FOR.A
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

# OPERATION MANUAL

## VRCAM2

Sensorless Virtual Studio System

Version 1.3 or Higher

FOR-A COMPANY LIMITED

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# Upon Receipt

## Unpacking

VRCAM2 Sensorless Virtual Studio System and their accessories are fully inspected and adjusted prior to shipment. Operation can be performed immediately upon completing all required connections and operational settings.

Check your received items against the packing lists below.

| ITEM | QTY | REMARKS |
|---|---|---|
| CD-ROM | 1 | Both VRCAM2 Proc and VRCAM2 Cont are included on the same CD-ROM<br>Operation manual (PDF) |
| Dongle | 2 | One each for VRCAM2 Proc and VRCAM2 Cont |

## Check

Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

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# 1. Prior to Starting

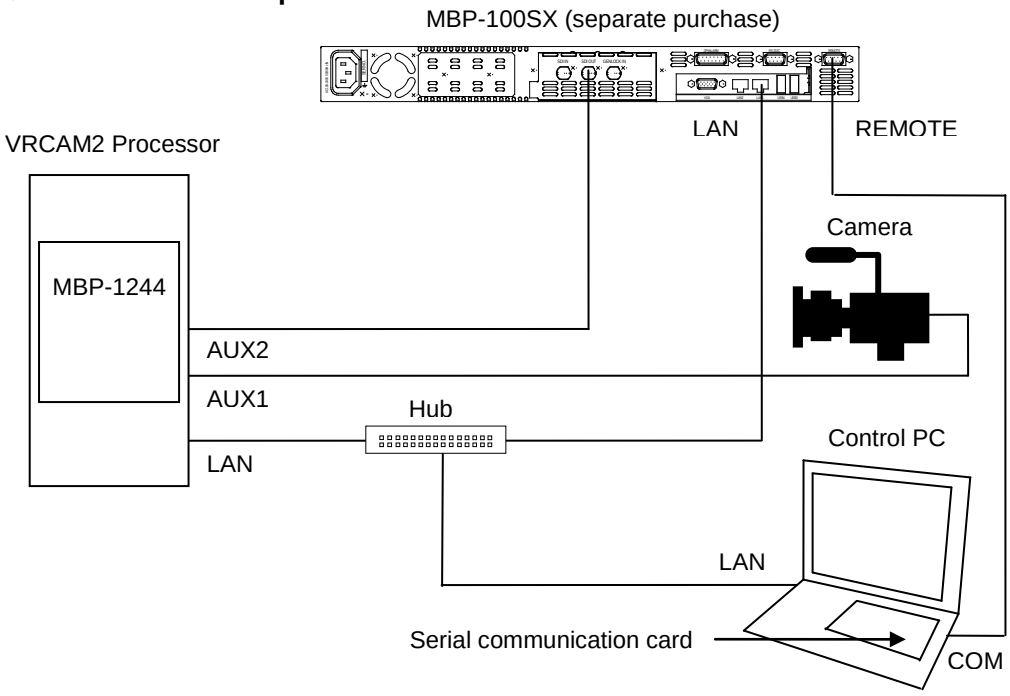
## 1-1. About VRCAM2

VRCAM2 Sensorless Virtual Studio System is a software application that allows you to build a virtual studio using the Brainstorm virtual camera, without the use of a virtual reality tracking device (sensor camera).

## 1-2. Features

- Maximum of four virtual cameras: Up to 32 positions can be set per camera.
- Sensored camera support: Enables mixed configurations using two of the four cameras as sensored cameras.
- OA/PREV mode available
- One-touch operation: Camera switching, subtitles, captions, scene transitions, among other scheduled actions, can be saved sequentially onto a playlist, and scene takes alone during a live program enable programmed timeline effects.
- Usage with a playlist enables the program timeline to be maintained while allowing composition changes and presentations that give a sense of actually being in the audience for live broadcasts.
- Defocus control: Enables effective presentation of background subject close-ups.
- Animation effects: A wide variety of animations (special effects) can be added for the subject.
- Linkage with the HANABI Series Video Switcher HVS-300HS/HVS-350HS (separate purchase) for assigning cameras and camera position selection to video switcher bus buttons and enabling control on the video swithcer-side.
- Allows you to cue and play video files saved on the MBP-100 Series MXF Clip Server (separate purchase).

◆ **Connection Example**



## 1-3. About This Manual

This manual is intended to help the user easily operate this product and make full use of its functions during operations. Before connecting or operating your unit, read this operation manual thoroughly to ensure you understand the product. After reading, it is important to keep this manual in a safe place and available for reference.

# 2. Setup

## 2-1. Installing VRCAM2

This section describes how to install the dongle driver, **Microsoft Visual C++ 2008 Runtime**, **Windows Installer 3.1**, **.NET Framework 3.5 SP1**, and VRCAM2 on the computer. If different computers are used for playout and control, **.NET Framework 3.5 SP1** must also be installed on the control PC. In addition, if the operating system is **Windows 7**, there is no need to install **Windows Installer 3.1** and .**NET Framework 3.5 SP1** for both playout and control.

### 2-1-1. Installing Dongle Driver

(1) Insert the supplied CD-ROM into the CD-ROM drive and double-click **\License\SSDI751.exe** in Windows Explorer to run the wizard.
A User account confirmation dialog box may appear in Windows7. If one appears, click **Yes** to continue the installation.
(2) Click **Next**.
(3) Select **I accept the terms in the license agreement** and click **Next**.
(4) Select **Complete** and click **Next**.
(5) Click **Install** to start the installation.
(6) After the installation is complete, click **Finish**.
(7) Plug the license dongle into the USB port. If plugging the dongle in blocks the USB device connected to the adjacent port, use the supplied extension cord. When you first plug the dongle in, the screen as shown below is displayed. Select **No, not this time** and click **Next**.
(8) Select **Install the software automatically (Recommended)** and click **Next**.
(9) The screen as shown below is displayed. Click **Continue Anyway**.
(10) Click **Finish**. The dongle driver installation is now complete.

### 2-1-2. Installing Windows Installer 3.1

The following procedure is required only for computers with the WindowsXP operating system.
(1) If **Windows Installer 3.1 (v2)** is not installed on your computer, double-click **\Microsoft\WindowsInstaller-KB893803-v2-x86.exe** on the CD-ROM to run the wizard.
(2) Click **Next**.
(3) Select **I agree** and click **Next**.
(4) After the installation is complete, you will be asked to restart your computer. Click **Finish** to restart your computer.

### 2-1-3. Installing .NET Framework 3.5 SP1

The following procedure is required only for computers with the WindowsXP operating system.
(1) If **.NET Framework 3.5 SP1** is not installed on your computer, double-click **\Microsoft\dotnetfx35SP1.exe** on the CD-ROM to run the setup wizard.
(2) Select **I have read and ACCEPT the terms of the License Agreement** and click **Install** to start the installation.
(3) After the installation is complete, click **Exit**.

## 2-1-4. Installing Microsoft Visual C++ 2008 Runtime

The following procedure is required only for computers used for playout.

(1) If **Microsoft Visual C++ 2008 Runtime** is not installed on your computer, double-click **\Microsoft\vcredist_x64.exe** on the CD-ROM to run the setup wizard.
(2) Select **I have read and ACCEPT the terms of the License Agreement** and click **Install** to start the installation.
(3) After the installation is complete, click **Exit**.

## 2-1-5. Installing VRCAM2 Cont (Control PC Only)

(1) Insert the supplied CD-ROM into the CD-ROM drive on the control PC, and double-click **\SetupVrcam2Cont.msi** from **My Computer** in Windows Explorer to run the wizard.
(2) Click **NEXT** three times consecutively when it appears on the respective pages.
(3) After the installation is complete, click **Close**.

## 2-1-6. Installing VRCAM2 Proc (VRCAM2 Processor Only)

(1) Insert the supplied CD-ROM into the CD-ROM drive on the VRCAM2 Processor, and double-click **\SetupVrcam2Proc.msi** from **My Computer** in Windows Explorer to run the wizard.
(2) Click **NEXT** two times consecutively when it appears on the respective pages.
(3) After the installation is complete, click **Close**.

# 2-2. Starting and Exiting Application

## 2-2-1. Starting VRCAM2 Launch

**VRCAM2 Launch** automatically starts when the VRCAM2 processor is started. If the icon of **VRCAM2 Launch** does not appear on the taskbar on the VRCAM2 processor, double-click **VrCam2Launch** on the desktop.

## 2-2-2. Starting VRCAM2 Cont

Make sure that the icon of **VRCAM2 Launch** is displayed on the taskbar on the VRCAM2 processor. On the desktop of the control PC, double-click **VrCam2GUI** to start **VRCAM2 Cont**. If the same computer is used for playout and control, start **VRCAM2 Cont** on the same computer in which **VRCAM2 Launch** is installed.

## 2-2-3. Starting Brainstorm eStudio

VRCAM2 automatically starts **Brainstorm eStudio**. There is no need to start VRCAM2 manually.

## 2-2-4. Loading eLibrary

VRCAM2 automatically loads **eLibrary**. There is no need to load eLibrary manually.

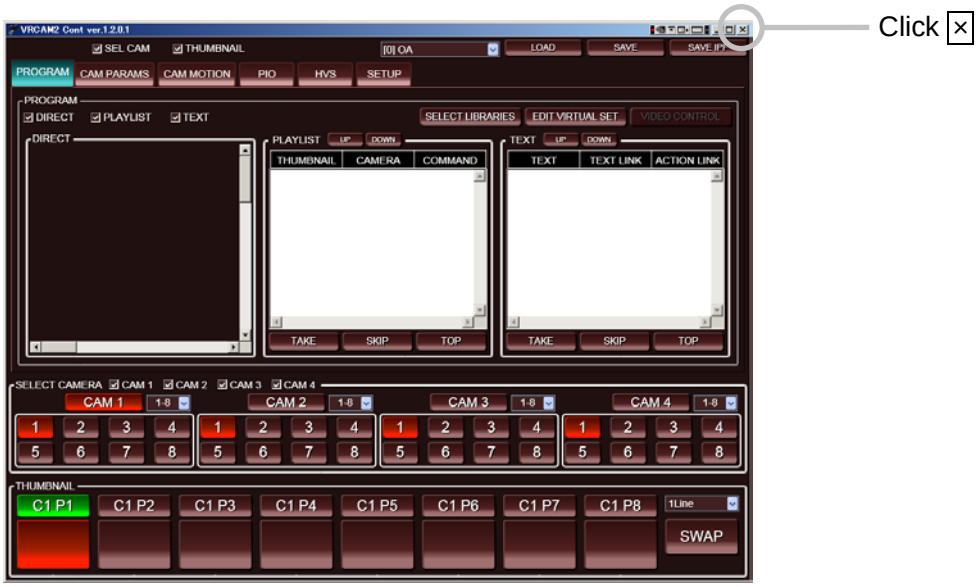
## 2-2-5. Exiting Brainstorm eStudio

VRCAM2 automatically closes **Brainstorm eStudio**. Normally, there is no need to close **Brainstorm eStudio** manually. To manually close **Brainstorm eStudio**, click the ☒ button in the upper right corner of the **GFX** window on the VRCAM2 processor.

GFX Window

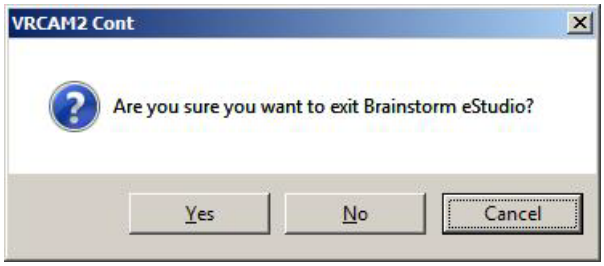
## 2-2-6. Exiting VRCAM2 Cont

Click the ☒ button in the upper right corner of the **VRCAM2 Cont** main window to exit **VRCAM2 Cont**.




Main Window

If **Brainstorm eStudio** is running on the VRCAM2 processor, exiting **VRCAM2 Cont** displays the following dialog box. Click **Yes** to exit both **VRCAM2 Cont** and **Brainstorm eStudio**. Click **No** to exit **VRCAM2 Cont** without exiting **Brainstorm eStudio**. Click **Cancel** to cancel exiting **VRCAM2 Cont**.



# 3. Windows and Dialog Boxes

## 3-1. Main Window

After **VRCAM2 Cont** is started, the screen as below appears. The **VRCAM2 Cont** main window consists of four panes.

Main Window

① System menu
Allows you to show and hide the **SELECT CAMERA** pane and **THUMBNAIL** pane, select the VRCAM2 processor, and save and load settings.

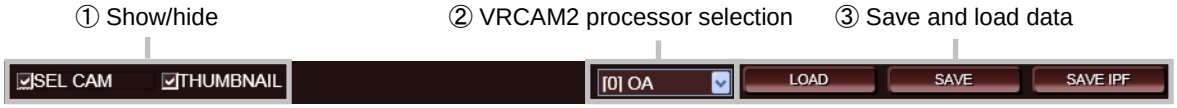
② Setting area
The tabs at the top allow you to select a category and view the corresponding screen. After the **VRCAM2 Cont** is started, the **PROGRAM** tab will be selected.

③ SELECT CAMERA pane
Allows you to switch between the virtual cameras and positions.

④ THUMBNAIL pane
Allows you to assign virtual cameras and positions to the PREV buttons (upper buttons), and thumbnails to the OA buttons (lower buttons).

# 3-2. System Menu

System menu allows you to show and hide the **SELECT CAMERA** pane and **THUMBNAIL** pane, select the VRCAM2 processor, and save and load settings.




System Menu

① Show/hide
Allows you to show and hide the **SELECT CAMERA** pane and **THUMBNAIL** pane. The pane that can be shown and hidden on each page differs as below.

| | PROGRAM | CAM PARAMS | CAM MOTION | PIO | HVS | SETUP |
|---|---|---|---|---|---|---|
| SEL CAM | ✓ | ✓ | ✓ | ✓ | ✓ | - |
| THUMBNAIL | ✓ | - | - | - | - | - |

② VRCAM2 processor selection
Allows you to select the VRCAM2 processor to be controlled through **VRCAM2 Cont**. The top item (OA or OA+PREV) should be selected as standard. To view and change the VRCAM2 processor settings, select the **SETUP** tab. (See section 3-10. “HOST Settings.”)

| **IMPORTANT** |
|---|
| - If a single VRCAM2 processor is selected when two VRCAM2 processors are selected (OA/PREV mode), HANABI Virtual Link will not be available.<br>-If HANABI Virtual Link is used, set **PORT** to **CLOSE** and **XPT CONTROL** to **DISABLE**. See section 3-9-1. “HVS - SETUP” for details. |

③ Save and load settings
**VRCAM2 Cont** have two save options: **SAVE** and **SAVE IPF**.

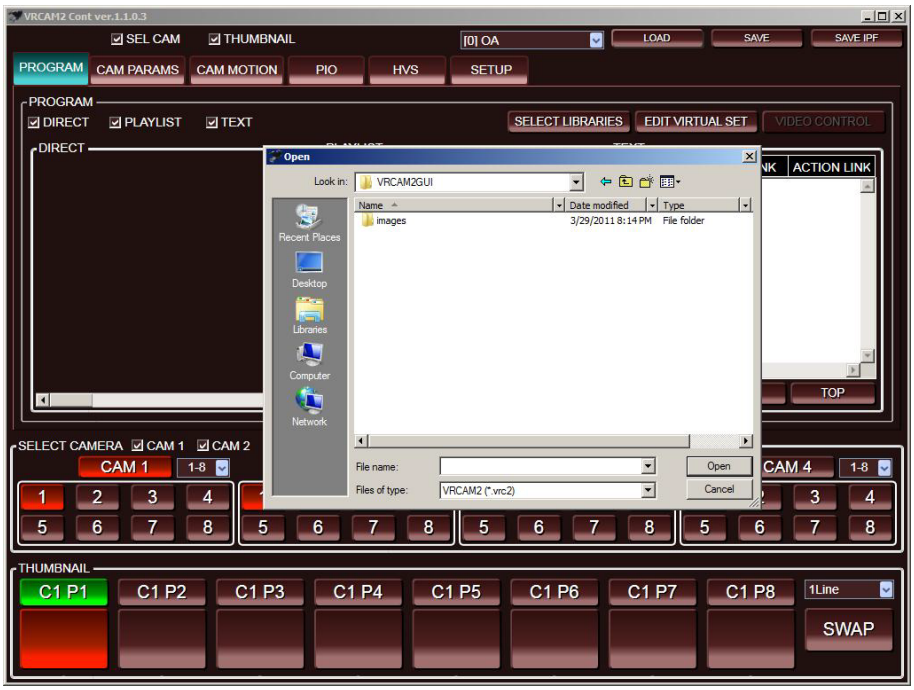
| Save Option | Description |
|---|---|
| SAVE | Saves the VRCAM2 settings to a file. Once the camera settings are saved to a file, they can be used for other scenes. To load the settings, click **LOAD**. |
| SAVE IPF | Saves the program data. Loading the saved program data recovers the settings to the last time it was saved. Use this option after creating program data in **VRCAM2 Cont**.<br>The thumbnail images in **DIRECT**, **PLAYLIST**, and **THUMBNAIL** are saved with the **SAVE IPF** button only. |

1. SAVE and LOAD
   Clicking the **SAVE** button displays the **Save As** dialog box. Selecting the file format, enter the file name, and clicking **OK** saves the settings with the selected file format.

| File Format | Description |
|---|---|
| .prg2 | The **DIRECT**, **PLAYLIST**, and **TEXT** pane settings under **PROGRAM** are saved. (See section 3-5. “PROGRAM.”) Note that the OA/NEXT selection status in the playlist is not saved. |
| .cam2 | The **CAM PARAMS** (see section 3-6. ADJUST CAMERA) and **CAM MOTION** (see section 3-7. MOTION PATH) settings are saved. |
| .vrc2 | The settings included in .prg2 file and .cam2 file are both saved. |
| .prg | The VRCAM file format. |
| .cam | The VRCAM file format. |
| .vrc | The VRCAM file format. |

| **IMPORTANT** |
|---|
| If the VRCAM data is loaded into VRCAM2, part of the data may be converted. Before using the data loaded from VRCAM, check its content. |

Clicking the **LOAD** button displays the **Open** dialog box. Selecting a file and clicking **Open** loads the file. If you load a .prg2 or .vrc2 file that differs from the currently opened program, a confirmation message for changing the library appears. Clicking **Yes** changes the library and applies the loaded data. Clicking **No** applies the loaded data without changing the library. Clicking **Cancel** cancels loading data.




2. SAVE IPF
   Left-clicking the **SAVE IPF** button saves the Brainstorm eStudio data to the VRCAM2 processor. It overwrites the selected program with the current settings. To load the saved program data, select a program in **SELECT LIBRARIES**. (See section 3-5-5. “SELECT LIBRARIES.”)
   Right-clicking the **SAVE IPF** button and choosing **Disable Save Ipf** disables the button. Selecting **Enable Save Ipf** enables the button.

| NOTE |
| --- |
| The following **VRCAM2 Cont** settings are not saved to a file.<br>- Which one of **PROGRAM**, **CAM PARAMS**, **CAM MOTION**, **PIO**, **HVS**, and **SETUP** is selected<br>- Which one of **MOUSE CAM**, **REAL CAM**, and **VR CAM** is selected<br>- Which one of **LOCK**, **POS**, and **ORT** is selected<br>- Which one of **HPR** and **PTZ** is selected<br>- Which camera (**Cam1-Cam4**) is selected<br>- Which camera position (**1-32**) is selected<br>- Which thumbnail button is selected<br>- OA/NEXT status in the playlist<br>- Mouse camera settings adjusted in **GFX** |

## 3-3. Disabling Settings

To prevent accidental changes, you can disable some settings.

| Disabled Settings | Description |
|---|---|
| General settings | Right-clicking the **CAM PARAMS**, **CAM MOTION**, **PIO**, **HVS**, or **SETUP** button and choosing **Disable Change Parameters** disables settings. Choosing **Enable Change Parameters** from the right-click menu enables the settings again.<br> <br>The following settings will be disabled.<br>-**ADJUST CAMERA** under **CAM PARAMS**<br>-**MOTION PATH** under **CAM MOTION**<br>-**VR CAMERA** and **STORE** in **VIEW**<br>-**PIO**<br>-**HVS**-<br>-**SETUP** |
| SAVE IPF | Right-clicking the **SAVE IPF** button and choosing **Disable Save Ipf** disables settings. Choosing **Enable Save Ipf** from the right-click menu enables the settings again.<br> |

The checkboxes below allow you to disable system settings. Once tested, it is recommended to disable these settings since they are not used during normal operation. (They are automatically disabled after the software is started.)

| | |
|---|---|
| PIO Settings | Unchecking the **EDIT** checkbox under **PIO > SETUP** disables **SETUP** setting changes. |
| HVS Settings | Unchecking the **EDIT** checkbox under **HVS > SETUP** disables **SETUP** setting changes. |
| HOST Settings | Unchecking the **EDIT** checkbox under **SETUP** disables **SETUP** setting changes. |

## 3-4. Changing Parameters

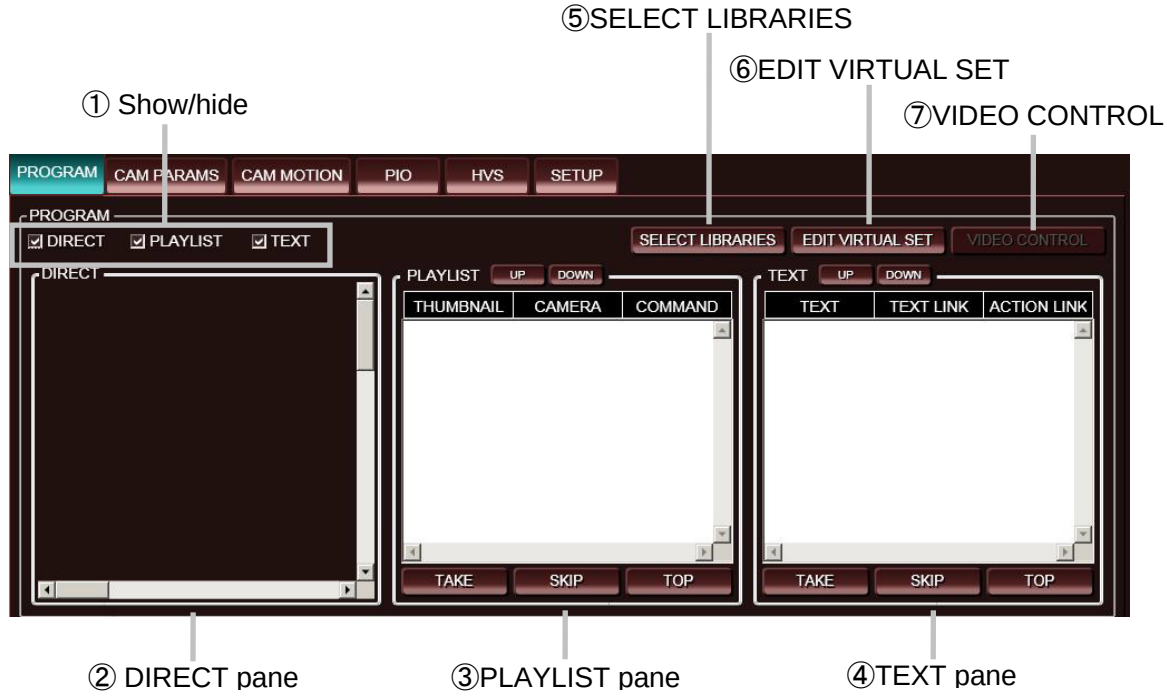
In **VRCAM2 Cont**, parameters can be changed as below, in addition to directly changing numeric values.

1. Click to select a digit you wish to change using the left mouse button.
2. Click the upper button next to the value to increase the digit by 1, and the lower button to decraese it by 1.
3. Use your mouse wheel to change the value.
4. Use the up and down arrow keys to increase and decrease the value, and left and right arrow keys to move between digits.

# 3-5. PROGRAM

## 3-5-1. Main Window

Select the **PROGRAM** tab to display the **PROGRAM** pane.




PROGRAM pane

① Show/hide
Allows you to show and hide the **DIRECT**, **PLAYLIST**, and **TEXT** panes under the **PROGRAM** pane.

② DIRECT pane
Allows you to place command buttons that enable you to switch cameras or start and stop an event with a single click. See section 3-5-2. “DIRECT Pane” for details.

③ PLAYLIST pane
Allows you to create a playlist. Camera switching and events can be saved sequentially onto a playlist, and scene takes alone during a live program enable programmed timeline effects. (See section 3-5-3 “PLAYLIST Pane.”) The **DIRECT** pane allows an operator to execute an event at the desired timing even while the playlist is running.

④ TEXT pane
Allows you to set text for captions. It can also be used as a playlist. (See section 3-5-4 “TEXT Pane.”)

⑤ SELECT LIBRARIES button
Clicking the **SELECT LIBRARIES** button displays the **SELECT LIBRARIES** dialog box. (See section 3-5-5. “SELECT LIBRARIES” for details.)

⑥ EDIT VIRTUAL SET button
Clicking the **EDIT VIRTUAL SET** button displays the **EDIT VIRTUAL SET** dialog box. (See section 3-5-6. “EDIT VIRTUAL SET” for details.)

⑦ VIDEO CONTROL button
Clicking the **VIDEO CONTROL** button while MBP-100SX, MBP-110SX, or MBP-100PD (separate purchase) is connected displays the **VIDEO CONTROL** dialog box. (See section 3-5-7. “VIDEO CONTROL” for details.)

## 3-5-2. DIRECT Pane

Allows you to add command buttons that enable you to switch cameras or start and stop an event with a single click. To add a command button, drag and drop a button into the **DIRECT** pane using the left mouse button. Up to 64 buttons can be added to the **DIRECT** pane.

| Drag From | Buttons That Can Be Added to the DIRECT Pane |
|---|---|
| SELECT CAMERA pane | **CAM1** through **CAM4** buttons<br>**CAM1** through **CAM4** position buttons (1 to 32) |
| EDIT VIRTUAL SET dialog box | Buttons in the **CONTROL** pane (EVENT, POSITION, COLOR, TEXTURE, TEXT, VIEW, STOP, PAUSE, PLAY, SOUND, VOLUME, SCENE CHG, MC IN1 through MC IN3, MC OUT1 through MC OUT3, IN EFFECT1 through IN EFFECT9, OUT EFFECT1 through OUT EFFECT9 buttons) |
| TEXT pane | Group item in the list. |

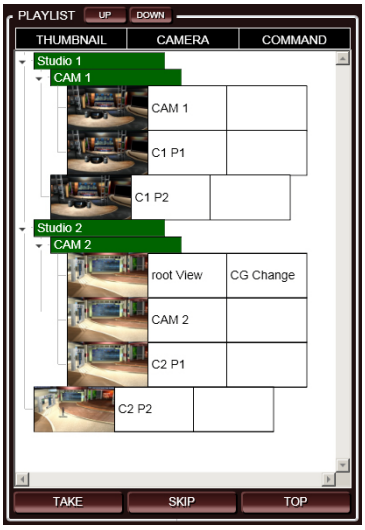
To move or resize the added button, left-click on and drag the button using your mouse. (Drag to resize the edge of the button.) In addition, the following right-click menus are available.

| Right-Click Menu | Description |
|---|---|
| New button | Allows you to create an empty button. |
| Edit command | Allows you to edit the command to be executed when the button is clicked.<br>For details on external device control using PIO output, see section 3-8-3. “PIO - OUTPUT ASSIGN”. |
| Set thumbnail | Captures the current image from the GFX window and displays it on the button. |
| Remove thumbnail | Removes the thumbnail from the button. |
| Remove | Removes the selected command button from the **DIRECT** pane. |
| Remove all | Removes all command buttons from the **DIRECT** pane. |

| **NOTE** |
|---|
| Overlapped buttons in the **DIRECT** pane may not work properly.<br>Noise may appear on the output image when setting a thumbnail to a command button. |

## 3-5-3. PLAYLIST Pane

To create a playlist, left-click on a button to drag and drop one of the buttons shown in the below table into **PLAYLIST** using the left mouse button. Pressing the F2 key while selecting an item in the playlist allows you to enter comments under **CAMERA** and **COMMAND**. Thumbnails and comments help operators during scene takes. Up to 64 items, including the green-highlighted items with the group name displayed, can be added to the playlist.




| Drag From | Buttons That Can Be Added to the PLAYLIST Pane |
|---|---|
| SELECT CAMERA pane | CAM1 through CAM4 buttons.<br>CAM1 through CAM4 position buttons. (1 to 32)<br>To change a camera and its position simultaneously, (for example, switching to CAM2POS4,) the camera and position must be changed in one take. In such case, **Group** can be used. |
| EDIT VIRTUAL SET dialog box | Buttons in the **CONTROL** pane. (EVENT, POSITION, COLOR, TEXTURE, TEXT, VIEW, STOP, PAUSE, PLAY, SOUND, VOLUME, SCENE CHG, MC IN1 through MC IN3, MC OUT1 through MC OUT3, IN EFFECT1 through IN EFFECT9, OUT EFFECT1 through OUT EFFECT9 buttons) |
| DIRECT pane | Command buttons placed in the **DIRECT** pane. |
| TEXT pane | The **TAKE**, **SKIP**, **TOP** buttons and Group item in the list |

The OA item in the playlist will be highlighted red and the NEXT item highlighted green. The items that will be sequentially executed with the next take will all be highlighted green.

-Press the Page UP key to move the green-highlighted NEXT item selection one line up.
-Press the Page Down key to move the green-highlighted NEXT item selection one line down.

In addition, the following shortcut keys are available for the created playlist.

| Function | Button | Description | Shortcut Key |
|---|---|---|---|
| Take | TAKE | Plays the current NEXT item in the playlist and sets the next item as the NEXT item. | Enter |
| Skip | SKIP | Skips the current NEXT item and sets the next item as the NEXT item. | + Page Down |
| Top | TOP | Sets the top item in the playlist as the NEXT item. | Home |
| Back | - | Without playing the current NEXT item in the playlist, sets the previous item as the NEXT item. | - Page Up |

## ■Menu

The following right-click menus are available.

| Right-Click Menu | Description |
|---|---|
| Edit command | Allows you to edit the label of the selected item and the command to be executed when the **TAKE** button is clicked.<br>For details on external device control using PIO output, see section 3-8-3. “PIO - OUTPUT ASSIGN”. |
| Set thumbnail | Captures the current image from the GFX window and displays it on the button. |
| Remove thumbnail | Removes the thumbnail from the button. |
| Remove | Removes the selected item button from **PLAYLIST**. |
| Remove all | Removes all items from **PLAYLIST**. |
| Insert Group Item | Allows you to save multiple tasks as a group so that they can be executed in one take. Clicking the arrow button next to the group name displays the group name only. |

## ■ Changing Item Order

There are two ways to change the item order.

### Changing Item Order Using UP and DOWN Buttons

Clicking the **UP** or **DOWN** button while an item is selected moves the item one position up or down. If a green-highlited group name is selected, the whole group can be moved. Items cannot be move into or out of a group using the **UP** or **DOWN** buttons.

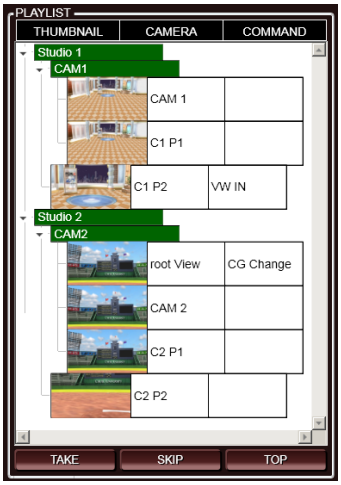
### Changing Item Order by Dragging Items

To move an item out of a group, drag the item using the left mouse button. When dragging an item, a blue horizontal line that indicates the insertion position will appear between items into where the item will be dropped. While dragging an item, the **PLAYLIST** cannot be scrolled.

## ■ Group

Group is a useful function that allows multiple items to be executed in one take. Note the following usage details.

-If a position change is included in the command, the next item will not be executed until the camera is completely moved.
-Only items under the lowest level are executed sequentially. For example, if Group 2 is created inside Group 1, items in Group 1 will not be executed sequentially.
-If no group is saved in the list, all items are considered to be under the lowest group and, therefore, are executed sequentially. To avoid doing so, create at least one group with an item.




Take1: Switched to CAM1POS1 (camera and position)

Take2: Switched to CAM1POS2 (position only)

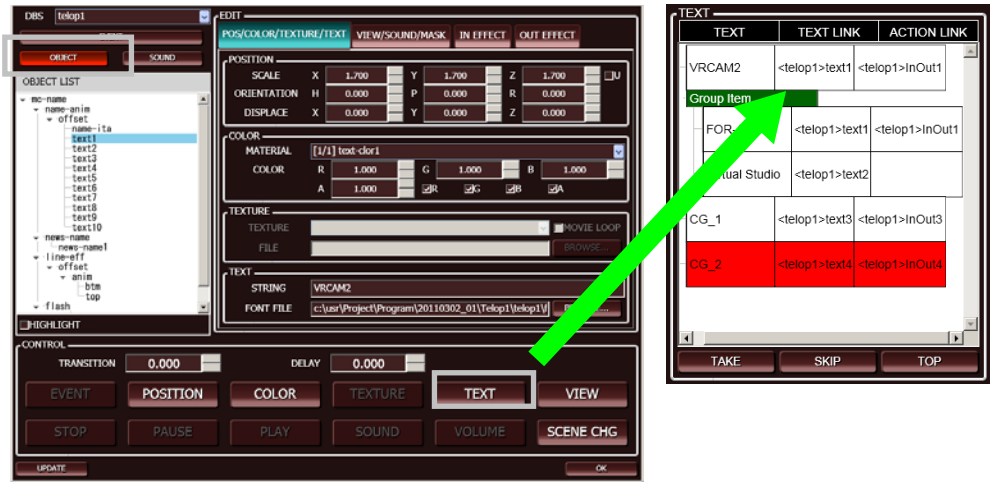
Take3: Switches virtual set
Switched to CAM2POS2 (camera and position)

Take4: Switched to CAM2POS2 (position only)

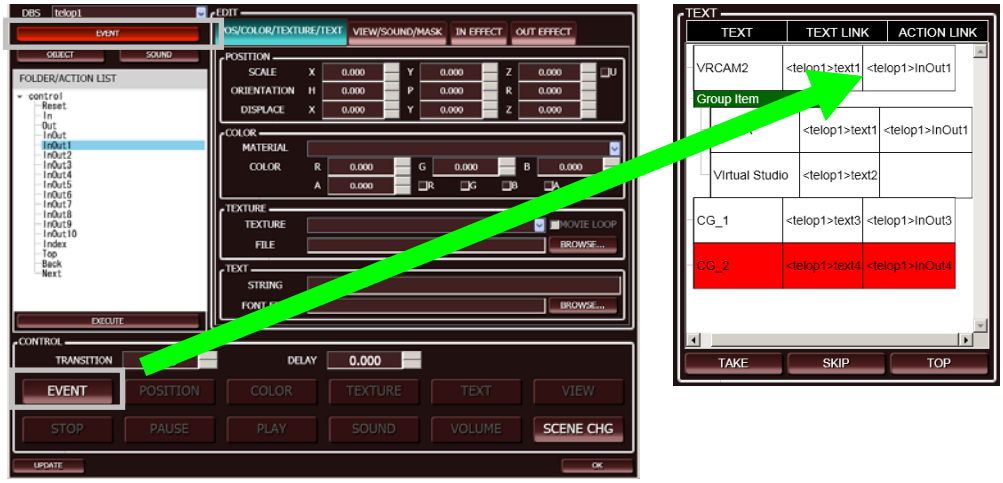
| NOTE |
| --- |
| Noise may appear on the output image when setting a thumbnail to an item in the playlist.<br>If the thumbnail does not fit properly into the button, please try again.<br>To use the numeric keypad to control the **Playlist**, the NumLock key must be off.<br>When the OA or NEXT item is moved, red or green highlight coloring may not apply correctly. In such case, select the top item in the playlist as the Next item to reset the highlight colors. |

## 3-5-4. TEXT Pane

The **TEXT** pane allows you to set text for captions. Selecting a text type object under **OBJECT** in the **EDIT VIRTUAL SET** dialog box enables the **TEXT** button in the **CONTROL** pane. To add an item to the list, drag and drop the **TEXT** button into the **TEXT** pane using the left mouse button. Up to 64 items, including the green-highlighted items with the group name displayed, can be added to the **TEXT** pane.




The text object added to the list can be linked to an event. To link to an event, first select an action in the **FOLDER/ACTION LIST** under **EVENT**, and then drag and drop the **EVENT** button from the **CONTROL** pane onto the text previously added in the **TEXT** pane, using the left mouse button.




Draging an item in the list using the left mouse button allows you to change the order. Clicking the heading “TEXT” in the list and pressing the F2 key allows you to edit the label. Changes will be applied when TAKE is performed, and the text in the **STRING** in the **TEXT** pane in **EDIT VIRTUAL SET** will be updated. If TAKE is performed for text with no linked event, the text will still be updated.

The OA item in the TEXT pane will be highlighted red and the NEXT item highlighted green. Items that will be sequentially executed with the next take will all be highlighted green.

The following three buttons are available for the created TEXT.

| Button | Description |
|---|---|
| TAKE | Plays the current NEXT item in the **TEXT** pane and sets the next item as the NEXT item. |
| SKIP | Skips the current NEXT item in the **TEXT** pane and sets the next item as the NEXT item. |
| TOP | Sets the top item in the **TEXT** pane as the NEXT item. |

These three buttons can be added by dragging and dropping into **PLAYLIST** using the left mouse button. By doing this, text can be output with intended timing through **PLAYLIST**.

■ **Menu**

The following right-click menus are available for the text in the list.

| Right-Click Menu | Description |
|---|---|
| Remove | Removes the selected item from the **TEXT** pane. |
| Remove all | Removes all items from the **TEXT** pane. |
| Insert Group Item | Allows you to save multiple tasks as a group so that they can be executed in one take. Clicking the arrow button next to the group name displays the group name only. |
| Import CSV | Allows you to load text from the selected CSV file. |

■ **Changing Item Order**

There are two ways to change the item order.

**Changing Item Order Using UP and DOWN Buttons**

Clicking the **UP** or **DOWN** button while an item is selected moves the item one position up or down. If a green-highlited group name is selected, the whole group can be moved. Items cannot be move into or out of a group using the **UP** or **DOWN** buttons.

**Changing Item Order by Dragging Items**

To move an item out of a group, drag the item using the left mouse button. When dragging an item, a blue horizontal line that indicates the insertion position will appear between items into where the item will be dropped. While dragging an item, the **TEXT** pane cannot be scrolled.

■ **Group**

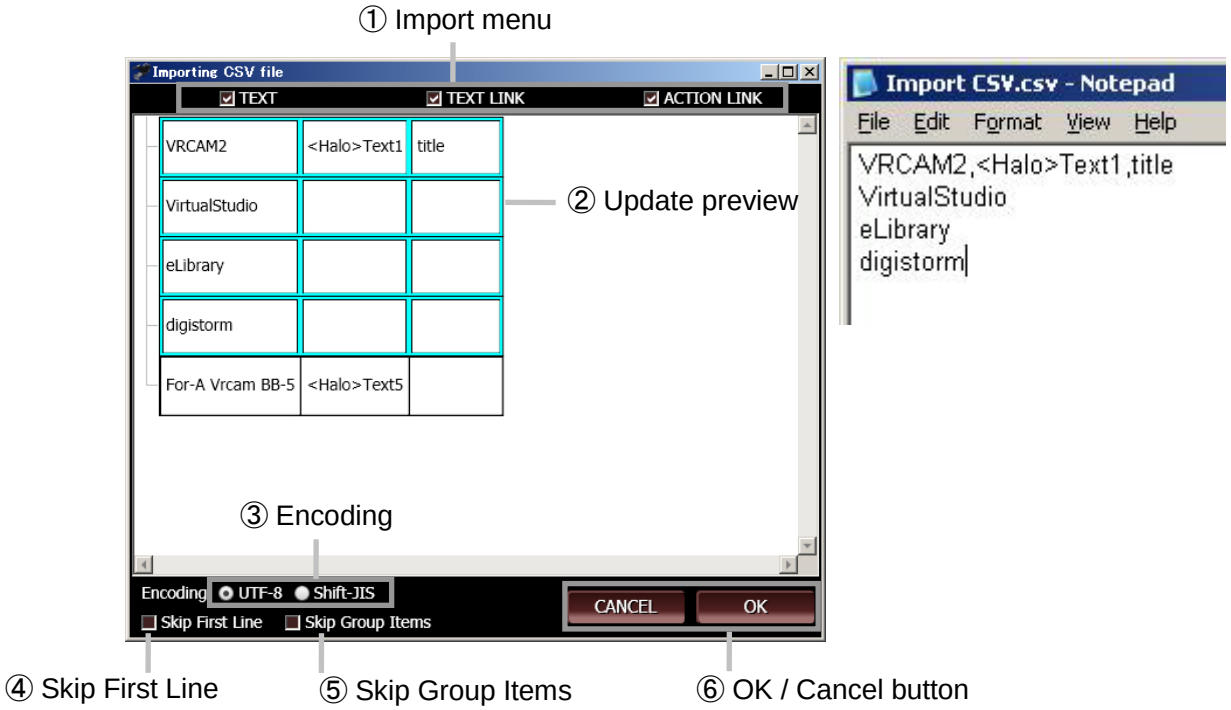
Group is a useful function to execute multiple items in one take. Note the following usage details.

-Only items under the lowest level are executed sequentially. For example, if Group 2 is created inside Group 1, the items in Group 1 will not be executed sequentially.
-If no group is saved in the list, all items are considered to be under the lowest group and, therefore, are executed sequentially. To avoid doing so, create at least one group with an item.

A Group item in the **TEXT** pane can be added by dragging and dropping into the **PLAYLIST** or **DIRECT** pane using the left mouse button. By doing this, in the **PLAYLIST** and **DIRECT** panes, text can be processed regardless of the order in the **TEXT** pane.

## ■ Importing a CSV File

By importing a CSV file, items under the **TEXT** pane can be updated easily.




① Import menu

Select items that you wish to update from **TEXT**, **TEXT LINK** and **ACTION LINK**. In the CSV file, use commas and line breaks to separate items. If you wish to update only text and other content is to remain the same, for a news program for example, check the **TEXT** checkbox only.

② Update preview

Allows you to preview which data will be updated. The items to be updated will be highlighted with a light blue border. Importing will start from the text item that is selected while **Importing CSV file** is selected. If an unintended text is to be imported first, cancel importing, select the item that you wish to import first, then try **Importing CSV file** again.

③ Encoding

Allows you to select the character code for the CSV file to be loaded. For most cases **UTF-8** will be fine. If the characters in the loaded file are garbled, select **Shift-JIS**.

④ Skip First Item

Allows you to load text on the second and subsequent lines. If the first line of the CSV file is used by comments, check the **Skip First Item** checkbox.

⑤ Skip Group Items

Check the **Skip Group Items** when you do not wish to update text for group items.

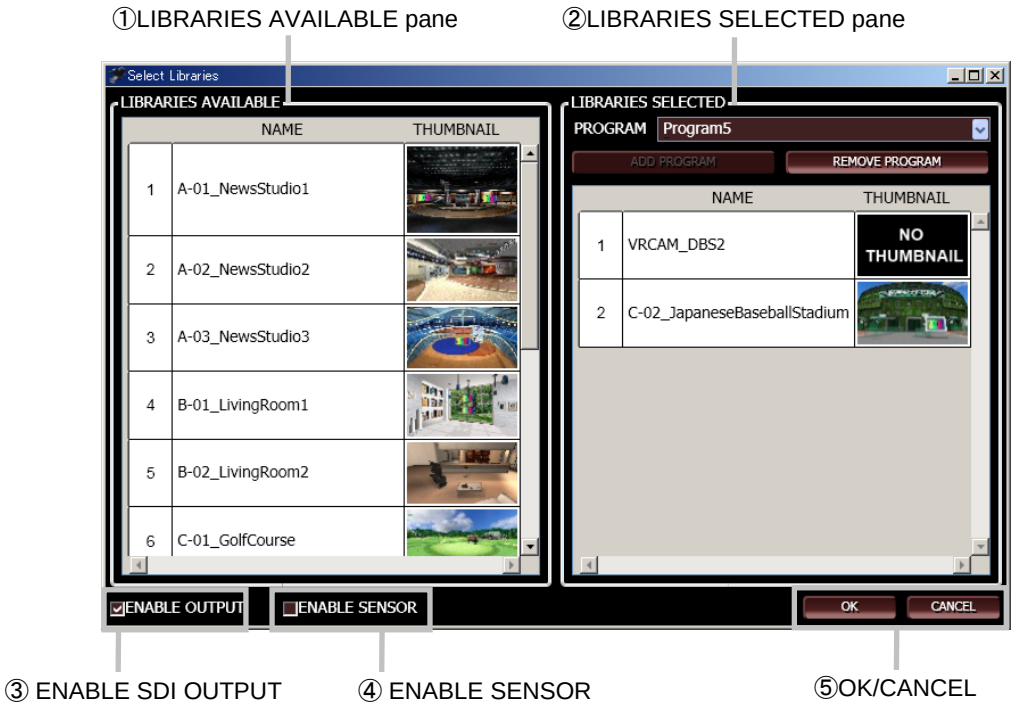
⑥OK / CANCEL

After previewing, click **OK** to apply or **CANCEL** to cancel an update.

| **NOTE** |
| --- |
| When the OA or NEXT item is moved, red or green highlight coloring may not apply correctly. In such case, select the top item in the playlist as the Next item to reset the highlight colors. |

## 3-5-5. SELECT LIBRARIES

Clicking the **SELECT LIBRARIES** button in the **PROGRAM** pane displays the **SELECT LIBRARIES** dialog box. This dialog box allows you to copy libraries (scenes) and manage them as a program.




SELECT LIBRARIES Dialog Box

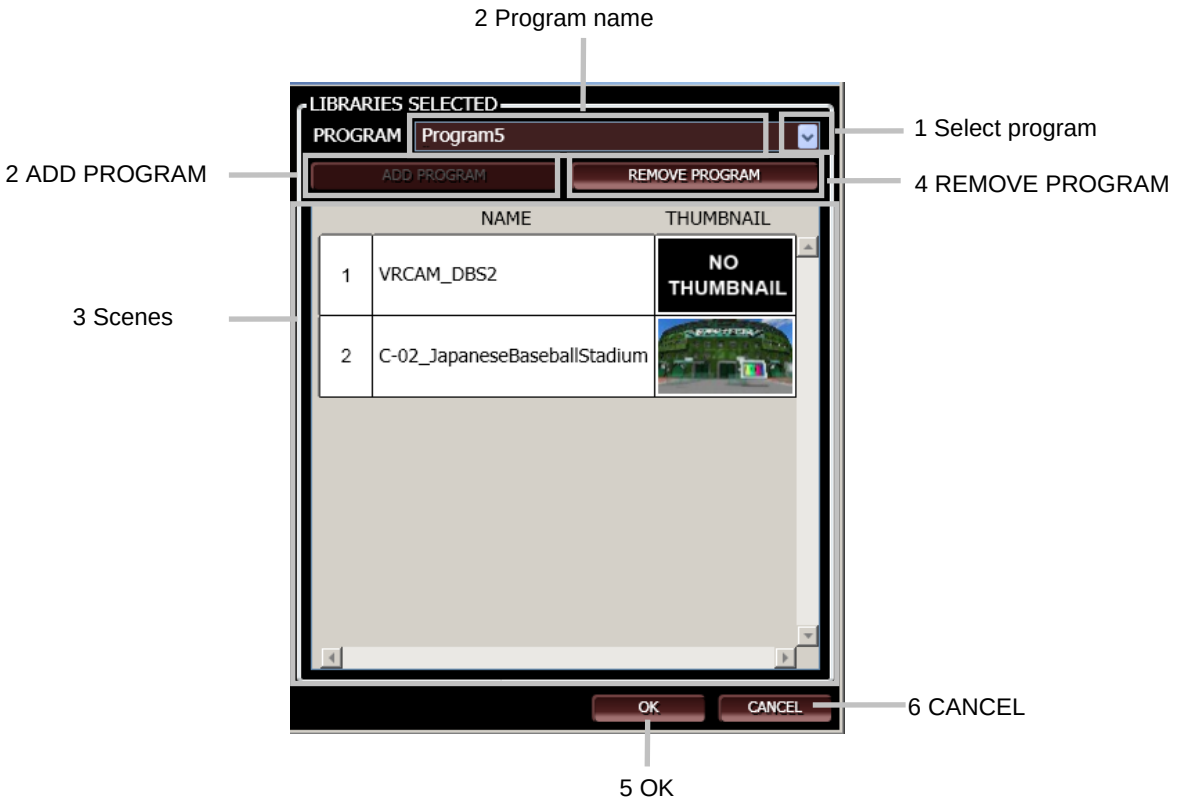
① LIBRARIES AVAILABLE pane
A list of libraries saved on the VRCAM2 processor, which **VRCAM2 Cont** is currently controlling. From this list, select libraries to use in VRCAM2.

② LIBRARIES SELECTED pane
Allows you to manage libraries as a program. Selecting a program from the **PROGRAM** drop-down list displays the libraries saved in the program.

③ ENABLE OUTPUT checkbox
Allows you to enable and disable VRCAM2 processor SDI output.

④ ENABLE SENSOR checkbox
Allows you to enable and disable receiving VRCAM2 processor sensor data.

⑤ OK / CANCEL button
Click **OK** to apply changes. Click **CANCEL** to close the **SELECT LIBRARIES** dialog box without applying changes.



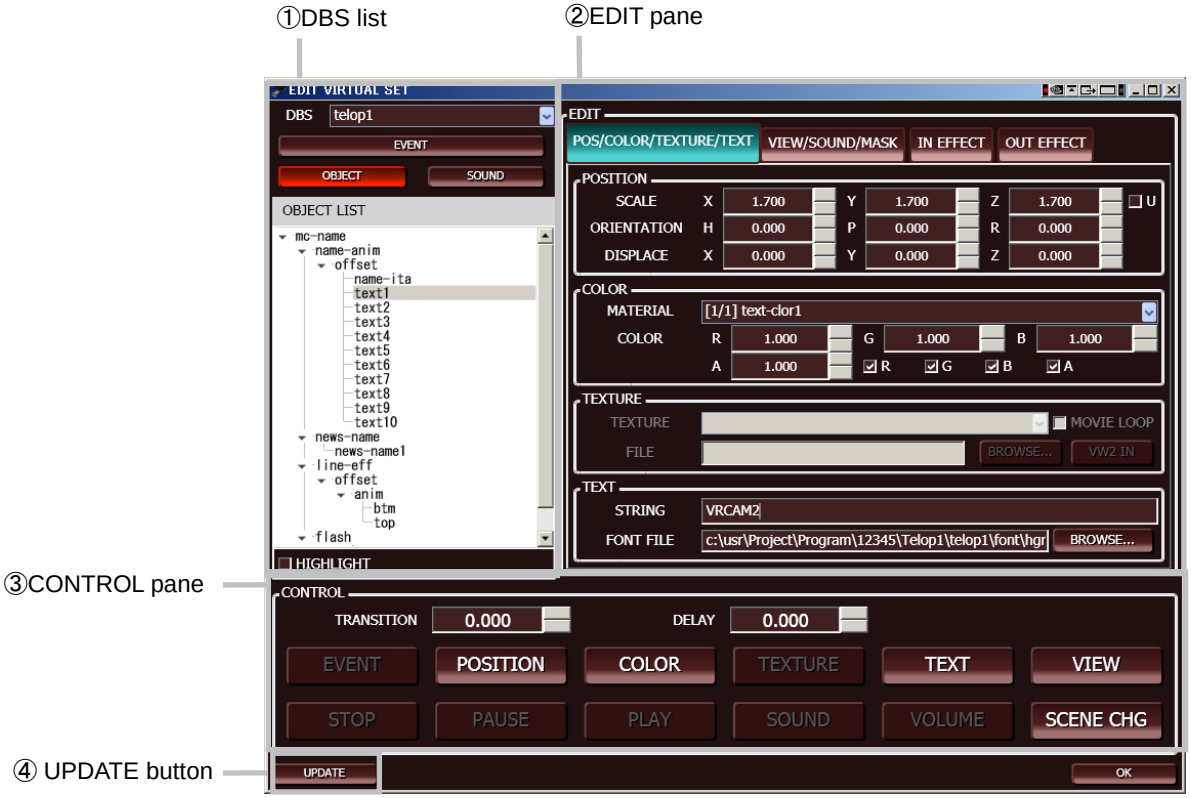

LIBRARIES SELECTED Pane

1. To select a saved program, select a program from the drop-down list.
2. To create a new program, enter a program name in the **PROGRAM** box and click the **ADD PROGRAM** button. Only one-byte alphameric characters and some symbols can be used for the program name. If the entered name already exists, the **ADD PROGRAM** button will be disabled.
3. To add a library, drag and drop a library from the **LIBRARIES AVAILABLE** pane into the **LIBRARIES SELECTED** pane using the left mouse button.
4. To delete a program, select a program from the **PROGRAM** drop-down list and click the **REMOVE PROGRAM** button.
5. After editing a program in the **LIBRARIES SELECTED** pane, click **OK**. to create a library copy, start Brainstorm eStudio, and load scenes. **VRCAM2_DBS** will automatically be added to the program.
6. Clicking **CANCEL** closes the dialog box without saving changes made in the **LIBRARIES SELECTED** pane.

| **NOTE** |
| --- |
| When Brainstorm eStudio is started, Command Prompt will be started at the same time. Since closing Command Prompt will automatically close Brainstorm eStudio, minimize Command Prompt to the taskbar instead of closing it. |

## 3-5-6. EDIT VIRTUAL SET

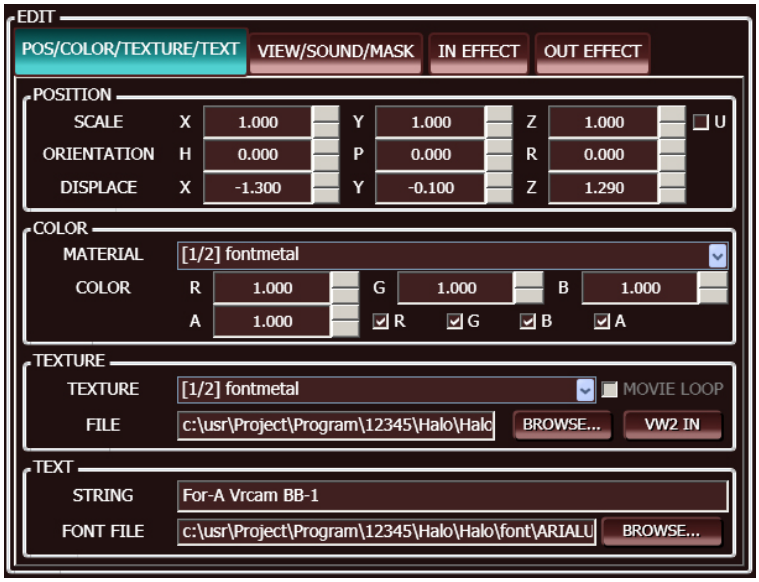
Clicking the **EDIT VIRTUAL SET** button in the **PROGRAM** pane displays the **EDIT VIRTUAL SET** dialog box. This dialog box allows you to change the position, color, texture, text, show/hide, sound, mask area, and effect settings for the objects. Clicking the **UPDATE** button updates the DBS object list. Clicking **OK** applies changes made in the **EDIT** pane, and close the **EDIT VIRTUAL SET** dialog box.




EDIT VIRTUAL SET Dialog Box

① DBS drop-down list
Selecting a scene displays the **EVENT**, **OBJECT**, or **SOUND** list (selectable with buttons) included in the scene. Checking the **HIGHLIGHT** checkbox while the **OBJECT** list is displayed highlights the object selected in the GFX window.

② EDIT pane
Allows you to change object parameters. Tabs at the top allow you to move between parameters.

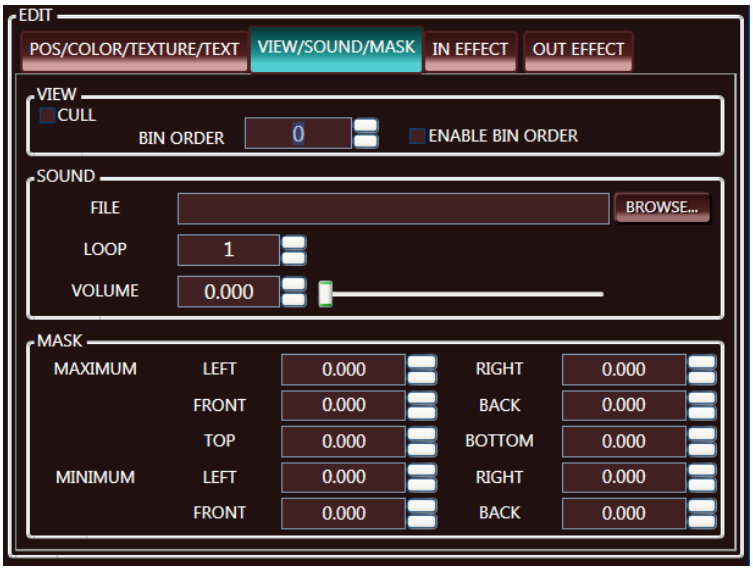



EDIT Pane
POS/COLOR/TEXTURE/TEXT Tab

**POS/COLOR/TEXTURE/TEXT Tab**

| Parameter | Description |
|---|---|
| POSITION | Allows you to set the scale, orientation, and position of objects. |
| COLOR | Allows you to set materials and colors of objects. |
| TEXTURE | Allows you to specify texture files for objects.<br>If a movie file is specified for the texture, checking the **MOVIE LOOP** checkbox and playing the movie loops the movie.<br>Clicking the **VW2 IN** button displays the second video signal that is input to the VRCAM processor (video wall). |
| TEXT | Allows you to set text and its font. |

| **IMPORTANT** |
|---|
| Specifying the font updates the text in the selected scene immediately, but actions that change the font type cannot be added to the **DIRECT** or **PLAYLIST** pane. |




EDIT Pane
VIEW/SOUND/MASK Tab

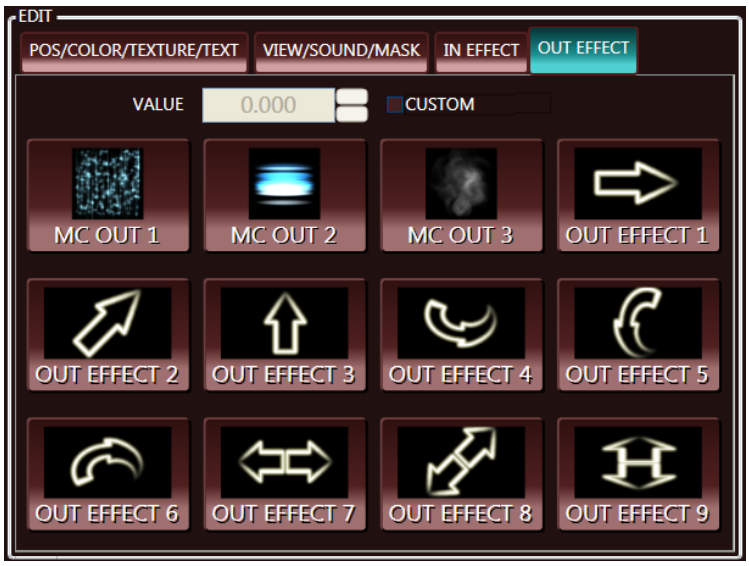
**VIEW/SOUND/MASK Tab**

| Parameter | Description |
|---|---|
| VIEW | Allows you to show or hide the object and change the order. |
| SOUND | Allows you to specify the audio file, and set the loop count and volume. |
| MASK | Allows you to set the area of the mask objects when sensor is used. |

If the layer of objects in the virtual set does not appear as you expect, changing the rendering order by checking the **ENABLE BIN ORDER** checkbox then changing the value may solve the problem. You can also change the rendering order to correct the appearance of translucent parts of objects.

The bin order for the video wall is set at 100 as default. If the camera image and virtual set image are not layered as you expect, checking the **ENABLE BIN ORDER** checkbox then setting the bin order for the object to a number larger than 101 may solve the problem.

EDIT Pane
IN EFFECT Tab




EDIT Pane
OUT EFFECT Tab

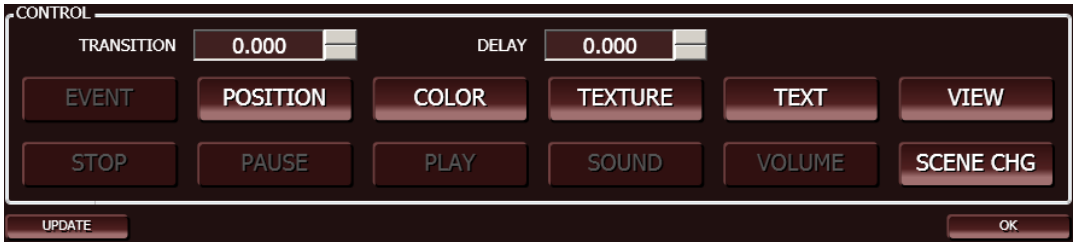
**IN EFFECT and OUT EFFECT Tabs**

| Parameter | Description |
|---|---|
| MC IN1-MC IN3 | Allows you to excecute IN EFFECT of the VRCAM2 camera image. Three types of effects are available. |
| IN EFFECT1-<br>IN EFFECT9 | Allows you to excecute IN EFFECT of the object selected in the **DBS** list. The behavior of each effect number is as below.<br>1. The selected object fades in from the left.<br>2. The selected object fades in from the back.<br>3. The selected object fades in from the top.<br>4. The selected object fades in while rotating around the z axis.<br>5. The selected object fades in while rotating around the x axis.<br>6. The selected object fades in while rotating around the y axis.<br>7. The selected object fades in while scaling up in the x direction.<br>8. The selected object fades in while scaling up in the y direction.<br>9. The selected object fades in while scaling up in the z direction. |
| MC OUT1-MC OUT3 | Allows you to excecute OUT EFFECT of the VRCAM2 camera image. Three types of effects are available. |
| OUT EFFECT1-<br>OUT EFFECT9 | Allows you to excecute OUT EFFECT of the object selected in the **DBS** list. The behavior of each effect number is as below.<br>1. The selected object fades out to the left.<br>2. The selected object fades out to the back.<br>3. The selected object fades out to the top.<br>4. The selected object fades out while rotating around the z axis.<br>5. The selected object fades out while rotating around the x axis.<br>6. The selected object fades out while rotating around the y axis.<br>7. The selected object fades out while scaling down in the x direction.<br>8. The selected object fades out while scaling down in the y direction.<br>9. The selected object fades out while scaling down in the z direction. |
| VALUE | Allows you to set the IN EFFECT and OUT EFFECT values. |
| CUSTOM | To use the default value for **VALUE**, uncheck the **CUSTOM** checkbox. To change the value, check the checkbox. |

Note that the above effects do not work if the **TRANSITION** value in the **CONTROL** pane is set to 0. To use an effect, set the **TRANSITION** value to other than **0**.

③ CONTROL pane

Command buttons in the **CONTROL** pane allow you to add events to the **DIRECT** or **PLAYLIST** pane. These command buttons will not work even if they are clicked in the **CONTROL** pane. Dragging and dropping a command button from the **CONTROL** pane into the **DIRECT** or **PLAYLIST** pane in the main window using the left mouse button adds the event.




CONTROL Pane

| Button | Description |
|---|---|
| EVENT | Allows you to execute the selected event. |
| POSITION | Allows you to set the object position to the value set in the **EDIT** pane. |
| COLOR | Allows you to set the object material color to the value set in the **EDIT** pane. |
| TEXTURE | Allows you to set the object texture to the value set in the **EDIT** pane. |
| TEXT | Allows you to set the text to the value set in the **EDIT** pane. |
| VIEW | Allows you to set the show/hide object setting to the value |
| STOP | If the OBJECT list is displayed: Stops the selected texture movie.<br>If the SOUND list is displayed: Stops the selected sound. |
| PAUSE | If the OBJECT list is displayed: Pauses the selected texture movie.<br>If the SOUND list is displayed: Pauses the selected sound. |
| PLAY | If the OBJECT list is displayed: Plays the selected texture movie.<br>If the SOUND list is displayed:<br>Loop plays the sound number of times specified in the **EDIT** pane. |
| SOUND | Allows you to set the audio file to the file set in the **EDIT** pane. |
| VOLUME | Allows you to set the sound volume to the specified value. |
| SCENE CHG | Allows you to show only the selected scenes. |

The available command buttons differ depending on whether EVENT, OBJECT, or SOUND is selected in the **DBS** list.

［TRANSITION］

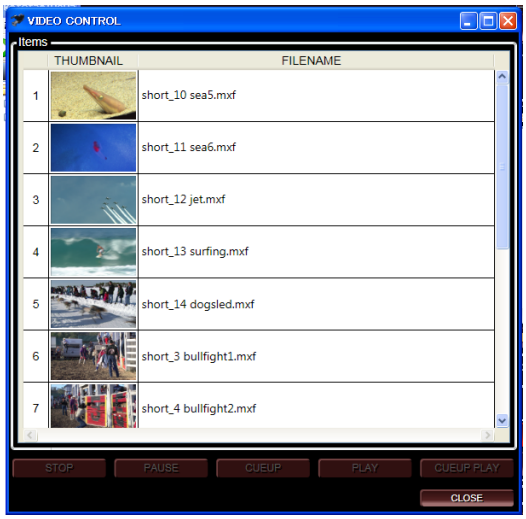
Allows you to set the transition time for the command. Fade in and out effects can be created by setting the different visibility or audio volume settings for different points of time.

［DELAY］

Allows you to set the time delay for executing the command (from the time the button is pressed until the command is executed).

## 3-5-7. VIDEO CONTROL

If an MBP-100SX, MBP-110SX, or MBP-100PD (separate purchase) is connected, clicking **VIDEO CONTROL** in the **PROGRAM** pane displays the **VIDEO CONTROL** dialog box. This dialog box allows you to cue and play video files saved on the device.




VIDEO CONTROL Dialog Box

| | | |
|---|---|---|
| Items | Displays the video files saved on the device. | |
| Control | The **STOP**, **PAUSE**, **CUEUP**, **PLAY**, or **CUEUP PLAY** button can be added by dragging and dropping into **DIRECT** or **PLAYLIST**. | |
| | STOP | Stops the video. |
| | PAUSE | Pauses the video. |
| | CUEUP | Cues the video. |
| | PLAY | Plays the video. |
| | CUEUP PLAY | Cues and plays the video. |
| | CLOSE | Closes the dialog box. |

To enable the **VIDEO CONTROL** button in the main window, the **CONTROL ENABLE** checkbox in the **VDCP SETTINGS** pane under the **SETUP** tab must be checked. See section 3-10. “HOST Settings” for details.

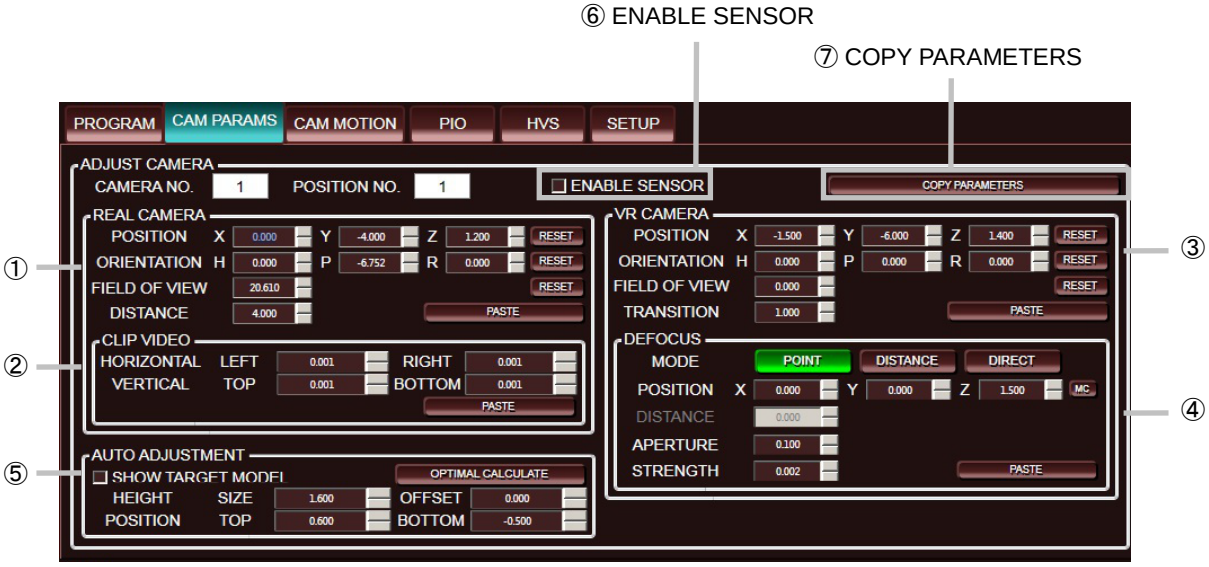
The files are received via LAN and control is performed via the serial interface. If the files are not displayed or control is not performed, check that all devices are properly connected.

To control MBP-100SX, MBP-110SX, or MBP-100PD (separate purchase) through VRCAM2, the settings on the MBP-100SX, MBP-110SX, or MBP-100PD must also be changed.

The thumbnail is not a standard feature of MBP-100SX, MBP-110SX, or MBP-100PD. To use this feature, contact our sales office.

# 3-6. ADJUST CAMERA

Selecting the **CAM PARAMS** tab displays the **ADJUST CAMERA** pane. In this pane, the camera position and settings of the camera that is actually shooting the target can be set.




ADJUST CAMERA Pane

In **CAMERA NO.** and **POSITION NO.**, the camera number and camera position number currently selected in the **SELECT CAMERA** pane will be displayed respectively.

If the selected camera has a sensor, check the **ENABLE SENSOR** checkbox (⑥). See the ifCalibSTD Manual for details.

Clicking the **COPY PARMAETERS** button (⑦) copies the parameters in the **REAL CAMERA**, **VR CAMERA**, **CLIP VIDEO**, and **DEFOCUS** panes to the clipboard.

① REAL CAMERA Pane
Allows you to set the camera position and orientation of the camera that is actually shooting the target.

REAL CAMERA Pane

| Parameter | Description |
|---|---|
| POSITION | Allows you to enter the position of the real camera (X: left-right, Y: depth, Z: up-down) in the coordinate system having its origin at the origin of the studio. Clicking the **RESET** button resets the **X**, **Y**, or **Z** value to **0**. |
| ORIENTATION | Allows you to enter the orientation of the real camera (H: pan, P: tilt, R: roll) in the coordinate system having its origin at the origin of the studio. Clicking the **RESET** button resets the **H**, **P**, or **R** value to **0**. |
| FIELD OF VIEW | Enter the field of view of the real camera.<br>Clicking the **RESET** button resets the value to **0**. |
| DISTANCE | Allows you to enter the distance between the real camera and the target. |
| PASTE | Overwrites the above parameters with the parameters copied to the clipboard. |

The optimal **ORIENTATION-P** and **FIELD OF VIEW** values can be calculated in the **AUTO ADJUSTMENT** pane (⑤).

> If the camera or camera position is selected after changing the **REAL CAMERA** or **VR CAMERA** settings in **RECALL** mode, the changes will not be saved. To save the settings, change to **STORE** mode. See section 3-11. “VIEW” for details.

② CLIP VIDEO pane
Allows you to remove the unnecessary area of the video image for chroma keying. Setting to **0.1** removes 10% of the image.

CLIP VIDEO Pane

| Parameter | Description |
|---|---|
| HORIZONTAL | Allows you to remove the left and right areas of the video image. |
| VERTICAL | Allows you to remove the top and bottom areas of the video image. |
| PASTE | Overwrites the above parameters with the parameters copied to the clipboard. |

③ VR CAMERA pane
Allows you to set the camera position and orientation of the Brainstorm eStudio virtual camera.

VR CAMERA Pane

| Parameter | Description |
|---|---|
| POSITION | Allows you to enter the values of the virtual camera position in the relative value of the real camera position. Clicking the **RESET** button resets the **X**, **Y**, or **Z** value to **0**. |
| ORIENTATION | Allows you to enter the values of the virtual camera orientation in the relative value of the real camera orientation. Clicking the **RESET** button resets the **H**, **P**, or **R** value to **0**. |
| FIELD OF VIEW | Allows you to enter the values of the field of view of the virtual camera in the relative value of the field of view of the real camera. Clicking the **RESET** button resets the value to **0**. |
| TRANSITION | Sets the motion duration of the virtual camera in seconds. |
| PASTE | Overwrites the above parameters with the parameters copied to the clipboard. |

> If the camera or camera position is selected after changing the **REAL CAMERA** or **VR CAMERA** settings in **RECALL** mode, the changes will not be saved. To save the settings, change to **STORE** mode. See section 3-11. “VIEW” for details.

④ DEFOCUS pane

Allows you to set defocus settings. To enable the defocus settings, check the **DEFOCUS CONTROL** checkbox under the **SETUP** tab.

DEFOCUS Pane

| Parameter | Description |
|---|---|
| MODE | Allows you to select from **POINT**, **DISTANCE** and **DIRECT** modes. |
| POSITION | Allows you to set the position that the image comes into focus in coordinates. The **POSITION** settings are available in **POINT** mode only. Clicking the **MC** button enters the position values where the camera image is displayed. **0.0** will be entered in **X** and **Y**, and a value of **0.1** (10 cm) substracted from the **HEIGHT – SIZE** value in the **AUTO ADJUSTMENT** pane will be entered in **Z**. |
| DISTANCE | Allows you to set the position that the image comes into focus with the value of distance from the virtual camera. The **DISTANCE** setting is available in **DISTANCE** and **DIRECT** modes. |
| APERTURE | In **POINT** and **DISTANCE** modes:<br>Allows you to set the camera aperture (f-number). The larger the size, the wider the area that will come into focus.<br>In **DIRECT** mode:<br>Allows you to specify the area that will come into focus (distance from the focus position). |
| STRENGTH | Allows you to set the defocus value between 0.0 and 1.0.<br>The larger the value, the more defocused an image will be.<br>If set to **0**, no defocus will be applied. |
| PASTE | Overwrites the above parameters with the parameters copied to the clipboard. |

➢ DEFOCUS MODE

VRCAM2 supports 3 defocus modes. Each mode has the following characteristics.

| Mode | Focus | Description |
|---|---|---|
| POINT | Position | Position is specified in virtual space coordinates in computer graphics.<br>If the same position is set to all virtual cameras, the same point can remain focused despite virtual camera moves. |
| | Area | The focus area is calculated and applied to CGs according to the virtual camera position, focus position, aperture, and FOV value. |
| DISTANCE | Position | Position is specified by the distance from the virtual camera in virtual space in computer graphics.<br>If the same position is set to all virtual cameras, the focus point moves as the virtual camera moves. |
| | Area | The focus area is calculated and applied to CGs according to the virtual camera position, focus position, aperture, and FOV value. |
| DIRECT | Position | Position is specified by the distance from the virtual camera in virtual space in computer graphics.<br>f the same position is set to all virtual cameras, the focus point moves as the virtual camera moves. |
| | Area | The aperture value is the focus area.<br>No virtual camera or FOV value calculation will be performed. The value must be set viewing the image manually. |

The STRENGTH parameter allows the defocus level to be set for all modes in common.

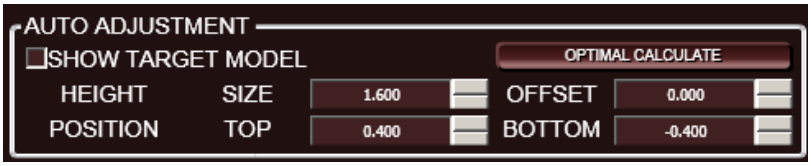
**POSITION** and **DISTANCE** modes use the FOV value of each position in addition to the settings in the **DEFOCUS** pane to determine the defocus setting. Therefore, the appearance may change even though the settings in the **DEFOCUS** pane are the same.

If the camera or camera position is selected after changing the **REAL CAMERA** or **VR CAMERA** settings in **RECALL** mode, the changes will not be saved. To save the settings, change to **STORE** mode. See section 3-11. “VIEW” for details.

Each value in the **DEFOCUS** pane will be the absolute value of each position.

⑤ AUTO ADJUSTMENT pane

Allows you to calculate the optimal **ORIENTATION - P** and **FIELD OF VIEW** values of the real camera by entering the height of the target and the offset value.



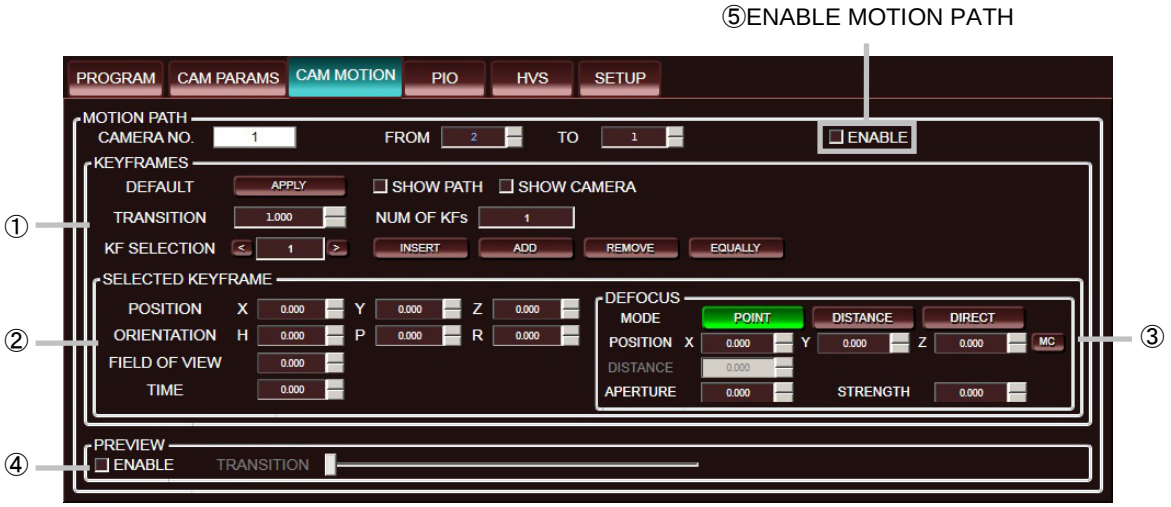

AUTO ADJUSTMENT Pane

| Parameter | Description |
|---|---|
| SHOW TARGET MODEL | Allows you to show and hide a target model. |
| HEIGHT SIZE | Allows you to enter the height of the target. |
| HEIGHT OFFSET | If the real camera is focused on a person’s upper body, enter the height that is out of camera view (from foot to upper body). If it is a full body shot, set to **0**. |
| POSITION | Enter the values to align the yellow markers of the target model to the top and bottom of the person. |

Clicking the **OPTIMAL CALCULATE** button calculates the optimal **ORIENTATION P** and **FIELD OF VIEW** values in the **REAL CAMERA** pane, using the values entered in the **AUTO ADJUSTMENT** pane.

# 3-7. MOTION PATH

Clicking the **CAM MOTION** tab displays the **MOTION PATH** pane. The motion path of the virtual camera is normally a straight line joining the two positions. By entering additional parameters, the curved path can be created.




MOTION PATH Pane

In **CAMERA NO.**, the camera number currently selected in the **SELECT CAMERA** pane will be displayed. Select the original camera position in **FROM**, and final camera position in **TO**. To enable the **MOTION PATH** settings, check the **ENABLE** checkbox (⑤). If the **ENABLE** checkbox is unchecked, the motion path will be straight.

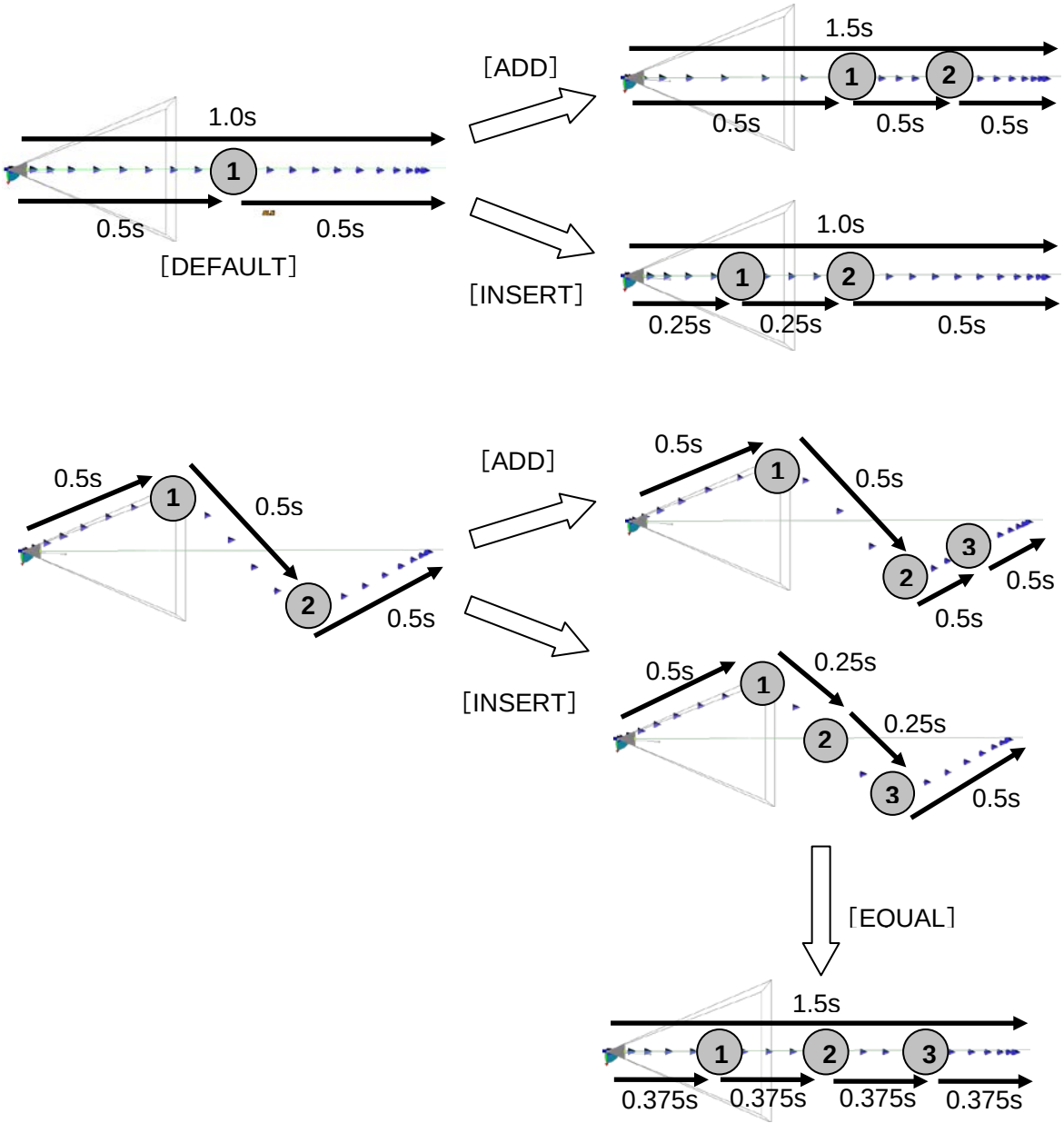
① KEYFRAMES pane
Allows you to add and delete the motion path keyframe and set the transition time for the camera position.

KEYFRAMES Pane

| Parameter | Description |
|---|---|
| DEFAULT | Clicking the **APPLY** button sets the motion path to its default settings as below.<br>-Straight path<br>-Creates a keyframe at the center.<br>-Sets the transition to 1.0. |
| SHOW PATH | Displays the motion path on the output image. |
| SHOW CAMERA | Displays the modeled virtual camera on the output image. |
| TRANSITION | Allows you to set the motion duration of the virtual camera in seconds. |
| NUM OF KFs | Displays the number of keyframes (64 keyframes maximum). |
| KF SELECTION | Displays the keyframe number of the currently selected keyframe. The parameters of the selected keyframe are displayed in the **SELECTED KEYFRAME** pane. Click the **<** and **>** button to select a desired keyframe. |

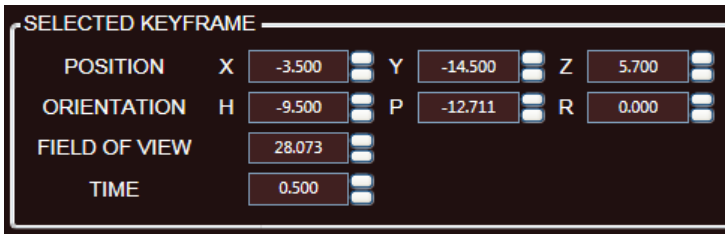
The following buttons are used to add and delete keyframes.

| Button | Description |
|---|---|
| INSERT | Inserts a keyframe before the currently selected keyframe. |
| ADD | Adds a keyframe at the end and increases the value in **TRANSITION**. The value after removing the **TIME** value of the last keyframe from the original transition value is the amount increased in **TRANSITION**. |
| REMOVE | Deletes the currently selected keyframe. |
| EQUALY | Places keyframes evenly on a straight path. |




-If a keyframe is inserted using **INSERT**, the position of the inserted keyframe will change whether ① or ② is currently selected. In the example above, ② is selected.
-If a keyframe is added using **ADD**, the position of the added keyframe will always be the same regardless of the currently selected keyframe.

② SELECTED KEYFRAME pane
Allows you to set the settings of the currently selected keyframe.




SELECTED KEYFRAME Pane

| Parameter | Description |
|---|---|
| POSITION | Allows you to enter the position of the currently selected keyframe. |
| ORIENTATION | Allows you to enter the orientation of the currently selected keyframe. |
| FIELD OF VIEW | Allows you to enter the field of view of the currently selected keyframe. |
| TIME | Allows you to enter the time of the currently selected keyframe. |

③ DEFOCUS pane
Allows you to set the defocus settings in units of keyframes. To enable the defocus settings, check the **DEFOCUS CONTROL** checkbox under the **SETUP** tab.

DEFOCUS Pane

| Parameter | Description |
|---|---|
| MODE | Allows you to select from **POINT**, **DISTANCE** and **DIRECT** modes. |
| POSITION | Allows you to set the position that the image comes into focus in coordinates. The **POSITION** settings are available in **POINT** mode only. Clicking the **MC** button enters the position values where the camera image is displayed. **0.0** will be entered in **X** and Y, and a value of **0.1** (10 cm) substracted from the **HEIGHT – SIZE** value in the **AUTO ADJUSTMENT** pane will be entered in **Z**. |
| DISTANCE | Allows you to set the position that the image comes into focus with the value of distance from the virtual camera. The **DISTANCE** setting is available in **DISTANCE** mode only. |
| APERTURE | In **POINT** and **DISTANCE** modes:<br>Allows you to set the camera aperture (f-number). The larger the size, the wider the area that will come into focus.<br>In **DIRECT** mode:<br>Allows you to specify the area that will come into focus (distance from the focus position). |
| STRENGTH | Allows you to set the defocus value. The larger the value, the more defocused an image will be.<br>If set to **0**, no defocus will be applied. |

④ PREVIEW pane

Allows you to preview the transition of the motion path set in the **MOTION PATH** pane.

PREVIEW Pane

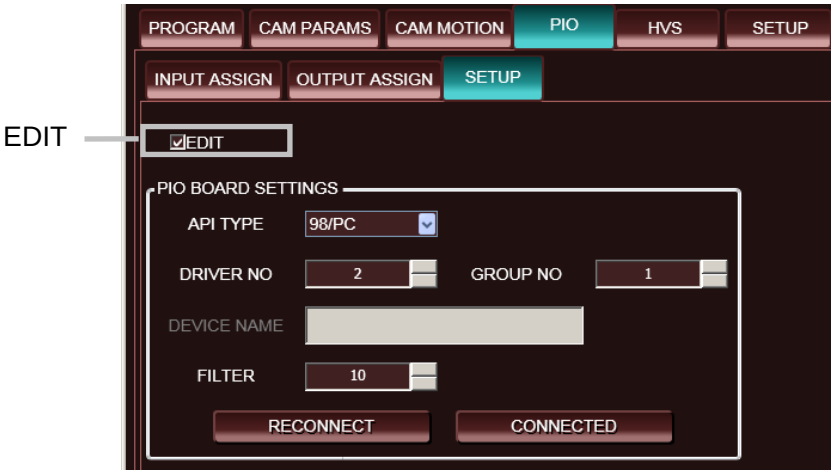
| Parameter | Description |
|---|---|
| ENABLE | Select this checkbox for previewing the motion of the virtual camera. |
| TRANSITION | The appearance of the camera changes according to the slider position. |

# 3-8. PIO Settings

Clicking the **PIO** tab displays the PIO setting screen. The PIO setting screen consists of **INPUT ASSIGN**, **OUTPUT ASSIGN**, and **SETUP**.

## 3-8-1. PIO - SETUP

The **SETUP** page allows you to set the general setting to use PIO.




SETUP

Checking the **EDIT** checkbox enables settings. Unchecking this checkbox disables settings to prevent accidental changes.

| Parameter | Description |
|---|---|
| API TYPE | Allows you to select the API type used for PIO between **98/PC** and **WDM**. |
| DRIVER NO | Allows you to set a driver no. for the switch box.<br>Used only if **98/PC** is selected. |
| GROUP NO | Allows you to set a group no. for the switch box.<br>Used only if **98/PC** is selected. |
| DEVICE NAME | Allows you to set a switch box name with a board name.<br>Used only if **WDM** is selected. |
| FILTER | Allows you to set the digital filter time. |
| CONNECTED | An indicator that shows the connection status with the PIO board. The indicator lights up green when the PIO board is properly installed and controlled. |

## 3-8-2. PIO - INPUT ASSIGN

The **INPUT ASSIGN** page allows you to assign a function to each button on the switch box.

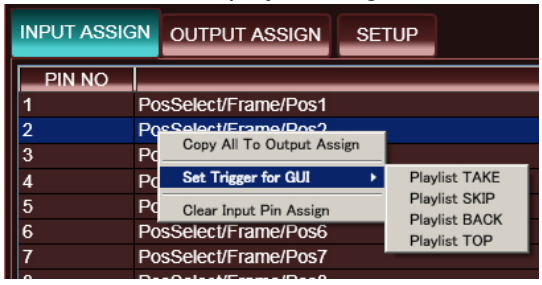
INPUT ASSIGN

| Parameter | Description |
|---|---|
| PIN NO | Displays the PIO input pin number. |
| COMMAND STRING | Buttons in **SELECT CAMERA** can be added by dragging and dropping them into **COMMAND STRING** using the left mouse button.<br>Pressing the F2 key or double-clicking an item in the list allows you to edit the command. In this **COMMAND STRING**, items in the **IconList** in Brainstorm eStudio can be added. |

**Buttons and Settings That Can Be Added by Using Drag and Drop**

| | | |
|---|---|---|
| CAMERA button | Drag and drop | Assigns a camera only (e.g. CAM1) |
| POSITION button | Drag and drop | Assigns a camera and camera position (e.g. CAM1POS1) |
| | Drag and drop while pressing the Shift key | Assigns a camera position only (e.g. POS1) |

Right-clicking an item in the list displays the right-click menu as below.




| Right-Click Menu | | Description |
|---|---|---|
| Copy All to Output Assign | | Copies the camera and camera position numbers in I**NPUT ASSIGN** to the same pins in **OUTPUT ASSIGN**. For the playlist control commands, a corresponding function will be copied. Commands other than for the camera, camera positon, and playlist will not be copied. |
| Set Trigger for GUI | Playlist TAKE | Assigns **Playlist TAKE**. |
| | Playlist SKIP | Assigns **Playlist SKIP**. |
| | Playlist BACK | Assigns **Playlist BACK**. |
| | Playlist TOP | Assigns **Playlist TOP**. |
| Clear Input Pin Assign | | Clears the command of the selected pin number. |

## 3-8-3. PIO - OUTPUT ASSIGN

The **OUTPUT ASSIGN** page allows you to assign pin numbers to the VRCAM2 cameras and positions.

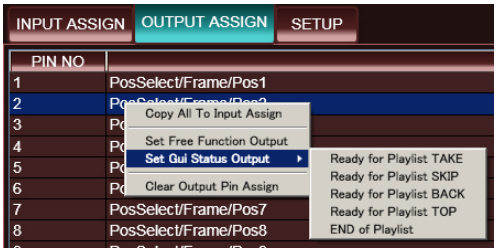
OUTPUT ASSIGN

| Parameter | Description |
|---|---|
| PIN NO | Displays the PIO output pin number. |
| COMMAND STRING | Buttons in **SELECT CAMERA** can be added by dragging and dropping into **COMMAND STRING** using the left mouse button. |

**Buttons and Settings That can be Added by Using Drag and Drop**

| | | |
|---|---|---|
| CAMERA button | Drag and drop | Assigns a camera only (e.g. CAM1) |
| POSITION button | Drag and drop | Assigns a camera and camera position (e.g. CAM1POS1) |
| | Drag and drop while pressing the Shift key | Assigns a camera position only (e.g. POS1) |

Right-clicking an item in the list displays the right-click menu as below.




| Right-Click Menu | Description |
|---|---|
| Copy All to Input Assign | Copies the camera and camera position numbers in **OUTPUT ASSIGN** to the same pins in **INPUT ASSGIN**. Commands other than for the camera and camera positon will not be copied. |
| Set Free Function Output | Sets **Free Function Output** (see next page) to the selected pin number. |

| Right-Click Menu | | Description |
|---|---|---|
| Set Gui Status Output | Ready for Playlist TAKE | Enables the pin if there is an item selected for NEXT in the playlist. |
| | Ready for Playlist SKIP | Enables the pin if the NEXT item is not the last item in the playlist. |
| | Ready for Playlist BACK | Enables the pin if the NEXT item is not the top item in the playlist. |
| | Ready for Playlist TOP | Enables the pin if there are items in the playlist |
| | End of Playlist | Enables the pin if the NEXT item can no longer be selected (at the end of the playlist). |
| Clear Output Pin Assign | | Clears the assignment of the selected pin number. |

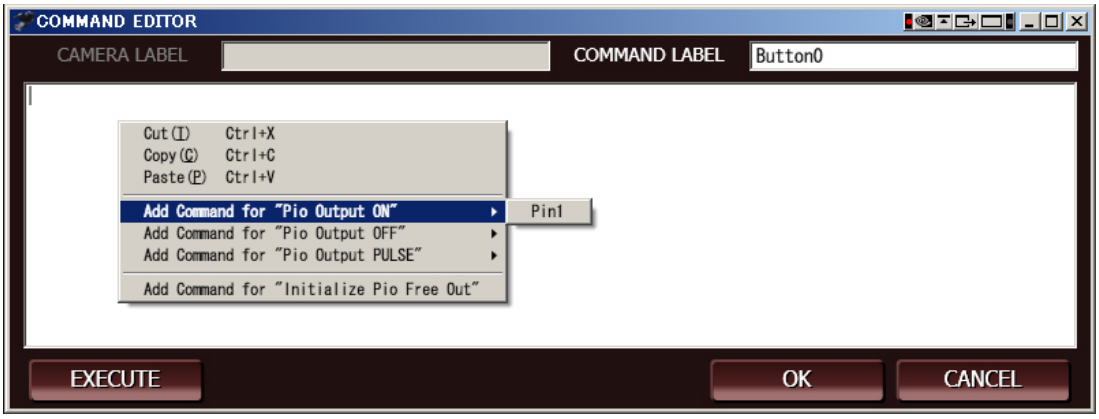
◆ **About Free Function Output**

**Free Function** is a function that allows you to control PIO output pins, to control an external device through VRCAM2, or to output VRCAM2 virtual set status (assignable for **PIO OUTPUT** only).

The pin that **Free Function** is assigned to can be controlled in the **ICON** list in **vrcam2DBS** in **Brainstorm**.
There are two operatin methods.

Method 1: Direct assignment

1. Right-click an item under the **DIRECT** or **PLAYLIST** pane, and choose **Edit command** from the menu.
2. In **COMMAND EDTOR**, right-click the center area, which allows you to enter commands.

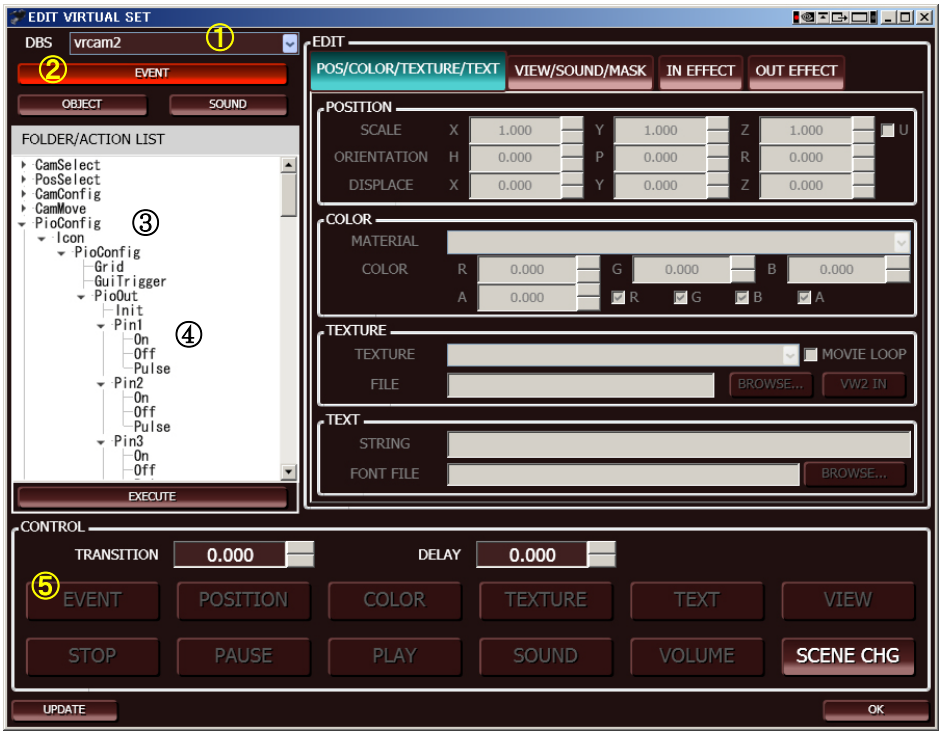



3. The following four command menus appear. Each pin can be selected only if **Free Function** is assigned under the **PIO – OUTPUT ASSIGN** tab. If **Free Function** is assigned to the pin, **External Function/Free** appears under **COMMAND STRING** under the **PIO – OUTPUT ASSIGN** tab.

| Event Name | Description |
|---|---|
| Add Command for “Pio Output ON” | Enables output of the selected pin. |
| Add Command for “Pio Output OFF” | Disables output of the selected pin. |
| Add Command for “Pio Output PULSE” | Enables and then disables output of the selected pin. The time interval between On and Off is approximately 100 msec. |
| Add Command for “Initialize Pio Free Out” | Disables all pins to which Free Function is assigned. |

**Method 2: Assignment through EDIT VIRTUAL SET**

1. Click **EDIT VIRTUAL SET** in the **PROGRAM** pane to open the **EDIT VIRTUAL SET** dialog box.




2. Select **vrcam2** from the **DBS** drop-down list (①).
3. Click the **EVENT** button to display **FOLDER/ACTION LIST** (②).
4. Under the tree in **FOLDER/ACTION LIST**, expand **PioConfig** (③).
5. Click an item under **PioConfig > PioOut/Pin%** (% denotes the pin number to control) (④)

   Each pin has the following three events.

| Event Name | Description |
|---|---|
| On | Enables output of the selected pin. |
| Off | Disables output of the selected pin. |
| Pulse | Enables and then disables output of the selected pin. The time period from On to Off is approximately 100msec. |

6. Drag and drop the **EVENT** button (⑤) into the **DIRECT** or **PLAYLIST** pane.
7. Execute the event in the **DIRECT** or **PLAYLIST** pane.

> The above events are effective for the pins to which **Free Function** is assigned. If **Free Function** is not assigned, events are not executed even though the buttons can be added by draging and dropping them. **PioConfig > PioOut/Init** under the tree allows you to turn **Free Function Output** off for all pins.

# 3-9. HVS Settings

Clicking the **HVS** tab displays the HANABI Virtual Link setting page (VRLINK). This page allows you to assign camera and camera position switching settings to the HANABI Virtual Link tally. For details on the system covering HVS-300HS and HVS-350HS, see section 6. “HANABI Virtual Link System.”

## 3-9-1. HVS - SETUP

The **SETUP** page allows you to set the **VIRTUAL LINK** sytem settings between VRCAM2 and the HANABI series switcher.

SETUP

Checking the **EDIT** checkbox enables settings.

| Parameter | Description | |
|---|---|---|
| HVS TYPE | NON_LINK | Hides all settings except **HVS TYPE** and **EDIT**. |
| | HVS-300HS/350HS | If an HVS-300HS or HVS-350HS is used, select **HVS-300HS/350HS**. |
| | Other HVS | If an HVS series switcher other than the HVS-300HS or HVS-350HS is used, select **Other HVS**. |
| USE AUX | If an HVS series switcher is used for camera switching when Virtual Link is performed, check the **USE AUX** checkbox. If VRCAM2 is directly controlling a DRS series router for camera switching, uncheck this checkbox. | |
| SHOW INFO | A data analysis system that displays the VRCAM2 internal processing information in Command Prompt when Brainstorm eStudio is started. It is recommended to turn off this checkbox since it is not used during normal operation. | |

There is no HVS series switcher that currently supports **Other HVS**.

**COM SETTINGS Pane**

| Parameter | Description |
|---|---|
| PORT | Allows you to set the port number for serial communication with the HANABI series switcher. |
| OPEN/CLOSE | Allows you to open and close the port.<br>If the **OPEN** button is pressed when communication is not possible, the **OPEN** button turns yellow. If communication is possible, the **OPEN** button turns green. |
| ON LOAD OPEN | For a program saved using **SAVE IPF** while the **ON LOAD OPEN** checkbox is checked, the port will automatically open the next time the program is loaded. |
| BAUDRATE | Allows you to select the baudrate from **9600**, **14400**, **19200**, **38400**, **57600**, or **115200**.<br>The default setting is **38400**. |
| BYTE SIZE | Allows you to select the packet size from **7** or **8**.<br>The default setting is **8**. |
| PARITY | Allows you to select the parity from **NON**, **ODD**, or **EVEN**.<br>The default setting is **ODD**. |
| STOP BITS | Allows you to select the stop bit from **1** or **2**.<br>The default setting is **1**. |
| DEFAULT | Resets the **BAUDRATE**, **BYTE SIZE**, **PARITY**, and **STOP BITS** settings to default. |

**LAN SETTINGS Pane**

| Parameter | Description |
|---|---|
| ENABLE/ DISABLE | To control HVS-300HS or HVS-350HS crosspoint settings through VRCAM2, set to **ENABLE**.<br>If the **ENABLE** button is pressed when communication is not possible, the **ENABLE** button turns yellow. If communication is possible, the **ENABLE** button turns green. |
| ON LOAD ENABLE | For a program saved using **SAVE IPF** while the **ON LOAD ENABLE** checkbox is checked, the port will automatically open the next time the program is loaded. |
| MU ADDRESS | Allows you to enter the HVS-300HS or HVS-350HS IP address. |
| UDP PORT NO | Displays the UDP port number. The setting cannot be changed. |
| CONTROL BUS | Allows you to select the HANABI bus from **M/E BUS** or **P/P BUS**. (*1) |
| XPT NO MODE | Allows you to select whether to use the virtual crosspoint number (VR-XPT) or bus button number (BUTTON) with VR-XPT assignerd to control the HANABI switcher. (*2) |

(*1) For the HVS-300HS, select **M/E Bus**. For the HVS-350HS, select **M/E BUS** if the bus is selected for **CG COMPONENT** (see section 6-1-3. “Virtual Link Settings”), and select **P/P BUS** if this bus is selected for **CG COMPONENT**.

(*2) Select **VR-XPT** for normal operation. **VR-XPT** may not work with certain versions of HVS-300HS switchers. In such case, select **BUTTON**, and change the HVS editor settings (optional editor interface required). To change the editor settings, see section 6-1-5. “Editor Control Settings” for details.

## 3-9-2. HVS - TALLY ASSIGN

The **TALLY ASSIGN** page allows you to set the HANABI Virtual Link settings. If a tally signal is received from HANABI, the line will be indicated by green.

| | |
|---|---|
| TALLY | Displays the VR tally number. |
| CAM NO | Allows you to enter the camera number (1 to 4) If **0** is selected, the camera will not be switched and only the positon will be switched.<br>If **0** is assigned, all **CAM NO** settings must be set to **0**. |
| POS NO | Allows you to enter the position number (1 to 32) If **0** is selected, the position will not be switched and only the camera will be switched.<br>If **0** is assigned, all **POS NO** settings must be set to **0**. |
| XPT NO | Allows you to set the **VIRTUAL XPT** number (VR01=1, VR02=2, ...) that the VR tally number is set to if **XPT NO. MODE** in **HVS > SETUP** tab is set to **VR-XPT**.<br>Allows you to set the bus button number that **VIRTUAL XPT** is assigned to if **XPT NO. MODE** is set to **BUTTON**. |

The above settings can also be set by dragging and dropping the camera button or position button from the **SELECT CAMERA** pane.

**XPT NO** cannot not be edited unless **XPT CONTROL** in the **LAN SETTINGS** pane under the **HVS > SETUP** tab is set to **ENABLE**. Since communication is unnecessary for editing only, it does not matter if the **ENABLE** button is yellow or green.

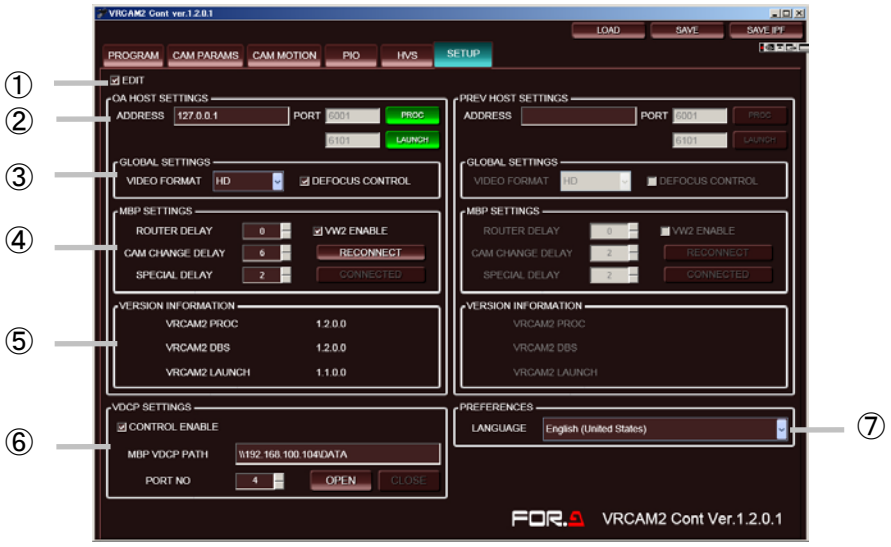
**VR-XPT** may not work with certain versions of HVS-300HS switchers. In such case, the editor interface (optional) must be used to control VRCAM2 via the HVS-300HS buttons. (For more details, contact our sales office.)

For the settings to control VRCAM2 via the HVS-300HS or 350HS buttons, see sections 4-6, “HVS Settings”.

To assign a bus button number, select a number from 1 through 12.

# 3-10. HOST Settings

Clicking the **SETUP** tab displays the VRCAM2 processor setting screen controlled through **VRCAM2 Cont**. If OA/PREV mode is used, PREV VRCAM2 processor settings can be changed in the **PREV HOST SETTINGS** pane.




HOST Settings

① EDIT
Checking the **EDIT** checkbox enables settings.

② ADDRESS/PORT
Allows you to set the VRCAM2 processor IP address. The UDP port number is for display only and cannot be edited. Once connection to the VRCAM2 processor is established, the **PROC** and **LAUNCH** indicators turn on.

③ GLOBAL SETTINGS

| Parameter | Description |
|---|---|
| VIDEO FORMAT | Allows you to select the output video format from **HD** or **SD**. |
| DEFOCUS CONTROL | Allows you to enable and disable the defocus setting in the **ADJUST CAMERA** and **MOTION PATH** panes.<br>Enabling **DEFOCUS** lowers the rendering performance. If rendering is not being done in real time, disable **DEFOCUS CONTROL**. |

④ MBP SETTINGS

| Parameter | Description |
|---|---|
| ROUTER DELAY | Allows you to set the delay for MBP-1244 camera switching. (CK parameter switching) |
| CAM CHANGE DELAY | Allows you to set the delay for Brainstorm eStudio camera switching. |
| SPECIAL DELAY | Allows you to specify a delay setting to be applied instead of **ROUTER DELAY** when a button selection is changed from the button Virtual Link is not assigned to (camera image or source image) to the button it is assigned to (VRCAM2 composited image). |
| VW2 ENABLE | Allows you to enable and disable video wall. |
| RECONNECT | Allows **VRCAM2 Cont** to reconnect with the **MBP-1244** when communication is not established. |
| CONNECTED | The button turns on when communication between **VRCAM2 Cont** and the **MBP-1244** is established. |

⑤ VERSION INFORMATION
Displays the **VRCAM2 Proc**, **VRCAM2 DBS**, and **VRCAM2 Launch** versions. The VRCAM2 Cont version is displayed in the lower right of the screen.

⑥ VDCP SETTINGS
Allows you to set serial communication settings between the VRCAM2 processor and MBP-100SX, MBP-110SX, or MBP-100PD (separate purchase).

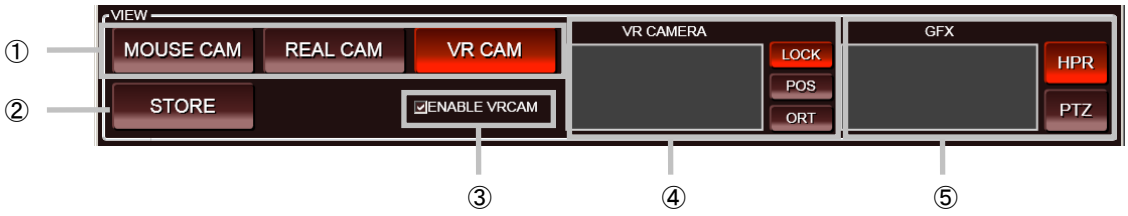
| Parameter | Description |
|---|---|
| CONTROL ENABLE | Checking the **CONTROL ENABLE** checkbox enables the **VIDEO CONTROL** button in the **PROGRAM** pane. The saved video files can be controlled. See section 3-5-7. “VIDEO CONTROL” for details. |
| MBP VDCP PATH | Allows you to specify the directory to save video files. |
| PORT NO | Allows you to set the port number for serial communication to the MBP series unit. |
| OPEN/CLOSE | Allows you to open and close the port.<br>If the **OPEN** button is pressed when communication is not possible, the **OPEN** button turns yellow. If communication is possible, the **OPEN** button turns green. |

⑦ PREFERENCES
Allows you to select the language used in VRCAM2 Cont. For some menus, the language setting will not be applied until VRCAM2 Cont is restarted.

| |
|---|
| Enabling **DEFOCUS** lowers the rendering performance. If rendering is not being done in real time, disable **DEFOCUS CONTROL**. |

## 3-11. VIEW

Clicking the **CAM PARAMS** or **CAM MOTION** tab displays the **VIEW** pane at the bottom of the screen.




VIEW Pane

① Camera mode
**MOUSE CAM** and **REAL CAM** are used for adjustments.
For normal operation, select **VR CAM**.

| Parameter | Description |
|---|---|
| MOUSE CAM | Displays the mouse camera view in the **GFX** window on the VRCAM2 processor. Dragging the mouse allows you to chang the point of view. It is useful to set the camera position and motion path. |
| REAL CAM | Displays the real camera view in the **GFX** window on the VRCAM2 processor. It is useful to set settings in the **ADJUST CAMERA** pane. |
| VR CAM | Displays the virtual camera view in the **GFX** window on the VRCAM2 processor. |

② STORE button

Allows you to switch between **RECALL** and **STORE** mode. The button turns red in **STORE** mode and turns brown in **RECALL** mode.

| Parameter | Description |
|---|---|
| RECALL mode | Allows you to recall values saved to the selected camera and position. |
| STORE mode | Allows you to overwrite the selected camera and position values with the current values. |

1. Change the **REAL CAMERA** and **VR CAMERA** values.
2. Click the **STORE** button. The button turns red to indicate that you have entered **STORE** mode.
3. In **STORE** mode, click a camera button. The changed **REAL CAMERA** value is saved to the camera.
4. In **STORE** mode, click a position button. The changed **VR CAMERA** value is saved to the selected position button.
5. After completing steps 3 and 4, you will be returned to **RECALL** mode. To save the changed values to multiple cameras or positions, repeat steps 2 through 4.

If a camera or position is changed in **RECALL** mode after changing the **REAL CAMERA** or **VR CAMERA** values, the changed values will not be saved.

③ ENABLE VRCAM checkbox

If the **ENABLE VRCAM** checkbox is unchecked, the camera image will disappear and only the virtual set will be displayed. For normal operation, check the **ENABLE VRCAM** checkbox.

④ VR CAMERA pad

Changing VR CAMERA parameters using the left mouse button and mouse wheel on the **VR CAMERA** pad is more intuitive than entering numeric values. To change parameters using the **VR CAMERA** pad, select the **VR CAM** camera mode (①).

| Parameter | Description |
|---|---|
| LOCK | Disables parameter changes via mouse. It is recommended that this button is selected during normal operation, to prevent accidental changes. |
| POS | -Allows you to change **VR CAMERA POSITION X** and **Z** under the **CAM PARAMS** tab and move the camera up, down, left and right by dragging the left mouse button on the **VR CAMERA** pad.<br>- Allows you to change **VR CAMERA POSITION Y** under the **CAM PARAMS** tab and move the camera forward and backward by moving the mouse wheel on the **VR CAMERA** pad. |
| ORT | - Allows you to change **VR CAMERA ORIENTATION X** and **Z** under the **CAM PARAMS** tab and rotate the camera up, down, left, and right by dragging the left mouse button on the **VR CAMERA** pad.<br>- Allows you to change **VR CAMERA FIELD OF VIEW** under the **CAM PARAMS** tab and change the field angle by moving the mouse wheel on the **VR CAMERA** pad. |

⑤ GFX

Allows you to change the mouse camera position using the left mouse button and mouse wheel. To move the mouse camera using the **GFX** pad, select the **MOUSE CAM** camera mode (①).

| Parameter | Description |
|---|---|
| HPR | - Allows you to rotate the viewpoint of the mouse camera by dragging the left mouse button on the **GFX** pad.<br>- Allows you to move the viewpoint of the mouse camera forward and backward by moving the mouse wheel on the **GFX** pad. |
| PTZ | - Allows you to pan and tilt the mouse camera by dragging the left mouse button on the **GFX** pad.<br>- Allows you to zoom the mouse camera in and out by moving the mouse wheel on the **GFX** pad. |

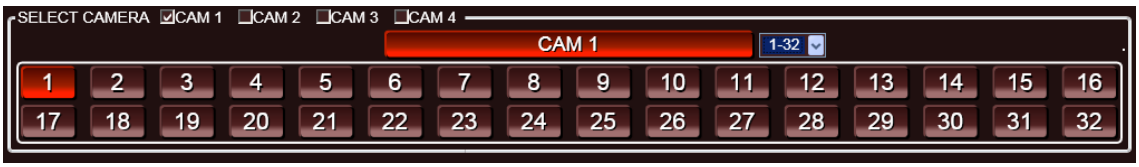
# 3-12. SELECT CAMERA

The **SELECT CAMERA** pane allows you to select cameras and positions. The **SELECT CAMERA** pane is normally displayed, but it can also be hidden in the system menu. See section 3-2. “System Menu” for details. In addition, camera buttons can also be hidden. Up to 32 camera positions can be displayed in the **SELECT CAMERA** pane.

Showing CAM1 to CAM4

Showing CAM1 to CAM3

Showing CAM1 to CAM2




Showing CAM1 only

A drop-down list next to each camera button allows you to move between camera positions.

# 3-13. THUMBNAIL

Clicking the **PROGRAM** tab displays the **THUMBNAIL** pane at the bottom of the screen. The **THUMBNAIL** pane can also be hidden in the sytem menu. See section 3-2. “System Menu” for details.

THUMBNAIL Pane

| Parameter | Description |
|---|---|
| PREV (upper buttons) | Displays the saved camera position. |
| OA (lower buttons) | Displays the camera position thumbnail. |
| Number of lines | Allows you to select how many rows of thumbnail buttons to be displayed on the page (1 to 4 lines). Up to 8 thumbnail buttons can be displayed in a row, and 32 buttons can be displayed at most. |
| SWAP | Allows you to switch between OA and PREV.<br>See section 5-3-2. “Switching Through **VRCAM2 Cont** (OA/PREV)” for details on OA/PREV mode. |

1. Saving and Deleting a Position
   Dragging and dropping a position button from the **SELECT CAMERA** pane into the **THUMBNAIL** pane using the left mouse button saves the position. Selecting and right-clicking a position and choosing **Clear vr position** from the right-click menu deletes the position.

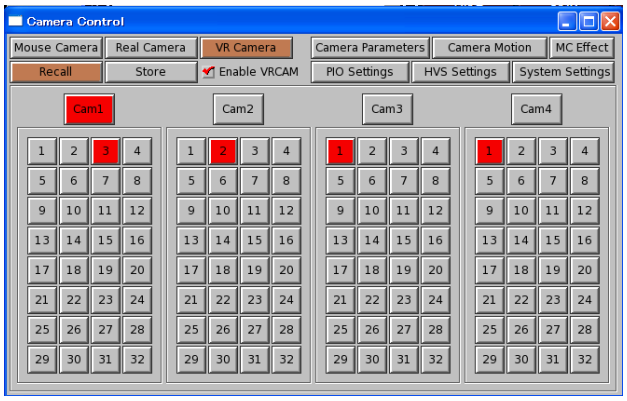
2. Saving and Deleting a Thumbnail
   Selecting and right-clicking a position button and choosing **Set thumbnail** from the right-click menu captures the current image from the GFX window and displays it on the OA button. Right-clicking a button and choosing **Remove thumbnail** deletes the thumbnail.

THUMBNAIL Pane
Up to four rows of buttons can be displayed

# 4. Changing Settings Through VRCAM2 Proc

## 4-1. Camera Control

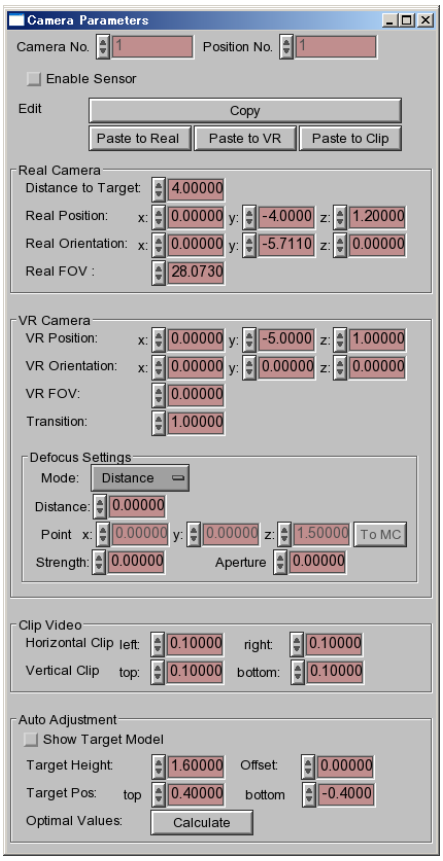
After **Brainstorm eStudio** is started through **VRCAM2 Cont**, the **Camera Control** dialog box appears. The behavior of buttons in the **Camera Control** dialog box is the same as those of the **VIEW** and **SELECT CAMERA** pane in **VRCAM2 Cont**. The **Recall** and **Store** buttons work in the same manner as the **STORE** button in the **VIEW** pane. (See section 3-11. “VIEW” for details.)




Camera Control

## 4-2. Camera Parameters

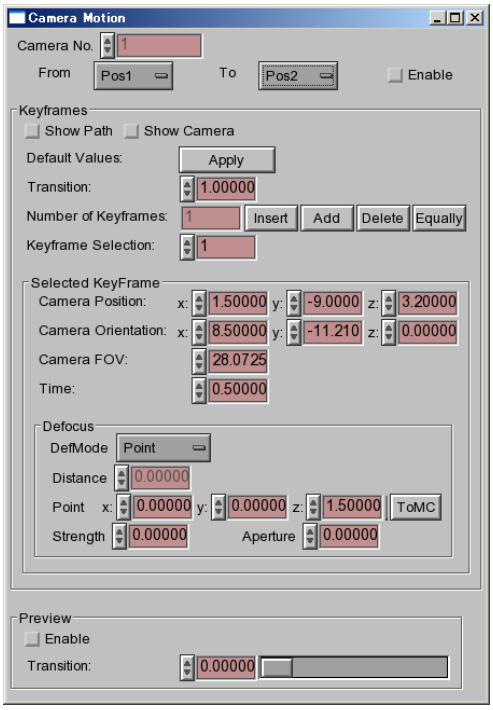
Clicking the **Camera Parameters** button in the **Camera Control** dialog box displays the **Camera Parameters** dialog box. The parameters displayed in the **Camera Parameters** dialog box are the same as those in the **ADJUST CAMERA** pane in **VRCAM2 Cont**.
(See section 3-6. “ADJUST CAMERA” for details.)




Camera Parameters

## 4-3. Camera Motion

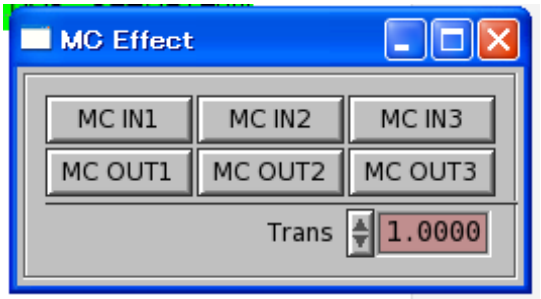
Clicking the **Camera Motion** button in the **Camera Control** dialog box displays the **Camera Motion** dialog box. The behavior in the **Camera Motion** dialog box is the same as the **MOTION PATH** pane in the **VRCAM2 Cont**. See section 3-7. “MOTION PATH” for details.




Camera Motion

## 4-4. MC Effect

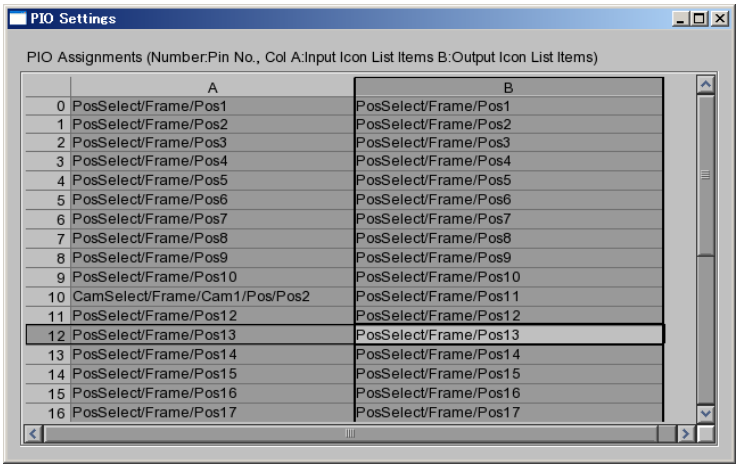
Clicking the **MC Effect** button in the **Camera Control** dialog box displays the **MC Effect** dialog box. The behavior of buttons in the **MC Effect** dialog box is the same as those of **MC IN** and **MC OUT** under the **IN EFFECT** and **OUT EFFECT** tabs in the **EDIT VIRTUAL SET** dialog box in **VRCAM2 Cont**.




MC Effect

## 4-5. PIO Settings

Clicking the **PIO Settings** button in the **Camera Control** dialog box displays the **PIO Settings** dialog box. Columns **A** and **B** correspond to the **PIO > INPUT ASSIGN** and **PIO > PIO OUTPUT ASSIGN** tabs in **VRCAM2 Cont** respectively. (See section 3-8. “PIO Settings” for details.) Contrary to **VRCAM2 Cont**, commands must be entered to edit settings in the **PIO Settings** dialog box, instead of dragging and dropping buttons.

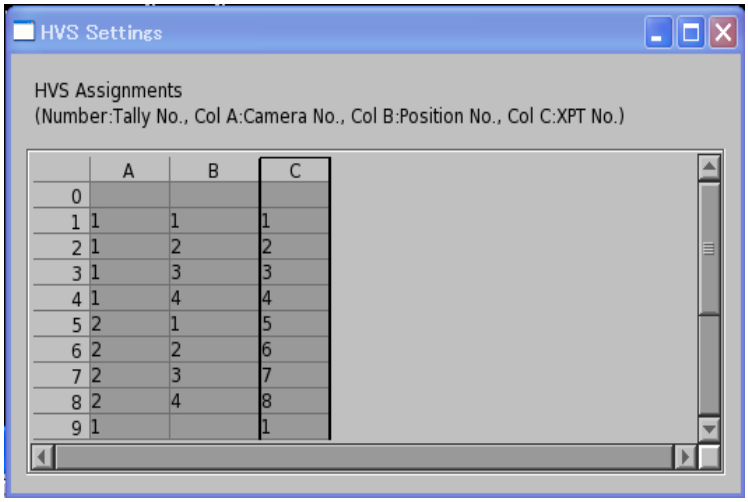



| | A | B |
|---|---|---|
| 0 | PosSelect/Frame/Pos1 | PosSelect/Frame/Pos1 |
| 1 | PosSelect/Frame/Pos2 | PosSelect/Frame/Pos2 |
| 2 | PosSelect/Frame/Pos3 | PosSelect/Frame/Pos3 |
| 3 | PosSelect/Frame/Pos4 | PosSelect/Frame/Pos4 |
| 4 | PosSelect/Frame/Pos5 | PosSelect/Frame/Pos5 |
| 5 | PosSelect/Frame/Pos6 | PosSelect/Frame/Pos6 |
| 6 | PosSelect/Frame/Pos7 | PosSelect/Frame/Pos7 |
| 7 | PosSelect/Frame/Pos8 | PosSelect/Frame/Pos8 |
| 8 | PosSelect/Frame/Pos9 | PosSelect/Frame/Pos9 |
| 9 | PosSelect/Frame/Pos10 | PosSelect/Frame/Pos10 |
| 10 | CamSelect/Frame/Cam1/Pos/Pos2 | PosSelect/Frame/Pos11 |
| 11 | PosSelect/Frame/Pos12 | PosSelect/Frame/Pos12 |
| 12 | PosSelect/Frame/Pos13 | PosSelect/Frame/Pos13 |
| 13 | PosSelect/Frame/Pos14 | PosSelect/Frame/Pos14 |
| 14 | PosSelect/Frame/Pos15 | PosSelect/Frame/Pos15 |
| 15 | PosSelect/Frame/Pos16 | PosSelect/Frame/Pos16 |
| 16 | PosSelect/Frame/Pos17 | PosSelect/Frame/Pos17 |

PIO Settings

## 4-6. HVS Settings

Clicking the **HVS Settings** button in the **Camera Control** dialog box displays the **HVS Settings** dialog box. The behavior in the **HVS Settings** dialog box is the same as that of settings under the **HVS > TALLY ASSIGN** tab in **VRCAM2 Cont**. (See section 3-9. “HVS Settings” for details.) Contrary to **VRCAM2 Cont**, numbers must be entered to edit settings in the **HVS Settings** dialog box, instead of dragging and dropping buttons.

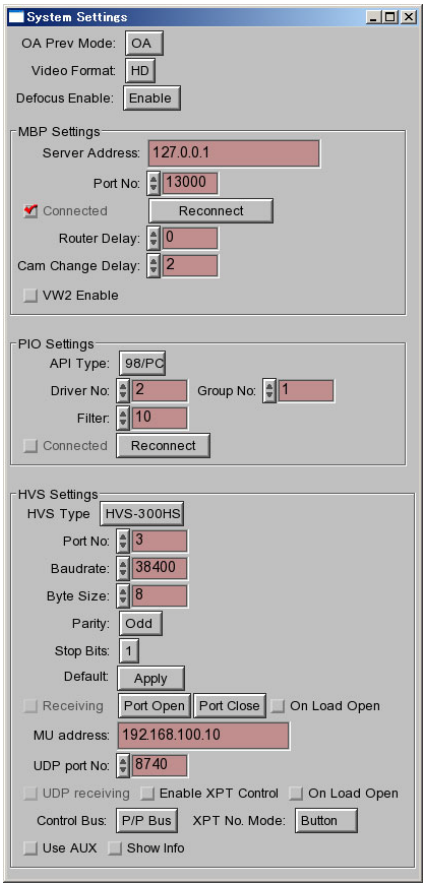



| | A | B | C |
|---|---|---|---|
| 0 | | | |
| 1 | 1 | 1 | 1 |
| 2 | 1 | 2 | 2 |
| 3 | 1 | 3 | 3 |
| 4 | 1 | 4 | 4 |
| 5 | 2 | 1 | 5 |
| 6 | 2 | 2 | 6 |
| 7 | 2 | 3 | 7 |
| 8 | 2 | 4 | 8 |
| 9 | 1 | | 1 |

HVS Settings

# 4-7. System Settings

Clicking the **System Settings** button in the **Camera Control** dialog box displays the **System Settings** dialog box. The behavior of settings in the **System Settings** dialog box is the same as that of settings in **VRCAM2 Cont**.




See section 3-10. “HOST Settings.”

See section 3-8-1. “PIO – SETUP.”

See section 3-9-1. “HVS – SETUP.”

System Settings

# 5. Using VRCAM2

This section describes necessary preparations before using VRCAM2.

## 5-1. Setup

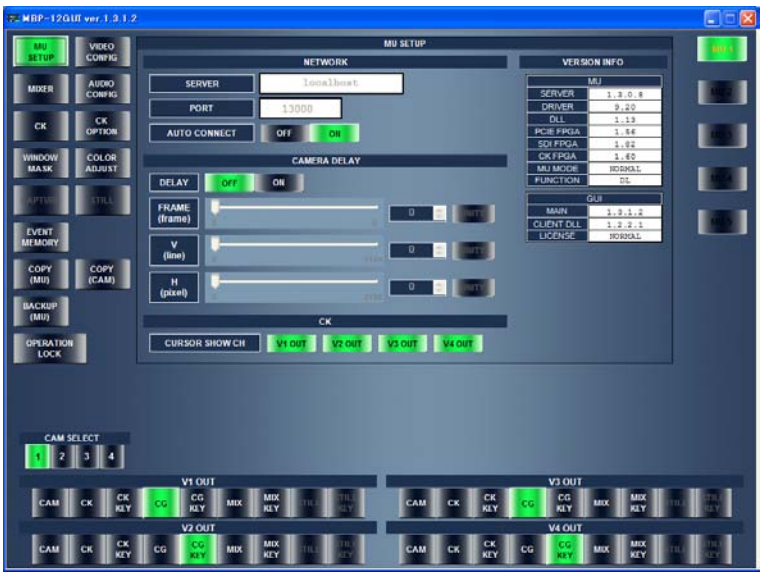
### 5-1-1. Studio Preparation

Follow the steps below for studio setup.

- Set up the equipment, including cameras, lightings, and a chromakey blue screen (green screen).
- Define the origin of the studio. It is normally the position of the person (target). This defines the positional relation between the graphic image and video image.
- Have a person stand at the position or put an object there having the same height as that of the person.
- Use a tape measure to measure rough camera coordinates (X, Y, Z) with X as the left-right, Y as depth, and Z as up-down coordinates.
- Estimate the orientation of the camera (pan, tilt, roll). This step is not necessary if the camera orientation is along the Y axis (enter [0, 0, 0] in that case).
- Measure the distance between the camera and the person.

### 5-1-2. Hardware Settings

Start **MBP-12Server.exe** and **MBP-12GUI.exe** on the VRCAM2 processor, and set the settings as shown in the figure below.




MBP-12GUI

1. Select **MU SETUP**.
2. Set both **MIXER 1** and **MIXER 2** to **VIRTUAL**.
3. Set **DELAY** to **OFF**.
4. Set **V1 OUT** to **CG**.
5. Set **V2 OUT** to **CG KEY**.

The above is only an example. The setting method differs depending on the operation form. For details on **MBP-12Server.exe** and **MBP-12GUI.exe**, see the respective operation manuals.

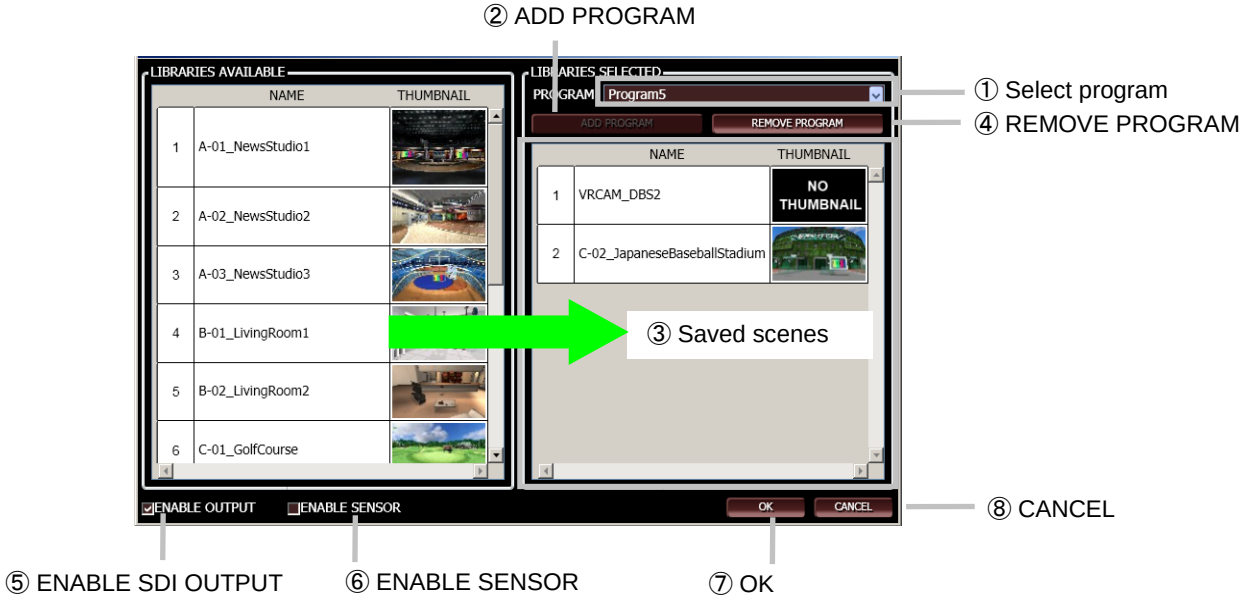
| |
|---|
| If you change **VIDEO CONFIG** settings in **MBP-12GUI** while **Brainstorm eStudio** is running, be sure to restart **Brainstorm eStudio**. Otherwise, noise may appear on the output image. |

# 5-2. Creating a Program

This section describes how to create a program and set camera settings in VRCAM2.
(It is assumed that **VRCAM2 Proc** and **VRCAM2 Launch** are properly set up on the VRCAM2 processor and that **VRCAM2 Launch** is running.)

## 5-2-1. Creating and Loading a Program

Start **VRCAM2 Cont** on the control PC. Clicking the **SELECT LIBRARIES** button in the **PROGRAM** pane displays the **SELECT LIBRARIES** dialog box, which allows you to create a new program or load a saved program.

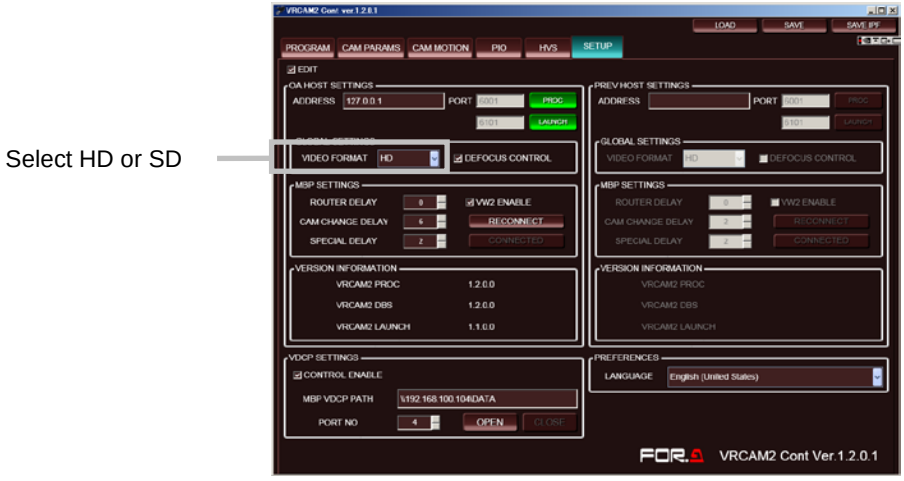



SELECT LIBRARIES Dialog Box

1. To select a saved program, select a program from the drop-down list (①).
2. To create a new program, enter a program name in the box and click the **ADD PROGRAM** button (②). Only one-byte alphanumeric characters and some symbols can be used. If the entered name is already saved, the **ADD PROGRAM** button will be disabled.
3. To add a saved scene (③), drag and drop a library from the **LIBRARIES AVAILABLE** pane into the **LIBRARIES SELECTED** pane using the left mouse button.
4. To delete a program, select a program from the **PROGRAM** drop-down list and click the **REMOVE PROGRAM** button (④). (The program is deleted when **OK** is clicked.)
5. To enable SDI output, check the **ENABLE OUTPUT** checkbox (⑤).
6. If a sensor is used, check the **ENABLE SENSOR** checkbox (⑥).
7. After editing a program in the **LIBRARIES SELECTED** pane, click **OK** (⑦) to create a library copy, start Brainstorm eStudio, and load scenes. **VRCAM2_DBS** will automatically be added to the program.
8. Clicking **CANCEL** (⑧) closes the dialog box without saving changes made in the **LIBRARIES SELECTED** pane.

## 5-2-2. Switching Between HD and SD

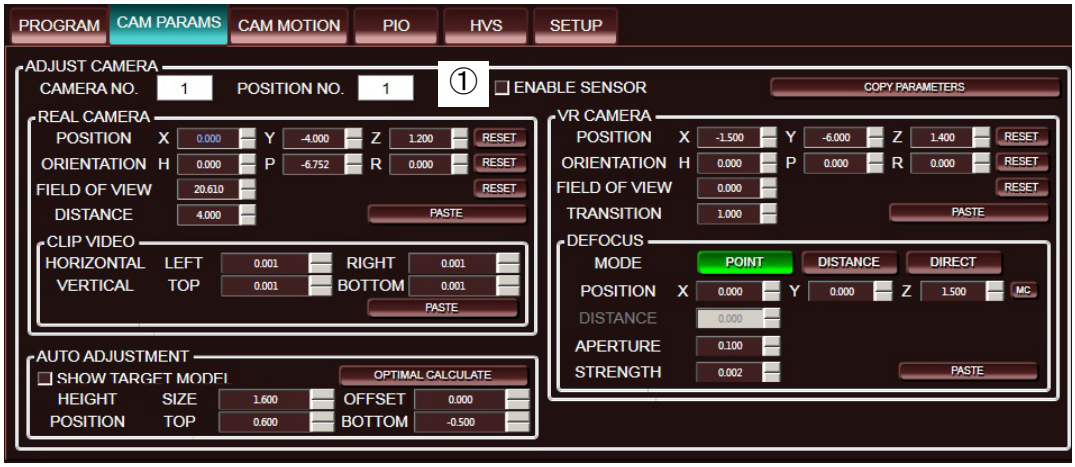
The video format can be selected from HD or SD.




1. Select the **SETUP** tab.
2. Select **HD** or **SD** in **VIDEO FORMAT** under **GLOBAL SETTINGS**.

## 5-2-3. ENABLE SENSOR

For a system with a sensor, up to two cameras from **CAM1** through **CAM4** can be synchronized with the sensor.



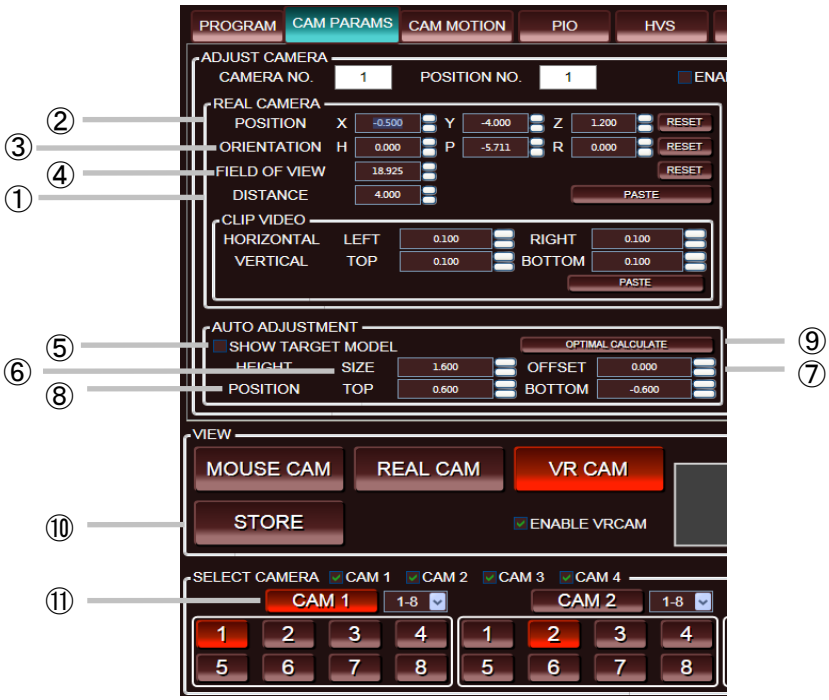

1. Select the **CAM PARAMS** tab.
2. Select a camera in **CAMERA NO.**, and check the **ENABLE SENSOR** checkbox (①).

If the sensor is enabled for two cameras, and the **ENABLE SENSOR** checkbox for another camera is checked, the sensor for the camera with the larger camera number will be disabled.

Camera calibration is required for the use of a sensor camera. See the ifCalibSTD Operation Manual for details.

## 5-2-4. REAL CAMERA

This section describes how to set the **REAL CAMERA** settings. Before setting the **REAL CAMERA** settings, first select **REAL CAM** in **VIEW** and **CAM1** in **SELECT CAMERA**.




First, enter the measured values into the **REAL CAMERA** pane as described below.

1. Select the **CAM PARAMS** tab.
2. Enter the measured distance between the camera and the person in **DISTANCE** (①). Use meters as the measuring unit.
3. Enter the measured camera coordinate in **POSITION** (②).
4. Enter the measured camera orientation in **ORIENTATION** (③). If the camera orientation is along the Y axis, enter [0, 0, 0].
5. Enter the camera field of view in a range of about 30 to 50 in **FIELD OF VIEW** (④).

Next, calculate the optimal **FIELD OF VIEW** and **ORIENTATION P** values using the measured values as described below.

6. Check the **SHOW TARGET MODEL** checkbox (⑤).
7. Enter the height of the person in **SIZE** (⑥).
8. If the real camera is focused on a person's upper body, enter the height that is out of camera view (from foot to upper body) in **OFFSET** (⑦).
9. While viewing the output image, enter the values to align the yellow markers of the target model to the top and bottom of the person in a range of -0.5 to 0.5 in **POSITION** (⑧).
10. Click the **OPTIMAL CALCULATE** button (⑨). The **ORIENTATION P** and **FIELD OF VIEW** optimal values of the real camera are automatically calculated.

Since changes made are not yet saved, switching a camera at this point will clear the values entered into the **REAL CAMERA** pane.

11. After the **REAL CAMERA** values are determined, click the **STORE** button (⑩) to enter **STORE** mode (the **STORE** button lights up). Select a camera you wish to save settings for (**CAM1** in the example above) from **SELECT CAMERA** (⑪).
12. After settings are saved, you will be returned to **RECALL** mode (the **STORE** button turns off).
13. If there are multiple cameras, select a camera in **SELECT CAMERA** and repeat steps 1 to 12.
14. Uncheck the **SHOW TARGET MODEL** checkbox (⑤).

## 5-2-5. CLIP VIDEO

The example in this section describes how to remove the unnecessary blue screen area of a real camera image. Before setting **CLIP VIDEO** settings, first select **REAL CAM** in **VIEW** and **CAM1** in **SELECT CAMERA**.

1. Select the **CAM PARAMS** tab.
2. **CLIP VIDEO** allows you to remove the unnecessary blue screen (green screen) area of the camera image while viewing the output image. Ex., any **CLIP VIDEO** setting that is set to **0.1** removes 10 % of the image from the edge.

Since changes made are not yet saved, switching a camera at this point will clear the values entered into the **CLIP VIDEO** pane.

3. After the **CLIP VIDEO** values are determined, click the **STORE** button (⑩ in 5-2-4) to enter **STORE** mode (the **STORE** button lights up). Select a camera you wish to save settings for (**CAM1** in the example in 5-2-4) from **SELECT CAMERA** (⑪ in 5-2-4).
4. After the settings are saved, you will be returned to **RECALL** mode (the **STORE** button turns off).
5. If there are multiple cameras, select a camera in **SELECT CAMERA** and repeat step 1.

The **CLIP VIDEO** settings are not necessary for the camera that the **ENABLE SENSOR** checkbox in **ADJUST CAMERA** is checked. In this case, the clip setting is not applied even if the value is changed.

## 5-2-6. VR CAMERA

The example in this section describes how to set the virtual camera settings. Before setting **VR CAMERA** settings, first select **VR CAM** in **VIEW** and **CAM1** in **SELECT CAMERA**.

1. Select the **CAM PARAMS** tab.
2. While viewing the output image, specify the position of the virtual camera in **POSITION** (①).
3. Specify the orientation of the virtual camera in **ORIENTATION** (②).
4. Set the field of view of the virtual camera in **FIELD OF VIEW** (③).
5. Enter the transition duration in seconds to the right of **TRANSITION** (④).

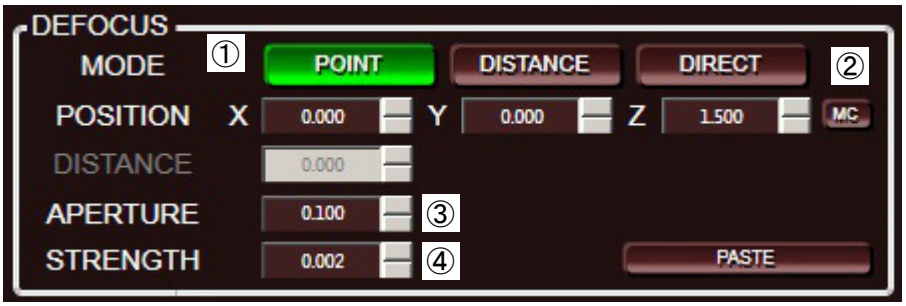
Since changes made are not yet saved, switching a camera at this point will clear the values entered into the **VR CAMERA** pane.

6. After the **VR CAMERA** values are determined, click the **STORE** button (⑤) to enter **STORE** mode (the **STORE** button lights up). Select a camera you wish to save settings for (**CAM1POS1** in the example above) from **SELECT CAMERA** (⑥).
7. After the settings are saved, you will be returned to **RECALL** mode (the **STORE** button turns off).

8. Repeat steps 2 to 7 for all necessary positions.
9. If there are multiple cameras, select a camera in **SELECT CAMERA** and repeat steps 1 to 8.
10. Click camara position buttons in **SELECT CAMERA** to check the appearance of the image. If the legs of the person go under the floor of the virtual set, adjust **ORIENTAION P** in the **REAL CAMERA** pane.

## 5-2-7. DEFOCUS

VRCAM2 can be used without setting **DEFOCUS** settings. Enabling **DEFOCUS** lowers rendering performance. If rendering is not being done in real time, a dicision must be made whether to enable or disable **DEFOCUS** for each program. In the example below, it is assumed that high rendering performance is achieved.




1. If the **DEFOCUS CONTROL** checkbox under the **SETUP** tab is unchecked, check the checkbox.

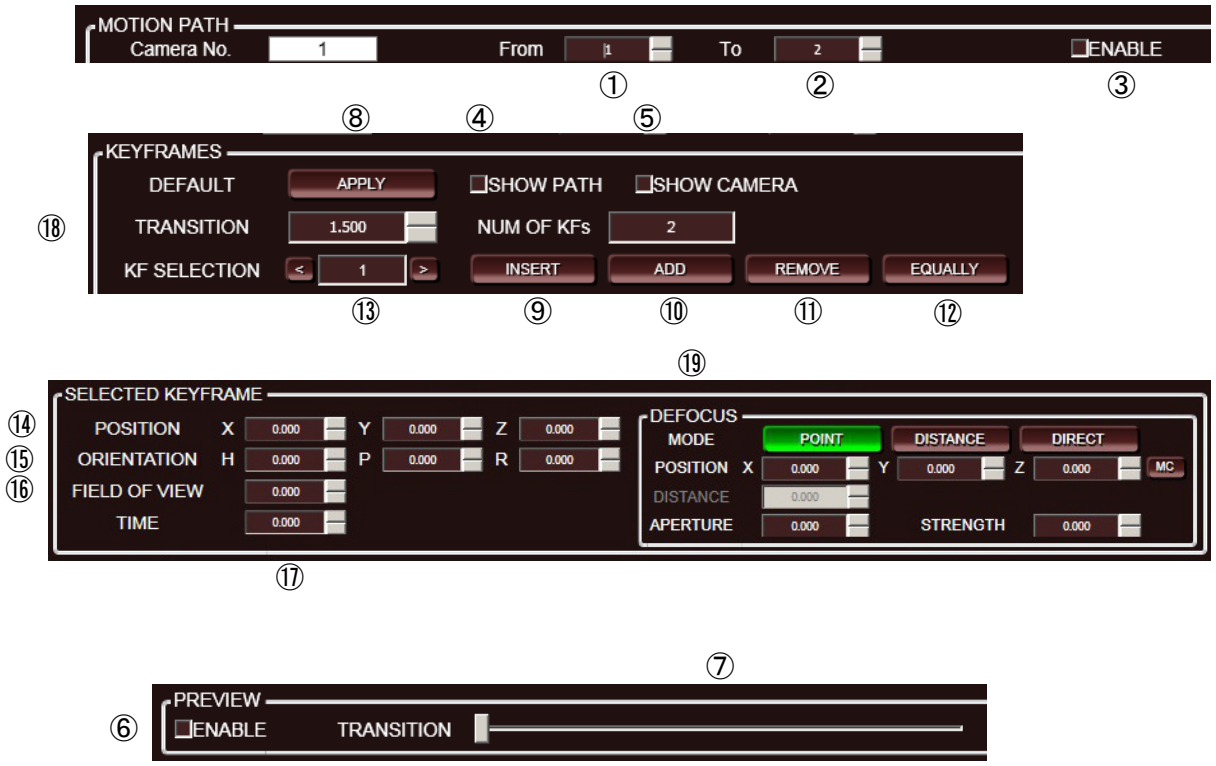
In the example in this section, the camera is focused on the person in the VRCAM2 space.

2. Click the **POINT** button (①), to enter the mode that focuses the camera on the desired point in the VRCAM2 space.
3. Click the **MC** button (②). The head position of the person (The value of the height minus 10 cm, entered in step 7 in section 5-2-4) is automatically set as the focus target coordinate.
4. Adjust the aperture in **APERATURE** (③) while viewing the output image. The larger the value, the wider the area that will come into focus.
5. Adjust the strength in **STRENGTH** (④) while viewing the output image. The larger the value, the more defocused an image will be. The value should be around 6 or less. Otherwise, the image will not be focused enough. If set to **0**, no defocus will be applied.
6. Since changes made are not yet saved, switching a camera at this point will clear the values entered into the **DEFOCUS** pane.
7. After the **DEFOCUS** values are determined, click the **STORE** button (⑤) to enter **STORE** mode (the **STORE** button lights up). Select a camera you wish to save settings for (**CAM1POS1** in the example above) from **SELECT CAMERA** (⑥).
8. After the settings are saved, you will be returned to **RECALL** mode (the **STORE** button turns off).
9. Repeat steps 2 to 7 for all necessary positions.
10. If there are multiple cameras, select a camera in **SELECT CAMERA** and repeat steps 2 to 8.

| |
|---|
| In VRCAM2, the **DEFOCUS** setting cannot be set for each position separately. To turn off **DEFOCUS** for at a specific position, set the **STRENGTH** value to 0. |

## 5-2-8. MOTION PATH

VRCAM2 can be used without setting the **MOTION PATH** settings. If **MOTION PATH** is not used, the path will be a straight line joining the two positions. To create a curved motion path, set the **MOTION PATH** settings. Before setting the **MOTION PATH** settings, first select **MOUSE CAM** in **VIEW** and **CAM1** in **SELECT CAM**.




1. Select the **CAM MOTION** tab.
2. Select the original position in **From** (①).
3. Select the final position in **To** (②).
4. Check the **ENABLE** checkbox (③). The camera motion settings from ① to ② are not enabled unless this checkbox is selected.
5. Check the **SHOW PATH** checkbox (④). The camera motion path will be shown.
6. Check the **SHOW CAMERA** checkbox (⑤). The current camera position will be shown.
7. After checking the **ENABLE** checkbox (⑥), move the **TRANSITION** slider (⑦) to preview the camera motion.
8. To create a new path, the default path can be used. Click the **APPLY** button (⑧) to create a default path. A keyframe will be created on the center of a straight-line default path and its **TRANSITION** value (⑱) will be 1 second.
9. To add a new keyframe, click **INSERT** (⑨) or **ADD** (⑩). Clicking **INSERT** adds a keyframe between the keyframe selected in **KF SELECTION** and the previous keyframe. Clicking **ADD** adds a keyframe at the end and increases the **TRANSITION** value so that the rates of change of the position and orientation against the duration will remain the same.
10. To delete an unnecessary keyframe, click **REMOVE** (⑪).
11. Clicking **EQUALLY** (⑫) replaces all keyframes evenly on a straight line.
12. Set **KF SELECTION** (⑬) to **1**. The **POSITION** (⑭), **ORIENTATION** (⑮), **FIELD OF VIEW** (⑯) and **TIME** (⑰) values of the keyframe specified in **KF SELECTION** (⑬) will be displayed.
13. While viewing the path on the output image, adjust the **POSITION** (⑭) and **ORIENTATION** (⑮) values. The motion path is drawn with blue cones, and the keyframes appear as red cones. If the path is not well shown, drag in **GFX** in **VIEW** to adjust the mouse camera view.

14.To preview the virtual camera image, change **MOUSE CAM** to **VR CAM** in **VIEW**. Move the **TRANSITION** slider (⑦) to preview the camera motion.
15. While **VR CAM** is selected in **VIEW**, adjust **FIELD OF VIEW** (⑯).
16.To set the time of a keyframe, enter the time code in seconds in **TIME** (⑰).
17.To change **DEFOCUS** settings according to the keyframe position, adjust the **DEFOCUS** settings (⑲).
18. Select the next keyframe in **KF SELECTION** (⑬).
19. Repeat steps 10 to 15 for all necessary keyframes.
20.To change the duration, set **TRANSITION** (⑱). The **TRANSITION** value (⑱) cannot be smaller than the **TIME** value of the last keyframe.
21.Select **VR CAM** in **VIEW**, and move the **TRANSITION** slider (⑦) to adjust the camera motion.
22.After adjustments, move the camera from the **FROM** (①) position to the **TO** (②) position previously set in **SELECT CAMERA** to check camera motion.

After all necessary settings have been set, save the program using **SAVE IPF**.

Checking the **ENABLE** checkbox (⑥) in **PREVIEW** enables the **TRANSITION** slider (⑦). Unchecking the checkbox disables the slider, but the camera position on the output image remains at the slider position. To refresh the view, click any position button.

Clicking a button in **SELECT CAMERA** automatically disables the **TRANSITION** slider (⑦).

Enabling the **TRANSITION** slider (⑦) will slightly lower the rendering performance.

# 5-3. Switching Between Cameras

This section describes how to switch between cameras and camera positions.

## 5-3-1. Switching Through VRCAM2 Cont (OA Only)

**SELECT CAMERA** in **VRCAM2 Cont** allows you to switch between OA cameras and camera positions.

SELECT CAMERA

1. To switch to Camera 1, click **CAM1** (①). The output image will change via a cut transition.
2. To change the position of Camera 1, click a desired camera position button (1-32) below **CAM1** (②). The transition of the output image will be animated.
3. To change the position of Camera 2 while Camera 1 is selected, click a desired camera position button (1-32) below **CAM2** (③). In this case, the appearance of the output image will not change.
4. To change to Camera 2, click **CAM2** (④). The output image will change via a cut transition.
5. The method for switching between Camera 3 and Camera 4 is the same.

Up to four virtual cameras can be set in VRCAM2, and 32 camera positions can be set per camera. However, the number of positions that can be shown at the same time is only 32. Set the number of cameras and positions to show using the checkboxes (⑤) and drop-down list (⑥), respectively, according to the program.

## 5-3-2. Switching Through VRCAM2 Cont (OA/PREV)

**SELECT CAMERA** or **THUMBNAIL** in **VRCAM2 Cont** allows you to switch between OA and PREV cameras and camera positions. To use OA/PREV mode, settings must be set under the **SETUP** tab. See section 3-10. “HOST Settings” for details.

### ◆ Using SELECT CAMERA

SELECT CAMERA

THUMBNAIL ⑤

1. In **SELECT CAMERA**, the camera buttons and camera position buttons selected for OA output will be displayed in red, and those for PREV output will be displayed in green. The buttons selected for both OA and PREV will also be displayed in red.
2. To change to Camera 1, click **CAM1** (①). The output image on PREV will change via a cut transition.
3. To change the image on OA to Camera 1, click **SWAP** (⑤) in **THUMBNAIL**. The output image will change via a cut transition.
4. To change the position of Camera 1, click the camera position button (1-8) below **CAM1** (③). The output image on PREV will change via a cut transition.
5. To change OA positions to the above settings, click **SWAP** (⑤) in **THUMBNAIL**. The transition of the output image will be animated.
6. To change the position of Camera 2 while Camera 1 is selected, click a desired camera position button (1-8) below **CAM2** (④). In such case, the appearance of the output image will not change.
7. To change to Camera 2, click **CAM2** (②). The output image on PREV will change via a cut transition.
8. To change the image on OA to Camera 2, click **SWAP** (⑤) in **THUMBNAIL**. The output image will change via a cut transition.
9. The method for switching between Camera 3 and Camera 4 is the same.

◆ **Using THUMBNAIL**

THUMBNAIL

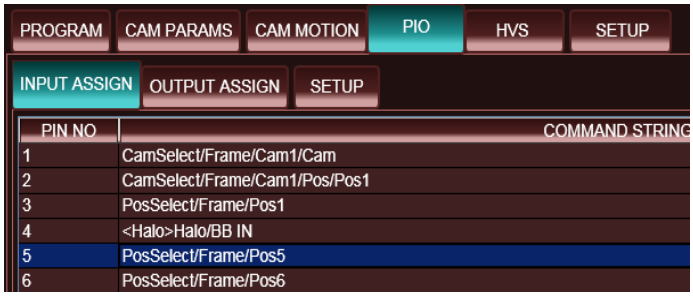
1. In **THUMBNAIL**, you can select the number of rows to display, from 1 through 4 Lines (①). Eight thumbnails are displayed on each row, and 32 thumbnails can be displayed at most.
2. In **THUMBNAIL**, the camera buttons and camera position buttons selected for OA output will be displayed in red, and those for PREV output will be displayed in green.
3. To change the image on PREV to Camera1 Position2, click **C1 P2** (②). The output image on PREV will change via a cut transition.
4. In **THUMBNAIL**, the camera and camera position for OA output can be switched directly. To change the image on OA to Camera 1 Position 5, click (③). The transition of the output image will be animated.
5. To swap PREV and OA, click **SWAP** (④). The image on PREV will change via a cut transition. If the cameras for PREV and OA are the same, the transition of the output image on OA will be animated. If the cameras are different, the image on OA will change via a cut transition.

| **IMPORTANT** |
| --- |
| Note that in OA/PREV mode **Camera Parameters** settings (See section 4-2, "Camera Parameters.") must be the same for both OA and PREV. |

| |
| --- |
| You can also add camera positions to **DIRECT** or **PLAYLIST** to switch between cameras. |

## 5-3-3. Switching Through a Switch Box

A switch box can be used to switch between cameras and camera positions, and to control the playlist. Also, GPI tallies can be output. Up to 32 functions can be assigned to a switch box. For tally input, any function that has its icon stored in the custom folder in Brainstorm eStudio, can be controlled via the switch box. For tally output, only camera and position selection states can be output.




PIO Settings

1. Drag and drop a camera button or camera position button from **SELECT CAMERA** into **INPUT ASSIGN** or **OUTPUT ASSIGN** under the **PIO** tab using the left mouse button. The corresponding item in the Icon List will be displayed on the line where the button is dropped.
2. Clicking a cell under **COMMAND STRING** allows you to edit the setting in the cell.
3. Right-clicking on the table displays a right-click menu. Choosing **Copy ALL Output Assign** displays a confirmation message. Clicking **Yes** copies all assignments from **INPUT ASSIGN** to **OUTPUT ASSIGN**. In the same way, assignments can be copied from **OUTPUT ASSIGN** to **INPUT ASSIGN**. Only camera positions and playlist control commands can be copied.
4. If the button on the switch box connected to the pin shown in **PIN NO** under the **PIO > INPUT ASSIGN** tab is pressed, the corresponding item under **COMMAND STRING** will be executed.
5. If an item under **COMMAND STRING** under **PIO > OUTPUT ASSIGN** tab is executed, a GPI tally of correspoinding pin number will be output to the connected switch box.

| | | |
|---|---|---|
| CAMERA | Drag and drop | Assigns a camera only (e.g. CAM1) |
| POSITION | Drag and drop | Assigns a camera and camera position (e.g. CAM1POS1) |
| | Drag and drop while pressing the Shift key | Assigns a camera position only (e.g. POS1) |
| Icon | Enter a command | Enter a path to **<DBS Name>Icon** to assign the icon stored in the custom folder in Brainstorm eStudio. |
| Playlist control | Right-click menu | Choose **TAKE**, **SKIP**, **BACK**, or **TOP** from the right-click menu shown under the **PIO – INPUT ASSIGN** or **PIO- OUTPUT ASSIGN** tab.<br>**END** is available under the **PIO - OUPUT ASSIGN** tab only. |

## 5-3-4. Controlling Playlist Through the Numeric Keypad

You can also control **Playlist** from a switch box or the numeric keypad. See section 3-5-3,"PLAYLIST Pane" for details on **PLAYLIST.** To control from the numeric keypad, set the NumLock key off.

**Using the Numeric Keypad**

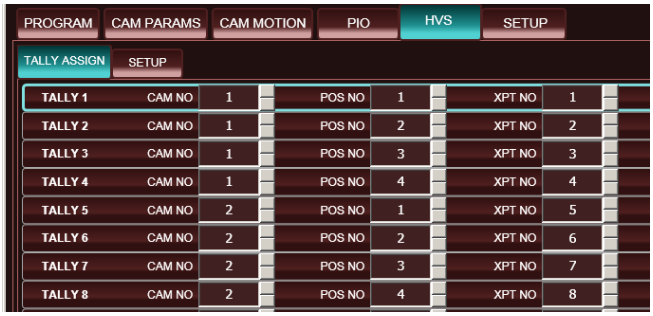
| | | |
|---|---|---|
| Enter | TAKE | Plays the current item in the playlist and sets the next item as the NEXT item. |
| + | SKIP | Skips the current NEXT item and sets the next item as the NEXT item. |
| − | - | Moves the item selected for NEXT one line up. |
| Home | TOP | Sets the top item in the playlist as the NEXT item. |
| Page Up | - | Moves the item selected for NEXT one line up. |
| Page Down | SKIP | Skips the current NEXT item and sets the next item as the NEXT item. |

**Using a Switch Box**

A function can be assigned to a desired pin under the **PIO** tab. See section 3-8. "PIO Settings" for details.

## 5-3-5. Switching Using HANABI Virtual Link

Using Virtual Link of a HANABI series switcher allows you to switch between cameras linked via the crosspoint switching. For HVS-300HS, up to eight camera position buttons can be assigned as the Virtual Link tallies. For HVS-350HS, up to 16 camera position buttons can be assigned as the Virtual Link tallies. See the HVS-300HS/HVS-350HS Virtual Link Operation Manual for details on Virtual Linking.




HVS Settings

1. If a scene is loaded while the **ON LOAD OPEN** and **ON LOAD ENABLE** checkboxes are checked, the connection between VRCAM2 and the HANABI series switcher will automatically be established. If the checkbox is not checked, the setting must be enabled manually. See section 3-9-1. "HVS-SETUP" for details.
2. Click the **HVS** tab. Drag and drop a desired camera position button from **SELECT CAMERA** into **TALLY ASSIGN** using the right mouse button. The corresponding camera number and camera position number will be displayed on the line where the button is dropped.
3. Clicking a cell under **CAM NO.**, **POS NO.,** or **XPT NO.** allows you to enter the value directly.
4. Pressing a HANABI VR button, for which the tally shown in **Tally No.** is set, allows you to execute the corresponding camera position button. If **XPT Control** is enabled, the camera position can also be switched by the camera position buttons in **SELECT CAMERA** or by the **THUMBNAIL** buttons.

**IMPORTANT**

- Please do not press any button on the switcher while the camera mode is set to **STORE** (see section 3-11, “VIEW”). If you press any button on the switcher, return the camera mode to **RECALL** and switch the camera using the switcher.

- Assigning cameras and camera positions in **HVS > TALLY ASSIGN** allows a position change for the switcher. If the switcher is operated during the position change, however, the source may be changed during the position change and an improperly composited image may be present. To avoid this, make sure the camera is completely switched before operating the switcher, or use the switcher only for camera switching and use switch box to change the camera position. Under the **HVS** tab, if only **CAM NO.** is specified and **POS NO.** is left blank (or set to **0**), any position change through the switcher will be disabled. For the sensor camera, leave the **POS NO.** setting under the **HVS** tab blank.

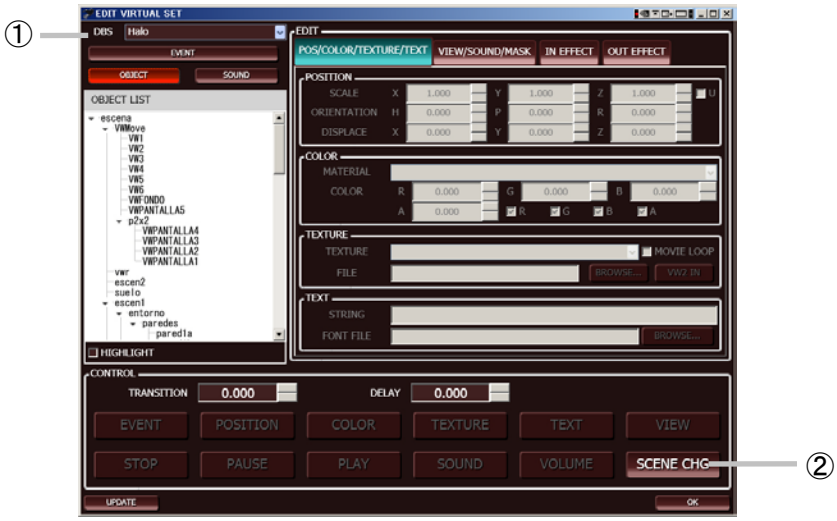
- If the focus is on a numeric box in **CAM PARAMS** or **CAM MOTION**, the screen cannot be refreshed by the external request (for example, HANABI). This is to prevent unexpected changes to the values applied by other users. To refresh the screen, click a button in the main window of **VRCAM2 Cont** and remove the focus from the box.

- When **XPT Control** is enabled and a **VIRTUAL XPT** signal is selected in the HANABI, i.e., a tally signal from tally number 1 through 16 is output, the camera positions cannot be changed through the VRCAM2 Cont buttons except, to the position shown under the **HVS** tab. On the other hand, camera position can be changed through VRCAM2 Cont if a signal that is not assigned to **VIRTUAL XPT** is selected in HANABI, i.e., a tally signal of tally number 0 is output. However, once the camera position is set to the position shown under the **HVS** tab, further changes will be disabled.

# 5-4. Showing and Hiding Scenes

If multiple scenes are loaded from **SELECT LIBRARIES**, scenes are displayed as overlapping. This is because all loaded scenes are shown. This section describes how to show necessary scenes and hide others.

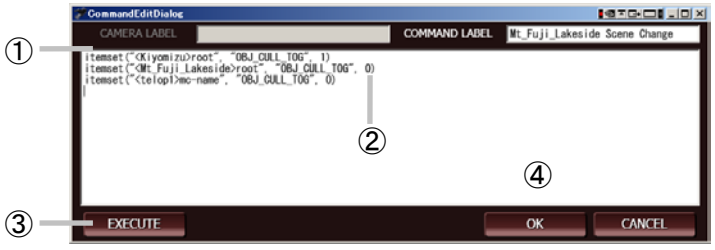
## 5-4-1. Showing a Scene




1. Select a scene from the **DBS** list (①) in the **EDIT VIRTUAL SET** dialog box.
2. Add the **SCENE CHG** button (②) into the **DIRECT** or **PLAYLIST** pane by dragging and dropping the button using the left mouse button.
3. If the added button is clicked and the command is executed, the selected scene will be shown and others will be hidden.

## 5-4-2. Showing Multiple Scenes

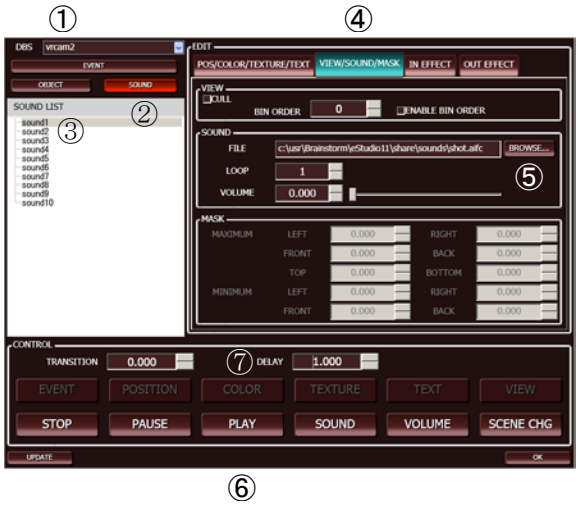
To show multiple scenes at the same time, the commands of added **SCENE CHG** items must be edited.




1. Right-click the **SCENE CHG** button added to the **DIRECT** or **PLAYLIST** pane and choose **Edit command** from the menu. The **COMMAND EDITOR** dialog box appears. Commands (①) shown in the field specifies whether to show or hide scenes.
2. DBS names are shown in angle brackets (< >). For the scene you wish to show, set the last command line number to **0** (②). For the scene you wish to hide, set the last number to 1.
3. Click the **EXECUTE** button (③) to execute the command. Check the appearance of scenes.
4. Click **OK** (④) to apply changes.

# 5-5. Adding a Sound Effect to an Event

Normally, sound items are included within each library. If there is no intended sound item in the library, sound items can be added in VRCAM2.




By editing commands of items added to the **DIRECT** or **PLAYLIST** pane, multiple events can be executed in one take. Using this feature allows you to create an event such that a sound effect is output when a caption is displayed.

1. Select the **EVENT** tab in the **EDIT VIRTUAL SET** dialog box. Add an event for which you wish to add a sound effect to the **DIRECT** pane.
2. Select a scene from the **DBS** drop-down list (①) and select the **SOUND** tab (②). Sound items will be displayed in the **SOUND LIST**. Select an item for which you wish to add a sound effect (③) and select the **VIEW/SOUND/MASK** tab in the **EDIT** pane (④).
3. Specify a sound file in **FILE** in the **SOUND** pane (⑤).
4. Add the **PLAY** button from the **CONTROL** pane (⑥) into the **DIRECT** pane. Setting the **DELAY** setting (⑦) can delay the timing of playing the sound.

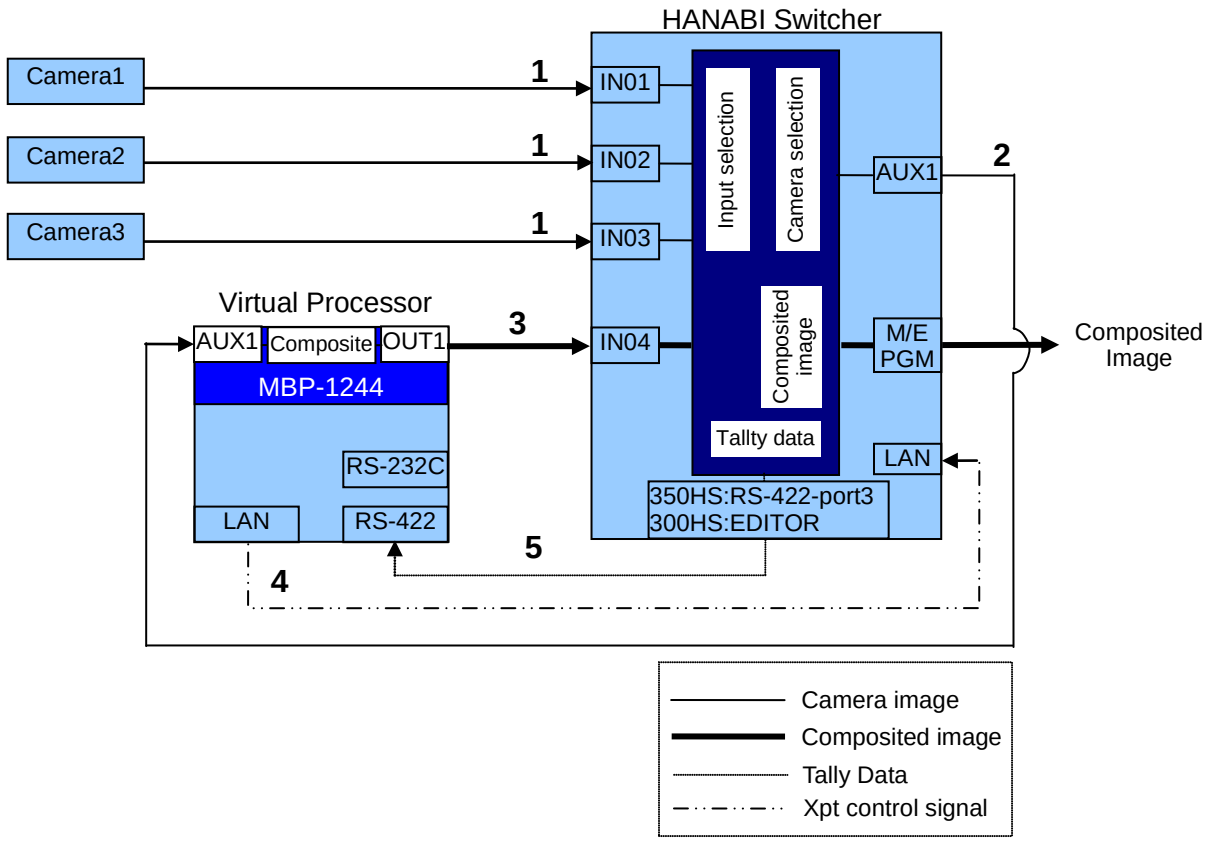
5. Right-click the button added to the **DIRECT** pane and choose **Edit command** from the menu. The **COMMAND EDITOR** dialog box appears.
6. Copy the **PLAY** command added in step 4 and paste it to the event added in step 1.
7. Click the **EXECUTE** button (⑨) to execute the command. Check if the sound effect is played as intended.
8. Click **OK** (⑩) to apply changes.

# 6. HANABI Virtual Link System

Using Virtual Link of a HANABI series switcher allows you to switch between cameras linked via crosspoint switching. For HVS-300HS, up to eight camera position buttons can be assigned to Virtual Link tallies. For HVS-350HS, up to 16 camera position buttons can be assigned to the Virtual Link tallies. See the HVS-300HS/HVS-350HS Virtual Link Operation Manual for details on Virtual Linking.

A VRCAM2 HANABI Virtual Link system configuration can be categorized into two types: A system that uses AUX on the HANABI switcher (System Configuration Ex. 1) or one that uses a video router such as the DRS-42HS (System Configuration Ex. 2). This section describes how to setup a system using these two basic system configuration examples.

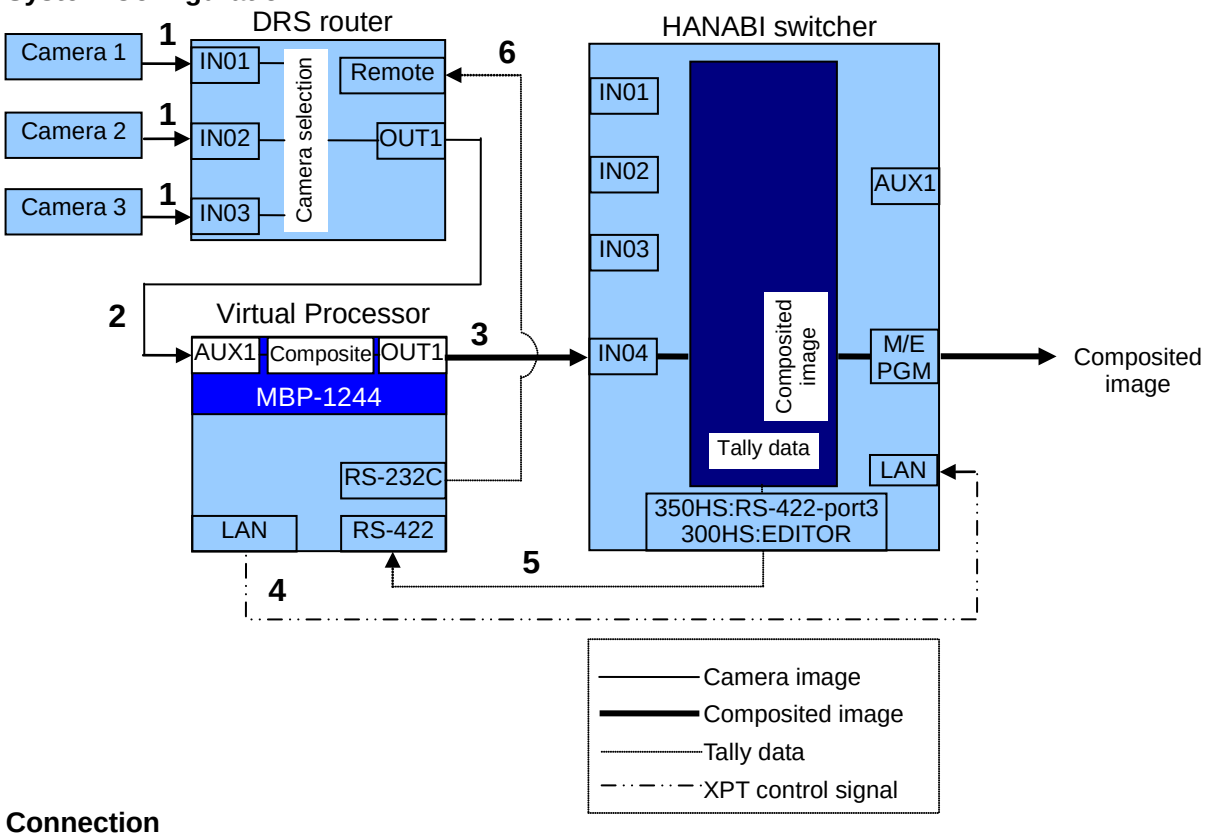
**System Configuration Ex. 1**




**Connection**

| No. | Type | Signal | Description |
|---|---|---|---|
| 1 | Video signal | CAM1 to 3 | Live camera signal |
| 2 | | Camera output used for composition | Camera image used on virtual processor |
| 3 | | Composited image | Composited image output from virtual processor |
| 4 | Control signal | XPT control signal | Signal that controls HANABI crosppoints through VRCAM2 Cont |
| 5 | | VTLY1 | Camera tally signal sent to virtual processor |

**System Configuration Ex. 2**




**Connection**

| No. | Type | Signal | Description |
|---|---|---|---|
| 1 | Video signal | CAM1 to 3 | Live camera signal |
| 2 | | Camera output used for composition | Camera image used on virtual processor |
| 3 | | Composited image | Composited image output from virtual processor |
| 4 | Control signal | XPT control signal | Signal that controls HANABI crosppoints through VRCAM2 Cont |
| 5 | | VTLY1 | Camera tally signal sent to virtual processor |
| 6 | | DRS control signal | Signal that controls DRS through MBP-12Server |

The steps in this section describe how to assign the following VRCAM2 camera positions to HANABI switcher ME-PGM buttons (1 to 8).

| Button | Camera | Position |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 1 | 2 |
| 3 | 1 | 3 |
| 4 | 1 | 4 |
| 5 | 2 | 1 |
| 6 | 2 | 2 |
| 7 | 2 | 3 |
| 8 | 3 | 1 |

If HANABI Virtual Link is used, camera positions are switched through the HANABI switcher and camera positions that are not assigned to HANABI Virtual Link cannot be switched.

# 6-1. HANABI Settings

This section briefly describes how to set HANABI Virtual Link settings for VRCAM2. For detailed instructions, see the applicable HANABI manuals.

## 6-1-1. Ethernet Settings

Under the **SETUP - SYSTEM - ETHERNET** menu, verify that IP address and netmask are properly set. The IP address should be the same as the **MU ADDRESS** setting in the **LAN SETTING** pane under the **HVS > SETUP** tab in **VRCAM2 Cont**.

```
SYSTEM   :    IP ADDRESS      :            : 1/4
ETHERNET: =192.168.100.010    :            :
```

```
SYSTEM   :     NET MASK       :            : 2/4
ETHERNET: =255.255.255.000    :            :
```

## 6-1-2. Camera Tally Signal Port Settings (HVS-350HS Only)

The HVS-300HS sends serial tallies through the editor port, and the HVS-350HS sends serial tallies through the RS-422 port. In the example in this section, Port3 is used for the HVS-350HS. The settings should be set as below under the **SETUP - SYSTEM - RS-422** menu.

HVS-300HS: [SETUP – EXT I/F - RS-422]

```
EXT I/F : SELECT : FUNC  : BAUND : PARITY  1/1
RS-422  : EDITOR : VTALY : 38400 : ODD
```

HVS-350HS: [SETUP – SYSTEM - RS-422]

```
SYSTEM  : SELECT : FUNC  : BAUND : PARITY  1/1
RS-422  : PORT3  : VTLY1 : 38400 : ODD
```

## 6-1-3. Virtual Link Settings

Virtual Link settings can be set under the menu below.

HVS-300HS: [SETUP - FUNCTION – VIRTUAL]
HVS-350HS: [SETUP - FUNCTION – VIRTUAL]

```
FUNCTION:>STANDARD >ADVANCED
VIRTUAL :
```

**STANDARD** uses preset settings and **ADVANCED** enables manual settings. This section describes how to set Virtual Link settings using **ADVANCED**. After **ADVANCED** is selected, the screen appears as below.

| VIRTUAL :>GENERAL >VR XPT >CG COMPO |
|---|
| ADVANCE : |

| ADVANCED Menu | Description |
|---|---|
| GENERAL (1/1) | -Enables and disables HANABI Virtual Link<br>-Allows you to select the LAN control type between A/B and P/P.<br>-Allows you to store user presets.<br>-Allows you to initialize the **ADVANCED** menu. |
| VR XPT (1/2) | -Enables and disables Virtual Crosspoints.<br>-Allows you to assign camera inputs to Virtual Crossponts.<br>-Allows you to select a video source for **DUMMY XPT**. |
| VR XPT (2/2) | -Allows you to select composited video output from CG Component (virtual processor).<br>-Allows you to select the serial tally number. |
| CG COMP (1/3) | -Enables and disables CG Component.<br>-Allows you to select tally data sent to CG Component.<br>-Allows you to set the CG Component delay setting. |
| CG COMP (2/3) | -Allows you to assign CG Component (virtual processor) to an M/E button.<br>-Allows you to select the shared crosspoint setting for the CG Component (virtual processor) |
| CG COMP (3/3) | Allows you to assign input signals output from CG Component to the HANABI input ports (CG IN and DL IN)<br>Allows you to assign camera signal output to CG Component to the HANABI AUX OUT port. |

In the example in this section, settings are set as below.

**ADVANCED – GENERAL Menu**

| VIRTUAL :ENABLE :LAN CNT :PRESET : INIT : 1/1 |
|---|
| GENERAL : =ON : =P/P : >USER1: >OFF : |

| ENABLE | LAN CNT (HVS-350HS only) |
|---|---|
| ON | P/P |

The **LAN CNT** menu is available on the HVS-350HS only and will not be displayed on the HVS-300HS.

**ADVANCED - VR XPT Menu**

| VIRTUAL : NO :ENABLE :DUMY-X :CAMERA : 1/2 |
|---|
| VR XPT : =VR01 : =ON : =IN01 : =IN01 : |

| VIRTUAL : NO :SELECT : TALLY : : 2/2 |
|---|
| VR XPT : =VR01 : =CG : = 1 : : |

| NO | ENABLE | DUMY -X | CAMERA | SELECT | TALLY |
|---|---|---|---|---|---|
| VR01 to 04 | ON | IN01 | IN01 | CG | 1 to 4 |
| VR05 to 07 | ON | IN02 | IN02 | CG | 5 to 7 |
| VR08 | ON | IN03 | IN03 | CG | 8 |
| VR09 to 16 | OFF | BLK | BLK | CG | 9 to 16 |

For the HVS-300HS, up to eight crosspoints can be assigned. For the HVS-350HS, up to 16 crosspoints can be assigned. In the example in this section, eight VR buttons are assigned.

**ADVANCED - CG COMPONENT Menu**

```
VIRTUAL : COMPO :ENABLE : DELAY :TLY OUT: 1/3
CG COMP : =1    : =ON   : =11   : =VR1-1:
```

```
VIRTUAL : COMPO : TYPE          :SHARED : 2/3
CG COMP : =1    : =FIX ME ABUS  : =NON  :
```

```
VIRTUAL : COMPO : CG IN : DL IN :AUX OUT: 3/3
CG COMP : =1    : =IN04 : =BLK  : =AUX1 :
```

System Configuration Ex. 1 (when AUX is used)

| COMPO | ENABLE | DELAY | TLY OUT | TYPE | SHARED | CG IN | DL IN | AUX OUT |
|---|---|---|---|---|---|---|---|---|
| 1 | ON | 12 | VR1-1 | FIX ME PGM | NON | IN04 | BLK | AUX 1 |
| 2- | OFF | 3 | VR1-1 | FREE ALL | ALL | BLK | BLK | NON |

System Configuration Ex. 2 (when a DRS series router is used)

| COMPO | ENABLE | DELAY | TLY OUT | TYPE | SHARED | CG IN | DL IN | AUX OUT |
|---|---|---|---|---|---|---|---|---|
| 1 | ON | 11 | VR1-1 | FIX ME PGM | NON | IN04 | BLK | NON |
| 2- | OFF | 3 | VR1-1 | FREE ALL | ALL | BLK | BLK | NON |

The **DELAY** and **AUX OUT** settings under the **CG COMPONENT** menu differ for System Configuration Examples 1 and 2 as shown above.

In addition, if **TYPE** is changed, bus selection in VRCAM2 must also be changed. See section 6-4-2. “VR XPT Settings” for details.

```
VIRTUAL : COMPO : TYPE          :SHARED : 2/3
CG COMP : =1    : =FIX ME PGM   : =NON  :
```

To virtualy link a VRCAM2 and HANABI switcher, select any of the following four settings.

| Setting | Description |
|---|---|
| FIX ME PGM | The composited image is output when VR XPT is selected on the M/E PGM bus. |
| FIX ME PST | The composited image is output when VR XPT is selected on the M/E PST bus. |
| FIX PP PGM | The composited image is output when VR XPT is selected on the P/P PGM bus (HVS-350HS only). |
| FIX PP PST | PThe composited image is output when VR XPT is selected on the P/P PST bus (HVS-350HS only). |

If only one virtual processor is used, select **FIX ME PGM** or **FIX PP PGM** for **TYPE**.

If a setting other than those above is selected, the system may not work properly or the virtual set may be out of sync with the camera signal.

## 6-1-4. Assigning a Virtual Crosspoint to a HANABI Button

Under the **SETUP - INPUT - ASSIGN** menu, assign a virtual crosspoint to a HANABI button as shown below.

```
INPUT   :BUTTON : SIGNAL NAME   :INHIBIT: 1/4
OU ASSGN: =01   : =VR01  =VR01  : =OFF  :
```

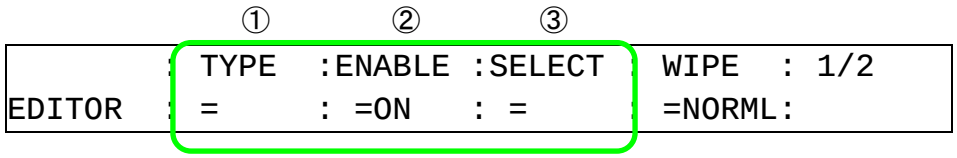
| BUTTON | SIGNAL | NAME |
|---|---|---|
| 1 to 8 | VR01 to 08 | VR01 to 08 |
| 9 to 16 | NON | NON |

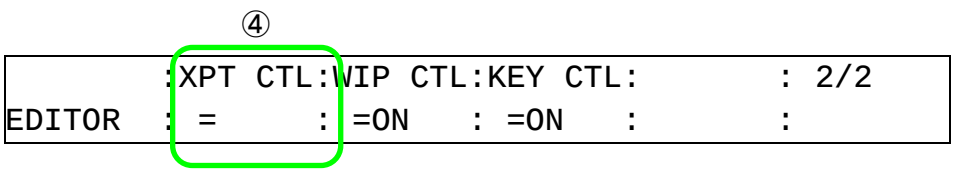
**VR01** to **VR08** enabled under the **VIRTUAL - ADVANCED - VR XPT** menu will be assigned to HANABI buttons **1** to **8**.

## 6-1-5. Editor Control Settings

If HANABI Editor Control (optional) is enabled, the editor control settings must be set. The following directories can be accessed only if Editor Control is enabled.

HVS-300HS: [SETUP - EXT I/F – EDITOR]
HVS-350HS: [SETUP - FUNCTION – EDITOR]




① Set **TYPE** to **BVS3K** for HVS-300HS and to **DVS** for HVS-350HS.
② Set **ENABLE** to **ON**.

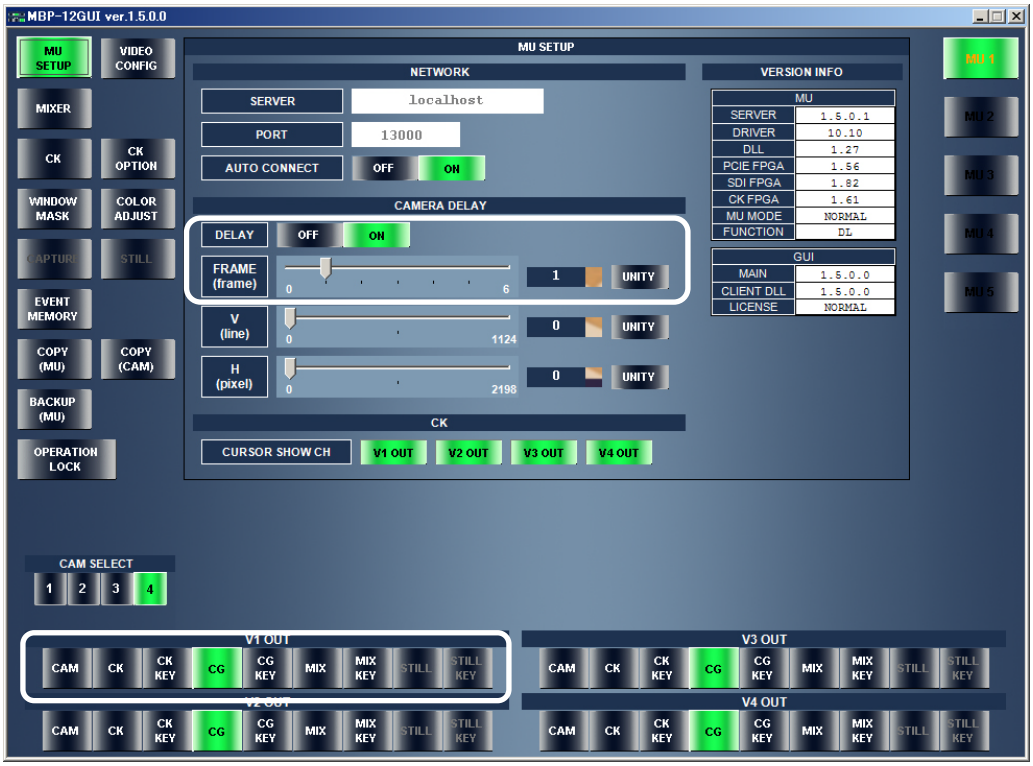
Normally the following settings should be left as default. If **BUTTON** is selected for **XPT NO MODE** when a certain version of HVS-300HS switcher is used, the following settings must be set.

③ For **SELECT**, select a value other than **PREV**.
④ If **BUTTON** is selected for **XPT NO MODE** under the **HVS > SETUP** tab in **VRCAM2 Cont** described in section 3-9-1, select **BUTTON** for **XPT CTL**.

For details on the **EDITOR** menu, see “Editor Control Settings” in the HVS-300HS/ HVS-350HS Operation Manual.

# 6-2. MBP-12GUI Settings

This section briefly describes how to set HANABI Virtual Link settings for VRCAM2. For detailed instructions, see the MBP-12GUI Operation Manual.



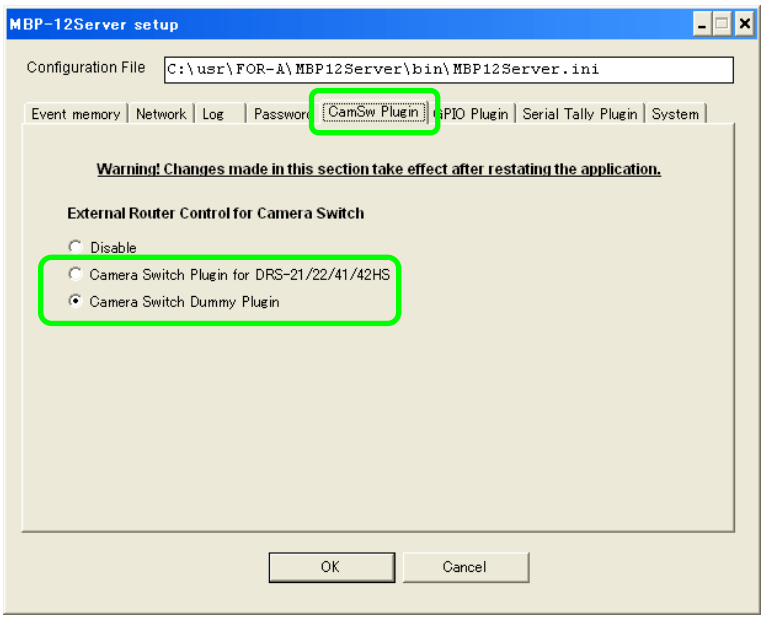

- Set the VRCAM2 composited image output port setting to **CG**. For System Configuration Ex. 1 and 2, set **V1 OUT1** to **CG**.
- Depending on the system configuration, set the **CAMERA DELAY** setting as shown below.

| | System Configuration Ex. 1 (when AUX is used) | System Configuration Ex. 2 (when a DRS series router is used) |
|---|---|---|
| DELAY | ON | OFF |
| FRAME | 1 | - |

# 6-3. MBP-12Server Settings

This section briefly describes how to set HANABI Virtual Link settings for VRCAM2. For detailed instructions, see the MBP-12Server Operation Manual.
Depending on the system configuration, set the **CamSw Plugin** setting as shown below.

| | System Configuration Ex. 1 (when AUX is used) | System Configuration Ex. 2 (when a DRS series router is used) |
|---|---|---|
| CamSw Plugin | Camera Switch Dummy Plugin | Camera Switch Plugin for DRS-21/22/41/42HS |



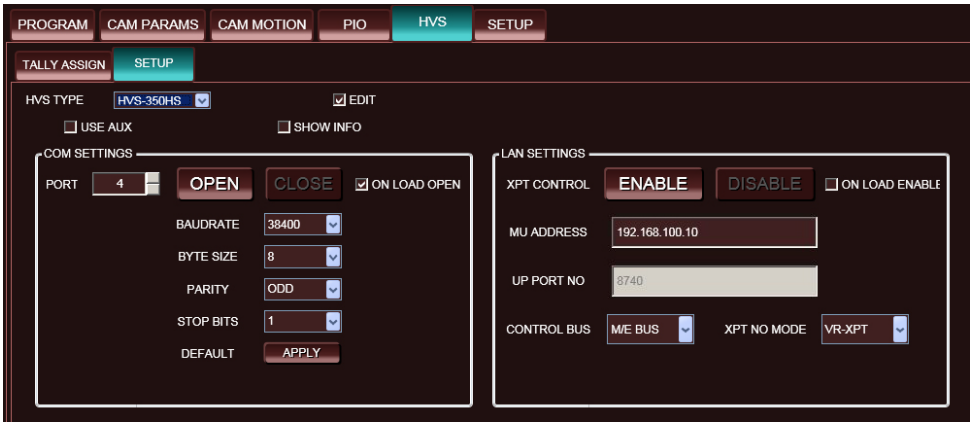

For System Configuration Ex. 1, simply select **Camera Switch Dummy Plugin** and click **OK**. The following steps are for when **Camera Switch Plugin for DRS-21/22/41/42HS** is selected for System Configuration Ex. 2.

1. In MBP-12Server, choose **Plugins > Camera Switch Plugin for DRS-21/22/41/42HS**. If the item is not found in the menu, check if the **Camera Switch Plugin for DRS-21/22/41/42HS** is selected under the **CamSwPlugin** tab. If it does not appear in the menu although the selection has been made under the **CamSwPlugin** tab, restart the MBP-12Server.

2. The setting dialog box appears. Complete the settings according to the system.
3. Click the **Serial Port Setting** button. The **SerialPort** setting dialog box appears. Complete the settings according to the DRS series router to be connected then click **OK**.
4. Last, select the **Plugin Enable** checkbox, and then click **OK**.

# 6-4. VRCAM2 Cont Settings

## 6-4-1. Settings for HANABI Switcher Connection




SETUP

1. Load a program in the **SELECT LIBRARIES** dialog box.
2. Checking the **EDIT** checkbox under the **HVS > SETUP** tab enables the settings under the **SETUP** pane.
3. Select a HANABI switcher from the **HVS TYPE** drop-down menu.
4. From **PORT**, select an RS-422 port number to be connected to communicate with the HANABI switcher.
5. If HANABI AUX is used for camera switching (System Configuration Ex. 1), check the **USE AUX** checkbox. If a DRS series router is used (System Configuration Ex. 2), uncheck the checkbox.
6. From **CONTROL BUS**, select a bus. In the example above, **M/E BUS** is selected.
7. From **XPT NO MODE**, select a control method for the HANABI switcher. In this example, **XPT NO MODE** is selected.
8. Click **OPEN**. Once communication is established, the **OPEN** button turns green.
9. Enter the HANABI IP address into the **MU ADDRESS** box.
10. Click **ENABLE**. Once communication is established, the **ENABLE** button turns green.
11. Saving a program while the **ON LOAD OPEN** and **ON LOAD ENABLE** checkboxes are checked will automatically perform steps 8 and 10 the next time the program is loaded.

## 6-4-2. VR XPT Settings

The **VRCAM2 VR XPT** settings can be set under the **HVS > TALLY ASSIGN** tab. In this example, set the settings as below.

| TALLY | CAM NO | POS NO | XPT NO |
|---|---|---|---|
| 1 | 1 | 1 | 1 |
| 2 | 1 | 2 | 2 |
| 3 | 1 | 3 | 3 |
| 4 | 1 | 4 | 4 |
| 5 | 2 | 1 | 5 |
| 6 | 2 | 2 | 6 |
| 7 | 2 | 3 | 7 |
| 8 | 3 | 1 | 8 |

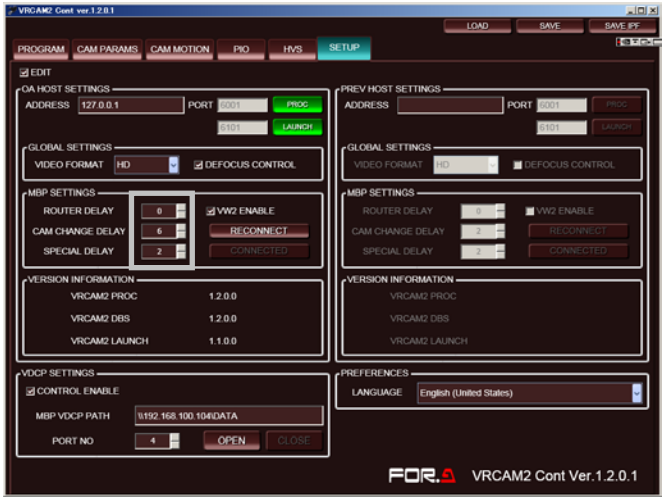
These settings correspond to **HANABI VR XPT** settings. The assignments between tally numbers and cameras on both VRCAM2 and HANABI must be the same. Otherwise, the virtual camera and actual camera cannot link properly.

| NO | ENABLE | DUMY -X | CAMERA | SELECT | TALLY |
|---|---|---|---|---|---|
| VR01 to 04 | ON | IN01 | IN01 | CG | 1 to 4 |
| VR05 to 07 | ON | IN02 | IN02 | CG | 5 to 7 |
| VR08 | ON | IN03 | IN03 | CG | 8 |
| VR09 to 16 | OFF | BLK | BLK | CG | 9 to 16 |

VR XPT Settings

## 6-4-3. Timing Adjustments

The camera image, virtual set, and chromakey parameters must be switched under synchronized timing. Otherwise, the image may be output incorrectly while the camera is being switched. In this manual, HANABI buttons for which VR XPT is assigned are called “VR buttons”, and others are called “non-VR buttons”.




1. To check timing, switch back and forth between the VR buttons with a different camera assigned to each. The time delay differs depending on the system configuration. Use the following table as a guide to set the settings.

| | System Configuration Ex. 1 (when AUX is used) | System Configuration Ex. 2 (when a DRS series router is used) |
|---|---|---|
| ROUTER DELAY | 2 | 0 |
| CAM CHANGE DELAY | 5 to 6 | 5 to 6 |
| SPECIAL DELAY | 2 | 2 |
| CAMERA DELAY | 1 | 0 |

The **ROUTER DELAY**, **CAM CHANGE DELAY**, and **SPECIAL DELAY** setting can be set in the **MBP SETTINGS** pane under the **SETUP** tab in VRCAM2.
The **CAMARA DELAY** settings can be set in **MBP-12GUI**. (See section 6-2. “MBP-12GUI Settings”)

2. To check timing, repeat the steps below.
   ① Press a VR button.
   ② Press a non-VR button.
   ③ Press a VR button with its camera assignment different from the VR button in Step ①.
   ④ Press a non-VR button pressed in step ②.
   ⑤ Press a VR button pressed in step ①.
   This setting is adjusted under the **CG COMPONENT – DELAY** menu on the HANABI switcher. Unlike the adjustements in step1, setting to over a certain value can remove noise from the image. Set to the minimum value that solves the problem.

| | System Configuration Ex. 1 (when AUX is used) | System Configuration Ex. 2 (when a DRS series router is used) |
|---|---|---|
| HANABI CG COMPONENT DELAY | 12 | 11 |

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