Overview

This section provides information about and describes the basic operation of IP Live System Manager.

- Features
- Operation Authority
- Basic Screen Structure
- Logging In/Out

Features

IP Live System Manager is application software for routing control of video and audio signals, and managing the IP Live Production System for distributing video and audio signals via a network.

- Configures required settings for routing control of video signals and managing the IP Live Production System.
- Routing control of IP Live Production System audio signals is also supported.
- Registers Networked Media Interface (NMI) devices, and configures/monitors parameters (where otherwise specified, a “device” refers to an “NMI device”).
- Can switch AV stream source/destination signals between NMI devices, such as cameras, switchers, and AV servers, using AV routing functions from a web-based user interface.
- Detects and monitors the network topology state.
- Supports IP Live Production System redundancy structures, enabling various modes of operation.
- Using an external routing system link function, interface group crosspoints can be switched from an external routing system.
- NMI devices with multiple modules* can be controlled and managed.
  * NMI devices may have option boards that can be added or removed, and these additional or removable units are called “modules.”

IP Live Production System Structure

The following diagram shows a typical structure for an IP Live Production System.
**Note**

IP Live System Manager presumes that it is running on a device with a static IP address.

**Recommended PC operating environment for display of IP Live System Manager GUI**

<table>
<thead>
<tr>
<th>OS</th>
<th>Windows 10 64-bit, Windows 8.1 64-bit, Windows 7 64-bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browser</td>
<td>Operation using Google Chrome has been verified. The browser window zoom factor should be set to 100%.</td>
</tr>
</tbody>
</table>

**Operation Authority**

Operation authority can be assigned to each user when configuring IP Live System Manager user information. The table below shows the functions available according to the user authority.
<table>
<thead>
<tr>
<th>User authority</th>
<th>Available functions</th>
</tr>
</thead>
</table>
| Administrator  | System configuration  
• Installing licenses  
• Registering/deleting Manager and Operator users  
• Registering/deleting external routing systems  
• Registering and deleting network switches  
• Managing system information  
• Changing redundancy modes  
All other operations available to Manager and Operator users. |
| Manager        | Configuring routing operations  
• Installing device setup plug-ins  
• Registering and deleting devices  
• Assigning/releasing users and devices to a workgroup  
• Settings relating to syncing  
• Creating a crosspoint matrix  
• Creating a control panel  
Monitoring operations  
• Monitoring devices and network topology  
• Monitoring system notifications  
All other operations available to Operator users. |
| Operator       | AV routing (from System Controller) |

### Basic Screen Structure

#### Global menu
Always displayed on each screen. Used to select screens, check system status and notifications, log out, and other operations.

![Global menu diagram](image)

1. **Service select button**  
   Displays the name of the currently displayed service. Click this button to display a menu with a list of services used for selecting the screen to display according to the desired operation.
• [Dashboard] screen
• [Monitoring] screen
• [System Controller] screen
• [AV Router] screen
• [Maintenance] screen

(2) Menu
Displays the menus available for operations on each screen.

(3) System status indicator area
If any error occurs in the system, this area is displayed red. If a warning occurs, the area is displayed yellow. In both cases, a message relating to the error or warning is displayed.

(4) Notification icon
Displays the number of pending notifications sent from the system. Clicking the icon displays a list of the notifications in a pop-up, and selecting a notification switches the display to the corresponding application screen (switching to an application screen is not possible if there are no notifications).

(5) Help icon
Click to display a menu used to select this Help and to display the system version information.

(6) User icon
Click to display a menu used for checking the names of the currently logged-in users. Also used to configure user preferences and to log out of the system.

[Dashboard] screen
This screen is used to check the status of IP Live System Manager, status of network switches managed by IP Live System Manager, and status of devices managed by IP Live System Manager. This screen is always displayed after startup in the initial system state.
System Status
Displays the operating status of the system.

Device Status
Displays the status of the network switches and devices registered in the system. You can also group network switches and devices by creating a named group. For details, see “Dashboard Settings.”
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Status icon</td>
<td>Indicates the presence or absence of errors or warnings occurring for network switches and devices using the following colors of the notifications. Green: Normal state with no warnings or errors Yellow: A warning has been issued Red: An error occurred Gray: Device disconnected state</td>
</tr>
<tr>
<td>(2)</td>
<td>Number of warnings/errors</td>
<td>Displays the numbers of errors and warnings occurring for network switches and devices.</td>
</tr>
<tr>
<td>(3)</td>
<td>Number of connected/registered devices</td>
<td>Displays the number of switches or devices that are currently connected in the system and the number registered in the system.</td>
</tr>
</tbody>
</table>

**Filter**

You can filter the results to display only the network switches and devices on which an error or warning has been issued.

- **All Devices**: Displays all the network switches and devices.
- **Warning & Error Devices**: Displays the network switches and devices for which a warning or error has been issued.
- **Error Devices**: Displays the network switches and devices for which an error has been issued.

**Device Information**

Displays information for the network switch or device selected in [Device Status].

**Notification**

Displays task information for the past 30 days returned in a notification from the system about the network switch or device selected in [Device Status].
[System Controller] screen
This screen is used to configure and manage the crosspoint matrix and control panel setup, and workgroup settings defined for each selected use case. This screen is also used to register/manage AV interface groups and to register/manage external routing systems.

[AV Router] screen
This screen is used to manage IP Live devices and hardware managed directly by IP Live System Manager. It is also used to display the crosspoint matrix of all interfaces and to control AV routing. On the crosspoint matrix screen, you can display configuration information for the selected source/destination interface group and the configuration edit screen of the parent device.

On the following tabs of the [AV Router] screen, you can display the connection status of the source/destination interfaces ([Streaming Flow] screen) of the selected device and the connection status ([Network Topology Monitoring] screen) of the selected device.

- [Device] tab
- [I/O] tab
- [Network] tab
- [Dante I/O] tab
[Monitoring] screen

This screen is used to construct and monitor network topology information.

[Maintenance] screen

This screen is used to perform system maintenance. It displays various notifications from the system, and is used to install licenses and to perform system backup/restore operations.
Logging In/Out

Logging in

Log in to IP Live System Manager.

1. Launch a browser, enter the URL of IP Live System Manager in the address field, and press the Enter key.
   The login screen appears.
2. Enter a user ID in [User ID].
3. Enter the password in [Password].
4. Click the [LOGIN] button.
   The [Dashboard] screen of IP Live System Manager appears by default.

Tip

Place a check mark in the [Remember the credentials to skip the login.] checkbox to automatically log in when you enter the URL of IP Live System Manager in the same browser subsequently.

Logging out

Click 👤 in the global menu, and click [Logout] in the displayed menu.
Configuration Method

This section describes the procedures for setting up IP Live System Manager for operation.

- Configuration/Operation Overall Flow Overview
- Dashboard Settings
- Configuring Router Operation
- Configuring Network Topology Monitoring
- Configuring External Routing System Integration
- Configuring NS-BUS Device Integration
- Building Redundancy Structures
- Recovering from Redundancy Errors
- IP Live Production System Structure
- Control Protocols Supported by IP Live System Manager
- Disabling Unnecessary Network GenLock Modules
- About the NMOS Function
- About the Source/Destination Control Function of NMOS-compatible Devices

Configuration/Operation Overall Flow Overview

1. Logging in and setting a password
   - Logging in to and out of IP Live System Manager
   - Changing the login password for IP Live System Manager
     - in global menu > [My Settings] > [My Settings] screen > [Change Password]

2. System configuration
   - Configuring the server to match the usage environment (Administrator)
     - Installing an end user license
       - in global menu > [Maintenance] screen > [Settings] > [License] > [License List] screen
     - Installing a device setup plug-in for a new NMI device
       - in global menu > [AV Router] screen > [Settings] > [Device Plug-in] > [Device Plug-in List] screen
     - Creating Administrator, Manager, and Operator users
       - in global menu > [Maintenance] screen > [Settings] > [User] > [User List] screen
     - Registering a Syslog server
       - in global menu > [Maintenance] screen > [Settings] > [Log] > [Syslog] screen
     - Configuring SNMP trap settings
       - in global menu > [Maintenance] screen > [Settings] > [SNMP] > [SNMP Trap] screen
- Configuring Dante network interface settings
  in global menu > [Maintenance] screen > [Settings] > [Dante] > [Dante Interface in IP Live Manager] screen
- Configuring network switch information (Administrator/Manager)
  - Importing network switch information for use by the system (Administrator)
    in global menu > [Monitoring] screen > [Settings] > [Network Switch List] > [Network Switch List] screen
  - Creating a network topology layout (Manager or higher)
    in global menu > [Monitoring] screen > [Settings] > [Layout] > [Topology Layout] screen

3. Routing operation configuration (Manager or higher)
- Enabling a new NMI device for use
  in global menu > [AV Router] screen > [Settings] > [Device] > [Device] screen > [Authorize]
- Changing NMI device settings
  in global menu > [AV Router] screen > [Settings] > [Device] > [Device] screen > > [Detail of Device] screen
  Creating a device settings snapshot allows you to change the settings of all devices at the same time.
- Configuring syncing using one of the following methods
  - Registering sync groups (Network GenLock Group settings)
    in global menu > [AV Router] screen > [Settings] > [Network GenLock Group] > [Network GenLock Group List] screen
  - Registering sync groups ('Ext. Ref in’ Group settings)
    in global menu > [AV Router] screen > [Settings] > [Ext. Ref in Group] > [Ext. Ref in Group List] screen
- Managing routing settings information as a workgroup
  in global menu > [System Controller] screen > [Settings] > [Workgroup Settings] > [Workgroup List] screen
- Creating a crosspoint matrix
  - Grouping source/destination interfaces
    in global menu > [System Controller] screen > [Settings] > [AV Interface Group] > [AV Interface Group List] screen
  - Assigning a source/destination interface group to a workgroup
    in global menu > [System Controller] screen > [Settings] > [Workgroup Settings] > [AV Interface Group Assignment] > [AV Interface Group Assignment] screen
• Showing/hiding source/destination interfaces and changing the display order
  - in global menu > [System Controller] screen > [Settings] > [Workgroup Settings] > [Matrix Profile] > [Matrix Profile] screen
• Creating a control panel
  - in global menu > [System Controller] screen > [Settings] > [Workgroup Settings] > [Control Panel Profile] > [Control Panel Profile] screen

4. Routing operations
• Switching video on the [Routing] screen (Operator or higher)
  - Crosspoint matrix
    - in global menu > [AV Router] screen > [Routing] > [Routing] screen
    - in global menu > [System Controller] screen > [Routing] > [Routing] screen > (Xpt Matrix View)
  - Control panel
    - in global menu > [System Controller] screen > [Routing] > [Routing] screen > (Control Panel View)
• Monitoring device status (Manager or higher)
  - Monitoring device and source/destination interface status
    - in global menu > [AV Router] screen > [Settings] > [Device] > [Device] screen
      - Network status
      - NMI interface status
      - Genlock module status

5. Maintenance and system monitoring
• Checking notifications issued by the system on the [Notification] screen
• Monitoring the network topology on the [Network Topology Monitoring] screen
  - Checking device connection state
  - Creating a network topology layout
    - in global menu > [Monitoring] screen > [Settings] > [Layout] > [Topology Layout] screen
• Monitoring system status
  - in global menu > [Maintenance] screen > [Status] > [System] > [System Status] screen
  You can also check the system status on the [Dashboard] screen.
• Configuring syncing (Manager or higher)
  **Syncing using Network GenLock:**
  
  ![icon] in global menu > [AV Router] screen > [Settings] > [Network GenLock Group] screen
  
  **Syncing using external sync signal:**
  
  ![icon] in global menu > [AV Router] screen > [Settings] > [Ext. Ref in Group] screen
  
• Backing up and restoring the operating environment (Administrator)
  **IP Live System Manager in non-redundancy configuration:**
  
  ![icon] in global menu > [Maintenance] screen > [Settings] > [Backup/Restore] > [Maintenance] screen
  
  **IP Live System Manager in redundancy configuration:**
  
  ![icon] in global menu > [Maintenance] screen > [Settings] > [Redundancy] > [Redundant System] screen

• Checking the IP Live System Manager version (Operator or higher)
  
  ![icon] in global menu > [About IP Live System Manager] > [About IP Live System Manager] screen

### Dashboard Settings

You can create a named group using [Device Status] on the [Dashboard] screen, and then register network switches and devices in the created group. When registered on the [Dashboard] screen, you can select a device to change device settings and display the corresponding [Streaming Flow] screen or [Network Topology Monitoring] screen.

#### Creating a group

Use the following procedure to create a group.

1. Click the ![button] button.
   
   The [Create Device Group] dialog appears.

2. Enter a group name in [Name].
3. Click the [Browse] button.  
The [Select File] dialog appears.
4. Select a save destination folder from the folder hierarchy on the left side.

Tip
Clicking the button adds a new folder below the selected folder.
5. Click the [Upload New File] button.  
The [Upload] dialog appears.
6. Click the [Browse] button, and select image data.
7. Click the [OK] button.
   A completion message appears when the upload finishes.
8. Click the [OK] button.
   The uploaded image data is displayed in the display on the right.
9. Select the image data to display as the background of the group button, and click the [Select] button.
   The [Select File] dialog closes.
   The selected image is displayed in the background of the group button.
10. Click the [Save] button.
    The group is registered, and is displayed in [Device Status].

**Registering a device**

You can register network switches and devices in a created group.

1. Select a created group, and click the [Assign Devices] button.
   The [Assign Device to Device Group] dialog appears.

2. Select the network switch or device to register in the group in [Unassigned List], and click the button.

   The selected network switch or device moves to [Assigned List], and is registered in the group.

**Tips**

- You can select and register multiple network switches or devices.
- To remove a registered network switch or device from a group, select the network switch or device to remove in [Assigned List], and click the button.
3. After registering the network switch or device, click the [Close] button to close the dialog.

**Changing group settings**

Select the group to rename or to edit the image or description, and click the  button.

**Deleting a group**

Select the group to delete, and click the  button.

**Changing device settings**

Select a device in [Device Status], and click the  button in [Device Information].

**Displaying the connection status of source/destination interfaces of devices**

1. In [Device Status], select a device.
2. Click the  (Go To Streaming Flow) button in [Device Information].
   
   The [Streaming Flow] screen appears, displaying the connection status of source/destination interfaces of the selected device (see “Displaying the connection status of source/destination interfaces”).

**Displaying the connection state of devices**

1. In [Device Status], select a device.
2. Click the  (Go To Topology) button in [Device Information].
   
   The [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).

**Configuring Router Operation**

Register devices in IP Live System Manager and configure the required settings for routing operation. Connect an NMI device to the predetermined port of the network switch. When the device is detected, configure the required settings for operation.

The following procedure assumes that the device setup plug-in to use has already been installed using the [Plug-in List] screen by a Manager or higher user.

1. Start IP Live System Manager and log in as an Administrator or Manager user.
2. Connect the device to the predetermined port of the network switch.
   
   The device is added, and a notification is displayed on the notification icon in the global menu informing you that the device must be authorized.
3. Click the notification icon in the global menu to display the pop-up, and click the notification relating to the connected device.
4. On the [Device] screen, select the connected device and authorize the device.
5. Create a sync group using one of the following methods.
   
   On the [Network GenLock Group List] screen, create a Network GenLock group.


7. On the [System Controller] screen, configure the workgroup settings and perform the following operations, as required.
   - On the [Workgroup Settings] screen, create the workgroup.
   - On the [Matrix Profile] screen, create a crosspoint matrix profile.
   - On the [Control Panel Profile] screen, create a control panel profile.

8. On the [Workgroup List] screen, select the workgroup in which the device is assigned.

---

**Configuring Network Topology Monitoring**

Register network switch information in IP Live System Manager and configure the required settings for network topology monitoring.

1. Start IP Live System Manager and log in as a user with Manager or higher role.
2. On the [Network Switch List] screen, import the network_topology.json file prepared when designing/changing the system or network. Alternatively, register a network switch manually.
3. On the [Network Switch List] screen, configure the SNMP settings of each network switch.
4. Connect the device to the predetermined port of the network switch.
5. On the [Topology Layout] screen, change the layout of each device.

---

**Configuring External Routing System Integration**

Configure the required settings for system integration with an external routing system. This topic describes the registration procedure for an S-BUS system.

**Note**

For system integration with an S-BUS system, only crosspoint switching of interface groups for devices managed by IP Live System Manager is supported from the S-BUS system.

1. Start IP Live System Manager and log in as a user with Manager or higher role.
3. Configure the external routing system or gateway.
   - See “Configuring an S-BUS Gateway.”
4. Create the data for linking IP Live System Manager and the external routing system crosspoint matrix.
   - See “Creating External Routing System Setting Data.”
5. On the [External Routing System List] screen, register the S-BUS system data and import the external routing system data.

---

**Configuring NS-BUS Device Integration**

Configure the required settings for system integration with an existing external routing system. This topic describes the registration procedure for an NS-BUS device.
**Note**

If a System Controller License (PWSL-NM20) is not installed, IP Live System Manager supports integration with up to three NS-BUS devices. To use devices that support the NS-BUS Router/Matrix protocol or to use four or more devices that support the NS-BUS External Control protocol, installation of the System Controller License (PWSL-NM20) is required. Also, for devices that support the NS-BUS External Control protocol, setup information for connecting to IP Live System Manager must be configured on the NS-BUS device in order to connect from the NS-BUS device to IP Live System Manager. For devices that support the NS-BUS Routing/Matrix protocol only, setup information for connecting to a device must be configured in IP Live System Manager to connect from IP Live System Manager.

1. Connect an NS-BUS device and IP Live System Manager.

   **For devices that support the NS-BUS External Control protocol:**
   Connect from an NS-BUS device to IP Live System Manager.
   If the NS-BUS device uses TCP, connect to port 9710. If it uses TLS, connect to port 9711.

   **For devices that support the NS-BUS Routing/Matrix protocol only:**
   Connect from IP Live System Manager to an NS-BUS device.

   Click \[\] to switch to the [System Controller] screen, and click the \[\] button on the [NS-BUS Device] screen from the [Settings] menu to configure information for the NS-BUS device to connect.

3. Check that the NS-BUS device is displayed on the [NS-BUS Device List] screen.
4. Select an NS-BUS device from [NS-BUS Device List], and click the [Authorize] button.

   **Tip**

   To view the status of an NS-BUS device, select the NS-BUS device in [NS-BUS Device List], and click the [Watch Status] button. You can click the [Watch Status] button of an authorized NS-BUS device only.

**Configuring Ember+ Gateway**

Integration with external routing systems which support the Ember+ protocol can be used by configuring the Ember+ Gateway.

1. Install the Gateway License for Ember+.
2. Open the Services window in Windows.
3. Right-click [Ember+ Gateway Service], and then click [Properties] in the displayed menu. The Ember+ Gateway Service Properties dialog appears.

4. Select [Automatic] for [Startup type], and click [Apply].

5. Click [Start] to start the service, and click [OK] to close the properties dialog.

6. Start IP Live System Manager, and click [System Controller] > [Settings] > [NS-Bus Device] in sequence to display the [NS-BUS Device List] screen.

7. Check that “EmberPlus Gateway” is displayed on the screen.

For details about [Authorize], [Deauthorize], [Watch Status], and [Stop Watching Status] in [NS-BUS Device List], see “Authorizing an NS-BUS device.”

9. Set the IP address and port number (9092) of IP Live System Manager on the external routing system that supports the Ember+ protocol, and connect to the Ember+ Gateway.

### Building Redundancy Structures

Configure the required settings for system operation in redundancy structures. The master IP Live System Manager is referred to as the “Primary,” and the backup IP Live System Manager is referred to as the “Secondary.” For details about redundancy system structures, see “Redundancy Structures.”

1. Configure the prerequisite settings for redundancy on the Primary and Secondary IP Live System Manager units.
   See “Configuring IP Live System Manager Redundancy Structure.”
2. Start IP Live System Manager and log in as an Administrator user.
3. Install a redundancy structure license (PWSL-NM12/PWSL-NM12E) on the [Maintenance] screen > [Settings] > [License] tab of the Primary and Secondary IP Live System Manager units.
4. Check that the status is normal on the [Maintenance] screen > [Settings] > [Redundancy] tab of the Primary and Secondary IP Live System Manager units.

### Recovering from Redundancy Errors

A redundancy error is when a data mismatch state occurs between the Primary and Secondary during operation in a redundancy structure. If this occurs, use the following recovery procedure.

1. Start IP Live System Manager on both the Primary and Secondary, and log in as an Administrator user.
2. Perform the following checks and procedures on the [System] screen > [Redundancy] tab of the Primary and Secondary IP Live System Manager units.
   i. Check if the [Redundant] status displays “Error.”
   ii. In IP Live Manager on both the Primary and Secondary, click the [Maintenance Mode] button to set to maintenance mode.
   iii. On the IP Live System Manager unit you want to recover, click the [Sync From Remote] button.
   iv. Click the [Redundant Mode] button to set both the Primary and Secondary to redundancy mode.

### IP Live Production System Structure

The following diagram shows a typical structure for an IP Live Production System. It shows the flow of data within a basic structure.
The LAN connectors of IP Live System Manager and network switch are connected using Ethernet cables. Likewise, the LAN connectors of the NMI devices and network switch are connected using LAN cables.

The basic settings required for the system structure above are configured on the following screens. Also refer to Configuration/Operation Overall Flow Overview.

**Video signal settings:**
- In global menu > [AV Router] screen > [Settings] > [Device] > [I/O] tab

**Sync signal settings:**
- In global menu > [AV Router] > [Settings] > [Network GenLock Group] > [Network GenLock Group List] screen
- In global menu > [AV Router] > [Settings] > [Ext. Ref in Group] > [Ext. Ref in Group List] screen

### Control Protocols Supported by IP Live System Manager

The following diagram shows devices connected to IP Live System Manager and the related control protocols. The arrows indicate the connections, with the tip of an arrow indicating the server and the base of an arrow indicating the client.
### Item Description

**NDCP Device**

Device controlled by NDCP (Networked Device Control Protocol) defined in SMPTE RDD38. These are devices that support NMI and devices that support ST2110 for video and audio signals.

**NDCP Device setting:**

- in global menu > [AV Router] screen > [Settings] > [Device]

**Tip**

You can also display the settings screen of a device from the following screens.

- Dashboard
- Routing
- Streaming Flow
- Network Topology Monitoring

* The supported protocols vary depending on the device.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dante Device</td>
<td>IP audio device controlled using the Dante protocol.</td>
</tr>
<tr>
<td>Dante Device setting:</td>
<td>![icon] in global menu &gt; [Maintenance] screen &gt; [Settings] &gt; [Dante]</td>
</tr>
<tr>
<td></td>
<td>![icon] in global menu &gt; [AV Router] screen &gt; [Settings] &gt; [Device]</td>
</tr>
<tr>
<td><strong>Tip</strong></td>
<td>You can also display the settings screen of a device from the following screens.</td>
</tr>
<tr>
<td></td>
<td>• Dashboard</td>
</tr>
<tr>
<td></td>
<td>• Routing</td>
</tr>
<tr>
<td></td>
<td>• Streaming Flow</td>
</tr>
<tr>
<td></td>
<td>• Network Topology Monitoring</td>
</tr>
<tr>
<td>External Routing System Controller</td>
<td>System controller that supports the External Routing protocol. This enables routing operation from a system controller.</td>
</tr>
<tr>
<td>External Routing setting:</td>
<td>![icon] in global menu &gt; [System Controller] screen &gt; [Settings] &gt; [External Routing System]</td>
</tr>
<tr>
<td>S-Bus Primary Station</td>
<td>S-Bus primary station that supports the ROT16 protocol. This enables routing operation from a primary station. See “Configuring an S-BUS Gateway.”</td>
</tr>
<tr>
<td>Ember+ Controller</td>
<td>Ember+ system controller that supports the Ember+ protocol. This enables routing operation from an Ember+ system controller. See “Configuring NS-BUS Device Integration.”</td>
</tr>
</tbody>
</table>
### NS-BUS Device

Device supporting the NS-BUS External Control, NS-BUS Router/Matrix, or NS-BUS Configuration protocol. The supported protocols vary depending on the device.

**NS-BUS External Control:**
For an NS-BUS device supporting this protocol, the matrix information managed by the System Controller layer in IP Live System Manager, and name information of the AV interface groups making up that matrix information can be acquired. IP Live System Manager crosspoints can be switched based on the acquired information.

**NS-BUS Router/Matrix:**
For an NS-BUS device supporting this protocol, crosspoint switching can be controlled from IP Live System Manager by supplying IP Live System Manager with the matrix information managed by the NS-BUS device.

**NS-BUS Configuration:**
Protocol for configuring an NS-BUS device.

### TSL Device

Devices that support the TSL UMD v5 protocol.

### NMOS node

Stream transmitting/receiving devices that support NMOS.

### NMOS RDS

Service for collectively managing information of NMOS devices connected to the system.

---

## Disabling Unnecessary Network GenLock Modules

You can disable unnecessary Network GenLock settings. For example, after deleting a Network GenLock group, the Network GenLock settings of the leader device may still be enabled. Use this procedure to disable the Network GenLock settings of the Unmanaged leader device.

1. Start IP Live System Manager and log in as an Administrator user.
3. Click 🔄, and click [Disable GenLock Modules] in the displayed menu.
   The [Unmanaged GenLock Module List] screen appears.
4. Select the genlock module that you want to disable, and click the [Disable GenLock Modules] button.
   A confirmation message appears.
Note

The [Disable GenLock Modules] button is enabled only when a connected genlock module is selected.

5. Click the [Yes] button.

The selected genlock module is disabled, and deleted from the list.

About the NMOS Function

IP Live System Manager supports the NMOS proxy function. I/O devices managed under IP Live System Manager can be registered in NMOS Registration & Discovery System (RDS) as NMOS devices instead of regular devices by IP Live System Manager. Browsing RDS registration information allows you to acquire information, such as the multicast address of third-party stream transmitting devices (see “Configuring NMOS”).

About the Source/Destination Control Function of NMOS-compatible Devices

IP Live System Manager supports the source/destination control function of NMOS devices. IP routing control is supported with third-party NMOS devices incorporated into the system (see “Configuring NMOS”).
Routing Operations

This section describes the routing operations for connecting source and destination signal interfaces of registered devices.

- Routing by Specifying Crosspoints
- Routing using Control Panels

Routing by Specifying Crosspoints

On the [System Controller] screen, click the (Xpt Matrix View) button to display each group of source interfaces (top) and destination interfaces (right) of the registered devices in matrix format. This enables you to switch the connections of the interface groups, comprised of similar interfaces, while viewing the connections visually.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Routing screen select button</td>
<td>Switches the display of the [Routing] screen.</td>
</tr>
<tr>
<td>2</td>
<td>Lock switch</td>
<td>Locks the crosspoint selection panel to prevent changes to routing connections. When locked, an orange border is displayed around the crosspoint selection panel.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>[Protection] button</td>
<td>Sets the destination interface groups to Occupy or Protect state. Clicking the [Protection] button displays 🌐 on the destination interface groups to indicate ready for selection. Each time a destination interface group is clicked, the state switches between Occupy → Protect → Release in sequence. When Occupy is selected, switching of crosspoints for the specified destination interface group by other than the configured user is inhibited. When Protect is selected, switching of crosspoints for the specified destination interface group by any user is inhibited. This setting can be canceled by the configured user and Manager users or higher.</td>
</tr>
<tr>
<td></td>
<td><strong>Tip</strong></td>
<td>If the user names are the same, the crosspoint switching “Occupy” status can be shared between different NS-BUS devices.</td>
</tr>
<tr>
<td>4</td>
<td>Source interface group list</td>
<td>Displays the registered source interface groups. Interface group names are displayed in tool tips.</td>
</tr>
<tr>
<td>5</td>
<td>[Zoom] slider</td>
<td>Zooms the crosspoint selection panel in/out.</td>
</tr>
<tr>
<td>6</td>
<td>Refresh button</td>
<td>Refreshes the display with the latest information.</td>
</tr>
<tr>
<td>7</td>
<td>Properties button</td>
<td>Displays the [Profile] dialog for changing the routing operation mode and interface display.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8</td>
<td>Screen navigator</td>
<td>Displays the information in the part of the window, indicated by the orange frame, in the crosspoint selection panel. You can change the display position by dragging the orange frame. You can also click outside the orange frame to display the information in that part of the screen. If the size of the crosspoint matrix exceeds 128×128, the range of displayed interface groups is displayed as an index.</td>
</tr>
<tr>
<td>9</td>
<td>Preview pane</td>
<td>Click the button to open the Preview pane to display level configuration information for the selected source/destination interface group. If the selected source/destination interface group is registered in a tally group, the tally color information is displayed (see “Configuring Tally Signal Routing”). Clicking the button closes the Preview pane.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td><strong>Tips</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Clicking the ![](Go To Streaming Flow) button displays the ![Streaming Flow] screen, displaying the connection status of the selected source/destination interface group (see “Monitoring the Connection Status of Source/ Destination Interfaces”).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• When you select a device in ![Destination List] and click the ![Go To Topology] button, the ![Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Selecting a level setting and clicking the ![button] button displays the ![Edit Device] dialog for modifying level settings (see “Setting levels”).</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Destination interface group list</td>
<td>Displays the registered destination interface groups. Interface group names are displayed in tool tips.</td>
</tr>
<tr>
<td>11</td>
<td>Xpt Matrix Snapshot List</td>
<td>You can create snapshots of the crosspoint matrix. See “Creating a Crosspoint Matrix Snapshot.”</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Crosspoint selection panel</td>
<td>Clicking the intersection between a source interface group and destination interface group selects the corresponding crosspoints. All the crosspoints in each group are set, and the source interface group and destination interface group are connected (blue).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crosspoint is in switchable state (gray).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crosspoint is in unswitchable state due to a format mismatch or disconnected device (black).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crosspoint is in Take mode state. This indicates that a crosspoint will be connected when Take mode is invoked.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
|     | Some crosspoints within the group are in connected state.  
   ![Image](image1.png) | If a crosspoint is in switching state, ![Image](image2.png) is displayed as shown below when the interface is disconnected. When the device is connected and becomes switchable, the crosspoint changes to connected state. ![Image](image3.png)  
   ![Image](image4.png) is displayed on the video stream monitoring crosspoint. See “Monitoring received video streams in another destination interface group.” |
| 13  | Error display area       | Displays errors in crosspoint operations.                                                                                                                                                                    |
| 14  | [Take] button            | Enabled in Take mode only. Switches Take mode state crosspoints to connected/unconnected state. This allows you to switch multiple items to connected/unconnected state at the same time. |
| 15  | [Release] button         | Enabled in Take mode only. Clears Take mode state.                                                                                                                                                           |

**Tip**

Take mode allows you to connect multiple selected crosspoints at the same time.
Switching crosspoints

Select the intersection point between a source interface group and destination interface group. Horizontal and vertical guides appears. Click the intersection to connect the selected source interface group and destination interface group (if connection is supported).

Changing the routing operation mode and interface display

You can change the routing operation mode and interface display using the [Profile] dialog.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take Mode</td>
<td>Enables/disables Take mode. When enabled, the selected crosspoints are set to Take mode state. Clicking the [Take] button sets the Take mode state crosspoints to either connected state or unconnected state. When disabled, the selected crosspoints are in either connected state or unconnected state.</td>
</tr>
</tbody>
</table>
### Switch Mode
Sets the mode used for switching crosspoints. In Command mode, they are always connected, and connected state cannot be released. In Toggle mode, the crosspoint switches between connected state and unconnected state each time the crosspoint is clicked.

### Interface Name Display
Selects the display format of the interface names. This sets which characters are displayed when the name of the interface group is too long to display on the screen.
- When [Left & Right End] is selected, the starting characters and trailing characters of the interface group name are displayed.
- When [Left End] is selected, only the starting characters of the group name are displayed.

### Zoom
Displays the zoom factor.

### Stream Control
You can stop and start streams. Specify target streams (source or destination, or both), then click the [Start Stream] button to start the streams at the same time. Conversely, click the [Stop Stream] button to stop the streams at the same time.
- The stream operations are enabled only for NMI devices.
- Stream operations are not supported for IP Audio devices.
- Stream operations cannot be executed by a user with Operator authority.

When finished, click the [Save] button to save the settings.

### Interface group state display
The display of the source interface group and destination interface group changes according to the connection state.

<table>
<thead>
<tr>
<th>Source interface group</th>
<th>Destination interface group</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRC</td>
<td>DEST</td>
<td>All sending/receiving</td>
<td>All interfaces within the interface groups are sending or receiving.</td>
</tr>
</tbody>
</table>
### Error/Warning Display

If an error or warning occurs for a source or destination interface, or a GenLock sync problem occurs in a source or destination interface group, the corresponding source or destination interface group is displayed in a different color. Errors are displayed in red, and warnings in yellow. Move the mouse cursor to the interface group to display the error/warning message in a pop-up.

### Routing using Control Panels

On the [System Controller] screen, click the **(Control Panel View)** button to display control panels with buttons for registered crosspoints, source interface groups, and destination interface groups. You can preconfigure control panels for each group and then perform routing operations using the web user interface of each control panel.
<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Screen select button</td>
<td>Switches the display of the [System Controller] screen.</td>
</tr>
<tr>
<td>2</td>
<td>Profile selection</td>
<td>Selects the profile of the control panel. You can customize the buttons displayed in the custom button area for each workgroup using control panel profile settings.</td>
</tr>
<tr>
<td>3</td>
<td>Lock switch</td>
<td>Locks the custom button area to prevent changes to routing connections. When locked, an orange border is displayed around the custom button area.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>[Protection] button</td>
<td>Sets the destination interface group buttons to Occupy or Protect state. Clicking the [Protection] button displays 🐈 on the destination interface group buttons to indicate ready for selection. Each time a destination interface group button is clicked, the state switches between Occupy → Protect → Release in sequence. When Occupy is selected, switching of crosspoints for the specified destination interface group button by other than the configured user is inhibited. When Protect is selected, switching of crosspoints for the specified destination interface group button by any user is inhibited. This setting can be canceled by the configured user and Manager users or higher.</td>
</tr>
<tr>
<td>5</td>
<td>[Zoom] slider</td>
<td>Zooms the custom button area in/out.</td>
</tr>
<tr>
<td>6</td>
<td>Properties button</td>
<td>Displays the [Profile] dialog for changing the routing operation mode and interface display.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7</td>
<td>Custom button area</td>
<td>Displays the registered groups of crosspoints, source interfaces, and destination interfaces as buttons. The following button types are displayed.</td>
</tr>
<tr>
<td></td>
<td>Crosspoint group button</td>
<td>Displays a list of the crosspoint groups registered in the crosspoint button. ❯ is displayed on the video stream monitoring crosspoint. See “Monitoring received video streams in another destination interface group.”</td>
</tr>
<tr>
<td></td>
<td>Destination interface group button</td>
<td>Displays the names of the source interface groups that are currently being received.</td>
</tr>
<tr>
<td></td>
<td>Source interface group button</td>
<td>Displays a list of the names of destination interface groups that are currently receiving.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Switching state indicator</strong>&lt;br&gt;The indicator appears when an interface is disconnecting. When the device is connected and becomes switchable, the crosspoint changes to connected state.</td>
</tr>
<tr>
<td>8</td>
<td>Error display area</td>
<td>Displays errors in crosspoint operations.</td>
</tr>
<tr>
<td>9</td>
<td>[Take] button</td>
<td>Enabled in Take mode only. Switches Take mode state buttons to connected/unconnected state. This allows you to switch multiple items to connected/unconnected state at the same time.</td>
</tr>
<tr>
<td>10</td>
<td>[Release] button</td>
<td>Enabled in Take mode only. Clears Take mode state.</td>
</tr>
</tbody>
</table>

**Tip**<br>Take mode allows you to connect multiple selected crosspoints at the same time.

**Switching the connection state in Destination mode**

In Destination mode, you switch connection state by pressing a destination interface group button and source interface group button in that order.
1. Click a destination interface group button.

![Destination Interface Group]

2. Click a source interface group button to which to connect.
   - The selected destination interface groups and source interface groups are connected (if connection is supported).

![Source Interface Group]

   - In Take mode, connections enter Take mode state.

**Tips**

- You can change the selection mode using the [Profile] dialog.
- Only one source interface group can be selected for each destination interface group.

**Switching the connection state in Source mode**

In Source mode, you switch connection state by pressing a source interface group button and destination interface group button in that order.

1. Click a source interface group button.

![Source Interface Group]

2. Click a destination interface group button to which to connect.
   - The selected destination interface groups and source interface groups are connected.

![Destination Interface Group]
In Take mode, connections enter Take mode state.

Tips

- You can change the selection mode using the [Profile] dialog.
- Only one destination interface group can be selected for each source interface group. Also, Take mode is supported for multiple destination interface groups.

Changing the routing operation mode and interface display

You can change the routing operation mode and interface display using the [Profile] dialog.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take Mode</td>
<td>Enables/disables Take mode. When enabled, the selected buttons in the custom button area are set to Take mode state. Clicking the [Take] button sets the Take mode state buttons to either connected state or unconnected state. When disabled, the selected buttons in the custom button area are in either connected state or unconnected state.</td>
</tr>
<tr>
<td>Switch Mode</td>
<td>Sets the mode used for switching connections. In Command mode, they are always connected, and connected state cannot be released. In Toggle mode, a button switches between connected state and unconnected state each time a button in the custom button area is clicked.</td>
</tr>
</tbody>
</table>
### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select Mode</strong></td>
<td>Sets the source interface group and destination interface group connection method. In Destination mode, you switch connection state by pressing a destination interface group button and source interface group button in that order. In Source mode, you switch connection state by pressing a source interface group button and destination interface group button in that order.</td>
</tr>
<tr>
<td><strong>Interface Name Display</strong></td>
<td>Selects the display format of the interface names. This sets which characters are displayed when the name of the interface group is too long to display in the button. When [Left &amp; Right End] is selected, the starting characters and trailing characters of the interface group name are displayed. When [Left End] is selected, only the starting characters of the group name are displayed.</td>
</tr>
<tr>
<td><strong>Zoom</strong></td>
<td>Displays the zoom factor.</td>
</tr>
</tbody>
</table>

When finished, click the [Save] button to save the settings.

**Crosspoint button state display**

The display of the crosspoint buttons changes according to the connection state.

- **All connected**: All crosspoints registered in the crosspoint button are in connected state.

![All connected](image)

- **Partially connected**: Only some of the crosspoints registered in the crosspoint button are in connected state.

![Partially connected](image)

- **All unconnected**: All crosspoints registered in the crosspoint button are in unconnected state.

![All unconnected](image)
Take mode state: Crosspoints are in Take mode state. Take mode is supported for multiple crosspoints.

Error/warning display

If an error or warning occurs for a source or destination interface, or a format mismatch or GenLock sync problem occurs on a source or destination interface, the corresponding source or destination interface is displayed in a different color. Errors are displayed in red, and warnings in yellow. Move the mouse cursor to the interface to display the error/warning message in a pop-up.
System Settings

This section describes the configuration of system settings.

- Changing the Password
- Setting the Startup Page Displayed After Logging In
- Registering Users
- Registering Sync Groups (Network GenLock Group Settings)
- Registering Sync Groups ('Ext. Ref in' Group Settings)
- Checking Device Parameters
- Registering an External Routing System
- Creating External Routing System Setting Data
- Checking NS-BUS Device Settings Information
- Creating an NS-BUS Device Settings Snapshot
- Creating a Tally Master and Tally Group
- Registering Tally Control Target Devices
- Configuring Tally Signal Routing
- Creating a Tally Settings Snapshot
- Configuring Usage Environment Data Presets
- Creating a Source/Destination Interface Group Snapshot
- Registering Network Switches
- Installing Device Setup Plug-ins
- Creating a Device Settings Snapshot
- Configuring SNMP Traps
- Configuring Dante Interfaces
- Configuring NMOS
- Checking System Information
- About the Virtual Matrix Function
- Creating a Source/Destination Interface Group
- Configuring Alias Names for Source/Destination Interface Groups
- Monitoring the Connection Status of Source/Destination Interfaces
- Creating a Workgroup
- Changing the Crosspoint Matrix Layout
- Creating a Crosspoint Matrix Snapshot
- Registering Control Panel Operation Buttons
- Assigning Users with Access to Workgroups

Changing the Password

Click the  (User) icon in the global menu, and click [My Settings] in the displayed menu to display the [My Settings] screen. You can change the login password on the [Account] tab.
After saving the settings, click the [Close] button to close the [My Settings] screen.

**Tip**

The password must contain eight or more characters, including at least one alphanumeric character, to prevent account information from being easily accessed.

### Setting the Startup Page Displayed After Logging In

Click the (User) icon in the global menu, and click [My Settings] in the displayed menu to display the [My Settings] screen. You can set the startup page displayed after logging in on the [Page] tab.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Landing Page After Login</td>
<td>Specifies the initial screen to display after logging in.</td>
</tr>
<tr>
<td>System Controller Default Profile Settings</td>
<td>Specifies the screen to display after moving to the [System Controller] screen.</td>
</tr>
<tr>
<td>Topology Default Profile Settings</td>
<td>Specifies the screen to display after moving to the [Monitoring] screen.</td>
</tr>
<tr>
<td>Save</td>
<td>Saves the settings.</td>
</tr>
</tbody>
</table>

After saving the settings, click the [Close] button to close the [My Settings] screen.

Registering Users

Click in the global menu and switch to the [Maintenance] screen, and click [User] in the [Settings] menu to display the [User List] screen. You use this pane to register users for IP Live System Manager.
Tip

Clicking 点刷新 refreshes the display with the latest information.

**Registering a new user**

Use the following procedure to register a new user.

1. Click the + button.
   The [Create New User] dialog appears.

2. This dialog is used to register user information.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User ID*</td>
<td>Enter the ID of the user to register.</td>
</tr>
<tr>
<td>Role*</td>
<td>Select the operation authority granted to the user to register.</td>
</tr>
<tr>
<td>User Name*</td>
<td>Enter the display name for the user to register.</td>
</tr>
<tr>
<td>Password*</td>
<td>Enter the login password.</td>
</tr>
</tbody>
</table>

3. Click the [Save] button.
   The user is registered, and is displayed on the [User List] screen.
4. Click the [Close] button.
   The dialog closes.

**Changing user settings**

Use the following procedure to change user settings. Only the user name can be modified.
1. Select the user to edit, and click the [Edit User] button.
   The [Edit User] dialog appears.
2. Change the display name for the user in [User Name].
3. Click the [Save] button.
   The settings are saved.
4. Click the [Close] button.
   The dialog closes.

**Deleting users**

Use the following procedure to delete users.
1. Select the user to delete, and click the [Delete] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected user is deleted from the User List.

**Registering Sync Groups (Network GenLock Group Settings)**

Network GenLock is a function that synchronizes the clock and sync signal of each network-connected device in the system. A single or multiple sync signals can be controlled within a single NMI device, and the unit that controls the sync signals is called a "genlock module."

A group of genlock modules for operation using the same sync signals forms a Network GenLock group. Within the group, one module is specified as the leader (Leader) for each PTP domain, while all others act as followers (Follower). The followers receive clock information and sync signals sent by the leader to sync all operations to enable the sending and receiving of video between devices.

Click in the global menu and switch to the [AV Router] screen, and click [Network GenLock Group] in the [Settings] menu to display the [Network GenLock Group List] screen. You can register, edit, and delete Network GenLock groups.
Tip

Clicking "refreshes the display with the latest information.

Registering a new Network GenLock group

Use the following procedure to register a new Network GenLock group.

1. Click the button.
   The [Create New Network GenLock Group] dialog appears.

2. Enter the name of the Network GenLock group in [Name].
3. Select a profile from [Profile].
   Select [NMI Profile] if an NMI device is the PTP leader.
Select [ST2059 Profile] if a non-NMI device is the PTP leader. For details about each parameter, see “ST2059 parameter settings.”

4. Click the [Save] button.
   The settings are saved.
5. Click the [Close] button.
   The dialog closes, and the registered Network GenLock group appears in the [Network GenLock Group List].

**Note**

[ST2059 Profile] can only be assigned for NDCP V1.4 devices or later.

### Changing Network GenLock group settings

Use the following procedure to change Network GenLock group settings.

1. Select the Network GenLock group to edit, and click the button.
   The [Edit Network GenLock Group] dialog appears.
2. Click [Name] to edit the name of the displayed Network GenLock group.
3. Click the [Save] button.
   The settings are saved.
4. Click the [Close] button.
   The dialog closes.

### Registering a leader

Use the following procedure to register a leader for a registered Network GenLock group.

1. Select the Network GenLock group for which to register a leader, and click the [Leaders Settings] button.
   The [Network GenLock Leader Settings] dialog appears.
2. Configure each parameter, and click the [Save] button.
   The settings are saved.
3. Click the [Close] button.
   The dialog closes.

**Note**

For a Network GenLock group with [Profile] set to [ST2059 Profile], only [Duplicate] and [PTP Domain No.] can be configured.

### Registering a follower

Use the following procedure to register a follower to a registered Network GenLock group.

1. Select the Network GenLock group for which to register a follower, and click the [Assign Followers] button.
The [Assign Network GenLock Follower] dialog appears.

2. Register the genlock module to act as a follower using the [Assign Network GenLock Follower] dialog.

3. Click the [Close] button.
   The dialog closes.

Applying sync group settings to the genlock module of an NMI device

Use the following procedure to write specified Network GenLock group values to the genlock module of an NMI device.

1. Select the Network GenLock group to apply to a genlock module of an NMI device, click ..., and click [Stop All Stream] in the displayed menu.

2. Click the [Apply] button.
   A confirmation message appears.

3. Click the [Yes] button.
   The values managed in the Network GenLock group are written to the genlock module of the NMI device.

Note
In versions prior to 2.2, all NMI devices within a sync group are reconfigured after adding a new NMI device to a sync group. Accordingly, an error occurs on transmitting/receiving NMI devices if the stream is not stopped. In version 2.2 and later, functions have been added that allow you to select devices individually, stop transmitting, and apply changes to settings.

Stopping the genlock module of an NMI device

If a genlock module of an NMI device, which does not belong to a Network GenLock group, is running, unexpected packets may be sent and received. If this occurs, use the following procedure to disable and stop the running genlock module of the NMI device that does not belong to a Network GenLock group.

1. Click ..., and click [Disable GenLock Modules] in the displayed menu.
   The [Unmanaged GenLock Module List] screen appears.

2. Select the genlock module of the NMI device that you want to disable, and click the [Disable GenLock Modules] button.
   A confirmation message appears.

3. Click the [Yes] button.
   The genlock module of the selected NMI device is disabled, and deleted from the list.

Note
Even after an NMI device is deleted from a Network GenLock group, the Network GenLock function does not stop on the device. The genlock module on the NMI device must be stopped before the deleting the device from the Network GenLock group.
Deleting a Network GenLock group

Use the following procedure to delete a Network GenLock group.

1. Select the Network GenLock group to delete, and click the button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected Network GenLock group is deleted from the Network GenLock Group List.

ST2059 parameter settings

You can configure the following ST2059-related parameters by selecting [ST2059 Profile] in the [Create New Network GenLock Group] dialog.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Mode</td>
<td>Specify the method for sending PTP delay request messages. Select [Mixed] to use both unicast and multicast methods. Select [Multicast] to use multicast only.</td>
</tr>
<tr>
<td></td>
<td><strong>Tip</strong> [Mixed] is selected when [NMI Profile] is selected.</td>
</tr>
<tr>
<td>Sync Interval (Log)</td>
<td>Specify the average interval of synchronization messages sent by the master device. Can be set to [2Hz (-1)], [4Hz (-2)], [8Hz (-3)], [16Hz (-4)], [32Hz (-5)], [64Hz (-6)], or [128Hz (-7)].</td>
</tr>
<tr>
<td></td>
<td><strong>Tip</strong> [64Hz (-6)] is selected when [NMI Profile] is selected.</td>
</tr>
<tr>
<td>Minimum Delay Request Interval (Log)</td>
<td>Specify the minimum delay allowed between PTP delay request messages. Can be set to [1Hz (0)], [2Hz (-1)], [4Hz (-2)], [8Hz (-3)], or [16Hz (-4)].</td>
</tr>
<tr>
<td></td>
<td><strong>Tip</strong> [16Hz (-4)] is selected when [NMI Profile] is selected.</td>
</tr>
</tbody>
</table>
[Network GenLock Leader Settings] dialog

This dialog is used to set each parameter for a leader of a Network GenLock group.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duplicate</td>
<td><strong>Network Duplicate:</strong> Set whether to provide redundancy for the network path between the leader device and the follower device. When the checkbox is checked, two PTP domain numbers must be configured to provide network path redundancy. <strong>Leader Duplicate:</strong> Set whether to provide leader redundancy. When the checkbox is checked, device information for two leaders ([Primary] and [Secondary]) must be configured.</td>
</tr>
<tr>
<td>PTP Domain No.</td>
<td>Enter a PTP domain number in the range 0 to 127.</td>
</tr>
<tr>
<td>Name</td>
<td>Displays the name of the registered Network GenLock module.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the device setup plug-in.</td>
</tr>
<tr>
<td>Device Interface</td>
<td>Displays the device interface name and version number.</td>
</tr>
<tr>
<td>Index of GenLock Module</td>
<td>Displays the index number of the genlock module of the NMI device linked to the registered Network GenLock module.</td>
</tr>
</tbody>
</table>
### Linked Device Name
Displays the name of the genlock module of the NMI device linked to the registered Network GenLock module.

### Linked Serial Number
Displays the serial number of the genlock module of the NMI device linked to the registered Network GenLock module.

### Connection
Displays the connection status of the NMI device linked to the registered Network GenLock module.

### GenLock Status
Displays the status of the genlock module of the NMI device linked to the registered Network GenLock module.

### [Assign] button
Displays the [Network GenLock Leader Settings] dialog. This dialog is used to specify the leader from the genlock module of an NMI device.

### [Ext. Leader Device] button
Displays the [Assign Ext. Leader Device] dialog. This dialog is used to register an external device as a leader.

### Save
Saves the settings.

After saving the settings, click the [Close] button to close the dialog.

**Tip**
If the [Leader Duplicate] checkbox is selected, [Secondary] and other parameters are displayed. The parameters are the same as for [Primary].

**[Assign Network GenLock Follower] dialog**
This dialog is used to register followers in a Network GenLock group.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>button</td>
<td>Displayed in both the [Unassigned List] and [Assigned List]. Click to refresh the corresponding list with the latest information.</td>
</tr>
<tr>
<td>button</td>
<td>Registers the genlock module selected in [Unassigned List] as a follower. You can select the genlock modules of multiple NMI devices.</td>
</tr>
<tr>
<td>button</td>
<td>Removes the genlock module registered in [Assigned List] from the list, and releases the registration to a follower.</td>
</tr>
</tbody>
</table>

After saving the settings, click the [Close] button to close the dialog.

**Creating an external Network GenLock leader device**

To use a non-NMI device as a Network GenLock leader device, the sync signal information that is output from that device must be able to be set and managed in IP Live System Manager.

You can register a non-NMI device (a device that outputs a PTP-based sync signal) as a leader device used for Network GenLock by specifying device information and network information for the device in [Network GenLock Leader Settings].

1. In the [Network GenLock Leader Settings] dialog, click the [Ext. Leader Device] button.
   The [Assign Ext. Leader Device] dialog appears.
Tip
Clicking refreshes the display with the latest information.

2. Click the [Create] button.
The [Create New Ext. Leader Device] dialog appears.

3. Enter the external device name in [Name], and enter the IP address of the external device in [IP Address].
Enter the MAC address in [MAC Address], as required.

Note
You can create a leader device without specifying a MAC address. However, a MAC address is required in order to display the created leader device on the [Network Topology Monitoring] screen.

4. Click the [Save] button to save the settings, then click the [Close] button.
The dialog closes and the [Assign Ext. Leader Device] dialog reappears.

5. Select the external device, and click the [Assign] button.
A confirmation message appears.

6. Click the [Yes] button.

7. Click the [Close] button.
The dialog closes.
The created external Network GenLock leader device is displayed in the [Network GenLock Leader Settings] dialog.

Note
Network redundancy cannot be configured when an external Network GenLock device is used as the leader.
Registering Sync Groups (‘Ext. Ref in’ Group Settings)

The Ext. Ref In function synchronizes the sync signal of each device by sharing a single reference input signal with multiple devices. You can synchronize devices to a reference input signal by registering each device in an external reference sync (Ext. Ref in) group.


**Tip**

Clicking 🔄 refreshes the display with the latest information.

### Registering a new ‘Ext. Ref in’ group

Use the following procedure to register a new ‘Ext. Ref in’ group.

1. Click the + button.
   The [Create New Ext. Ref in Group] dialog appears.
2. Enter the name of an ‘Ext. Ref in’ group in [Name].
3. Click the [Save] button.
   The settings are saved and the dialog closes.
   The registered ‘Ext. Ref in’ group is displayed in [Ext. Ref in Group List].

**Changing ‘Ext. Ref in’ group settings**

Use the following procedure to change ‘Ext. Ref in’ group settings.

1. Select the ‘Ext. Ref in’ group to edit, and click the 
   button.
   The [Edit Ext. Ref in Group] dialog appears.
2. Change the setting of each parameter in the [Edit Ext. Ref in Group] dialog.
3. Click the [Save] button.
   The settings are saved.
4. Click the [Close] button.
   The dialog closes.

**Registering an ‘Ext. Ref in’ module**

Use the following procedure to register an ‘Ext. Ref in’ module in an ‘Ext. Ref in’ group.

1. Select the ‘Ext. Ref in’ group for which to register an ‘Ext. Ref in’ module, and click the [Assign Members] button.
   The [Assign Ext. Ref in Module] dialog appears.
3. Click the [Close] button.
   The dialog closes.

**Applying an ‘Ext. Ref in’ module to the genlock module of an NMI device**

Use the following procedure to apply an ‘Ext. Ref in’ module, belonging to an ‘Ext. Ref in’ group, to the genlock module of an NMI device.

1. Select the ‘Ext. Ref in’ group for which to apply a genlock module of an NMI device, click ..., and click [Stop All Streams] in the displayed menu.
2. Click the [Apply] button.
   The ‘Ext. Ref in’ module is applied to the genlock module of the NMI device.
Stopping the genlock module of an NMI device

If a genlock module of an NMI device, which does not belong to an ‘Ext. Ref in’ group, is running, unexpected packets may be sent and received. If this occurs, use the following procedure to disable and stop the running genlock module of the NMI device that does not belong to an ‘Ext. Ref in’ group.

1. Click 🌐, and click [Disable GenLock Modules] in the displayed menu.
   The [Unmanaged GenLock Module List] screen appears.
2. Select the genlock module of the NMI device that you want to disable, and click the [Disable GenLock Modules] button.
   A confirmation message appears.
3. Click the [Yes] button.
   The genlock module of the selected NMI device is disabled, and deleted from the list.

Deleting an ‘Ext. Ref in’ group

Use the following procedure to delete an ‘Ext. Ref in’ group.

1. Select the ‘Ext. Ref in’ group to delete, and click the 🚫 button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected ‘Ext. Ref in’ group is deleted from the list.

[Assign Ext. Ref in Module] dialog

This dialog is used to register an ‘Ext. Ref in’ module in an ‘Ext. Ref in’ group.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>button</td>
<td>Displayed in both the [Unassigned List] and [Assigned List]. Click to refresh the corresponding list with the latest information.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>button</td>
<td>Moves the genlock module selected in [Unassigned List] to [Assigned List] to create a virtual 'Ext. Ref in' module from the genlock module of the selected NMI device. You can select the genlock modules of multiple NMI devices.</td>
</tr>
<tr>
<td>button</td>
<td>Removes the genlock module registered in [Assigned List] from the list, and releases the link to the virtual 'Ext. Ref in' module.</td>
</tr>
</tbody>
</table>

After saving the settings, click the [Close] button to close the dialog.

## Checking Device Parameters

Click in the global menu and switch to the [AV Router] screen, and click [Device] in the [Settings] menu to display the [Device] screen. A list of the NMI devices connected to the system is displayed on the [Device], [I/O], [Network], [GenLock], [Dante I/O], and [Dante Clock] tabs, allowing you to monitor the various states of devices.

![Device screen](image)

**Tip**

Clicking refreshes the display with the latest information.

**[Device] tab**

The [Device] tab displays the status of each device (NMI, Dante, NMOS) connected to the system by device in list view, allowing you to monitor the parameters of each device (see “Checking and editing parameters of a device”).
You can also copy settings information from an existing NMI device and apply them to another NMI device on the [Device] tab (see “Copying parameters of an NMI device to another NMI device”).

**Tips**

- Detection of duplicate IP addresses is executed when the device list is displayed or updated. When detected, the [Check] button then turns blue. You can click the [Check] button to check NMI devices with duplicate IP addresses.
- Click the button to open the Preview pane to display configuration information for the selected NMI device. Clicking the button closes the Preview pane.
- When you click the (Go To Topology) button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).
- Clicking the (Go To Streaming Flow) button displays the [Streaming Flow] screen, displaying the connection status of the selected source/destination interface (see “Monitoring the Connection Status of Source/Destination Interfaces”).
- If the enclosure name and slot number can be obtained from the NMI board, the name of the enclosure in which the NMI board is installed and the slot number are displayed in [Slot Name].

**[I/O] tab**

The [I/O] tab displays the status of each NMI device connected to the system by source/destination interface in list view. You can also configure source devices with a fixed multicast address for communication with external systems or export/import multicast address settings (see “Configuring a fixed multicast address”).

You can also place a check mark in [Display Disabled I/O] to display unused interfaces.
Tips

- You can filter the NMI devices to display by type (Video, Audio, Meta) using [Media Type].
- When you click the (Go To Topology) button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).
- Clicking the (Go To Streaming Flow) button displays the [Streaming Flow] screen, displaying the connection status of the selected source/destination interface (see “Monitoring the Connection Status of Source/Destination Interfaces”).

[Network] tab
The [Network] tab displays the status of each NMI device connected to the system by network interface in list view. If an IS-05 compatible device is loaded as an NMOS device, the network interface of the NMOS device is displayed.
If devices with duplicated IP addresses are detected, a warning mark is displayed on the left of names on the [Network] tab. You can place a check mark in [Display only conflicting IP addresses] to display only the interfaces with duplicated IP addresses.
### Tips

- When you click the (Go To Topology) button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).
- Clicking the (Go To Streaming Flow) button displays the [Streaming Flow] screen, displaying the connection status of the selected source/destination interface (see “Monitoring the Connection Status of Source/Destination Interfaces”).

#### [GenLock] tab

The various PTP status are displayed in list view on the [GenLock] tab. Click the button to display the Preview pane to display the PTP status details.
**Tips**

- Clicking 🔄 refreshes the display with the latest information.
- You can enter text in the search box to search for the PTP status to display.

**[Dante I/O] tab**

The [Dante I/O] tab displays the status of the audio interface of each Dante-enabled device connected to the system in list view.

---

**Tips**

- When you click the 🛰 (Go To Topology) button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).
- Clicking the 🌍 (Go To Streaming Flow) button displays the [Streaming Flow] screen, displaying the connection status of the selected source/destination interface (see “Monitoring the Connection Status of Source/Destination Interfaces”).

**[Dante Clock] tab**

The [Dante Clock] tab displays the lock status of each Dante device connected to the system in list view.
NMI device state display

You can monitor the following states of NMI devices and Dante devices on the [Device] screen.

<table>
<thead>
<tr>
<th>Display item</th>
<th>Indication</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device connection status</td>
<td>Connected</td>
<td>Device is connected with IP Live System Manager, and is available.</td>
</tr>
<tr>
<td></td>
<td>Disconnected</td>
<td>Device is not connected with IP Live System Manager.</td>
</tr>
<tr>
<td></td>
<td>Undefined</td>
<td>Device is in an undefined state because the gateway is down or other reason.</td>
</tr>
<tr>
<td>Device status</td>
<td>(Warning)</td>
<td>Warning state occurred in a device.</td>
</tr>
<tr>
<td></td>
<td>(Error)</td>
<td>Error state occurred in a device.</td>
</tr>
<tr>
<td>Authentication state (NMI devices only)</td>
<td>Success</td>
<td>Authentication succeeded when connecting NMI device with IP Live System Manager using TLS.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>Authentication failed when connecting NMI device with IP Live System Manager using TLS.</td>
</tr>
<tr>
<td>Display item</td>
<td>Indication</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Interface (NMI or Dante) status</td>
<td>Unavailable</td>
<td>Device is unavailable due to disconnected device or other reason.</td>
</tr>
<tr>
<td></td>
<td>Available</td>
<td>Device is connected, but is not sending or receiving.</td>
</tr>
<tr>
<td></td>
<td>Transceiving</td>
<td>Device is connected, and is sending or receiving.</td>
</tr>
<tr>
<td>LAN port status</td>
<td>Active</td>
<td>LAN port link is up.</td>
</tr>
<tr>
<td></td>
<td>Inactive</td>
<td>LAN port link is down.</td>
</tr>
<tr>
<td>GenLock Module (NMI) or Clock (Dante) status</td>
<td>Not In Use</td>
<td>Syncing of the device is not in use.</td>
</tr>
<tr>
<td></td>
<td>Locking</td>
<td>Syncing of the device is in progress.</td>
</tr>
<tr>
<td></td>
<td>Locked</td>
<td>Syncing of the device is completed.</td>
</tr>
<tr>
<td></td>
<td>FreeRun</td>
<td>Syncing of the device is in free-run mode (displayed only for NMI devices).</td>
</tr>
</tbody>
</table>

### ST2110 devices

IP Live System Manager supports ST2110 devices. ST2110 devices stream three types of data (video, audio, and ancillary data). Each stream for an ST2110 device is displayed on the [Routing] screen, and a crosspoint can be specified for streams individually.

![Routing screen](image.png)

**Note**

To use an ST2110 device, a device configuration plug-in that supports ST2110 devices must be installed.
Checking and editing parameters of a device

Select a device on any tab and click the button to display the [Edit Device] dialog to check or edit detailed parameters of the device.

**Note**

To change device settings, click the [Stop All Streams] button to stop the streams beforehand.

The [Edit Device] dialog display is different, depending on whether an NMI device is selected or a Dante device is selected.

**When an NMI device is selected:**

![Edit Device dialog for NMI device](image)

**When a Dante device is selected:**

**Note**

The AES67 setting can be changed, but AES67 interface information is not displayed on the Routing screen and AES67 routing operations cannot be performed.
Furter text from the document...
When an NMI device is selected:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Sets the name of the device. When finished, click the [Apply] button to apply the settings.</td>
</tr>
<tr>
<td>Control Protocol</td>
<td>Displays the protocol for controlling connections with IP Live System Manager.</td>
</tr>
<tr>
<td>Connection</td>
<td>Displays the connection status of the device with IP Live System Manager.</td>
</tr>
<tr>
<td>Transport Protocol</td>
<td>Displays the protocol used for connection with IP Live System Manager (TCP or TLS).</td>
</tr>
<tr>
<td>Authentication Status</td>
<td>Displays whether device authentication was successful.</td>
</tr>
<tr>
<td>Certificate Common Name</td>
<td>Displays the certificate information for device authentication.</td>
</tr>
<tr>
<td>Certificate Issuer Name</td>
<td></td>
</tr>
<tr>
<td>Device Type</td>
<td>Displays the manufacturer, interface name, and interface firmware version information of an NMI device for the device setup plug-in installed in IP Live System Manager and the device interface on the device side. If there is a mismatch between the device setup plug-in and the device interface information, a mismatch icon is displayed for each item in Device Type.</td>
</tr>
<tr>
<td>Product Information</td>
<td>Displays the structure information (manufacturer, model name, serial number) of modules installed in an NMI device.</td>
</tr>
<tr>
<td>Device Lock</td>
<td>Displays the status of the device lock function.</td>
</tr>
</tbody>
</table>

When a Dante device is selected:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Sets the name of the device. When finished, click the [Apply] button to apply the settings.</td>
</tr>
<tr>
<td>Control Protocol</td>
<td>Displays the protocol for controlling connections with IP Live System Manager.</td>
</tr>
<tr>
<td>Connection</td>
<td>Displays the connection status of the device with IP Live System Manager.</td>
</tr>
<tr>
<td>Product Information</td>
<td>Displays the structure information (manufacturer, model name, software, and product version) of modules installed in a Dante device.</td>
</tr>
<tr>
<td>Dante Information</td>
<td>Displays Dante device information (model name, software version and firmware version).</td>
</tr>
<tr>
<td>Sample Rate</td>
<td>Sets the sample rate.</td>
</tr>
</tbody>
</table>
**Item** | **Description**
--- | ---
Pull-up/down | Sets the sample rate pull-up/down setting. This function is used to maintain the synchronization of video and audio after frame rate conversion. For example, if video is converted from 24 fps to 25 fps, Pull-up/down should be set to +4.1667%.
Preferred Encoding | Sets the bit depth when encoding.
Device Latency | Sets the receive delay time. This is the delay time from the timestamp of the received audio stream until playout. Increase this value if the network transfer delay is large.
Unicast Delay Request | Enables/disables the Unicast Delay Request function.
Device Lock | Displays the status of the device lock function.
[Reboot] button | Reboots the Dante device.

**[Network] tab**

The following parameters are displayed on the [Network] tab.

**Item** | **Description**
--- | ---
Network Interface list | Displays a list of LAN ports. Selecting a port displays the parameters on the right.
Enable LAN/Disable LAN | Enables/disables the LAN port. Whether the port is actually switchable or not depends on the specifications of the device.
Name | Displays the name of the LAN port.
Link Status | Displays the status of the LAN port.
IP Assignment | Specifies whether to obtain an IP address automatically (DHCP) or to set a fixed IP address.
IP Address | Specifies a fixed IP address. Grayed out if [Obtain an IP Address automatically] is selected.
Prefix Length | Specifies the net mask. Grayed out if [Obtain an IP Address automatically] is selected.
Default Gateway | Specifies the default gateway address. Grayed out if [Obtain an IP Address automatically] is selected.
DNS Server | Sets the address of the DNS server. Displayed only when a Dante device is selected. Grayed out if [Obtain an IP Address automatically] is selected.
MAC Address | Displays the MAC address.
MTU | Displays the MTU value specified for the LAN port. Displayed only when an NMI device is selected.
Auto Negotiation | Displays the current link speed setting. Displayed only when an NMI device is selected.
Link Speed | Displays the link speed of the LAN port.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable</td>
<td>Sets the method for specifying the IP Live System Manager IP address. Displayed only when an NMI device is selected. When [Enable] is selected, IP Live System Manager is connected using the selected network.</td>
</tr>
<tr>
<td>IP Assignment</td>
<td>Uses an IP address obtained from a DHCP server if [Obtain an IP address automatically] is specified. To specify an IP address manually, select [Use the following IP address]. Displayed only when an NMI device is selected.</td>
</tr>
<tr>
<td>Transport Protocol</td>
<td>Displays the type of protocol currently in use. Displayed only when an NMI device is selected.</td>
</tr>
<tr>
<td>IP Address</td>
<td>If [Use the following IP address] is specified in [IP Assignment], enter the IP address assigned to the device. Displayed only when an NMI device is selected.</td>
</tr>
<tr>
<td>Port Number</td>
<td>If [Use the following IP address] is specified in [IP Assignment], enter the port number used for communication with the device. Displayed only when an NMI device is selected.</td>
</tr>
<tr>
<td>[Reboot] button</td>
<td>Reboots the Dante device. Displayed only when a Dante device is selected.</td>
</tr>
</tbody>
</table>

**I/O** tab

This tab is displayed only when an NMI device is selected. The display can be switched between [View]/[Edit].

When [View] is selected, status and other information for source/destination interfaces of NMI devices are displayed in list view. When [Edit] is selected, the following parameters are displayed. Depending on the configuration of the modules installed in the NMI device, the parameters of each module are accessed via pull-down menus. You can check the following parameters relating to the structure of the module selected in the pull-down menu.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stream Structure</td>
<td>Displays the stream structure.</td>
</tr>
<tr>
<td>Link Pattern</td>
<td>Selects the NMI link pattern.</td>
</tr>
<tr>
<td>Enable clean video switching</td>
<td>Enables/disables the Clean Switching function.</td>
</tr>
<tr>
<td>Enable hitless failover</td>
<td>Enables/disables the Hitless Failover function. See &quot;AV transfer path redundancy structure.&quot;</td>
</tr>
<tr>
<td>Enable dual link</td>
<td>Enables/disables the Dual Link function.</td>
</tr>
<tr>
<td>NMI List</td>
<td>Displays the NMI list. You can get detailed information for an NMI by selecting it and clicking the [Detail] button.</td>
</tr>
<tr>
<td>Name</td>
<td>Displays the name of the NMI.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays the status of the NMI.</td>
</tr>
</tbody>
</table>
**IN/OUT**
Displays the video input/output signal flow of the NMI.

**Format**
Displays the video format of the NMI.

**Quality**
Displays the quality of the video data sent to the NMI.

**Output Phase**
Displays the output phase of the NMI.

### [GenLock] tab
Displays the type of sync mode (‘Ext. Ref in’ or Network GenLock) set for the NMI device. Displayed only when an NMI device is selected.

The following parameters are displayed.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable</td>
<td>Displays the setting of the genlock module function (on/off).</td>
</tr>
<tr>
<td>GenLock Module Status</td>
<td>Displays whether genlock module is locked, stopped, or other state.</td>
</tr>
<tr>
<td>Mode</td>
<td>Displays the operation mode of the genlock module.</td>
</tr>
<tr>
<td>Date &amp; Time Source</td>
<td>Displays the type of reference time signal.</td>
</tr>
<tr>
<td>PTP Port List</td>
<td>Displays PTP port information.</td>
</tr>
<tr>
<td>PTP Domain Number</td>
<td>Displays the PTP domain number.</td>
</tr>
<tr>
<td>Leader IP Address</td>
<td>Displays the IP address of the leader.</td>
</tr>
</tbody>
</table>

### Note
When a device that belongs to a Network GenLock group for which [Profile] is set to [ST2059 Profile], [Communication Mode], [Sync Interval (Log)], and [Minimum Delay Request Interval (Log)] are displayed. For details about these parameters, see “ST2059 parameter settings.”

### [Maintenance] tab (NMI device)

The [Maintenance] tab is used to reboot NMI devices, and to configure the Syslog server for export of system logs and SNMP agents. Displayed only when an NMI device is selected.

#### Rebooting an NMI device

The [Reboot] button is enabled if the NMI device supports rebooting from IP Live System Manager. Click the [Reboot] button to reboot the NMI device.
## Syslog server settings

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| + button           | Adds a Syslog server for exporting system logs to the list. The following information is displayed for a Syslog server in the list. The parameters for each item on the right can be changed.  
  - IP Address  
  - Port  
  - Severity Level  
  - Protocol  
  - Network Name |

<table>
<thead>
<tr>
<th>- button</th>
<th>Deletes the selected Syslog server from the list.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>Enter the IP address of the Syslog server.</td>
</tr>
<tr>
<td>Port</td>
<td>Enter the port number of the Syslog server.</td>
</tr>
<tr>
<td>Severity Level</td>
<td>Select the log level assigned to the Syslog server.</td>
</tr>
<tr>
<td>Transport Protocol</td>
<td>Select the protocol used by the Syslog server.</td>
</tr>
<tr>
<td>Network Name</td>
<td>Clicking the [Edit] button displays the [Network Interface List] screen for selecting the network used by the Syslog server.</td>
</tr>
</tbody>
</table>

When finished, click the [Apply] button.

### SNMP agent settings

You can monitor and control each NMI device over a network if SNMP-compatible NMI devices and an SNMP manager for managing device information are connected to the system.

The network information and the destination SNMP manager for an SNMP agent are configured in [SNMP Agent].

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable</td>
<td>Enables/disables the SNMP agent. Enable to configure settings.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Enter the listening IP address of the SNMP agent. Enter “0.0.0.0” if a network port is not specified.</td>
</tr>
<tr>
<td>Port</td>
<td>Enter the listening port number of the SNMP agent.</td>
</tr>
<tr>
<td>SysName</td>
<td>Enter the system name.</td>
</tr>
<tr>
<td>SysContact</td>
<td>Enter the mail address of the system administrator.</td>
</tr>
<tr>
<td>SysLocation</td>
<td>Enter the system location.</td>
</tr>
<tr>
<td>Trap Settings</td>
<td>Click the [Trap Settings] button to display the [Trap Settings] dialog to set the SNMP manager to which to send SNMP trap notifications.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SubAgent List</td>
<td>Sets the SNMP subagents. Select an SNMP subagent name and click the [Trap Settings] button to display the [Trap Settings] dialog to set the SNMP manager to which to send SNMP trap notifications.</td>
</tr>
<tr>
<td>v1/v2c</td>
<td><strong>Community Settings List</strong> Selects the SNMP community.</td>
</tr>
<tr>
<td></td>
<td><strong>Enable/Disable</strong> Enables/disables the SNMP community. Enable to configure settings.</td>
</tr>
<tr>
<td></td>
<td><strong>Name</strong> Enter the SNMP community name.</td>
</tr>
<tr>
<td></td>
<td><strong>Version</strong> Selects the SNMP version. Can be set to [V1], [V2C], or [V1_V2C].</td>
</tr>
<tr>
<td></td>
<td><strong>Access Mode</strong> Selects the access permissions for MIB information. Can be set to [READ_ONLY] or [READ_WRITE].</td>
</tr>
<tr>
<td>ACL Network Address</td>
<td>Enter the network address of the access control list (ACL).</td>
</tr>
<tr>
<td>ACL Prefix Length</td>
<td>Enter the net mask length.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>v3</td>
<td>User Settings List Selects the SNMP version v3 users.</td>
</tr>
<tr>
<td>Enable/Disable</td>
<td>Enables/disables SNMP version v3. Enable to configure settings.</td>
</tr>
<tr>
<td>Name</td>
<td>Enter the name of the SNMP version v3 user.</td>
</tr>
<tr>
<td>Access Mode</td>
<td>Selects the access permissions for MIB information. Can be set to [READ_ONLY] or [READ_WRITE].</td>
</tr>
<tr>
<td>Security Level</td>
<td>Selects the security level used in SNMP version v3. Can be set to one of the following. NO_AUTH: No authentication nor encryption. AUTH: Authentication, but no encryption. AUTH_PRIV: Authentication and encryption.</td>
</tr>
<tr>
<td>Authentication Type</td>
<td>Selects the type of authentication used in SNMP version v3. Can be set to [MD5] or [SHA]. Enter the authentication password in [Passphrase]. Can be configured when [AUTH] or [AUTH_PRIV] is selected in [Security Level].</td>
</tr>
<tr>
<td>Privacy Type</td>
<td>Selects the type of encryption used in SNMP version v3. Can be set to [DES] or [AES]. Enter the encryption password in [Passphrase]. Can be configured when [AUTH_PRIV] is selected in [Security Level].</td>
</tr>
</tbody>
</table>

When finished, click the [Apply] button.
### [Trap Settings] dialog

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trap Settings List</td>
<td>Selects the name of the SNMP manager to which to send SNMP trap notifications.</td>
</tr>
<tr>
<td>Enable/Disable</td>
<td>Enables/disables SNMP trap settings. Enable to configure settings.</td>
</tr>
<tr>
<td>Name</td>
<td>Enter the SNMP community name if the SNMP version is set to [V1] or [V2C]. Enter the SNMP user name if the SNMP version is set to [V3].</td>
</tr>
<tr>
<td>Network Interface Name</td>
<td>Selects the network interface.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Enter the IP address of the SNMP manager.</td>
</tr>
<tr>
<td>Port</td>
<td>Enter the port number of the SNMP manager.</td>
</tr>
<tr>
<td>Version</td>
<td>Selects the SNMP version. Can be set to [V1], [V2C], or [V3]. If [V3] is selected, [Security Level] is enabled.</td>
</tr>
<tr>
<td>Type</td>
<td>Selects the type of notification to send to the SNMP manager. Can be set to [TRAP] or [INFORM]. [INFORM] cannot be specified if the SNMP version is set to [V1].</td>
</tr>
<tr>
<td>Security Level</td>
<td>Selects the security level used in SNMP version v3. Can be set to one of the following. No AUTH: No authentication nor encryption. AUTH: Authentication, but no encryption. AUTH_PRIV: Authentication and encryption.</td>
</tr>
<tr>
<td>Authentication Type</td>
<td>Selects the type of authentication used in SNMP version v3. Can be set to [MD5] or [SHA]. Enter the authentication password in [Passphrase]. Can be configured when [AUTH] or [AUTH_PRIV] is selected in [Security Level].</td>
</tr>
<tr>
<td>Privacy Type</td>
<td>Selects the type of encryption used in SNMP version v3. Can be set to [DES] or [AES]. Enter the encryption password in [Passphrase]. Can be configured when [AUTH_PRIV] is selected in [Security Level].</td>
</tr>
</tbody>
</table>

### [Receive I/O] tab

Displays the receiving channels of the selected Dante device in list view. The connection and flow status (for example, Available or Transceiving) of each channel are displayed. Channels can be renamed.

### [Transmit I/O] tab

Displays the transmitting channels of the selected Dante device in list view.
The connection and flow status (for example, Available or Transceving) of each channel are displayed in [Channel List]. Channel labels can be changed to any value.

You can also register a multicast flow in [Multicast Flow List].

**Registering a multicast flow**

You can also register a multicast flow in [Multicast Flow List].

1. Click the [New File] button.
   
   The [Create Multicast Flow] dialog appears.

2. Select the channels to add to the multicast flow.

![Create Multicast Flow](image)

**Tip**

An AES67 multicast flow can be created if the selected Dante device is AES67 compatible. Place a check mark in [Create AES67 Flow] to add the selected channels to an AES67 multicast flow.

3. Click the [Create] button.
The name of each created flow and the assigned channels, format, and multicast address are displayed in [Multicast Flow List].

Deleting a multicast flow

Select the multicast flow to delete from [Multicast Flow List], and click the [Delete] button.

[Clock] tab

Displays information relating to the clock of the selected Dante device.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GenLock</td>
<td>Displays the sync status of the Dante device.</td>
</tr>
<tr>
<td>Clock Source</td>
<td>Displays the clock source of the Dante device.</td>
</tr>
<tr>
<td>Dante:</td>
<td>Dante device obtains a clock from a Dante network, or acts as the master clock.</td>
</tr>
<tr>
<td>External:</td>
<td>Dante devices obtains a clock from an external word clock source.</td>
</tr>
<tr>
<td>Preferred Master</td>
<td>Set whether the Dante device acts as the master clock.</td>
</tr>
<tr>
<td>Enable Sync To External</td>
<td>Enables/disables syncing with an external source.</td>
</tr>
<tr>
<td>Primary Status</td>
<td>Displays the PTP clock status of the primary network interface.</td>
</tr>
<tr>
<td>Master:</td>
<td>Dante device is the current PTP master clock on the primary Dante network.</td>
</tr>
<tr>
<td>Slave:</td>
<td>Dante device is a PTP slave on the primary Dante network.</td>
</tr>
<tr>
<td>Passive:</td>
<td>Does not use clock sync information from the primary interface.</td>
</tr>
<tr>
<td>Link Down:</td>
<td>Primary interface is not connected to the network.</td>
</tr>
<tr>
<td>N/A:</td>
<td>Dante device does not support clock status reports.</td>
</tr>
<tr>
<td>Listening:</td>
<td>Dante device state does not support operation as the master clock.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Secondary Status</td>
<td>Displays the PTP clock status of the secondary network interface.</td>
</tr>
<tr>
<td>Master:</td>
<td>Dante device is the current PTP master clock on the primary Dante network.</td>
</tr>
<tr>
<td>Slave:</td>
<td>Dante device is a PTP slave on the primary Dante network.</td>
</tr>
<tr>
<td>Passive:</td>
<td>Does not use clock sync information from the secondary interface.</td>
</tr>
<tr>
<td>Link Down:</td>
<td>Secondary interface is not connected to the network.</td>
</tr>
<tr>
<td>N/A:</td>
<td>Dante device does not support clock status reports.</td>
</tr>
<tr>
<td>Listening:</td>
<td>Dante device state does not support operation as the master clock.</td>
</tr>
</tbody>
</table>

| AES67 Status        | Displays the PTPv2 clock status of an AES67-compatible Dante device.        |

**[AES67] tab**

This tab is displayed if the selected Dante device is AES67 compatible.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES67 Mode</td>
<td>Enables/disables the AES67 function.</td>
</tr>
<tr>
<td>Multicast Address Prefix</td>
<td>Set the multicast subnet using the Multicast Address Prefix field.</td>
</tr>
<tr>
<td>[Reboot] button</td>
<td>Reboots the Dante device.</td>
</tr>
</tbody>
</table>

**[Maintenance] tab (Dante device)**

This tab is used to reboot the selected Dante device or delete Dante device settings.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Reboot] button</td>
<td>Reboots the Dante device.</td>
</tr>
<tr>
<td>Keep Network Configuration</td>
<td>Sets whether to retain Dante network settings when [Clear Config] is executed.</td>
</tr>
<tr>
<td>[Clear Config] button</td>
<td>Clears all Dante device settings.</td>
</tr>
</tbody>
</table>

**Authorizing a device**

Devices that are grayed out on the [Device] tab of the [Device] screen must first be authorized. Use the following procedure to authorize a device.
1. Select a connected device, and click the [Authorize] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected device is authorized, and can now be controlled using IP Live System Manager.

**To cancel device authorization**

Select a device on the [Device] tab of the [Device] screen, and click the [Deauthorize] button.

**Copying parameters of an NMI device to another NMI device**

Use the following procedure to copy the settings of an existing NMI device and apply them to another
NMI device that uses the same device setup plug-in. You can copy the settings of an existing NMI device
to another device when replacing or adding an NMI device.

1. On the [Device] tab, click the [Copy Parameter] button.
   The [Copy and Paste Device List] screen appears.
2. Click [Normal].
3. Select the NMI device whose parameters you want to copy in the left pane.
4. Select the parameters to copy in the center pane.
   The following parameters can be selected.
5. Select the NMI devices to which to copy the parameters in the right pane, and click the [Paste & Apply] button.
A confirmation message appears.

**Tip**

More than one NMI device can be selected.

6. Click the [Yes] button.

The copied parameters are applied to the NMI devices selected in step 4.

**To copy all NMI device parameters**

You can copy all the settings information of an NMI device to another device (the IP address and device name are also copied). This allows a new device to inherit the setup information of a source device if the source device is substituted for any reason, such as device failure.
1. Check that the copy source device is not connected to IP Live System Manager (power is off or device is not connected to the network).


3. Click [Maintenance].

4. Select the NMI device whose parameters you want to copy in the left pane.

5. Select the NMI devices to which to copy the parameters in the right pane, and click the [Paste & Apply] button. A confirmation message appears.

6. Click the [Yes] button. The parameters are copied.

**Tips**

- When copying all parameters, the target parameters to copy cannot be individually selected.
- When copying all settings with [Automatically replace the following settings.] checked, the following settings information is also applied to the copy destination device.
  - Device Settings Snapshot
  - GenLock Group Settings
  - System Controller Settings

**Configuring a fixed multicast address**

Use the following procedure to configure a fixed multicast address and port number used by an output video stream for the NMI interface of a source device.

1. On the [I/O] tab, select a source NMI device for which to configure a fixed multicast address, click ..., and click the [Edit Multicast] button in the displayed menu. The [I/O Settings] dialog appears.
2. Click [Manual] in [Multicast Settings].

3. Enter the fixed multicast address and port number you want to use in [Multicast Address] and [Port Number], respectively, in [Primary]. To use the Hitless Failover function, enter the fixed multicast address and port number you want to use for stream redundancy in [Multicast Address] and [Port Number], respectively, in [Secondary].

4. Click the [Save] button.
   
The fixed multicast address and port number are configured for the NMI device selected in step 1.

**Exporting/importing fixed multicast settings**

You can export and import fixed multicast settings.

**To export fixed multicast settings**

1. Click [ ] on the [I/O] tab, and click [Export Multicast Settings] in the displayed menu.
   
   A confirmation message appears.

2. Click the [Yes] button.
   
   A multicast-settings.xlsx file is downloaded.

**To import fixed multicast settings**

**Note**

To import fixed multicast settings, the sending and receiving of signals on the interfaces to edit must be stopped.

1. Click [ ] on the [I/O] tab, and click [Import Multicast Settings] in the displayed menu.
   
   A confirmation message appears.

2. Click the [Yes] button.
The [Select Import File] dialog appears.

3. Click the [Browse] button, select the file to import, and click the [OK] button. The file is imported.

**Creating an external I/O device**

To use an external device (including an NMI device) as a video source device, the multicast address and IP address of the video stream that is output from that device must be controlled and managed by IP Live System Manager. These can be configured to receive streams from devices, such as ST2110 source devices from other manufacturers, that cannot be controlled directly from IP Live System Manager.

1. On the [Device] tab, click 
   • 
   and then click [Create Ext. I/O Device] in the displayed menu.
2. Click [Download Sample Ext I/O Devices Setting File] to download an external I/O device template file.
3. Edit the configuration file so that it matches the IP address of the device.

   **Tip**

   The actual value of the MAC address does not need to be configured. However, edit the setup file to make sure that the value is not the same as other MAC addresses registered in IP Live System Manager.

4. Using [Create Ext. I/O Device] > [Browse], upload the modified configuration file.
5. Set the fixed multicast address configured in the transmit stream of the actual device as described in Configuring a fixed multicast address.
6. Select a registered external I/O device on the [Device] tab, and click the [Authorize] button.
   A confirmation message appears.
7. Click the [Yes] button.
   The selected external I/O device is authorized, and crosspoints can now be controlled using IP Live System Manager.

**Creating an NMOS Device**

You can acquire registration information of a third-party system NMOS device, and register the NMOS device in RDS manually in NMOS Proxy mode.

On the [Device] tab, click 
• 
and then click [Query NMOS Device] in the displayed menu. Or when using NMOS Proxy mode, click [Register NMOS Device].
To acquire registration information from a third-party NMOS device via RDS, select [Query NMOS Device].
To register an NMOS device in RDS manually when using NMOS Proxy mode, select [Register NMOS Device].

**Note**

When [Mode] is set to [Controller Mode] on the [RDS Configuration] screen, [Register NMOS Device] cannot be executed (see “Configuring NMOS”).
Registering an External Routing System

You can link to an existing external routing system, such as an S-BUS system, by registering an external routing system in IP Live System Manager. Specifically, this allows you to switch interface group connections for devices managed by IP Live System Manager from an external routing system.

Click in the global menu and switch to the [System Controller] screen, and click [External Routing System] in the [Settings] menu to display the [External Routing System List] screen. This screen is used to register an external routing system in IP Live System Manager.

**Tip**

Clicking refreshes the display with the latest information.

Registering a new external routing system

Use the following procedure to register a new external routing system.

1. Click the button.
   - The [Create New External Routing System] dialog appears.
2. Configure the [Name], [IP Address], and [Port] parameters in the [Create New External Routing System] dialog, and click the [Save] button.
   - The port may require opening on the firewall, depending on the network environment.
   - When the [Save] button is clicked, the [Routing Settings] tab is enabled, ready for configuration.
3. On the [Router Settings] tab, click the [Import] button to import the file required for mutual control of IP Live System Manager and the external routing system.
   - For details about creating external routing system setting data, see “Creating External Routing System Setting Data.”
4. Click the [Save] button.
   - The settings are saved.
5. Click the [Close] button.
The dialog closes.
The registered external routing system is displayed in [External Routing System List].

**[External Routing System List]**
The registered external routing systems are displayed in [External Routing System List].

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the external routing system.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Displays the IP address of the external routing system.</td>
</tr>
<tr>
<td>Port</td>
<td>Displays the port number of the external routing system.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays the following status of the external routing system.</td>
</tr>
<tr>
<td>Description</td>
<td>Displays a description of the external routing system.</td>
</tr>
</tbody>
</table>

**Inactive:**
Link function of the external routing system is not available.

**Active:**
Link function of the external routing system is available.

### Changing external routing system settings

Use the following procedure to change external routing system settings.

1. Select the external routing system to edit, and click the button.
The [Edit External Routing System] dialog appears.
2. Change the setting of each parameter in the [Edit External Routing System] dialog.
3. Click the [Save] button.
The settings are saved.
4. Click the [Close] button.
The dialog closes.

### Deleting an external routing system

Use the following procedure to delete an external routing system.

1. Select the external routing system to delete, and click the button.
A confirmation message appears.
2. Click the [Yes] button.
The selected external routing system is deleted from the list.

This dialog is used to configure external routing system parameters.

![Create New External Routing System](image)

**Tip**

The example screen above shows the creation of a new external routing system, but the display and operation are the same when changing external routing system parameters.

**Common parameters**

The name and network information of the external routing system to register are configured in the common parameters section.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter the name of the external routing system to register.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Enter the IP address of the external routing system to register. For an S-BUS system, specify 127.0.0.1.</td>
</tr>
<tr>
<td>Port</td>
<td>Enter the port number of the external routing system to register. For an S-BUS system, specify 11700.</td>
</tr>
<tr>
<td>Description</td>
<td>Enter a description of the external routing system, as required.</td>
</tr>
</tbody>
</table>

When finished, click the [Save] button. The [Routing Settings] tab is enabled, ready for configuration.

**[Router Settings] tab**

The crosspoints on the crosspoint matrix formed by the device interfaces managed by IP Live System Manager are configured for routing from an external routing system on the [Router Settings] tab. You can configure settings by importing a router settings file into IP Live System Manager.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Router Settings File Name</td>
<td>Displays the name of the imported router settings file.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Last Updated Time</td>
<td>Displays the date and time the router settings file was last imported.</td>
</tr>
<tr>
<td>[Import] button</td>
<td>Displays the [Select Import File] dialog. Click the [Browse] button to select the router settings file to import, then click the [OK] button to import the file. For details about creating external routing system setting data, see “Creating External Routing System Setting Data.”</td>
</tr>
<tr>
<td>[Export] button</td>
<td>Exports the current router settings to a file.</td>
</tr>
<tr>
<td>Download Sample Router Settings File</td>
<td>Downloads sample external routing system data (Excel file).</td>
</tr>
</tbody>
</table>

When finished, click the [Save] button to save the settings.

**Creating External Routing System Setting Data**

When registering an external routing system on the [External Routing System List] screen, you need to create data that links the IP Live System Manager interface group crosspoint matrix with the external routing system crosspoint matrix, and import it into IP Live System Manager. This data is creating using Excel.

**Excel file data structure**

The Excel file is composed by the following three worksheets.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Name</td>
<td>Port Index</td>
<td>Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>VideoA</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>VideoB</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>AudioA</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>AudioB</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Data</td>
<td>4</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Index level map
2. Router location list
3. Router location configuration

The worksheet names are optional, but the worksheet order must be as shown above. Example configurations for each worksheet are given below.

**Worksheet 1: Index level map**

This worksheet is used to configure data that links the index within an IP Live System Manager interface group to the level in an external routing system.
Column A:
Set the level name used for management within IP Live System Manager. The level names must be unique.

Column B:
Specify the AV interface group sort order from 0.

Column C:
Set the level of the port of the external routing system.

Worksheet 2: Router location list

This worksheet is used to configure external routing system crosspoint matrix (Router Location) data.

Column A:
Set the location name used for management within IP Live System Manager. The location names must be unique.

Column B:
Set the first interface number of the external routing system source interface group.

Column C:
Set the first interface number of the external routing system destination interface group.

Note
The first interface numbers must be unique, because the interfaces are automatically linked in sequence from the start number specified on worksheet 2 to the interface groups specified on worksheet 3.

In this example, two interface groups are configured for both source and destination for Router Location A on worksheet 3. If, for example, “2” was specified instead of “3” for Router Location B on worksheet 2, then interface number “2” would be linked in two locations as shown below.

<table>
<thead>
<tr>
<th>Router Location A</th>
<th>Router Location B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Group</td>
<td>Destination Group</td>
</tr>
<tr>
<td>CAMERA-01: 1</td>
<td>VTR-01: 1</td>
</tr>
<tr>
<td>CAMERA-02: 2</td>
<td>VTR-02: 2</td>
</tr>
</tbody>
</table>
In this example, the values entered for Router Location B on worksheet 2 must be greater than or equal
to the value obtained by adding the number of interface groups for Router Location A specified on
worksheet 3 to the start numbers for Router Location A specified on worksheet 2. In this example, if a
value of “3” is specified for Router Location B, the interface numbers are configured correctly as shown
below.

<table>
<thead>
<tr>
<th>Router Location A</th>
<th>Source Group</th>
<th>Destination Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAMERA-01: 1</td>
<td>VTR-01: 1</td>
</tr>
<tr>
<td></td>
<td>CAMERA-02: 2</td>
<td>VTR-02: 2</td>
</tr>
<tr>
<td>Router Location B</td>
<td>Source Group</td>
<td>Destination Group</td>
</tr>
<tr>
<td></td>
<td>CAMERA-01: 3</td>
<td>VTR-01: 3</td>
</tr>
<tr>
<td></td>
<td>CAMERA-02: 4</td>
<td>VTR-02: 4</td>
</tr>
</tbody>
</table>

**Worksheet 3: Router location configuration**

This worksheet is used to configure data that links the IP Live System Manager interface groups to the
external routing system interface groups.

**Row 1 in columns A/B and C/D**
Set the location names specified on worksheet 2.

**Rows 2+ in columns A and C**
Set the source interface group names of each location.

**Rows 2+ in columns B and D**
Set the destination interface group names of each location.

**Tip**
The source interface groups and destination interface groups are configured on the [AV Interface Group
List] screen.

**Checking NS-BUS Device Settings Information**

Click in the global menu and switch to the [System Controller] screen, and click [NS-BUS Device]
in the [Settings] menu to display the [NS-BUS Device List] screen. The status of each NS-BUS device
connected to the system is displayed in a list, allowing you to check the detailed parameters of each
NS-BUS device. You can also add NS-BUS devices manually and change settings. You can also reboot an
NS-BUS device, and turn beacons on/off for NS-BUS devices that have the beacon function.
The following parameters are displayed on the [NS-BUS Device List] screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the NS-BUS device.</td>
</tr>
<tr>
<td>Connection</td>
<td>Displays the connection status of the NS-BUS device.</td>
</tr>
<tr>
<td></td>
<td><strong>Connected:</strong> The NS-BUS device is connected to IP Live System Manager, and operations for IP Live System Manager are available from the NS-BUS device.</td>
</tr>
<tr>
<td></td>
<td><strong>Disconnected:</strong> The NS-BUS device is disconnected from IP Live System Manager, and operations for IP Live System Manager are not available from the NS-BUS device.</td>
</tr>
<tr>
<td>Connected IP Address</td>
<td>Displays the IP address of the NS-BUS device connected with IP Live System Manager.</td>
</tr>
<tr>
<td>User Name</td>
<td>Displays the user name of the NS-BUS device.</td>
</tr>
<tr>
<td>Model Name</td>
<td>Displays the model name of the NS-BUS device.</td>
</tr>
<tr>
<td>Firmware Version</td>
<td>Displays the version of the NS-BUS device.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the NS-BUS device.</td>
</tr>
<tr>
<td>Authorization</td>
<td>Displays the authorization status of the NS-BUS device.</td>
</tr>
<tr>
<td>Status Watch</td>
<td>Displays the enabled/disabled status of the status notification indicator.</td>
</tr>
</tbody>
</table>
Preview pane items

The following parameters are displayed in the Preview pane.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Activate Beacon] button</td>
<td>Activates the beacon on devices that have the beacon function.</td>
</tr>
<tr>
<td>[Deactivate Beacon] button</td>
<td>Deactivates the beacon on devices that have the beacon function.</td>
</tr>
<tr>
<td>Device Name</td>
<td>Displays the name of the NS-BUS device.</td>
</tr>
<tr>
<td>Device setting page</td>
<td>Clicking the URL displays a link to a web menu page for configuring the various settings of the NS-BUS device (only for devices that support configuration using the web).</td>
</tr>
<tr>
<td>NS-BUS External Control</td>
<td>Displays the enabled/disabled state of NS-BUS external control.</td>
</tr>
<tr>
<td>Protocol Info</td>
<td>Displays the protocol (TCP or TLS) and protocol version used by the NS-BUS device for communication with the system controller.</td>
</tr>
<tr>
<td>Authentication Status</td>
<td>Displays whether device authentication was successful.</td>
</tr>
<tr>
<td>Certificate Common Name</td>
<td>Displays the certificate information for device authentication.</td>
</tr>
<tr>
<td>Certificate Issuer Name</td>
<td>Displays the certificate information for device authentication.</td>
</tr>
<tr>
<td>NS-BUS Configuration</td>
<td>Displays the enabled/disabled state of the NS-BUS configuration.</td>
</tr>
<tr>
<td>Protocol Info</td>
<td>Displays the NS-BUS configuration protocol (TCP or TLS) and protocol version used for connection with IP Live System Manager.</td>
</tr>
<tr>
<td>NS-BUS Router/Matrix</td>
<td>Displays the enabled/disabled state of the NS-BUS router/matrix.</td>
</tr>
<tr>
<td>Protocol Info</td>
<td>Displays the NS-BUS router/matrix protocol (TCP or TLS) and protocol version used for connection with IP Live System Manager.</td>
</tr>
<tr>
<td>Network Interface List</td>
<td>Displays the network interface information list of the NS-BUS device.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Displays the IP address of the network interface of the NS-BUS device.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>Displays the MAC address of the network interface of the NS-BUS device.</td>
</tr>
<tr>
<td>Description</td>
<td>Displays a description of the NS-BUS device.</td>
</tr>
</tbody>
</table>

Adding an NS-BUS device

You can search for and add NS-BUS devices connected to the system.
Tip

The target devices are those that support the NS-BUS Routing/Matrix protocol only. Devices that support the NS-BUS External Control protocol are excluded.

1. Click the button.

   The [NS-BUS Device Registration] dialog appears.

2. Specify the [Protocol], [Device IP Address1], [Device IP Address2], and [Device Port Number] items, and click the [Register] button.

   NS-BUS devices that have the specified information are added to the [NS-BUS Device List] screen.

   **In single mode:**

   ![NS-BUS Device Registration Single Mode](image)

   **In redundancy mode:**

   ![NS-BUS Device Registration Redundancy Mode](image)

Tips

- [Device IP Address1] is the main connection destination from IP Live System Manager. [Device IP Address2] is the failover destination if [Device IP Address1] becomes unusable.
- In redundancy mode, when system A is configured using IP Live System Manager, only [LSM A(Local)] is configured. When system B is configured using IP Live System Manager, only [LSM B(Remote)] is configured.

3. Click the [Close] button.
Changing NS-BUS device settings

Select an NS-BUS device, and click the button to edit the device settings on the displayed screen.

Authorizing an NS-BUS device

NS-BUS devices that are grayed out on the [NS-BUS Device List] screen must first be authorized. Use the following procedure to authorize a device.

1. Select a connected NS-BUS device, and click the [Authorize] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected NS-BUS device is authorized, and IP Live System Manager crosspoint switching can be controlled from the NS-BUS device. Crosspoint switching operation of NS-BUS Router/Matrix compatible devices is also supported from IP Live System Manager.

To cancel NS-BUS device authorization

Select an NS-BUS device on the [NS-BUS Device List] screen, and click the [Deauthorize] button.

Displaying status notifications

When a status notification is received from an NS-BUS device, the received status can be displayed in the system status indicator area of the global menu. Use the following procedure to enable status notification display.

**Note**

Status notification display of authorized NS-BUS devices only can be enabled.

1. Select an NS-BUS device for which to enable status notification display, and click the [Watch Status] button.
   A confirmation message appears.
2. Click the [Yes] button.
   Status notification display for the selected NS-BUS device is enabled, and [Status Watch] changes to “Watching Status.” In addition, if the SNMP trap notification function is enabled, error notifications are performed using SNMP traps.

To disable status notification display

Select an NS-BUS device on the [NS-BUS Device List] screen, and click the [Stop Watching Status] button.

Copying parameters of an NS-BUS device to another NS-BUS device

Use the following procedure to copy the settings of an existing NS-BUS device to another NS-BUS device. You can copy the settings of an NS-BUS device to replace when exchanging an NS-BUS device.

   The [Maintenance] screen appears.
2. Select the NS-BUS device whose parameters you want to copy in the left pane.
3. Select the NS-BUS devices to which to copy the parameters in the right pane, and click the [Paste & Apply] button.

A confirmation message appears.

4. Click the [Yes] button.

The copied parameters are applied to the NS-BUS devices selected in step 3.

**Tip**

The following settings are not copied.

- Status Watch
- NS-BUS Device Authorization
- NS-BUS Device Settings Snapshot

**Checking NS-BUS device settings information**

Select an NS-BUS device on the [NS-BUS Device List] screen, and click the [Detail] button to display the [Detail] dialog.

You can check settings of the selected NS-BUS device in the [Detail] dialog. If a router-compatible NS-BUS device is selected, you can check the matrix interfaces that the selected NS-BUS device has.
Rebooting an NS-BUS device

You can reboot an NS-BUS device that supports remote booting from IP Live System Manager.

1. Select a connected NS-BUS device to reboot, and click the [Detail] button.
   The [Detail] dialog appears.
2. Click the [Reboot] button.
   A confirmation message appears.
3. Click the [Yes] button.
   The selected NS-BUS device is rebooted.

Tips

- Only NS-BUS devices with both [Connection] set to [Connected] and [NS-BUS Configuration] set to [Available] can be rebooted.
- Clicking the [Synchronize] button reacquires the parameters of the NS-BUS device.

Displaying the connection state of NS-BUS devices

Use the following procedure to display the connection status of NS-BUS devices.

1. Select an NS-BUS device to display its connection state.
2. Click the (Go To Topology) button.
   The [Network Topology Monitoring] screen appears, displaying the connection status of the selected NS-BUS device (see “Checking Device Connection State”).

Deleting an NS-BUS device

Use the following procedure to delete an NS-BUS device from the list.

1. Select the NS-BUS device to delete, and click the button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected NS-BUS device is deleted from the list.

Tip

Only NS-BUS devices with [Matrix Control] set to [Disconnected] can be deleted from the list.

Creating an NS-BUS Device Settings Snapshot

You can save the setup of multiple NS-BUS devices as snapshots and then switch the NS-BUS device setup combination during operation by applying the appropriate snapshot as required.

Click in the global menu and switch to the [System Controller] screen, and click [NS-BUS Device Settings Snapshot] in the [Settings] menu to display the [NS-BUS Device Settings Snapshot] screen.
You can create an NS-BUS device settings snapshot, and specify and apply the NS-BUS device settings snapshot you want to use.
Creating a new NS-BUS device settings snapshot

Use the following procedure to create an NS-BUS device settings snapshot.

1. Click the button.

   The [Create New Device Settings Snapshot] dialog appears.

2. Specify a snapshot number in [Number], and enter a name for the NS-BUS device settings snapshot in [Name].

3. Click the [Save] button.

   The [Create New Device Settings Snapshot] dialog closes.

   The new device settings snapshot is added to the [NS-BUS Device Settings Snapshot] screen.

Renaming an NS-BUS device settings snapshot

Select the NS-BUS device settings snapshot to rename, and click the button.

Deleting an NS-BUS device settings snapshot

Select the NS-BUS device settings snapshot to delete, and click the button.

Adding an NS-BUS device to an NS-BUS device settings snapshot

Use the following procedure to add an NS-BUS device to an NS-BUS device settings snapshot.

1. Select an NS-BUS device settings snapshot, and click the [Add] button.

   The [Add Devices] dialog appears.

2. Select the NS-BUS device to add to the an NS-BUS device settings snapshot.

3. Click the [Assign] button.

   A completion message appears when the addition finishes.

4. Click the [OK] button.

   The [Add Devices] dialog closes.
The NS-BUS device added to the NS-BUS device settings snapshot is displayed on the [NS-BUS Device Setting List] screen when the snapshot is selected on the [NS-BUS Device Settings Snapshot] screen.

**Saving NS-BUS device settings**

You can save NS-BUS device settings.

1. Select an NS-BUS device whose settings you want to save on the [NS-BUS Device Setting List] screen, and click the [Detail] button.
   - The [Config Detail] dialog appears.
2. Click the [Save] button.
   - A confirmation message appears.
3. Click the [Yes] button.
   - The selected NS-BUS device settings are saved.

**Tips**

- If an NS-BUS device displaying a icon is selected and then the [Detail] button is clicked, a “There is some mismatch …” message appears. To save the NS-BUS device settings, click the [No] button. If the [Yes] button is clicked, you can compare the actual NS-BUS device values and the current snapshot settings.
- Clicking the [Synchronize] button reacquires the parameters of the NS-BUS device.

**Deleting an NS-BUS device from an NS-BUS device settings snapshot**

Select the NS-BUS device to delete from an NS-BUS device settings snapshot, and click the [Delete] button.

**Applying an NS-BUS device settings snapshot**

Use the following procedure to apply a created NS-BUS device settings snapshot.

1. Select the NS-BUS device settings snapshot to apply, and click the [Apply] button.
   - A confirmation message appears.
2. Click the [Yes] button.
   - The NS-BUS device settings are applied in accordance with the selected snapshot.

**Creating a Tally Master and Tally Group**

Click in the global menu and switch to the [System Controller] screen, and click [Tally Settings] in the [Settings] menu to display the [Tally Settings] screen.

The [Tally Settings] screen is used for tally control of cameras and other devices using an IP network. IP Live System Manager performs tally signal switching and tally control from switchers according to the settings on the [Tally Settings] screen.

Click [Tally Master/Group] on the [Tally Settings] screen to display the [Tally Master/Group] screen. You can create a tally master and tally group.
A Tally license (PWSL-NM17) is required in order to use the tally function. If a valid license is not installed, [Tally Settings] and [Tally Settings Snapshot] are grayed out and cannot be selected.

Creating a tally master

You can create a tally master by selecting it from the tally master list.

1. Click the button in [Tally Master List].
   The [Assign Tally Master] dialog appears.

2. Select a tally master to create in [Unassigned Tally Master List], and click the button.

The selected tally master moves to the [Assigned Tally Master List].
Tips
- Only devices that support the NS-BUS External Control protocol tally function are displayed in [Unassigned Tally Master List].
- You can select and create multiple tally masters.
- To delete a created tally master, select the tally master to delete in [Assigned Tally Master List], and click the button.

3. Click the [Close] button to close the dialog.

The tally master is created, and is displayed in [Tally Master List].

Tip
Clicking refreshes the display with the latest information.

Deleting a tally master
Select the tally master to delete, and click the button.

Creating a tally group
Use the following procedure to create a tally group.

Tips
- A tally group is created for each tally master.
- By default, there are eight registered tally groups.

1. Click the button in [Tally Group List].

   The [Create New Tally Group] dialog appears.

2. Select the tally group number to create in [Number], and enter a description of the tally group in [Description].

3. Click the [Save] button.

   The tally group is created, and is displayed in [Tally Group List].

4. Click the [Close] button to close the dialog.
Tip
Clicking refreshes the display with the latest information.

Changing the tally group number or description
Select the tally group whose number or description you want to change, and click the button.

Deleting a tally group
Select the tally group to delete, and click the button.

Registering Tally Control Target Devices
Click [Tally Display Device] on the [Tally Settings] screen to display the [Tally Display Device] screen. You can then register tally control target devices.

IP Live System Manager supports the NS BUS External protocol for NS BUS tally control, and the TSL UMD protocol for multi viewers.

Registering a tally device
Use the following procedure to register a tally control target device.

1. Click the button.
   The [Add New Tally Device] dialog appears.
2. Select a protocol in [Tally Protocol], and configure each setting.
   When [TSL UMD Protocol] is selected:
   Register tally devices that support the TSL UMD protocol.
When [NS BUS External Protocol] is selected:

Register tally devices that support the NS BUS External protocol. Select a device registered in IP Live System Manager.

<table>
<thead>
<tr>
<th>Step1 : Select Devices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Connection</td>
</tr>
<tr>
<td>NS-085704</td>
<td>Connected</td>
</tr>
<tr>
<td>NS-085705</td>
<td>Connected</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step2 : Advanced settings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Number starts at*</td>
<td>4</td>
</tr>
<tr>
<td>Number of UMDs per device</td>
<td>1</td>
</tr>
</tbody>
</table>

3. Click the [OK] button.

The tally device is registered, and is displayed on the [Tally Display Device] screen.
4. Click the [OK] button.
Clicking refreshes the display with the latest information.

Changing TSL UMD protocol tally device settings

You can change the device name/alias name, IP address, and port number of a TSL UMD protocol tally device in the list on the [Tally Display Device] screen. When finished, click the [Save] button to save the settings.

Duplicating a TSL UMD protocol tally device

Use the following procedure to duplicate a TSL UMD protocol tally device to register a new tally device.

1. Select a TSL UMD protocol tally device on the [Tally Display Device] screen, and click the button. The [Duplicate Tally Device] dialog appears.
2. Change each setting in [New].
3. Click the [Save] button.

The tally device is registered, and is displayed on the [Tally Display Device] screen.

Deleting a tally device

Select the tally device to delete, and click the button.

Configuring UMD information

Use the following procedure to configure UMD for displaying source names and tally information on remote viewer and other device screens using the external remote function.

1. Select a tally device on the [Tally Display Device] screen, and click the button. The [Edit UMD] dialog appears.
2. Click the button. A UMD setting is added.
Clicking refreshes the display with the latest information.

3. Configure each setting.

**When a TSL UMD protocol tally device is selected:**
Configure settings for sending tally signals and text.
When [Send Tally] is enabled, the tally signal generated by the tally master is sent. For UMD devices, when [Send Text] is enabled, the specified character string is sent.

**When an NS BUS External protocol tally device is selected:**
Specify the [UMD Address].
4. Click the [Save] button.
   The settings are saved.
5. Click the [Close] button to close the dialog.

**Duplicating a UMD setting**

Select the UMD setting to duplicate, and click the button.

**Deleting a UMD setting**

Select the UMD setting to delete, and click the button.

**Exporting/importing the settings of a tally device**

You can export and import the settings of a tally device.

**To export the settings of a tally device**

1. Select the tally device to export, click ..., and click [Export Tally Settings] in the displayed menu.
   A confirmation message appears.
2. Click the [Yes] button.
   A TallySettings.xlsx file is downloaded.

**To import the settings of a tally device**

1. Click ..., and click [Import Tally Settings] in the displayed menu.
   The [Select Import File] dialog appears.
2. Click the [Browse] button, select the file to import, and click the [OK] button.
   The file is imported.
Configuring Tally Signal Routing

Click [Tally Routing] on the [Tally Settings] screen to display the [Tally Routing] screen. The tally device and corresponding UMD settings configured on the [Tally Display Device] screen are displayed on the [Tally Routing] screen. Use the following procedure to configure the routing of tally signals.

1. In [AV Interface Group Name], select the source interface and destination interface groups for routing operations. Alternatively, in [AV Interface Group Number], select a group number and select the type of interface group in [Source/Destination].
2. Place check marks for the tally groups to be used.

**Tip**

Placing a check mark in the tally group name checkbox in the title row places check marks in all the checkboxes for that tally group.

3. Click the [Save] button.
   The settings are applied.

**Tips**

- Selecting a device and clicking the button displays the [Edit UMD] dialog for configuring UMD information (see “Configuring UMD information”).
- Clicking refreshes the display with the latest information.
- You can enter text in the search box to search for tally devices to display.

Creating a Tally Settings Snapshot

You can save the setup of multiple tallys as snapshots and then switch the tally setup combination during operation by applying the appropriate snapshot as required.

Click in the global menu and switch to the [System Controller] screen, and click [Tally Settings Snapshot] in the [Settings] menu to display the [Tally Settings Snapshot] screen.
You can create a tally settings snapshot, and specify and apply the tally settings snapshot you want to use.
Creating a new tally settings snapshot

Use the following procedure to create a tally settings snapshot.

1. Click the button.
   The [Create New Tally Snapshot] dialog appears.
2. Enter a name for the tally settings snapshot in [Name].
3. Click the [Save] button.
   The [Create New Tally Snapshot] dialog closes.
   The new tally settings snapshot is added to the [Tally Settings Snapshot List] screen.

Tips
- Clicking refreshes the display with the latest information.
- If the device settings on the [Tally Settings Snapshot List] > [Tally Display Device] screen (see “Adding a tally device to a tally settings snapshot”) are different from the device settings on the [Tally Settings] > [Tally Display Device] screen (see “Registering Tally Control Target Devices”), is displayed in front of the snapshot number.

Renaming a tally settings snapshot

Select the tally settings snapshot to rename, and click the button.

Duplicating a tally settings snapshot

Select the tally settings snapshot to duplicate, and click the button.

Deleting a tally settings snapshot

Select the tally settings snapshot to delete, and click the button.
Exporting/importing a tally settings snapshot

You can export and import a tally settings snapshot.

To export a tally settings snapshot

1. Select the tally settings snapshot to export, click ..., and click [Export Tally Settings] in the displayed menu.
   A confirmation message appears.
2. Click the [Yes] button.
   A TallySettings.xlsx file is downloaded.

To import a tally settings snapshot

1. Click ..., and click [Import Tally Settings] in the displayed menu.
   The [Select Import File] dialog appears.
2. Click the [Browse] button, select the file to import, and click the [OK] button.
   The file is imported.

Note

If you place a check mark in [Import Tally Group Setting together] when importing, the tally group setting is also imported.

Adding a tally device to a tally settings snapshot

Use the following procedure to add a tally device to a tally settings snapshot.

1. Click [Tally Display Device].
   The [Tally Display Device] screen appears.
2. Select a tally settings snapshot, and click the [Add] button.
   The [Add Devices] dialog appears.
3. Select a tally device to add to the tally settings snapshot

   Tip

   More than one tally device can be selected.
4. Click the [Assign] button.
   A completion message appears when the addition finishes.
5. Click the [OK] button.
   The [Add Devices] dialog closes.
   The tally device added to the tally settings snapshot is displayed on the [Tally Display Device] screen in list view when the snapshot is selected on the [Tally Settings Snapshot List] screen.

Changing TSL UMD protocol tally device settings

You can change the alias name, IP address, and port number of a TSL UMD protocol tally device in the list on the [Tally Display Device] screen. When finished, click the [Save] button to save the settings.
Changing the UMD settings of a tally device

Selecting a tally device to edit on the [Tally Display Device] screen and clicking the [Edit] button displays the [Edit UMD] dialog allowing you to edit the UMD settings of the tally device. For details, see “Configuring UMD information.”

Deleting a tally device

Select the tally device to delete, and click the [Delete] button.

Configuring tally signal routing

Click [Tally Routing] on the [Tally Settings Snapshot List] screen to display the [Tally Routing] screen. The tally device and corresponding UMD settings configured on the [Tally Display Device] screen are displayed on the [Tally Routing] screen. You can configure the routing of tally signals. For details, see “Configuring Tally Signal Routing.”

Applying a tally settings snapshot

Use the following procedure to apply a created tally settings snapshot.

1. Select a tally settings snapshot to apply, and click the [Apply] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The tally settings are applied in accordance with the selected snapshot.

Configuring Usage Environment Data Presets

You can configure the devices used and source/destination interface group settings information as a data preset. Configuring data presets allows you to switch between the IP Live System Manager settings to be used, depending on the external system used to manage system settings.

For example, you can use preset 1 settings in studio A and preset 2 settings in studio B, and then switch between the IP Live System Manager settings according to the usage environment.

The following screen settings can be saved in a preset.
- Device Settings Snapshot
- NS-BUS Device Settings Snapshot
- AV Interface Group Snapshot
- Tally Settings Snapshot

Click in the global menu and switch to the [System Controller] screen, and click [Preset Settings] in the [Settings] menu to display the [Preset Settings List] screen.
Creating/editing a data preset

To create/edit a data preset, configure and save data in an exported Excel file and then import that Excel file.

**Note**

When creating/editing a data preset, the following data must be configured beforehand.

- Device Settings Snapshot
- NS-BUS Device Settings Snapshot
- AV Interface Group Snapshot
- Tally Settings Snapshot

1. Click the [Export] button, and export an Excel file.
   
   A confirmation message appears.

2. Click the [Yes] button.
   
   A preset-settings.xlsx file is downloaded.

3. Open the exported Excel file.

4. On each snapshot worksheet, copy the snapshot number and snapshot name to be used.

5. Configure the following on the [Preset Settings List] worksheet.
   
   i. Enter the preset number and preset name in [Number] and [Preset Name], respectively.
ii. Paste the snapshot number and snapshot name that you copied in step 4 into the corresponding snapshot columns.

![Excel spreadsheet](image)

**Tip**

Before exporting the Excel file, you can click the button to create the preset number and preset name of a data preset.

6. Repeat steps 4 and 5 to create the required data.

7. When finished creating data, save the Excel file.

8. Click the [Import] button.

   The [Select Import File] dialog appears.

9. Click the [Browse] button, select the saved Excel file, and click the [OK] button.

   The file is imported. When the import finishes, the created data preset is displayed on the [Preset Settings List] screen.

**Tip**

Select the created data preset, click , and click in the displayed menu to display the screen corresponding to the selected menu.

- Go To Device Settings Snapshot: [Device Settings Snapshot List] screen
- Go To NS-BUS Device Settings Snapshot: [NS-BUS Device Settings Snapshot] screen
- Go To AV Interface Group: [AV Interface Group List] > [Snapshot] screen
- Go To Tally Settings Snapshot: [Tally Settings Snapshot List] screen

**Exported data format**

Data preset settings are exported to an Excel-format file (*.xlsx). The data is output using the following worksheet structure.

<table>
<thead>
<tr>
<th>Worksheet name</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>Version of data</td>
<td>Not editable</td>
</tr>
<tr>
<td>Preset Settings List</td>
<td>Data preset settings</td>
<td>Editable</td>
</tr>
<tr>
<td>Device Snapshot Name(Fixed)</td>
<td>Device settings snapshot settings</td>
<td>Not editable</td>
</tr>
<tr>
<td>NS-BUS Device Snapshot Name(Fixed)</td>
<td>NS-BUS device settings snapshot settings</td>
<td>Not editable</td>
</tr>
<tr>
<td>AV Interface Group Snapshot Name(Fixed)</td>
<td>Source/destination interface group snapshot settings</td>
<td>Not editable</td>
</tr>
<tr>
<td>Tally Settings Snapshot Name(Fixed)</td>
<td>Tally settings snapshot settings</td>
<td>Not editable</td>
</tr>
</tbody>
</table>

**Applying a data preset**

Use the following procedure to apply a created data preset.
1. Select the data preset to apply, and click the [Apply] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected data preset settings are applied.

   **Tips**
   - Clicking 🔄 refreshes the display with the latest information.
   - Click the ⌁ button to display the Notification pane and the operation history on the [Preset Settings List] screen.
   - If there is a data preset mismatch on the [Preset Settings List] screen, a data mismatch icon is displayed for the corresponding data preset. A mismatch icon is also displayed for mismatching snapshots.

**Deleting a data preset**

Select the data preset to delete, and click the 🗑 button.

**Creating a Source/Destination Interface Group Snapshot**

You can save the setup of multiple source/destination interface groups as snapshots and then switch the source/destination interface group setup combination during operation by applying the appropriate snapshot as required (see “Configuring Usage Environment Data Presets”).

Clicking [Snapshot] on the [AV Interface Group List] screen will display the [Snapshot] screen (see “Creating a Source/Destination Interface Group”).

![Image of AV Interface Group List screen]

**Creating a new source/destination interface group snapshot**

Use the following procedure to create a source/destination interface group snapshot.

1. Click the 📅 button.
   The [Create AV Interface Group Snapshot] dialog appears.
2. Enter the name of the source/destination interface group snapshot in [Name].
3. Click the [Save] button.
   The [Create AV Interface Group Snapshot] dialog closes.
   The new source/destination interface group snapshot is added to the [AV Interface Group List] screen.

Tip
Clicking [+] refreshes the display with the latest information.

Renaming a source/destination interface group snapshot
Select the source/destination interface group snapshot to rename, and click the [ ] button.

Deleting a source/destination interface group snapshot
Select the source/destination interface group snapshot to delete, and click the [ ] button.

Assigning source/destination interface groups
Use the following procedure to assign a source/destination interface group to a snapshot.
1. Select the source/destination interface group snapshot, and click the [AV Interface Group Assignment] button.
   The [AV Interface Group Assignment] dialog appears.
2. Select a source/destination interface group to assign in [Unassigned Port List], and click the [ ] button.
   Perform this operation on both the [Source] and [Destination] tabs.

The selected source/destination interface group is added to [Assigned Port List].

Tips
- You can select and assign multiple source/destination interface groups.
To delete an assigned source/destination interface group, select the source/destination interface group to delete in [Assigned Port List], and click the button.

3. Click the [Close] button to close the dialog.

**Tips**

- Clicking refreshes the display with the latest information.
- You can enter text in the search box to search for source/destination interface groups.

**Importing/exporting a source/destination interface group snapshot**

You can export and import a source/destination interface group snapshot.

**To export a source/destination interface group snapshot**

1. Select the source/destination interface group snapshot to export, click ..., and click [Export] in the displayed menu.
   A confirmation message appears.
2. Click the [Yes] button.
   A Program-1.xlsx file is downloaded.

**To import a source/destination interface group snapshot**

1. Click ..., and click [Import] in the displayed menu.
   The [Select Import File] dialog appears.
2. Click the [Browse] button, select the file to import, and click the [OK] button.
   The file is imported.

**Applying a source/destination interface group snapshot**

Use the following procedure to apply a created source/destination interface group snapshot.

1. Select the source/destination interface group snapshot to apply, and click the [Apply] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The source/destination interface group settings are applied in accordance with the selected snapshot.

**Registering Network Switches**

Click in the global menu and switch to the [Monitoring] screen, and click [Network Switch List] in the [Settings] menu to display the [Network Switch List] screen. A network switch is a device for switching the signals sent and received between multiple devices connected to the system. You can register network switches by importing the network switch settings file (network_topology.json file) prepared when designing/changing the system or network into IP Live System Manager. You can also
register a network switch manually without using a network switch configuration file. You can also edit the configuration information of a registered network switch.

Tips

- When you click the **Go To Topology** button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected network switch (see “Checking Device Connection State”).
- Clicking **refreshes the display with the latest information.**
- Click the **button to open the Preview pane to display configuration information for the selected network switch. Clicking the ** button closes the Preview pane.

Registering a new network switch using a configuration file

Use the following procedure to register a new network switch using a configuration file.

1. Click the [Import] button.
   The [Select Import File] dialog appears.
2. Click the [Browse] button and select a network switch settings file (network_topology.json file) prepared when designing/changing the system or network.
3. Click the [OK] button.
   The file is imported.
   When importing finishes, the imported network switch information is displayed in [Network Switch List].
Registering a new network switch manually

Use the following procedure to register a new network switch manually. You can register a network switch manually without using a network switch configuration file if building a simple system or a small-scale system.

**Note**

If a network switch is registered manually, [Reserved Bandwidth] of each port of the network switch will be set to 0.

1. Click the [Create] button.
   The [Create New Switch] dialog appears.
2. Specify the network switch information (see “Common parameters”).
4. Click the [Save] button.
   The settings are saved.
5. Click the [Close] button.
   The registered network switch information is displayed in [Network Switch List].

**Monitoring the error status**

❌ is displayed on network switches for which an error has been issued. Moving the mouse cursor to ❌ displays the error status in a pop-up window.

**Changing network switch settings**

Use the following procedure to change network switch settings.

1. Select a network switch, and click the [Edit] button.
   The [Edit Network Switch] dialog appears.
2. Change the setting of each parameter on the [SNMP Client] tab, [LAN Port] tab, and [Layout Profile] tab.
3. Click the [Save] button.
   The settings are saved.
Deleting a network switch

Use the following procedure to delete a network switch.

**Note**

When deleting a network switch, the SNMP settings on the network switch to be deleted must first be disabled.

1. Select the network switch to delete, and click the [Delete] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The selected network switch is deleted from the list.

[Edit Network Switch] / [Create New Switch] dialog

This dialog is used to configure network switch parameters.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter the name of the network switch.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the network switch. When registering a network switch using the [Create New Switch] dialog, select the network switch manufacturer.</td>
</tr>
<tr>
<td>Switch Plug-in</td>
<td>Displays the model name of the network switch. When registering a network switch using the [Create New Switch] dialog, select the network switch model name.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Specify the IP address of the network switch.</td>
</tr>
</tbody>
</table>

**[SNMP Client] tab**

Use the [SNMP Client] tab to configure the SNMP client.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable SNMP access/Disable SNMP access</td>
<td>Enables/disables SNMP access. Select [Enable SNMP access] to configure settings.</td>
</tr>
<tr>
<td>SNMP Port</td>
<td>Set the port number for accessing an SNMP server. The default is 161.</td>
</tr>
<tr>
<td>SNMP Version</td>
<td>Selects the SNMP version. Can be set to [V2C] or [V3].</td>
</tr>
<tr>
<td>SNMP Community</td>
<td>Enter the SNMP community name. Can be configured when [V2C] is selected in [SNMP Version].</td>
</tr>
<tr>
<td>Security Name</td>
<td>Enter the security name. Can be configured when [V3] is selected in [SNMP Version].</td>
</tr>
<tr>
<td>Authentication Protocol</td>
<td>Select the authentication protocol. Can be set to [None], [MD5], or [SHA]. Can be configured when [V3] is selected in [SNMP Version].</td>
</tr>
<tr>
<td>Authentication Credential</td>
<td>Enter the authentication password. Can be configured when [V3] is selected in [SNMP Version].</td>
</tr>
<tr>
<td>Privacy Protocol</td>
<td>Select the encryption protocol. Can be set to [None], [DES], [DES3], [AES-128], [AES-192], or [AES-256]. Can be configured when [V3] is selected in [SNMP Version].</td>
</tr>
<tr>
<td>Privacy Credential</td>
<td>Enter the encryption password. Can be configured when [V3] is selected in [SNMP Version].</td>
</tr>
</tbody>
</table>

When finished, click the [Save] button to save the settings.

**[LAN Port] tab**

Use the [LAN Port] tab to monitor information for the LAN ports of the network switch.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAN port list</td>
<td>Displays a list of network switch LAN ports. Selecting a LAN port displays information for the selected LAN port on the right.</td>
</tr>
<tr>
<td>Add Network Interface List</td>
<td>Acquires LAN port information from the network switch via SNMP. This operation is available only if [SNMP Client] is enabled.</td>
</tr>
<tr>
<td>Sync MAC Address</td>
<td>Acquires the MAC address of the LAN port from the network switch via SNMP. This operation is available only if [SNMP Client] is enabled.</td>
</tr>
<tr>
<td>Name</td>
<td>Displays the name of the LAN port.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>Displays the MAC address of the LAN port.</td>
</tr>
<tr>
<td>Link Status</td>
<td>Displays the link status of the LAN port.</td>
</tr>
<tr>
<td>Link Speed</td>
<td>Displays the link speed of the LAN port.</td>
</tr>
<tr>
<td>Reserved Bandwidth</td>
<td>Displays the bandwidth reserved when designing/changing the system and network.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong></td>
</tr>
<tr>
<td></td>
<td>If a network switch is registered manually, [Reserved Bandwidth] of each port of the network switch will be set to 0 (see “Registering a new network switch manually”).</td>
</tr>
<tr>
<td>Management Type</td>
<td>Displays the management status of the LAN port within the Network Topology diagram. When [Unmanaged] is specified, the device connected to the port is not detected.</td>
</tr>
</tbody>
</table>

**[Layout Profile] tab**

Use the [Layout Profile] tab to set a network switch image and LAN port layout.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change Type</td>
<td>Changes the network switch image.</td>
</tr>
<tr>
<td>Horizontal Auto Layout</td>
<td>Automatically arranges the layout of the LAN ports of the network switch in the horizontal direction.</td>
</tr>
<tr>
<td>Vertical Auto Layout</td>
<td>Automatically arranges the layout of the LAN ports of the network switch in the vertical direction.</td>
</tr>
<tr>
<td>Switch width by port number</td>
<td>Specify the number of LAN ports of the network switch. The width of the network switch is determined by the number of LAN ports. However, the number of ports displayed does not change.</td>
</tr>
<tr>
<td>LAN port location</td>
<td>You can move the position of LAN ports using drag &amp; drop.</td>
</tr>
</tbody>
</table>

When finished, click the [Save] button to save the settings.
Installing Device Setup Plug-ins

Click in the global menu and switch to the [AV Router] screen, and click [Device Plug-in] in the [Settings] menu to display the [Plug-in List] screen. A device setup plug-in provides data for configuring parameters belonging to the model of device used. A device setup plug-in is registered by installing the plug-in in IP Live System Manager.

Tips

- Clicking refreshes the display with the latest information.
- Click the button to open the Preview pane to display configuration information for the selected device setup plug-in. Clicking the button closes the Preview pane.

Installing a device setup plug-in from the [Plug-in List] screen

Log in to the IP Live System Manager GUI as an Administrator user, and use the following procedure to install the device setup plug-in in IP Live System Manager on the [Plug-in List] screen.

1. Click the [Install] button.
   The [Select Install File] dialog appears.

2. Click the [Browse] button, and select the device setup plug-in to install.

3. Click the [OK] button.
   The installation starts.
   When installation finishes, the imported device setup plug-in information is displayed in [Device Plug-in List].
Tip
An error dialog appears if the plug-in does not have a digital signature or if the signature of the plug-in does not match the signature information. To continue installation, click the [Yes] button. To abort installation, click the [No] button.

Creating a Device Settings Snapshot

You can save the setup of multiple devices as snapshots and then switch the device setup combination during operation by applying the appropriate snapshot as required.

Click \(\text{AV Router}\) in the global menu and switch to the [AV Router] screen, and click [Device Settings Snapshot] in the [Settings] menu to display the [Device Settings Snapshot List] screen. You can create a device settings snapshot, and specify and apply the device settings snapshot you want to use.

Creating a new device settings snapshot

Use the following procedure to create a device settings snapshot.

1. Click \(\text{AV Router}\), and click [Create] in the displayed menu.
   The [Create New Device Settings Snapshot] dialog appears.

2. Enter a name for the device settings snapshot in [Name].
   Enter information relating to the device settings snapshot in [Description], as required.

3. Click the [Save] button.
   The [Create New Device Settings Snapshot] dialog closes.
   The new device settings snapshot is added to the [Device Settings Snapshot List] screen.

Tip
Click the \(\text{Preview pane}\) button to open the Preview pane to display configuration information for the selected device setup plug-in. Clicking the \(\text{Preview pane}\) button closes the Preview pane.
Adding a device to a device settings snapshot

Use the following procedure to add a device to a device settings snapshot.

1. Select a device settings snapshot, and click the [Add] button.
   The [Add Devices] dialog appears.

2. Select a device to add to the device settings snapshot
3. Click the [Assign] button.
   The [Add Devices] dialog closes.
   The device added to the device settings snapshot is displayed in list view when the snapshot is selected on the [Device Settings Snapshot List] screen.

Changing device settings

Select a device, and click the [Edit] button to edit the device settings on the displayed screen. The changed settings are saved in the device settings snapshot only. Changes to device settings are not applied until the device settings snapshot is applied.
Tip

If a device displaying a \(\mathbf{\text{\textregistered}}\) icon is selected and then the [Edit] button is clicked, a “There is some mismatch ...” message appears. To change the device settings, click the [No] button. If the [Yes] button is clicked, you can compare the actual device values and the current snapshot settings.

Deleting a device from a device settings snapshot

Select the device to delete from a device settings snapshot, and click the [Delete] button.

Applying a device settings snapshot

Use the following procedure to apply a created device settings snapshot.

1. Click \(\mathbf{\text{\textregistered}}\) and click [Stop All Stream] in the displayed menu.
2. Select a device settings snapshot.
3. Click \(\mathbf{\text{\textregistered}}\) and click [Apply] in the displayed menu.
   A confirmation message appears.
4. Click the [Yes] button.
   The device settings are applied in accordance with the selected snapshot.

Applying parameters of an NMI device within a device settings snapshot to another NMI device

You can copy the parameters of an NMI device within a device settings snapshot to another NMI device within the same device settings snapshot that uses the same plug-in.

1. Select a device settings snapshot, and click the [Copy Parameter] button.
   The [Copy and Paste Device List] screen appears.
2. Select the NMI device whose parameters you want to copy in the left pane.
3. Select the parameters to copy in the center pane.
   The following parameters can be selected.
   - [Frequency & NMI Settings]
   - [Network Settings]
   - [System Manager Client Settings]
   - [Syslog Client Settings]
   - [SNMP Agent Settings]
   - [Extended Configuration]
4. Select the NMI devices to which to copy the parameters in the right pane, and click the [Paste & Save] button.
A confirmation message appears.

**Tip**

More than one NMI device can be selected.

5. Click the [Yes] button.
   The copied parameters are saved in the NMI devices selected in step 4.

**Exporting/importing the settings of a device settings snapshot**

You can export and import the settings of a device settings snapshot.

**To export the settings of a device settings snapshot**

1. Select a device settings snapshot to export.
2. Click  and click [Export] in the displayed menu.
   A confirmation message appears.
3. Click the [Yes] button.
   A DeviceSettingSnapshot-yyyymmdd-hhmmss.zip file is downloaded.

To import the settings of a device settings snapshot

1. Click  and click [Import] in the displayed menu.
   The [Select Device Setting Snapshot File] dialog appears.
2. Click the [Browse] button, select the file (.zip) to import, and click the [OK] button.
   The file is imported.

Tips

- You can place a check mark in [Overwrite Device Settings Snapshot] to overwrite the settings of the selected device settings snapshot when importing.
- Windows reserved character strings cannot be specified for the device name of a device settings snapshot.

Configuring SNMP Traps

Click  in the global menu and switch to the [Maintenance] screen, and click [SNMP] in the [Settings] menu to display the [SNMP Trap] screen. You can configure SNMP traps for IP Live System Manager if you are implementing device monitoring with SNMP.

![SNMP Trap screen](image)

**[SNMPv1v2c] tab**

Configures traps for SNMP v1 and v2c.
Enter individual community names in [SNMP v1] and [SNMP v2c]. When finished, click the [Save] button to save the settings.

**[SNMPv3] tab**

Configures traps for SNMP v3.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine ID</td>
<td>Specifies the SNMP engine ID. Select [Use default] to use the default ID. To use arbitrary settings, select [Custom setting] and enter the ID in the following fields.</td>
</tr>
<tr>
<td>User Name</td>
<td>Enter the user name.</td>
</tr>
<tr>
<td>Security Level</td>
<td>Specifies the security level.</td>
</tr>
<tr>
<td>Authentication Protocol</td>
<td>Select the authentication protocol. Can be set to [None], [MD5], or [SHA].</td>
</tr>
<tr>
<td>Authentication Password</td>
<td>Enter the authentication password.</td>
</tr>
<tr>
<td>Privacy Protocol</td>
<td>Select the encryption protocol. Can be set to [None], [DES], [DES3], [AES-128], [AES-192], or [AES-256].</td>
</tr>
<tr>
<td>Privacy Password</td>
<td>Enter the encryption password.</td>
</tr>
</tbody>
</table>

**[Host] tab**

This tab is used to specify settings relating to the host to receive SNMP traps.

1. Click the button.
   - The [Create Host Settings] dialog appears.
2. Select [Enable] in [Trap Sending], and set the SNMP host parameters.
   - Specify settings for [IP Address], [Port], and [SNMP Version].
3. Click the [Save] button.
4. Click the [Close] button.
   - The [Create Host Settings] dialog closes.
   - The SNMP host is added to the list on the [Host] tab.

**Tips**

- Selecting a host and clicking the [Test] button will send a test trap signal to the SNMP agent.
- By default, only [SNMPv1] or [SNMPv2c] can be selected in [SNMP Version]. [SNMPv3] can be selected in [SNMP Version] after configuring SNMP v3 on the [SNMPv3] tab and clicking the [Save] button to save the settings.

## Configuring Dante Interfaces

Click in the global menu and switch to the [Maintenance] screen, and click [Dante] in the [Settings] menu to display the [Dante Interfaces in IP Live Manager] screen. You can specify the Dante interface to use.

To configure a redundancy structure control path between IP Live System Manager and a Dante device, specify both Primary and Secondary from the Dante control network cards connected to the system.

To configure an IP Live System Manager redundancy structure, configure the network interface settings for the Primary IP Live System Manager in [Primary Interface], and for Secondary IP Live System Manager in [Secondary Interface].

Click the pull-down menu for [Primary Interface] and [Secondary Interface] in sequence to display the connected Dante devices. Selecting a device will display the IP address and MAC address of that device. Click the [Save] button to set the selected Dante device as the system Dante interface.

## Configuring NMOS

### Notes

- **RDS priority setting**
  If there are multiple instances of RDS within a system, NMOS nodes will automatically connect to the RDS with the highest priority, so the priority value must be configured. Change the numeric value of `[mdns.priority=10]` in the `C:\Sony\LSM\nmos-rds\config\nmos-rds.cfg` file. 1 is the highest priority, and 100 is the lowest priority. After changing the setting, restart the PWS-100NM1/PWS-110NM1.

- **Usage setting of third-party RDS**
  When using a third-party RDS, the function for acquiring status information between RDS instances using WebSockets is not available and status cannot be acquired. In this case, set `[lsm.nmos.api.support-websocket-rds-redundant]` to `[false]` in the `C:\Sony\LSM\conf\application.properties` file and restart the PWS-100NM1/PWS-110NM1.
To configure NMOS, the corresponding port in the firewall on the PC running IP Live System Manager must be opened beforehand. Also, the name suffix entry must be enabled in [Apache Httpd NMOS...] on the [Control panel] > [System and Security] > [Windows Firewall] > [Advanced settings] > [Inbound Rules] screen.

Click in the global menu and switch to the [Maintenance] screen, and click [NMOS] in the [Settings] menu to display the [NMOS Configuration] screen. You can configure RDS and IP Live System Manager information used by NMOS.

Configure RDS information according to the RDS environment used in [RDS]. Enable/disable RDS and set the IP address and port numbers.

To enable RDS, select either [Proxy Mode] or [Controller Mode]. To use the NMOS proxy mode function, select [Proxy Mode]. To use the source/destination signal control function of the NMOS device, select [Controller Mode].

Specify the NIC of IP Live System Manager to make public for Node API and SDP in [System Manager]. Selecting an NIC will display the corresponding IP address and MAC address.

Click the [Save] button to save the settings.

**Note**

An NMOS license (PWSL-NM18) is required to use RDS running on a PWS-100NM1 or PWS-110NM1, even when [Controller Mode] is selected and [Proxy Mode] is used.
Checking System Information

You can perform system-wide management, including monitoring device status and network information, creating backup files, registering licenses, and exporting logs to a Syslog server.

[Status] screen

Click \[\text{Status}\] in the global menu and switch to the [Maintenance] screen, and click [System Status] in the [Status] menu to display the [Status] screen. You can check the status of IP Live System Manager and information about the registered NMI devices.

![Status Screen](image)

**Tip**

Clicking \[\text{Status}\] refreshes the display with the latest information.

**Status**

The IP Live System Manager operating status appears.

**Usage**

Displays the number of devices registered in IP Live System Manager, number of devices connected, number of NMIs, and number of logged-in users.

[Information] screen

Click \[\text{Information}\] in the global menu and switch to the [Maintenance] screen, and click [Information] in the [Settings] menu to display the [Information] screen. You can set the system name and check the OID of the MIB.
Tip

Clicking 🔄 refreshes the display with the latest information.

Product Information

Enter a system name in [System Name] and click the [Save] button to register the system name.

SNMP Private MIB Information

Displays the Root OID used by SNMP.

[Maintenance] screen

If IP Live System Manager is not present in a redundancy structure, click ☰️ in the global menu and switch to the [Maintenance] screen, and click [Backup/Restore] in the [Settings] menu to display the [Maintenance] screen.

You can save IP Live System Manager configuration data as a backup file and load a saved backup file into IP Live System Manager on the [Maintenance] screen.
Backing up configuration data

Use the following procedure to save IP Live System Manager configuration data as a backup file.

1. Click the [Backup] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The IP Live System Manager configuration data is saved as a backup file.

Loading backup configuration data into IP Live System Manager

Use the following procedure to load backup configuration data into IP Live System Manager.

1. Click the [Restore] button.
   The [Select Restore File] dialog appears.
2. Click the [Browse] button, and select the backup file.
3. Click the [OK] button.
   The backup file is loaded into IP Live System Manager.

[Redundant System] screen

If IP Live System Manager is in a redundancy structure, click in the global menu and switch to the [Maintenance] screen, and click [Redundancy] in the [Settings] menu to display the [Redundant System] screen.

You can check the redundancy system status on the [Redundant System] screen. Depending on the system status, the operating mode of IP Live System Manager can be switched to recover from an error or to operate in standalone mode. You can also save IP Live System Manager configuration data as a backup file and load a saved backup file into IP Live System Manager.
Switching the operating mode

You can switch to any of the following modes.

- **Redundancy mode**
  Mode for operation in redundancy structure comprising a Primary and Secondary. Clicking the [Redundant Mode] button when in maintenance mode activates redundancy mode.

- **Single mode**
  Mode for standalone operation (Local). When IP Live System Manager is booted, the system is initialized and synchronized with the Remote unit. If sync cannot be obtained, because the Remote unit is not booted or other cause, you can boot the Local unit by switching to single mode.

- **Maintenance mode**
  Mode for backing up and restoring Local configuration data, and for data syncing from the Remote unit. Clicking the [Maintenance Mode] button in redundancy mode or single mode will activate maintenance mode. To perform data sync from Remote, the Remote unit must also be set to maintenance mode. If the sync target data is updated from the Remote unit in maintenance mode, the updated content is reflected on the Local unit. User operation, excluding crosspoint switching, is not accepted in maintenance mode.

Performing data synchronization from the Remote unit

An error occurs whenever the system cannot synchronize to the Remote unit. In this case, the error can be cleared by copying the memory information, database information, and file information of the Remote unit to the Local unit so that the target data is the same on both systems.

1. Click the [Maintenance Mode] button on the [Redundant System] screen of the Primary and Secondary.
   This activates maintenance mode on the Primary and Secondary.

2. Click the [Sync from Remote] button on the [Redundant System] screen of the system you want to restore.
Data sync from the Remote unit is executed.

3. Click the [Redundant Mode] button on the [Redundant System] screen of the Primary and Secondary.
   This activates redundancy mode on the Primary and Secondary.

**Backing up configuration data**

Use the following procedure to save IP Live System Manager (Local) configuration data as a backup file.

1. Click the [Maintenance Mode] button.
   Maintenance mode is activated.

2. Click the [Backup] button.
   A confirmation message appears.

3. Click the [Yes] button.
   The IP Live System Manager (Local) configuration data is saved as a backup file.

4. Click the [Redundant Mode] button.

**Loading backup configuration data into IP Live System Manager**

Use the following procedure to load backup configuration data (Local) into IP Live System Manager.

1. Click the [Maintenance Mode] button.
   Maintenance mode is activated.

2. Click the [Restore] button.
   The [Select Restore File] dialog appears.

3. Click the [Browse] button, and select the backup file.

4. Click the [OK] button.
   The backup file is loaded into IP Live System Manager (Local).

5. Click the [Sync from Remote] button on the [Redundant System] screen of the Remote unit.
   Data sync from the Remote unit is executed.

6. Click the [Redundant Mode] button.

**[License] screen**

Click 
 in the global menu and switch to the [Maintenance] screen, and click [License] in the [Settings] menu to display the [License] screen. You can install and activate various licenses, such as the IP Live System Manager license and I/O port licenses. You can also view detailed information about the various installed licenses.
Clicking **refreshes** the display with the latest information.

**Installing a license**

Use the following procedure to install a license in IP Live System Manager. You can install and activate multiple licenses simultaneously.

1. Click the [Install] button.
   The [Install License] dialog appears.
2. Enter the license key, and click the [Install] button.
   The installation starts.
   When installation finishes, the installed license is displayed in [License List].

   **Tip**

   You can enter multiple license keys and install them at the same time.

3. Select the installed license, and click the [Activate] button.
   A confirmation message appears.

   **Tip**

   You can select multiple licenses and activate them at the same time.

4. Click the [Yes] button.
   The installed license validation period is configured.

**Tip**

When an IP Live System Manager License (PWSL-NM10) is installed, all of the functions of the installed licenses become available for use, even if not all the licenses have been activated. This allows you
to check the operation when building a system, but the licenses must be activated when entering operation.

**Installing an extended license**

Use the following procedure to extend the valid period of a license. You can install and activate multiple extended licenses at the same time.

**Note**

You can install and activate multiple extended licenses for identical models together at the same time.

1. Select the license whose valid period you want to extend, and click the [Edit] button.
   The [Extend License] dialog appears.

   **Tip**

   You can select multiple licenses at the same time.

2. Enter the extended license key, and click the [Extend] button.
   The installation starts.
   When installation finishes, the extended license is displayed below the selected license.

   **Tip**

   You can enter multiple extended license keys and install them at the same time.

3. Select the installed extended license, and click the [Activate] button.
   A confirmation message appears.

   **Tip**

   You can select multiple extended licenses and activate them at the same time.

4. Click the [Yes] button.
   The installed extended license is activated.

**Note**

You can install multiple extended licenses at the same time. In this case, when specifying an original license to be extended, you can specify multiple original licenses to be extended. The number of extended licenses that can be entered is also an integer multiple of the number of extended original licenses. An error will result if this condition is not satisfied.

**Checking detailed information of a license**

Select a license and click the [Detail] button to display the [Detail of License] dialog. You can use the dialog to check detailed information about the selected license.
About system controller licenses

A system controller license is a license that removes the limitation on the number of external controllers that can control IP Live System Manager.

Installing a system controller license allows you to increase the number of external controllers that can switch the crosspoints of IP Live System Manager.

[Log] screen

Click 🗒️ in the global menu and switch to the [Maintenance] screen, and click [Log] in the [Settings] menu to display the [Syslog] screen. You can enable/disable the export of logs to a Syslog server.
Enabling Syslog output

Use the following procedure to enable Syslog output.

1. Select [Enable].
2. Enter the IP address of the Syslog server in [Server].
3. Enter the port number in [Port Number].
4. Click the [Save] button.

Output of logs to the Syslog server becomes enabled.

About the Virtual Matrix Function

You can create virtual source interfaces and destination interfaces that are not associated with a physical device, forming a virtual matrix, and then generate crosspoint switching notification virtualization by selecting a crosspoint in the virtual matrix. Interfaces forming a virtual matrix are called virtual interfaces. By assigning each virtual interface to an AV interface group, you can link the virtual matrix crosspoint selection process with the conventional matrix crosspoint selection process.

The virtual matrix function can be used as a trigger for high-level processes, such as crosspoint status display, CCU/RCP switching, and format switching.

Use the following procedure to create a virtual interface.

1. Click in the global menu and select [System Controller] screen > [Settings] > [AV Interface]. The [AV Interface] screen appears.
2. Click the [Export Virtual Interface] button at the top right of the [AV Interface] screen.

An Excel file is exported.

3. Enter the names of virtual interfaces to create on the source side of the virtual matrix vertically starting from line 2 of the [Source Virtual IF] worksheet of the exported Excel file.

The names of virtual interfaces can contain up to 255 characters.
4. Enter the names of virtual interfaces to create on the destination side of the virtual matrix vertically starting from line 2 of the [Destination Virtual IF] worksheet.

5. Save the Excel file.

6. Click the [Import Virtual Interface] button at the top right of the [AV Interface] screen, and specify the Excel file saved in step 5.

   The Excel file is imported. The imported virtual interface is displayed on the [AV Interface] screen.

   The imported virtual interface can also be found using search on the [AV Interface Group] screen.

### Creating a Source/Destination Interface Group

Click in the global menu and switch to the [System Controller] screen, and click [AV Interface Group] in the [Settings] menu to display the [AV Interface Group List] screen.

You can create source interface and destination interface groups for routing operations.

![Image of AV Interface Group List](image)

### Setting levels

Use the following procedure to set the level tied to source interface group or destination interface group. The level is an index number applied to each interface of the source interface group and destination interface group. For example, interfaces set to level 1 in a source interface group will connect to interfaces set to level 1 in a destination interface group.

1. Click the [Level Settings] button.

   The [Level Settings] dialog appears.

2. Click the button.

   A level is added. Each time the button is clicked, a level is added in order from level 1.
3. Select a level, and enter a level name in [Name].

**Tip**
You can click the [Revert] button to restore the original settings.

4. Click the [Save] button.
   The settings are saved.
5. Click the [Close] button.
   The dialog closes.
   The specified level name is displayed in the corresponding fields on the [AV Interface Group List] screen.

**Deleting a level**
Use the following procedure to delete configured levels in decreasing level order (large numbers to small numbers).

1. Click the button.
   A confirmation message appears.
2. Click the [Yes] button.
   Levels are deleted in decreasing order.

**Creating a source/destination interface group**
You can create source interface groups and destination interface groups.

**Note**
You can create source interface groups or destination interface groups on the [AV Interface Group List] screen. You switch between the configuration screens using the [Source] and [Destination] buttons. The configuration method is identical on both screens.
Creating a source/destination interface group on the [List] screen

You can create source interface and destination interface groups by displaying the AV interface in list view. You can assign any video to a source or destination interface group from this screen.

1. On the [AV Interface Group List] screen, click [List] and then click the (+) button. A group is added.

2. Click the group name field, and change the group name.

3. Click a level field, and select the interfaces to register in the group.
From among the registered levels, select an interface from the level field you want to set.

**Tips**
- The levels displayed in the level fields are specified using the [Level Settings] dialog.
- Specify registered AV interfaces in the level fields. The AV interface name is formed from the device name, interface index, interface name, media type, and router type.
- You can enter a name in the level field text box to search for a name.
- You can click the button to restore the original settings.
- When [Default] is selected in [Display], the default image of the device is used as the display image. To specify another image as the display image, select [Custom] in [Display], click the [Browse] button, and specify the image to display.
- Only 16 interfaces are displayed at a time in the pull-down list, but you can select from up to 128 interfaces by scrolling the list. If a target AV interface name is not displayed, enter a keyword contained in the AV interface name to filter the AV interface names that are displayed in the pull-down list.

4. Click the [Save] button.
   The settings are saved.

**Note**

The settings are discarded if you switch to another screen without clicking the [Save] button.

**Setting the button color of an NS-BUS device (supported devices only)**

Use the following procedure to set the button color of an NS-BUS device.

1. Select the interface group you want to change the button color.
2. Select the color to set in [Color].
3. Click the [Save] button.
   The settings are saved.

Creating a source/destination interface group on the [Overall] screen

Use the following procedure to display the source and destination interfaces and levels in tabular form, and configure settings.

1. On the [AV Interface Group List] screen, click [Overall] and then click the button.
   A group is added.
2. Click the group name field, and change the group name.
3. Click a level field, and select the interfaces to register in the group.
From among the registered levels, select an interface from the level field you want to set.

**Tips**
- The levels displayed in the table are specified using the [Level Settings] dialog.
- You can click the button to restore the original settings.

4. Click the [Save] button.
The settings are saved.

**Note**
The settings are discarded if you switch to another screen without clicking the [Save] button.

**Setting the button color of an NS-BUS device (supported devices only)**

Use the following procedure to set the button color of an NS-BUS device.
1. Select the interface group you want to change the button color.
2. Select the color to set in [Color].
3. Click the [Save] button.
The settings are saved.
Creating a source/destination interface group on the [Bulk] screen

You can create source and destination groups automatically for each available AV interface. The created AV interface group names are the same as the individual AV interface names, with each group having one level.

   The source and destination groups are automatically created from the available AV interfaces, and displayed in list view.

2. Click the [Create Groups] button.
   The [Confirmation] dialog appears.

3. Specify the start number of the group number in [Start Number].
   **Tip**
   AV interface groups have a group number that are unique to each group. Group numbers are allocated to AV interface groups in sequence from the number specified here.

4. Specify the elements that make up the group name in [Group Name].
   Specify the elements that make up the group name using the following checkboxes. The structure of the specified group name is displayed in [Preview].
   - Direction
     Input/output direction of the stream (TX: source interface, RX: destination interface).
   - Group Number
     ID of each AV interface group.
   - Device Name
     Name of the device to which the corresponding interface belongs.
   - I/O Name
     Name of the interface forming the AV interface group. The checkbox is always selected, and cannot be disabled.
5. Click the [Yes] button.
   The settings are saved.

**Detailed search**

You can filter the source and destination interfaces listed on the [AV Interface List] screen. Click the button to expand the display of the search area of the dialog and then specify the search conditions.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name/Tag</td>
<td>Specify whether to search by AV interface name or a tag name (NMI, DANTE, VIDEO, META, AUDIO, VIDEO_AUDIO, AV Router, ST2110) associated with an AV interface.</td>
</tr>
<tr>
<td>contains/is</td>
<td>Specify whether to search for a partial match (contains) or an exact match (is).</td>
</tr>
<tr>
<td>[Add] button</td>
<td>Adds additional search conditions.</td>
</tr>
<tr>
<td>[Search] button</td>
<td>Conducts search using the specified search conditions.</td>
</tr>
<tr>
<td>[Reset] button</td>
<td>Clears all the specified search conditions.</td>
</tr>
</tbody>
</table>

**Synchronizing video stream reception timing**

You can synchronize video streams so that they reach the destination interface groups simultaneously when a crosspoint on the crosspoint matrix is switched. This function can be used to implement simultaneous switching of 8K video streams.
To configure on the [List] screen

2. Create a multi-level destination interface group.
   For details, see “Setting levels” and “Creating a source/destination interface group.”
3. Select a destination interface group for which to synchronize video stream reception.
4. Place a check mark in [Synchronize].
5. Click the [Save] button.
   The settings are saved.

To configure on the [Overall] screen

2. Create a multi-level destination interface group.
   For details, see “Setting levels” and “Creating a source/destination interface group.”
3. Click [Overall].
4. Place a check mark in [Synchronize] for the destination interface group for which to synchronize video stream reception.
5. Click the [Save] button.
   The settings are saved.

Monitoring received video streams in another destination interface group

You can monitor video streams received by a destination interface group in another destination interface group.

To configure on the [List] screen

2. Create a destination interface group.
   For details, see “Creating a source/destination interface group.”
3. Select a destination interface group to monitor video streams.
4. Turn [Destination Monitor] on (Enable).

5. Click the [Save] button.
   The settings are saved.

To configure on the [Overall] screen

2. Create a destination interface group.
   For details, see “Creating a source/destination interface group.”
3. Click [Overall].
4. Place a check mark in [Destination Monitor] for the destination interface group to monitor video streams.

5. Click the [Save] button.
   The settings are saved.

To set video stream monitoring crosspoints

Destination interface groups for which [Destination Monitor] is enabled are displayed in the source/destination group list. In the diagram above, destination interface groups “Destination group 0001,” “Destination group 0002,” and “Destination group 0003” have [Destination Monitor] enabled.
Set the video stream monitoring crosspoint to start video stream monitoring. 

In the diagram above, “Destination group 0002” (A) and “Destination group 0003” (B) are connected. “Destination group 0003” (C) receives the video stream from “Source group 0001” (D). “Destination group 0002” (A) receives the video stream received by “Destination group 0003” (C).

Up to three levels of video streams can be monitored. In the following diagram, three levels of video streams are being monitored.

- “IP4...1-1” destination AV interface group is monitored by “IP4...1-2” destination AV interface group
- “IP4...1-2” destination AV interface group is monitored by “IP4...1-3” destination AV interface group
- “IP4...1-3” destination AV interface group is monitored by “IP4...1-4” destination AV interface group

As a result, when the “IP4...1-1” destination AV interface group crosspoint switches, the “IP4...1-2,” “IP4...1-3,” and “IP4...1-4” destination AV interface group crosspoints also switch automatically.

If a single source AV interface group signal is received on multiple destination AV interface groups, this setup allows you to switch several destination AV interface group crosspoints with a single crosspoint switch operation.
Deleting an interface group

Use the following procedure to delete a registered source interface group or destination interface group.

1. Select the interface group you want to delete.
2. Click the button. A confirmation message appears.
3. Click the [Yes] button.
   The selected interface group is deleted.

Importing/exporting source/destination interface group settings

Source/destination interface group settings can be exported and imported by clicking [Export/Import] on the [AV Interface Group List] screen. You can export to create backup data, and then import the backup file at a later time to restore source/destination interface group settings.

Exported data is saved in Excel format (.xlsx). You can edit the data exported by another IP Live System Manager to match the operating environment of the target IP Live System Manager and then import that data.
To export source/destination interface group settings

1. Click the [Export] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The settings for the current source/destination interface groups are exported. The exported data is
   saved in the folder configured as the download destination of your web browser.

Exported data format

Source/destination interface group settings are exported to an Excel-format file (*.xlsx). The data is
output using the following worksheet structure.

<table>
<thead>
<tr>
<th>Worksheet name</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>Version of data</td>
<td>Not editable</td>
</tr>
<tr>
<td>Source</td>
<td>Source interface group settings</td>
<td>Editable</td>
</tr>
<tr>
<td>Source AV Interface(Fixed)</td>
<td>Source interface group, external interface settings</td>
<td>Not importable</td>
</tr>
<tr>
<td>Source Ext AVIF(Fixed)</td>
<td>Source interface group, external interface settings</td>
<td>Editable</td>
</tr>
<tr>
<td>Source Virtual AVIF(Fixed)</td>
<td>Source interface group, virtual interface settings</td>
<td>Editable</td>
</tr>
<tr>
<td>Source Alias Name</td>
<td>Alias name assigned to a source interface group.</td>
<td>Editable</td>
</tr>
<tr>
<td>Destination</td>
<td>Destination interface group settings</td>
<td>Editable</td>
</tr>
<tr>
<td>Destination AV Interface(Fixed)</td>
<td>Destination interface group, external interface settings</td>
<td>Not importable</td>
</tr>
<tr>
<td>Destination Ext AVIF(Fixed)</td>
<td>Destination interface group, external interface settings</td>
<td>Editable</td>
</tr>
<tr>
<td>Destination Alias Name</td>
<td>Alias name assigned to a destination interface group.</td>
<td>Editable</td>
</tr>
<tr>
<td>Destination Virtual AVIF(Fixed)</td>
<td>Destination interface group, virtual interface settings</td>
<td>Editable</td>
</tr>
</tbody>
</table>

The interface number and group name are displayed in columns A and B, respectively, on the [Source] and [Destination] sheets. The configured levels are displayed in sequence in column C and subsequent columns. Each cell displays the device name, interface number, interface name, media type, and AV router name separated by periods (dot notation).

When exported data is imported into IP Live System Manager, only the [Source] sheet, [Source Alias Name] sheet, [Destination] sheet, and [Destination Alias Name] sheet are imported. To import into another IP Live System Manager, rewrite the content of columns B and subsequent columns to match the import target environment.
To import source/destination interface group settings

1. Click the [Import] button.
   A dialog appears for you to specify the file to import.

2. Click the [Browse] button, and specify the file to import on the displayed screen.

   Importing source/destination interface group settings with [Delete all existing AV Interface Groups.] checked will overwrite all current settings with the imported settings.

3. Click the [OK] button.
A confirmation message appears.

4. Click the [Yes] button.
   The source/destination interface group settings are imported from the specified file.

Configuring Alias Names for Source/Destination Interface Groups

Click in the global menu and switch to the [System Controller] screen, and click [Alias Name] in the [Settings] menu to display the [Alias Name List] screen.

You can configure up to eight alias names, separately from the base name, of a source/destination interface group.

### Configuring an alias name

You can set an alias name for source interface groups (Source) and destination interface groups (Destination).

**Note**

You can set an alias name for source interface groups (Source) and destination interface groups (Destination) on the [Alias Name List] screen. You switch between the configuration screens using the [Source] and [Destination] buttons. The configuration method is identical on both screens.

1. Click the alias name field, and change the alias name.

   ![Alias Name List](image)

2. Click the [Save] button.
   The settings are saved.
Note

The settings are discarded if you switch to another screen without clicking the [Save] button.

Changing the title of an alias name field

Use the following procedure to change the title of an alias name field.

1. Click ...  
   The [Alias Name Settings] dialog appears.
2. Select the title to change, then edit the title.
3. Click the [Save] button.  
   The settings are saved.
4. Click the [Close] button.  
   The dialog closes.

Monitoring the Connection Status of Source/Destination Interfaces

Click in the global menu and switch to the [Monitoring] screen, and click [Streaming Flow] to display the [Streaming Flow] screen. You can monitor the connection status of specific source/destination interfaces visually.
Displaying the connection status of source/destination interfaces

To display the connection status of a source/destination interface, select a device or source/destination interface group from the list on the [Find by] – [Device] tab or the [AV Interface Group] tab, respectively.

Tips

- On the [Device] tab, you can select the type of a device displayed in the list from the drop-down list. You can also enter text in the search box to search for devices to display.
On the [AV Interface Group] tab, you can select the type of interface group (Source or Destination) to display in the list. You can also enter text in the search box to search for source/destination interface groups to display.

The source/destination interface connection status corresponding to the selected device or source/destination group is displayed as follows.

- A solid line indicates that a source interface and a destination interface are connected
- A dotted line indicates that a source interface and a destination interface are disconnected, but connection is reserved.
- If an error occurs, an error message is displayed above the line.

**Setting interface display levels**

You can set a level for a source/destination interface for the display of the connection status.

1. Click the [Setting Display Level] button.
   The [Setting Display Level] dialog appears.
2. Select a level for a source/destination interface for the display of the connection status.
Tip

The source/destination interface levels that are available for selection can be configured in the [Level Settings] dialog of the [AV Interface Group List] screen. For details, see “Setting levels.”

3. Click the [OK] button.
The settings are saved.

Checking source/destination interface information and settings information on the Preview pane

Click the button to display the Preview pane. Select a device or source/destination interface group on the [Streaming Flow] screen to display the source/destination interface information and settings information for the selected device or source/destination interface group on the Preview pane.
Tips

- The screen above shows the case when an NMI device is selected.
- Selecting a device on the [Streaming Flow] screen and clicking the button displays the [Edit Device] dialog allowing you to check or edit detailed parameters of the device. If a source/destination group is selected, the button is grayed out.
- When you click the (Go To Topology) button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).
### Device information display

The following information is displayed when a device is selected from the list on the [Device] tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the device.</td>
</tr>
<tr>
<td>Connection</td>
<td>Displays the connection status of the device.</td>
</tr>
<tr>
<td>Serial Number</td>
<td>Displays the serial number of the device.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the device.</td>
</tr>
<tr>
<td>Device Interface Name</td>
<td>Displays the device interface name.</td>
</tr>
<tr>
<td>Device Interface Version</td>
<td>Displays the version of the device interface.</td>
</tr>
<tr>
<td>Network Media Interfaces</td>
<td>Displays the stream input/output direction for each interface.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays detailed device status comprising error codes and messages.</td>
</tr>
<tr>
<td>Network List</td>
<td>Displays the port list of the device.</td>
</tr>
</tbody>
</table>

### Source/destination interface group display

The following information is displayed when a source/destination interface group is selected from the list on the [AV Interface Group] tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the source/destination interface group.</td>
</tr>
<tr>
<td>Source List</td>
<td>Displays the level settings of the source interface group when [Source] is selected.</td>
</tr>
<tr>
<td>Destination List</td>
<td>Displays the level settings of the destination interface group when [Destination] is selected.</td>
</tr>
<tr>
<td>Connected Source List</td>
<td>Displays the level settings of the connected source interface group when [Destination] is selected.</td>
</tr>
</tbody>
</table>

### Source/destination interface information display

The following information is displayed when a source/destination interface is selected on the [Streaming Flow] screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the AV interface name.</td>
</tr>
<tr>
<td>Device Name</td>
<td>Displays the name of the device.</td>
</tr>
<tr>
<td>Transmit Status</td>
<td>Displays the transmission status.</td>
</tr>
<tr>
<td>Transmit Direction</td>
<td>Displays the stream input/output direction.</td>
</tr>
<tr>
<td>Format</td>
<td>Displays the video format and audio format.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Displays the IP address of the device.</td>
</tr>
<tr>
<td>Multicast Address</td>
<td>Displays the multicast address of the device.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays detailed device status comprising error codes and messages.</td>
</tr>
</tbody>
</table>
Creating a Workgroup

A workgroup is a function for controlling and managing the crosspoint matrix and control panel according to each use case. You can create and manage multiple workgroups, depending on the operational status of the system. A user can select a specified workgroup to perform routing operations.

Click the in the global menu and switch to the [System Controller] screen, and click [Workgroup Settings] in the [Settings] menu to display the [Workgroup List] screen for creating a new workgroup.

Creating a new workgroup

Use the following procedure to create a new workgroup.

1. On the [Workgroup List] screen, click the button.
   The [Create New Workgroup] dialog appears.

2. Enter the name of the workgroup in [Name].
   Tip
   Enter a description of the workgroup, as required, in [Description].
3. Click the [Save] button.
   The workgroup is created, and is displayed as a button on the [Workgroup List] screen.

### Assigning source/destination interface groups to a workgroup

Use the following procedure to assign a source/destination interface group to a created workgroup on the [Workgroup List] screen.

1. Select a workgroup in [Workgroup List], and click [AV Interface Group Assignment].
2. Click [Source].
3. Select a source interface group to assign to the workgroup in [Unassigned Port List], and click .
   The selected source interface group is added to [Assigned Port List].
4. Click [Destination].
5. Select a destination interface group to assign to the workgroup in [Unassigned Port List], and click .
   The selected destination interface group is added to [Assigned Port List].

### Renaming a workgroup

Use the following procedure to rename a workgroup.

1. Select a workgroup in [Workgroup List], and click the button.
   The [Edit Workgroup] dialog appears.
2. Change the name and description.
3. Click the [Save] button.
   The settings are saved.

### Copying a workgroup

Use the following procedure to copy a workgroup. The following data is copied.

- AV interface group assignment status
- Matrix profile
- Control panel profile

1. Select a workgroup to copy in [Workgroup List], and click the button.
   The [Copy Workgroup] dialog appears.
2. Enter the name of the workgroup.
3. Click the [Save] button.
   The selected workgroup is copied.

### Deleting a workgroup

Use the following procedure to delete a workgroup.

1. Select a workgroup in [Workgroup List], and click the button.
   A confirmation message appears.
2. Click the [Yes] button.
   The workgroup is deleted.
Changing the Crosspoint Matrix Layout

Click [Matrix Profile] on the [Workgroup List] screen to display the [Matrix Profile] screen. You can change the layout of the crosspoint matrix on the [Routing] screen and specify crosspoints whose connection is to be inhibited.


Tips

- You can display crosspoint matrix settings using either (List View) or (Matrix View).
- The name selected in [Alias] is used as the name of the AV interface group displayed on the crosspoint matrix.

Showing/hiding interfaces

You can set whether to show or hide source interfaces and destination interfaces in the crosspoint matrix on the [Routing] screen.

1. Select a source interface or destination interface.

   Tips

   - You can select more than one source or destination interface.
   - Source interfaces and destination interfaces cannot be selected simultaneously.

2. Switch the display state.
Click the [Show] button to show the selected interfaces in the crosspoint matrix on the [Routing] screen.
Click the [Hide] button to hide the selected interfaces in the crosspoint matrix on the [Routing] screen.

**Tip**
You can click the [Revert] button to restore the display state of interfaces to the original state.

3. Click the [Save] button.
The settings are saved, and applied to the crosspoint matrix on the [Routing] screen.

### Changing the display position of interfaces

You can change the display position of source interfaces and destination interfaces in the crosspoint matrix on the [Routing] screen.

1. Select a source interface or destination interface.

   **Tips**
   - You can select more than one source or destination interface.
   - Source interfaces and destination interfaces cannot be selected simultaneously.

2. Change the display position.
   - If a source interface is selected, click the left/right arrow buttons to move position.
   - If a destination interface is selected, click the up/down arrow buttons to move position.

   **Tip**
   You can click the button to restore the display position of interfaces to the original state.

3. Click the [Save] button.
The settings are saved, and applied to the crosspoint matrix on the [Routing] screen.

### Specifying crosspoints with inhibited connections

Use the following procedure to specify the crosspoints that cannot be connected in the crosspoint matrix of the [Routing] screen.

1. Click a crosspoint to select it.

   **Tip**
   You can select more than one crosspoint.

2. Click the [Inhibit] button.
   - is displayed on the selected crosspoint, indicating the crosspoint cannot be connected.
   - Clicking the [Clear Inhibit] button removes the indicator and clears the connection inhibited state.

   **Tip**
   You can click the button to restore the crosspoint state to the original state.

3. Click the [Save] button.
The settings are saved, and applied to the crosspoint matrix on the [Routing] screen.
Restoring the crosspoint matrix layout to default state

Use the following procedure to restore the layout on the [Routing] screen for the crosspoint matrix.

1. Click the [Restore Defaults] button.
   A confirmation message appears.
2. Click the [Yes] button.
   The layout is restored on the [Routing] screen for the crosspoint matrix.

**Tip**

Executing [Restore Defaults] restores the crosspoint matrix layout to following state.

- Hiding of interfaces (groups) is canceled
- Inhibiting of interfaces (groups) is canceled
- Display sequence of interfaces (groups) is reset to the following:
  - AV Router: Device name sequence
  - System Controller: Numeric order in [AV Interface Group List]

Creating a Crosspoint Matrix Snapshot

You can save the crosspoint matrix as a snapshot and then switch the crosspoint matrix during operation by applying the appropriate snapshot as required.

Click \ in the global menu and switch to the [System Controller] screen, and click the (Xpt Matrix View) button to display the [Routing] screen. You can create a crosspoint matrix snapshot, and specify and apply the crosspoint matrix snapshot you want to use.

**Tip**

Click the button to open the Preview pane to display level configuration information for the selected source/destination interface group. Clicking the button closes the Preview pane.

- Clicking the (Go To Streaming Flow) button displays the [Streaming Flow] screen, displaying the connection status of the selected source/destination interface (see “Monitoring the Connection Status of Source/Destination Interfaces”).
• When you select a device in [Source List] on the preview pane and click the (Go To Topology) button, the [Network Topology Monitoring] screen appears, displaying the connection status of the selected device (see “Checking Device Connection State”).

Creating a new crosspoint matrix snapshot

Use the following procedure to create a new crosspoint matrix snapshot. You can create up to 50 snapshots.

1. Click the button.
   The [Xpt Matrix Snapshot List] pane appears.

   Tip
   
   Clicking the button closes the [Xpt Matrix Snapshot List] pane.

2. Click the button.

3. When the completion screen appears, click the [OK] button.
   The crosspoints displayed in the crosspoint matrix are saved.

Applying a crosspoint matrix snapshot

Use the following procedure to apply a created crosspoint matrix snapshot.

1. Select a crosspoint matrix snapshot on the [Xpt Matrix Snapshot List] pane.
2. Click [Preview].
   Saved crosspoints are displayed in gray.
To exit the preview, click 

3. Click the [Apply] button.
   A confirmation message appears.

4. Click the [Yes] button.

5. When the completion screen appears, click the [OK] button.
   The crosspoint matrix is applied in accordance with the selected snapshot.

Changing crosspoint matrix snapshot settings

The number and name of a created crosspoint matrix snapshot are assigned automatically. You can change the number and name.

Tip

Crosspoint matrix snapshot numbers are used to apply crosspoint matrix snapshots externally using an NS-BUS device.

The [Xpt Matrix Snapshot List] pane appears.

2. Select a crosspoint matrix snapshot for which you want to change settings, and click the button.

The [Edit Matrix Snapshot] dialog appears.

3. Change the number and name.

   ![Edit Matrix Snapshot](image)

**Tip**

Snapshot numbers must be unique. The same number as another snapshot cannot be configured.

4. Click the [Save] button.
   
The settings are saved.

**Deleting a crosspoint matrix snapshot**

Use the following procedure to delete a crosspoint matrix snapshot.

   
The [Xpt Matrix Snapshot List] pane appears.

2. Select a crosspoint matrix snapshot to delete, and click the button.
   
   A confirmation message appears.

3. Click the [Yes] button.
   
The selected crosspoint matrix snapshot is deleted.

**Registering Control Panel Operation Buttons**

Click [Control Panel Profile] on the [Workgroup Settings] screen to display the [Control Panel Profile] screen.

You can register various operation buttons used when operating the [System Controller] screen in control panel view.
Registering a control panel

Use the following procedures to register control panel operation buttons.

Registering using drag & drop

1. Click the + button.

2. Drag & drop a source interface group, destination interface group, or crosspoint from the crosspoint matrix onto an empty button.

   **Source interface group:**
   Drag & drop a source interface group from the list onto an empty button.

   **Destination interface group:**
   Drag & drop a destination interface group from the list onto an empty button.
Crosspoint:

Drag & drop a crosspoint of a source interface group and destination interface group onto an empty button.

The selected interface group name or crosspoint is displayed under the name of the button.

Tip

You can change the background color of a button by selecting [Color] in [Background] under [Button Property]. Or you can set an image for the background by selecting [Image].

3. Repeat the steps above to create the required operation buttons.
4. Click the [Save] button.

The control panel is registered with the specified settings.
Registering by specifying parameters

1. Click the + button.
2. Click an empty button to select it, and click the [Create Button] button.

An operation button is added. The default button is a crosspoint button.

3. Select the type of operation button from [Button Type] under [Button Property].
   Select [Xpt] to assign a crosspoint button.
   Select [Src] to assign a source interface button.
   Select [Dest] to assign a destination interface button.
4. Enter the button name in [Name] under [Button Property].
5. Click an interface group or crosspoint in the matrix screen above to select it.
When [Button Type] is [Xpt] (crosspoint):
Select a crosspoint.

Tip
You can select more than one crosspoint to register.

When [Button Type] is [Src] (source interface group):
Select a source interface group.

When [Button Type] is [Dest] (destination interface group):
Select a destination interface group.

6. Click the [Add] button under [Button Property].
The selected interface group name or crosspoint is added to [Edit Assign].

![Edit Assign](image)

The selected interface group name or crosspoint is displayed under the name of the button.

![Xpt1](image)

**Tip**

You can change the background color of a button by selecting [Color] in [Background] under [Button Property]. Or you can set an image for the background by selecting [Image].

7. Repeat the steps above to create the required operation buttons.
8. Enter the name of the control panel in [Panel Name].
9. Click the [Save] button.
   The control panel is registered with the specified settings.

**Tips**

- Select an operation button and click the [Separator H] button to insert a horizontal separator above the button.
- Select an operation button and click the [Separator V] button to insert a vertical separator to the left of the button.
- Click the up/down/left/right buttons to move the selected button or separator.
- Click the (Delete) button to delete the selected button or separator.
- Selecting a control panel name from the profile selection drop-down list in Control Panel View on the [Routing] screen will display the registered buttons.

**Changing control panel settings**

Use the following procedure to add operation buttons and change connections.
1. Select the control panel to modify from the drop-down list.

![Control Panel Selection](image1)
The buttons on the selected control panel are displayed.

2. Add operation buttons or change connections.
   For details, see “Registering a control panel.”

   **Tips**
   - To change the interface group assigned to a source interface button or destination interface button, delete the currently assigned interface group and then assign another interface group.
   - You can click the [Revert] button to restore the original settings.

3. Click the [Save] button.
   The settings are saved.

**Copying a control panel**

Use the following procedure to copy a control panel.

1. Select the control panel to copy from the drop-down list.

   ![Control Panel Selection](image1)
The buttons on the selected control panel are displayed.

2. Click the button.
   The [Copy Control Panel Profile] dialog appears.

3. Enter the name of the control panel.

4. Click the [Save] button.
   The selected control panel is copied.

**Deleting a control panel**

Use the following procedure to delete a registered control panel.
1. Select the control panel to delete from the drop-down list.

The buttons on the selected control panel are displayed.

2. Click the [Delete] button.

A confirmation message appears.

3. Click the [Yes] button.

The selected control panel is deleted.

**Registering image data**

Use the following procedure to register image data for display in the background of a source interface group, destination interface group, or crosspoint button.

1. Select the button for which to register image data.

2. Select [Image] in [Background] under [Button Property], and click the [Browse] button.

The [Select File] dialog appears.
3. Select a save destination folder from the folder hierarchy on the left side.

![Select File dialog]

**Tip**

Clicking the + button adds a new folder below the selected folder.

4. Click the [Upload New File] button.
   The [Upload] dialog appears.
5. Click the [Browse] button, and select the image data.
6. Click the [OK] button.
   A completion message appears when the upload finishes.
7. Click the [OK] button.
   The uploaded image data is displayed in the display on the right.
8. Select the image data to display as the background of the button, and click the [Select] button.

The [Select File] dialog closes.

The selected image is displayed in the background of the button.

Tip
Click the button to display the image data in list view. Click the button to display the image data in thumbnail view.

Assigning Users with Access to Workgroups


You can assign users with Operator permission to use the workgroup.

Tip
Users with Manager or higher permission can use all workgroups, and are not assigned to a workgroup.
Tip
Clicking  refreshes the [User Assign List] display with the latest information.

Assigning users with permission to use the workgroup
1. Click the [Assign] button.
   The [Select User] screen appears.
2. Click a user, and click the [Assign] button.
3. Click [OK] when a message appears notifying you that processing is finished.
4. Click the [Close] button. The selected user moves to the [Assigned User List].

Removing workgroup usage privileges
1. Select a user in [User Assign List].
2. Click the [Unassign] button.
   A confirmation message appears.
3. Click the [Yes] button.
   The selected user is deleted from the [Assigned User List].

Tip
Only workgroups whose use is permitted by the logged-in user are displayed on the [Workgroup List] screen.
Notification Screen

This section describes the operations on the [Notification] screen.

- Checking Task Notifications
- Checking Event Notifications

Checking Task Notifications

The system sends task notifications to inform the user of required user operations. The user checks the task notification and then moves to the corresponding screen to perform the required operation.

- When the system sends a task notification, the number of notifications is displayed on the (Notification) icon in the global menu.
- Clicking the (Notification) icon displays a list of the notifications in a pop-up.
- Clicking a notification displayed in the pop-up displays the corresponding screen.

- Clicking [All] in the pop-up menu displays the [Notification List] screen.


- Clicking the [Task] button on the [Notification List] screen displays the task notification screen, displaying a list of tasks sent from the system.
Tip
You can enter a device name in [Device Name] and search to filter the target devices to display.

Checking details of task notifications
Select a task notification to check the contents of the task notification in the [Preview] field.

Selecting display categories
You can select the type of task notifications displayed on the [Notification List] screen using the [Category] checkboxes.

Moving to the screen for processing a task
Some parameters may need to be changed, depending on the contents of the task notification. In this case, select the task notification and click the [Jump] button to display the corresponding screen.

Setting a notified task to checked state
Select a task notification and click the [Ignore] button to disable the selected task notification (gray), indicating that it has been checked.
Deleting task notifications

Select a checked task or [Corrected] notification and click the [Delete] button to delete the selected task notification.

Checking Event Notifications

The system sends event notifications to inform you of the operation history within the system.

- Clicking [All] in the pop-up menu displays the [Notification List] screen.
- Clicking the [Event] button on the [Notification List] screen displays the event notification screen, displaying a list of events sent from the system.

Tip

You can enter a device name in [Device Name] and search to filter the target devices to display.

Checking details of event notifications

Select an event notification to check the contents of the event notification in the [Preview] field.
Selecting display categories

You can select the type of event notifications displayed on the [Notification List] screen using the [Category] checkboxes.

Place a check mark in the checkboxes for the categories to display.

Deleting event notifications

Select an event notification and click the [Delete] button to delete the selected event notification.
Network Topology Monitoring

This section describes the operations on the [Network Topology Monitoring] screen.

- Checking Device Connection State
- Registering Network Topology Layout Settings

Checking Device Connection State


Devices connected to the network switch are detected automatically, and the connection state of the devices is displayed on the screen. The network switch and devices are also displayed using a layout created as a network monitor profile.

Tips

- You can move the display by dragging the mouse on the [Network Topology Monitoring] screen. You can also zoom in/out using the mouse wheel.
- You can change the display format by selecting a profile from the drop-down list.
- Click the button (Preview) to open the Preview pane to display configuration information for the selected network switch, device, or LAN port. Clicking the button (Preview) closes the Preview pane.
- Selecting a device or source/destination interface group on the [Network Topology Monitoring] screen and clicking the button on the Preview pane displays the [Edit Device] dialog allowing you to check or edit detailed parameters of the device.
- Click the button (Notification) to open the Notification pane to display warnings and other information for the selected network switch or device. Clicking the button (Notification) closes the Notification pane.
Click the button to open the GenLock Preview pane to display GenLock information for the selected device. Clicking the button closes the GenLock Preview pane.

The following operations are performed on the [Network Topology Monitoring] screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Unknown Device</td>
<td>Switches the display to show/hide unknown devices (devices other than network switches, NMI devices, Dante devices, external PTP leader devices).</td>
</tr>
<tr>
<td>Display Designed Connection</td>
<td>Switches the display to show/hide the differences in wiring between the configuration in the network_topology.json file and the actual wiring.</td>
</tr>
<tr>
<td>Cable Transparency</td>
<td>Adjusts the transparency of the display of network cables.</td>
</tr>
<tr>
<td>Clear all network switch status</td>
<td>Clears the status of all network switches.</td>
</tr>
<tr>
<td>Export the time-series data of network monitoring</td>
<td>Exports the network switch traffic data to an Excel file.</td>
</tr>
</tbody>
</table>

Checking the connection state of devices in the network topology diagram

You can check the following connection states of devices in the network topology diagram.

**Network switch status indication**

- Connection state
  - IP Live System Manager and network switch are connected.

![Image of network switch connected](image1)

- IP Live System Manager and network switch are not connected.

![Image of network switch not connected](image2)
Network switch is connected to IP Live System Manager of another system in a redundancy configuration.

- Error state
  Warning state occurred on a network switch.

Error state occurred on a network switch.

**Network switch LAN port status indication**

- Error state
  Warning state occurred on a LAN port of a network switch.

Error state occurred on a LAN port of a network switch.

- Link state
  Link is up (device is connected and power is turned on).

Link is down (device is not connected or power is turned off).

**NMI device / Dante device status indication**

- Connection state
  Connection between IP Live System Manager and the NMI device has been established.
Connection between IP Live System Manager and the NMI device has not been established.

NMI device is connected to IP Live System Manager of another system in a redundancy configuration.

- **Error state**
  Warning state occurred in an NMI device.

- **Network genlock state**
  Network genlock is an unlocked state (Locking, Not In Use, FreeRun).

**NMI device LAN port status indication**

- **Link state**
  Network switch link is up.

  Network switch link is down.

**Cable status indication**

- **Connection state**
  Connected NMI device LAN port link is up (blue).

  NMI device is not connected or connected NMI device LAN port link is down (gray).

  Cable connecting a device to IP Live System Manager of another system in a redundancy configuration (dark gray).

  Not yet connected according to the settings in the network_topology.json file (light blue).
Connected but with different settings than those in the network_topology.json file (red). Reconnect with the settings in the network_topology.json file to clear the red indicator.

Checking device connection state and configuration information of devices on the Preview pane

Click the button to display the Preview pane. Select a network switch, device, or LAN port on the [Network Topology Monitoring] screen to display the connection state and configuration information of the selected network switch, device, or LAN port in the Preview pane.
Tips

- The screen above shows the case when a network switch is selected.
- Clicking the button closes the Preview pane.
• Clicking the (Go To Streaming Flow) button displays the [Streaming Flow] screen, displaying the connection status of the selected source/destination interface group (see "Monitoring the Connection Status of Source/Destination Interfaces").

• Selecting a device or source/destination interface group on the [Network Topology Monitoring] screen and clicking the button displays the [Edit Device] dialog allowing you to check or edit detailed parameters of the device.

**Network switch configuration information**

The following configuration information is displayed when a network switch is selected on the [Network Topology Monitoring] screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the network switch.</td>
</tr>
<tr>
<td>Model Name</td>
<td>Displays the model name of the network switch.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the network switch.</td>
</tr>
<tr>
<td>Category</td>
<td>Displays the device category (&quot;Network Switch&quot;).</td>
</tr>
<tr>
<td>Connection Status</td>
<td>Displays the connection status of the network switch.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays the status of the network switch.</td>
</tr>
<tr>
<td>Status list</td>
<td>Displays detailed network switch status comprising error codes and messages.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Displays the IP address of the network switch.</td>
</tr>
<tr>
<td>Switch Capability</td>
<td>Displays the network switch type (&quot;Bridge&quot; or &quot;Bridge Router&quot;).</td>
</tr>
<tr>
<td>Backplane</td>
<td>Displays the backplane bandwidth (Mbps).</td>
</tr>
<tr>
<td>Network Interface List</td>
<td>Displays a list of network switch ports. Errors and bandwidth exceeded for each port are also displayed.</td>
</tr>
<tr>
<td>Switch Temperature List</td>
<td>Displays the temperature (in Celsius and Fahrenheit) of the network switch for each module.</td>
</tr>
<tr>
<td>VLAN Interface List</td>
<td>Displays a list of network switch VLAN interfaces.</td>
</tr>
</tbody>
</table>

**Configuration information for device connected to network switch**

The following configuration information is displayed when a device connected to a network switch is selected on the [Network Topology Monitoring] screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the device.</td>
</tr>
<tr>
<td>Model Name</td>
<td>Displays the model name of the device.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the device.</td>
</tr>
<tr>
<td>Category</td>
<td>Displays the device category ([NMI Device], [Dante Device], [Ext. Leader Device], or [Networked Device]).</td>
</tr>
<tr>
<td>Connection Status</td>
<td>Displays the connection status of the device.</td>
</tr>
<tr>
<td>GenLock Module Status</td>
<td>Displays the status of the genlock module.</td>
</tr>
<tr>
<td></td>
<td>Displayed only when an NMI device or Dante device is selected.</td>
</tr>
</tbody>
</table>
### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status list</td>
<td>Displays detailed device status comprising error codes and messages. Displayed only when an NMI device or Dante device is selected.</td>
</tr>
<tr>
<td>Network GenLock Follower Status</td>
<td>Displays the status of the follower genlock module. Displayed only when an NMI device is selected.</td>
</tr>
<tr>
<td>Network Interface List</td>
<td>Displays the port list of the device.</td>
</tr>
<tr>
<td>I/O List</td>
<td>Displays the AV interface list. Displayed only when an NMI device or Dante device is selected.</td>
</tr>
</tbody>
</table>

### LAN port configuration information

The following configuration information is displayed when a LAN port is selected on the [Network Topology Monitoring] screen.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Displays the name of the port.</td>
</tr>
<tr>
<td>Link Status</td>
<td>Displays the connection status of the port.</td>
</tr>
<tr>
<td>Status</td>
<td>Displays the status of the port. Displayed only when a LAN port of a network switch is selected.</td>
</tr>
<tr>
<td>Status list</td>
<td>Displays detailed port status comprising error codes and messages. Displayed only when a LAN port of a network switch is selected.</td>
</tr>
<tr>
<td>Input/Output</td>
<td>Displays the bandwidth (input/output). Displayed only when a LAN port of a network switch is selected. Measured in Mbps units.</td>
</tr>
<tr>
<td>Input Estimated/Output Estimated</td>
<td>Displays the estimated bandwidth (input/output). Displayed only when a LAN port of a network switch or NMI device is selected. Measured in Mbps units.</td>
</tr>
<tr>
<td>Input Discards Count/Output Discards Count</td>
<td>Displays the number of discarded packets (input/output). Displayed only when a LAN port of a network switch is selected.</td>
</tr>
<tr>
<td>Input Errors Count/Output Errors Count</td>
<td>Displays the number of error packets (input/output). Displayed only when a LAN port of a network switch is selected.</td>
</tr>
<tr>
<td>Link Speed</td>
<td>Displays the link speed of the port. Measured in Mbps units.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Displays the IP address.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>Displays the MAC address.</td>
</tr>
</tbody>
</table>

### Checking the state of each device on the Notification pane.

Click the button to display the [Notification] pane. Select a network switch or device on the [Network Topology Monitoring] screen to display the notifications for the selected network switch or device in the [Notification] pane.
When a network switch or a network switch port is selected, you can switch between task message display or event message display using the radio buttons. When a device other than network switch or a network switch port is selected, only task messages are displayed.

Tip
The screen above shows the case when a network switch is selected.

Checking genlock information on the genlock preview pane

Click the (GenLock Preview) button to display the Genlock preview pane. Select a device on the [Network Topology Monitoring] screen to display the genlock information of the selected device on the Genlock preview pane.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>Displays the PTP module number of the device.</td>
</tr>
<tr>
<td>Name</td>
<td>Displays the name of the device.</td>
</tr>
<tr>
<td>Active PTP Network</td>
<td>Displays which PTP, received on either the Primary or Secondary network, is used as the genlock source of the device.</td>
</tr>
<tr>
<td>BMCA</td>
<td>Displays the enabled/disabled status of the Best Master Clock Algorithm function for searching for the best PTP master on the device side.</td>
</tr>
<tr>
<td>Primary, Secondary</td>
<td>Select the Primary or Secondary PTP network to display the status of each network.</td>
</tr>
</tbody>
</table>
### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lock Status</td>
<td>Displays the lock status of PTP.</td>
</tr>
<tr>
<td><strong>Locked:</strong></td>
<td>PTP is locked.</td>
</tr>
<tr>
<td><strong>Locking:</strong></td>
<td>PTP locking is in progress.</td>
</tr>
<tr>
<td><strong>FREERUN:</strong></td>
<td>PTP is free running.</td>
</tr>
<tr>
<td><strong>Not In Use:</strong></td>
<td>PTP is not in use.</td>
</tr>
<tr>
<td>Network Jitter</td>
<td>Displays the Jitter value for PTP messages between the PTP master and the device.</td>
</tr>
<tr>
<td>Network Delay</td>
<td>Displays the Delay value for PTP messages between the PTP master and the device.</td>
</tr>
<tr>
<td>PTP NIC</td>
<td>Displays the network interface name on which the device sends/receives PTP messages.</td>
</tr>
<tr>
<td>Sync Packets</td>
<td>Displays the number of Sync packets per second received from the PTP master.</td>
</tr>
<tr>
<td>Follow Up Packets</td>
<td>Displays the number of Follow Up packets per second received from the PTP master.</td>
</tr>
<tr>
<td>Delay Request Packets</td>
<td>Displays the number of Delay Request packets per second sent by the device.</td>
</tr>
<tr>
<td>Delay Response Packets</td>
<td>Displays the number of Delay Response packets per second received from the PTP master.</td>
</tr>
<tr>
<td>UTC Time</td>
<td>Displays the UTC time.</td>
</tr>
<tr>
<td>PTP Master IP</td>
<td>Displays the IP address of the PTP master.</td>
</tr>
<tr>
<td>Grand Master ID</td>
<td>Displays the ID of the grandmaster included in PTP master Announce messages.</td>
</tr>
<tr>
<td>Priority 1</td>
<td>Displays PTP master priority level 1.</td>
</tr>
<tr>
<td>Priority 2</td>
<td>Displays PTP master priority level 2.</td>
</tr>
<tr>
<td>Step</td>
<td>Displays the number of steps of Sync and Follow Up messages (One Step or Two Step).</td>
</tr>
<tr>
<td>Announce Message Packets Interval</td>
<td>Displays the interval between Announce messages sent by the PTP master.</td>
</tr>
<tr>
<td>Announce Timeout Count</td>
<td>Displays the number of times before PTP master Announce messages time out.</td>
</tr>
</tbody>
</table>

## Registering Network Topology Layout Settings

Click ☰ in the global menu and switch to the [Monitoring] screen, and click [Layout] in the [Settings] menu to display the [Topology Layout] screen.

You can set the layout of the network switch and devices to display on the [Network Topology Monitoring] screen.
Note

To set the layout of network switch and devices on the [Topology Layout] screen, network topology information for the network switch must be created beforehand by manual entry or by importing from a JSON file on the [Network Switch List] screen.

Registering a new layout

Use the following procedure to register a new network topology layout.

1. Click the button.
   The [Select Switch to Topology Profile] dialog appears.
2. Select the network switch to display on the [Network Topology Monitoring] screen from [Unselected List], and click the button.
The selected network switch moves to [Selected List].

**Tip**

You can select a network switch from [Selected List] and click the button to move the selected network switch to [Unselected List] and remove it from the [Network Topology Monitoring] screen.

3. Click the [OK] button.
   
   A new layout is created.

4. Select a size from the size drop-down list.

   [Small], [Medium], or [Large] can be selected.

   **Tip**

   If [Large] is selected, the topology up to each port is displayed on the [Network Topology Monitoring] screen. You can select each port to display the port information and check the Link
Up/Down status and bandwidth consumption information visually. The port status is displayed as follows.

- Less than 70% of specified bandwidth for the port is being used.
- More than 70% of specified bandwidth is being used, and red band appears.

5. Change the layout.

You can change the layout by dragging objects on the screen.

You can also drag the mouse to encompass multiple devices, and then drag the objects as a group to move them.

You can change the layout using the buttons and checkboxes at the bottom of the [Topology Layout] screen (see “Changing the layout and display state”).

Tips

- You can load images registered in [Free Layout Items] onto the screen using drag & drop.
- Operating the [Zoom] slider zooms the [Topology Layout] screen in/out. You can also zoom in/out using the mouse wheel.
- In [Display Unknown Device], you can switch the display to show/hide unknown devices (devices other than network switches, NMI devices, Dante devices, external PTP leader devices).
- If you click on the hand icon (Selection or Move), changing it to , you can move the display by dragging the mouse. If you click on the hand icon (Selection or Move), changing it to , you can select a device by dragging the mouse.
- Selecting a device connected to the network switch or a free layout icon and clicking the button will delete the selected device or free layout icon.
6. Change the parameters of the devices connected to the network switch.
   Selecting a device connected to the network switch and clicking the button displays the [Edit Network Device] dialog. Change the settings as required.

7. Click the [Save] button.
   The layout settings are registered.

**Changing the layout and display state**

You can change network topology layout and display state.

**Changing the network switches**

You can change the network switches to display on the [Network Topology Monitoring] screen.

1. Click the button on the left side of the screen, and select [Select Switch].
   The [Select Switch to Topology Profile] dialog appears.
2. Change the settings, and click the [OK] button.

**Changing the layout automatically**

Clicking the [Automatic Layout] allows you to change the layout automatically using the following buttons and checkboxes.

- [Radial] button:
  Automatic layout in a circular pattern.
- [Column] button:
  Automatic layout in columns.
- [Alternative Column] button:
  Automatic layout in alternating columns.
- [Row] button:
  Automatic layout in rows.
- [Alternative Row] button:
  Automatic layout in alternating rows.
- [Layout Switches Automatically]:
  Clear the check mark in the checkbox to only lay out devices automatically; switches are not laid out automatically.

**Changing the display state**

Clicking [Edit And Place] allows you to change the display state using the following buttons and input operations.

- [Show] button:
  Shows the selected device on the [Network Topology Monitoring] screen.
- [Hide] button:
  Hides the selected device on the [Network Topology Monitoring] screen.
- [ ] button:
  Deletes the selected device or free layout item.
• [Send To Back] button:
  Moves the selected device to the back.

• [ ] button:
  Moves the selected device toward the back.

• [Bring To Front] button:
  Moves the selected device to the front.

• [ ] button:
  Moves the selected device toward the front.

• Height / Width:
  Specifies the height and width of the layout screen.

Tip

Selecting a device connected to the network switch and clicking the [Delete Device] button will delete the selected device.

Changing layout settings

Use the following procedure to change network topology layout settings.

1. Select the layout setting to modify in [Layout List].

   ![Layout List](image)

   The selected layout is displayed.

2. Change the layout and display state.

   See “Changing the layout and display state.”

   Tip

   You can click the [ ] button to restore the original settings.

3. Click the [Save] button.

   The settings are saved.

Deleting layout settings

Use the following procedure to delete network topology layout settings.

1. Select the layout setting to delete in [Layout List].
The selected layout is displayed.

2. Click [••••] and click [Delete] in the displayed menu.
   A confirmation message appears.

3. Click the [Yes] button.
   The selected layout is deleted.

[Edit Network Device] dialog

This dialog is used to change the parameters of the devices connected to the network switch.

For NMI device

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter the name of the device.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Connection</td>
<td>Displays the connection status of the device with IP Live System Manager.</td>
</tr>
<tr>
<td>Display</td>
<td>Displays the device image.</td>
</tr>
<tr>
<td>Image</td>
<td>Selects the device image for display. Click the [Browse] button to specify an arbitrary image.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the device.</td>
</tr>
<tr>
<td>Device Interface Name</td>
<td>Displays the device interface name.</td>
</tr>
<tr>
<td>Device Interface Version</td>
<td>Displays the version of the device interface.</td>
</tr>
<tr>
<td>Serial Number</td>
<td>Displays the serial number of the device interface.</td>
</tr>
<tr>
<td>Linked Device</td>
<td>Displays information about the linked device.</td>
</tr>
<tr>
<td>Network Interface list</td>
<td>Displays a list of LAN ports. Selecting a port displays the parameters on the right.</td>
</tr>
<tr>
<td>[Add LAN Port Detected From Unknown Device] button</td>
<td>Adds LAN port information from devices detected automatically.</td>
</tr>
<tr>
<td>Name</td>
<td>Enter the name of the LAN port.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>Sets the MAC address.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Sets the IP address.</td>
</tr>
<tr>
<td>Link Status</td>
<td>Displays the status of the LAN port.</td>
</tr>
<tr>
<td>Link Speed</td>
<td>Sets the link speed.</td>
</tr>
</tbody>
</table>

When finished, click the [Save] button to save the settings.

**Tip**

You can click the button to restore the original settings.
### For non-NMI device

#### Edit Network Device

**Name**: (IPDIS-Dev2)

**Connection**: Connected

**Display**: Displays the device image.

**Image**: Selects the device image for display. Click the [Browse] button to specify an arbitrary image.

**Manufacturer**: Displays the manufacturer of the device.

**Device Interface Name**: Displays the device interface name.

**Device Interface Version**: Displays the version of the device interface.

**Serial Number**: Displays the serial number of the device interface.

**Linked Device**: Displays information about the linked device.

**Network Interface list**: Displays a list of LAN ports. Selecting a port displays the parameters on the right.

[Add LAN Port Detected From Unknown Device] button: Adds LAN port information from devices detected automatically.

**Name**: Enter the name of the LAN port.

**MAC Address**: Sets the MAC address.

**IP Address**: Sets the IP address.

**Link Status**: Displays the status of the LAN port.

**Link Speed**: Sets the link speed.

When finished, click the [Save] button to save the settings.

---

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter the name of the device.</td>
</tr>
<tr>
<td>Connection</td>
<td>Displays the connection status of the device with IP Live System Manager.</td>
</tr>
<tr>
<td>Display</td>
<td>Displays the device image.</td>
</tr>
<tr>
<td>Image</td>
<td>Selects the device image for display. Click the [Browse] button to specify an arbitrary image.</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Displays the manufacturer of the device.</td>
</tr>
<tr>
<td>Device Interface Name</td>
<td>Displays the device interface name.</td>
</tr>
<tr>
<td>Device Interface Version</td>
<td>Displays the version of the device interface.</td>
</tr>
<tr>
<td>Serial Number</td>
<td>Displays the serial number of the device interface.</td>
</tr>
<tr>
<td>Linked Device</td>
<td>Displays information about the linked device.</td>
</tr>
<tr>
<td>Network Interface list</td>
<td>Displays a list of LAN ports. Selecting a port displays the parameters on the right.</td>
</tr>
<tr>
<td>[Add LAN Port Detected From Unknown Device] button</td>
<td>Adds LAN port information from devices detected automatically.</td>
</tr>
<tr>
<td>Name</td>
<td>Enter the name of the LAN port.</td>
</tr>
<tr>
<td>MAC Address</td>
<td>Sets the MAC address.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Sets the IP address.</td>
</tr>
<tr>
<td>Link Status</td>
<td>Displays the status of the LAN port.</td>
</tr>
<tr>
<td>Link Speed</td>
<td>Sets the link speed.</td>
</tr>
</tbody>
</table>
Tip
You can click the button to restore the original settings.

**Registering image data**

Use the following procedure to register image data for a device connected to the network switch.

1. Click the button.
   The [Free Layout Items] pane appears.

   **Tip**
   Clicking the button closes the [Free Layout Items] pane.

2. Click the [Browse] button.

   The [Select File] dialog appears.
3. Select a save destination folder from the folder hierarchy on the left side.

![Select File dialog]

**Tip**

Clicking the button adds a new folder below the selected folder.

4. Click the [Upload New File] button.

The [Upload] dialog appears.

5. Click the [Browse] button, and select the image data.

6. Click the [OK] button.

A completion message appears when the upload finishes.

7. Click the [OK] button.

8. Select the folder to display on the [Free Layout Items] pane, and click the [Select] button.

The [Select File] dialog closes.

The image data saved in the selected folder is displayed on the [Free Layout Items] pane.

**Tip**

Click the button to display the image data in list view. Click the button to display the image data in thumbnail view.
Appendix

This section comprises the following topics.

- Redundancy Structures
- Configuring IP Live System Manager Redundancy Structure
- Configuring an S-BUS Gateway
- Disabling Selection of Non-transmitting Source Interface Crosspoints
- Error Codes
- Notice to Users
- Trademarks

Redundancy Structures

This topic describes the basic configuration of an IP Live System Manager redundancy structure.

Tips

- A redundancy structure diagram shows the signal flow when the LAN connectors of both IP Live System Manager and network switches are connected and when the LAN connectors of both the NMI device (or external routing system) and network switches are connected using LAN cables.
- The following system structure diagrams are conceptual only, and may differ from actual connection schemes.
- For details about settings, refer to the configuration procedures in Configuration Method.

IP Live System Manager control path redundancy structure

The following diagrams show control path redundancy structures.

IP Live System Manager control path redundancy structure

The basic settings required for the system structure above are configured on the following screens.
Configuring the IP Live System Manager IP address on each device:


IP Live System Manager control path and IP Live System Manager redundancy structure

The basic settings required for the system structure above are configured on the following screens.

**Configuring IP Live System Manager redundancy:**
Configuring IP Live System Manager Redundancy Structure

**Installing a redundancy license (PWSL-NM12/PWSL-NM12E):**

in global menu > [Maintenance] screen > [Settings] > [License]

**Configuring the Primary and Secondary IP Live System Manager IP addresses:**
Edit the Primary and Secondary settings of IP Live System Manager in the configuration file (text file format) on the device that is running IP Live System Manager. You can configure settings for a device on the following screen.


**AV transfer path redundancy structure**

The following diagram shows an AV transfer path redundancy structure.
The basic settings required for the system structure above are configured on the following screens.

**Video signal settings:**

- In global menu > [AV Router] screen > [Settings] > [Device] > [I/O] tab, select the [Edit] radio button, and enable [Enable hitless failover].

**Network GenLock redundancy structure**

Network GenLock redundancy is supported using network path redundancy between leader devices and follower devices, or using leader genlock module redundancy.

**Network path redundancy structure**

The following diagram shows a network path redundancy structure.
Configuring Network GenLock settings:
Open [Settings] > [Network GenLock Group] > [Network GenLock Group List] screen > [Network GenLock Leader Settings] dialog, and enable [Network Duplicate].

**Leader genlock module redundancy structure**

The following diagram shows a leader genlock module redundancy structure.

The basic settings required for the system structure above are configured on the following screens.

**Configuring Network GenLock settings:**
Open [Settings] > [Network GenLock Group] > [Network GenLock Group List] screen > [Network GenLock Leader Settings] dialog, and enable [Leader Duplicate].

**External routing system linkage redundancy structure**

You can create an IP Live System Manager redundancy structure even when operating the system linked to an external routing system. You can also create a redundancy structure that includes external routing systems.

**IP Live System Manager redundancy structure linked with an external routing system**

The following diagram shows an IP Live System Manager redundancy structure linked to an external routing system.
The basic settings required for the system structure above are configured on the following screens.

**Configuring IP Live System Manager redundancy:**
Configuring IP Live System Manager Redundancy Structure

**Installing a redundancy license (PWSL-NM12/PWSL-NM12E):**

- in global menu > [Maintenance] screen > [Settings] > [License]

**Creating interface groups:**

- in global menu > [System Controller] screen > [Settings] > [AV Interface Group]

**Registering an external routing system and importing a router settings file (1 external routing system per IP Live System Manager):**

- in global menu > [System Controller] screen > [Settings] > [External Routing System]

**Redundancy structure that includes external routing systems**

The following diagram shows a redundancy structure that includes external routing systems.
The basic settings required for the system structure above are configured on the following screens.

**Configuring IP Live System Manager redundancy:**
Configuring IP Live System Manager Redundancy Structure

**Installing a redundancy license (PWSL-NM12/PWSL-NM12E):**

1. in global menu > [Maintenance] screen > [Settings] > [License]

**Creating interface groups:**

1. in global menu > [System Controller] screen > [Settings] > [AV Interface Group]

**Registering an external routing system and importing a router settings file (2 external routing systems per IP Live System Manager):**

1. in global menu > [System Controller] screen > [Settings] > [External Routing System]

## Configuring IP Live System Manager Redundancy Structure

This topic describes the configuration of an IP Live System Manager redundancy structure.

**Tip**

The IP addresses shown below are for reference only. Change the IP addresses as required for the actual network environment.

1. Connect each device.
Connect the LAN2 connectors of both IP Live System Manager (Primary) and IP Live System Manager (Secondary) using a LAN cable.

Connect the LAN1 connector of both IP Live System Manager units to separate networks.

Connect the NMI device to both the Primary and Secondary networks.

1. Connect the LAN2 connectors of both IP Live System Manager (Primary) and IP Live System Manager (Secondary) using a LAN cable.
2. Connect the LAN1 connector of both IP Live System Manager units to separate networks.
3. Connect the NMI device to both the Primary and Secondary networks.

2. Click in the global menu > [Maintenance] screen > [Settings] > [License] tab, and install a redundancy structure license (PWSL-NM12/PWSL-NM12E).
3. Enable the installed redundancy licenses on [System] screen > [License] of the Primary and Secondary IP Live System Manager units.
4. Open the application.properties file in the “C:\Sony\LSM\conf” folder, and configure the following settings.

<table>
<thead>
<tr>
<th>IP Live System Manager (Primary) settings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>lsm.redundant.enabled=true</td>
</tr>
<tr>
<td>lsm.endpoint.ip.local=192.168.200.10</td>
</tr>
<tr>
<td>lsm.endpoint.ip.remote=192.168.200.11</td>
</tr>
<tr>
<td>lsm.endpoint.port.local=0</td>
</tr>
<tr>
<td>lsm.endpoint.port.remote=1</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IP Live System Manager (Secondary) settings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>lsm.redundant.enabled=true</td>
</tr>
<tr>
<td>lsm.endpoint.ip.local=192.168.200.11</td>
</tr>
<tr>
<td>lsm.endpoint.ip.remote=192.168.200.10</td>
</tr>
<tr>
<td>lsm.endpoint.port.local=1 (opposite setting of Primary)</td>
</tr>
<tr>
<td>lsm.endpoint.port.remote=0</td>
</tr>
<tr>
<td>...</td>
</tr>
</tbody>
</table>

5. Restart the OS on the Primary and Secondary IP Live System Manager units.

Configuring an S-BUS Gateway

This topic describes the procedure for configuring the gateway of an S-BUS system using the S-BUS Gateway Setup application.
Starting the S-BUS Gateway Setup application

Right-click “lsm_sgw_setup.exe,” stored in the C:\Sony\LSM\ext-router-gw\sbus folder, and select [Run as administrator] to start the S-BUS Gateway Setup application with administrator authority.

After startup, the application resides in the Windows taskbar.

Configuring the S-BUS gateway service

Right-click in the taskbar to display setup application menu. Configure and control the S-BUS gateway service using the menu.

S-BUS Gateway Setup

Select [S-BUS Gateway Setup] from the menu to display the following dialog.

Configure each item, then click the [OK] button to save the configuration information.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-BUS Gateway</td>
<td>Station ID</td>
</tr>
<tr>
<td>External Routing System</td>
<td>Listening Port</td>
</tr>
<tr>
<td>Stream Disconnection</td>
<td>Physical terminal num</td>
</tr>
<tr>
<td>Primary Station (ROT16 connection)</td>
<td>IP Address</td>
</tr>
<tr>
<td></td>
<td>Port</td>
</tr>
</tbody>
</table>

**Note**

The information configured here is applied the next time the service starts. If the service is already running when the configuration is changed, the service must be stopped and restarted. You can stop and start the service using [S-BUS Gateway Control Panel].

**S-BUS Gateway Control Panel**

Selecting [S-BUS Gateway Control Panel] from the menu displays the following dialog.

![S-BUS Gateway Control Panel](image)

Click the buttons in the dialog to perform the following operations.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Service Window</td>
<td>Opens the Windows Services dialog.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| S-BUS Gateway Service Control | **Register** Installs the S-BUS gateway service.  
**Note** When using an S-BUS gateway, you must first click the [Register] button to register the S-BUS gateway service in Windows Services.  
**Start** Starts the S-BUS gateway service.  
**Stop** Stops the S-BUS gateway service.  
**Delete** Uninstalls the S-BUS gateway service. |

**Note**

If the [Delete] button is pressed to delete the service and then the [Register] button is pressed to register the service again, the [Startup Type] setting of the service is set to [Manual]. In this case, it is necessary to click [Open Service Window] to display the Windows [Services] dialog and then change the [Startup Type] setting of the service to [Automatic].

**About**

Selecting [About] from the menu displays the following dialog. Use this dialog to check the version information of the S-BUS Gateway Setup application.

**Exit**

Selecting [Exit] from the menu displays the following dialog for terminating the S-BUS Gateway Setup application.

Click [Yes] to exit the S-BUS Gateway Setup application.

**Message dialog**

When configuring or operating the S-BUS gateway service, various messages may appear, depending on the settings or operation. The following messages may be displayed.

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-BUS Gateway Setup is already started.</td>
<td>Displayed when &quot;ism_sgw_setup.exe&quot; is already running.</td>
</tr>
</tbody>
</table>
Message Description

The service is still working. Displayed if you attempt to uninstall the S-BUS gateway service, by clicking the [Delete] button in the [S-BUS Gateway Control Panel] dialog, while the service is running.

Please input correct Station ID(2-254). Displayed if the value entered for [Station ID] in the [S-BUS Gateway Setup] dialog is outside the permitted range.

Please input correct Physical terminal num(1-1024). Displayed if the value entered for [Physical terminal num] in the [S-BUS Gateway Setup] dialog is outside the permitted range.

Disabling Selection of Non-transmitting Source Interface Crosspoints

Selecting a non-transmitting source crosspoint places the corresponding crosspoint in reserved state. However, the crosspoint switching operation of some devices may become disabled for a few seconds after the corresponding crosspoint is selected.

To prevent crosspoint switching from becoming disabled for a few seconds after selecting a non-transmitting source interface crosspoint in error, set `lsm.system.routing.service.validate-transmit-status-for-switching` to “true” in the C:\Sony\LSM\conf\application.properties file, and restart the IP Live System Manager OS.

Note

In an IP Live System Manager redundancy configuration, the above must be configured for both systems.

Error Codes

The following table shows errors and warnings that may appear in the system status indicator area of the global menu.

<table>
<thead>
<tr>
<th>Error code</th>
<th>Message</th>
<th>Condition</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x11000013</td>
<td>NMI Device Gateway is down.</td>
<td>The connection between LSM and the NMI device gateway was interrupted.</td>
<td>Restart IP Live System Manager to restart LSM-related services to clear the error.</td>
</tr>
<tr>
<td>0x11000021</td>
<td>Device settings plug-in [0] has been uninstalled.</td>
<td>The device setup plug-in for the corresponding device type registered in the database was deleted.</td>
<td>If the error persists after reinstalling the corresponding plug-in, contact your Sony service representative.</td>
</tr>
<tr>
<td>Error code</td>
<td>Message</td>
<td>Condition</td>
<td>Solution</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>0x11000022</td>
<td>Fatal error has occurred while device settings plug-in service is starting. Please restart the system.</td>
<td>The required OSGi bundle could not be found due to unregistered generic device type or other cause.</td>
<td>Restart IP Live System Manager. If the error persists, contact your Sony service representative.</td>
</tr>
<tr>
<td>0x11000023</td>
<td>Generic device type is not registered. Please restart the system.</td>
<td>Generic device type is not registered.</td>
<td>Restart IP Live System Manager. If the error persists, contact your Sony service representative.</td>
</tr>
<tr>
<td>0x11000031</td>
<td>The service {0} is not available. Please restart the system.</td>
<td>The service did not start.</td>
<td>Restart IP Live System Manager. If the error persists, contact your Sony service representative.</td>
</tr>
<tr>
<td>0x11000053</td>
<td>Dante Device Gateway is down.</td>
<td>The connection between LSM and the Dante device gateway was interrupted.</td>
<td>Restart IP Live System Manager to restart LSM-related services to clear the error.</td>
</tr>
<tr>
<td>0x11000063</td>
<td>TSL Gateway is down.</td>
<td>The connection between LSM and TSL Gateway was interrupted.</td>
<td>Restart the PWS-100NM1/PWS-110NM1.</td>
</tr>
<tr>
<td>0x11000082</td>
<td>NMOS RDS is down.</td>
<td>The connection between LSM and NMOS RDS was interrupted.</td>
<td>Review the connection settings on the [RDS Configuration] screen or restart the PWS-100NM1/PWS-110NM1.</td>
</tr>
<tr>
<td>0x11000083</td>
<td>WebSocket connection with RDS has expired.</td>
<td>The WebSocket connection between LSM and NMOS RDS was interrupted.</td>
<td>Restart the PWS-100NM1/PWS-110NM1.</td>
</tr>
<tr>
<td>Error code</td>
<td>Message</td>
<td>Condition</td>
<td>Solution</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>0x12000004</td>
<td>Redundant Error.</td>
<td>The Primary and Secondary are not synchronized.</td>
<td>1. Open the [Maintenance] &gt; [Settings] &gt; [Redundancy] screens on the primary and secondary IP Live System Manager.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Click the [Maintenance Mode] button on both systems.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Click the [Sync From Remote] button on one of the IP Live System Manager systems.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Click the [Redundant Mode] button on both systems.</td>
</tr>
<tr>
<td>0x12000401</td>
<td>The local application version is different from the remote one.</td>
<td>The versions of LSM on both systems are different.</td>
<td>Reinstall IP Live System Manager so that the versions on both systems are the same.</td>
</tr>
<tr>
<td>0x12000402</td>
<td>The remote system is operating with an invalid local redundant license.</td>
<td>Operation on the remote system occurred while the redundancy structure license is not valid.</td>
<td>Install a Redundant System License on the local system.</td>
</tr>
<tr>
<td>Error code</td>
<td>Message</td>
<td>Condition</td>
<td>Solution</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------------------------------</td>
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<td>-----------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 0x12000502  | The local system is operating with an invalid local redundant license. | A database operation was performed on the local system before a redundant structure license was installed. | Install a Redundant System License. After installation, perform the following.  
1. Open the [Maintenance] > [Settings] > [Redundancy] screens on the primary and secondary IP Live System Manager.  
2. Click the [Maintenance Mode] button on both systems.  
3. Click the [Sync From Remote] button on one of the IP Live System Manager systems.  
4. Click the [Redundant Mode] button on both systems. |
| 0x12000505  | Redundant license is invalid. Please install a valid license.           | The redundancy structure license is not valid, even though the system is not currently initializing.                                      | Install a Redundant System License.                                                          |
| 0x13000013  | The status of some Network GenLock Leaders are not Locked or disconnected. | Not all of the leaders in a Network GenLock group are locked or are not connected with LSM.                                             | Check whether the sync signal and settings for the respective leader are correct.             |
## Warnings

<table>
<thead>
<tr>
<th>Error code</th>
<th>Message</th>
<th>Condition</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x11000011</td>
<td>NMI Device Gateway is initializing.</td>
<td>LSM booted, but connection with NMI device gateway could not be established.</td>
<td>Restart IP Live System Manager to restart LSM-related services to clear the error.</td>
</tr>
<tr>
<td>0x11000012</td>
<td>Cannot connect to NMI Device Gateway because redundant service is not running.</td>
<td>Connection with NMI device gateway could not be established because redundancy structure is not running even though LSMs have booted.</td>
<td>Re-establish connection between the IP Live System Manager systems.</td>
</tr>
<tr>
<td>0x11000041</td>
<td>Some licenses are in invalid status.</td>
<td>Some licenses are not valid.</td>
<td>Install licenses as required.</td>
</tr>
<tr>
<td>0x11000051</td>
<td>Dante Device Gateway is initializing.</td>
<td>LSM booted, but connection with Dante device gateway could not be established.</td>
<td>Restart IP Live System Manager to restart LSM-related services to clear the error.</td>
</tr>
<tr>
<td>0x11000052</td>
<td>Cannot connect to Dante Device Gateway because redundant service is not running.</td>
<td>Connection with Dante device gateway could not be established because redundancy structure is not running even though LSMs have booted.</td>
<td>Re-establish connection between the IP Live System Manager systems.</td>
</tr>
<tr>
<td>0x11000084</td>
<td>The connection between RDS has not been done yet.</td>
<td>Internal RDS connection cannot be established.</td>
<td>Restart the RDS service.</td>
</tr>
<tr>
<td>0x11000085</td>
<td>The connection between RDS has been disconnected.</td>
<td>An internal RDS sync error occurred.</td>
<td>Restart the RDS service.</td>
</tr>
<tr>
<td>0x12000102</td>
<td>The redundant connection is not established yet.</td>
<td>LSMs booted, but connection with remote system not yet established.</td>
<td>Wait a while until the warning disappears. If the warning persists, restart IP Live System Manager.</td>
</tr>
<tr>
<td>0x12000103</td>
<td>The redundant service is not started yet.</td>
<td>The redundancy structure service has not started on the local system.</td>
<td>Wait a while until the warning disappears. If the warning persists, restart IP Live System Manager.</td>
</tr>
<tr>
<td>Error code</td>
<td>Message</td>
<td>Condition</td>
<td>Solution</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>0x12000104</td>
<td>The local redundant license is not installed yet.</td>
<td>The redundancy structure license on the local system is not valid.</td>
<td>Install a Redundant System License on the local system.</td>
</tr>
<tr>
<td>0x12000105</td>
<td>The remote redundant license is not installed yet.</td>
<td>The redundancy structure license on the remote system is not valid.</td>
<td>Install a Redundant System License on the remote system.</td>
</tr>
<tr>
<td>0x12000405</td>
<td>The remote redundant license is not installed yet.</td>
<td>A license has not been installed on the remote system.</td>
<td>Install a Redundant System License.</td>
</tr>
<tr>
<td>0x12000501</td>
<td>The redundant connection failed.</td>
<td>The connection was interrupted even though not currently executing in MAINTENANCE mode.</td>
<td>Re-establish connection between the IP Live System Manager systems.</td>
</tr>
<tr>
<td>0x13000012</td>
<td>The status of some Network GenLock Leaders are not Locked.</td>
<td>The leader in a Primary or Secondary is not locked to an input sync signal in a redundancy structure configuration.</td>
<td>Check whether the sync signal and settings for the respective leader are correct.</td>
</tr>
<tr>
<td>0x13000023</td>
<td>External Routing System [(0)] is registered but not connected yet.</td>
<td>The external routing system is registered in LSM, but connection could not be established.</td>
<td>Restart the external routing system or external routing system gateway if it has stopped.</td>
</tr>
<tr>
<td>0x13000024</td>
<td>External Routing System [(0)] is unavailable.</td>
<td>The external routing system is not connected.</td>
<td>Restart the external routing system or external routing system gateway if it has stopped.</td>
</tr>
<tr>
<td>0x13000025</td>
<td>External Routing System [(0)] is down.</td>
<td>The connection between LSM and the external routing system was interrupted.</td>
<td>Restart the external routing system or external routing system gateway if it has stopped.</td>
</tr>
<tr>
<td>0x13000026</td>
<td>The version of External Routing System [(0)] is not supported by IP Live System Manager.</td>
<td>LSM does not support the protocol version of the external routing system gateway.</td>
<td>Restart IP Live System Manager. If the error persists, contact your Sony service representative.</td>
</tr>
<tr>
<td>0x13000033</td>
<td>NS-BUS Device [(0)] detected some issues.</td>
<td>An error occurred with the NS-BUS device.</td>
<td>Check the NS-BUS device to resolve the issue.</td>
</tr>
<tr>
<td>Error code</td>
<td>Message</td>
<td>Condition</td>
<td>Solution</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>0x13000034</td>
<td>NS-BUS Device ([0]) is registered but not connected yet.</td>
<td>The NS-BUS device is registered in LSM, but connection could not be established.</td>
<td>Start the NS-BUS device if it is stopped.</td>
</tr>
</tbody>
</table>

**Notice to Users**

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