

Auto Tracking Server Software Operation Manual

| | |
|--|---------------|
| Auto Tracking Server Software Operation Manual | 1 |
| Introduction | 3 |
| Operating Environment | 4 |
| About the Server Configuration | 6 |
| About the License | 6 |
| Privacy policy for the information stored in the auto tracking server software | 7 |
| About the Descriptions in this File | 7 |
| About Registration and Registered Trademarks..... | 7 |
| Description of Screens | 8 |
| Login Screen | 8 |
| View Screen | 9 |
| Main Screen | 14 |
| Settings – Control Screen | 22 |
| Settings - Camera Screen..... | 24 |
| Settings – User Screen | 28 |
| Settings – Category Screen | 30 |
| Settings – Face Recognition Screen | 32 |
| Settings – AutoMode Screen | 34 |
| Settings – Import/Export Screen..... | 35 |
| Settings - GPU Screen..... | 36 |
| Default Settings..... | 37 |
| Remote Camera Settings..... | 37 |
| Server Installation Settings | 40 |
| Remote Camera Installation Settings | 42 |
| User Account Settings | 45 |
| Camera Category Settings..... | 47 |
| Auto Mode Settings..... | 49 |
| Data Export / Import..... | 50 |
| Data Settings for Face Recognition | 51 |
| Registering the Face Data | 51 |
| Editing the Face Data | 53 |

| | |
|--|-----------|
| Deleting the Face Data | 53 |
| Sorting the Face Data | 54 |
| Explanation of the Tracking Operation | 55 |
| Connecting to or Disconnecting from the Remote Camera | 55 |
| Upper Limit of the Number of Cameras that can be Connected..... | 56 |
| Starting the Tracking Process..... | 57 |
| Discontinuing the Tracking Process | 59 |
| Changing the Tracking Target | 59 |
| Changing the Display Position of the Tracking Target | 60 |
| Setting the Zoom Magnification during Tracking (Zoom Auto OFF/ON) | 60 |
| Tracking Target Detection Mask Area Setting | 62 |
| Setting an Area in which the Tracking Operation of the Camera is Not to be Performed | 63 |
| Setting the Pan/Tilt Limitation of the Camera | 64 |
| Setting Auto Start Area | 65 |
| Operations of the Camera Controller | 66 |
| About the Camera Controller | 66 |
| PTZ Operation of the Camera..... | 66 |
| Registering / Calling / Deleting the Preset..... | 68 |
| Adjusting the Image of the Remote Camera..... | 70 |
| Calling the Web Screen of the Camera | 71 |
| License | 73 |
| About the License | 73 |
| About the Trial Use Period..... | 73 |
| Activation Registration | 74 |
| Activation Cancellation..... | 75 |
| Appendix | 77 |
| Keyboard shortcut..... | 77 |
| Troubleshooting | 78 |
| Uninstallation Procedure..... | 80 |
| When changing the IP address of Main server..... | 81 |
| Software Information Relating to This Product | 82 |

Introduction

Auto Tracking Server Software is application software that runs on Windows.

By operating this software on a Windows Server PC to which a Panasonic remote camera is connected, tracking of persons shot by the remote camera can be performed simultaneously by multiple remote cameras.

Main Functions

The main functions of this software are as described below.

1. Tracking assist for persons

The tracking of a person selected from the images shot by the remote camera can be assisted. Stable tracking operation can be performed by the face recognition function that detects the face of the set person, and also by human body detection through deep learning.

2. Simultaneous tracking by multiple remote cameras

The tracking operation can be performed by simultaneously controlling up to four remote cameras per one server. By increasing the number of servers, the number of remote cameras controlled simultaneously can also be increased.

3. Auto detection of tracking target

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

4. 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.

5. Setting the Zoom magnification during tracking

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

6. 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.

7. Registering/calling the remote camera preset

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

8. Image adjustment of the remote camera

You can adjust the Focus/Iris/Gain/WB/Shutter/ND Filter for the remote camera.

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:

* For the latest operating environment, please refer to the website at the time of software download.

- Server PC

- CPU

- When up to 4 cameras can be connected simultaneously

- 4 Cores or more, Pass Mark 7000 or more

- Confirmed CPU

- Intel Core i7-4770K (3.50GHz)

- Intel Core i7-8750H (2.20GHz)

- Intel Core i7-11800H (2.30GHz)

- Intel Xeon Silver 4108 (1.80GHz)

- Intel Xeon Gold 5222 (3.80GHz)

- When up to 8 cameras can be connected simultaneously

- 2 x CPU, 4 Cores or more/CPU, Pass Mark 7000 or more/CPU

- Confirmed CPU

- 2 x Intel Xeon Gold 5222 (3.80GHz)

- Memory: 16 GB or above

- OS: Windows Server 2016

- Windows Server 2019

- Windows Server 2022

- Windows 10 64bit

- Windows 11

- GPU:

- When 1 camera can be connected simultaneously

- Pascal architecture

- NVIDIA GeForce GTX 1050i or later

- NVIDIA Quadro P2200 or later

- Turing architecture

- NVIDIA GeForce RTX 2060 or later

- NVIDIA Quadro RTX 4000 or later

- Ampere architecture

- NVIDIA RTX 3060 or later

- NVIDIA RTX A2000 or later

- When up to 2 cameras can be connected simultaneously

- Pascal architecture

- NVIDIA GeForce GTX 1080 or later

- NVIDIA Quadro P2200 or later

Turing architecture

NVIDIA GeForce RTX 2060 or later

NVIDIA Quadro RTX 4000 or later

Ampere architecture

NVIDIA RTX 3060 or later

NVIDIA RTX A2000 or later

When up to 4 cameras can be connected simultaneously

Pascal architecture

NVIDIA GeForce GTX 1080 or later

NVIDIA Quadro P4000 or later

Turing architecture

NVIDIA GeForce RTX 2060 or later

NVIDIA Quadro RTX 4000 or later

Ampere architecture

NVIDIA RTX 3060 or later

NVIDIA RTX A2000 or later

When up to 8 cameras can be connected simultaneously

*When connecting 5 or more cameras, the same 2 GPUs are required

Turing architecture

Pascal architecture

NVIDIA GeForce GTX 1080 or later

NVIDIA Quadro P4000 or later

Turing architecture

NVIDIA GeForce RTX 2060 or later

NVIDIA Quadro RTX 4000 or later

Ampere architecture

NVIDIA RTX 3060 or later

NVIDIA RTX A2000 or later

- Client PC

CPU: Core i5-2520M 2.50 GHz or above

Memory: 4 GB or above

Display: 1920 x 1080 or above

Web browser: Google Chrome

- Panasonic remote camera

AW-UE100

AW-UE150

AW-UE80

AW-UE70

AW-UE50

AW-UE50

AW-HE130

AW-HE40

AW-HE42

AW-UE4

(As of 07.2022)

Please check the AW-SF200 product page on the following website for the latest compatible models.

<https://pro-av.panasonic.net/en/>

<Notes>

- Before using this software, you must install Google Chrome in the client. You may download and install it from the Google site.
- 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 server and remote camera. In the case of a wireless connection, sufficient tracking performance may not be achieved.
- In addition, it is necessary to install the NVIDIA CUDA Toolkit in order to start this software.
Please refer to the following procedure manual to install CUDA Toolkit 11.4.1.
https://www.pass.panasonic.co.jp/pro-av/support/content/download/DEF/soft/man/CUDA_Toolkit_11.4.1_InstallationProcedures_eng.pdf

About the Server Configuration

Although this software can operate on one server too, the number of remote cameras that can be controlled simultaneously can be increased by configuring the software with multiple servers.

Among the servers configuring this software, one server is set as the Main server for centralized management, and the remaining are set as the Sub servers for expansion.

For details on the method of setting the server, refer to the Installation Procedures.

About the License

This is paid software.

To enable you to test the functions of the software, we offer a trial period of 90 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, refer to the “License” section of this manual.

Privacy policy for the information stored in the auto tracking server software

Panasonic does not collect, store nor share within the organization any personal information including pictures of targeted people in the auto tracking server software. Information registered in the auto tracking server software are stored only in the environments (PCs/servers) where the software is installed and cannot be stored elsewhere.

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”.

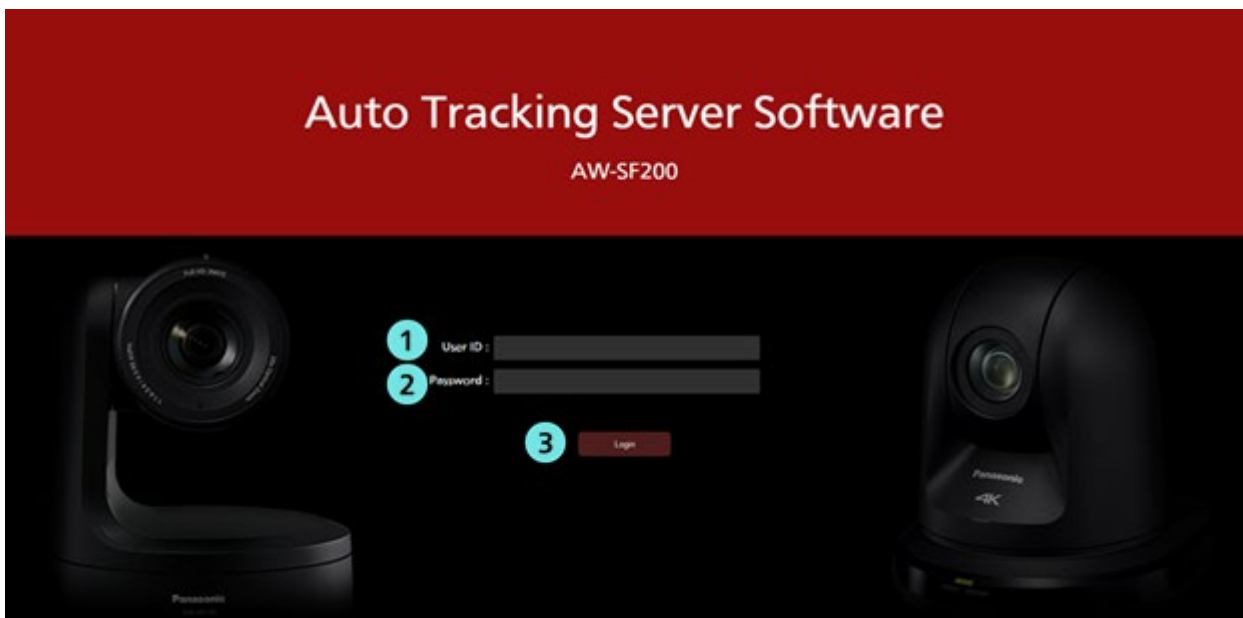
About Registration and Registered Trademarks

- Microsoft, Windows, and Internet Explorer are registered trademarks of Microsoft Corporation in the United States.
- Intel, Intel Core i7, and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.
- All other names, company names, and product names are trademarks or registered trademarks of each company. TM and the ® mark are not specified in this manual.

Description of Screens

Login Screen

When you connect to the Main server of this software from the Web browser, the Login screen shown below appears.



①User name input

Enter the user name for logging in to this software.

②Password input

Enter the user password.

③Login button

Log in to the software using the entered user name and password.

<Note>

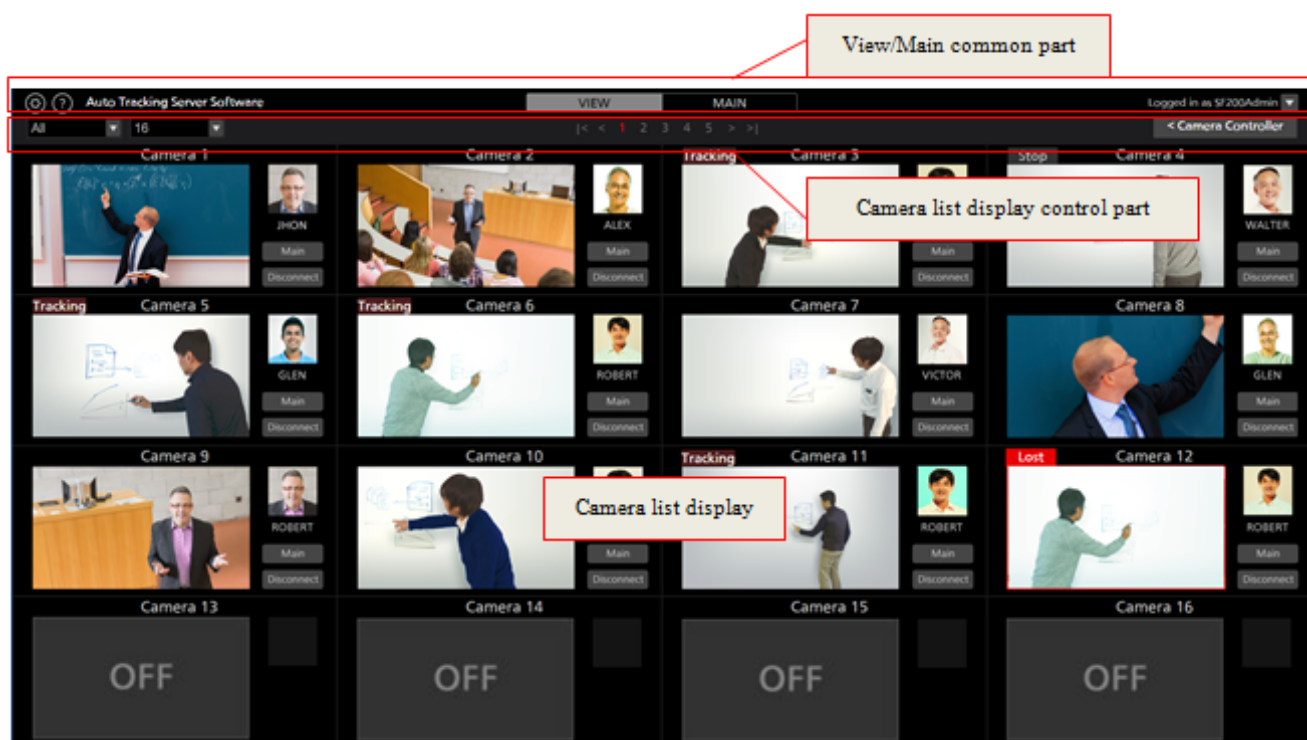
- For details on the default user name and password, and user account registration, check “Settings for the Administrator” in the Installation Procedures.

View Screen

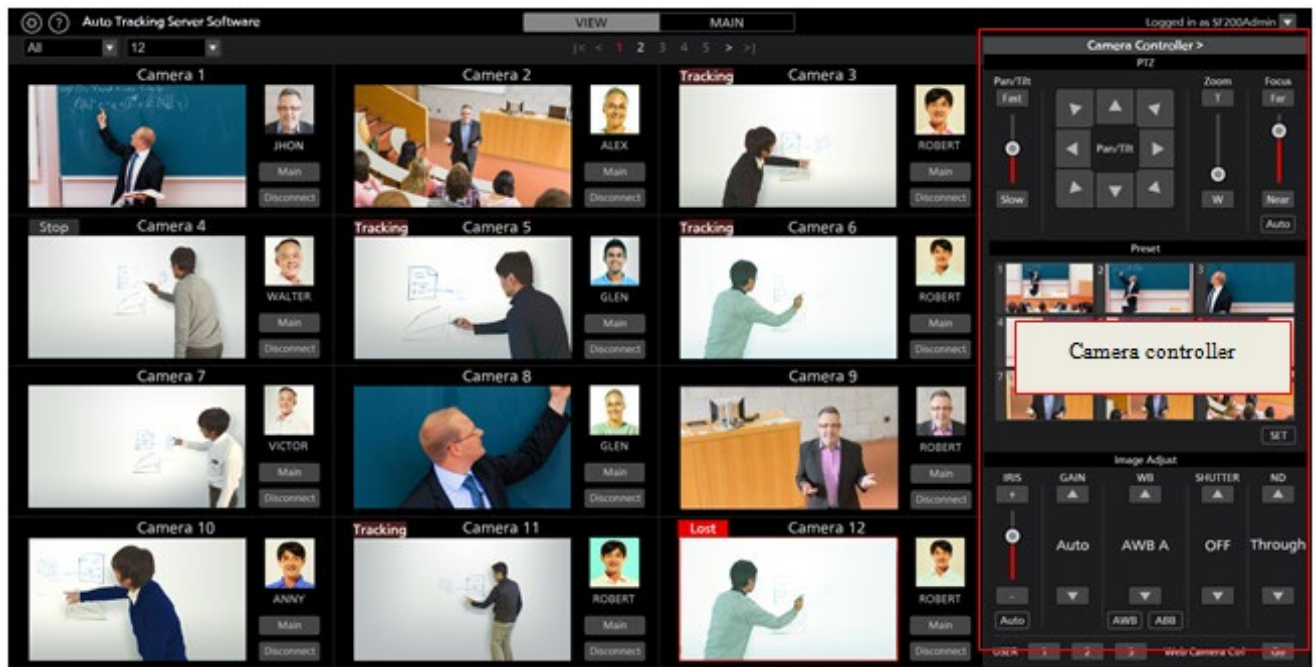
The View screen shown below appears when you log in to this software.

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.



①Settings button

Used to move to the Settings screen.

②Help button

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

③View/Main selection tab

Used to switch between the View screen and Main screen.

④License status display

Displays the license status of this software.

For details on the license status, refer to the “License” section of this manual.

⑤Logout/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.



①List showing filtered display of the list of cameras

From the drop-down list, filter the cameras to be displayed.

Filtering can be performed based on the following conditions:

All: All cameras are displayed

Lost: Only cameras for which the tracking target has been lost out of sight are displayed

Tracking: Only cameras for which the tracking operation is being performed are displayed

Stop: Only cameras that are in the state prior to the start of tracking are displayed

[Category name]: Only cameras belonging to the category registered in Category on the Settings screen are displayed

②List 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.

③Page selection button

Used to select a page in the camera list display.

④Show/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.

③Preset control part

You can perform Preset control for the remote camera.

④Image Adjust part

You can adjust the images shot by the remote camera.

⑤USER button

This button does not function in the current version.

⑥Web Camera Ctrl button

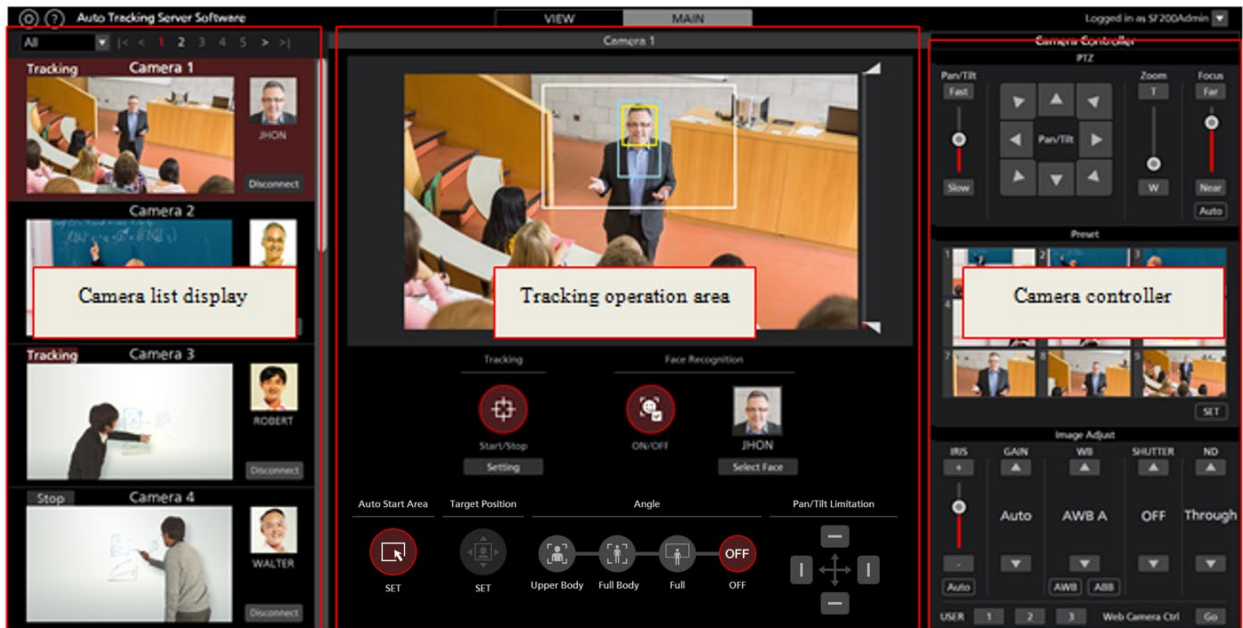
Click the Go button to open the Web management screen of the remote camera on the Web browser.

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:

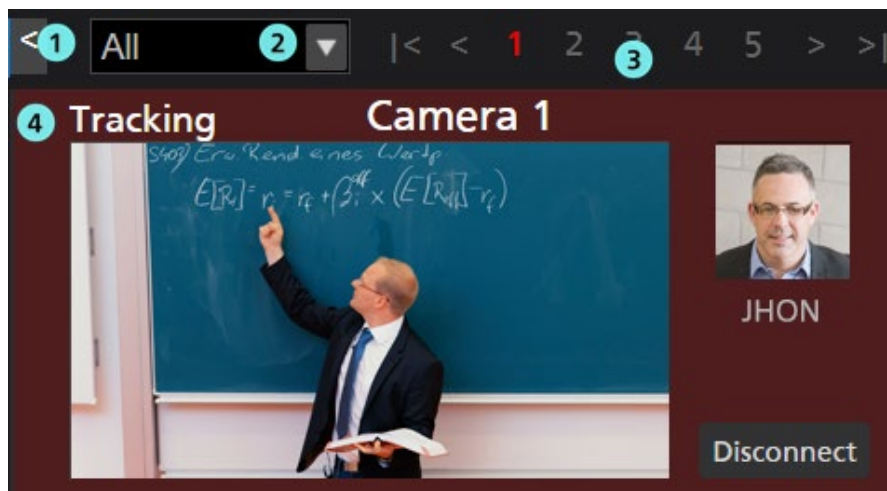
- Camera list display
- Tracking operation area
- Camera controller



Main screen

• Camera list display

In the camera list display area of the Main screen, each camera is arranged vertically.



① Display ON / OFF switching button

Switches the camera list display ON / OFF.

② List showing filtered display of the list of cameras

From the drop-down list, filter the cameras to be displayed.

The function is same as that on the View screen.

③Page selection button

Used to select a page in the camera list display.

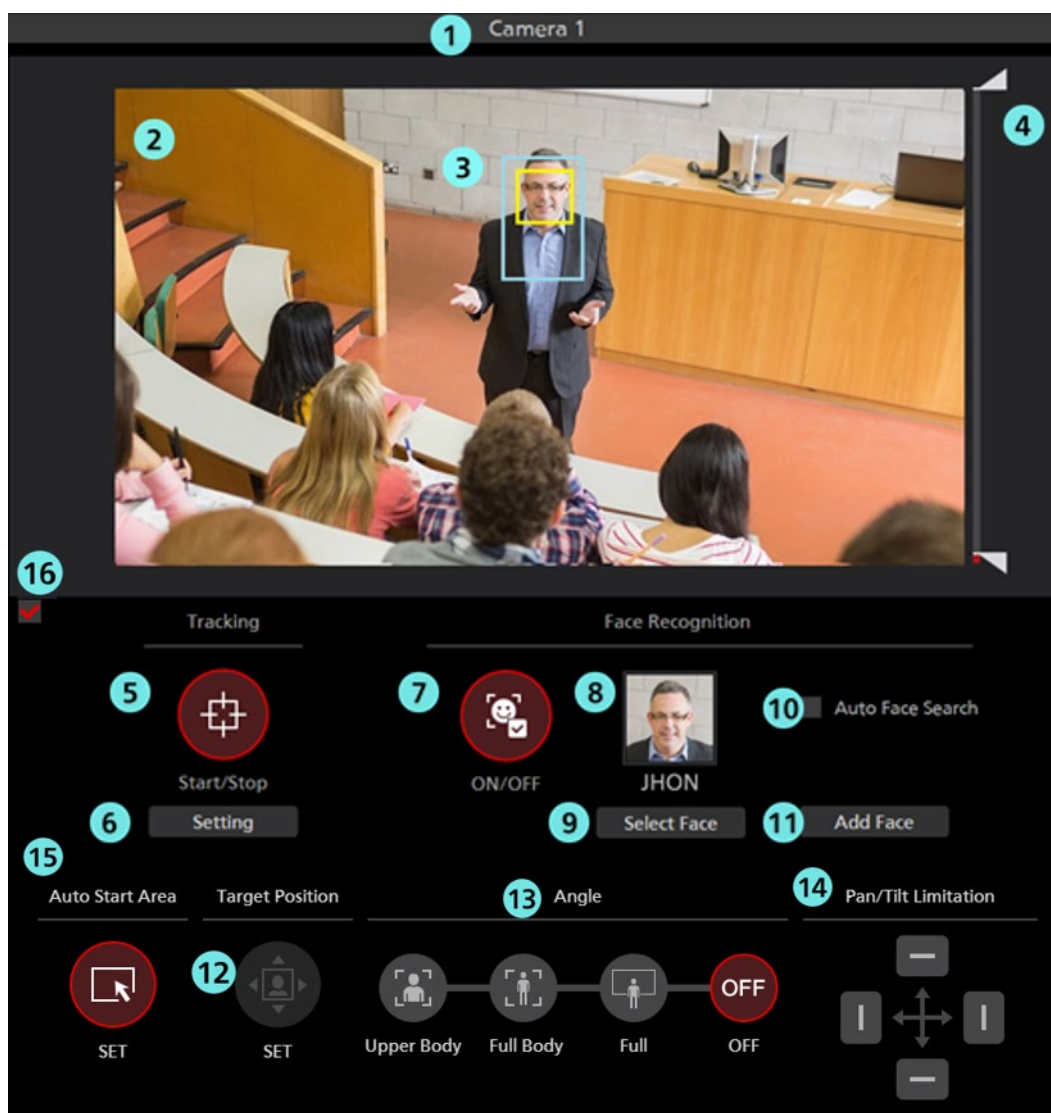
④Camera list display

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.



①Camera 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.

②Camera image

The image acquired from the remote camera is displayed.

③Tracking target display

This is a rectangular display that shows the tracking target.

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.

④Mask 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.

⑤Tracking 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.

⑥Tracking setting button

Click to view the Tracking Setting window.

⑦Face 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.

⑧Face setting display

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

⑨Select 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.

⑩Auto Face Search checkbox

If this checkbox is selected, the face of the person registered for face recognition, and the face detected in the camera image are compared, and if either person is detected, tracking is performed for that person.

⑪Add Face button

This button displays the Add Face screen for registering the face data of the person for face recognition.

⑫Target 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.

⑬Angle 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.

⑭Pan/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.

⑮Auto Start Area specification button

This button specifies the Auto Start Area. You can set the area by left-clicking and dragging.

⑯Operation enable / disable check box

By clearing the check box, you can disable the buttons in the tracking operation area.

• 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.

The screenshot shows the 'Tracking Setting' window with the following elements and callouts:

- 1** Auto Tracking Start : ☐
- 2** Stop Tracking with manual preset recall : ☐
- 3** Save tracking settings with preset : ☐
- 4** Enable Pan/Tilt Limiter only for Tracking APP : ☐ Port No: 1114
- 5** Trigger of lost state judgement : Body
- 6** Duration before judgement of lost state (1-30) : 5 Sec
- 7** Home position : Preset 1
- 8** Duration before execution of home position preset (1-30) : 3 Sec
- 9** Auto start area settings of lost state : ☒
- 10** Sensitivity Level(1-10) : 5
- 11** Tracking Disable Area (X, Y, Width, Height) : 0 0 0 0
- 12** Auto Start Area (X, Y, Width, Height) : 0 0 0 0
- 13** OK button
- 14** Cancel button

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.

③Save tracking settings with preset

Sets the tracking operation settings when a preset is called.

When the check is ON, the tracking operation settings of the following items will be saved for each preset.

When a preset is called, the tracking operation settings saved with the preset are also called and the tracking operation settings are updated.

Main screen items

- Tracking Start/Stop
- Face Recognition ON/OFF
- Face Recognition Select Face
- Face Recognition Auto Face Search

- Auto Start Area SET
- Target Position SET
- Angle Upper Body, Full Body, Full, OFF
- Pan/Tilt Limitation

* Only when the check mark is ON for Enable Pan/Tilt Limiter only for Tracking APP in Tracking Setting.

Tracking Setting items

- Auto Tracking Start
- Stop Tracking with manual preset recall
- Enable Pan/Tilt Limiter only for Tracking APP
- Trigger of lost state judgement
- Duration before judgement of lost state
- Duration before execution of home position preset
- Auto start area settings of lost state
- Sensitivity Level
- Tracking Disable Area
- Auto Start Area

④ Enable Pan/Tilt Limiter only for Tracking APP

The Pan/Tilt Limitation function is only enabled from within this application software.

Port No. is used in the retrieval of Pan/Tilt positioning data and the following settings are performed automatically for the remote camera.

(1) When **Enable Pan/Tilt Limiter only for Tracking APP** is ON

Turns IP (UDP) that belongs to the Tracking Data Output items on the web browser setup screen for the remote camera to ON, and sets the IP address and Port of the Client4 in IP out.

(2) When **Enable Pan/Tilt Limiter only for Tracking APP** is OFF

Disables the Client4 in IP out that belongs to the Tracking Data Output items on the web browser setup screen for the remote camera, and, if Client1 to Client3 are disabled, the IP (UDP) is turned ON.

* Models that can enable this function are limited to AW-UE100 and AW-UE150.

⑤ Trigger 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.

⑥ Duration before judgement of lost state

Set the time (in seconds) from when Body or Face is no longer detected until it is determined to be lost.

You can set a value in the range of 1 to 30. Judgment is made according to the setting of Trigger of lost state judgment. (Body or Face)

⑦ Home position

Set operations for when the tracking subject has been lost.

Preset1 to Preset9:

If the specified time passes once a tracking subject has been lost, the camera will return to the specified preset position.

<Note>

- The camera position will not change once a tracking subject is lost.
- When the Save tracking settings with preset check is ON, **Home position** will be set automatically according to the preset registration and preset call and will be display only.

⑧Duration 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.

⑨Auto start area settings of lost state

You can set the behavior of the AutoStart Area when the tracking target is lost.

Check box ON

AutoStartArea is set for each Lost.

Check box OFF

AutoStart Area is set only for the first time after connecting the camera

⑩Sensitivity 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.

⑪Tracking 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.

⑫Auto Start Area

You can set the area of AutoStartArea.

It can be set in the range of width 640 and height 360.

When the tracking target enters the area set here, tracking will start.

It can also be set by left-clicking and dragging on the camera image after turning on the AutoStartArea button.

To cancel the setting, left-click outside the AutoStart Area range in the camera image.

⑬OK button

Used to enable the setting and close the window.

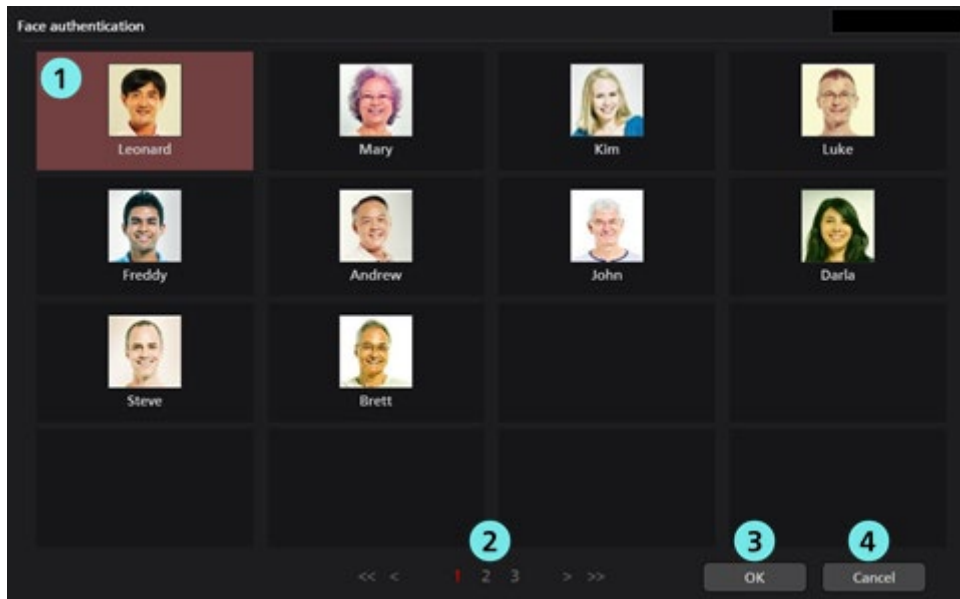
⑭Cancel button

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.



①Face 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.

②Page 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 – Control Screen

This screen is used to make the settings of the servers configuring this software.

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

For details on the server settings, refer to “Default Settings - Server Installation Settings” in this manual.



①Hostname

Displays the IP address of the registered server.

②Port No.

Displays the port number that each server uses for communication.

③Description

Displays the description of each server.

④Now Connecting

A ● mark is displayed on the connected server.

⑤Search box

Used when searching the server by the IP address.

If you enter a numeric value, only the servers that include the numeric value in the IP address are displayed in the list.

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

⑥Add button

Used to move to the Register Server screen.

⑦Edit button

Used to move to the Edit Server screen.

⑧Delete button

Used to delete the selected server.

You can delete only the Sub servers.

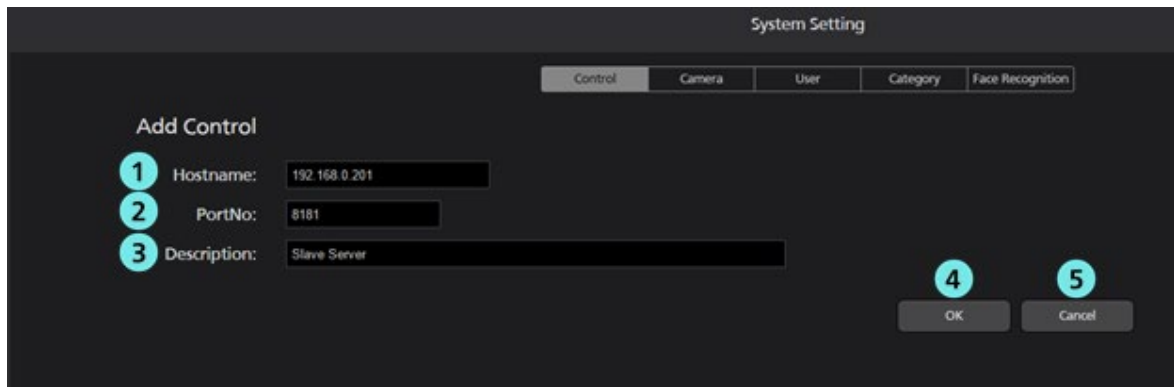
⑨Page selection button

Used to select the page to be displayed.

• Register/Edit Server screen

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

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



The screenshot shows a 'System Setting' window with a dark background. At the top, there are five tabs: 'Control', 'Camera', 'User', 'Category', and 'Face Recognition'. The 'Control' tab is selected. Below the tabs, the title 'Add Control' is displayed. There are three input fields: 'Hostname' with the value '192.168.0.201', 'PortNo' with the value '8181', and 'Description' with the value 'Slave Server'. Each input field is preceded by a numbered circle (1, 2, and 3 respectively). At the bottom right, there are two buttons: 'OK' (preceded by a numbered circle 4) and 'Cancel' (preceded by a numbered circle 5).

①Hostname

Enter the IP address of the server.

②Port No.

Enter the port number that the server uses for communication.

③Description

Enter any optional server description.

④OK button

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

⑤Cancel button

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

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.

②Type

Displays the registered camera type.

③Tracking Mode

Displays the Tracking Mode of the registered camera.

④Name

Displays the name of the registered camera.

⑤IP Address

Displays the IP address of each camera.

⑥Port No.

Displays the port number that each camera uses for communication.

⑦Now Connecting

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

⑧Search 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.

⑨Add button

Used to move to the Register Camera screen.

⑩Edit button

Used to move to the Edit Camera screen.

⑪Delete 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.

⑫Page selection button

Used to select the page to be displayed.

• 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. Type

Select the type of camera to register.

2. 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.

3. Name

Enter any optional remote camera name.

4. IP Address

Enter the IP address of the remote camera.

5. Port No.

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

6. Login

Enter the user name of the remote camera.

7. Password

Enter the password of the remote camera.

8. Height

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

9. 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.

10. Max Zoom

Set the maximum Zoom magnification of the remote camera.

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

11. Angle Zoom (Upper Body)

Set the Zoom magnification when Upper Body is selected in the Angle specification of the Main screen.
(Applicable when the Auto button on the Zoom slide bar is OFF)

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. Angle Zoom (Full Body)

Set the Zoom magnification when Full Body is selected in the Angle specification of the Main screen.
(Applicable when the Auto button on the Zoom slide bar is OFF)

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.

13. Angle Zoom (Full)

Set the Zoom magnification when Full is selected in the Angle specification of the Main screen.
(Applicable when the Auto button on the Zoom slide bar is OFF)

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.

14. Auto Zoom Size (Upper Body)

Set the Auto Zoom control value when Upper Body is selected in the Angle specification on the Main screen.
(Applicable when the Auto button on the Zoom slide bar is ON)

Specify the size of the human body detection frame (red frame) width with respect to the entire screen width.
It can be set in the range of 5 to 50.

When the Auto check is ON, the human body width size is automatically determined.

15. Auto Zoom Size (Full Body)

Set the AutoZoom control value when FullBody is selected in the Angle specification on the Main screen.
(Applicable when the Auto button on the Zoom slide bar is ON)

Specify the size of the human body detection frame (red frame) width with respect to the entire screen width.

It can be set in the range of 5 to 50.

When the Auto check is ON, the human body width size is automatically determined.

16. Auto Zoom Size (Full)

Set the AutoZoom control value when FullBody is selected in the Angle specification on the Main screen.

(Applicable when the Auto button on the Zoom slide bar is ON)

Specify the size of the human body detection frame (red frame) width with respect to the entire screen width.

It can be set in the range of 5 to 50.

When the Auto check is ON, the human body width size is automatically determined.

17. Image Capture Type

You can select the method of capturing images from the camera.

JPEG: Images are captured as JPEG images.

H.264: Images are captured as an H.264 stream.

It is necessary to make the settings for the camera in accordance with the respective image acquisition method.

For details, refer to “Default Settings - Remote Camera Settings” in this manual.

18. Previous tracking information

You can set whether to save the previous Tracking information.

Save: Saves the previous Tracking setting information.

* Tracking setting information: Tracking ON / OFF, Face Recognition ON / OFF, Angle

Not save: Does not save the previous Tracking setting information.

19. Operation after connection

Set the operation after connecting to the camera from the following.

Facing the front: After connection, the camera turns to the front.

Move to preset position: After connection, the camera moves to the selected preset position.

Do nothing: The camera keeps its position before connection

20. Operation after disconnection

Set the operation after disconnecting to the camera from the following.

Facing the front: After disconnection, the camera turns to the front.

Move to preset position: After disconnection, the camera moves to the selected preset position.

Do nothing: The camera keeps its position before disconnection

21. OK button

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

22. Cancel button

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

<Notes>

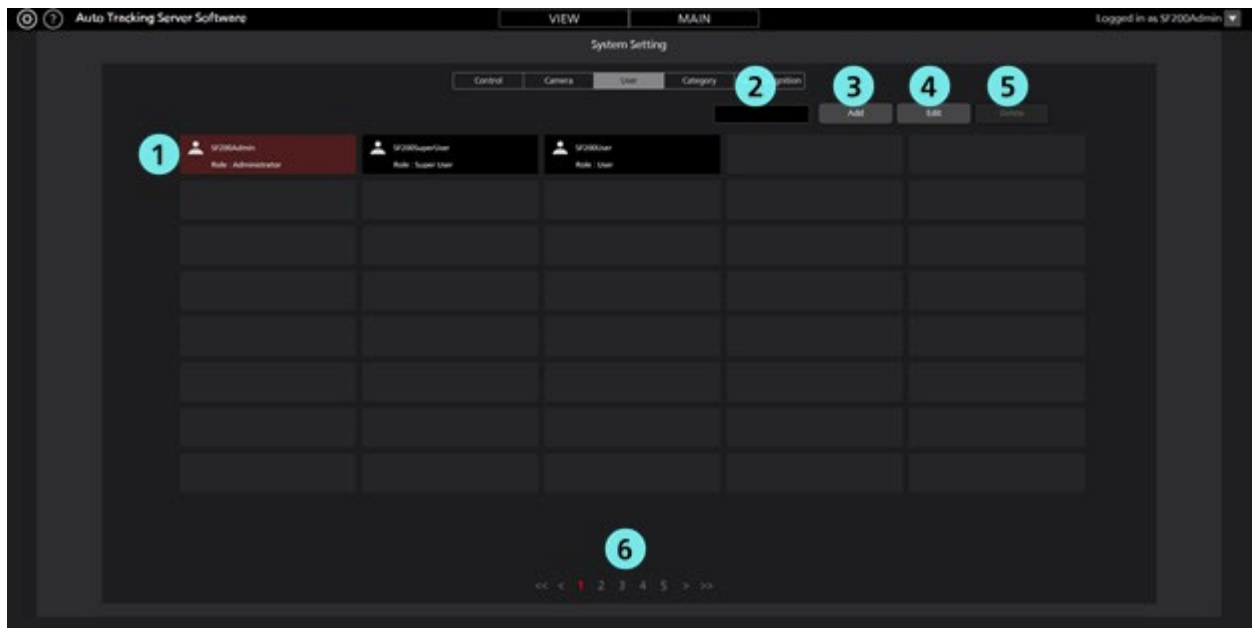
- If you change various setting values after registering the camera, the settings will be reflected by disconnecting and reconnecting the camera.

Settings – User Screen

This screen is used to make the account settings for the user using this software.

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

For details on the account settings, refer to “Default Settings - User Account Settings” in this manual.



①Account List Display

Displays the list of registered accounts.

The account name is displayed in the upper row of each account, and the authority is displayed in the lower row.

②Search box

Used when searching the account by account name.

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

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

③Add button

Used to move to the Register Account screen.

④Edit button

Used to move to the Edit Account screen.

⑤Delete button

Used to delete the selected account.

⑥Page selection button

Used to select the page to be displayed.

- **Register/Edit Account screen**

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

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

The screenshot shows a 'System Setting' window with a dark background. At the top, there is a navigation bar with five tabs: 'Control', 'Camera', 'User' (which is active), 'Category', and 'Face Recognition'. Below the navigation bar, the title 'Add User' is displayed. The form contains four input fields, each with a numbered callout in a red circle: 1. 'Login:' with the text 'SF200User'; 2. 'Password:' with masked characters; 3. 'Password(Retype):' with masked characters; 4. 'Role:' with the text 'User'. At the bottom right, there are two buttons: 'OK' (callout 5) and 'Cancel' (callout 6).

① **Login**

Enter the account name.

② **Password**

Enter the password.

③ **Password (Retype)**

Re-enter the password for confirmation.

④ **Role**

Set the account authority.

⑤ **OK button**

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

⑥ **Cancel button**

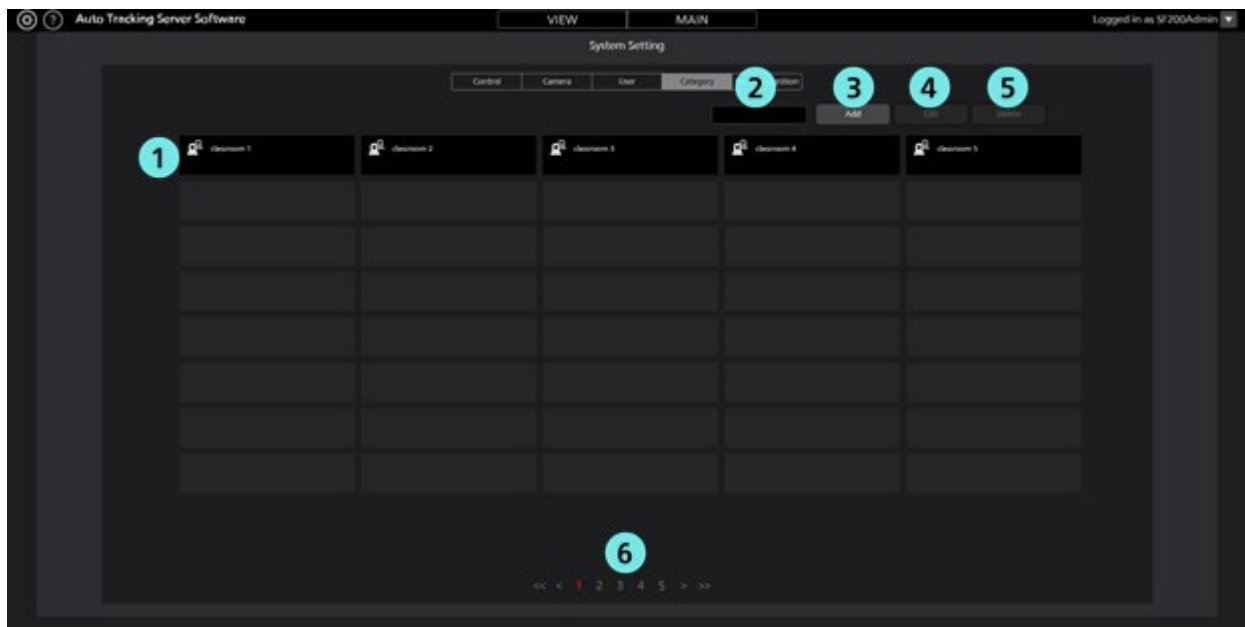
Used to cancel the settings and return to the User screen.

Settings – Category Screen

This screen is used to make the settings of the category (group) of the registered remote camera.

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

For details on the category settings, refer to “Default Settings - Camera Category Settings” in this manual.



①Category list display

Displays the list of registered categories.

②Search box

Used when searching the category.

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

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

③Add button

Used to move to the Register Category screen.

④Edit button

Used to move to the Edit Category screen.

⑤Delete button

Used to delete the selected category.

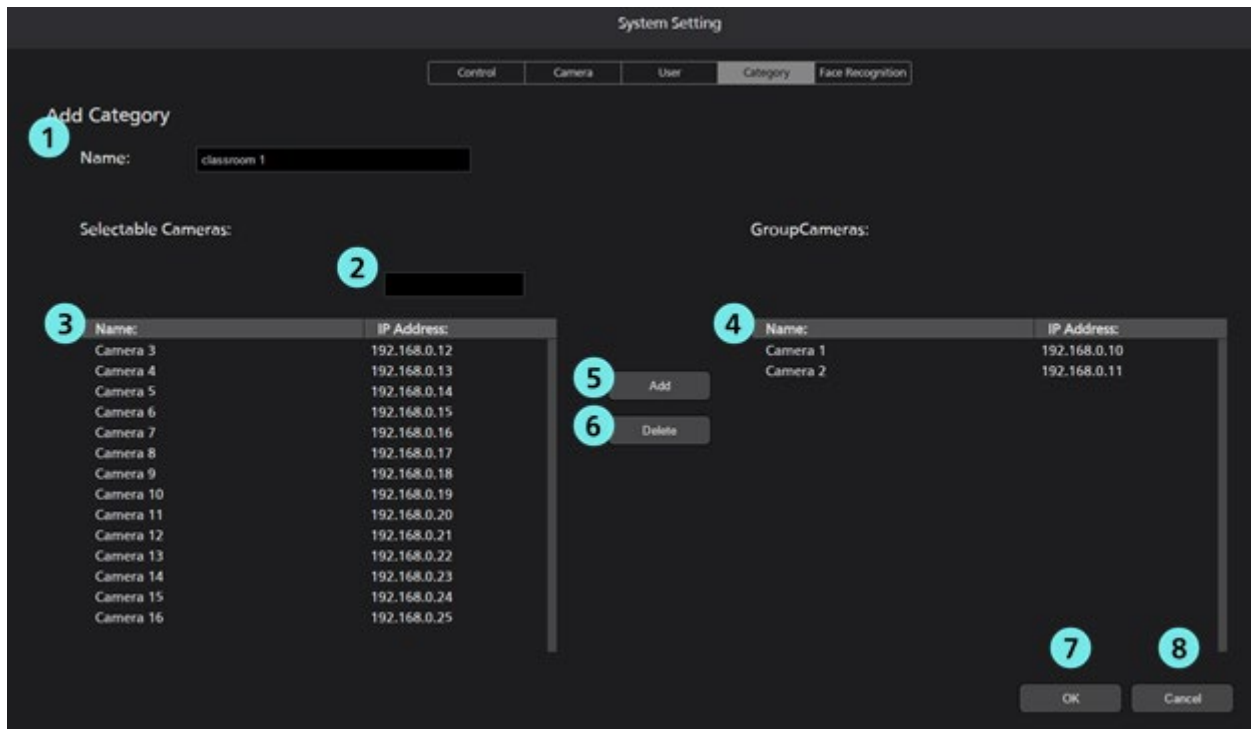
⑥Page selection button

Used to select the page to be displayed.

• Register/Edit Category screen

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

You can register a new category and edit an already-registered category.



①Name

Enter the category name.

②Search box

If you enter a string, only the cameras that include the string in the name are displayed in the camera list indicated in (3).

③List of cameras that do not belong to the category

A list of cameras that do not belong to the currently registered or edited category is displayed.

④List of cameras that belong to the category

A list of cameras that belong to the currently registered or edited category is displayed.

⑤Add button

If you select a camera in the list of cameras indicated in (3) and then click this button, the selected camera is added to the category.

⑥Delete button

If you select a camera in the list of cameras indicated in (4) and then click this button, the selected camera is deleted from the category.

⑦OK button

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

⑧Cancel button

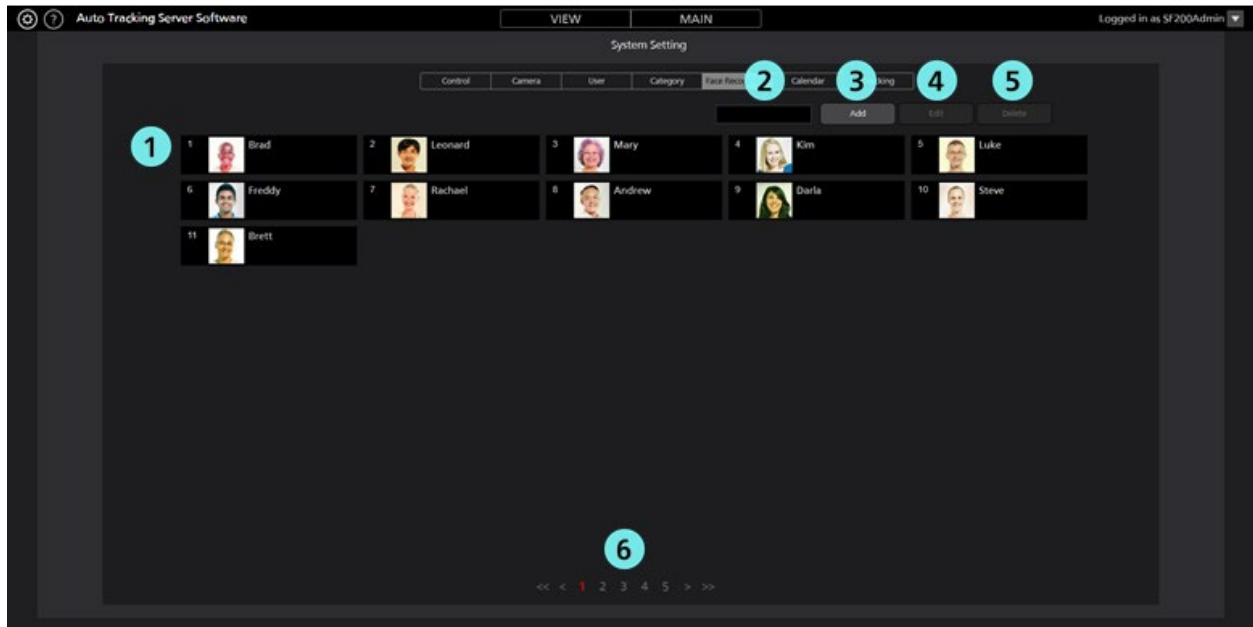
Used to cancel the settings and return to the Category screen.

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.



①Face data list display

Displays the list of registered face data.

②Search 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.

③Add button

Used to move to the Register Face Data screen.

④Edit button

Used to move to the Edit Face Data screen.

⑤Delete 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.

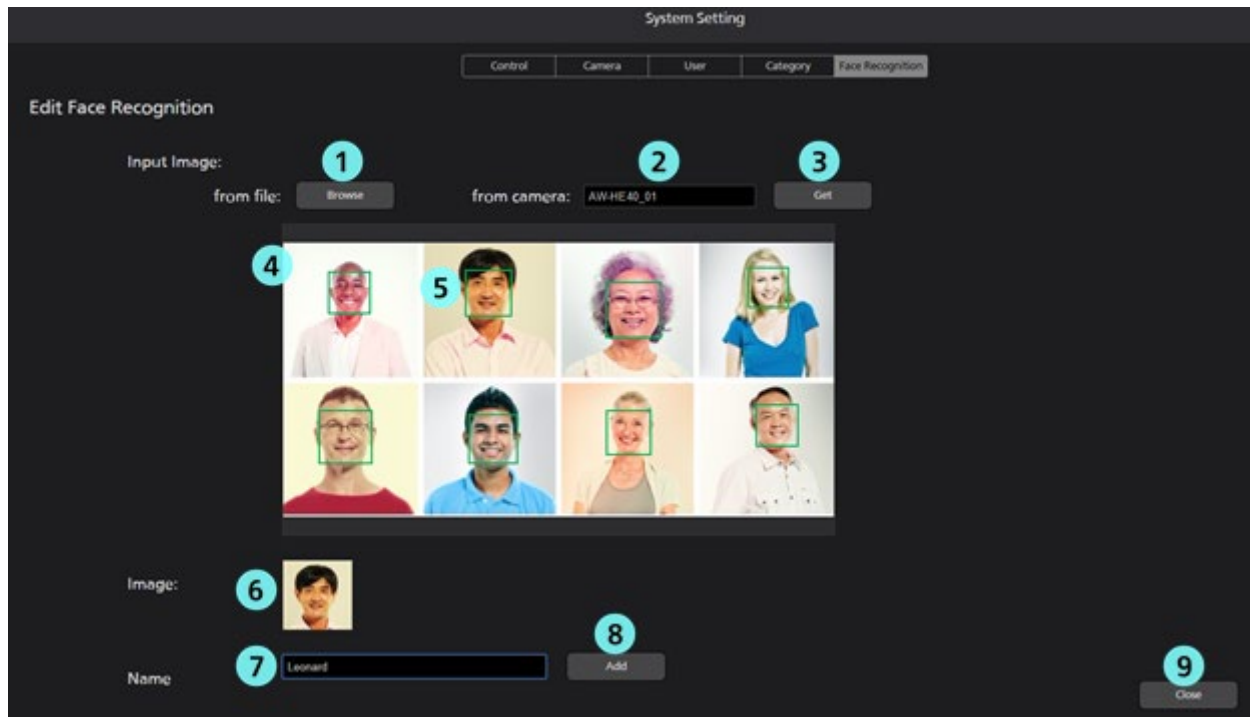
⑥Page selection button

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

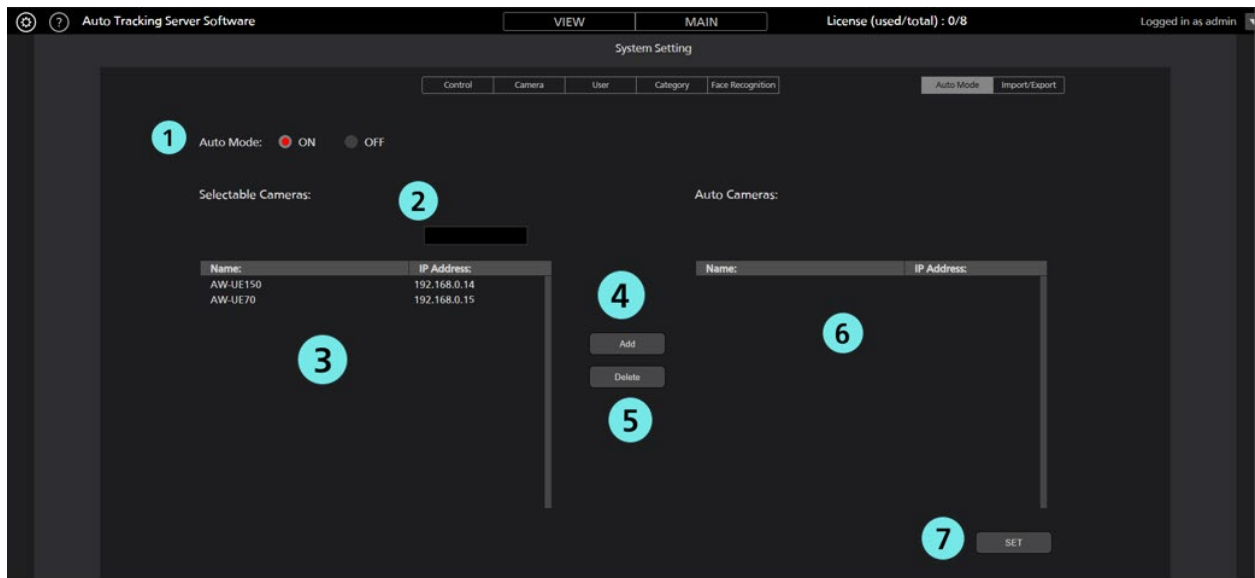
Click this button to return to the Face Recognition screen.

Settings – AutoMode Screen

This is the screen for setting automatic connection.

Click the Settings button at the top left of the screen and click the Auto Mode tab to move to this screen.

For details on automatic connection settings, refer to "Auto Mode Settings" in this manual.



①Auto Mode ON / OFF

When Auto Mode is ON, the Auto Mode setting is enabled.

When Auto Mode is OFF, the Auto Mode setting is disabled.

②Search box

Used when searching for a camera.

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

To restore the display, clear the entered information.

③Selectable Camera area

A list of cameras for which Auto Mode is not set is displayed.

④Add button

Add a camera from the Selectable Camera area to the Auto Camera area.

⑤Delete button

Add a camera from the Auto Camera area to the Selectable Camera area.

⑥Auto Camera area

A list of cameras with the Auto Mode setting enabled is displayed.

⑦SET button

By pressing the SET button, the Auto Mode setting will be reflected in the app.

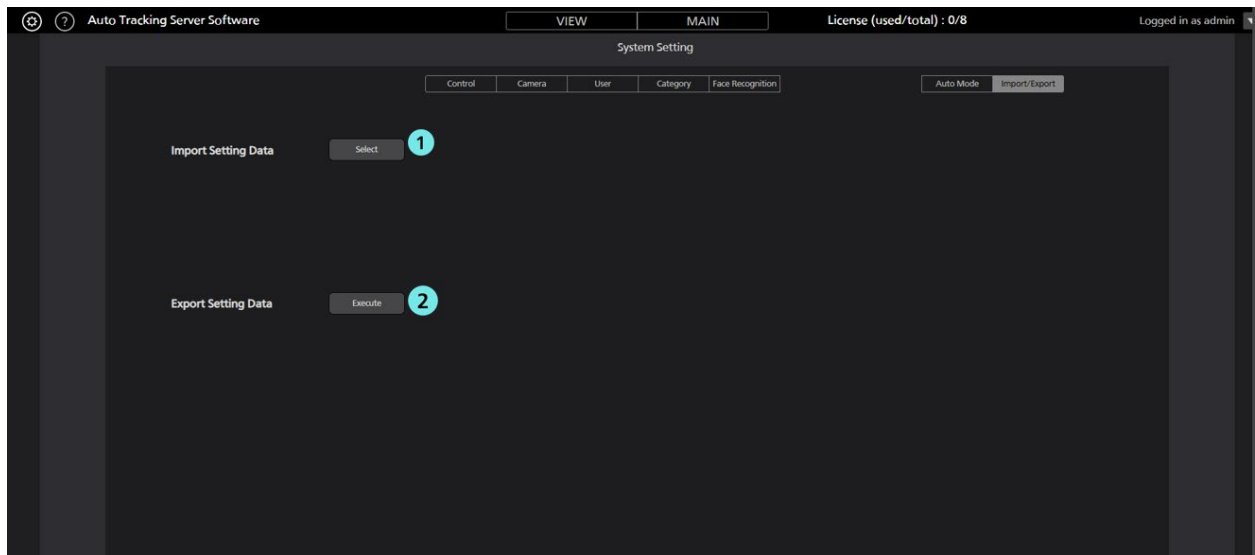
Settings – Import/Export Screen

This screen is for importing / exporting setting data.

* Only users with Super User / Administrator privileges are displayed.

Click the Settings button at the top left of the screen and click the Import / Export tab to move to this screen.

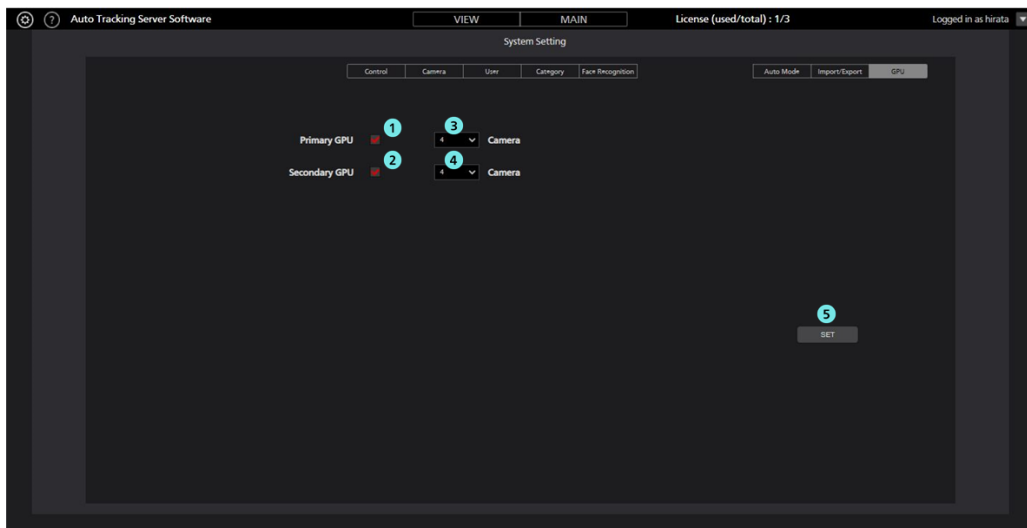
For details on Import / Export, refer to "Data Export / Import" in this manual.



- ① Select
You can select the file to import.
- ② Execute
You can export the current configuration data.

Settings - GPU Screen

When a computer has two GPUs, the processing load (number of cameras) for tracking that is assigned to each GPU can be set.



① Primary GPU check box

Select the checkbox and turn it ON to assign a tracking process to the Primary GPU.

② Secondary GPU check box

Select the checkbox and turn it ON to assign a tracking process to the Secondary GPU.

③ Primary GPU camera number selection box

The number of cameras (1 to 4) assigned to the Primary GPU can be selected.

④ Secondary GPU camera number selection box

The number of cameras (1 to 4) assigned to the Secondary GPU can be selected.

⑤ SET button

Pressing the SET button will apply the settings.

<Notes>

- The same GPUs are required for the **Primary GPU** and **Secondary GPU**.

Default Settings

Remote Camera Settings

Before using this software, make the settings in the remote camera.

The methods of capturing images from the remote camera include capturing images as JPEG images, and capturing images as an H.264 stream.

When capturing images as JPEG images, set “Image capture type” to JPEG at the time of registering the camera from Settings - Camera screen of this software.

When capturing images as an H.264 stream, set “Image capture type” to H.264 at the time of registering the camera from Settings - Camera screen of this software.

■ AW-UE100 settings

The tracking performance is higher when images are captured as JPEG images.

- When images are captured as JPEG images

On the Web screen of the camera, make the following settings from Setup -> Video over IP -> JPEG(1):

Image capture size: 1280 x 720 or higher

Refresh interval: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

- When images are captured as an H.264 stream

On the Web screen of the camera, make the following settings from Setup -> Video over IP -> H.264(1):

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority: Frame rate

Frame rate: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

■ AW-UE150 settings

The tracking performance is higher when images are captured as JPEG images.

- When images are captured as JPEG images

On the Web screen of the camera, make the following settings from Setup -> Video over IP -> JPEG(1):

Image capture size: 1280 x 720 or higher

Refresh interval: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

- When images are captured as an H.264 stream

On the Web screen of the camera, make the following settings from Setup -> Video over IP -> H.264(1):

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority: Frame rate

Frame rate: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

■ AW-HE130 settings

The tracking performance is higher when images are captured as an H.264 stream.

- When images are captured as JPEG images

On the Web screen of the camera, make the following settings for each item:

Initial display settings for “Live” page

Stream: JPEG(1)

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

JPEG(1)

JPEG transmission: On

Image capture size: 1280 x 720

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 images are captured as an H.264 stream

On the Web screen of the camera, make the following settings from Setup -> Image/Audio -> H.264(1):

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority: Frame rate

■ AW-UE70 / AW-HE42 settings

The tracking performance is higher when images are captured as JPEG images.

- When images are captured as JPEG images

On the Web screen of the camera, make the following settings from Setup -> Image/Audio -> JPEG(1):

Image capture size: When the Priority Mode is IP: 1280 x 720

When the Priority Mode is other than IP: 640 x 360

- This software cannot be used in USB mode.

Refresh interval: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

Image quality: Normal

- When images are captured as an H.264 stream

On the Web screen of the camera, make the following settings from Setup -> Image/Audio -> H.264(1):

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority: Frame rate

Frame rate: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

■ AW-HE40 settings

The tracking performance is higher when images are captured as JPEG images.

- When images are captured as JPEG images

On the Web screen of the camera, make the following settings from Setup -> Image/Audio -> JPEG(1):

Image capture size: When the Priority Mode is IP: 1280 x 720

When the Priority Mode is other than IP: 640 x 360

- This software cannot be used in USB mode.

Refresh interval: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

Image quality: Normal

- When images are captured as an H.264 stream

On the Web screen of the camera, make the following settings from Setup -> Image/Audio -> H.264(1):

H.264 transmission: On

Image capture size: 1280 x 720 or higher

Transmission priority: Frame rate

Frame rate: During NTSC: 15 fps or higher, During PAL: 12.5 fps or higher

(As of 06.2021)

■ AW-UE4 settings

The tracking performance is higher when images are captured as JPEG images.

- When images are captured as JPEG images

On the Web screen of the camera, set Setup-> Basic-> Priority mode to IP.

Make the following settings from Setup -> Image/Audio -> JPEG

Image capture size: 1280 x 720

Frame rate: During NTSC: 10, During PAL: 10

- When images are captured as an H.264 stream

On the Web screen of the camera, set Setup-> Basic-> Priority mode to IP.

Make the following settings from Setup -> Image/Audio -> H.264/H.265

Stream transmission: On

Codec: H.264

Image capture size: 1280 x 720

Frame rate: During NTSC: 15, During PAL: 10

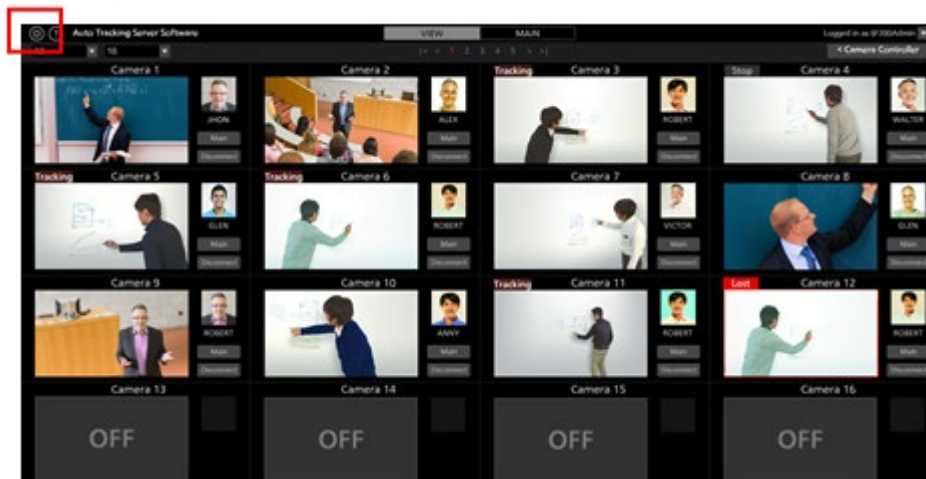
(As of 06.2021)

Server Installation Settings

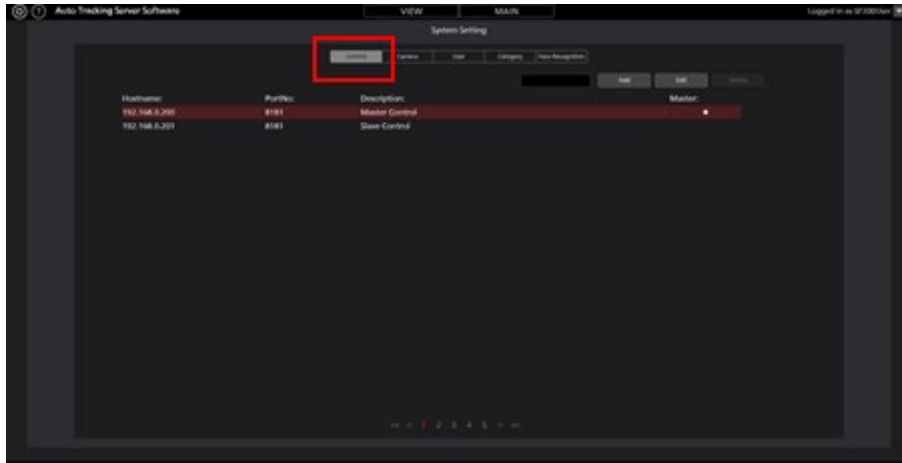
When configuring this software by multiple servers, make the server installation settings during the initial startup.

This setting is not required when configuring the software by a single server.

1. Log in to this software.
2. The View screen appears. Click the Settings button at the top left of the screen.



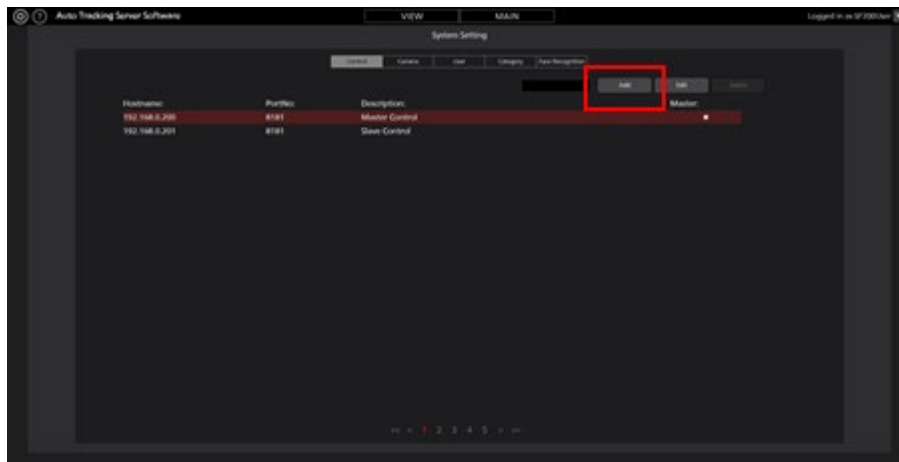
3. Click the Control tab in the center of the Settings screen.



4. Register the Sub servers.

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

(1) Click the Add button to move to the Register Server screen.

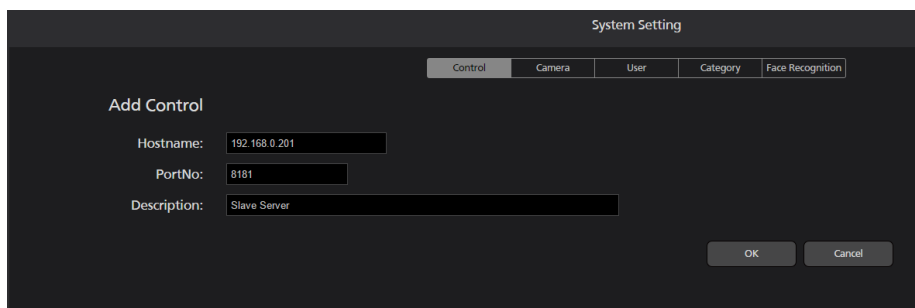


(2) Make an entry in the following items.

Hostname: IP address of the Sub server

PortNo: Port number used by the Sub server (the default value is 8190)

Description: Description of the Sub server

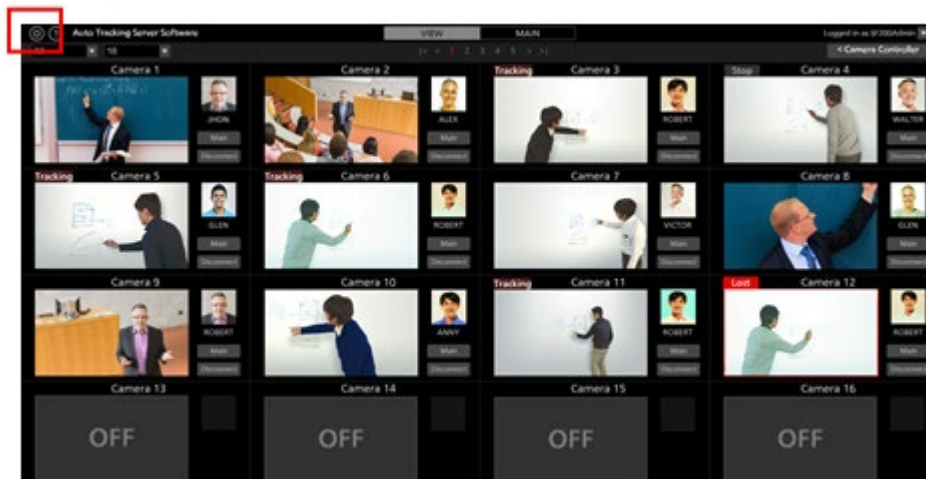


(3) Click the OK button to complete registration.

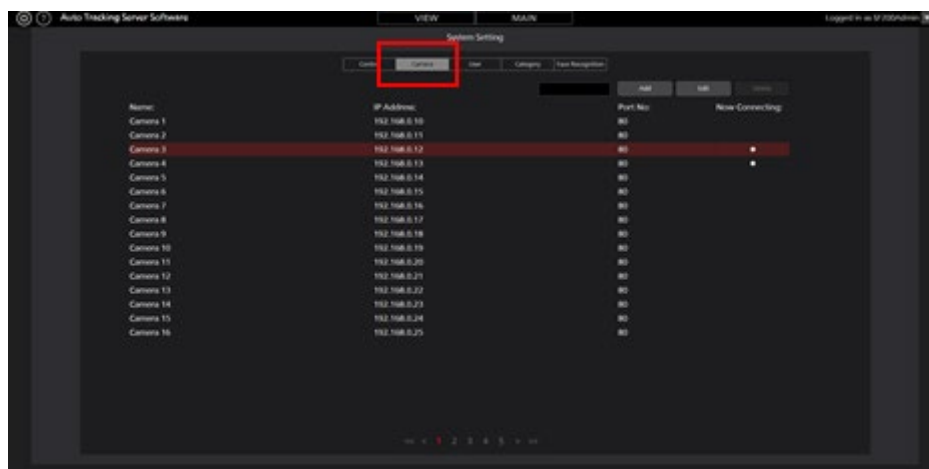
Remote Camera Installation Settings

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

1. Log in to this software.
2. The View screen appears. Click the Settings button at the top left of the screen.



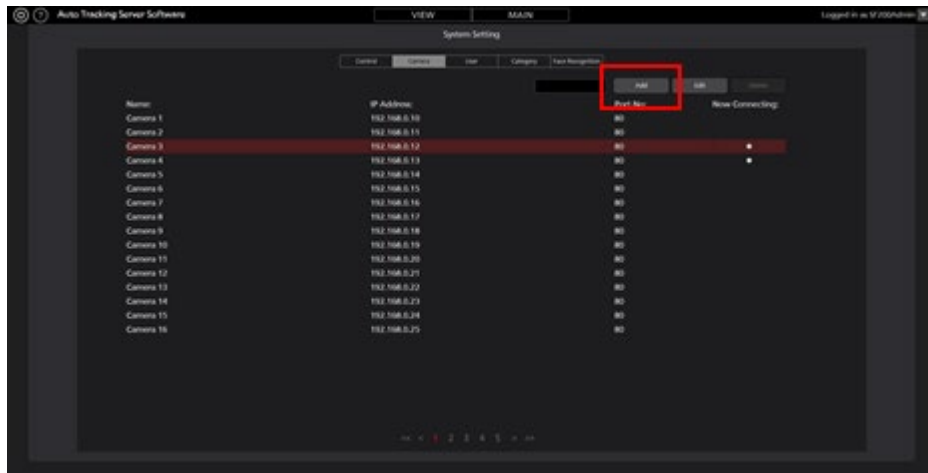
3. Click the Camera tab in the center of the Settings screen.



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

The screenshot shows the 'Add Camera' dialog box. It has tabs for 'Control', 'Camera', 'User', 'Category', and 'Face Recognition'. The 'Camera' tab is selected. The dialog contains the following fields and options:

- Type: ☒ PTZ Camera
- PTZ Camera:
- Name:
- IP Address:
- Port No:
- Login:
- Password:
- Height: cm
- Distance: cm
- Max Zoom: %
- Zoom Pos(Upper Body): % ☒ Auto
- Zoom Pos(Full Body): % ☒ Auto
- Zoom Pos(Full): % ☒ Auto
- Auto Zoom Size(Upper Body): % ☒ Auto
- Auto Zoom Size(Full Body): % ☒ Auto
- Auto Zoom Size(Full): % ☒ Auto
- Image Capture Type: ☒ JPEG ☐ H.264
- Previous tracking information: ☒ Save ☐ Not save
- Operation after connection: ☒ Facing the front ☐ Move to preset position ☐ Do nothing

At the bottom right, there are 'OK' and 'Cancel' buttons.

- 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.



A screenshot of a camera registration window. The window has a dark background and contains a table with the following columns: No., Client Mac, IP Address, Port No., Camera Name, and Camera Model. The table lists three cameras. At the bottom right of the window is an 'OK' button.

| No. | Client Mac | IP Address | Port No. | Camera Name | Camera Model |
|-----|-------------------|---------------|----------|-------------|--------------|
| 1 | 20-C6-E8-E7-02-43 | 10.194.151.12 | 80 | AIWHE70 | CAM3HE70 |
| 2 | 08-00-23-66-02-21 | 192.168.0.99 | 80 | | SIN311L |
| 3 | 00-80-45-2F-24-80 | 10.194.151.31 | 80 | | CAM3EA10 |

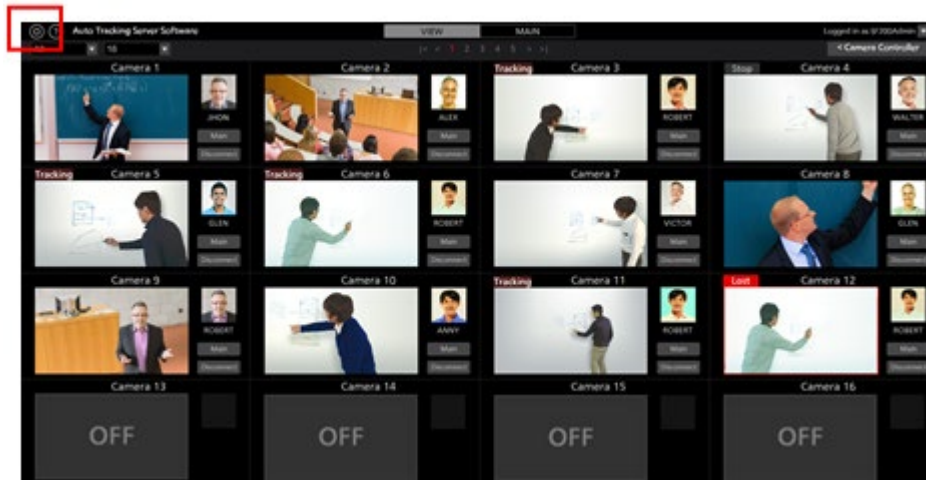
OK

(3) Click the OK button to complete registration.

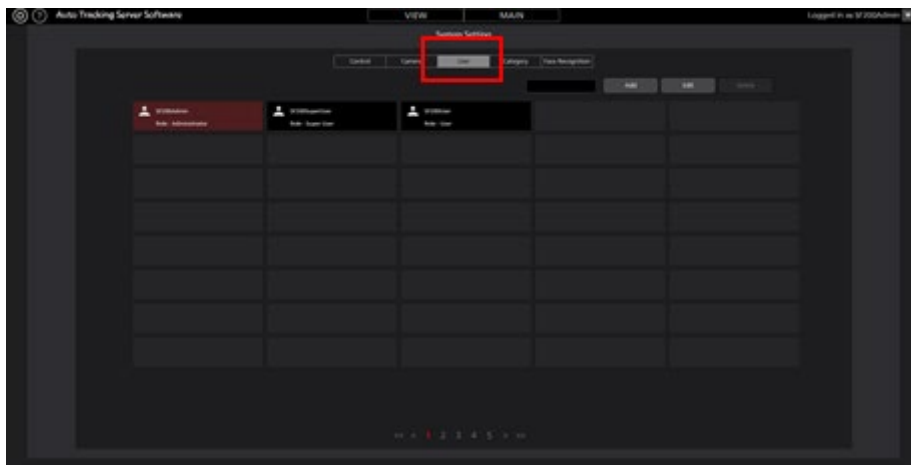
User Account Settings

During initial startup of this software, make the settings of the user account using this software.

1. Log in to this software.
2. The View screen appears. Click the Settings button at the top left of the screen.



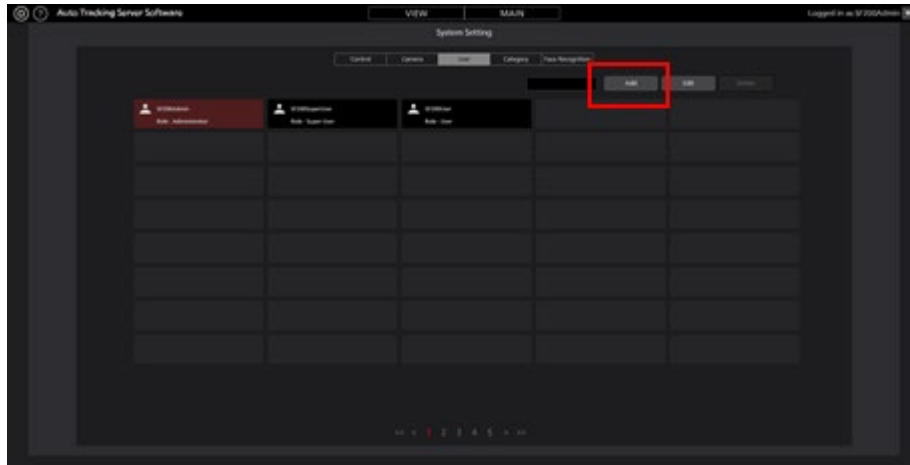
3. Click the User tab in the center of the Settings screen.



4. Make the settings of the user account.

Perform the registration task described below only as many times as the number of required users.

- (1) Click the Add button to move to the Register User screen.



(2) Make an entry in the following items.

Login: User account name

Password: Password

Password (Retype): Password (for confirmation)

Role: Account authority You can select the role from the following three types:

Administrator: All functions can be used

Super User: Server settings (Control screen) cannot be used

User: The following features are not available

Server settings (Control screen)

Account management (User screen)

Camera settings (Camera screen)

Category settings (Category screen)

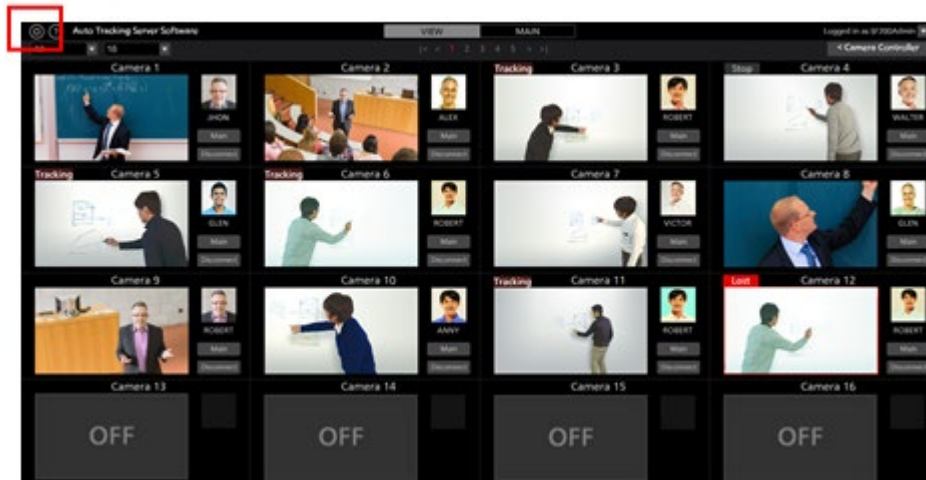
When User is selected in Role, you can set the camera categories that can be accessed.

(3) Click the OK button to complete registration.

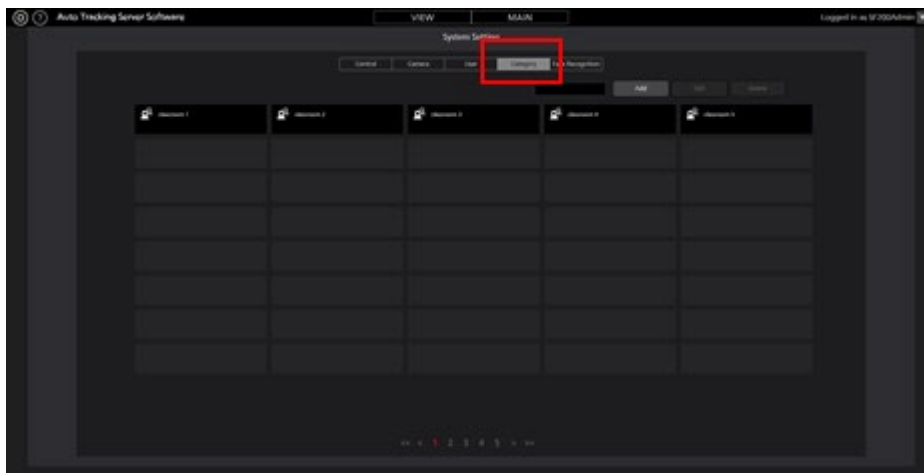
Camera Category Settings

If necessary, make the settings for the camera category (camera group).

1. Log in to this software.
2. The View screen appears. Click the Settings button at the top left of the screen.



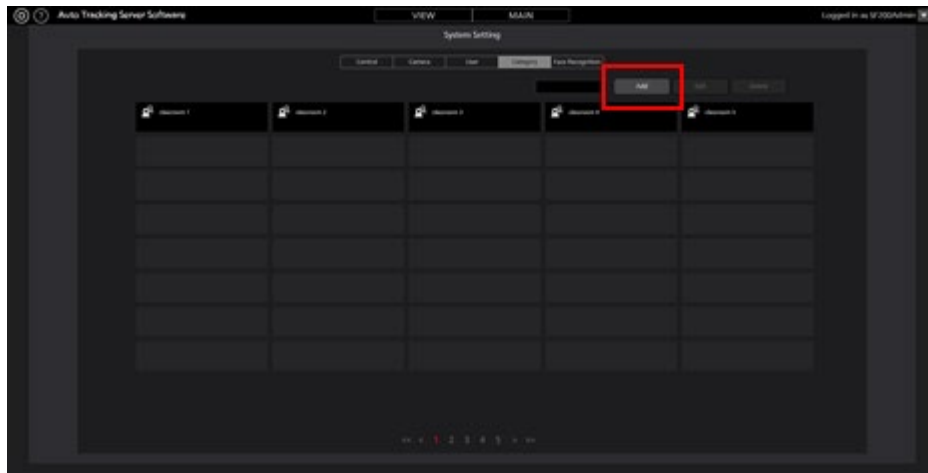
3. Click the Category tab in the center of the Settings screen.



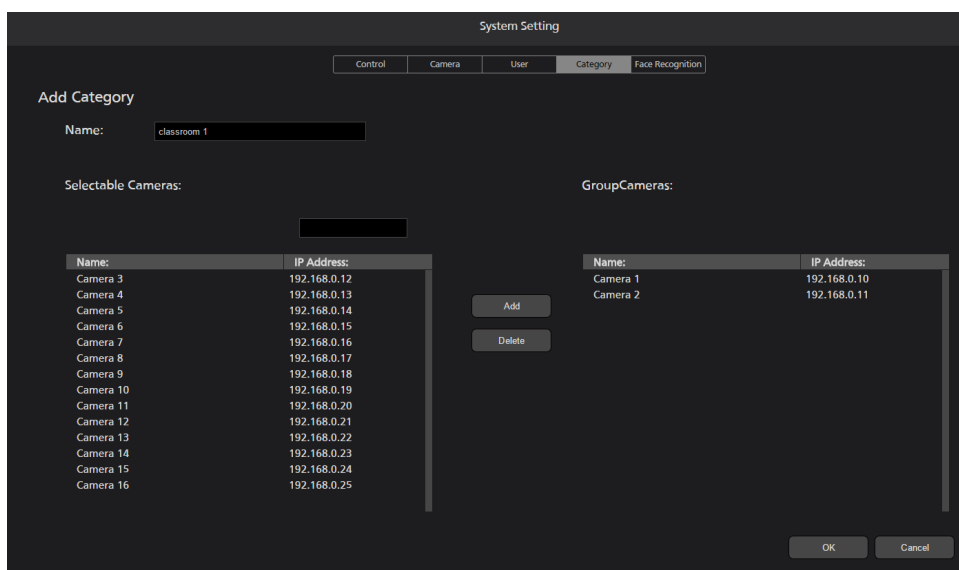
4. Make the settings for the category.

Perform the registration task described below only as many times as the number of required categories.

- (1) Click the Add button to move to the Register Category screen.



- (2) Enter the name of the category to be registered in Name.
- (3) If you select a camera to be registered in the category from the camera list on the left, and then click the Add button, the camera is added to the category.



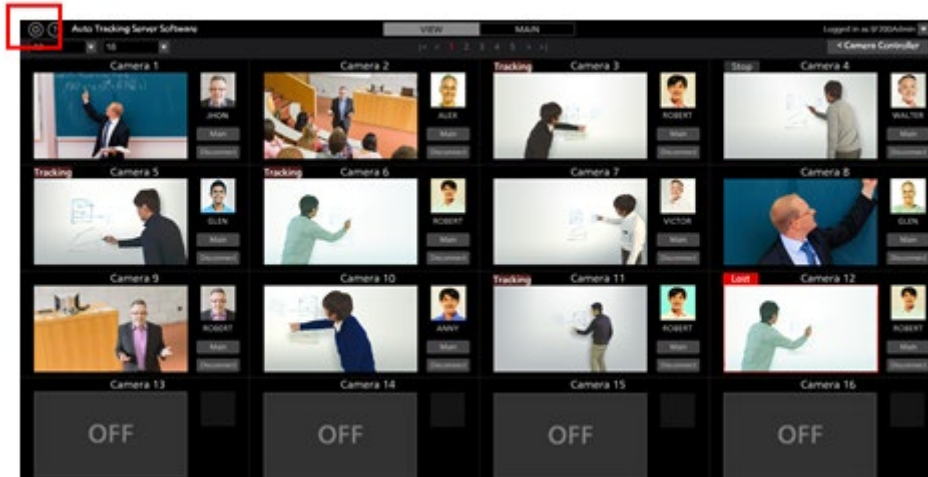
- (4) Click the OK button to complete registration.

Auto Mode Settings

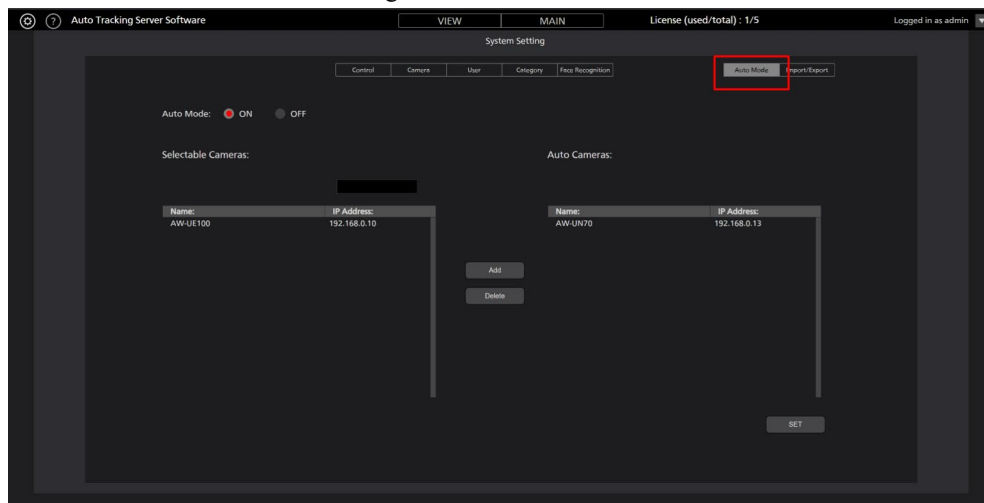
You can configure the auto connection settings for the camera.

For cameras that are subject to Auto Mode settings, this software will automatically perform the connection process.

1. Click the Settings button in the upper left corner of the screen.



2. Click the Auto Mode tab on the Settings screen.

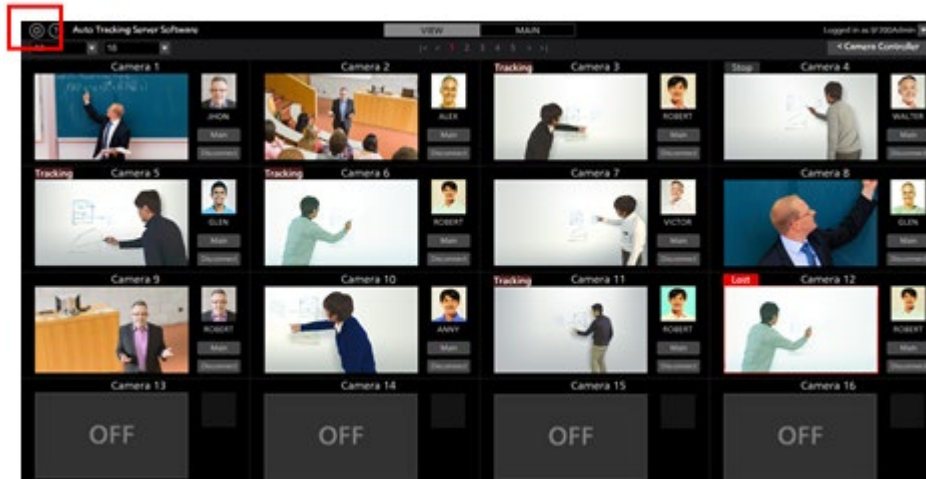


3. Set Auto Mode to ON.
4. In the Selectable Cameras area, click on the camera for which you want to set AutoMode.
5. After selecting the camera, click the Add button.
6. The camera will be added to the list of Auto Cameras.
7. Click the SET button to complete the settings.

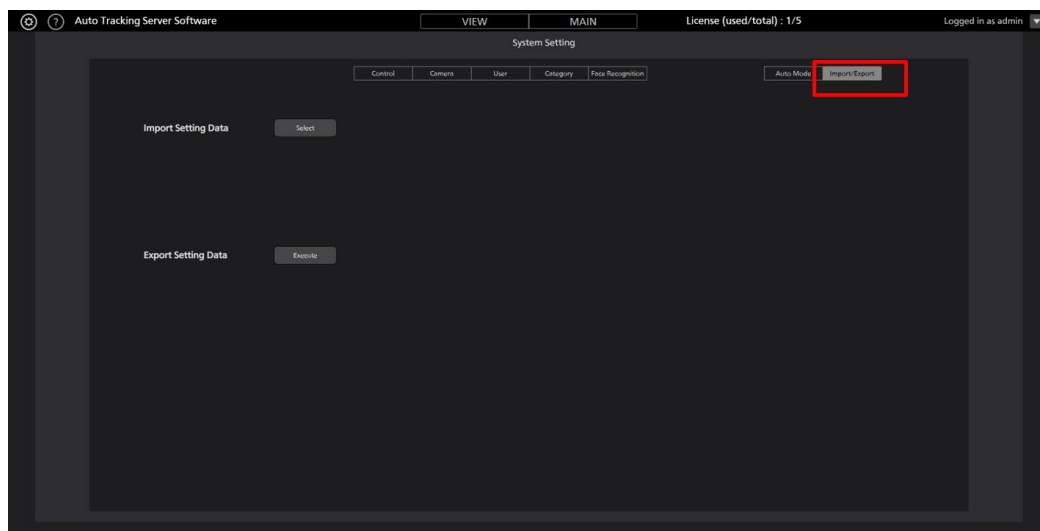
Data Export / Import

You can export/import the data of this software.

1. Click the Settings button at the top left of the screen.



2. Click the Import/Export tab on the Settings screen.



3. If you want to export, click the Execute button.
4. When the export is complete, a .bak file will be output.
5. If you want to import, click the Select button.
6. Select the .bak file.
7. When the import is complete, the app will be reloaded.

Data Settings for Face Recognition

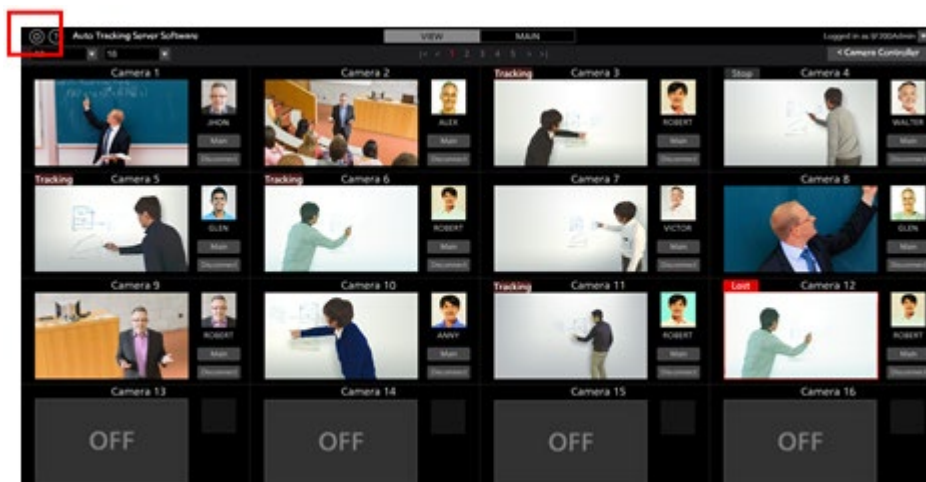
Registering the Face Data

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.

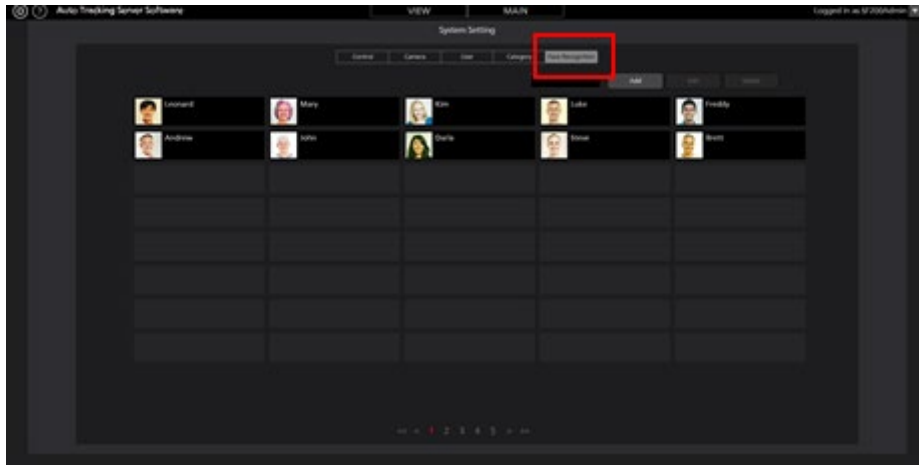
You can register beforehand the face data that is used as a recognition source of the person to be tracked. There are two methods of registering the face data, namely a method of using an existing JPEG image, and a method of using an image captured from camera images.

Register the face data according to the procedure described below.

1. Log in to this software.
2. The View screen appears. Click the Settings button at the top left of the screen.



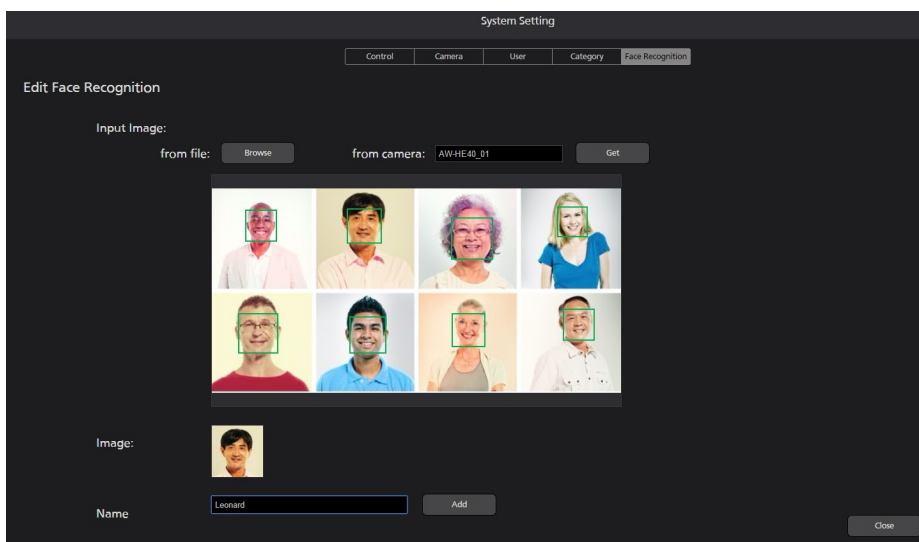
3. To capture from the camera images, click the Connect button of the camera to use to set the camera to the connected state.
4. Click the Face Recognition tab in the center of the Settings screen.



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 3 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.

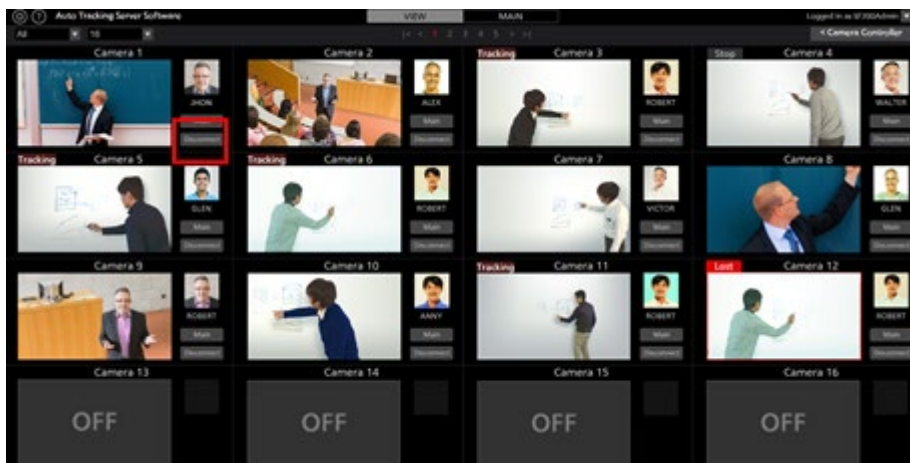
Explanation of the Tracking Operation

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

This software can be connected to multiple remote cameras to perform the tracking operation in each camera, but the number of cameras that can be connected is restricted.

The upper limit of the number of cameras that can be connected is the smaller value of the below-described A and B.

A: Restriction based on the number of servers

The upper limit is the number of servers configuring this software x 4.

B: Restriction based on the license

The number of cameras described below is the upper limit.

During the trial use period: 16

When activation has been completed: Number of cameras in accordance with the activated license

When an attempt is made to connect more cameras than the upper limit, an error message is displayed. Click the Disconnect button of the connected cameras to disconnect the connection.

<Notes>

- The license usage status is displayed as “License (used/total)” at the top of the View screen or Main screen.

Starting the Tracking Process

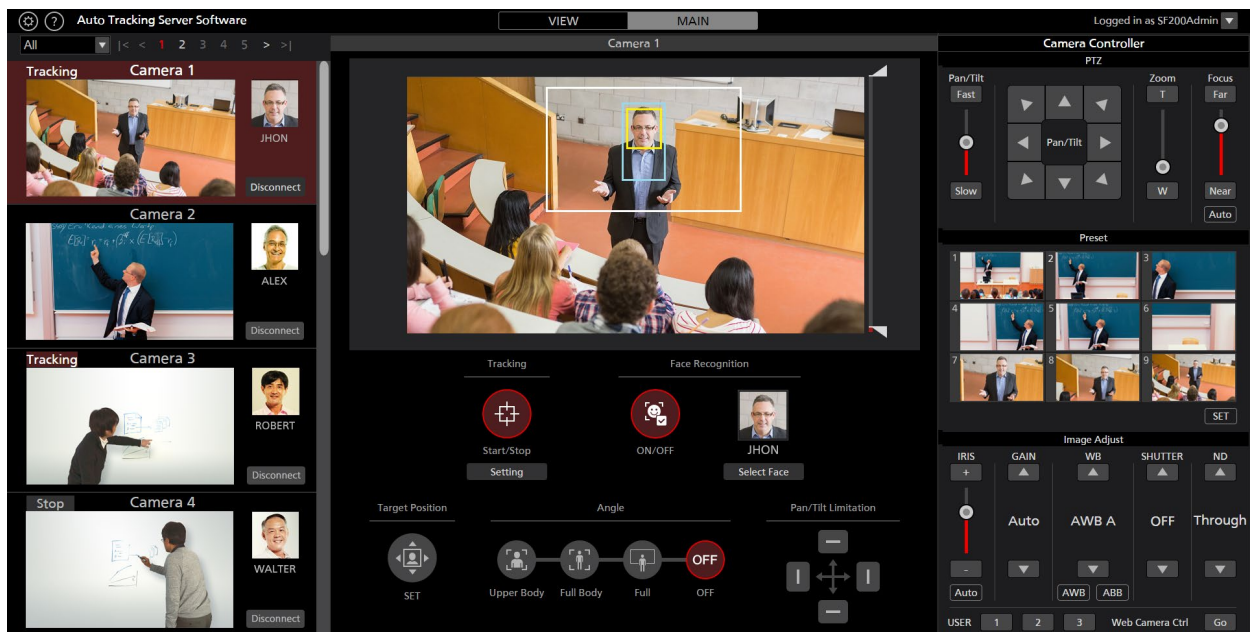
- When tracking is started automatically

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. To detect the face of the person set by the face recognition function, set the face recognition function according to the procedure below.

- When a specific person is the target

- ① Click the Select Face button to view 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 If the face of the tracking target is detected in the camera image, the tracking process is started.

- When the tracking target is to be detected from all persons for whom the face data is registered.

- ① Select the Auto Face Search checkbox.
- ② Set the Face Recognition ON/OFF button to ON.

③ If any person for whom the face data has been registered is detected in the camera image, the tracking process is started. The smaller the face data ID on the Settings - Face Recognition screen, the higher the priority order of detection.

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 the remote camera is AW-UE4, tracking is performed by changing the position of the zoomed image. The orientation of the camera itself does not change.

• **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 set face data, select the Auto Face Search checkbox, and then deselect the Auto Face Search checkbox.
- 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.
- When the remote camera is AW-UE4, tracking is performed by changing the position of the zoomed image. The orientation of the camera itself does not change.

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

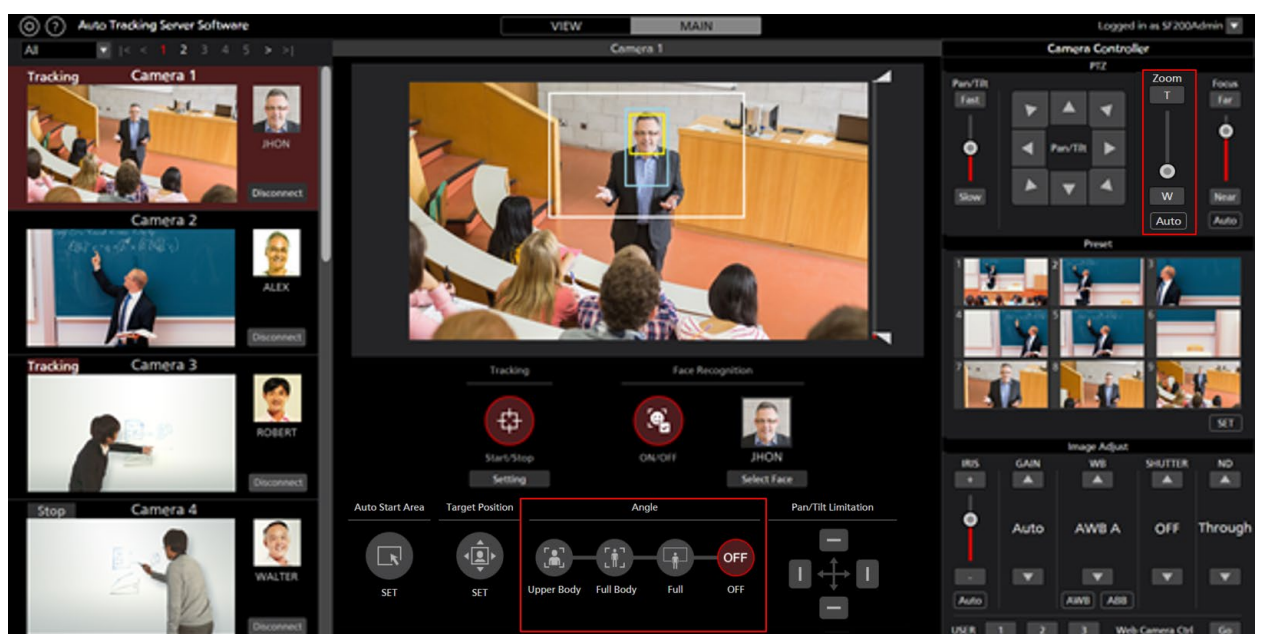
<Notes>

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

Setting the Zoom Magnification during Tracking (Zoom Auto OFF/ON)

■ When Auto of the large slide bar is OFF

You can set the zoom magnification during tracking according to the procedure described below:



1. The Main screen appears.

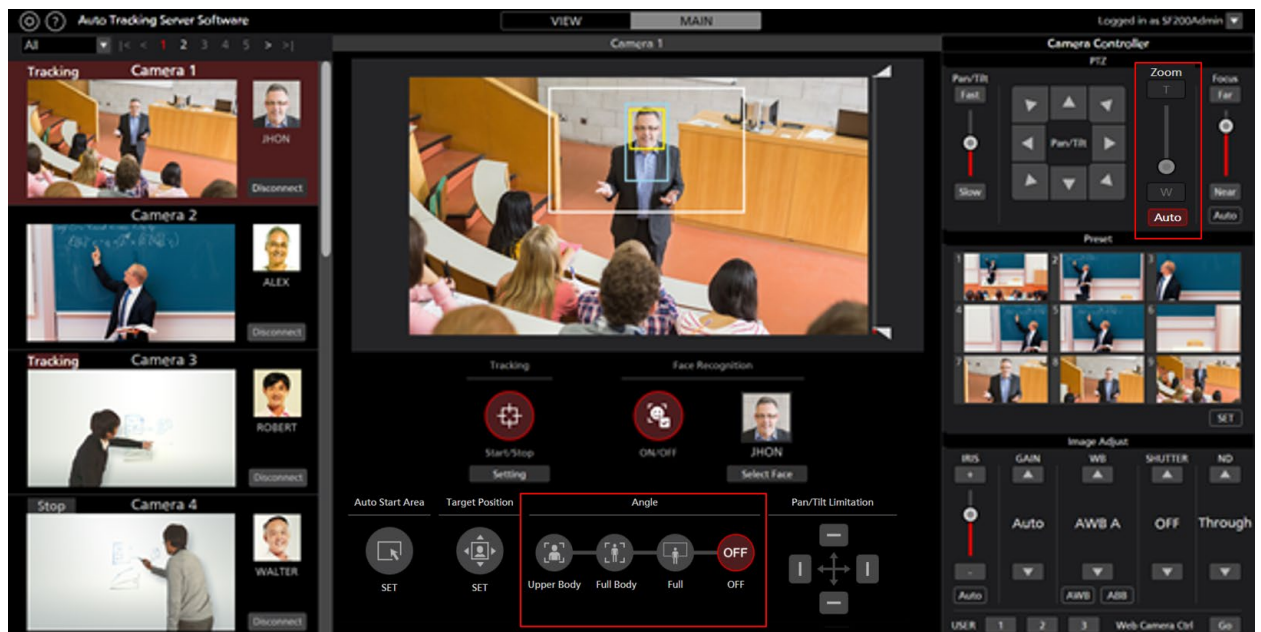
2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.
3. To manually set the Zoom magnification, make the settings with the Zoom position control slider/button of the camera controller.
4. To set to a predetermined Zoom magnification, 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.
- This function cannot be used when the remote camera is AW-UE4.

■ When Auto of the large slide bar is ON

You can set the zoom magnification during tracking according to the procedure described below:



1. The Main screen appears.
2. Select the camera to be operated in the camera list display on the left side of the screen.
3. Click the Auto button at the bottom of the Zoom slide bar.
4. If there is an angle you want to set, click one of the Angle UpperBody / FullBody / Full buttons.
The Zoom magnification is automatically controlled so that the angle of view matches the selection.
* When Angle is OFF, the Zoom magnification is automatically controlled to maintain the angle of view at the start of tracking.

<Notes>

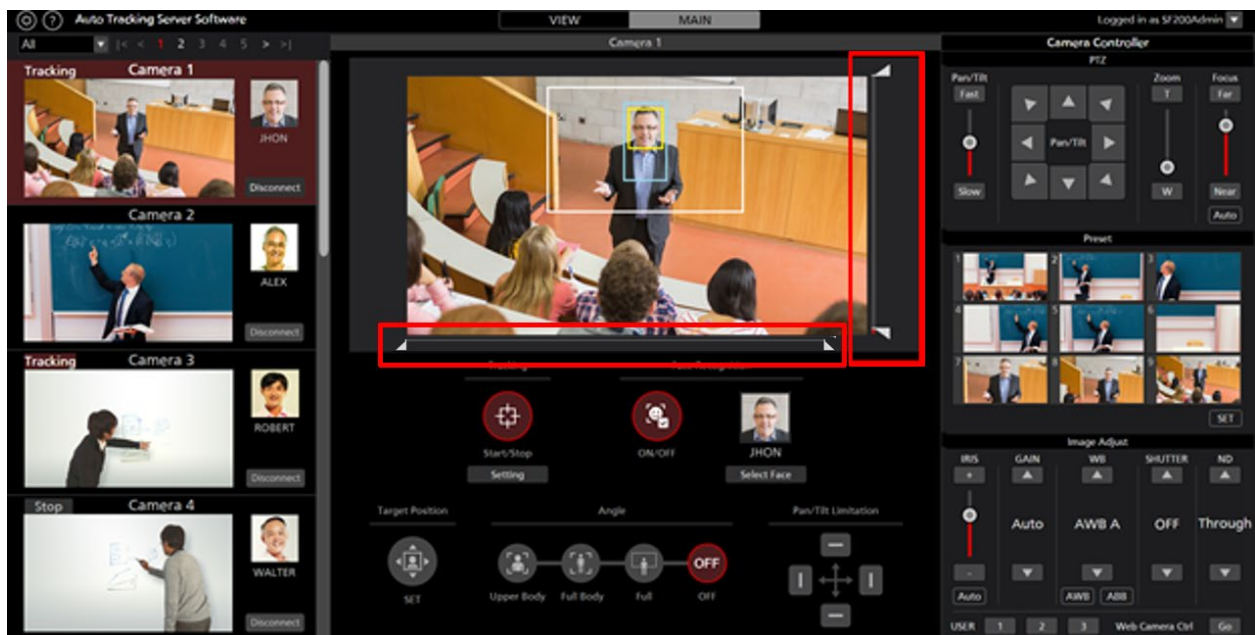
- If the Zoom magnification is changed significantly in a short period of time, the tracking target may be lost.

- 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.
- This function cannot be used when the remote camera is AW-UE4.

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.

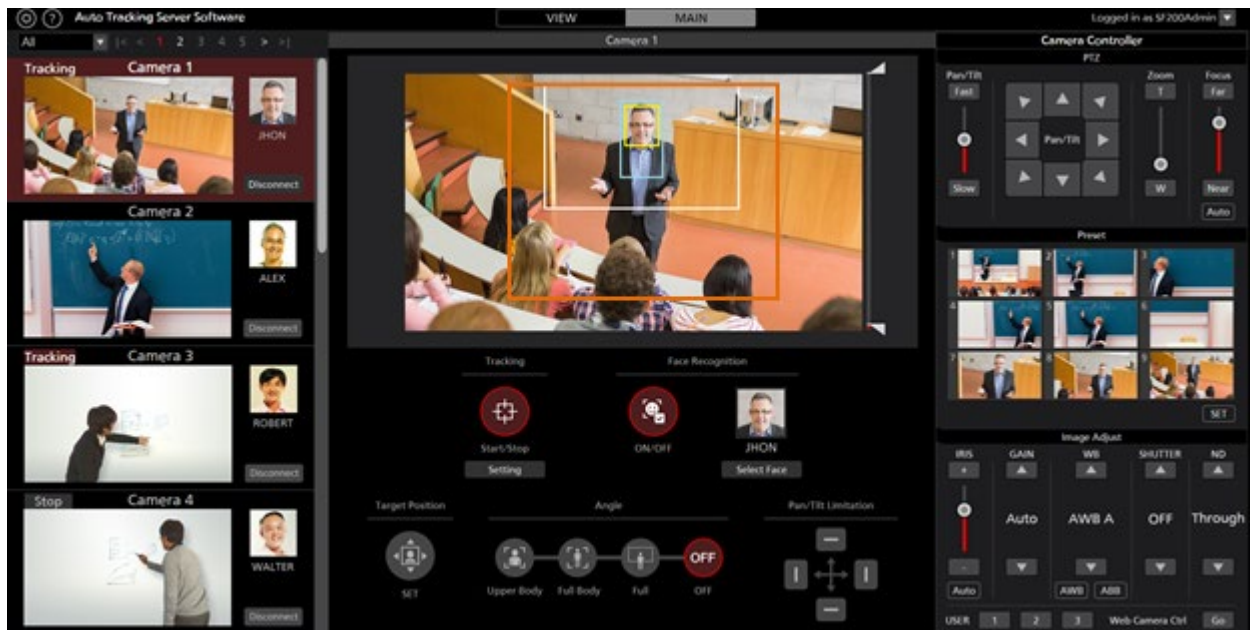


1. The Main screen appears.
2. Select the camera for which operations are to be performed from the camera list display on the left end of the screen.
3. Operate the knob of the slider on the right side of the camera image to set the mask area at the top and bottom of the screen. The setting is reflected immediately.
4. Operate the slider knob below the camera image to set the mask areas on the left and right sides of the screen, respectively. The settings will be 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.

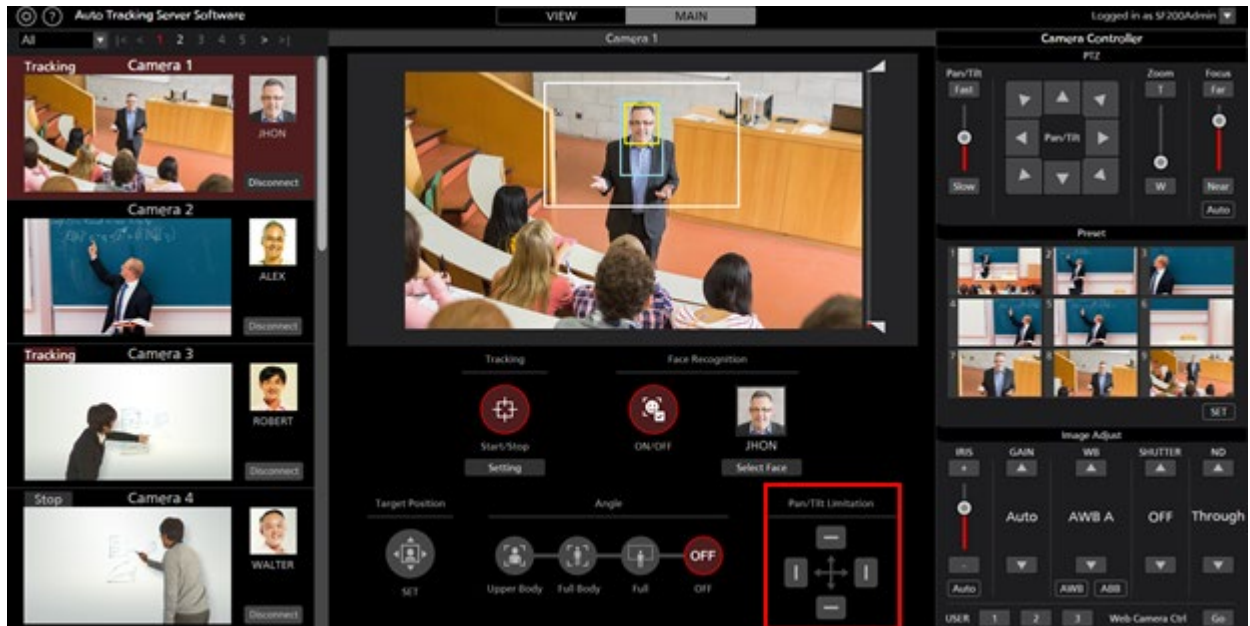
(A value is set in the Tracking Disable Area of the Tracking Setting window displayed by clicking the Setting button in the Tracking field.)

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.

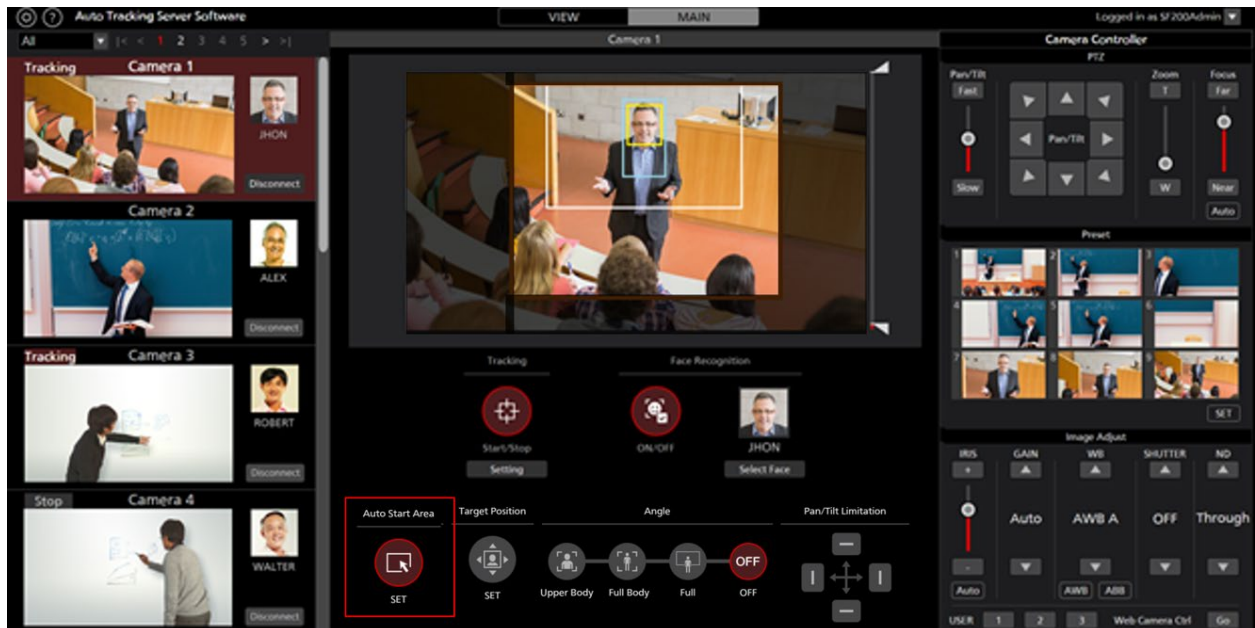
<Notes>

- When Enable Pan/Tilt Limiter only for Tracking APP is set to ON in the Tracking Setting window, the Pan/Tilt Limitation will only be enabled in the Auto Tracking Software and will be saved for each preset. Additionally, when a preset is called, the Pan/Tilt Limitation saved with the preset is also called and the Pan/Tilt Limitation is updated
- This function cannot be used when the remote camera is AW-UE4.

Setting Auto Start Area

This function allows you to set the area where tracking will start automatically.

When the target enters the set area, tracking will start.



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. Click the Auto Start Area button.
4. Left-click and drag the mouse on the camera image to display the area without gray-out.
When you finish dragging the mouse, the setting will be completed.
(The value will be set in the Auto Start Area of the tracking settings window displayed by clicking the Setting button in the Tracking column.)
5. The value will be set to the Auto Start Area in the Tracking Settings window displayed by clicking the Setting button in the Tracking column.
(The value set in the Auto Start Area of the tracking settings window displayed by clicking the Setting button in the Tracking column will be cleared.)

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.

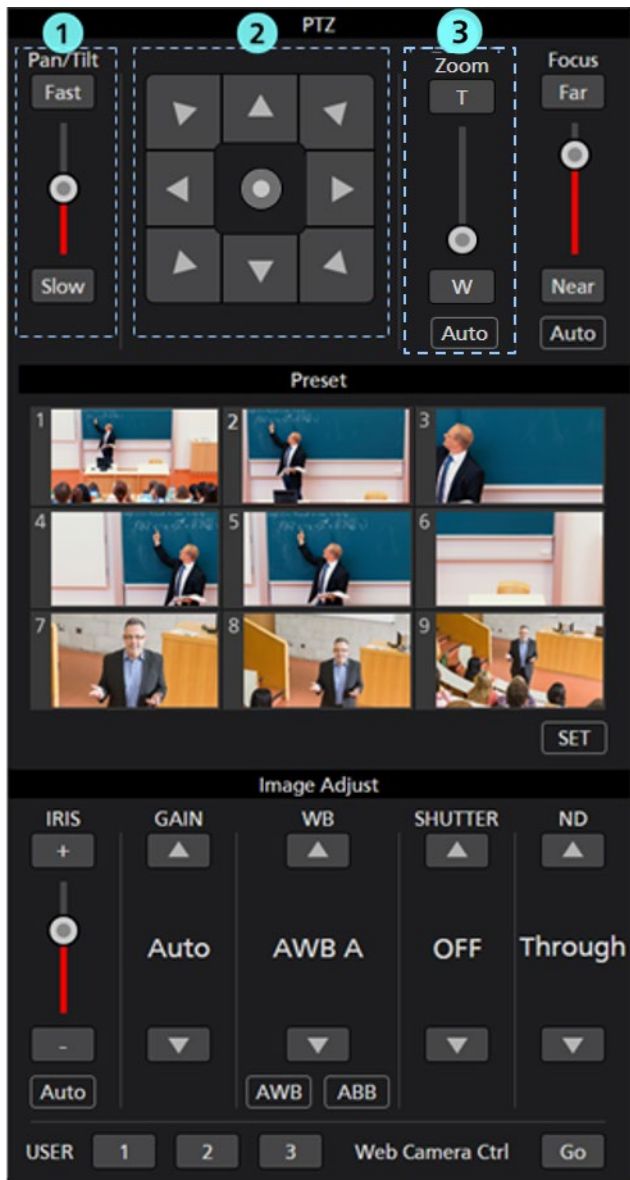
- PTZ operation
- Registering / calling / deleting the preset
- Adjusting the image
- Calling the Web screen

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.



①Pan/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.

②Pan/Tilt control part

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.

③Zoom 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.

You can perform automatic zoom control by enabling the Auto button.

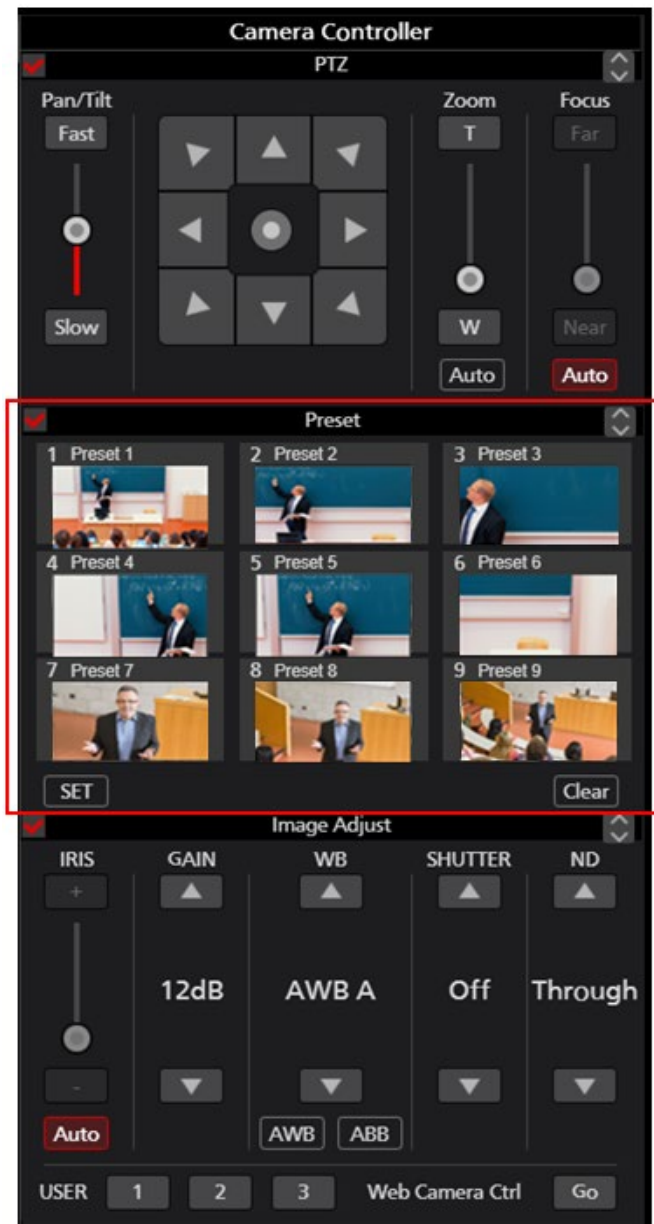
* For details, refer to "Zoom magnification setting during tracking (Zoom Auto OFF / ON)" in this manual.

<Notes>

- If the Pan/Tilt button is operated during the tracking operation, the tracking operation will be interrupted.
- When the remote camera is AW-UE4, the slider of the Zoom position control part is not displayed.

Registering / Calling / Deleting the Preset

You can register, call, or delete the preset of a 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.

• Deleting 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 delete the preset.

<Notes>

1. When a preset is called during tracking operations while the check for Save tracking settings with preset is OFF, tracking operations will be stopped.
2. When the Save tracking settings with preset check is ON, the tracking operation settings of the following items will be saved for each preset. When a preset is called, the tracking operation settings saved with the preset are also called and the tracking operation settings are updated.

Main screen items

- Tracking Start/Stop
- Face Recognition ON/OFF
- Face Recognition Select Face
- Face Recognition Auto Face Search
- Auto Start Area SET
- Target Position SET
- Angle Upper Body, Full Body, Full, OFF
- Pan/Tilt Limitation

* Only when the check mark is ON for Enable Pan/Tilt Limiter only for Tracking APP in Tracking Setting.

Tracking Setting items

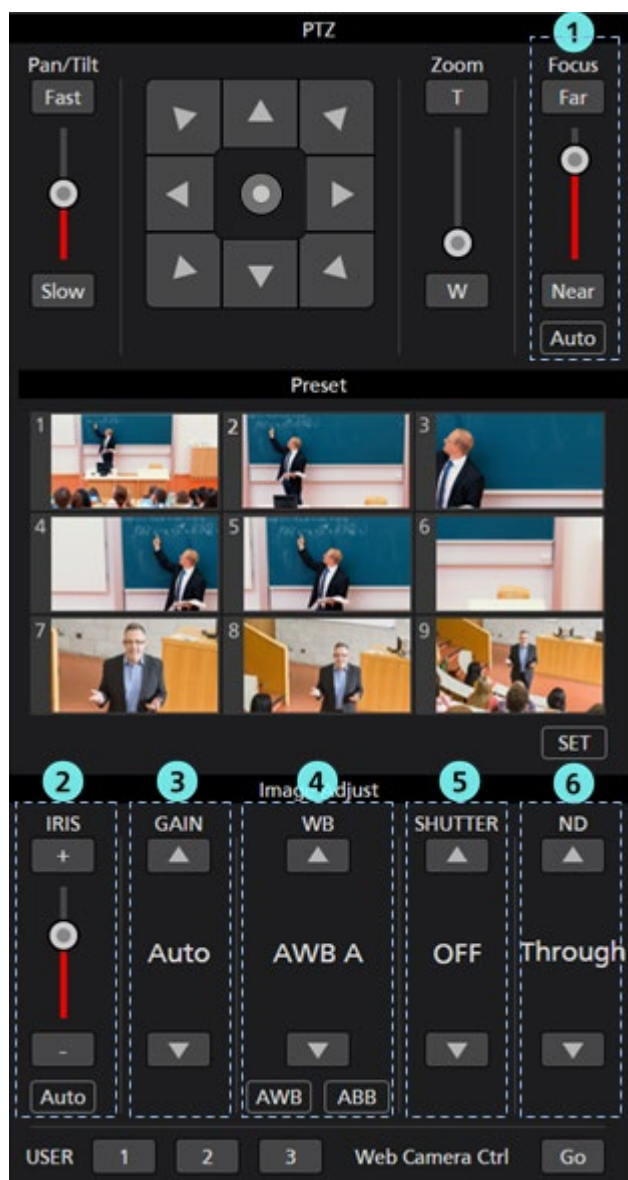
- Auto Tracking Start
- Stop Tracking with manual preset recall
- Enable Pan/Tilt Limiter only for Tracking APP
- Trigger of lost state judgement
- Duration before judgement of lost state
- Duration before execution of home position preset
- Auto start area settings of lost state
- Sensitivity Level
- Tracking Disable Area
- Auto Start Area

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



①Focus 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.

②Iris 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.

③Gain control part

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

④WB 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.

⑤Shutter control part

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

⑥ND 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.

License

About the License

When using this software, you will require one license for connecting to one camera. Therefore, the number of cameras that can be connected simultaneously is restricted to the number of registered licenses.

The conditions of license consumption and return are as described below.

License consumption:

- One license is consumed during connection to a remote camera.

License return:

- One license is returned during disconnection from a remote camera.
- One license is returned when the state of communication disconnection from the remote camera continues for five minutes or more.

<Notes>

- The license usage status is displayed as “License (used/total)” at the top of the View screen or Main screen.

About the Trial Use Period

The trial use period of this software is 90 days during which the license of 16 remote cameras can be used free of charge.

The procedure for starting trial use is as described below.

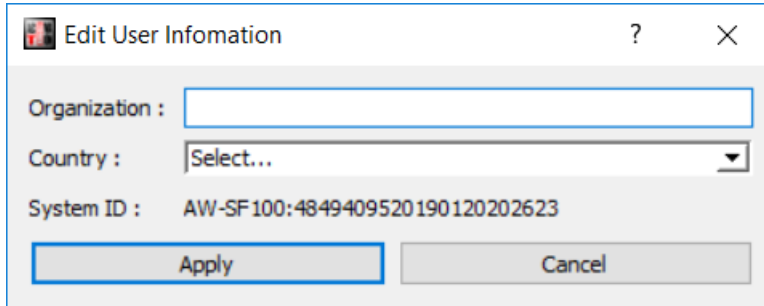
Procedure for starting trial use

1. Log in to the Main server Windows.
2. Run

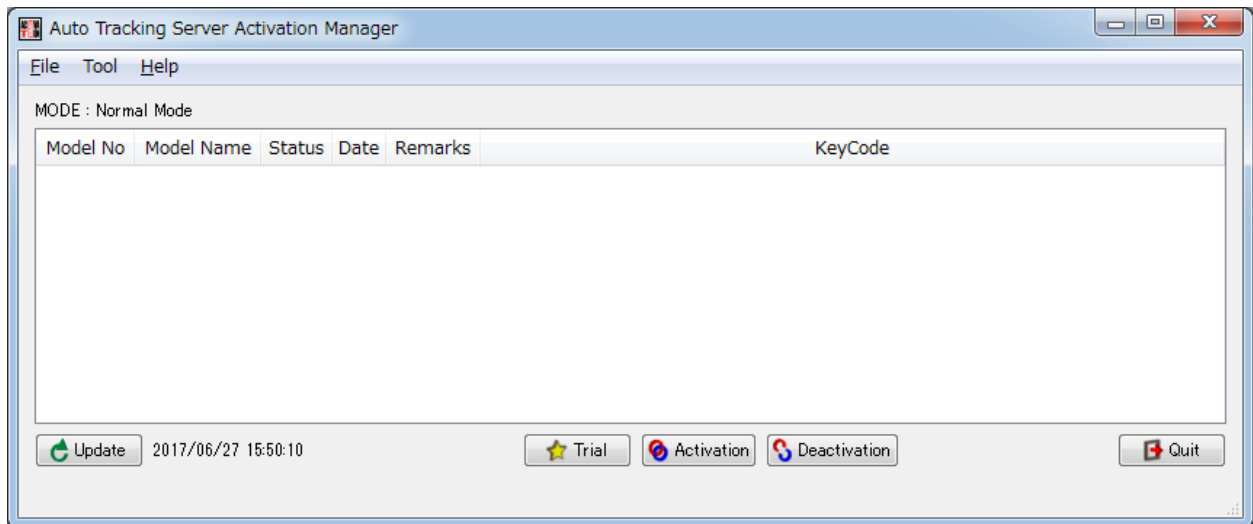
PActivationManager.exe

from the “12_Activation” folder of the downloaded file.

3. 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.



4. The window of the activation program is displayed.



5. Click the Trial button.
6. You can start using this software for the trial period.

<Notes>

- The remaining number of days of the trial use period is displayed on the top right of the View screen/Main screen.

Activation Registration

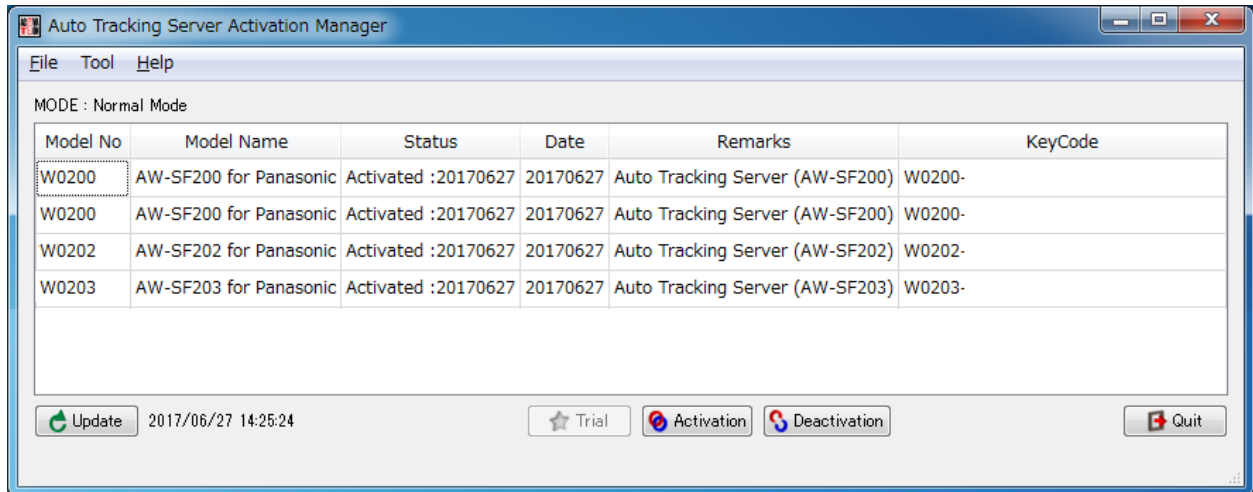
The free-of-charge license becomes invalid after the end of the trial use period, and you can no longer establish a connection to the remote camera.

To continue using the software, you must purchase a key code, and add the license by performing activation registration according to the procedure described below.

Procedure of activation registration

1. Connect the Main server to the Internet.

2. Log in to the Main server Windows.
3. Run
PActivationManager.exe
from the “12_Activation” folder of the downloaded file.
4. The window of the activation program is displayed.



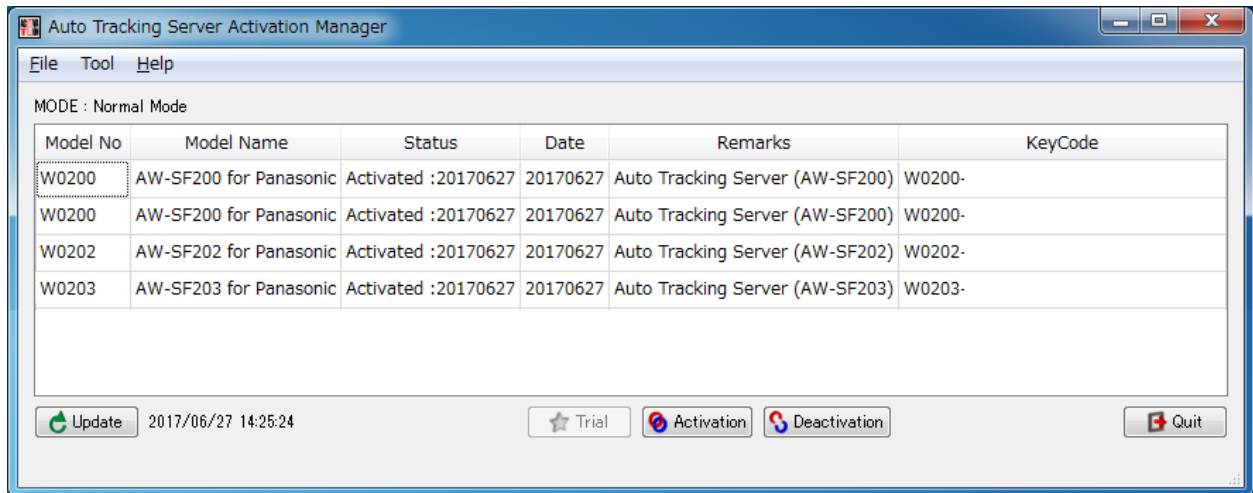
5. Click the Activation button.
6. The key code input screen appears. Enter the key code that you have purchased in the key code input field.
7. When you click the OK button, activation is performed, and licenses are added according to the registered key code.

Activation Cancellation

To change the Main server on which you are using this software, perform activation cancellation according to the procedure described below, and then perform activation registration on a new Main server.

Procedure of activation cancellation

1. Connect the Main server to the Internet.
2. Log in to the Main server Windows.
3. Run
PActivationManager.exe
from the “12_Activation” folder of the downloaded file.
4. The window of the activation program is displayed.



5. Select the column of the key code you want to cancel and then click the Deactivation button.
6. The activation is canceled, and licenses are deleted according to the canceled key code.

<Notes>

- When you perform activation cancellation, you can no longer use this software on the Main server 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:

Cannot connect to the camera even after performing the remote camera connection process.

Cause 1:

- The PC and remote camera are not connected properly.

Action 1:

- Make sure the PC and the remote camera are properly connected via the network, and that the remote camera IP address on the Settings - Camera screen of this software is set correctly.

Cause 2:

- There is no available license.

Action 2:

- When using this software, you will require one license for connecting to one camera. Therefore, the number of cameras that can be connected simultaneously is restricted to the number of registered licenses.
If the number of connected cameras has reached the upper limit of the number of licenses, disconnect any one of the connected cameras.

Cause 3:

- The connected number of remote cameras of the server has reached the limit.

Action 3:

- Up to four remote cameras can be connected per one server when using this software. If the number of connected remote cameras has reached the limit, disconnect any one of the connected cameras.

The images are not displayed properly on the screen after connecting to a remote camera.

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/>

Cause 2:

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

Action 2:

- Carefully read "Default Settings - Remote Camera Settings" 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 a moving object close to the tracking target (within the white rectangle), the tracking target may switch to that moving 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 out of sight during the tracking operation.

Cause:

- The tracking target is a stationary object.

Action:

- If the tracking target is a stationary object, the tracking target may be lost out of sight.

Even if the tracking target is lost out of sight, tracking is resumed when the tracking target again enters the frame of the camera image.

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

Cause:

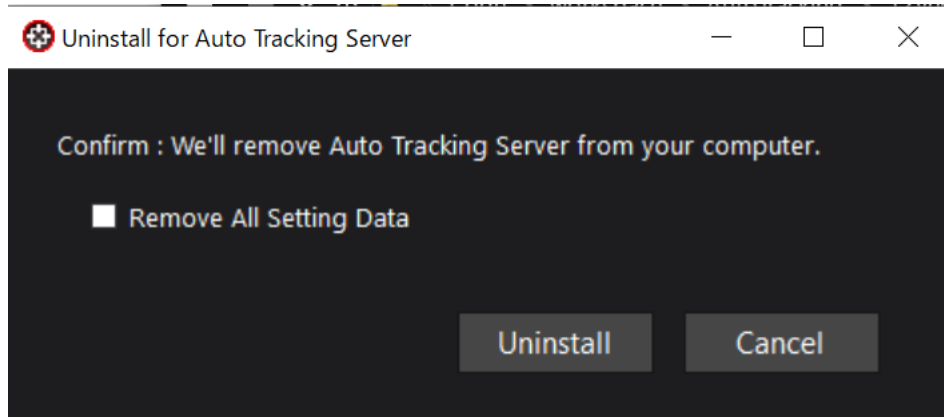
- An object that is moving more than the object to be set as the target exists.

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.
- The tracking operation is likely to improve by setting an automatic detection mask area and an area in which detection is not required.

Uninstallation Procedure

1. From the Windows Control Panel, select [Programs and Features].
2. If you select [Auto Tracking Server Software] from the list of programs and then click [Uninstall], a confirmation screen appears.
3. Click "Yes" on the confirmation screen to display the following screen.



4. Click the Uninstall button to start the uninstallation.
* If you check Remove All Setting Data, all the setting data will be deleted.

<Notes>

- To stop the operation of this software, make the settings described below from the service management screen of Windows.
 1. Stop the two services, namely "Panasonic Auto Tracking Server (SF200)" and "Panasonic Tracking Control (SF200)".
 2. Change the Startup Type of the "Panasonic Auto Tracking Server (SF200)" and "Panasonic Tracking Control (SF200)" services to "Manual".

When changing the IP address of Main server

If you change the IP address of the Main server after installing this software, click on the desktop shortcut "AutoTrackingServerSoftware" to start the GUI of this software with the new IP address. The GUI of the software will be launched with the new IP address.

If you want to start the software manually, please access [new IP address]/atss from your web browser.

Software Information Relating to This Product

1. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).
2. Software licensed in accordance with the Microsoft Public License is included in this software.
3. Software licensed in accordance with the OpenBSD License is included in this software.
4. Software licensed in accordance with the BSD License is included in this software.
5. Software licensed in accordance with the Apache License is included in this software.
6. Software licensed in accordance with the Boost Software License version 1.0 is included in this software.

Microsoft Public License (Ms-PL)

Published: October 12, 2006

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

1. Definitions

The terms “reproduce,” “reproduction,” “derivative works,” and “distribution” have the same meaning here as under U.S. copyright law.

A “contribution” is the original software, or any additions or changes to the software.

A “contributor” is any person that distributes its contribution under this license.

“Licensed patents” are a contributor’s patent claims that read directly on its contribution.

2. Grant of Rights

(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.

(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in the software.

3. Conditions and Limitations

(A) No Trademark License- This license does not grant you rights to use any contributors' name, logo, or trademarks.

(B) If you bring a patent claim against any contributor over patents that you claim are infringed by the software, your patent license from such contributor to the software ends automatically.

(C) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.

(D) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.

(E) The software is licensed "as-is." You bear the risk of using it. The contributors give no express warranties, guarantees or conditions. You may have additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.

By downloading, copying, installing or using the software you agree to this license.

If you do not agree to this license, do not download, install, copy or use the software.

License Agreement

For Open Source Computer Vision Library

(3-clause BSD License)

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- * Neither the names of the copyright holders nor the names of the contributors may be used to endorse or promote products derived from this software without specific prior written permission.

This software is provided by the copyright holders and contributors "as is" and

any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall copyright holders or contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

Apache License

Version 2.0, January 2004

<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation

source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of

the Derivative Works; and

- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

Software licensed in accordance with the following licenses is included in this software.

PostgreSQL Data Base Management System

Portions Copyright (c) 1996-2010, PostgreSQL Global Development Group Portions Copyright (c) 1994-1996
Regents of the University of California

Permission to use, copy, modify, and distribute this software and its documentation for any purpose, without fee,
and without a written agreement is hereby granted, provided that the above copyright notice and this paragraph and
the following two paragraphs appear in all copies.

IN NO EVENT SHALL THE UNIVERSITY OF CALIFORNIA BE LIABLE TO ANY PARTY FOR DIRECT,
INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS,
ARISING OUT OF THE USE OF THIS SOFTWARE AND ITS DOCUMENTATION, EVEN IF THE
UNIVERSITY OF CALIFORNIA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE UNIVERSITY OF CALIFORNIA SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE SOFTWARE PROVIDED HEREUNDER IS ON AN "AS IS" BASIS, AND THE UNIVERSITY OF CALIFORNIA HAS NO OBLIGATIONS TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

Boost Software License - Version 1.0 - August 17th, 2003

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Copyright (c) 2006, Google Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright

notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright (c) 2008, Google Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

A function `gettimeofday` in `utilities.cc` is based on

<http://www.google.com/codesearch/p?hl=en#dR3YEbitojA/COPYING&q=GetSystemTimeAsFileTime%20license:bsd>

The license of this code is:

Copyright (c) 2003-2008, Jouni Malinen <j@w1.fi> and contributors
All Rights Reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name(s) of the above-listed copyright holder(s) nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS

"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright Notice and License Terms for

HDF5 (Hierarchical Data Format 5) Software Library and Utilities

HDF5 (Hierarchical Data Format 5) Software Library and Utilities

Copyright 2006-2013 by The HDF Group.

NCSA HDF5 (Hierarchical Data Format 5) Software Library and Utilities

Copyright 1998-2006 by the Board of Trustees of the University of Illinois.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted for any purpose (including commercial purposes) provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions, and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions, and the following disclaimer in the documentation and/or materials provided with the distribution.
3. In addition, redistributions of modified forms of the source or binary code must carry prominent notices stating that the original code was changed and the date of the change.

4. All publications or advertising materials mentioning features or use of this software are asked, but not required, to acknowledge that it was developed by The HDF Group and by the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign and credit the contributors.

5. Neither the name of The HDF Group, the name of the University, nor the name of any Contributor may be used to endorse or promote products derived from this software without specific prior written permission from The HDF Group, the University, or the Contributor, respectively.

DISCLAIMER:

THIS SOFTWARE IS PROVIDED BY THE HDF GROUP AND THE CONTRIBUTORS "AS IS" WITH NO WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED. In no event shall The HDF Group or the Contributors be liable for any damages suffered by the users arising out of the use of this software, even if advised of the possibility of such damage.

Contributors: National Center for Supercomputing Applications (NCSA) at the University of Illinois, Fortner Software, Unidata Program Center (netCDF), The Independent JPEG Group (JPEG), Jean-loup Gailly and Mark Adler (gzip), and Digital Equipment Corporation (DEC).

Portions of HDF5 were developed with support from the Lawrence Berkeley National Laboratory (LBNL) and the United States Department of Energy under Prime Contract No. DE-AC02-05CH11231.

Portions of HDF5 were developed with support from the University of California, Lawrence Livermore National Laboratory (UC LLNL).
The following statement applies to those portions of the product and must be retained in any redistribution of source code, binaries, documentation,

and/or accompanying materials:

This work was partially produced at the University of California, Lawrence Livermore National Laboratory (UC LLNL) under contract no. W-7405-ENG-48 (Contract 48) between the U.S. Department of Energy (DOE) and The Regents of the University of California (University) for the operation of UC LLNL.

DISCLAIMER:

This work was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the University of California nor any of their employees, makes any warranty, express or implied, or assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately- owned rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the University of California, and shall not be used for advertising or product endorsement purposes.

Copyright (c) 2011 The LevelDB Authors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from

this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The OpenLDAP Public License

Version 2.8, 17 August 2003

Redistribution and use of this software and associated documentation ("Software"), with or without modification, are permitted provided that the following conditions are met:

1. Redistributions in source form must retain copyright statements and notices,
2. Redistributions in binary form must reproduce applicable copyright statements and notices, this list of conditions, and the following disclaimer in the documentation and/or other materials provided with the distribution, and
3. Redistributions must contain a verbatim copy of this document.

The OpenLDAP Foundation may revise this license from time to time. Each revision is distinguished by a version number. You may use this Software under terms of this license revision or under the terms of any subsequent revision of the license.

THIS SOFTWARE IS PROVIDED BY THE OPENLDAP FOUNDATION AND ITS CONTRIBUTORS ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES,

INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OPENLDAP FOUNDATION, ITS CONTRIBUTORS, OR THE AUTHOR(S) OR OWNER(S) OF THE SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The names of the authors and copyright holders must not be used in advertising or otherwise to promote the sale, use or other dealing in this Software without specific, written prior permission. Title to copyright in this Software shall at all times remain with copyright holders.

OpenLDAP is a registered trademark of the OpenLDAP Foundation.

Copyright 1999-2003 The OpenLDAP Foundation, Redwood City, California, USA. All Rights Reserved. Permission to copy and distribute verbatim copies of this document is granted.

Copyright (c) 2011-2014, The OpenBLAS Project
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the name of the OpenBLAS project nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This license applies to all parts of Protocol Buffers except the following:

- Atomicops support for generic gcc, located in `src/google/protobuf/stubs/atomicops_internals_generic_gcc.h`.
This file is copyrighted by Red Hat Inc.

- Atomicops support for AIX/POWER, located in `src/google/protobuf/stubs/atomicops_internals_power.h`.
This file is copyrighted by Bloomberg Finance LP.

Copyright 2014, Google Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner of the input file used when generating it. This code is not standalone and requires a support library to be linked with it. This support library is itself covered by the above license.

Faster R-CNN

The MIT License (MIT)

Copyright (c) 2015 Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

THIRD-PARTY SOFTWARE NOTICES AND INFORMATION

This project, Faster R-CNN, incorporates material from the project(s) listed below (collectively, "Third Party Code"). Microsoft is not the original author of the Third Party Code. The original copyright notice and license under which Microsoft received such Third Party Code are set out below. This Third Party Code is licensed to you under their original license terms set forth below. Microsoft reserves all other rights not expressly granted, whether by implication, estoppel or otherwise.

1. Caffe, (<https://github.com/BVLC/caffe/>)

COPYRIGHT

All contributions by the University of California:

Copyright (c) 2014, 2015, The Regents of the University of California (Regents)

All rights reserved.

All other contributions:

Copyright (c) 2014, 2015, the respective contributors

All rights reserved.

Caffe uses a shared copyright model: each contributor holds copyright over their contributions to Caffe. The project versioning records all such contribution and copyright details. If a contributor wants to further mark their specific copyright on a particular contribution, they should indicate their copyright solely in the commit message of the change when it is committed.

The BSD 2-Clause License

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

*****END OF THIRD-PARTY SOFTWARE NOTICES AND INFORMATION*****

PSF LICENSE AGREEMENT FOR PYTHON 2.7.13

1. This LICENSE AGREEMENT is between the Python Software Foundation ("PSF"), and the Individual or Organization ("Licensee") accessing and otherwise using Python 2.7.13 software in source or binary form and its associated documentation.
2. Subject to the terms and conditions of this License Agreement, PSF hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python 2.7.13 alone or in any derivative version, provided, however, that PSF's License Agreement and PSF's notice of copyright, i.e., "Copyright © 2001-2016 Python Software Foundation; All Rights

Reserved" are retained in Python 2.7.13 alone or in any derivative version prepared by Licensee.

3. In the event Licensee prepares a derivative work that is based on or incorporates Python 2.7.13 or any part thereof, and wants to make the derivative work available to others as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Python 2.7.13.

4. PSF is making Python 2.7.13 available to Licensee on an "AS IS" basis.

PSF MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, PSF MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON 2.7.13 WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

5. PSF SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON 2.7.13 FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON 2.7.13, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

7. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between PSF and Licensee. This License Agreement does not grant permission to use PSF trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.

8. By copying, installing or otherwise using Python 2.7.13, Licensee agrees to be bound by the terms and conditions of this License Agreement.

BEOPEN.COM LICENSE AGREEMENT FOR PYTHON 2.0

BEOPEN PYTHON OPEN SOURCE LICENSE AGREEMENT VERSION 1

1. This LICENSE AGREEMENT is between BeOpen.com ("BeOpen"), having an office at 160 Saratoga Avenue, Santa Clara, CA 95051, and the Individual or Organization ("Licensee") accessing and otherwise using this software in source or binary

form and its associated documentation ("the Software").

2. Subject to the terms and conditions of this BeOpen Python License Agreement, BeOpen hereby grants Licensee a non-exclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use the Software alone or in any derivative version, provided, however, that the BeOpen Python License is retained in the Software, alone or in any derivative version prepared by Licensee.

3. BeOpen is making the Software available to Licensee on an "AS IS" basis.

BEOPEN MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, BEOPEN MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF THE SOFTWARE WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.

4. BEOPEN SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF THE SOFTWARE FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF USING, MODIFYING OR DISTRIBUTING THE SOFTWARE, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

5. This License Agreement will automatically terminate upon a material breach of its terms and conditions.

6. This License Agreement shall be governed by and interpreted in all respects by the law of the State of California, excluding conflict of law provisions. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between BeOpen and Licensee. This License Agreement does not grant permission to use BeOpen trademarks or trade names in a trademark sense to endorse or promote products or services of Licensee, or any third party. As an exception, the "BeOpen Python" logos available at <http://www.pythonlabs.com/logos.html> may be used according to the permissions granted on that web page.

7. By copying, installing or otherwise using the software, Licensee agrees to be bound by the terms and conditions of this License Agreement.

1. This LICENSE AGREEMENT is between the Corporation for National Research Initiatives, having an office at 1895 Preston White Drive, Reston, VA 20191 ("CNRI"), and the Individual or Organization ("Licensee") accessing and otherwise using Python 1.6.1 software in source or binary form and its associated documentation.
2. Subject to the terms and conditions of this License Agreement, CNRI hereby grants Licensee a nonexclusive, royalty-free, world-wide license to reproduce, analyze, test, perform and/or display publicly, prepare derivative works, distribute, and otherwise use Python 1.6.1 alone or in any derivative version, provided, however, that CNRI's License Agreement and CNRI's notice of copyright, i.e., "Copyright © 1995-2001 Corporation for National Research Initiatives; All Rights Reserved" are retained in Python 1.6.1 alone or in any derivative version prepared by Licensee. Alternately, in lieu of CNRI's License Agreement, Licensee may substitute the following text (omitting the quotes): "Python 1.6.1 is made available subject to the terms and conditions in CNRI's License Agreement. This Agreement together with Python 1.6.1 may be located on the Internet using the following unique, persistent identifier (known as a handle): 1895.22/1013. This Agreement may also be obtained from a proxy server on the Internet using the following URL: <http://hdl.handle.net/1895.22/1013>."
3. In the event Licensee prepares a derivative work that is based on or incorporates Python 1.6.1 or any part thereof, and wants to make the derivative work available to others as provided herein, then Licensee hereby agrees to include in any such work a brief summary of the changes made to Python 1.6.1.
4. CNRI is making Python 1.6.1 available to Licensee on an "AS IS" basis. CNRI MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED. BY WAY OF EXAMPLE, BUT NOT LIMITATION, CNRI MAKES NO AND DISCLAIMS ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR THAT THE USE OF PYTHON 1.6.1 WILL NOT INFRINGE ANY THIRD PARTY RIGHTS.
5. CNRI SHALL NOT BE LIABLE TO LICENSEE OR ANY OTHER USERS OF PYTHON 1.6.1 FOR ANY INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOSS AS A RESULT OF MODIFYING, DISTRIBUTING, OR OTHERWISE USING PYTHON 1.6.1, OR ANY DERIVATIVE THEREOF, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

6. This License Agreement will automatically terminate upon a material breach of its terms and conditions.
7. This License Agreement shall be governed by the federal intellectual property law of the United States, including without limitation the federal copyright law, and, to the extent such U.S. federal law does not apply, by the law of the Commonwealth of Virginia, excluding Virginia's conflict of law provisions. Notwithstanding the foregoing, with regard to derivative works based on Python 1.6.1 that incorporate non-separable material that was previously distributed under the GNU General Public License (GPL), the law of the Commonwealth of Virginia shall govern this License Agreement only as to issues arising under or with respect to Paragraphs 4, 5, and 7 of this License Agreement. Nothing in this License Agreement shall be deemed to create any relationship of agency, partnership, or joint venture between CNRI and Licensee. This License Agreement does not grant permission to use CNRI trademarks or trade name in a trademark sense to endorse or promote products or services of Licensee, or any third party.
8. By clicking on the "ACCEPT" button where indicated, or by copying, installing or otherwise using Python 1.6.1, Licensee agrees to be bound by the terms and conditions of this License Agreement.

CWI LICENSE AGREEMENT FOR PYTHON 0.9.0 THROUGH 1.2

Copyright © 1991 - 1995, Stichting Mathematisch Centrum Amsterdam, The Netherlands. All rights reserved.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of Stichting Mathematisch Centrum or CWI not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission.

STICHTING MATHEMATISCH CENTRUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL STICHTING MATHEMATISCH CENTRUM BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE,

DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright 2011, Google Inc.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- * Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- * Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- * Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

SZIP Copyright and License Notice

The SZIP Science Data Lossless Compression Program is Copyright (C) 2001 Science & Technology Corporation @ UNM. All rights released.

Copyright (C) 2003-2005 Lowell H. Miles and Jack A. Venbrux.
Licensed to ICs, LLC, for distribution by the University of Illinois'
National Center for Supercomputing Applications as a part of the
HDF data storage and retrieval file format and software library
products package. All rights reserved. Do not modify or use for other
purposes.

SZIP implements an extended Rice adaptive lossless compression algorithm
for sample data. The primary algorithm was developed by R. F. Rice at
Jet Propulsion Laboratory.

SZIP embodies certain inventions patented by the National Aeronautics &
Space Administration. United States Patent Nos. 5,448,642, 5,687,255,
and 5,822,457 have been licensed to ICs, LLC, for distribution with the
HDF data storage and retrieval file format and software library products.
All rights reserved.

Revocable (in the event of breach by the user or if required by law),
royalty-free, nonexclusive sublicense to use SZIP decompression software
routines and underlying patents is hereby granted by ICs, LLC, to all users
of and in conjunction with HDF data storage and retrieval file format and
software library products.

Revocable (in the event of breach by the user or if required by law),
royalty-free, nonexclusive sublicense to use SZIP compression software
routines and underlying patents for non-commercial, scientific use only
is hereby granted by ICs, LLC, to users of and in conjunction with HDF
data storage and retrieval file format and software library products.

For commercial use license to SZIP compression software routines and
underlying patents, please contact ICs, LLC, at

Address: ICs, LLC, 2040 Warren Wagon Road, P.O. Box 2236

McCall, ID 83638

Phone: (208) 315-2877. Fax: (208) 634-7720.

Email: support@ics4chips.com

The PHP License, version 3.01

Copyright (c) 1999 - 2019 The PHP Group. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, is permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name "PHP" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact group@php.net.
4. Products derived from this software may not be called "PHP", nor may "PHP" appear in their name, without prior written permission from group@php.net. You may indicate that your software works in conjunction with PHP by saying "Foo for PHP" instead of calling it "PHP Foo" or "phpfoo"
5. The PHP Group may publish revised and/or new versions of the license from time to time. Each version will be given a distinguishing version number.

Once covered code has been published under a particular version of the license, you may always continue to use it under the terms of that version. You may also choose to use such covered code under the terms of any subsequent version of the license published by the PHP Group. No one other than the PHP Group has the right to modify the terms applicable to covered code created under this License.

6. Redistributions of any form whatsoever must retain the following

acknowledgment:

"This product includes PHP software, freely available from

<<http://www.php.net/software/>>".

THIS SOFTWARE IS PROVIDED BY THE PHP DEVELOPMENT TEAM ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE PHP DEVELOPMENT TEAM OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software consists of voluntary contributions made by many individuals on behalf of the PHP Group.

The PHP Group can be contacted via Email at group@php.net.

For more information on the PHP Group and the PHP project, please see <<http://www.php.net/>>.

PHP includes the Zend Engine, freely available at
<<http://www.zend.com/>>.

From PyTorch:

Copyright (c) 2016- Facebook, Inc (Adam Paszke)
Copyright (c) 2014- Facebook, Inc (Soumith Chintala)
Copyright (c) 2011-2014 Idiap Research Institute (Ronan Collobert)
Copyright (c) 2012-2014 Deepmind Technologies (Koray Kavukcuoglu)
Copyright (c) 2011-2012 NEC Laboratories America (Koray Kavukcuoglu)
Copyright (c) 2011-2013 NYU (Clement Farabet)

Copyright (c) 2006-2010 NEC Laboratories America (Ronan Collobert, Leon Bottou, Iain Melvin, Jason Weston)

Copyright (c) 2006 Idiap Research Institute (Samy Bengio)

Copyright (c) 2001-2004 Idiap Research Institute (Ronan Collobert, Samy Bengio, Johnny Mariethoz)

From Caffe2:

Copyright (c) 2016-present, Facebook Inc. All rights reserved.

All contributions by Facebook:

Copyright (c) 2016 Facebook Inc.

All contributions by Google:

Copyright (c) 2015 Google Inc.

All rights reserved.

All contributions by Yangqing Jia:

Copyright (c) 2015 Yangqing Jia

All rights reserved.

All contributions by Kakao Brain:

Copyright 2019-2020 Kakao Brain

All contributions from Caffe:

Copyright(c) 2013, 2014, 2015, the respective contributors

All rights reserved.

All other contributions:

Copyright(c) 2015, 2016 the respective contributors

All rights reserved.

Caffe2 uses a copyright model similar to Caffe: each contributor holds copyright over their contributions to Caffe2. The project versioning records all such contribution and copyright details. If a contributor wants to further mark their specific copyright on a particular contribution, they should indicate their copyright solely in the commit message of the change when it is committed.

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the names of Facebook, Deepmind Technologies, NYU, NEC Laboratories America and IDIAP Research Institute nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Permission is hereby granted, free of charge, to any person or organization obtaining a copy of the software and accompanying documentation covered by this license (the "Software") to use, reproduce, display, distribute, execute, and transmit the Software, and to prepare derivative works of the Software, and to permit third-parties to whom the Software is furnished to do so, all subject to the following:

The copyright notices in the Software and this entire statement, including the above license grant, this restriction and the following disclaimer, must be included in all copies of the Software, in whole or in part, and all derivative works of the Software, unless such copies or derivative works are solely in the form of machine-executable object code generated by a source language processor.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS OR ANYONE DISTRIBUTING THE SOFTWARE BE LIABLE FOR ANY DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.