SONY

Help Guide

NETWORK RX STATION
PWS-110RX1A Ver. 1.21 or later

This Help Guide describes systems for live streaming on the Internet using the PWS-110RX1A.
It describes the required steps for connecting to a camcorder in the field, registering and configuring PWS-110RX1A units, and starting streaming.

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Features

The PWS-110RX1A is a system for live streaming over a network. The PWS-110RX1A receives streaming video transmitted from a shooting location using a camcorder which has a network function, and outputs SDI signals for live streaming.
You can also transfer video files (clips) stored on an SD card in the camcorder to an external FTP server using control from a PWS-110RX1A unit.
The PWS-110RX1A is comprised by a Streaming Receiver that receives the streaming video, and a Connection Control Manager that manages the connections between the camcorder and the unit. The Connection Control Manager has a web GUI that can be displayed using a web browser on a client PC, and can be used to manage multiple connections simultaneously.

Related Topic

- System Configuration Examples
- Supported Formats

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System Configuration Examples

This topic shows live streaming system configuration examples using the PWS-110RX1A.

Remarks

- Network services, content, operating system and software of this product may be subject to individual terms and conditions, and may be changed, interrupted, or discontinued at any time.
- When you connect the product to the Internet, connect the unit via a router or connect to a LAN port with a router function. If you connect it without a router function, a security issue may occur.

  Note

  - Once a security issue occurs, your product may suffer damage caused by malware (malicious software) via the Internet and be exposed to security threats, such as extraction or tampering of content or customer's information. Not only that, your product may cause damage to the network services without your knowledge.

- Always use this product with the Microsoft Windows Firewall function enabled.

Configuration using a single PWS-110RX1A unit

This shows a small-scale system using only one PWS-110RX1A unit. The PWS-110RX1A unit acts as both streaming receiver and connection manager.
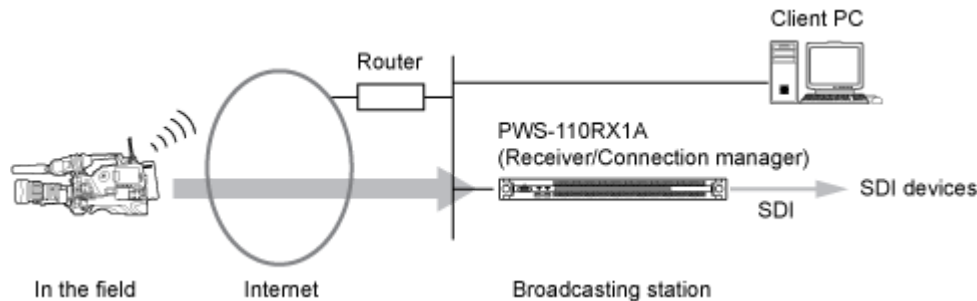
Note

- To stream from a camcorder, a camcorder with a CBK-WA100/101 Wireless Adapter attached or a camcorder with network functions is required. For details about supported camcorders, consult your Sony representative.

Configuration using multiple PWS-110RX1A units

Additional PWS-110RX1A units acting as streaming receivers can be used. The following configuration shows an example with one PWS-110RX1A unit acting as both streaming receiver and connection manager, and another unit acting as a streaming receiver.
When using a multiple unit configuration, control the units from a web browser on a client PC, and not the PWS-110RX1A units themselves.
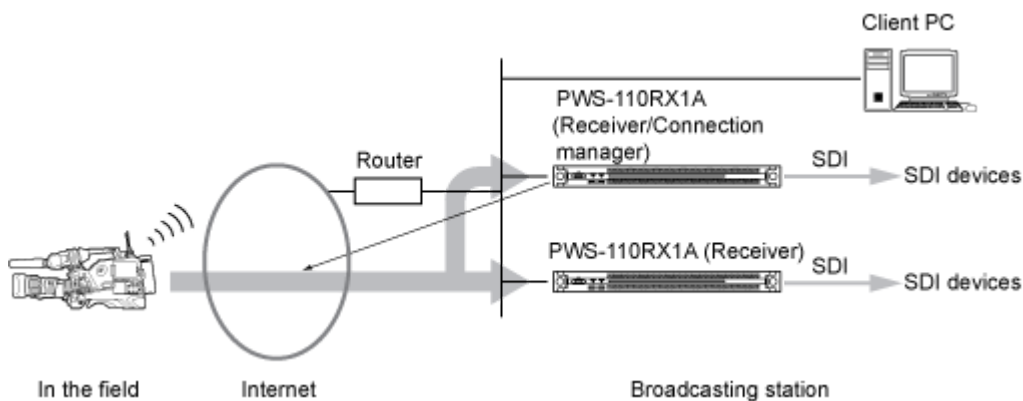
When using XDCAM pocket

You can receive a stream from XDCAM pocket. A separate license is required to use XDCAM pocket.
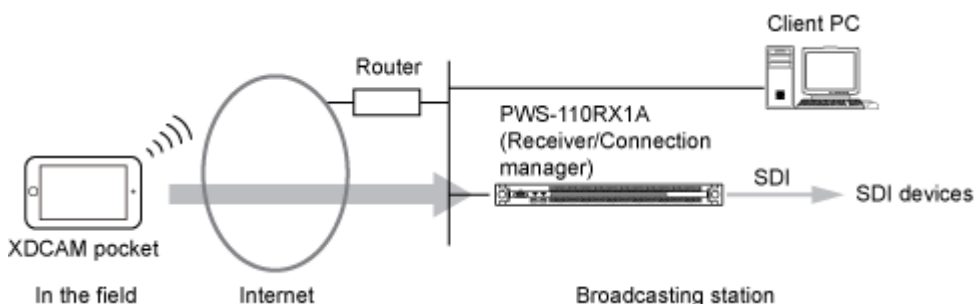
When transferring files from camcorder to FTP server

You can transfer video files (clips) stored on an SD card in the camcorder to an FTP server. Configure the FTP server on the same network as the PWS-110RX1A unit, as shown below.
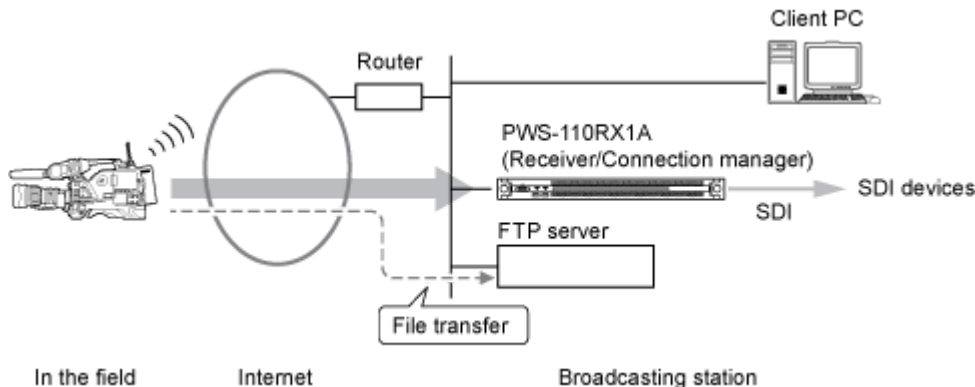
When using an intercom

You can make calls between the broadcast station and units in the field using camcorders with an intercom function. The audio interface is sold separately. For details about supported devices, refer to the Software Update Guide. A separate license is required to use an intercom.
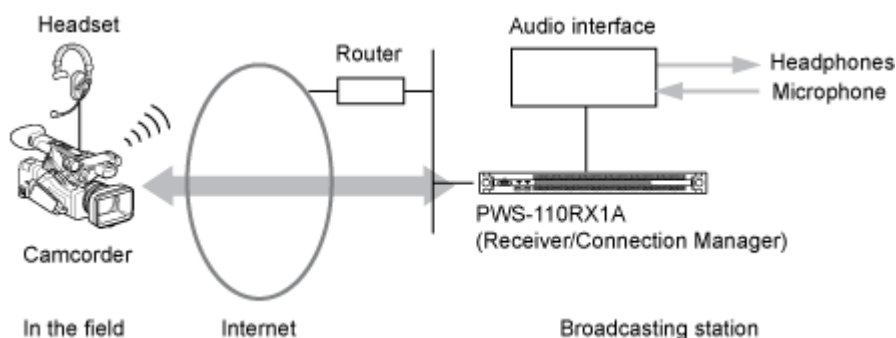
Saving video images during streaming to a file

Network storage connected to the same network as a PWS-110RX1A unit can be used to store video images during streaming.
When storing video images during streaming, control the unit from a web browser on a client PC, and not the PWS-110RX1A unit itself.
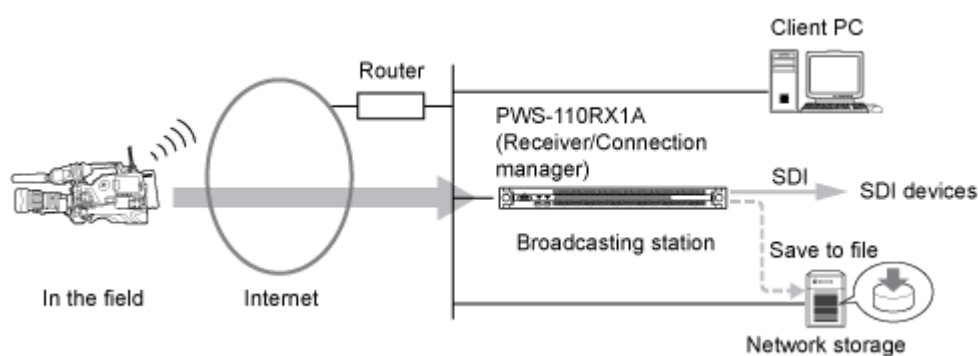
Point-to-point streaming

You can stream the SDI input of a PWS-110RX1A unit to another PWS-110RX1A unit.
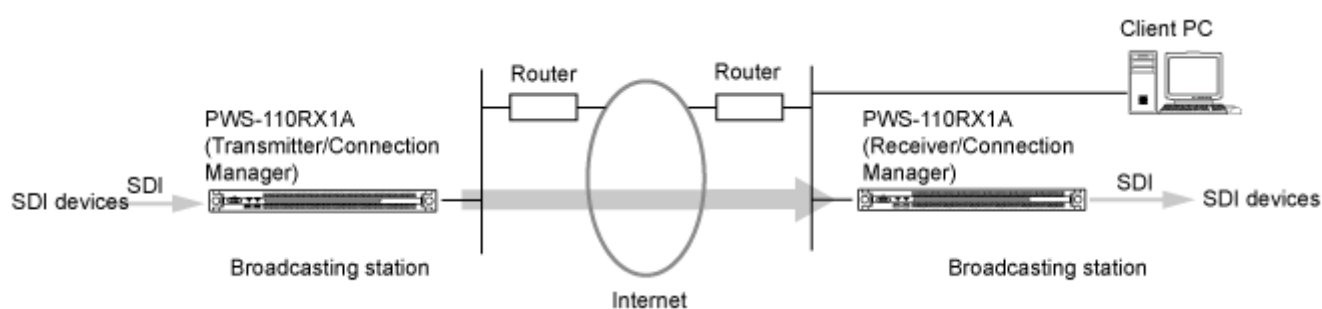
Related Topic

- Features

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Setup and Operation Flow

Perform setup and operation in the following sequence to use this system. If using C3 Portal, the unit and transmitting devices must be registered in C3 Portal beforehand. For details about registering, refer to the C3 Portal Help Guide (Setup).

1 **Setup**

1. Configuring Network Settings
   Configure the required network settings to connect the PWS-110RX1A units installed within a broadcasting station with the camcorders in the field or with XDCAM pocket.

2. Configuring Connection Control Manager Preferences
   Configure the preferences on one PWS-110RX1A unit within the system to function as the Connection Control Manager.

3. Registering Receivers
   Register all PWS-110RX1A units that will operate as streaming receivers in the Connection Control Manager using the Initialization Tool.

4. Configuring Connection Control Manager Receiver and Output Settings
   Launch the Connection Control Manager admin screen, and configure the streaming output settings.

2 **Operation in the field**

- Setting the Wireless Adapter to Network Client Mode
  When shooting using a camcorder with a wireless adapter attached, set the wireless adapter to network client mode.
- Setting the Camcorder to Network Client Mode
  When shooting using a network-enabled camcorder, set the camcorder to network client mode.
- Configuring XDCAM pocket
  When using XDCAM pocket, launch XDCAM pocket on a smartphone.

3 **Operation at the broadcasting station**

1. Launching the Connection Control Manager Admin Screen
   Log in to the Connection Control Manager from a web browser on a client PC that is connected to the same network as the PWS-110RX1A that is running the Connection Control Manager.

2. Starting Streaming
   Start streaming distribution of video received from the camcorder in the field using the Connection Control Manager.

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Turning Devices On

Use the following procedure to turn on the power when using the PWS-110RX1A.

1 **When configuring PWS-110RX1A preferences, connect a keyboard and mouse to the USB connectors on the front panel, and connect a monitor to the HDMI connector on the rear panel.**

This step can be skipped once the preferences have been configured on the PWS-110RX1A. Check that the unit is connected correctly to the network.

2 **Press the PWS-110RX1A On/Standby button.**

The On/Standby button indicator lights up green.

3 **When the Windows sign-in screen appears on the display, enter the user name and password to sign in.**

The factory default user name is "rx1" and the default password is "rx1". If the user name and password were changed during preferences configuration, enter the new user name and password when subsequently signing in.

To turn the power off

Press and hold the PWS-110RX1A On/Standby button for two seconds or longer. The PWS-110RX1A enters standby state, and the On/Standby button indicator lights up red.

Note

- There is no power switch on the PWS-110RX1A. The unit is in either standby state or on state when the power cord is connected. The power can be completely turned off by disconnecting the power cord, but first check that the PWS-110RX1A is in standby state (On/Standby button indicator is lit red) before removing the power cord.

- To ensure security, make sure to change the default password.

- If prompted to change the password when signing in, set a new password.

Related Topic

- Launching the Connection Control Manager Admin Screen

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Launching the Connection Control Manager Admin Screen

Use the following procedure on a client PC connected to the same network as the system to connect to the Connection Control Manager.

1   Launch a web browser (Google Chrome 64 or later).

2   Enter "https://<PWS-110RX1A_IP_address>:443" or "https://<PWS-110RX1A_host_name>:443" in the address field.

3   Enter the user name and password to log in.

The factory default user name is "Admin" and the default password is "123456". You must change the password the first time you log in.
After logging in, the Streaming screen of the Connection Control Manager appears.

Logging out from the Connection Control Manager admin screen

Click [Logout] on the Streaming screen. The login screen appears.

> **Note**
>
> - When accessing the system from a web browser, an SSL authentication message may be displayed. In this case, execute the procedure described in "Importing a Certificate" to import a certificate. If the valid period of the certificate has expired, issue another certificate as described in "Updating a Certificate."
>
> - The maximum number of users that can be logged in simultaneously is three. If the maximum number has been reached, an error message and a [RELEASE] will appear when the administrator (the user specified in [CCM] tab – [System] – [Username (1)] on the Settings screen) attempts to log in. Click the [RELEASE] button to terminate all sessions.
>
> - To ensure security, make sure to change the user name and password.

Related Topic

- Starting Streaming

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Updating a Certificate

If the host name of the PWS-110RX1A is changed or the certificated has expired, use the following procedure to update the certificate.

1 **Launch a command prompt (administrator) using the following procedure.**

  1. Sign in to Windows.

  2. Close all web browsers.

  3. Press the Windows key + X key combination on the keyboard.
     The quick access menu appears.

  4. Select [Command Prompt (Admin)].

2 **Enter the following command to make a certificate file.**

"C:\Program Files\Sony Corporation\CCM\MakeCertificate.exe" -force

3 **Enter the following command to import the certificate file.**

certutil -addstore ROOT C:\CCM-Server\ca.crt

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Importing a Certificate

When accessing the system from a web browser, an SSL authentication message may be displayed. If using a client PC, use the following procedure on the client PC. The following procedure is applicable to Windows. For details about importing a certificate, refer to the manual for the corresponding OS.

1 **Temporarily close all browsers.**

2 **Copy the certificate file (C:\CCM-Server\ca.crt) on the PWS-110RX1A to any location on the client PC.**

3 **On the client PC, double-click the copied certificate file (ca.crt).**

4 **Click the [Install Certificate…] button.**

5 **Turn the [Local Machine] radio button on.**

6 **Click the [Next] button.**

7 **If the User Account Control dialog appears, click the [Yes] button.**

8 **Turn the [Place all certificates in the following store] radio button on.**

9 **Click the [Browse…] button.**

The Select Certificate Store dialog appears.

10 **Select [Trusted Root Certification Authorities], and click the [OK] button.**

11 **Click the [Next] button, then click the [Finish] button.**

12 **Register the PWS-110RX1A host name in the hosts file (C:\Windows\System32\drivers\etc\hosts).**

You can check the host name by running the hostname command from the command prompt of the PWS-110RX1A. After registering, check that you can access "https://<PWS-110RX1A_host_name>:443".

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Structure of the Streaming Screen

The Streaming screen displays the devices that perform streaming and controls for starting/stopping streaming.
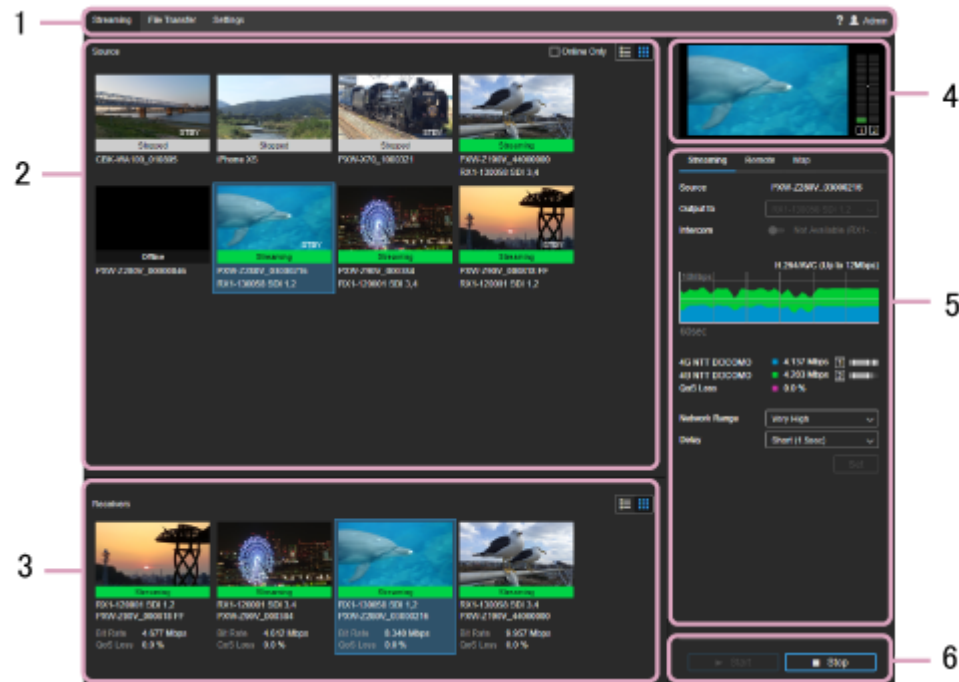
1. Global header

Click the tabs and icons to move between screens.

- Streaming: Displays the Streaming screen.
- File Transfer: Displays the File Transfer screen.
- Settings: Displays the Settings screen.
- ⚠ (Warning): Warns you that the expiration date for the server certificate for connecting to the Connection Control Manager admin screen is approaching. Update the server certificate as described in "Updating a Certificate."
- ⓘ (Notification): Displays a note about the license expiration date.
- ❓ (Help): Displays the Help and EULA.
- 👤 (user name): Logs the user out.

2. Source area

Displays the streaming output devices in thumbnail view or list view.
In thumbnail view, thumbnails, streaming status (Streaming/Unstable/Stopped/Reserved/Disabled/Offline/SRT Ready), names of transmitting devices (camcorder model, XDCAM pocket, or SRT caller), and names of receiving devices (PWS-110RX1A) are displayed. The transmitting device recording status ([REC] for recording, [STBY] for standby) is also displayed on the thumbnails.
In list view, only the names of transmitting devices and names of receiving devices are displayed.

- Online Only checkbox: Displays online (including SRT Ready) devices only.
- ☰ button: Displays the devices in list view.
- ▦ button: Displays the devices in thumbnail view.

3. Receiver area

Displays the streaming receiving devices in thumbnail view or list view.

In thumbnail view, thumbnails, streaming status (Streaming/Unstable/Stopped/Reserved/Offline), names of transmitting devices (camcorder model or XDCAM pocket), names of receiving devices (PWS-110RX1A units), bit rate, and streaming loss rate are displayed. The 🖨 icon is displayed on the thumbnails when streaming video is saved to a file on the PWS-110RX1A side. The RTMP icon is displayed on the thumbnails when RTMP output is enabled.
In list view, only the names of transmitting devices and names of receiving devices are displayed.

- ⊞ button: Displays the devices in list view.
- ⊞ button: Displays the devices in thumbnail view.

4. Preview area

Displays a preview of the streaming content from the device selected in the Source area.

> **Note**
>
> ● There is short delay between the display of the preview display and the SDI output.
>
> ● The preview display refresh time differs from that of the SDI output.

5. Settings area

Configures streaming settings for the selected source.

Streaming tab

- Source: Displays the name of the streaming device.
- Output to: Selects the PWS-110RX1A or SDI port streaming output destination. Cannot be modified while streaming is in progress.
- Intercom: Turns the intercom function on/off. It also displays the status of the intercom function. For details about the status, see "Intercom Operations."
- Graph: Displays the variation in the bit rate, streaming loss rate, and codec.
- Carrier: Displays the name of the network carrier used for communication with the camcorder and the bit rate. The information displayed varies depending on the connected camcorder and camcorder status.
- QoS Loss: Displays the streaming loss rate.
- Network Range: Selects the streaming resolution and maximum bit rate. [Very High], [High], [High (F)], [High (R)], [Middle], [Low], or [Very Low] can be selected. The values available for selection vary depending on the connected camcorder and camcorder status.
- Target Bit Rate: Selects the target bit rate when [Use Target Bit Rate setting.] is set on the [CCM] tab. The bit rate options available for selection varies according to the [Network Range] setting.
- Delay: Selects the streaming delay time. [Very Short (0.7s)], [Very Short (1s)], [Short (1.5s)], [Middle (3s)], [Long (5s)], or [Very Long (10s)] can be selected (the displayed delay time is an estimate. The actual delay time may vary due to the added network delay).
- Set button: Applies changes to the [Network Range], [Target Bit Rate], and [Delay] settings.

> **Note**
>
> ● When using [SRT], the [Network Range], [Target Bit Rate], and [Delay] settings cannot be configured. The RX settings on the Settings screen and the settings on the SRT caller side are used.

Remote tab

> **Note**
>
> ● Each function is enabled only for supported camcorders.
>
> ● The displayed buttons, switches, and control panels vary depending on the connected camcorder.

- Camera Control switch: Enables remote control of the camcorder.
- Proxy REC switch: Sets whether to record a proxy file on the camcorder.

Map tab

- Show Location button: Displays the current location of the camcorders on a map.

6. Streaming control area

Controls streaming operation.

- Start button: Starts streaming. When using SRT, the receiver goes online in SRT listener mode. Follow the instructions on the screen to start streaming from the SRT caller.
- Stop button: Stops streaming.

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Structure of the File Transfer Screen

The File Transfer screen is used to configure settings for transferring clips from a camcorder to an FTP server. It is used to specify the clips to transfer and to control transfer jobs.
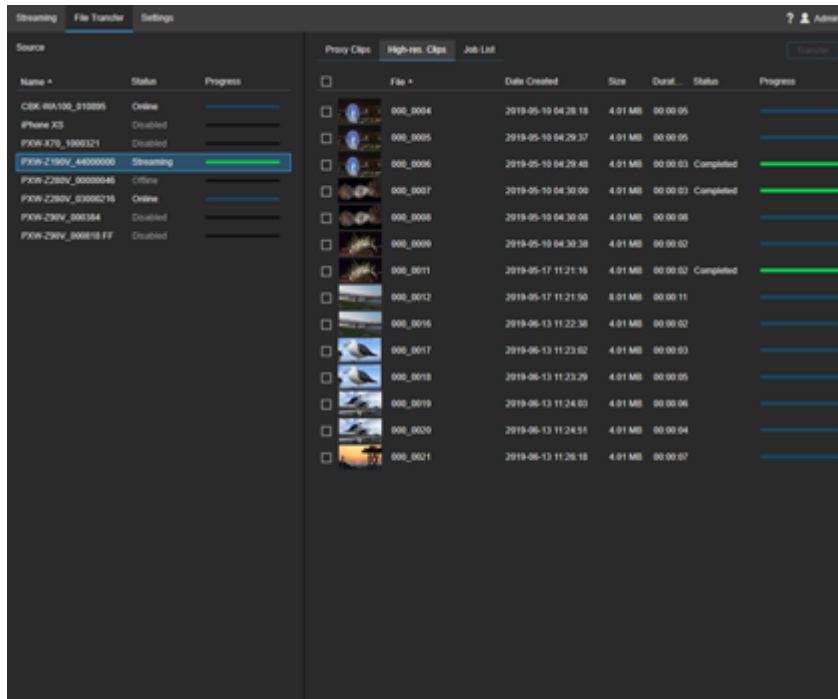
Source area

Displays the devices for file transfer in list view.

[Proxy Clips] tab

Displays a list of proxy clips stored on the device selected in [Source]. Select clips to transfer by placing a check mark in the checkbox beside each clip.

- File transfer destination: Select the file transfer destination from the drop-down list. You can specify the file transfer destination for each file transfer. Depending on the type and settings of the selected device, it may not be possible to specify a transfer destination.
- Transfer button: Adds the selected clips to the transfer job list.

[High-res. Clips] tab

Displays a list of original clips stored on the device selected in [Source]. Only clips recorded in parallel (proxy clips recorded simultaneously) can be previewed. Select clips to transfer by placing a check mark in the checkbox beside each clip.

- File transfer destination: Select the file transfer destination from the drop-down list. You can specify the file transfer destination for each file transfer. Depending on the type and settings of the selected device, it may not be possible to specify a transfer destination.
- Transfer button: Adds the selected clips to the transfer job list.

[Job List] tab

Displays a list of clip transfer jobs executed on the [Proxy Clips] tab or [High-res. Clips] tab, and the current transfer status.

- Delete: Deletes the selected job from the list.
- Clear Completed Jobs: Deletes jobs after completion of transfer to an FTP server from the list.

Related Topic
- Structure of the Streaming Screen
- Transferring Camcorder Clips to an FTP Server
- Configuring Connection Control Manager Receiver and Output Settings

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Structure of the Settings Screen

The Settings screen is used to configure the Connection Control Manager, the transmitting camcorders, and receiving PWS-110RX1A units. You switch between pages using the tabs along the top of the screen.

[CCM] tab

Configures Connection Control Manager settings.

[System]

- CCM Name: Enter the name of the Connection Control Manager.
- Language: Select the display language of the Connection Control Manager.
- Username (1): Enter the administrator user name to use when logging in to the Connection Control Manager.
- Password (1): Enter the password for the user name above. You can view the password by clicking [SHOW].
- Username (2) / Username (3): Enter the general user names to use when logging in to the Connection Control Manager. Two general users can be configured.
- Password (2) / Password (3): Enter the password for the user name above. You can view the password by clicking [SHOW].
- Privilege : Set the privileges for each user. Place a check mark in the checkboxes to grant privileges.

  - Streaming Monitor: Grants streaming monitor privileges to users.
  - Streaming Operator: Grants streaming operator privileges to users.
  - File Transfer Operator: Grants file transfer operator privileges to users.
  - Administrator: Grants administrator privileges to users.

[Connection]

Configures settings for logging in to the Connection Control Manager from a transmitting/receiving device.

TX Connection

- Username (1) / Username (2): Enter the user names to use when logging in to the Connection Control Manager from a camcorder. Two users can be configured.
- Password (1) / Password (2): Enter the password for the user name above. You can view the password by clicking [SHOW].
- Port: TCP port number used when connecting to the Connection Control Manager from a camcorder.

If [TX Connection] items are changed, reconnect the camcorder after saving the settings.

XDCAM pocket Connection

- Username (XPT): Enter the user name to use when logging in to the Connection Control Manager from XDCAM pocket.
- Password (XPT): Enter the password for the user name above. You can view the password by clicking [SHOW].
- Port: TCP port number used when connecting to the Connection Control Manager from XDCAM pocket.

If [XDCAM pocket Connection] items are changed, reconnect XDCAM pocket after saving the settings.

Point to Point Connection

- Username: Enter the user name to use when logging in to the Connection Control Manager from a PWS-110RX1A that will transmit point-to-point streaming.
- Password: Enter the password for the user name above. You can view the password by clicking [SHOW].
- Port: TCP port number used when connecting to the Connection Control Manager from a PWS-110RX1A streaming transmitter.

If [Point to Point Connection] items are changed, run the Initialization Tool on the PWS-110RX1A after saving the settings, then reconnect.

RX Connection

- Username: Enter the user name to use when logging in to the Connection Control Manager from a PWS-110RX1A streaming receiver.
- Password: Enter the password for the user name above. You can view the password by clicking [SHOW].
- Port: TCP port number used when connecting to the Connection Control Manager from a PWS-110RX1A streaming receiver.

If [RX Connection] items are changed, run the Initialization Tool on the PWS-110RX1A after saving the settings, then reconnect.

[FTP]

Up to five FTP settings can be configured. Select the individual settings tabs and configure each item.

- Enable FTP Server Setting 1: Set to on to use an FTP server.
- FTP Server Name: Enter the FTP server name.
- FTP Server Address: Specify the IP address or FQDN (for example, ftp.example.com) of the FTP server.
- FTP Server Port: Enter the FTP server port. Specify "21" if using the FTP protocol.
- Passive Mode: Specify whether to use passive mode for connections to the FTP server. Check with the administrator of the FTP server.
- Use FTPS: Specify whether to connect using FTPS.
- FTPS Server CA Certificate (PEM): Displays the contents of the server CA certificate used for FTPS connections. Click the [Select] button, and select a .pem file. Configuration of this item is not required if not using FTPS connections.
- Check CN and CRL: Specify whether to perform common name (CN) and certificate revocation list (CRL) authentication when connecting via FTPS.
- FTP Username: Enter the user name for connection to the FTP server.
- FTP Password: Enter the user password for connection to the FTP server.

- Upload Directory: Enter the full path of the upload destination directory on the FTP server (for example, /home/sony). If a directory is not specified, the upload destination is the root folder.
- Create Sub Directory: Placing a check mark in the [Use Transmitter Name] checkbox will create a sub directory with the name of the transmitter as the upload destination directory for uploading files. If the checkbox is cleared and a directory is specified in [Upload Directory], files will be uploaded to the specified directory. If the checkbox is cleared and a directory is not specified in [Upload Directory], a sub directory is created with the date as the name in the root directory, and files will be uploaded to that directory.
- [Check] button: Check the entered FTP settings.

[Streaming]

- Use Target Bit Rate setting.: Specify whether to enable manual setting of the target bit rate in the Settings area of the Streaming screen. Placing a check mark in the checkbox enables you to select a [Target Bit Rate] value, depending on the [Network Range] setting in the Settings area.
- Use HEVC if available.: Place a check mark in the checkbox to use H.265/HEVC. A separate license is required to use this function. H.265/HEVC transmission is not performed if H.265/HEVC is not supported by the transmitter device or if H.265/HEVC is not enabled on the transmitter device.

[Intercom]

To use the intercom function, link the camcorder with the PWS-110RX1A on the receiver side under [Receiver Audio Ch.]. The audio channels must be registered beforehand using the Initialization Tool in order to use the intercom function. For details, see "Registering Receivers."

[License]

Displays the license status of the transmitting device.

- [Add Licenses] button: Adds a new license.
- [Export CSV] button: Exports the license status as a CSV file.

[Dashboard]

Displays the streaming usage status.

- Streaming Time: Displays the cumulative streaming time in graph view.
- Streaming Performance: Displays the streaming history in graph view. You can click the graph area and zoom in/out using the mouse wheel. You can drag left/right to scroll the range of the graph.

[Maintenance]

- CCM Software Version: Displays the software version of the Connection Control Manager.
- CCM Software Settings: Press the [Backup] button to back up the configuration file. The backup file is output to the C:\CCM-Server\backup folder. For details about backing up and restoring, refer to the Software Update Guide.

[TX] tab

Configures the transmitting camcorder or the wireless adapter.

- (Add SRT Caller) button: Adds an SRT caller. Click the button to add one line to the TX settings. Enter a name and select a group. When finished, click the [Save TX Settings] button.
- Name: Enter the name of the camcorder or wireless adapter to display in the Connection Control Manager.
- Group: Select the group to which the camcorder or wireless adapter belongs.
- Model Name: Displays the model name of the camcorder or wireless adapter.
- Serial No.: Displays the serial number of the camcorder or wireless adapter.
- Software Version: Displays the software version of the camcorder or wireless adapter.
- FTP Server Name: Select the FTP server setting (stipulated setting) from the drop-down list.
- (Delete) button: Deletes the camcorder or wireless adapter from the list.
- [Edit Group] button: Edits groups.

[RX] tab

Configures the PWS-110RX1A receiver settings.

List

- Name: Displays the name to display in the Connection Control Manager.
- Model Information: Displays the model name and serial number.
- Software Version: Displays the software version of the streaming receiver.
- MSQ Information: Displays version information about the installed MSQ board (SDI input/output board).
- 🗑 (Delete) button: Deletes the PWS-110RX1A from the list.

Items

- Name: Enter the name to display in the Connection Control Manager.
- External Host Name: Enter the IP address or host name for accessing the PWS-110RX1A unit from the Internet.
- External Port Range: Enter the number of the first UDP port used for receiving streaming content from the Internet.
- SRT Listener Port (SDI 1,2): Displays the receive port number used when outputting to SDI 1/2 if receiving using SRT. Selected from the range of external ports.
- SRT Listener Port (SDI 3,4): Displays the receive port number used when outputting to SDI 3/4 if receiving using SRT. Selected from the range of external ports.

SDI Settings

- Resolution: Select the output picture resolution.
- Frame Rate: Select the output picture frame rate.
- Reference Lock: Select the external sync signal used to lock the SDI output.

  - Free Run: Does not lock to an external sync signal.
  - SD Black Burst / Composite: Lock to the black burst signal.
  - HD Tri-level Sync: Lock to a tri-level sync signal.

- Output: Displays the lock status of the SDI output with respect to an external sync signal.
- Output Signal: [Color Bar] or [User Image] can be specified as the output image when streaming is stopped. When [Black] is specified, a black screen image is output. If [User Image] is specified, specify an image file for display as the output image (1920×1080 resolution JPEG or BMP image) using the Initialization Tool.
- SDI (1,2) Port Name / SDI (3,4) Port Name: Used to rename the SDI 1/2 and SDI 3/4 ports.

SRT Listener Settings
Configures SRT receive settings. Match to the settings on the SRT caller side.

- Resolution: Displays the expected screen size of the input video. Displays the same resolution value as the SDI setting.
- Frame Rate: Displays the expected frame rate of the input video. Displays the same frame rate value as the SDI setting.
- Codec: Selects the codec of the input video.
- Latency (20 - 8000 ms): Sets the latency in the range 20 to 8000 milliseconds. You can set the latency separately on both the transmit side and receive side, but the larger of the two values will be used.
- Encryption: Enables/disables encryption and selects the encryption method. AES-128 corresponds to pbkeylen=16 and AES-256 corresponds to pbkeylen=32. When encryption is enabled, only streams that are encrypted with the same method can be received.
- Passphrase: Enter the passphrase used for encryption.

Output Option Settings
Selects options for output of the received stream.

- SDI Output Only: Output on SDI connector only.
- P2P Enabled: When the point-to-point function is enabled using the Initialization Tool, "P2P Enabled" is automatically selected and cannot be changed.
- File Output: Enable file output.
- RTMP Output: Enable RTMP output.

File Output (SDI 1,2 Only)

- Mode: Specify the method for saving video images during streaming to a file. When [Sync with Streaming] is selected, saving to file also starts when streaming starts, and stops when streaming stops. When [Sync with REC Flag] is selected, saving to file starts/stops in sync with the REC/STOP flag sent from the camcorder. When [Off] is selected, recording to file is not performed.
- Destination: Specify the network path of the file save destination. Use only alphanumeric characters and symbols supported for Windows folder names in the file save destination (for example, "\\Server\Share" or "D:\"). Specify storage that can be accessed from Explorer as the save destination. The PWS-110RX1A system drive cannot be specified as a destination.
  To save to network storage, connect network storage to the same network as the PWS-110RX1A. For details, refer to the manual for the network storage.
- Auth Username: Enter the user name for authentication, if user account entry is required for accessing the specified file save destination.
- Auth Password: Enter the password specified for the user name above.
- Auto Delete: Specify whether to enable automatic deletion of saved files. To enable automatic deletion, select [On] and specify the number of days to keep files and the schedule for deletion.

RTMP Output (SDI 1,2 Only)

- Stream URL: Enter the URL of the RTMP output destination (for example, rtmp://rtmp.example.com:1935/live). For RTMPS output, specify "rtmps://" in the URL (for example, rtmps://rtmps.example.com:443/live).
- Stream Name / Key: Enter the stream name or key.
- RTMP Authentication: Place a check mark in the checkbox if authentication will be required.
- Username: If [RTMP Authentication] is enabled, enter a user name.
- Password: If [RTMP Authentication] is enabled, enter a password.
- Resolution: Select the RTMP output resolution.

NETWORK RX STATION
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Configuring Network Settings

Connect the PWS-110RX1A units to the network within the broadcasting station. To connect the PWS-110RX1A units to the camcorders in the field, it is also necessary to configure settings connecting the LAN and WAN within the broadcasting station and the camcorder settings.
For details about configuration, refer to the "System Integration Guide."

Related Topic

- Configuring Connection Control Manager Preferences
- Registering Receivers
- Configuring Connection Control Manager Receiver and Output Settings

NETWORK RX STATION
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Configuring Connection Control Manager Preferences

A single PWS-110RX1A unit within a system has the role of registering and managing the other PWS-110RX1A units, camcorders, and SDI outputs. Launch the Connection Control Manager of the PWS-110RX1A unit, and configure settings.

1 Turn on the PWS-110RX1A unit used to configure Connection Control Manager preferences, and launch the Connection Control Manager admin screen.

2 Click [Settings] in the global header to display the Settings screen, and click the [CCM] tab.

3 Enter the name of the currently connected PWS-110RX1A unit in [CCM Name].

4 Enter the Connection Control Manager administrator user name and password in [Username (1)] and [Password (1)], respectively, on the [System] tab.

5 Select the display language of the Connection Control Manager in [Language].

6 Enter the user name and password for logging in to the Connection Control Manager from a camcorder in [Connection] > [TX Connection] > [Username (1)] and [Password (1)], respectively.

7 To use XDCAM pocket, enter the user name and password for logging in to the Connection Control Manager from XDCAM pocket in [Connection] > [XDCAM pocket Connection] > [Username (XPT)] and [Password (XPT)], respectively.

8 Enter the user name and password for logging in to the Connection Control Manager from a PWS-110RX1A in [Connection] > [RX Connection] > [Username] and [Password], respectively.

9 Click [Save CCM Settings] to save the settings.

To configure a general user

To configure a general user for logging in to the Connection Control Manager from a client PC, enter the user name and password of the general user in [Username (2)]/[Username (3)] and [Password (2)]/[Password (3)], respectively, on the [System] tab. You can also configure the access privileges of general users on the same screen.

Related Topic

- Launching the Connection Control Manager Admin Screen
- Structure of the Streaming Screen
- Structure of the Settings Screen
- Configuring Network Settings
- Registering Receivers

NETWORK RX STATION
PWS-110RX1A Ver. 1.21 or later

Registering Receivers

Register the PWS-110RX1A units in the system using the Initialization Tool. This operation is supported on all PWS-110RX1A units.

1 **Turn on the PWS-110RX1A unit for which to configure the streaming receiver preferences.**

2 **Double click the [Initialization Tool] icon on the Start screen to launch the Initialization Tool.**

3 **When you launch it for the first time, agree to the terms of the EULA (End User License Agreement).**

Select your country or region from the drop-down menu at the top right.

4 **Click [Settings].**

5 **Configure the following Connection Control Manager settings, and click [Next].**

- [CCM Address]: Enter the IP address or host name (FQDN) of the Connection Control Manager.
  If connecting to localhost or C3 Portal, select a preset address from the drop-down list.

- [CCM Port]: The port number "9083" of the Connection Control Manager is set.
  If the C3 Portal address is selected in [CCM Address], the port number changes to "443."

- [Username] and [Password]: Enter the user name and password to use when logging in to the Connection Control Manager from a streaming receiver.
  Enter the registered user name and password in [Connection] > [RX Connection] on the Settings screen.
  When using C3 Portal, enter the configured user name and password in [Settings] screen > [System] > [Credential] > [Receiver] in C3 Portal.

6 **Configure the following settings for the SDI connectors, and click [Next].**

- [Select SDI Input/Output configuration]: Select one of the following options.

  - [Use both SDI 1/2 connectors and SDI 3/4 connectors as outputs]: Outputs two streaming inputs from separate pairs of SDI connectors (SDI 1/2 and SDI 3/4).
  - [1-stream to output SDI-3/4 pair, and input from SDI-1 and output 1-stream]: Outputs one streaming input from the SDI 3/4 pair, and the SDI input to SDI 1 for point-to-point streaming.
  - [1-stream to output SDI-3/4 pair, and output color bars to 1-streams]: Outputs one streaming input from the SDI 3/4 pair, and color bars for point-to-point streaming.

  When [1-stream to output SDI-3/4 pair, and input from SDI-1 and output 1-stream] or [1-stream to output SDI-3/4 pair, and output color bars to 1-streams] is selected, enter the address and connection port of the destination Connection Control Manager, and the login user name and password.
- [Use an image file for SDI outputs]: Place a check mark here to output an image on the SDI connectors when streaming is stopped. When selected, specify the image file to be output.

7 **To use the intercom function, place a check mark in [Enable Intercom function], select the audio interface and audio input/outputs, and click [Start].**

> The audio channels that can be selected depend on the audio interface that is connected. Check the audio settings in the Windows control panel.

Connection to the Connection Control Manager is established, and the PWS-110RX1A unit is registered.
When the configuration completion screen appears, click [OK]. Use the same procedure to register other PWS-110RX1A units as receivers.

To initialize a streaming receiver

Launch the Initialization Tool, and click [Reset].

Related Topic

- Configuring Network Settings
- Configuring Connection Control Manager Preferences
- Configuring Connection Control Manager Receiver and Output Settings

NETWORK RX STATION
PWS-110RX1A Ver. 1.21 or later

Configuring Connection Control Manager Receiver and Output Settings

Receiver settings and SDI output settings

Configure the IP address and UDP ports used to receive streaming content by the streaming receiver.
And, configure the mode for output of SDI signals from the PWS-110RX1A units.

1 **Log in to the Connection Control Manager from a client PC.**

2 **Display the Settings screen and click the [RX] tab.**

3 **Select the PWS-110RX1A unit you want to configure.**

4 **Enter the name of the PWS-110RX1A unit for display in the Connection Control Manager in [Name].**

5 **External Host Name: Enter the IP address or host name for accessing the PWS-110RX1A unit from the Internet.**

6 **Enter the number of the first UDP port used for receiving streaming content from the Internet in [External Port Range].**

7 **Configure the SDI signals to output.**

- [Resolution]: Select the resolution.
- [Frame Rate]: Select the frame rate.
- [Ref Lock]: Select the external sync signal used for synchronization. Select [Free Run] if not using a reference signal to lock the output.

8 **Click [Save RX Settings] to save the settings.**

Related Topic

- Launching the Connection Control Manager Admin Screen
- Structure of the Streaming Screen
- Structure of the Settings Screen
- Configuring Network Settings
- Configuring Connection Control Manager Preferences
- Registering Receivers
- Structure of the File Transfer Screen

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Setting the Wireless Adapter to Network Client Mode

When shooting using a camcorder with a wireless adapter attached, set the wireless adapter to network client mode as described below.

1 **Attach the wireless adapter to the camcorder.**

2 **Attach an LTE modem and wireless LAN module to the wireless adapter.**

3 **Turn on the camcorder and wireless adapter.**

4 **Access the wireless adapter from a smartphone, tablet, or other device to display the Settings screen.**

5 **Configure network client mode.**

6 **Turn on network client mode.**

Note

- For details about attaching and configuration, refer to the manuals for the camcorder and wireless adapter.

- Synchronize the date and time on the wireless adapter with the PWS-110RX1A.

NETWORK RX STATION
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Setting the Camcorder to Network Client Mode

When shooting using a network-enabled camcorder, use the following procedure to set the camcorder to network client mode.

1 **Attach an LTE modem to the camcorder.**

2 **Turn on the camcorder.**

3 **Open the settings menu on the camcorder.**

4 **Configure network client mode.**

5 **Turn on network client mode.**

Note

- For details about attaching and configuration, refer to the manual for the camcorder.

- Synchronize the date and time on the camcorder with the PWS-110RX1A.

NETWORK RX STATION
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Configuring XDCAM pocket

When using XDCAM pocket, use the following procedure to start shooting using XDCAM pocket.

1 **Launch XDCAM pocket on a smartphone.**

2 **In XDCAM pocket, open [Settings] > [Connection].**

3 **Select "Network RX Station" in [Connection], and set the address, port number, user name, password, and display name for connection with the Connection Control Manager.**

4 **Start shooting using XDCAM pocket.**

Note

- To stream in H.265/HEVC, you must enable H.265/HEVC in the XDCAM pocket settings.

- For details about XDCAM pocket settings and operation, refer to the Help for XDCAM pocket.

NETWORK RX STATION
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Starting Streaming

Use the following procedure to start and stop streaming from the Streaming screen of the Connection Control Manager. Specify the transmitter device at the shooting location, and enable streaming transmission.

1 **Select a transmitter device displayed by a thumbnail in the Source area.**

2 **Select the SDI port group to output in [Output to] in the Settings area.**

3 **Select the maximum bit rate for streaming in [Network Range] in the Settings area.**

4 **Select the delay time for streaming video in [Delay] in the Settings area.**

5 **Click [Set] to save the settings in the Settings area.**

6 **Click [Start] in the streaming control area.**

Distribution of streaming video starts.

To stop streaming

Click [Stop] in the streaming control area.

To save video images during streaming to a file

You can save video images being streamed on the SDI1 and 2 ports to a file by setting [File Output (SDI 1,2 Only)] on the [RX] tab of the Settings screen to on. The settings on the [RX] tab are used to start/stop saving and to set the save destination.
When saving to file, the 📥 icon is displayed on the thumbnails in the receiver area. If an error occurs while saving to a file, the 📥 icon appears. Check the status of the save destination for errors.

To enable RTMP output of video images during streaming

You can enable RTMP output of video images being streamed on the SDI1 and 2 ports by setting [RTMP Output (SDI 1,2 Only)] on the [RX] tab of the Settings screen to on. When RTMP output is enabled, the RTMP icon is displayed on the thumbnails in the receiver area. If an error occurs during RTMP output, the RTMP icon appears. Check the status of the RTMP output destination for errors.

> **Note**
>
> - If QoS loss occurs or the streaming video is unstable, increase the value of [Delay] or decrease the value of [Network Range] in the Settings area.
>
> - The [Delay] and [Network Range] parameters can be changed while streaming, although the streaming output may freeze or be disturbed momentarily when the value is changed.
>
> - The settings on the [RX] tab cannot be modified during streaming.
>
> - When saving video to a file while streaming, the image is re-encoded at 720p and the file is subdivided about every two hours.
>
> - The correct operation of the saved file is not guaranteed for all playback environments.

- When saving video images to a file or outputting video images via RTMP during streaming, control the unit from a web browser on a client PC, and not the PWS-110RX1A unit itself.

- Images streamed to the SDI 3 and 4 ports are not saved.

- Images streamed to the SDI 3 and 4 ports are not output via RTMP.

- The output frame rate will be 50.00 fps, 59.94 fps, or 60.00 fps, depending on the input, even if "1080p, 60fps" is selected using [RX] tab – [RTMP Output (SDI 1,2 Only)] – [Resolution] on the Settings screen.

Related Topic

- Structure of the Streaming Screen
- Restrictions

Displaying the Camcorder Control Screen

You can open the camcorder control screen from the Connection Control Manager to control the camcorder. Perform the following procedure on the Streaming screen.

1 **Select a camcorder in the Source area.**

2 **Open the [Remote] tab in the Settings area, and click [Camera Control].**

The control screen for the selected camcorder appears. The control screen may be displayed in a new tab in the web browser, depending on the camcorder model.

Related Topic

● Structure of the Settings Screen

NETWORK RX STATION
PWS-110RX1A Ver. 1.21 or later

Displaying Shooting Locations on a Map

You can display shooting locations, derived from location information received from the transmitter device using GPS, on a map. The GPS function of the transmitter device must be enabled to use this function. For details, refer to the manual for the transmitter device.
Perform the following procedure on the Streaming screen.

1   **Select a transmitter device in the Source area.**

2   **Open the [Map] tab in the Settings area, and click [Show Location].**

A new tab opens in the web browser, and displays the current location of the transmitter device on a map.

Note

- The location display can be operated only when valid location information is obtained from the transmitting device.

Related Topic

- Structure of the Streaming Screen

NETWORK RX STATION
PWS-110RX1A Ver. 1.21 or later

Transferring Camcorder Clips to an FTP Server

You can transfer camcorder clips to an FTP server under control from the Connection Control Manager. Perform the following procedure on the File Transfer screen.

1 **Click [File Transfer] in the global header to display the File Transfer screen.**

2 **Select a camcorder in the Source area of the File Transfer screen.**

3 **Click the [Proxy Clips] tab or the [High-res. Clips] tab.**

A list of clips stored on the selected camcorder is displayed.

4 **Click the checkboxes for the clips to transfer.**

5 **Click [Transfer].**

The selected clips are added to the transfer job list, and the clips are then transferred in sequence.
You can check the transfer state by clicking the [Job List] tab to display the list of transfer jobs.

To preview a clip

Select a clip that you want to preview in the clip list, and click the playback icon. The preview screen appears.
To return to the clip list, click the ⤺ (Back) button on the preview screen.

To transfer a clip while previewing the clip

Click the ☁ (Upload) button on the preview screen. To transfer only a portion of a clip, set an IN point and/or OUT point, and then click the ☁ button.

> **Note**
>
> - To transfer camcorder clips to an FTP server, configure settings for FTP connections on the Settings screen of the Connection Control Manager beforehand.
>
> - File transfers may stop momentarily if the camcorder is currently streaming. The file transfer will resume when streaming stops.
>
> - If the recording media format is FAT, files cannot be transferred using the [High-res. Clips] tab.
>
> - The preview display may stop temporarily, depending on the network status and camcorder status.

Related Topic

- Structure of the File Transfer Screen
- Configuring Connection Control Manager Receiver and Output Settings

NETWORK RX STATION
PWS-110RX1A Ver. 1.21 or later

Intercom Operations

You can make calls between the broadcast station and units in the field using camcorders with an intercom function and the PWS-110RX1A.

Configuration

- A separate license is required to use this function.
- A separate driver is required to use a USB audio interface. For details about drivers, refer to the Software Update Guide.
- Specify the PWS-110RX1A channel used for communication for each camcorder beforehand using the Connection Control Manager.

Operation

To use the intercom function, set the [Intercom] switch to the ON position on the [Streaming] tab of the Streaming screen. The status of the intercom function is displayed on the [Intercom] switch.

- Offline: Intercom is offline on the transmitter side or the PWS-110RX1A side. Or the intercom function was disabled using the Initialization Tool.
- Not available: Intercom is not available on the transmitter side or receiver side. Or the audio interface is not connected.
- In use: Audio channel on the PWS-110RX1A side is being used by another transmitter device.
- Not connected: Not connected
- Connecting: Connecting
- Connected: Connected
- Unstable: Connection is unstable

> **Note**
>
> - For details about enabling the intercom function on a camcorder, refer to the manual for the camcorder.

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Adding Licenses

You can enable option functions by activating a license.
Purchase a license and obtain a purchase key before performing the following procedure. The device on which to use a license should be registered in the system beforehand.

> **Note**
> ● For details about obtaining a license, consult your local Sony representative.

1 **Check the [Unique Device ID] of the device on which to use the license.**

Check the [Unique Device ID] of the device on which to use the license in [License] on the [CCM] tab of the Settings screen.

2 **Access the "Upgrade and License Management Suite" in a web browser, and register the purchase key obtained when purchasing the license.**

URL: https://ulms.sony.net

3 **Register the [Unique Device ID] in "Upgrade and License Management Suite."**

An installation key file is created.

4 **Save the installation key file to any folder.**

5 **Import the installation key file.**

1. Return to the Connection Control Manager screen, and open [CCM] > [License] on the Settings screen.
2. Click the [Add Licenses] button.
3. Click the [+] button.
4. Specify the installation key file.
5. Click the [Import] button.
6. Check that the status changes to "Imported," and click the [Close] button.
7. Check that the device status changes to "Activated" under [CCM] > [License].

> **Note**
> ● If a license is close to expiring or has expired, a license warning is displayed in the global header. Check the license status.

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Supported Formats

This topic lists the streaming video formats supported by the system.

SDI output formats

1920×1080	59.94p, 59.94i, 50p, 50i
1280×720	59.94p, 50p
720×576	50i
720×480	59.94i

Note

- If the system frequency on the camcorder side is different from the SDI setting of the unit, the streaming video/audio may be disturbed when converting the frame frequency.

SDI input formats

1920×1080	59.94p, 59.94i, 50p, 50i
1280×720	59.94p, 50p

Note

- When connecting an input signal to an SDI connector, connect an input signal with the same format as the SDI output.

- When connecting an input signal to an SDI connector, set the reference lock to Free Run. When locking to an external sync signal, input a synchronized SDI signal on the reference input.

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Restrictions

The following restrictions occur when using this system.

- Streaming may be interrupted, depending on the network environment.
- A short delay may occur after setting the camcorder (and wireless adapter) to network client mode until thumbnails are displayed in the Source area of the Connection Control Manager.
- Services may be modified, stopped, or terminated without notice. Sony does not assume any responsibility for services provided by third parties.

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