoom magnification is enabled only when Auto check is OFF. When the Auto check is ON, the Zoom magnification is decided automatically from the value of Height and Distance.

⑩**Angle Zoom (Full Body)**

Set the Zoom magnification when Full Body is selected in the Angle specification of the Main screen.

You can set a value in the range of 0 to 100.

The set Zoom magnification is enabled only when Auto check is OFF. When the Auto check is ON, the Zoom magnification is decided automatically from the value of Height and Distance.

⑪**Angle Zoom (Full)**

Set the Zoom magnification when Full is selected in the Angle specification of the Main screen.

You can set a value in the range of 0 to 100.

The set Zoom magnification is enabled only when Auto check is OFF. When the Auto check is ON, the Zoom magnification is decided automatically from the value of Height and Distance.

⑫**Auto Search button**

When you click this button, the list of cameras present on the network is displayed.

When you select any one camera from the list and then close the window by clicking the OK button, values are entered automatically for some items.

⑬**Image Capture Type**

You can select the image acquisition method from the camera.

JPEG: Images are acquired by JPEG images.

H.264: Images are acquired by H.264 stream.

⑭**OK button**

Used to apply the settings and return to the Camera screen.

⑮**Cancel button**

Used to cancel the settings and return to the Camera screen.

Settings – Face Recognition Screen

This screen is used to make face data settings of the person, who is the tracking target.

Click the Settings button at the top left of the screen, and then click the Face Recognition tab at the center of the screen to move to this screen.

For details on the face data settings, refer to "Data Settings for Face Recognition" in this manual.
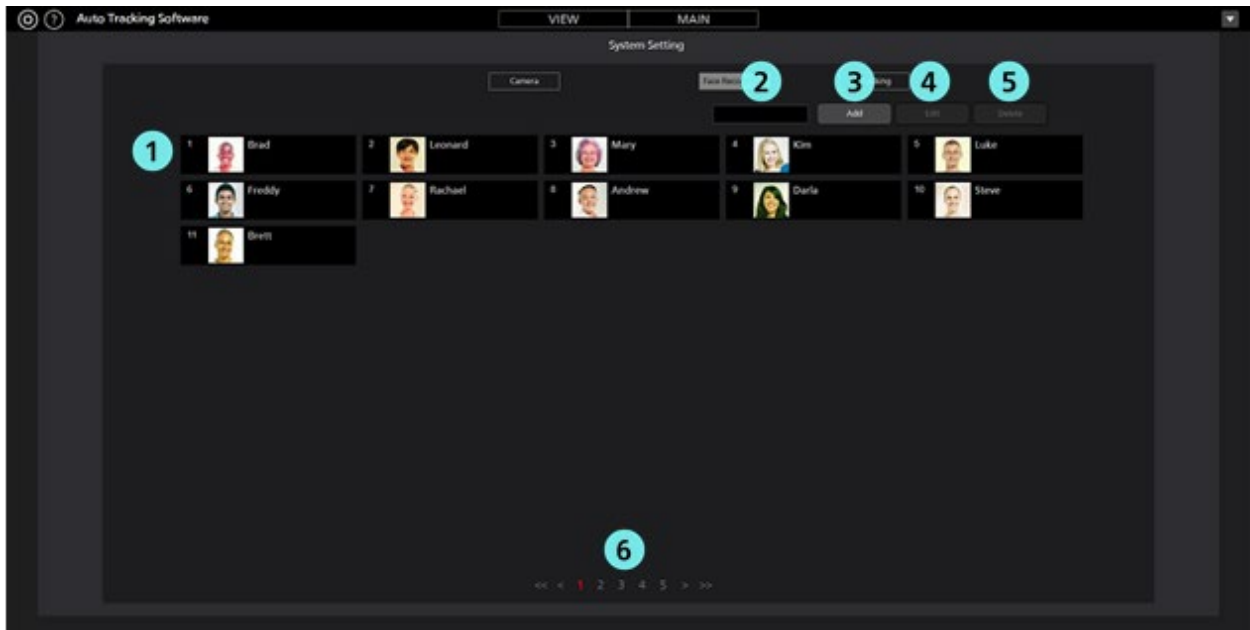
①**Face data list display**

Displays the list of registered face data.

②**Search box**

Used when searching the face data.

If you enter a string, only the face data that includes the string in the name is displayed in the list.

To return the display to the original display, clear the entered contents.

③**Add button**

Used to move to the Register Face Data screen.

④**Edit button**

Used to move to the Edit Face Data screen.

⑤**Delete button**

Used to delete the selected face data.

You cannot delete the face data that is set as the tracking target in any remote camera.

⑥**Page selection button**

Used to select the page to be displayed.

• **Register/Edit Face Data screen**

The display moves to this screen when you click the Add button/Edit button.

You can register new face data and edit already-registered face data.
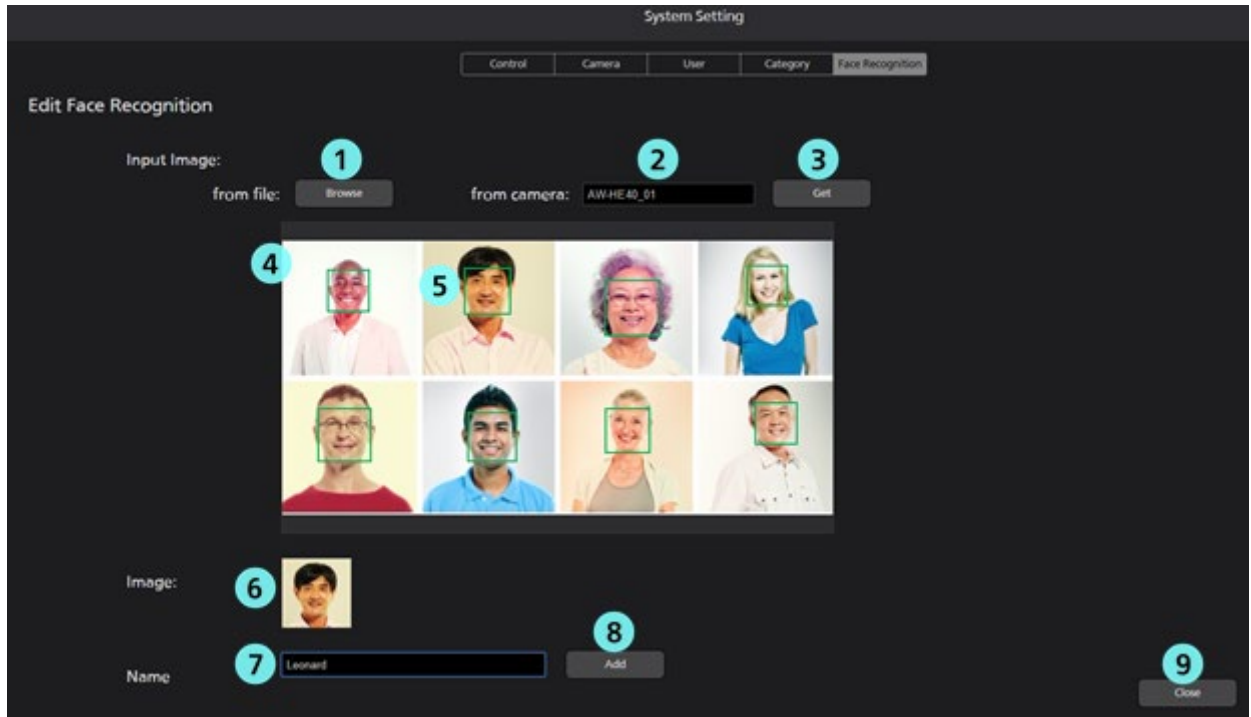
①Browse button

If you click this button, a Select Image dialog box appears, and you can import an existing JPEG image.

②Camera selection box

Select the target camera for capturing the images. Only the connected cameras are displayed in the list.

③Get button

If you click this button, the images from the camera selected in the camera selection box are captured and imported.

④Image display area

The images imported through the operation of the Browse button or Get button are displayed.

⑤Face detection display frame

When a face is detected in an imported image, a frame appears around the face.

If you click the frame, the face is selected as the target.

⑥Face image display

The image of the selected face appears.

⑦Name input field

Enter the registered name of the selected face.

⑧Add button

If you click this button, the image and name of the selected face are registered.

⑨Close button

Click this button to return to the Face Recognition screen.

Settings – Tracking Screen

This screen is used to set the tracking method.

Click the Settings button at the top left of the screen, and then click the Tracking tab to move to this screen.

For details on the face data settings, refer to "Default Settings - Setting tracking method" in this manual.
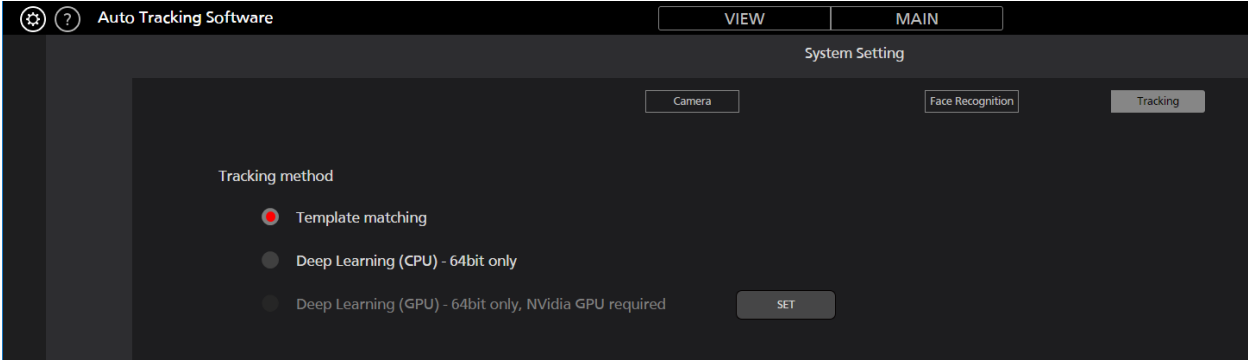
Default Settings

Remote camera main unit setting

Before using this software, make settings on the remote camera main unit.

As a method of acquiring images from remote cameras, it is possible to select either acquisition by JPEG image or acquisition by H.264 stream.

When using acquisition by JPEG image, set the [Image capture type] to JPEG on the [Settings – Camera] screen of this software.

When using acquisition by H.264 stream, set the [Image capture type] to H.264 on the [Settings – Camera] screen of this software.

• Setting of AW-UE150

  Tracking performance is higher when using acquisition with JPEG image.

  - When acquiring images with JPEG images

    Change [Setup] -> [Video over IP] -> [JPEG (1)] to the following settings on the web page of the camera.

      Image capture size: 1280 x 720 or higher

      Refresh interval: 15 fps or higher (NTSC), 12.5fps or higher (PAL)

  - When acquiring images with H.264 stream

    Change [Setup] -> [Video over IP] -> [H.264 (1)] to the following settings on the web page of the camera.

      H.264 transmission:　On

      Image capture size:　1280 x 720 or higher

      Transmission priority :　Frame rate

   Frame rate:　15 fps or higher (NTSC), 12.5fps or higher (PAL)

• Setting of AW-HE130

  Tracking performance is higher when using acquisition with H.264 stream.

  - When acquiring images with JPEG images

    Set each item as follows on the web page of the camera.

      Initial display settings for "Live" page

Stream: JPEG(1)

Refrash interval (JPEG) : 15 fps or higher (NTSC), 12.5fps or higher (PAL)

JPEG(1)

JPEG transmission: On

Image capture size: 1280x720

H.264(1)

H.264 transmission: Off

H.264(2)

H.264 transmission: Off

H.264(3)

H.264 transmission: Off

H.264(4)

H.264 transmission: Off

- When acquiring images with H.264 stream

Change [Setup] -> [Image / Audio] -> [H.264 (1)] to the following settings on the web page of the camera.

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority :   Frame rate

• Setting of AW-UE70 / AW-HE42

Tracking performance is higher when using acquisition with JPEG image.

- When acquiring images with JPEG images

Change [Setup] -> [Image / Audio] -> [JPEG (1)] to the following settings on the web page of the camera.

Image capture size: Priority Mode setting is IP: 1280 x 720

When priority mode is set to other than IP mode: 640 x 360

Refresh interval: 15 fps or higher (NTSC), 12.5fps or higher (PAL)

Image quality: Normal

- When acquiring images with H.264 stream

Change [Setup] -> [Image / Audio] -> [H.264 (1)] to the following settings on the web page of the camera.

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority :   Frame rate

Frame rate: 15 fps or higher (NTSC), 12.5fps or higher (PAL)


• Setting of AW-HE40

Tracking performance is higher when using acquisition with JPEG image.

- When acquiring images with JPEG images

Change [Setup] -> [Image / Audio] -> [JPEG (1)] to the following settings on the web page of the camera.

Image capture size: Priority Mode setting is IP: 1280 x 720

When priority mode is set to other than IP mode: 640 x 360

Refresh interval: 15 fps or higher (NTSC), 12.5fps or higher (PAL)

Image quality: Normal

- When acquiring images with H.264 stream

Change [Setup] -> [Image / Audio] -> [H.264 (1)] to the following settings on the web page of the camera.

H.264 transmission:　On

Image capture size:　1280 x 720 or higher

Transmission priority :　Frame rate

Frame rate:　15 fps or higher (NTSC), 12.5fps or higher (PAL)

Remote Camera Installation Settings

During initial startup of this software, make the installation settings of the remote camera.

1. Start this software.

2. The View screen appears. Click the Settings button at the top left of the screen.
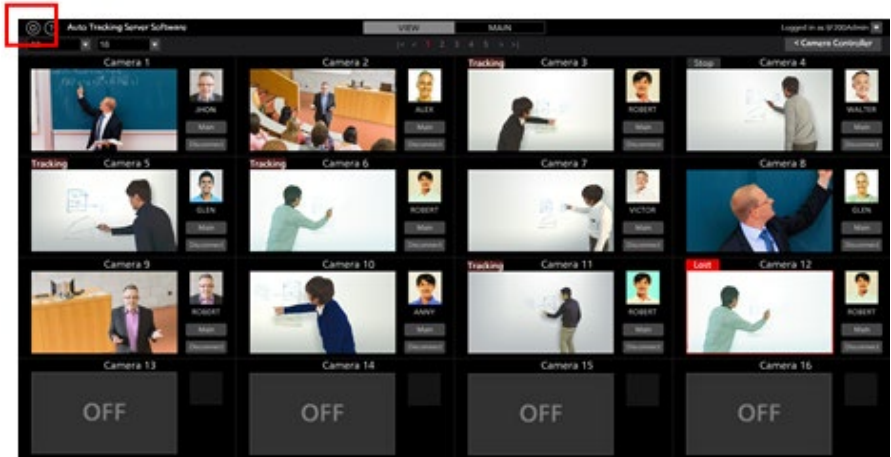
3. Click the Camera tab in the center of the Settings screen.
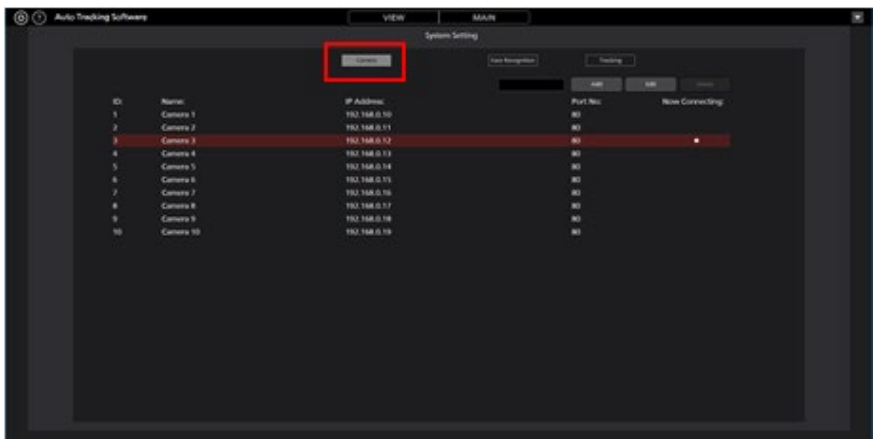
4. Make the settings of the camera.

   Perform the registration task described below as many times as the number of cameras.

   (1) Click the Add button to move to the Register Camera screen.
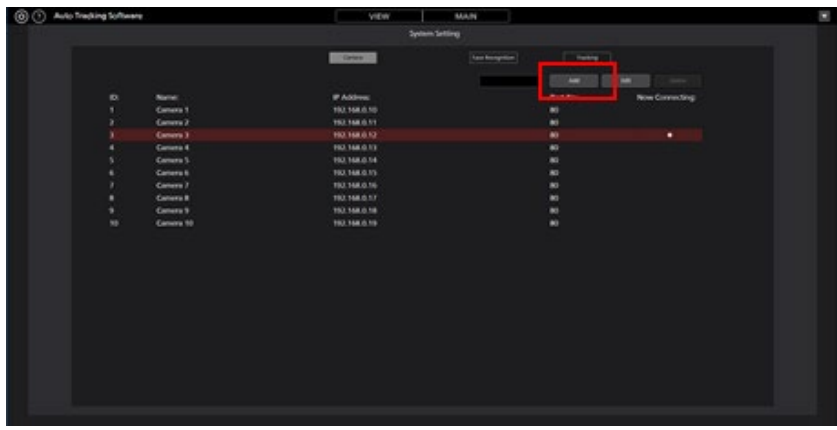
(2) Make an entry in the following items.

You can make an entry in the items either manually, or automatically by searching the camera.

Name: Name of the camera

IP Address: IP address of the camera

PortNo: Port number used by the camera (the default value is 80)

Login: Camera account

Password: Camera password

Height: Camera installation height

Distance: Camera installation distance

• When an entry is made manually

Move to the box of each item and enter the value.

• When an entry is made automatically

When you click the Auto Search button, the list of cameras present on the network is displayed.

When you select any one camera from the list and then close the window by clicking the OK button, values are entered automatically for some items.

(3) Click the OK button to complete registration.

Setting tracking method

You can set the tracking method to be used with this software.

1. Click the Settings button at the top left of the screen.
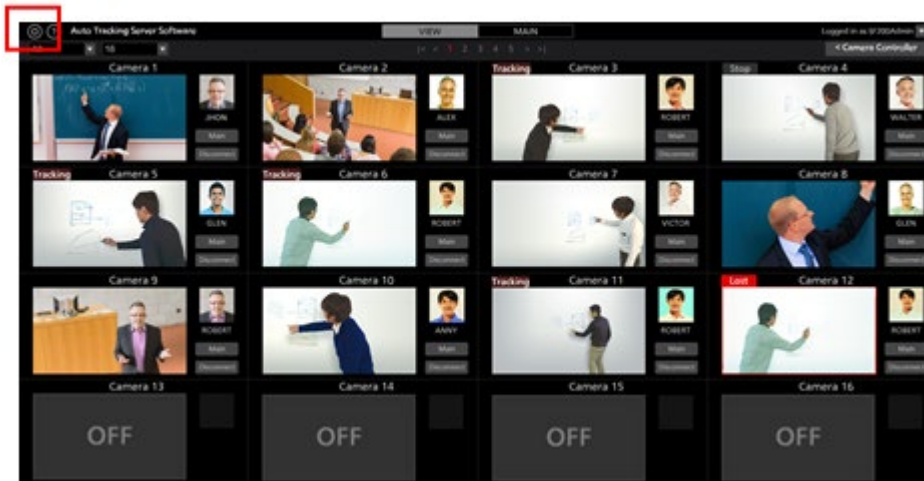
2. Click the Tracking tab in the Settings screen.
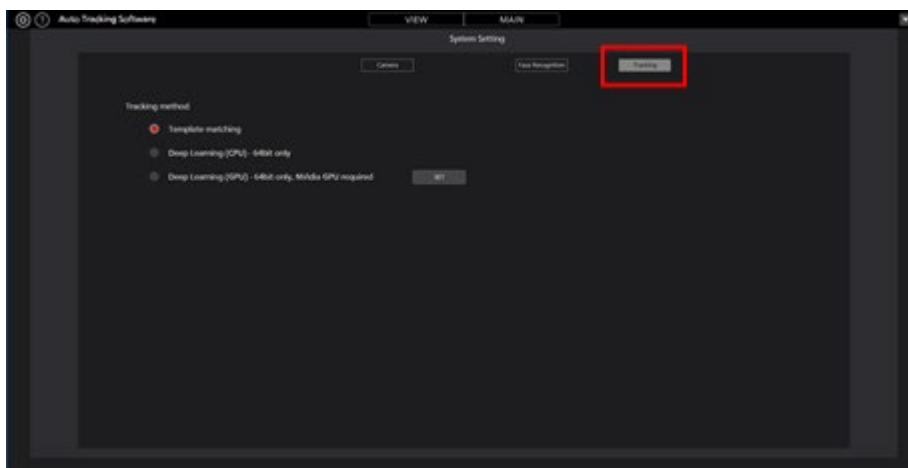
3. In the Tracking method field, select the tracking method to use.

　　　Template matching：It is a normal detection method with low CPU utilization.

　　　Deep Learning (CPU)：It is a method of human body detection by deep learning using CPU.

　　　　　　　　　　　Compared to Template matching, the CPU utilization will be higher, but more accurate detection can be done.

　　　Deep Learning (GPU)：It is a method of human body detection by deep learning using GPU.

　　　　　　　　　　　Because it uses GPU, faster detection is possible with lower CPU utilization than when using CPU.

<Notes>

　・To use the Deep Learning (GPU) method, it is necessary for the PC environment to satisfy the following conditions:

　　　　- A NVIDIA GPU board must be provided in the PC.

　　　　　The supported GPU boards are as follows:

Pascal architecture

NVIDIA GeForce GTX 1050Ti or later

NVIDIA Quadro P2000 or later

Turing architecture

NVIDIA GeForce RTX 2060 or later

- Both the OS and this software must be 64-bit versions.
  When using a GPU with Turing architecture, please use Windows 10 for the operating system.

- NVIDIA CUDA Toolkit must be installed in the PC.

When using a GPU with Pascal architecture, please download and install CUDA Toolkit 8.0 from the website below.

https://developer.nvidia.com/cuda-80-ga2-download-archive

When using a GPU with Turing architecture, please download and install CUDA Toolkit 10.1 from the website below.

https://developer.nvidia.com/cuda-10.1-download-archive

Data Settings for Face Recognition

Registering the Face Data

Since this software enables tracking by detecting the face of a specified person with the help of the face recognition function, a stable tracking operation is implemented.

You can register beforehand the face data that is used as a recognition source of the person to be tracked. There are two methods of registering the face data, namely a method of using an existing JPEG image, and a method of using an image captured from camera images.

Register the face data according to the procedure described below.

1. Start this software.

2. The View screen appears. Click the Settings button at the top left of the screen.
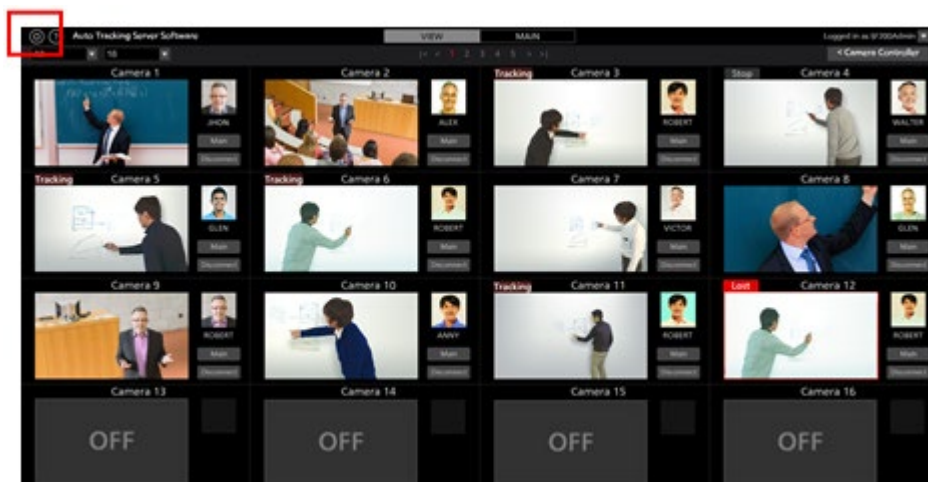
3. To capture from the camera images, click the Connect button of the camera to use to set the camera to the connected state.

4. Click the Face Recognition tab in the center of the Settings screen.
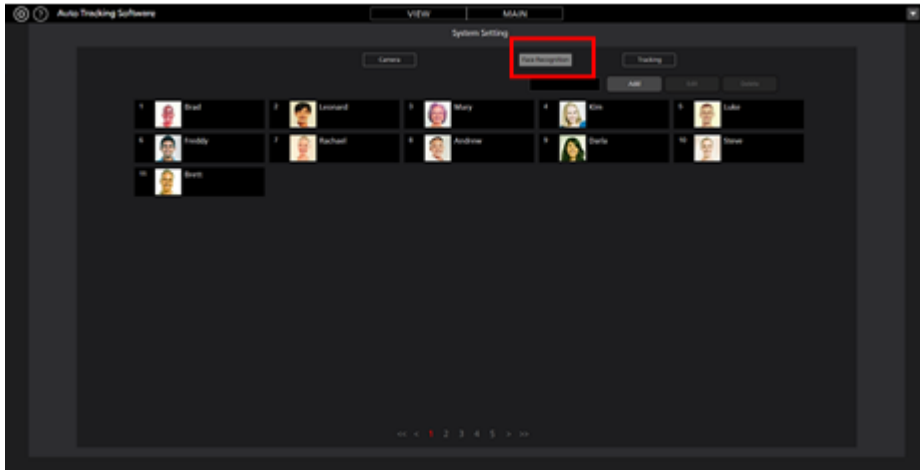
5. Click the Add button at the top right of the screen.

6. The Register Face Data screen appears.
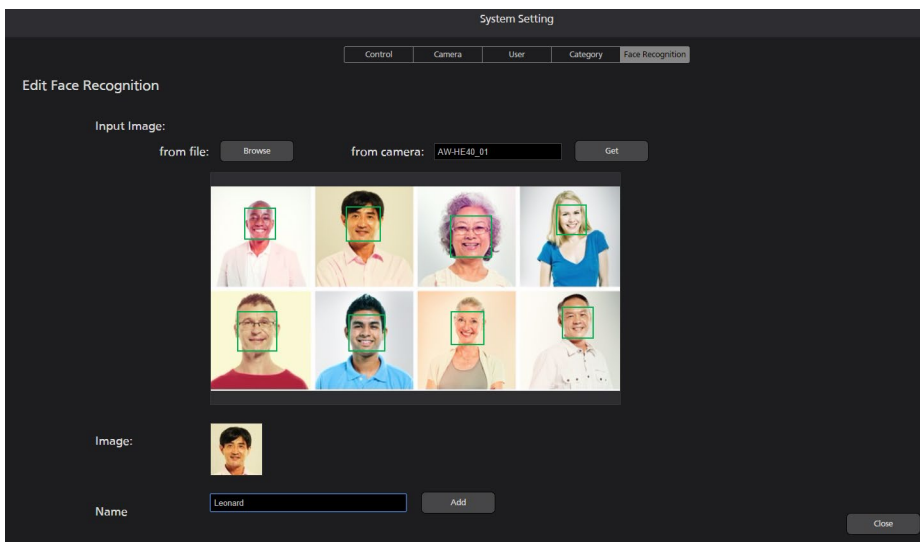
7. Import the face data according to the procedure described below.

   • When using an existing JPEG file:

   If you click the Browse button for the "from file:" field, a dialog box for selecting the image file appears. Select the JPEG image showing the face.

   • When capturing from the camera images:

   Select the camera to use in the box for the "from camera:" field, and then click the Get button to perform capturing.

8. The image is displayed in the center of the Register Face Data screen. If a face is detected in the image, a frame appears around the face.

If a frame does not appear, repeat step 7.

9. Click the frame of the face you want to register. The face image appears in the "Image:" field.

10. Enter the name of the face data in the "Name:" field.

11. If you click the Add button, the new face data that has been selected is registered.

<Notes>

• If several faces are detected in the image, you can collectively register several face data instances by repeating steps 9 to 11 described above.

• Up to 10 faces can be detected in one image.

Editing the Face Data

You can change the photograph and name in the already registered face data.

There are two methods of editing the face data, namely a method of using the existing JPEG image, and a method of using the image captured from camera images.

Edit the face data according to the procedure described below.

1. Perform the same operation as in steps 1 to 4 of "Registering the Face Data" to display the Face Recognition screen.

2. After selecting the face data to be registered by clicking its number part, click the Edit button at the top right of the screen.

3. If you perform the same operation as in steps 6 to 11 of "Registering the Face Data", the face data changes.

Deleting the Face Data

Delete the registered face data according to the procedure described below.

1. Perform the same operation as in steps 1 to 4 of "Registering the Face Data" to display the Face Recognition screen.

2. After selecting the face data to be deleted by clicking its number part, click the Delete button at the top right of the screen.

3. A window for confirmation of data deletion appears. If you click the Yes button, the face data is deleted.

<Notes>

 • If the selected face data is being used by some camera, the Delete button is disabled, and you will not be able to delete the face data. To delete face data, make sure it is not in use by any camera.

 If a camera is using face data that is to be deleted, the name of the camera is displayed as "Used by Camera 01" or something similar, when you place the mouse cursor on the face data.

Sorting the Face Data

You can sort the display order of the registered face data.

The display order of the face data affects the priority order of detection when tracking is performed with the Auto Face Search set to ON (when the tracking target is detected from among all persons for whom the face data is registered). The smaller the ID, the higher the priority order of detection.

1. Perform the same operation as in steps 1 to 4 of "Registering the Face Data" to display the Face Recognition screen.

2. Click the photograph of the face from the face data you want to sort, and drag it.

3. If the dragged face data is dropped to the location of another face data, the face data moves to the dropped location.

Explanation of the Tracking Operation

Connecting to or Disconnecting from the Remote Camera

When performing the tracking process, you must connect to the remote camera, and when ending the tracking process, you must disconnect from the remote camera.

• Connection procedure

    1. On the View screen or Main screen, click the Connect button of the camera to be connected.
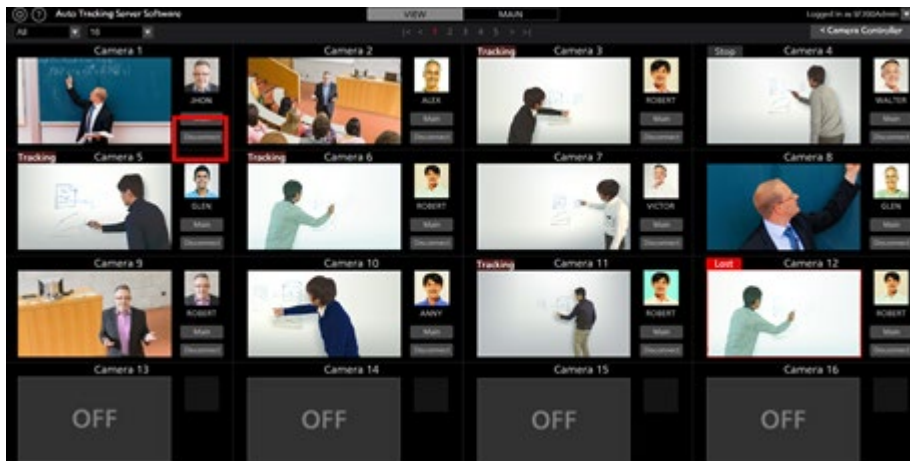
    2. If the connection is established properly, the Connect button changes to the Disconnect button.

• Disconnection procedure

    1. On the View screen or Main screen, click the Disconnect button of the camera to be disconnected.

Upper Limit of the Number of Cameras that can be Connected

Up to one camera can be connected with this software.

If you want to connect to another camera, disconnect the connected camera and then perform the connection operation.

Starting the Tracking Process

• When tracking is started automatically

Tracking can be started by detecting the tracking target automatically.

The functions described below have been prepared as functions for automatic detection, and you can set whether or not to use each function.

   • Detecting the face of the specified person by the face recognition function

Make the settings according to the procedure described below.
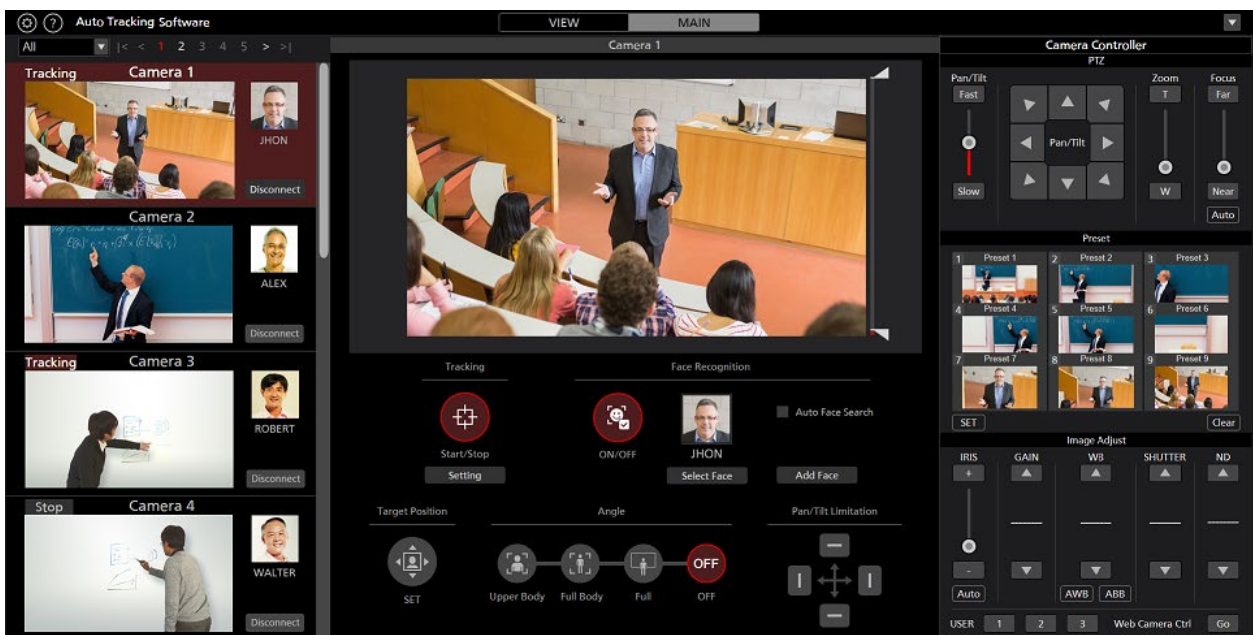
1. On the View screen or Main screen, click the Connect button of the camera for which the tracking process is to be performed to establish a connection with it.

2. The Main screen appears.

3. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

4. When detecting the face of the specified person by the face recognition function, set the face recognition function for automatic detection according to the procedure described below.

- When targeting a specific person

 (1) Click the Select Face button to display the Select Face screen.

 (2) On the Select Face screen, select the face data of the person to be set as the tracking target, and then click the OK button to close the Select Face screen.

 (3) Set the Face Recognition ON/OFF button to ON.

 (4) The tracking process starts automatically when the face of the tracking target is detected in a camera image.

- When targeting all the people whose face data is registered

 (1) Check [Auto Face Search] box.

 (2) Set the Face Recognition ON/OFF button to ON.

 (3) When any of the persons whose face data is registered in the camera video is detected, tracking processing is started.

5. If you set the Tracking Start/Stop button to ON, the Pan/Tilt operation of the remote camera is enabled, and the tracking operation starts.

<Notes>

• If in the Tracking Setting window displayed by the Setting button in the Tracking field, the check mark for Auto Tracking Start is ON, the Pan/Tilt operation of the remote camera is enabled at the same time when the tracking target is detected.

• The face data setting of the face recognition function is stored for each camera.

• When tracking is started manually

To start tracking by selecting the tracking target manually, follow the procedure described below.

1. On the View screen or Main screen, click the Connect button of the camera for which the tracking process is to be performed to establish a connection with it.

2. The Main screen appears.

3. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

4. If face data for face recognition has been selected, click the Select Face button to display the Select Face screen, and cancel the selection of the face data.

5. If you left-click the location to be tracked in a camera image, the tracking process starts by assuming the object at that location to be the tracking target.

6. If you set the Tracking Start/Stop button to ON, the Pan/Tilt operation of the remote camera is enabled, and the tracking operation starts.

<Notes>

• If the face of a person is detected at the location that was left-clicked in step 4, the corresponding face data is automatically set as the recognition source of face recognition. This face data is not stored. To cancel the specified face data, disconnect the camera once, and then re-connect it.

• When a person's face is detected in a camera image and you double click the face, sets the face data as the recognition basis for face recognition. This face data is not stored. To cancel the set face data, select the Auto Face Search checkbox, and then deselect the Auto Face Search checkbox.

• If in the Tracking Setting window displayed by the Setting button in the Tracking field, the check mark for Auto Tracking Start is ON, the Pan/Tilt operation of the remote camera is enabled at the same time when the tracking target is detected.

Discontinuing the Tracking Process

To discontinue the tracking process, perform the operation described below:

1. If the Face Recognition ON/OFF button is in the ON state (red color), click the Face Recognition ON/OFF button to set it to the OFF state (gray color).

2. Set the Tracking Start/Stop button to the OFF state (gray).

3. The tracking process will be discontinued.

Changing the Tracking Target

To change the tracking target during the tracking operation, perform the operation described below.

• When the face recognition function is used

1. Click the Select Face button to display the Select Face screen.

2. On the Select Face screen, select the face data of the person to be set as the new tracking target, and then click the OK button to close the Select Face screen.

3. Set the Face Recognition ON/OFF button to ON.

4. If the face of the person set as the new tracking target is detected in a camera image, the tracking process is started.

<Notes>

• When a person's face is detected in a camera image and you double click the face, sets the face data as the recognition basis for face recognition. This face data is not stored. To cancel the set face data, select the Auto Face Search checkbox, and then deselect the Auto Face Search checkbox.

• When the face recognition function is not used

Left-click the camera image.

Processing is started with the object at the left-clicked location as the new tracking target.

Changing the Display Position of the Tracking Target

The display position of the tracking target is displayed as a white cross on the Main screen.

In the initial state, the tracking target is displayed in the center of the camera image.

To change the display position of the tracking target, perform the operation described below.

1. The Main screen appears.

2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

3. Set the Target Position Set button to the ON state (red color). The current display position is indicated by a cross.

4. Left-click the camera image to set the display position.

\<Notes\>

• You cannot set the display position at the outer periphery of the camera image.

Setting the Zoom Magnification during Tracking

You can set the zoom magnification during tracking according to the procedure described below:
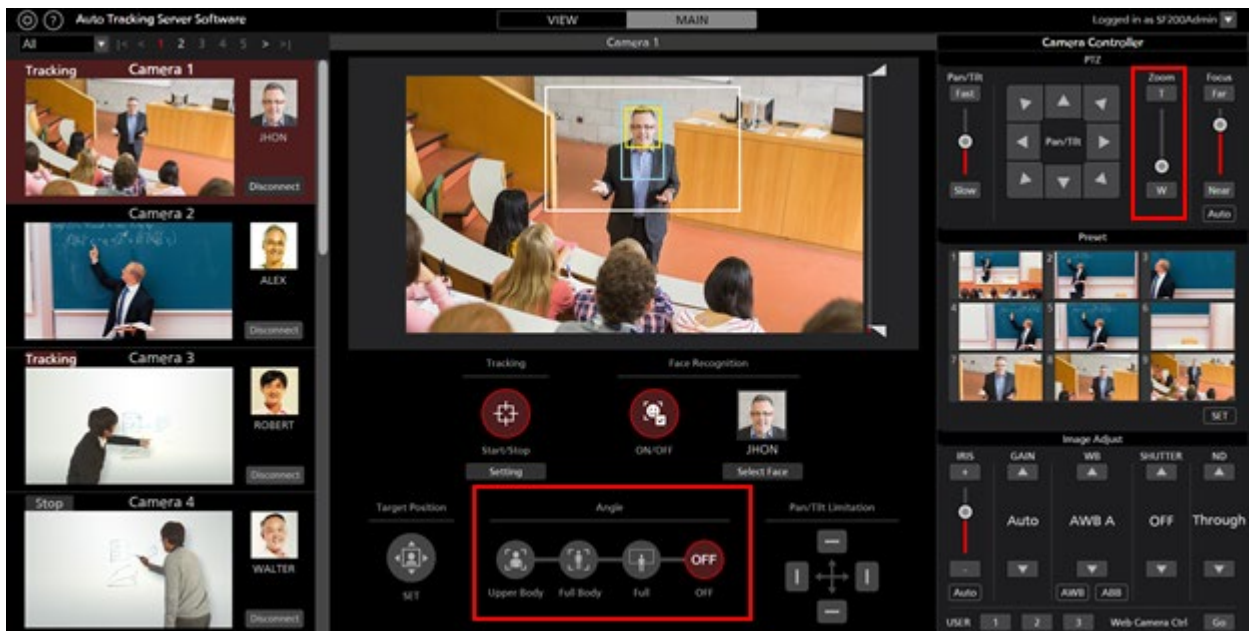
1. The Main screen appears.

2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

3. To manually set the Zoom magnification, make the settings with the Zoom position control slider/button of the camera controller.

4. To set to a predetermined Zoom magnification, click any of the Upper Body / Full Body / Full buttons under Angle. The Zoom magnification will change according to the selected item.

<Notes>

• If the Zoom magnification is changed significantly in a short period of time, the tracking target may be lost.

• If zooming is performed in the magnification direction in a state when the display position of the tracking target is other than the center of the screen, the tracking target may be lost.

• If any one of Upper Body / Full Body / Full is selected under Angle, the Zoom magnification will change automatically according to the selected item when the tracking target is detected. If you do not want to change the Zoom magnification, set the Angle to OFF.

Tracking Target Detection Mask Area Setting

You can set the mask area (the area that is not used during detection within the camera images) when detecting the tracking target.

Make the settings according to the procedure described below.

1. The Main screen appears.

2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

3. Operate the knob of the slider on the right side of the camera image to set the mask area at the top and bottom of the screen. The setting is reflected immediately.

Setting an Area in which the Tracking Operation of the Camera is Not to be Performed

In a camera image, you can set an area in which the tracking operation of the camera is not to be performed when the tracking target moves.

Make the settings according to the procedure described below.

1. The Main screen appears.

2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

3. When you right-click the mouse on a camera image and then drag it, the region is displayed by a yellow line.

   The setting is complete once the dragging operation of the mouse is complete.

   (A value is set in the Tracking Disable Area of the Tracking Setting window displayed by clicking the Setting button in the Tracking field.)

4. When canceling the area specification, right-click outside the range of the camera image.

   (The value set in the Tracking Disable Area of the Tracking Setting window displayed by clicking the Setting button in the Tracking field is cleared.)

Setting the Pan/Tilt Limitation of the Camera

You can set the Pan/Tilt limitation of the remote camera.

1. The Main screen appears.

2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.

3. Set the limitation in each of the top, bottom, left, and right directions using the respective button of the Pan/Tilt Limitation item.

When the button is changed from the OFF (gray color) state to the ON (red color) state:

The position of the camera when it is turned ON is set as the limit of the working range of the camera in that direction.

When the button is changed from the ON (red color) state to the OFF (gray color) state:

The setting of the limitation in the direction in which the camera is turned OFF is canceled.

Operations of the Camera Controller

About the Camera Controller

The camera controller can be used to perform various operations of the remote camera.

The supported operations are as described below.

- PTZ operation

- Registering/calling the preset

- Adjusting the image

- Calling the Web screen

When using the camera controller, you must enable the operations by following the procedure described below.

1. Connect to the camera from the View screen or Main screen.

2. Select the camera for which operations are to be performed from the camera list display of the View screen or Main screen.

PTZ Operation of the Camera

You can perform the Pan/Tilt and Zoom operations of the remote camera.
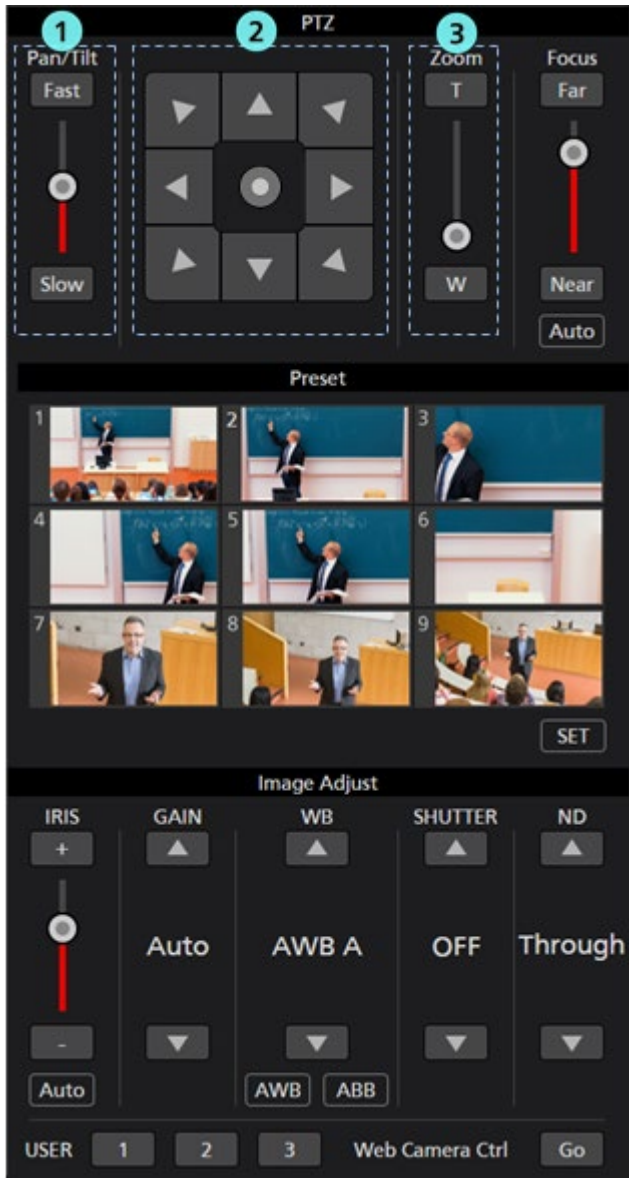
①**Pan/Tilt speed control part**

Set the movement speed of the camera when it is moved by the Pan/Tilt button or slider. The currently set value is displayed by the red-colored bar of the slider.

②**Pan/Tilt button**

If you click this button, the camera moves in the corresponding direction.

If you click the circular button in the center of the operation area, the operation area display switches and you can move the camera in the direction you desire by dragging with the mouse.

③**Zoom position control part**

Set the Zoom position of the remote camera by the T/W button or slider.

The currently set value is displayed by the red-colored bar of the slider.

<Notes>

• If the Pan/Tilt button is operated during the tracking operation, the tracking operation will be interrupted.

Registering/Calling/Clearning the Camera Preset

You can perform preset registration/calling/Clearning for the remote camera.

• **Registering the preset**

1. Move the camera to the position that you want to register using the Pan/Tilt button and Zoom position control slider/button.

2. Click the SET button at the bottom left of the Preset area to set the camera to the ON state (red color).

3. Click any one of the Preset 1 to Preset 9 buttons in the Preset area to register the current camera position in the preset. The thumbnail during registration is displayed on the button.

• **Calling the preset**

1. Click the SET button at the bottom left of the Preset area to set the camera to the OFF state (gray color).

2. Click any one of the Preset 1 to Preset 9 buttons in the Preset area to call the preset.

・**Clearing the preset**

1. Click the Clear button at the bottom right of the Preset area to set the camera to the ON state (red color).

2. Click any one of the Preset 1 to Preset 9 buttons in the Preset area to clear the preset.

<Notes>

• If the preset calling operation is performed during the tracking operation, the tracking operation will be interrupted.

Adjusting the Image of the Remote Camera

You can adjust the images shot by the remote camera.

The items described below can be adjusted:

> • Focus
>
> • Iris
>
> • Gain
>
> • White balance
>
> • Shutter
>
> • ND Filter

①**Focus control part**

  Click Auto to turn AutoFocus to ON or OFF.

  When AutoFocus is ON, the remote camera sets the focus automatically.

  When AutoFocus is OFF, the focus of the remote camera is set by the Far/Near buttons and the slider.

②**Iris control part**

  Click Auto to turn AutoIris to ON or OFF.

  When AutoIris is ON, the remote camera sets the iris automatically.

  When AutoIris is OFF, the iris of the remote camera is set by the +/- buttons and the slider.

③**Gain control part**

  Set the Gain of the remote camera by the Up/Down buttons.

④**WB control part**

  Set the white balance mode of the remote camera by the Up/Down buttons.

  If you click the AWB button, the remote camera performs the white balance adjustment automatically.

  If you click the ABB button, the remote camera performs the black balance adjustment automatically.

⑤**Shutter control part**

Set the shutter of the remote camera by the Up/Down buttons.

⑥**ND Filter control part**

Set the ND Filter of the remote camera by the Up/Down buttons.

<Notes>

- It may not be possible to adjust some items depending on the type of the remote camera and combination of the operation modes. For details, refer to the operation manual of each remote camera.

Calling the Web Screen of the Camera

You can call the Web screen of the remote camera.

Click the Go button at the bottom right of the camera controller to open the Web management screen of the remote camera in another tab of the Web browser.

<Note>

Depending on your Web browser, symptoms such as disorder of part of the Web management screen of the remote camera may occur.

Activation

Procedure for starting trial use

We offer a 30-day trial period for this software from the day of start of the trial during which it can be used free of cost. You can start the trial use of this software according to the procedure described below.

1. If you are using the standalone version of this software:

   From the Windows menu, click [Start] → [Programs] →
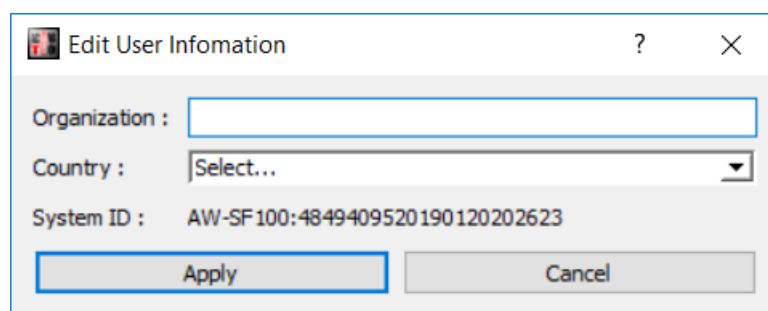
   [Panasonic Auto Tracking Software (Ver. 4)] → [Activation].

   If you are using the Web application version of this software:

   From the Windows menu, click [Start] → [Programs] →

   [Panasonic Auto Tracking Software (Web appli (Ver. 4))] → [Activation].

2. When you start the activation program for the first time, a screen for registering user information appears. Enter the information in each item, and then click the Apply button.

3. The window of the activation program is displayed.
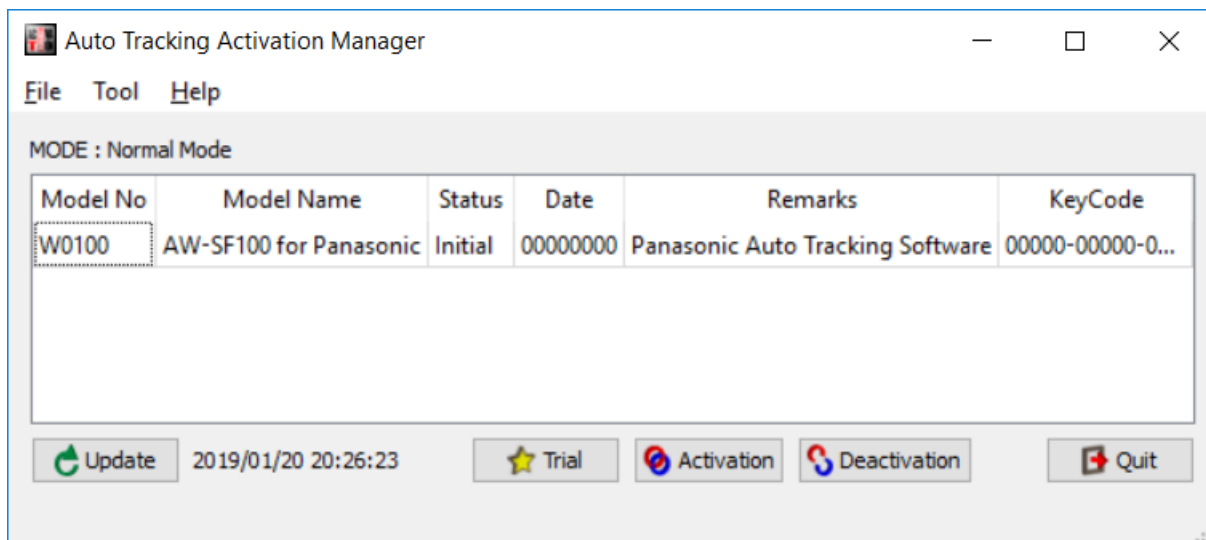
4. Select the Model No W0100 column, and then click the Trial button.

5. You can start using this software for the trial period.

<Notes>

  • The remaining number of days of the trial period is displayed at the bottom left of the Camera Select
    screen.

Procedure of activation registration

After the end of the trial period, you will not be able to connect to the remote camera and use this software. To continue using this software, you must purchase the key code and perform activation registration according to the procedure described below.

1. Connect your PC to the Internet.

2. If you are using the standalone version of this software:

  From the Windows menu, click [Start] → [Programs] → [Panasonic Auto Tracking Software]

→ [Activation].

If you are using the Web application version of this software:

  From the Windows menu, click [Start] → [Programs] → [Panasonic Auto Tracking Software

(Web appli)] → [Activation].

3. The window of the activation program is displayed.
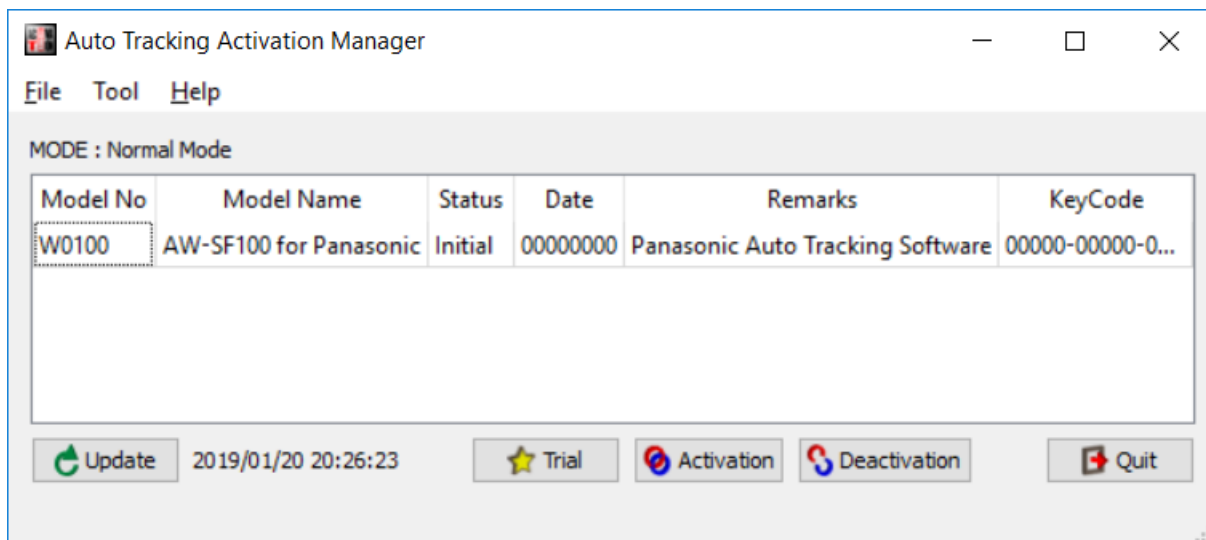
4. Select the Model No W0100 column, and then click the Activation button.

5. The key code input screen appears. Enter the key code that you have purchased in the key code input field.

6. If you click the OK button, activation is performed, and continued use of this software is possible.

<Notes>

• Only one PC can be registered with a single key code. If you want to use this software on several PCs, purchase as many key codes as the number of PCs, and perform activation registration.

Procedure of activation cancellation

To change the PC on which to use this software, cancel the activation according to the procedure described below, and then perform activation registration on a new PC.

1. Connect your PC to the Internet.

2. If you are using the standalone version of this software:

   From the Windows menu, click [Start] → [Programs] → [Panasonic Auto Tracking Software]

→ [Activation].

   If you are using the Web application version of this software:

   From the Windows menu, click [Start] → [Programs] → [Panasonic Auto Tracking Software

(Web appli)] → [Activation].

3. The window of the activation program is displayed.
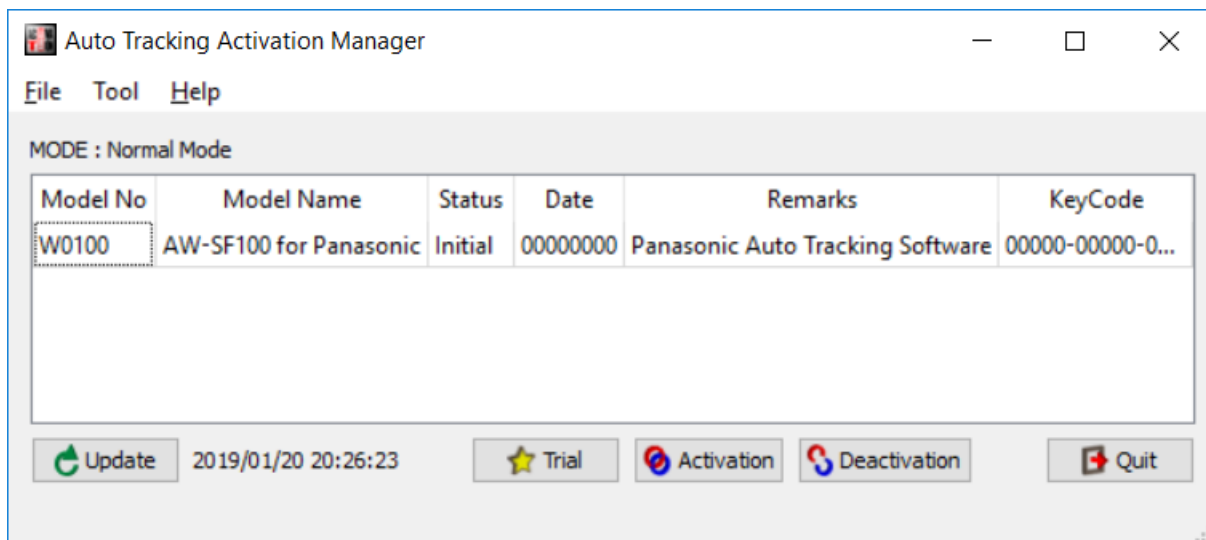
4. Select the Model No W0100 column, and then click the Deactivation button.

5. Activation is canceled.

<Notes>

- Once you have canceled the activation, you cannot use this software on the PC on which you have canceled the activation until you perform activation registration again.

Appendix

Keyboard shortcut

Some operations can be performed from the keyboard connected to the PC.

The operations assigned to keys are as below.

Key	Operation
F1	Call preset 1
F2	Call preset 2
F3	Call preset 3
F4	Call preset 4
F5	Call preset 5
F6	Call preset 6
F7	Call preset 7
F8	Call preset 8
F9	Call preset 9
↑	Camera tilt Upward
↓	Camera tilt Downward
←	Camera pan Left
→	Camera pan Right
↑ + →	Camera pan/tilt Up/Right
→ + ↓	Camera pan/tilt Down/Right
↓ + ←	Camera pan/tilt Down/Left
← + ↑	Camera pan/tilt Up/Left
Shift + ↑	Camera tilt Upward (high speed)
Shift + ↓	Camera tilt Downward (high speed)
Shift + ←	Camera pan Left (high speed)
Shift + →	Camera pan Right (high speed)
Shift + ↑ + →	Camera pan/tilt Up/Right (high speed)
Shift + → + ↓	Camera pan/tilt Down/Right (high speed)
Shift + ↓ + ←	Camera pan/tilt Down/Left (high speed)
Shift + ← + ↑	Camera pan/tilt Left/Right (high speed)
Upper case 'T'	Camera zoom IN
Upper case 'W'	Camera zoom OUT
Upper case 'S'	Switch Tracking Start/Stop
Ctrl	Pause tracking only while the key is pressed

Troubleshooting

This section shows the causes of the symptoms that occur during the execution of this software, and the actions to be taken:

Nothing is displayed on the Camera Select screen.

Cause 1:

  • You are not using the latest version of the remote camera firmware.

Action 1:

  • Download the latest version of the remote camera firmware from the Website provided below, and update the firmware.

    http://pro-av.panasonic.net/en/

The Camera Status display does not change even after performing the connection process on the Camera Select screen.

Cause:

  • The PC and remote camera are not connected properly.

Action:

  • Make sure the PC and remote camera are properly connected via the network, and the correct remote camera IP address has been set on the Setting screen of this software.

Images are not displayed properly on the Camera View screen.

Cause:

  • The settings of the remote camera have not been made properly.

Action:

  • Carefully read "Setting the Remote Camera" in the Installation Procedures of this software, and set the remote camera accordingly.

The tracking target switches to another object during the tracking operation.

Cause 1:

  • There is an object that is moving close to the original tracking target.

Action 1:

  • If there is an object that is moving close to the tracking target (inside the white rectangle of Camera View), the tracking target may switch to that object. Make sure there is no moving object close to the object that is to be set as the tracking target.

Cause 2:

• A stationary object with strong straight-line edges exists in the background.

Action 2:

• If a stationary object (straight-line edges) enters inside the red frame during tracking, the tracking target may switch to that object.

The tracking target is lost during the tracking operation.

Cause:

• The tracking target is a stationary object.

Action:

• The tracking target may be lost if it is a stationary object. Left-click the camera image to make the settings of the tracking target again, or set Auto Detect ON/OFF to the ON state (red color), and make sure the object is set as the tracking target when it moves.

When auto detection is enabled, the hands and legs of a person are detected instead of his/her head.

Cause:

• The hands and legs are moving significantly.

Action:

• Set the face data of the person to be tracked, and then set the Face Recognition ON/OFF button to the ON state (red color). Since face recognition starts functioning and the face of the person can be detected, the tracking operation is likely to improve.

• During auto detection, this software prioritizes the detection of the moving part. Therefore, if the hands and legs are moving significantly, the hands and legs are detected. This can be resolved by setting the auto detection mask area, and setting only the upper body in the detection area.

When there are several persons in the camera image, an unintended person is set as the tracking target.

Cause:

• An object that is moving more than the object to be set as the target exists.

Action:

• Set the face data of the person to be tracked, and then set the Face Recognition ON/OFF button to the ON state (red color). Since face recognition starts functioning and the face of the person can be detected, the tracking operation is likely to improve.

• During auto detection, this software prioritizes the detection of the moving part. Therefore, the object that moves first is detected. This can be resolved by setting the auto detection mask area, and setting the area that need not be detected.

Uninstallation Procedure

1. From the Windows Control Panel, select [Programs and Features].

2. From the list of programs, select [Auto Tracking Software] and then click [Uninstall]. A confirmation window appears.

3. Click [Yes] on the confirmation window to uninstall the software.

<Notes>

• You can uninstall only the standalone version.

• Since you cannot uninstall the Web application version, if you want to stop the operation of this software, make the settings shown below from the service management screen of Windows.

    1. Stop the two services, namely "Panasonic Auto Tracking Server" and "Panasonic Tracking Control".

    2. Change the Startup Type of the "Panasonic Auto Tracking Server" and "Panasonic Tracking Control" services to "Manual".

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