OPERATION MANUAL

MBP-12Server
MBP-12 Series Control Server

Version 1.5.8 – Higher

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    If the Company discovers a flaw in the software or revises a program within one year after User receives the software, the Company will provide information regarding the flaw or revision or a revised program to User, free of cost.

Upon Receipt

MBP-12Server and its accessories are fully inspected and adjusted prior to shipment. Check your received items against the packing list below. Check to ensure no damage has occurred during shipment. If damage has occurred, or items are missing, inform your supplier immediately.

◆ **MBP-12Server Box**

ITEM	QTY	REMARKS
MBP-12Server installation disc	1	CD-ROM User manual (PDF) included

Table of Contents

1. Prior to Starting

1-1. About MBP-12Server

MBP-12Server is a server software application for controlling MBP-1244 (video buffer card) and MBP-12CK (optional chromakey card). It runs on the computer in which MBP-1244 (and MBP-12CK) is installed and communicates with clients such as MBP-12GUI and MBP12-RU using the TCP/IP protocol. Up to 5 clients can be connected at a time. In addition, using the Video I/O plugin for Brainstorm eStudio enables to output images rendered in eStudio through MBP-1244, or to use the video images input to MBP-1244 as textures.
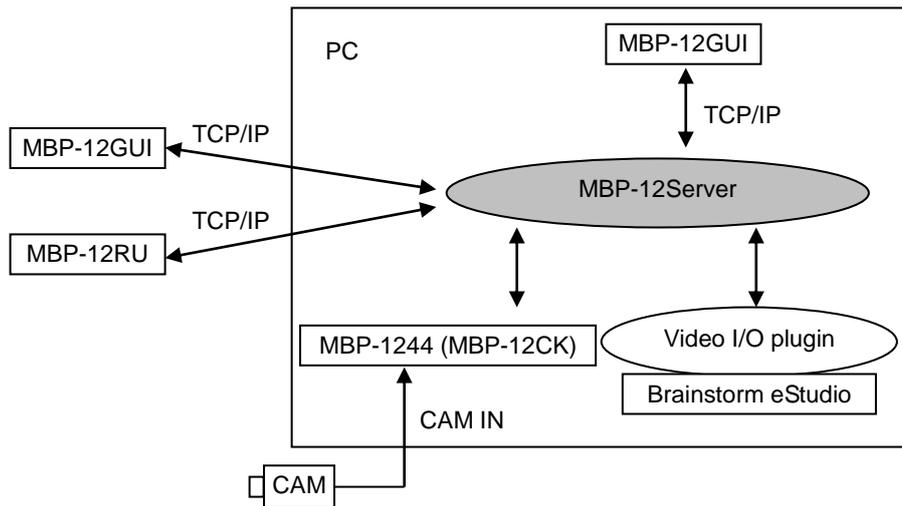
1-2. System Requirements

Model	PC/AT
CPU	Intel® Xeon (5400 Series Quad Core 3.0GHz or faster recommended)
Memory	2GB or more
OS	Windows® XP operating system SP2 or later (64-bit edition unsupported) Windows® 7 operating system Professional / Ultimate (32bit / 64bit) Windows® 10 operating system Professional (64bit)
Library	Microsoft® .NET Framework 2.0 SP1 or later
Display	Resolution of 1024 x 768 pixels or better. Must be capable of full color display.

2. Preparation

2-1. Software Installation

This section describes how to install the **Windows Installer 3.1**, **.NET Framework 2.0 SP1**, and **MBP-12Server**. If you are using Windows7 or 10, Windows Installer 3.1 and .NET Framework 2.0 SP1+Language Pack are not needed to be installed.

IMPORTANT
This installation must be done as a user with administrator privileges.

2-1-1. Installing Windows Installer 3.1

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. This installation is not needed for Windows7 or 10.
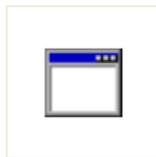
WindowsInstaller-KB893 803-v2-x86.exe

2) Click **Next**.
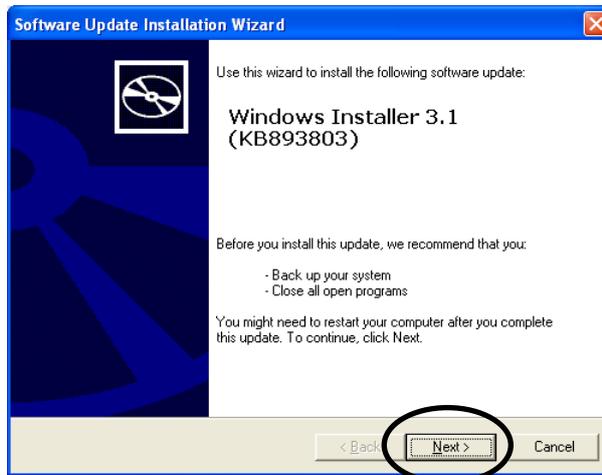
3) Select **I agree** and click **Next**.
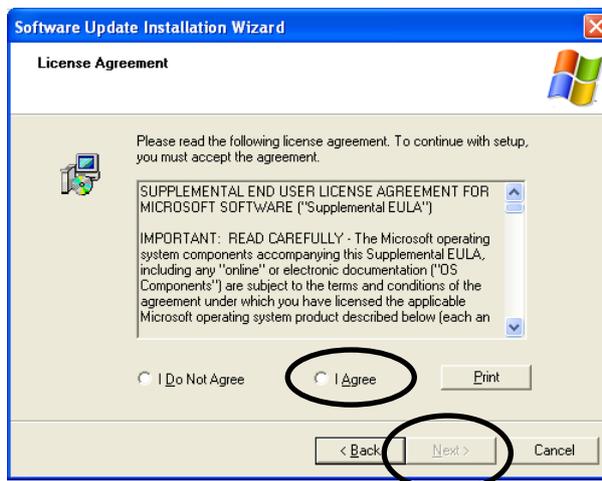
4) After the installation is complete, you will be asked to restart your computer. Click **Finish** to restart your computer.

2-1-2. Installing .NET Framework 2.0 SP1

1) If **.NET Framework 2.0 SP1** is not installed on your computer, double-click **\Microsoft\NetFx20SP1_x86.exe** on the CD-ROM to run the setup wizard. This installation is not needed for Windows7.

NetFx20SP1_x86.exe

2) Select **I have read and ACCEPT the terms of the License Agreement** and click **Install** to start the installation.
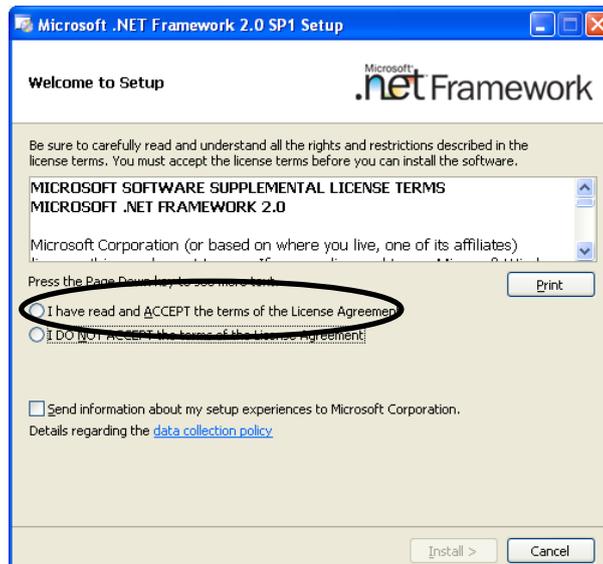
3) After the installation is complete, click **Exit**.
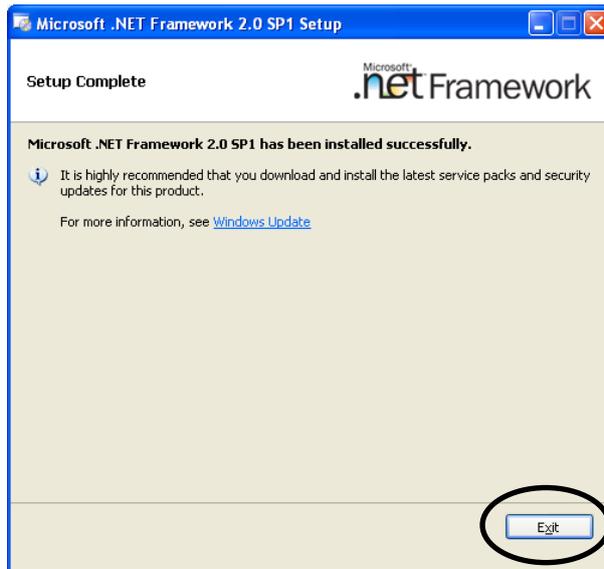
2-1-3. Installing MBP-12Server

1) If you are using WindowsXP(32bit) or Windows7(32bit), double click **SetupMbp12 Server.msi** on the CD-ROM to run the setup wizard. If you are using Windows7(64bit) or 10 (64bit), double click **SetupMbp12ServerX64.msi**. The following example is the setup using **SetupMbp12Server.msi**.
.

SetupMbp12Ser   SetupMbp12Ser
ver.msi   verX64.msi
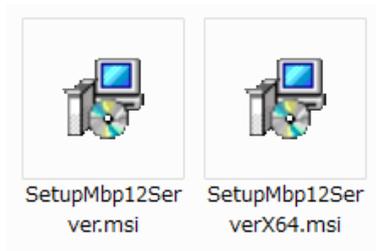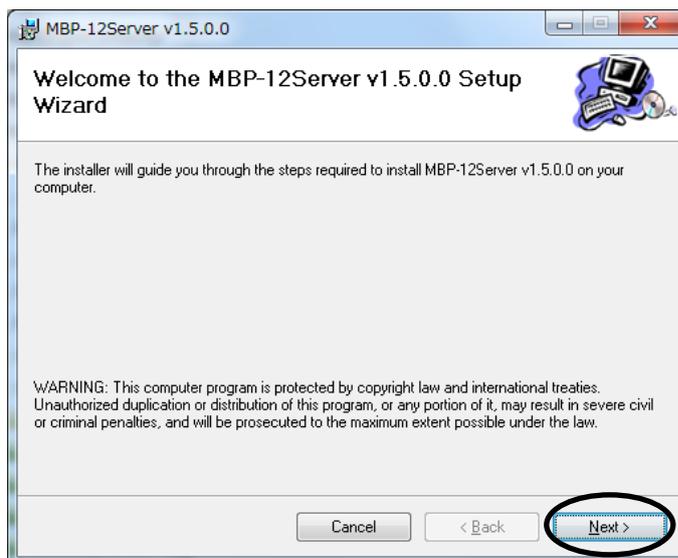
2) Click **Next**.

3) Select whether to install the application for all users or just the current user, and click **Next**. The default setting is **Everyone**.
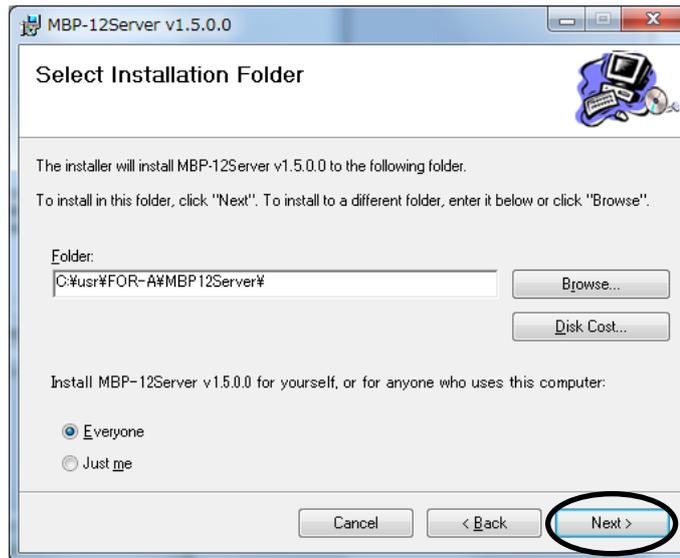
4) Click **Next** to start the installation.
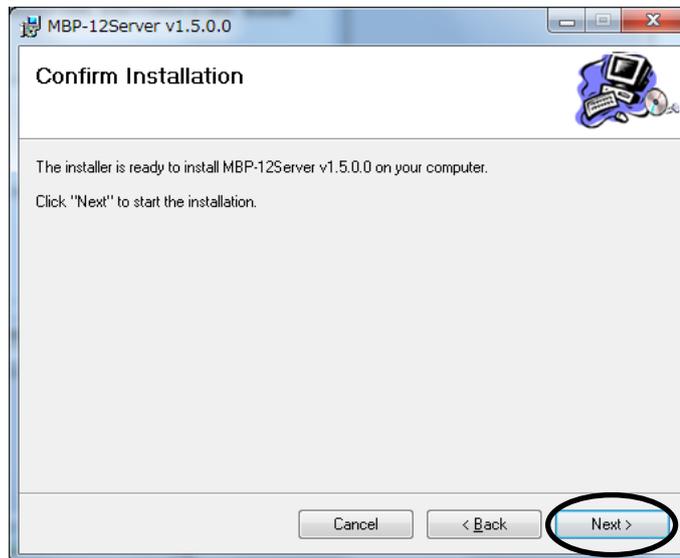
The user account confirmation dialog as shown below may appear in Windows7 or 10. If it appears, click **Yes** to continue the installation.
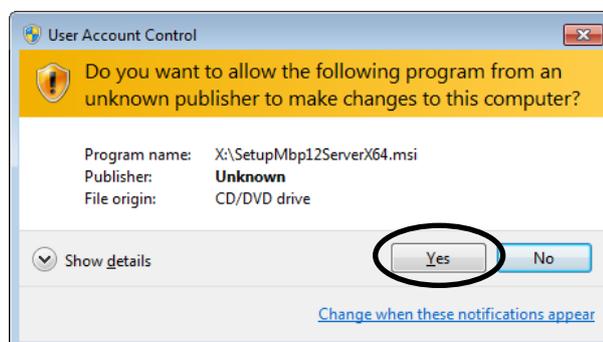
5) In Windows 7, the message indicating that the MBP-12 Server is successfully scheduled to start at login appears. Click **OK**.
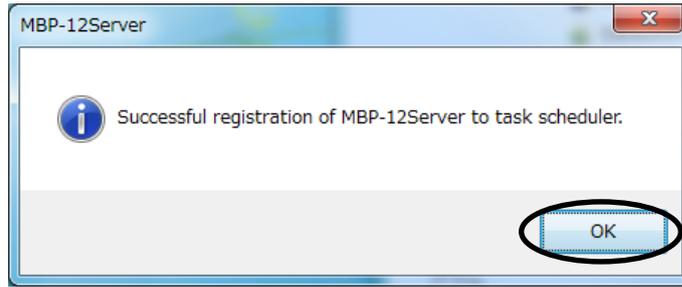
6) After the installation is complete, click **Close**.
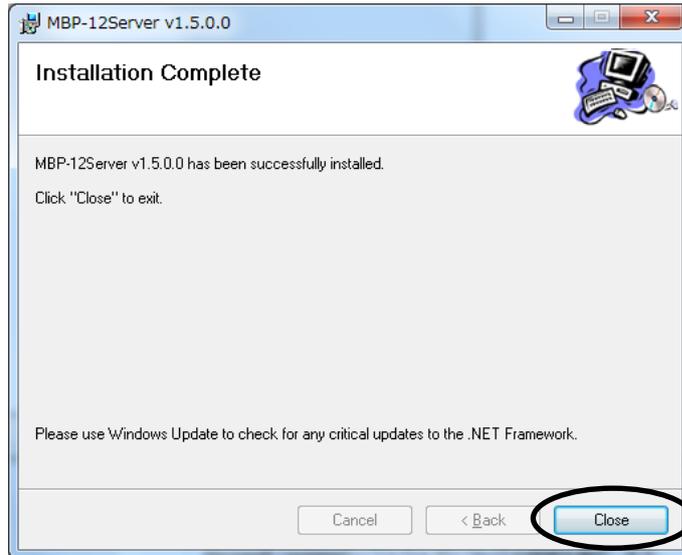
2-2. Starting MBP-12Server

The MBP-12Server automatically starts at login. To start the application manually, choose **Start > All Programs > FOR-A > MBP-12 > MBP-12Server**. In Windows7 or 10, the user account confirmation dialog may appear. If it appears, click **Yes**.
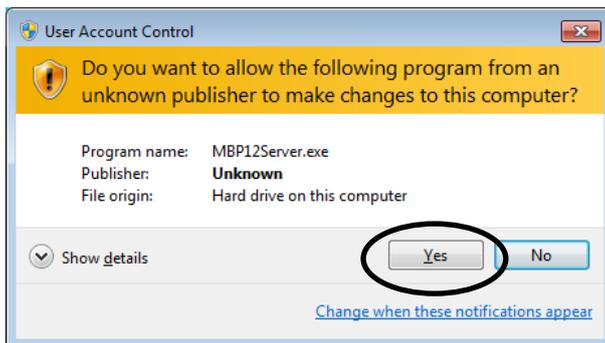
If you want to cancel the auto start at login, see the next section 2-3. "MBP-12Server Auto Start at Login" for how to cancel the schedule.
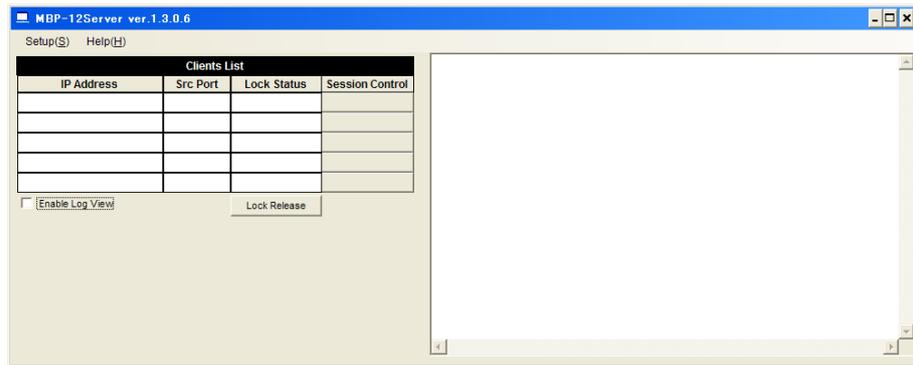
NOTE
If you minimize the MBP-12Server window, it appears as an icon in the task tray instead of a taskbar button on the taskbar. Double-click the icon to restore the window to its original size.

If the MBP-1244 board is not recognized, an error message as shown below is displayed and MBP-12Server will not run.

If an error message is displayed, check if **VBF2008** exists in **Sound, video and game controllers** in **Device Manager**. If it does not exist, check the connection of the MBP-1244 board and installation status of the driver.
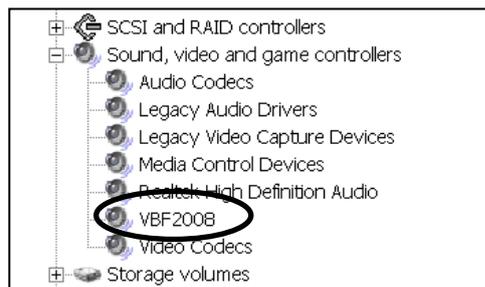
NOTE
If you put your computer into Windows Stand By mode or Hibernate mode while MBP-12Server is running, the application does not run properly after recovered. Be sure to close MBP-12Server before restarting.

2-3. MBP-12Server Auto Start at Login

2-3-1. In WindowsXP or 10

In WindowsXP or 10, the automatic start can be set for the MBP-12Server by adding a shortcut to the **Startup** folder.

2-3-1-1. Canceling MBP-12Server Auto Start

If you do not want the MBP-12Server to automatically start at login, remove the **MBP-12Server** shortcut.

2-3-1-2. Setting MBP-12Server Auto Start

Choose **Start > All Programs > FOR-A > MBP-12 > MBP-12Server**, and copy this shortcut to the **Startup** folder.

2-3-2. In Windows7

Adding the shortcut in the startup folder does not start the MBP-12Server at login in Windows 7, because the application must be run by an administrator. A script is set for the MBP-12Server to schedule to start at login using Task Scheduler.

IMPORTANT
The MBP-12Server is set to start at login by a user with administrator privileges in Windows 7.

2-3-2-1. Removing MBP-12Server Startup from the Task Scheduler

Login as a user with administrator privilege, and choose **Start > All Programs > FOR-A > MBP-12 > Unregister MBP-12Server from startup task.** The user account confirmation dialog appears. Click **OK**.

When the MBP-12 Server startup is successfully removed from the Task Scheduler, the message as shown below appears. Click **OK**.
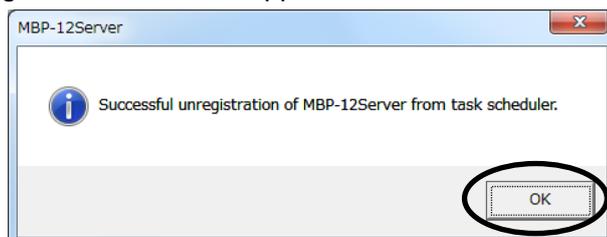
2-3-2-2. Scheduling MBP-12Server Startup in the Task Scheduler

Login as a user with administrator privilege, and choose **Start > All Programs > FOR-A > MBP-12 >Register MBP-12Server to startup task.** The user account confirmation dialog appears. Click **OK**.
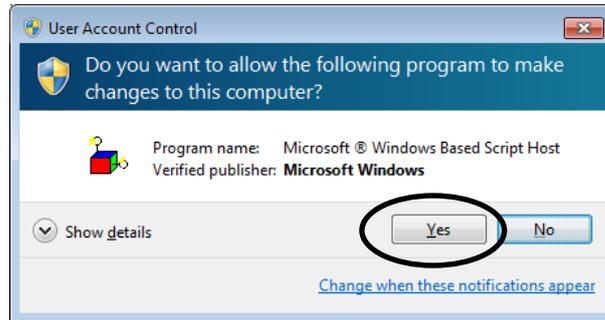
When the MBP-12 Server startup is successfully scheduled in the Task Scheduler, the message as shown below appears. Click **OK**.
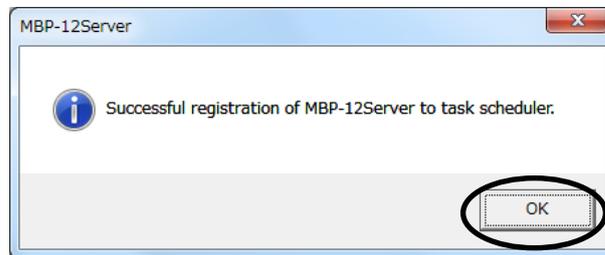
3. MBP-12Server Settings

MBP-12Server allows you to set the settings listed below. The names in parentheses are those displayed in MBP-12Server. The items you need to change are only 6; **Load event on boot**, **Change OnAir Lock release password**, **Change Exclusive Lock release password, External Router Control for Camera Input Switch**, **GPIO Control**, **Serial Tally Control**. Please do not change other items for normal operation.

Category	Sub Category	Item
Server setup (Server setup)	Event memory (Event Memory)	Folder for storing event memory files (Store folder)
		Event number of the event loaded when MBP-12Server is started (Load event on boot)
	Network (Network)	Port number (Port)
	Log (Log)	Folder for storing log files (Store folder)
		Log ON/OFF (Enable Logging)
		Retention period (Days until deletion)
		Number of divisions per log (Divide a day in)
		Time for dividing a log (1 - 24)
	Password (Password)	Password for releasing OnAir Lock (Change OnAir Lock release password)
		Password for releasing Exclusive Lock (Change Exclusive Lock release password)
	Camera switching plugin (CamSw Plugin)	Selection of plugin for switching camera in an external router (External Router Control for Camera Input Switch)
	GPIO plugin (GPIO Plugin)	GPIO plugin selection (GPIO Control)
	Serial tally plugin (Serial Tally Plugin)	Serial tally plugin selection (Serial Tally Control)
	System (System)	eStudio Output 1 ON/OFF (Enable Output1)
		eStudio Output 2 ON/OFF (Enable Output2)
		Video Wall Input ON/OFF (Enable Input)
		Processor allocation (Processor Affinity)
Client list (Clients list)	Source IP address (IP Address)	-
	Source port number (Port)	-
	Operation lock status (Lock Status)	Forcibly releasing Operation Lock (Lock Release)
	Session control (Session Control)	Force disconnect (Disconnect)
View Log	View ON/OFF (Log View Enable)	-
Help (Help)	Version information (Version Info)	-

3-1. Server Setup

Server setup allows you to set the MBP-12Server settings.

NOTE
Be aware that the real-time rendering performance in eStudio may be reduced while setting the **Server setup** settings and it may cause interruption in the video output.

Choose **Setup > Server setup**.
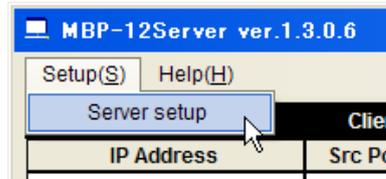
A dialog box that notifies you that the real-time rendering performance will be reduced is displayed. Click **OK** to set the **Server setup** settings.

Click **OK**. The dialog box as shown below is displayed.
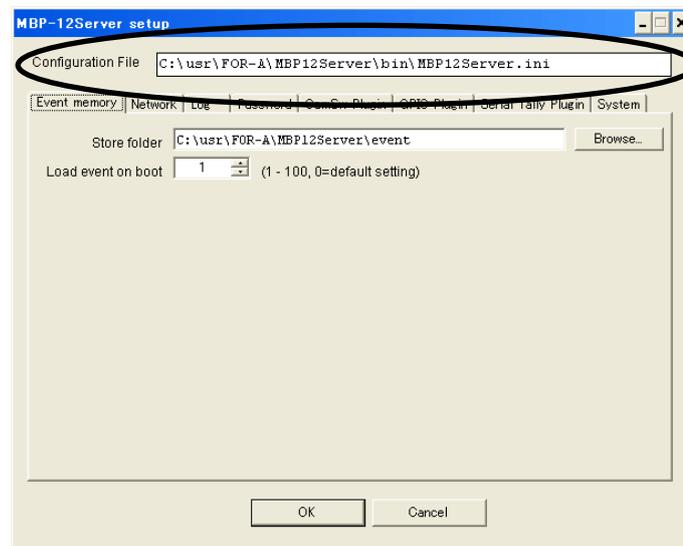
The name of the **.ini** file that contains the **Server setup** settings is displayed in **Configuration File**. The directory is the **MBP12Server.ini** file in the folder in which **MBP12Server.exe** exists and it cannot be changed. Click the tabs to switch between screens.

NOTE
The settings are not saved unless you click **OK** at the bottom of the dialog box after changing the settings. Click **Cancel** or press the **ESC** key to close the dialog box without applying the changes.

3-1-1. Event Memory (Event memory)

The **Event memory** screen allows you to set the event memory settings.
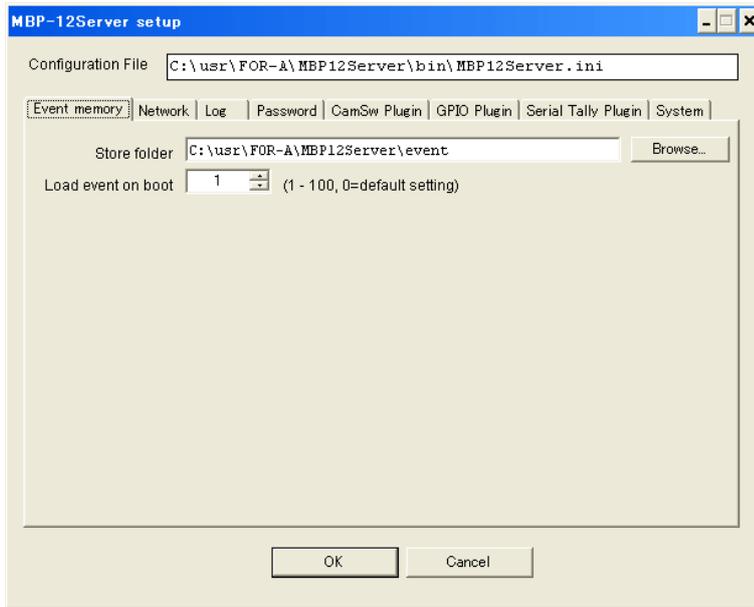
a) Folder for storing event memory files (Store folder)
MBP-12Server stores event memories as files. The default folder is
c:\usr\FOR-A\MBP12Server\event. To change the folder, click the **Browse** button and
select a folder in the dialog box.

b) Event number of the event loaded when MBP-12Server is started (Load event on boot)
Allows you to set the event number of the event loaded when MBP-12Server is started.
The default setting is **1**. If set to **0**, or if the event of the specified event number does not
exist, it is started with the MBP-12Server default settings. The MBP-12Server default
settings are listed in the table below.

Item	Description	Default Setting
VIDEO CONFIG	TV standard	1080/59.94i
GENLOCK	Genlock format	Tri-level sync (1080/59.94i)
	Genlock phase	V=0, H=0
CAMERA DELAY	ON/OFF	OFF
	Amount of delay	Frame=0, V=0, H=0

(Continued on the next page)

Item	Description	Default Setting
CK (CAM1 - CAM4)	Cursor display for each output channel	ON (all channels)
	Cursor display ON/OFF	OFF
	Cursor position	X=960,Y=540 (center of screen)
	Backing color	Hue=0.0 Saturation=71.2 Luminance=8.5
	Tuning	Color Suppression=0 Matte Density=0
	Fine tuning (Color Suppression)	WHITE=0.0 BLACK=0.0 Red=0.0 Green=0.0 Blue=0.0 Solidness=0.0
	Fine tuning (Matte Density)	WHITE=0.0 BLACK=0.0 Red=0.0 Green=0.0 Blue=0.0 Solidness=0.0
	Optional switches (FG)	Color Suppression=ON Light & Darkness Emphasis=OFF Recursive Filter=ON Edge Replace Left=ON Edge Replace Right=ON Edge Replace Top=ON Edge Replace Bottom=ON
	Optional switches (Matte)	Post Filter V=ON Post Filter H=ON Recursive Filter=ON Luminance Coring=OFF Red Coring=OFF Green Coring=OFF Blue Coring=OFF Edge Shrink Left=OFF Edge Shrink Right=OFF Edge Shrink Top=OFF Edge Shrink Bottom=OFF White Mode=OFF
	Parameter number selection	CAM 1
Mixer (MIXER 1, 2)	Preset mode	Virtual
	Output layers	L1 =OFF L2 – L4=ON
	Mix mode	All layers (L1 – L3)=NORMAL
	Key clip	All layers (L1 – L3)=0
	Key gain	All layers (L1 – L3)=100
	Output video channels	All channels (V1 OUT-V4 OUT)=MIX
	Source signal layer assignment (USER1, USER2, USER3)	All layers =NO ASSIGN

3-1-2. Network (Network)

The **Network** screen allows you to set the network settings for communicating with clients such as MBP-12GUI and MBP-12RU using the TCP/IP protocol.
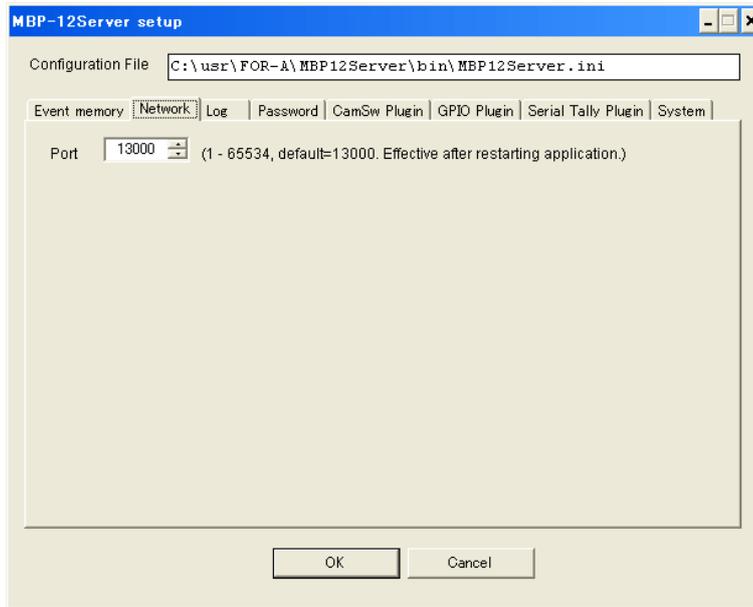
a) Port number (Port)

Allows you to set the TCP port number of MBP-12Server. The default setting is **13000**. Normally you do not need to change this setting. The change is applied after MBP-12Server is restarted. Be sure to change the port number of the client if you change this setting.

3-1-3. Log (Log)

The **Log** screen allows you to change the **Log** settings for storing logs that record the status of operation and communication with clients. The changes are applied after restarting MBP-12Server.
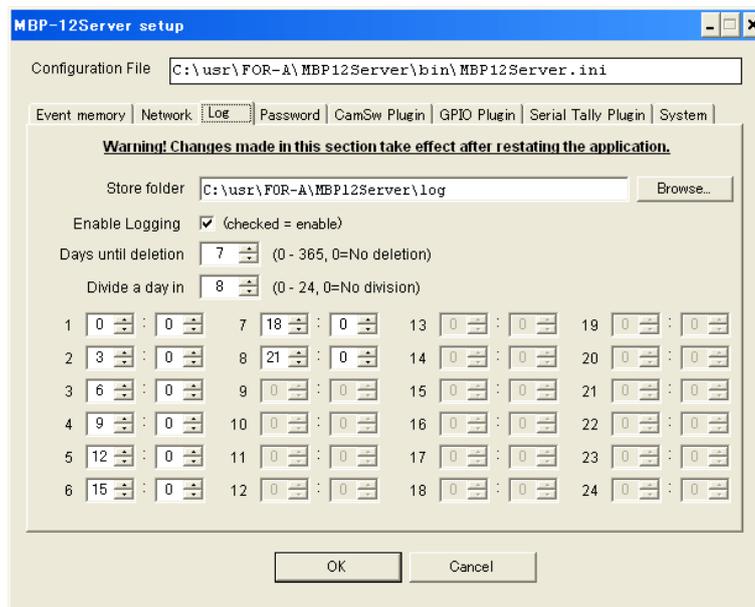
a) Folder for storing log files (Store folder)
   Allows you to specify the folder for storing log files. The default folder is
   c:\usr\FOR-A\MBP12Server\log. To change the folder, click the **Browse** button and
   select a folder in the dialog box.

b) Log ON/OFF (Enable Logging)
   Allows you to enable and disable storing logs. Selecting the checkbox enables storing
   logs. Please do not uncheck this for normal operation.

c) Retention period (Days until deletion)
   The log files will be automatically deleted after the number of days specified here. The
   default setting is **7** days. The maximum allowable number of days is **365** days. If set to **0**,
   the log will not be deleted.

d) Number of divisions per day (Divide a day in)
   Allows you to separately store logs of a day into a maximum of 24 files by specifying times.
   The default setting is **8** files.

e) Time for separating log files (1 - 24)
   Allows you to set times for dividing a day specified in d), in HH:MM format (24-hour clock).
   Although they are set as every 3 hours by default, the intervals need not be equal length of
   time.

3-1-4. Password (Password)

The **Password** screen allows you to set passwords for releasing Operation Lock. This is required to the client other than the one applied Operation Lock to release the Operation Lock.
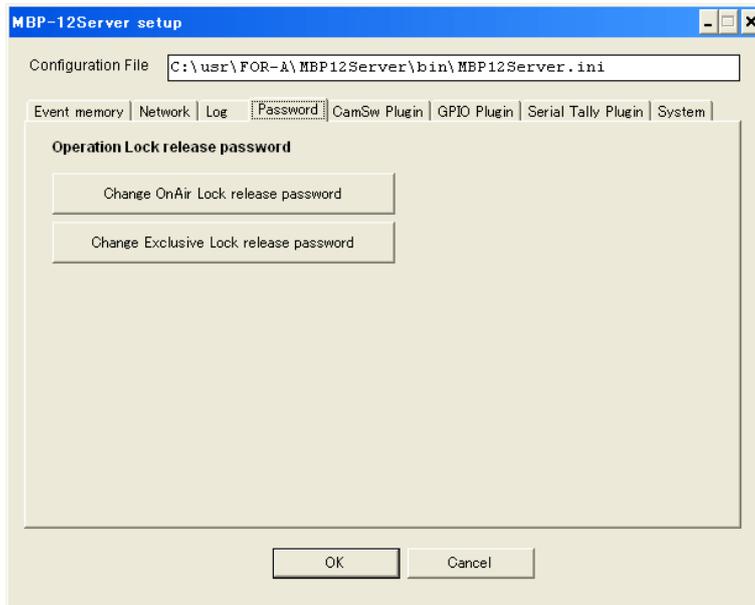
a) Password for releasing OnAir Lock (Change OnAir Lock release password)
Clicking the button displays the dialog box as shown below. Enter the new password in **New Password** and **Confirm**, and click **OK**. The password can be between 0 (no password) to 8 single-byte alphanumeric characters in length (uppercase and lowercase).

b) Password for releasing Exclusive Lock (Change Exclusive Lock release password)
Same as above.

3-1-5. Plugin (Plugin)

The **CamSW Plugin**, **GPIO Plugin**, and **Serial Tally Plugin** are described in the section 4 "Plugins".

3-1-6. System (System)

The **System** screen allows you to control the video input and output by the Video I/O plugin for Brainstorm eStudio. Please do not change these settings for normal operation.
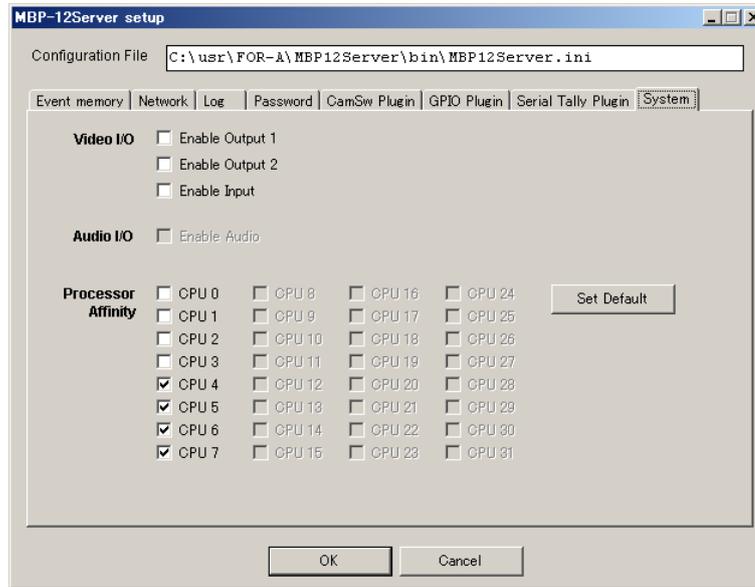
a) eStudio Output 1 ON/OFF (Enable Output1) (*1)
   Allows you to set whether to enable or disable the output of Output 1 of eStudio.

b) eStudio Output 2 ON/OFF (Enable Output2)
   Allows you to set whether to enable or disable the output of Output 2 of eStudio.
   Currently not available. Leave this unchecked.

c) Video wall input ON/OFF (Enable Input) (*1)
   Allows you to set whether to enable or disable the input of the video wall.

   (*1)If you are using eStudio v11.38 or later, uncheck a) and c).
       If you are using eStudio v11.37 or earlier, check a) and c).

d) Audio I/O ON/OFF (Enable Audio)
   Currently not available.

e) Processor allocation (Processor Affinity)
   Allows you to allocate which CPUs MBP-12Server will be allowed to run on if a multicore or a multiprocessor computer is used. The default setting is shown in the table below. Normally there is no need to change the default setting.

Number of Processors	CPUs Allocated
3 or less	All processors
4 to 7	Last two processors Example: CPU2 and 3 if there are four processors (CPU0-CPU3).
8 or more	Last four processors Example: CPU4, 5, 6, and 7 if there are eight processors (CPU0-CPU7). CPU12, 13, 14, and 15 if there are sixteen processors (CPU0-CPU15).

To change the setting, check the checkboxes of the CPUs you wish to allocate. To reset the setting, click **Set Default**.

3-2. Client List (Clients List)

The **Clients List** screen allows you to manage clients such as MBP-12GUI and MBP-12RU.
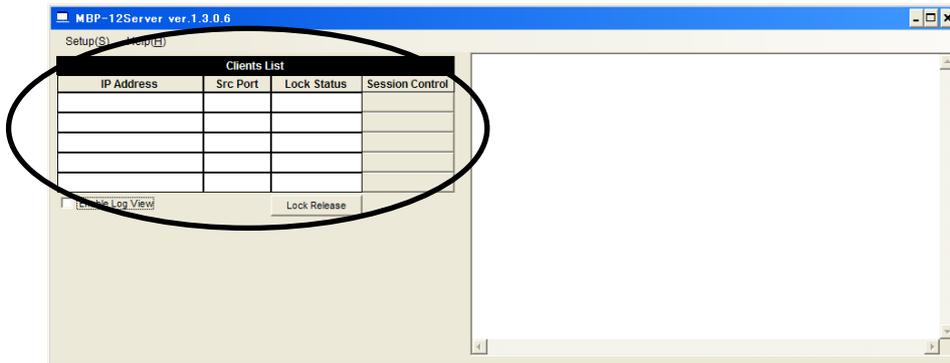
a) Source IP address (IP Address) and
b) Source port number (Port)
Displays the source IP address and port number of the client connected to MBP-12Server. In the example below, the source IP address is **192.168.100.120** and the port number is **3916**.

Clients List			
IP Address	**Src Port**	**Lock Status**	**Session Control**
192.168.100.20	3916		Disconnect

c) Operation lock status (Lock Status)
If Operation Lock is applied, **OnAir Lock** or **Exclusive Lock** is displayed in **Lock Status** column of the client which applied Operation Lock. Clicking the **Lock Release** button below the **Lock Status** column forcibly releases Operation Lock. Use this button if the client which applied Operation Lock does not work for some reason and cannot be operated.

Clients List			
IP Address	**Src Port**	**Lock Status**	**Session Control**
192.168.100.20	3916	OnAir Lock	Disconnect

Clients List			
IP Address	**Src Port**	**Lock Status**	**Session Control**
192.168.100.20	3916	Exclusive Lock	Disconnect

d) Session control (Session Control)
The **Disconnect** button is displayed in the right column of the client which currently connected. Clicking this button forcibly disconnects the client. Use this button if the client does not work for some reason and cannot be disconnected.

3-3. View Log

3-3-1. View Log ON/OFF (Enable Log View)

The log can also be displayed on the screen as well as in files for checking operations.

NOTE
Be aware that the real-time rendering performance in eStudio may be reduced while viewing the log and it may cause interruption in the video output. Be sure to leave this unchecked for normal operations.

Selecting the **Enable Log View** checkbox displays a dialog box that notifies you that the real-time rendering performance will be reduced is displayed. Click **OK** to view the log.
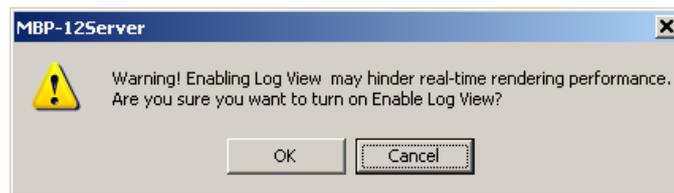
Checking the **Enable Log View** checkbox displays the log on the right of the screen, and unchecking the checkbox stops displaying the log.

3-4. Help (Help)

3-4-1. Version Information (Version info)

Choose **HELP > Version Info** to display the version information.
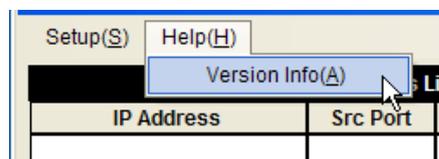
The dialog box as shown below is displayed. To close the dialog box, click **OK**.
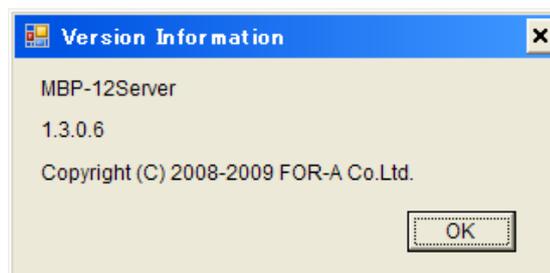
4. Plugins

The MBP-12Server has plugins to remotely control external devices, and to receive commands from external devices and enable the external devices to control the MBP-12Server. The followings are the three types of functions the plugins of the MBP-12Server support. Select a suitable plugin of the suitable type for the connected device.

Function	Description
Camera switching plugin (CamSw Plugin)	Plugin to control a connected external routing switcher to switch input cameras by transferring commands sent from MBP-12GUI, MBP-12RU or GPIO interface..
GPIO plugin (GPIO Plugin)	Plugin to control functions and output status tally signals via GPIO.
Serial tally plugin (Serial Tally Plugin)	Plugin to switch chromakey parameters by serial tally signals sent from external devices.

The tabs are provided in the **Server Setup** dialog box to move between pages and select plugins of different functions.

If the loaded plug-ins have menu items, the names of the plug-ins appear in the **Plugin** menu.

4-1. Camera Switching Plugin

Three plugins are installed for the Camera switching plugin. Select a plugin to use and restart the MBP-12Server.
Selecting the **Disable** checkbox disables switching cameras all together.
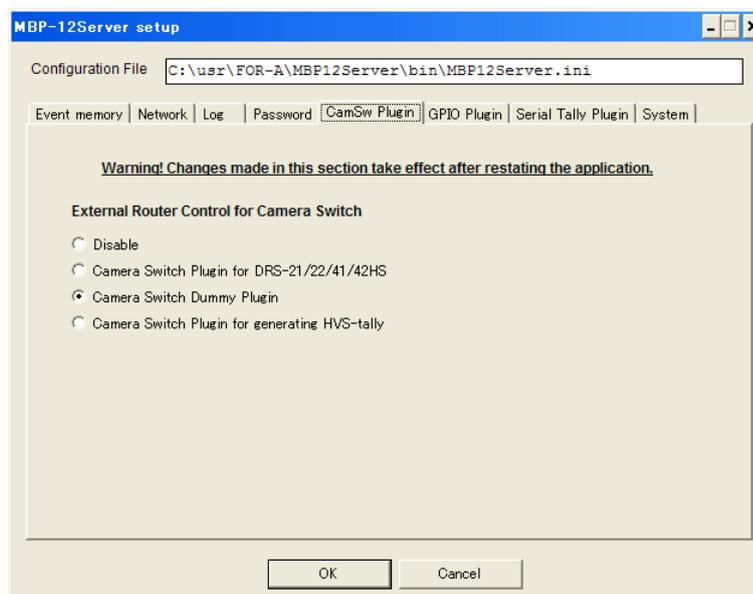
Plug-in	Description
Camera Switch Plugin for DRS-21/22/41/42HS	Allows you to control FOR-A's routing switcher DRS-21/22/41/42HS via serial port.
Camera Switch Dummy Plugin	Allows you to switch chromakey parameters of MBP-12CK instead of controlling external routing switcher.
Camera Switch Plugin for generation HVS-tally	Allows you to send tally information from HVS series switcher units to DSC-100/200 via serial port.

The following sections explain you how to set each plug-in.

4-1-1. Camera Switch Plugin for DRS-21/22/41/42HS

4-1-1-1. Settings in DRS-21/22/41/42HS

Adjustments shown below are required for the DRS-HS. See the Operation Manual of the product for details.

IMPORTANT
- Change the settings to enable serial communication. - Select RS-232C/RS-422 whichever suitable for your system. - Normally set bit rate to 9600. - Leave other settings as factory default.

4-1-1-2. Setting Plug-in

1) In the MBP-12Server menu, choose **[Plugins] > [Camera Switch Plugin for DRS-21/22/41/42HS]**. If the item is not in the **Plugins** menu**,** check if the **Camera Switch Plugin for DRS-21/22/41/42HS** is selected in the **CamSwPlugin** page of the **Server Setup** dialog box. If it does not appear in the menu although the selection is made in the **CamSwPlugin** page, restart the MBP-12Server.

2) The setting dialog box appears. Complete the settings for your system.
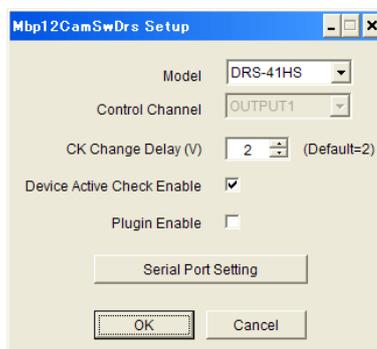
Item	Setting values	Description
Model	DRS-21HS, DRS-22HS, DRS-41HS, DRS-42HS	Allows you to select a DRS-HS series model you are going to connect. Default setting is **DRS-41HS**. To use for serial tally output to DSC-100/200, select DRS-41HS.
Control Channel	OUTPTU1, OUTPUT2	Allows you to select one of the two outputs to connect to the MBP-1244 camera input, if **DRS-22HS** or **DRS-42HS** is selected for the **Model**. This item is disabled for the models that have only one output such as DRS-21HS and DRS-41HS.

CK Change Delay	0 – 100 (Field / Frame)*	Allows you to set a delay from when a switching command is sent to the DRS-HS to when the chromakey parameters in MBP-12Server are switched. Please do not change the default of 2 unless you have a reason to do.
Device Active Check Enable	ON, OFF	Allows you to enable or disable to output an error message to the log when an error is detected such as a communication failure by monitoring the responses sent from the connected DRS-HS. Normally set to ON.
Plugin Enable	ON, OFF	Allows you to turn on or turn off the plugin.

*The delay is set in fields for interlaced, and set in frames for progressive.

3) Click the **Serial Port Setting** button. The **SerialPort** setting dialog box appears. Complete the settings as set for your DRS-HS product, then click **OK**.
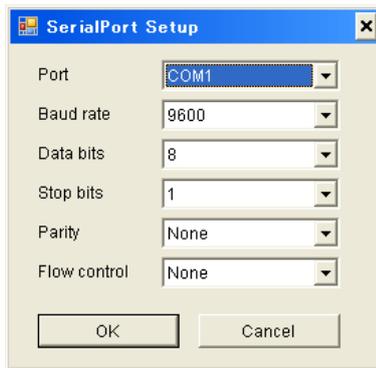
Item	Setting values	Description
Port	COM1 - COM10	Allows you to select a serial port number to be used. Note: The port numbers that do not exist on the computer are also displayed.
Baud rate	4800, 9600, 19200, 38400	Allows you to set baud rate (bit rate). Select the bit rate as set for the DRS-HS. Note: The baud rates that cannot be set for the DRS-HS are also displayed.
Data bits	8	Allows you to set data length. Please do not change the value from **8**.
Stop bits	1	Allows you to set stop bit length. Please do not change the value from **1**.
Parity	None	Allows you to set parity. Please do not change the value from **None**.
Flow Control	None	Allows you to set flow control. Please do not change the value from **None**.

4) At last, select the **Plugin Enable** checkbox, and then click **OK**. The plug-in starts up, and it transmits switching commands to the DRS-HS at every vertical synchronization.

4-1-2. Setting Camera Switch Dummy Plugin

No menus to be set. The chromakey parameters will be switched, when camera switching is performed by MBP-12GUI, MBP-12RU or the GPIO.

4-1-3. Camera Switch Plugin for HVS-tally Generation

4-1-3-1. Settings in the DSC-100/200

See the DSC-100/200 operation manual for details on necessary settings.

4-1-3-2. Setting Plug-in

1) In the MBP-12Server menu, choose **[Plugins] > [Camera Switch Plugin for generating HVS-tally]**. If the item is not in the **Plugins** menu, check if the **Camera Switch Plugin for generating HVS-tally** is selected in the **CamSwPlugin** page of the **Server Setup** dialog box. If it does not appear in the menu although the selection is made in the **CamSwPlugin** page, restart the MBP-12Server.
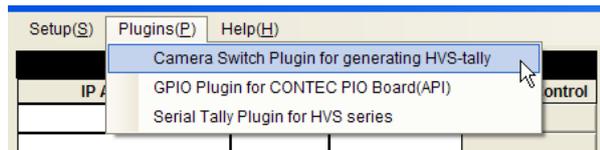
2) The setting dialog box appears. Complete the settings for your system.
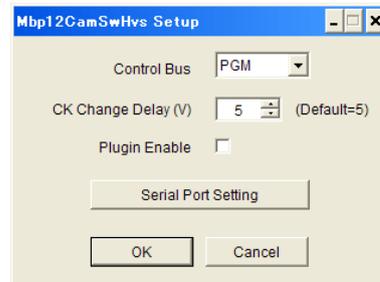
Item	Setting values	Description
Control Bus	PGM, PST	Allows you to select the PGM or PST bus for which to change a (serial tally packet) camera ID.
CK Change Delay	0 to 100 (Field / Frame)*	Allows you to set the MBP-12Server delay duration between a serial tally transmission and its associated chromakey parameter change. The default setting is 5.
Plugin Enable	ON, OFF	Allows you to enable a plugin.

*   Interlaced signals are set in 1 field steps, and progressive signals are set in 1 frame steps.

3) Click **Serial Port Setting**. The dialog box for serial port settings appears. Select a port to match that of the DSC-100/200 to be connected, then click **OK**. Do not change other setting values.
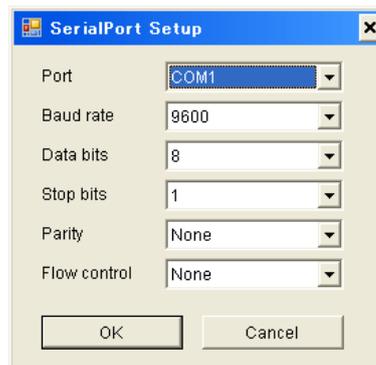
Item	Setting values	Description
Port	COM 1 to 10	Allows you to select a serial port to be used. Note: Port numbers that are actually not on the PC are also displayed.
Baud rate	38400	Allows you to set the baud rate. Currently the value cannot be changed from 38400.
Data bits	8	Allows you to set the data length. Currently the value cannot be changed from 8.
Stop bits	1	Allows you to set the stop bit length. Currently the value cannot be changed from 1.
Parity	Odd	Allows you to set the parity. Currently the value cannot be changed from Odd.
Flow Control	None	Allows you to set the flow control. Currently the value cannot be changed from None.

4) Finally, set **Plugin Enable** to ON, then click **OK**. The Plugin starts up. If cameras are switched via MBP-12GUI or MBP-12RU, a serial tally will be sent, then the chromakey parameter in the MBP-12Server will be switched after the set time delay.

4-2. GPIO Plugin

Two plugins are installed. Select a plugin to use, and then restart the MBP-12Server.
Selecting the **Disable** checkbox disables GPIO all together.
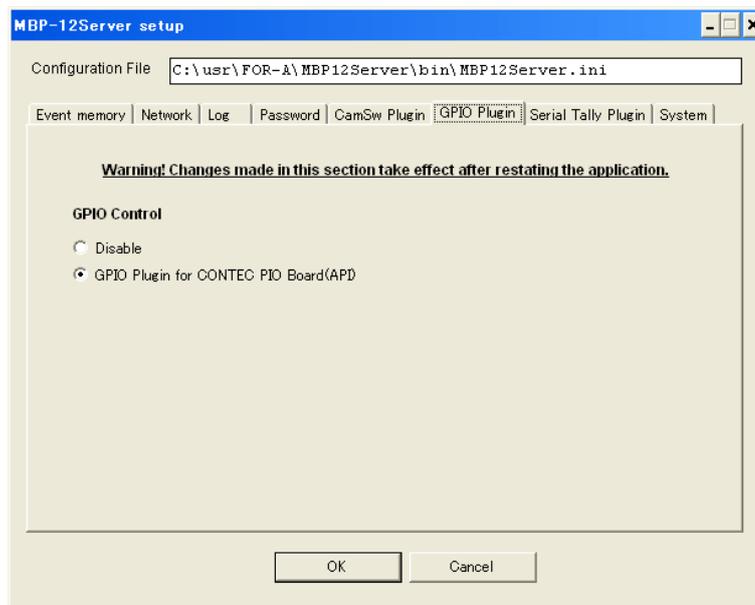
Plug-in	Description
GPIO Plugin for CONTEC PIO Board (API)	Plug-in for API-DIO(98PC) driver such as CONTEC digital I/O board (PIO-16/16L).
GPIO Plugin for CONTEC PIO Board (WDM)	Plug-in for API-DIO(WDM) driver such as CONTEC digital I/O board (PIO-16/16L).

4-2-1. GPIO Specifications

4-2-1-1. Pin Assignments

A function can be freely assigned to each pin.

4-2-1-2. Specification of Inputs

・ Trigger mode can be selected from level and pulse for each pin.
・ Examines input signal at every synchronization.
・ 0 to 16 fields or frames* delay from when the trigger is detected until the assigned function is executed can be set.

* The delay is set in fields for interlaced signals, and set in frames for progressive scanning signals.

4-2-1-3. Specification of Outputs

・ Output signal mode can be selected from level output and pulse output for each pin.
・ Outputs an approx. 100ms make-contact pulse when pulse output is selected.
・ 0 to 16 fields or frames* delay from when the status of MBP-12Server is changed until the assigned signal is output can be set.

* The delay is set in fields for interlaced signals, and set in frames for progressive scanning signals.

4-2-1-4. Assignable Functions for Inputs and Outputs

Setting values			Description
NOT USE			Does not assign any function. (Not to be used)
Camera switching			
	CAMERA SELECT 1		Input: Switches to the selected camera number.
	CAMERA SELECT 2		Output: Outputs a make-contact signal when camera switching to the selected camera number is performed.
	CAMERA SELECT 3		
	CAMERA SELECT 4		
Control over output connectors			
	Vm OUT	CAM	"m" in the Vm OUT is a number among 1 to 4 "n" in the Mixer n is number 1 or 2 <Input> **CAM – V2 IN**: Changes an output to the selected one. **Layer1 – 4**: Sets the layer ON or OFF. Does not switch outputs. <Output> **CAM – V2 IN**: Outputs a make-contact signal correspond to the output switching. **Layer1 – 4**: Outputs a make-contact signal correspond to the layer ON / OFF switching.
		CK	
		CK KEY	
		CG	
		CG KEY	
		MIX	
		MIX KEY	
		STILL	
		STILL KEY	
		CG2	
		CG2 KEY	
		V1 IN	
		V1 IN KEY	
		V2 IN	
	Mixer n	Layer1	
		Layer2	
		Layer3	
		Layer4	
Event recall			
	EVENT LOAD	No. 1-100	Input: Loads the selected event. Output: None
On-air tally			
	Vm OUT	OA TALLY CAM1	"m" in the Vm OUT is a number among 1 to 4 Input: None Output: Outputs a make-contact signal if the selected source is assigned to the output when the output is selected.
		OA TALLY CAM2	
		OA TALLY CAM3	
		OA TALLY CAM4	
		OA TALLY CG	
		OA TALLY STILL	
		OA TALLY CG2	
		OA TALLY V1 IN	
		OA TALLY V2 IN	

4-2-2. GPIO Plugin for CONTEC PIO Board (API, WDM)

4-2-2-1. Installing PIO Board

For installing the CONTEC PIO board, see the operation manual of the product.

4-2-2-2. Physical Pin Numbers and Logical Pin Numbers

· Up to 64 inputs and 64 outputs can be used.
· This plug-in manages the physical pin numbers on the PIO boards by the logical pin numbers of 64 input pins and 64 output pins assigned to them. If multiple boards are installed in the computer, it assigns the pins on the boards to the logical pins one by one. If the total number of input pins or output pins on all boards exceeds 64, the exceeding pins cannot be used for MBP-12Server.

4-2-2-3. Plugin Settings

1) In the MBP-12Server menu, choose **Plugins > GPIO Plugin for CONTEC PIO Board(API)** or **GPIO Plugin for CONTEC PIO Board(WDM)**. If the item is not in the menu, check if the plugin is selected in the **GPIO Plugin** page of the **Server Setup** dialog box. If it does not appear in the menu although the selection is made in the **GPIO Plugin** page, restart the MBP-12Server.
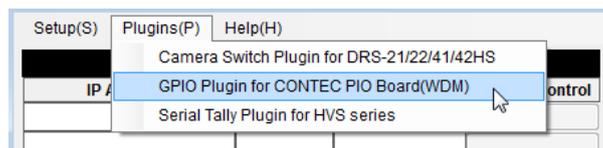
IMPORTANT

The plugin does not appear in the **Plugins** menu if a plugin that is not installed is selected. If it does not appear although the MBP-12Server is restarted, check which plugin, 98PC or WDM driver plugin, is installed.

---

2) A dialog box appears. 32 items are displayed in a page. Click tabs to move between **Input 1-32**, **Input 33-64**, **Output 1-32**, and **Output 33-64**. If the number of input pins or output pins on the installed board is less than 32, the **Input 33-64** tab or the **Output 33-64** tab is disabled. The detected PIO board and the assigned logical pin numbers are displayed at the left bottom of the dialog box.
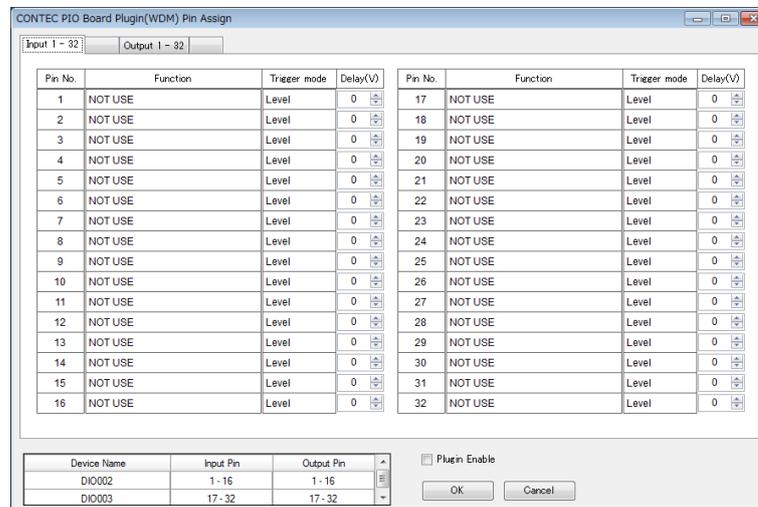
Each type of plugin has different identification data system to identify the installed board as shown below. See the PIO board's operation manual for the details on the data systems.

GPIO Plugin for CONTEC PIO Board(API): Identifies by the Driver Number and Group Number.

Driver No.	Group No.	Input Pin	Output Pin
2	1	1 - 16	1 - 16
2	2	17 - 32	17 - 32

GPIO Plugin for CONTEC PIO Board(WDM): Identifies by the Device Name.

Device Name	Input Pin	Output Pin	
DIO002	1 - 16	1 - 16	
DIO003	17 - 32	17 - 32	

3) Select setting values for the following items for each pin.

Item	Setting Range	Description
Function	See 4-2-1-4. "Assignable Functions for Inputs and Outputs".	Allows you to select a function to assign to the pin. The same function can be assigned to the multiple pins.
Trigger Mode (Input only)	Level, Pulse	Allows you to set the trigger mode to **Level** or **Pulse**.
Signal Mode (Output only)	Level, Pulse	Allows you to set the output signal mode to **Level** or **Pulse**.
Delay	0-16 (Field / Frame)*	Input: Allows you to set the delay from when the trigger is detected until the function is executed. Output: Allows you to set the delay from when the status of MBP-12Server is changed until the assigned signal is output.
Plugin Enable	ON, OFF	Allows you to turn on and turn off the plugin.

*The delay is set in fields for interlaced, and set in frames for progressive.

Left-click on the Function cell of a pin you are going to assign a function to open a menu list. Each menu item lets you go to submenus and their menu options. Go to a function to assign, and left-click on it to set the assignment.
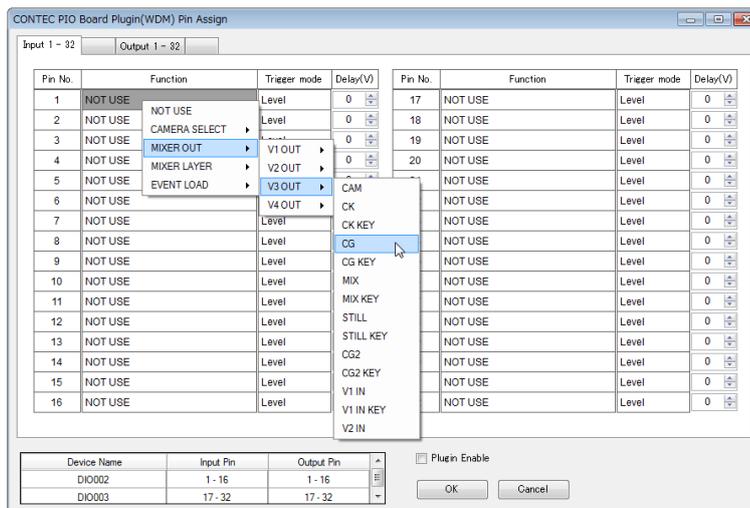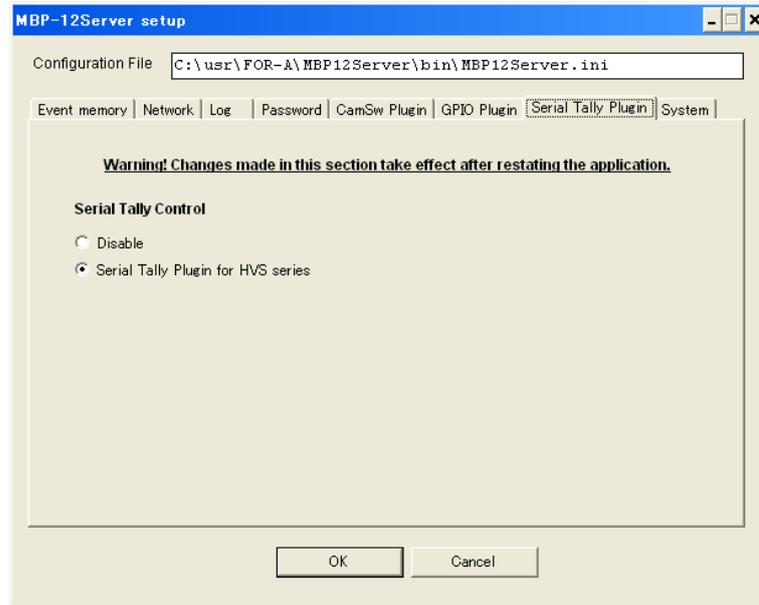

Trigger Mode and Signal Mode also have the left-click menu. Select the modes in the same manner.

4) At last, select the **Plugin Enable** checkbox, and then click **OK**. The plug-in starts up.

4-3. Serial Tally Plugin

One plug-in is installed. Select the plug-in to use, and restart the MBP-12Server.
Selecting the **Disable** checkbox disables the serial tally function.

Plugin Name	Function
Serial Tally Plugin for HVS series	Serial tally plug-in for FOR-A HVS series switchers.

4-3-1. Serial Tally Plugin for HVS Series

4-3-1-1. Serial Tally Setting for Virtual Link

For the necessary settings in the HVS series products, see the Virtual Link Operation Manual of the HVS series product.

4-3-1-2. Plugin Setting

1) In the MBP-12Server menu, choose **Plugins > Serial Tally Plugin for HVS series**. If the item is not in the menu, check if **Serial Tally Plugin for HVS series** is selected in the **Serial Tally Plugin** page of the **Server Setup** dialog box. If it does not appear in the menu although the selection is made in the **Serial Tally Plugin** page, restart the MBP-12Server.

2) The setting dialog box appears. Complete the settings for your system.

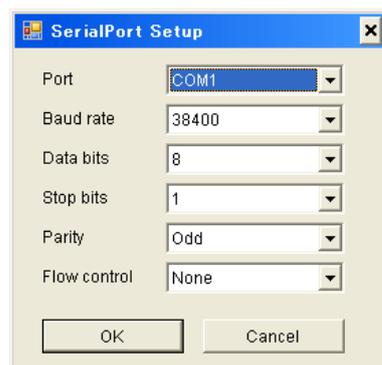| Item	Setting Range	Description
Tally Source	PGM, PST	Allows you to select the camera ID between the PGM (first workstation) and PST (second workstation).
Delay	0-16 (Field / Frame)*	Allows you to set the delay from when the camera ID sent by the serial tally is changed until the chromakey parameter is changed. Default setting is **4**.
BidirectionalCtrl Enable	ON, OFF	Allows you to enable two-way control for the DSC-100/200 serial tally camera switching. OFF: DSC-100/200 serial tally camera switching will take priority over camera switching via MBP-12GUI or MBP-12RU. See section 4-4-1. Priorities for Switching between Camera (Chromakey Parameters) for details on priorities. ON: Whenever camera switching is executed via MBP-12GUI or MBP-12RU, a serial tally carrying camera IDs will be sent from MBP-Server to the DSC-100/200 PGM and PST. However, the chromakey parameter will not be changed until the camera ID in the serial tally from the DSC-100/200 is changed.
Plugin Enable	ON, OFF	Allows you to turn on and turn off the plugin.

*The delay is set in fields for interlaced, and set in frames for progressive.

IMPORTANT

The MBP-12Server sends a serial tally to the DSC-100/200 only when camera switching is executed while BidirectionalCtrl Enable is turned ON. Camera selections in the MBP-12Server and DSC-100/200 may not match at startup. Always perform camera switching via the MBP-12GUI or MBP-112RU after starting up the MBP-12Server and DSC-100/200 to match camera selections.

---

3) Click the **Serial Port Setting** button. The **SerialPort Setting** dialog box appears. Select a port, and then click **OK**.

Item	Setting Range	Description
Port	COM1 - COM10	Allows you to select a serial port number to be used. Note: The port numbers that do not exist on the computer are also displayed.
Baud rate	38400	Allows you to set baud rate (bit rate). Please do not change the value from **38400**.
Data bits	8	Allows you to set data length. Please do not change the value from **8**.
Stop bits	1	Allows you to set stop bits length. Please do not change the value from **1**.
Parity	Odd	Allows you to set parity. Please do not change the value from **Odd**.
Flow Control	None	Allows you to set flow control. Please do not change the value from **None**.

4) At last, select the **Plugin Enable** checkbox, and then click **OK**. The plug-in starts up.

4-4. For All Plugins

4-4-1. Priorities for Switching between Camera (Chromakey Parameters)

There are three ways to switch between cameras (chromakey parameters) in MBP-12Server: MBP-12GUI or MBP-12RU, GPIO, or Serial Tally. The priorities are as described below.

Priority	Switching Method
High ↑ ↓ Low	Serial Tally
	GPIO
	MBP-12GUI, MBP-12RU

Example
If both the Serial Tally and GPIO plug-ins are enabled, and with the GPIO plug-in, **CAMERA SELECT 1** selected, **Trigger Mode** is set to **Level**, and the pin is enabled:

● If camera **ID=0x03** is sent using Serial Tally, Serial Tally has a higher priority than GPIO and the camera is switched to 3. Switching with MBP-12GUI or MBP-12RU is not effective since it has a lower priority.

● If camera **ID=0x00** is sent using Serial Tally, GPIO is given a higher priority and the camera is switched to 1. Switching with MBP-12GUI or MBP-12RU is not effective since it has a lower priority.

● If camera **ID=0x00** is sent using Serial Tally and the pin which **CAMERA SELECT 1** is set is disabled with GPIO, MBP-12GUI or MBP-12RU is effective.

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