OMRON

1
Features and System Configuration

2
Operating Procedure

DX Series

Event-triggered Video Logging Package

User's Manual

N704-E1-01

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Introduction

Thank you for purchasing our DX-series Data Flow Controller.
This manual provides information about the Event-triggered Video Logging Package included with the DX Series Data Flow Controller.
Please read this manual and make sure that you understand the functionality and performance of the product before you attempt to use it in a control system.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (electrical engineers or the equivalent).

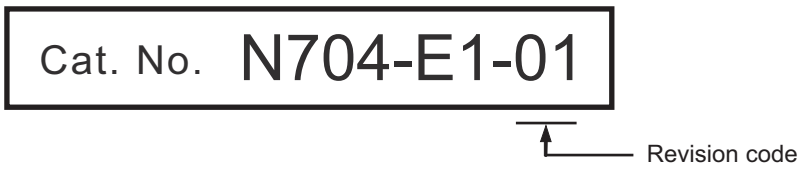
- Personnel in charge of designing and operating data utilization systems on a production site.
- Personnel in charge of designing and operating maintenance systems on a production site.

Guidance for Reading This Manual

For information on **Terms and Conditions Agreement**, **Precautions for Safe Use**, **Precautions for Correct Use**, and **Related Manuals**, refer to the *DX Series Data Flow Controller User's Manual (V241-E1)*.

Revision History

A manual revision code appears as a suffix to the catalog number on the front and back covers of the manual.



Revision code	Date	Revised content
01	October 2025	Original production

Sections in this Manual

CONTENTS

1

Features and System Configuration

This section describes the features and system configuration of the Event-triggered Video Logging Package.

1-1 Capabilities of the Event-triggered Video Logging Package

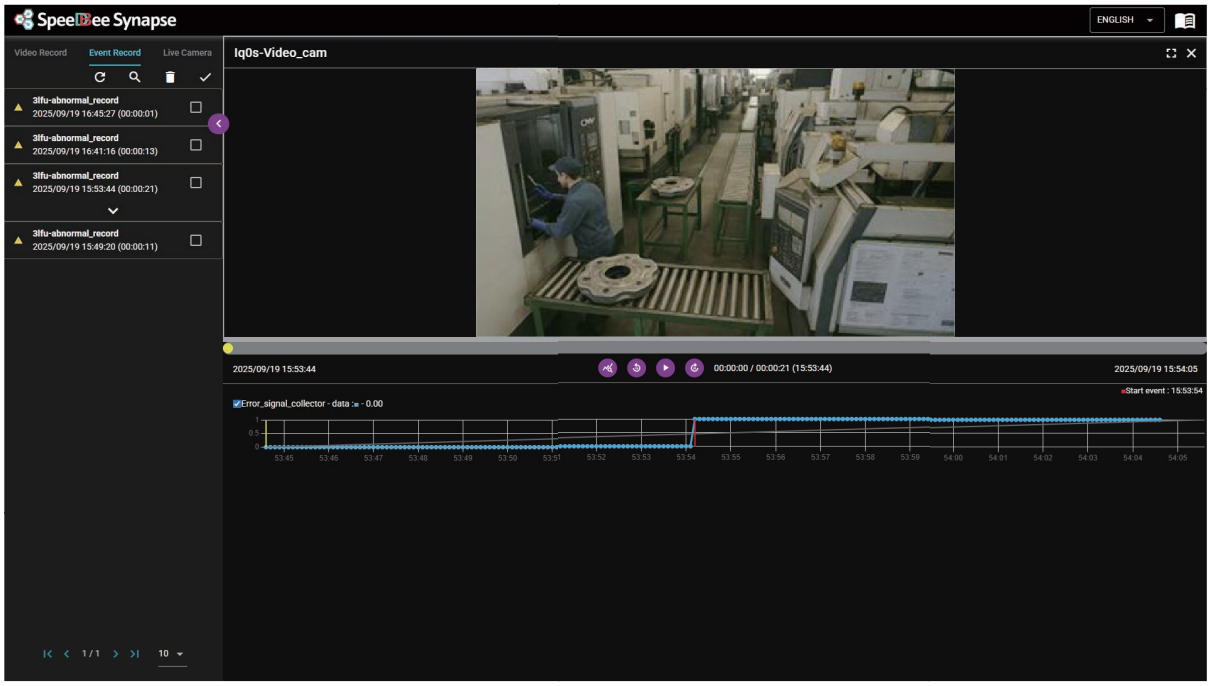
● Event-triggered Video Logging Package

This package enables video recording of equipment behavior during abnormal events by retrofitting IP cameras and sensors. Traditionally, when equipment abnormalities occurred, maintenance personnel had to visit the site and visually inspect the equipment's condition and operation. This process required significant time and effort for root cause analysis and recovery.

With this package, sensors are installed to capture abnormal status signals output from devices such as PLCs, along with IP cameras. When an abnormal status signal is detected, the system records and stores video footage from before and after the event.

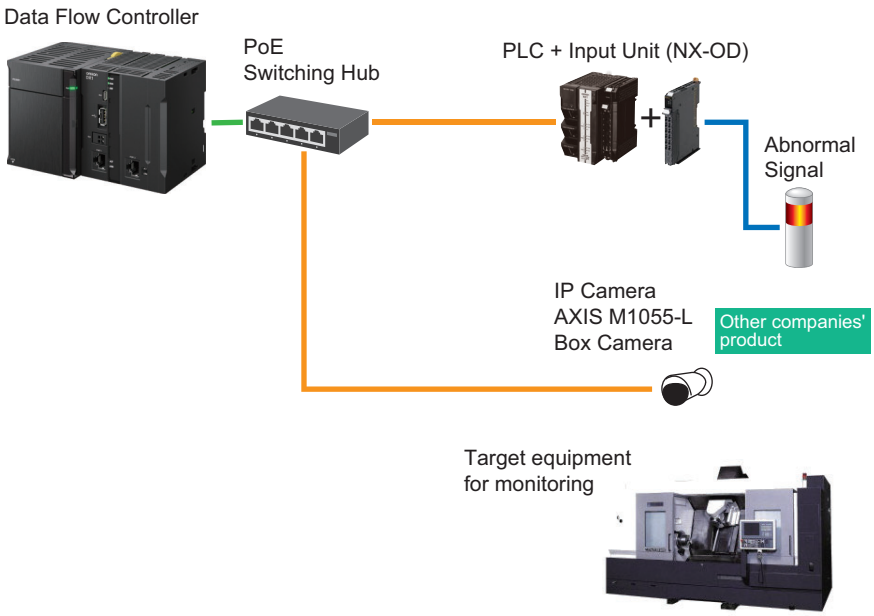
By reviewing the recorded video, users can visually confirm the equipment's condition surrounding the abnormal event, allowing them to understand the situation before arriving on-site.

This enables faster identification of root causes and reduces recovery time.



1-2 Example System Configurations

System Configuration



Sensor Functions

Measurement of Abnormal Status

Record video triggered by changes in abnormal status

2

Operating Procedure

This section describes the operating procedure for the Event-triggered Video Logging Package.

2-1 Overall Workflow

The following is the overall workflow for using the Event-triggered Video Logging Package.
Refer to the manuals or instruction manuals of each device for wiring, installation, configuration, and software startup procedures.

Configure all devices on the same network

Wiring, installation, and configuration of measurement devices	Refer to *2-3 Starting the Event-triggered Video Logging Package* on page 2-4 Refer to the manuals or instruction manuals for the measurement devices in use.
Wiring, installation, and configuration of the Data Flow Controller	Refer to *3 Installation, Wiring, and Turning ON/OFF the Power Supply* in the *DX-series Data Flow Controller User's Manual*.

Launch the Dashboard Generator

Start the following web applications: • Dashboard Generator • SpeeDBee Synapse • Grafana	Refer to *4-1 Operating Procedure from the First Login to User Registration* in the *DX-series Data Flow Controller User's Manual*.
	Refer to *4-3 Procedure for Collecting and Visualizing Data Using Dashboard Packages* in the *DX-series Data Flow Controller User's Manual*.
Perform initial setup of the Dashboard Generator	Refer to *2-2 Basic Operations of the Dashboard Generator* in the *DX-series Dashboard Generator User's Manual*.

Configure the Event-triggered Video Logging Package (SpeeDBee Synapse, Grafana)

Start the Event-triggered Video Logging Package	Refer to *2-3 Starting the Event-triggered Video Logging Package* on page 2-4.

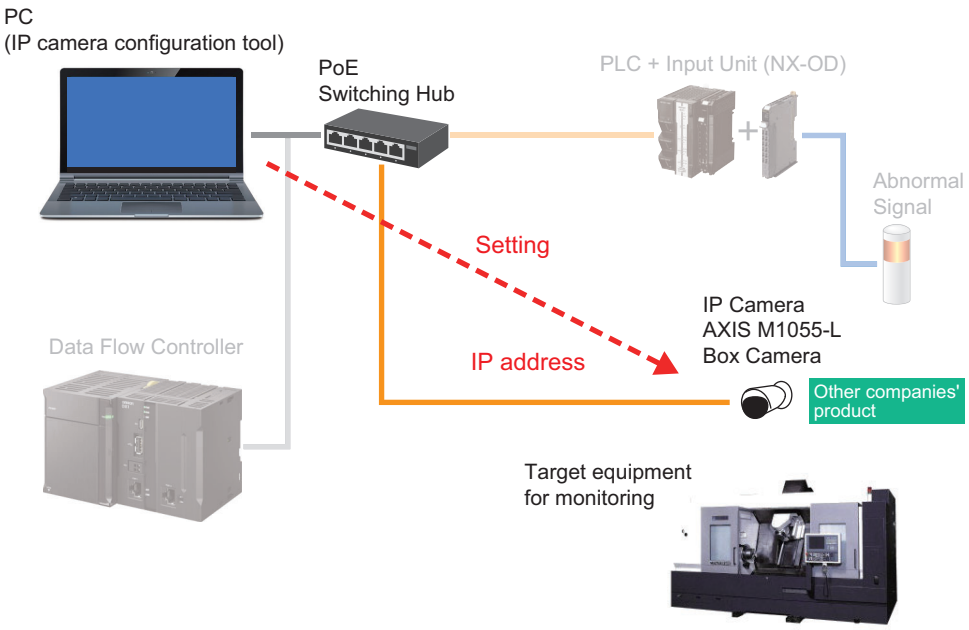
Start Monitoring (Operation)

Playback of Event Videos	Refer to *2-4 Playback of Event Videos* on page 2-22.

2-2 Configuration of IP Camera

This section describes the configuration procedures for IP cameras required for the Event-triggered Video Logging Package.
It assumes that the system connections described in 1-2 Example System Configurations have already been completed.

2-2-1 IP Camera Configuration



1 Power on the PoE switching hub and IP camera, then connect the PC to the IP camera.

2 Use the IP camera configuration tool on the PC to set the IP address of the IP camera.

Refer to the IP camera manual and configure the settings as follows:

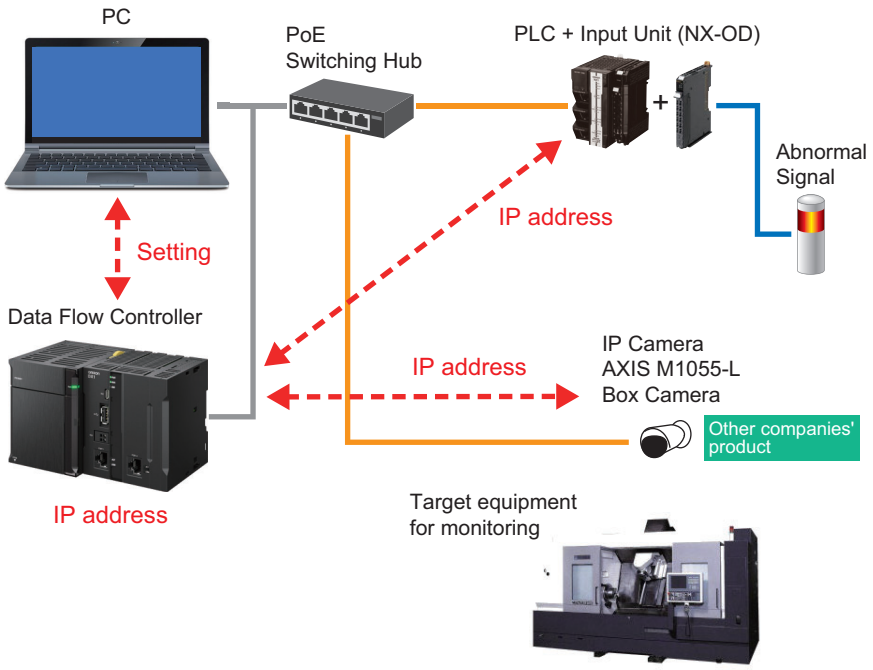
IP Address: 192.168.250.xxx (Set xxx to any value that does not conflict with other devices)
Username: root
Password: admin

3 Adjust the installation position and angle of the camera to ensure the required video can be captured.

2-3 Starting the Event-triggered Video Logging Package

For procedures from logging into the Dashboard Generator to applying settings to SpeeDBee Synapse and Grafana, refer to *Section 2-2 "Using the Dashboard Generator"* in the *DX Series Dashboard Generator User's Manual*.

It explains how to register and configure the IP addresses of devices connected to the Data Flow Controller.

System Configuration	Sensor Functions
	Measurement of Abnormal Status Record video triggered by changes in abnormal status

2-3-1 Configuration Procedure

Follow the steps below.
This procedure assumes that the Dashboard Generator, Synapse, and Grafana are already integrated.

Configuration Steps	Details
NX-OD (Output Unit) Configuration	This section explains the setup based on a system where abnormal status signals are output from the control PLC to an alarm device. In this example, the NX-OD is used as the output unit of the control PLC. Define the NX-OD variables as global variables in Sysmac Studio, and publish them to the network. This is necessary to link the abnormal status signals to the Data Flow Controller.
⇩	
Device List Screen Configuration	Perform a device scan to retrieve information about devices connected via the Event-triggered Video Logging Package.
⇩	
Package List Screen Configuration *	Select the Event-triggered Video Logging Package and specify the equipment identification information and the device to be used for dashboard registration. Register the dashboard based on the specified settings.
⇩	
Dashboard List Screen Configuration * (Synapse / Grafana)	Launch Synapse and start the Error Manager. • Configure the event occurrence period. • Start the Error Manager Launch the Grafana dashboard (graph).

NX-OD (Output Unit) Configuration

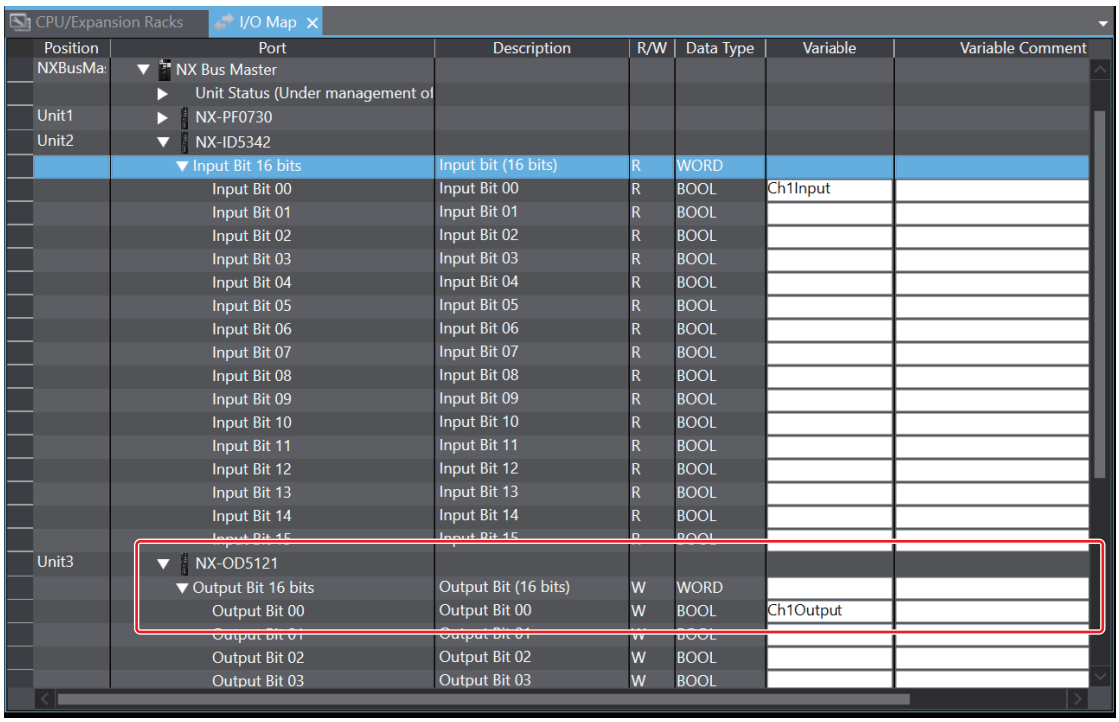
Basic configuration of the NX Series Machine Automation Controller is omitted in this explanation.
This section describes how to add variables in the I/O Map settings for NX-OD.
If the variable name for the abnormal status used to control the alarm device in an existing PLC is already known, and the variable is configured as a global variable with network exposure enabled, the following steps are not required.

1 In Sysmac Studio, display the I/O Map of the NX-OD that outputs the abnormal status signal.

Switch to offline mode to edit.

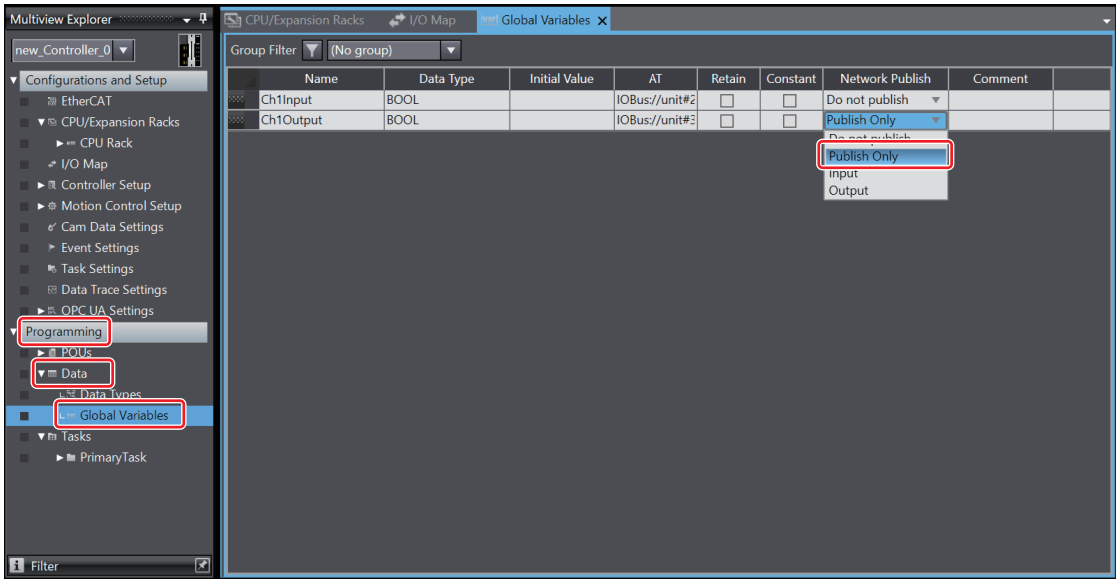
2 Confirm the **Variable Name** and **Edit Type** for the abnormal status output.

In this example, it is assumed that the abnormal status signal is output to output contact 00. The variable name is set to **Ch1Output**, and the variable type is set to **Global Variable**.

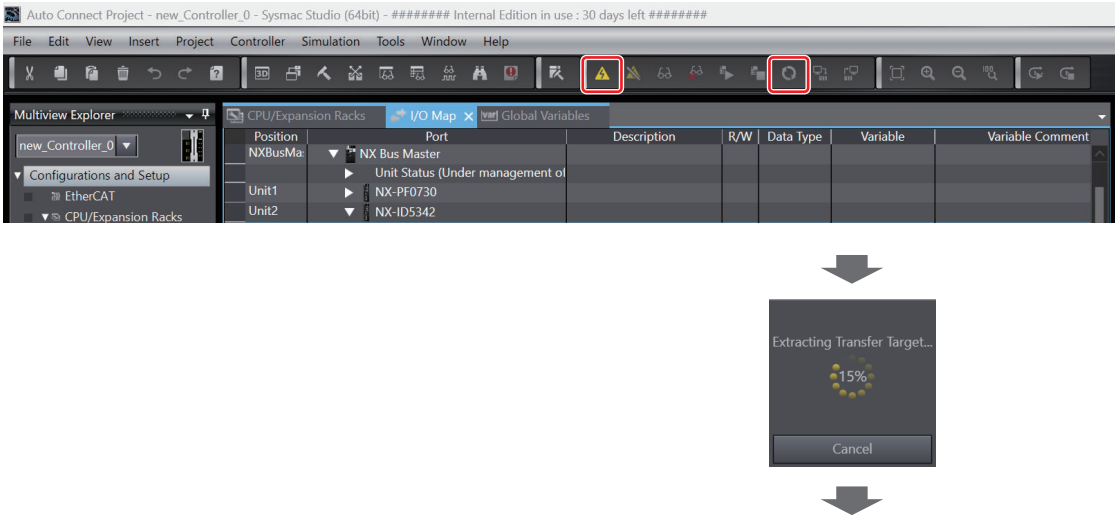


3 Set the network exposure of the abnormal status output variable **Ch1Output** to **Publish Only**.

Open the settings screen from the left tab: **Programming** → **Data** → **Global Variables**.

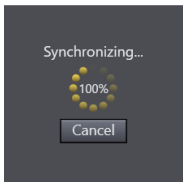


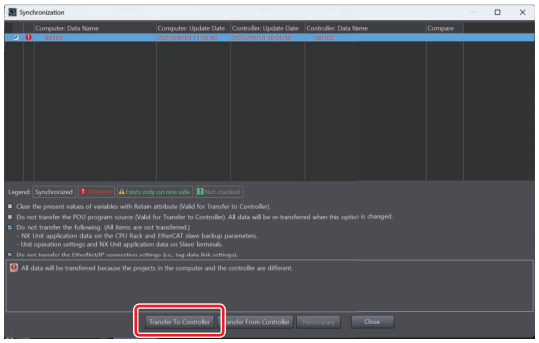
4 Switch to online mode and synchronize.



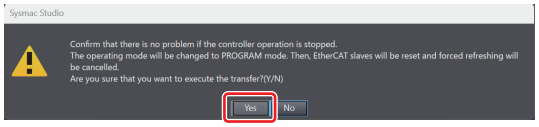
5 Click the **Transfer to Controller** Button.

The program will be transferred.





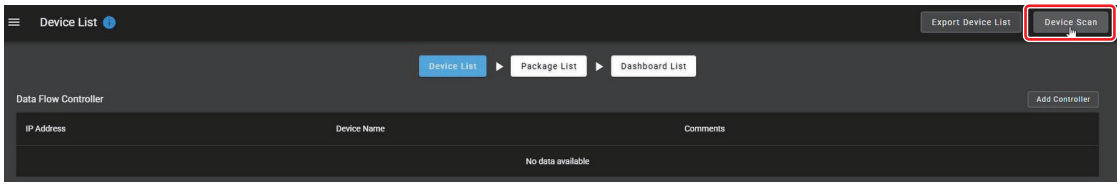
6 When prompted to switch to run mode, click the **Yes** Button.



Device List Screen - Device Scan

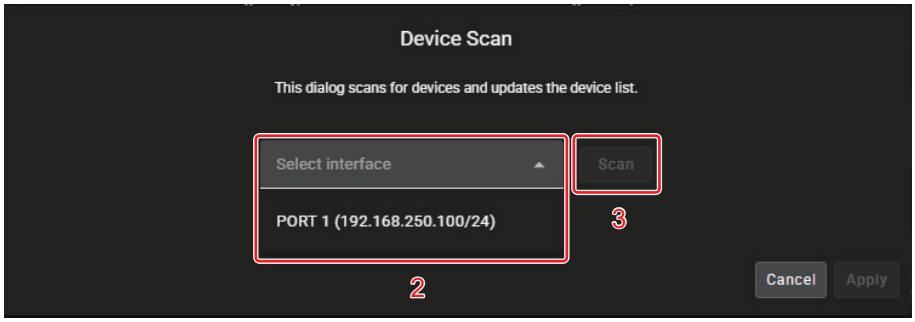
1 Click the **Device Scan** Button at the top right of the *Device List Screen*.

The *Device Scan Screen* will appear.

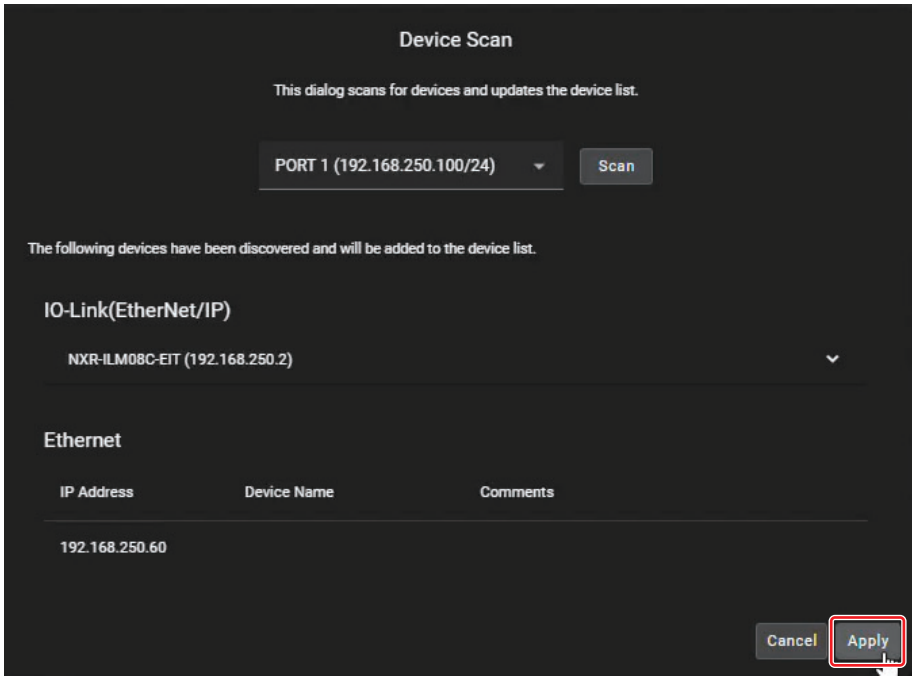


2 Select the interface from the dropdown menu.

3 When the **Scan** Button becomes active, click it.



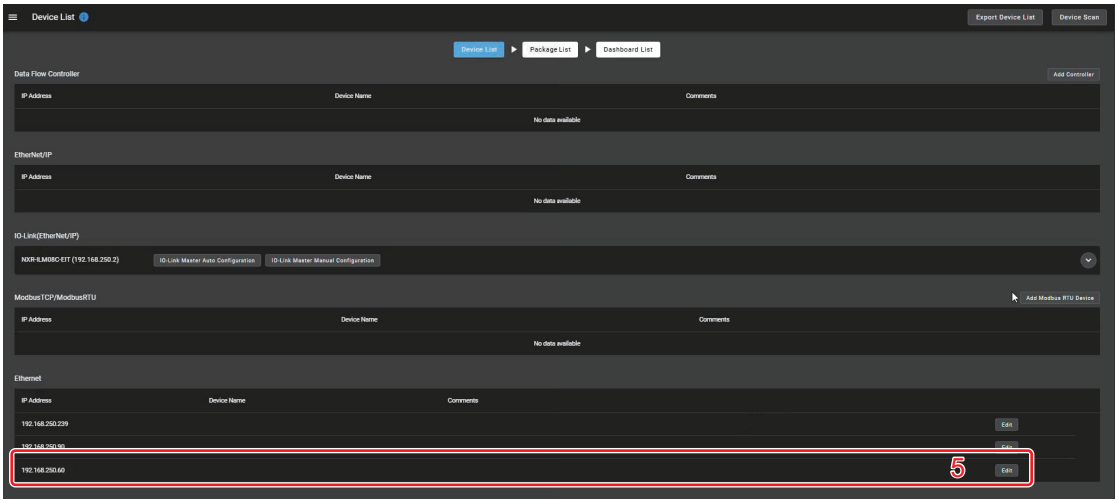
4 The scanned devices will be displayed. Click the **Apply** Button.



You will return to the *Device List Screen*. Confirm that the devices have been updated.
In the example, **NX102-9000** is added to **Ethernet/IP**.
The scanned IP address of the IP camera will be displayed at the bottom under Ethernet.

5 Click the Edit Button on the row at the bottom of the Ethernet list where the scanned IP address of the IP camera is displayed.

In the example, the IP address is 192.168.250.66.



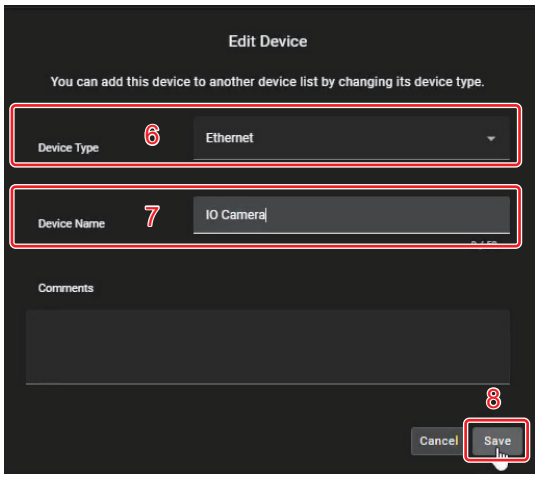
6 From the **Device Type** dropdown menu, select **Ethernet**.

7 Enter a desired name in the **Device Name** field.

Example: IP Camera

8 Click the **Save** Button.

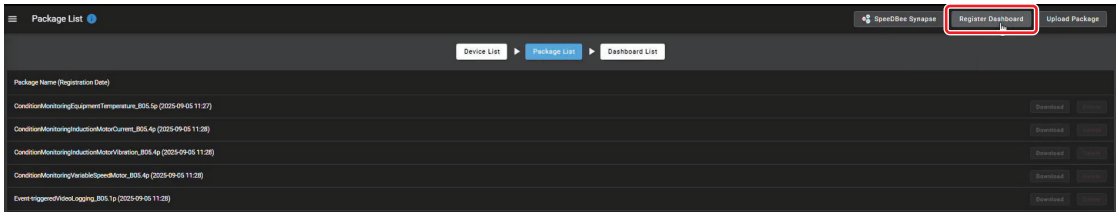
You will return to the *Device List Screen*.



Package List Screen - Dashboard Registration

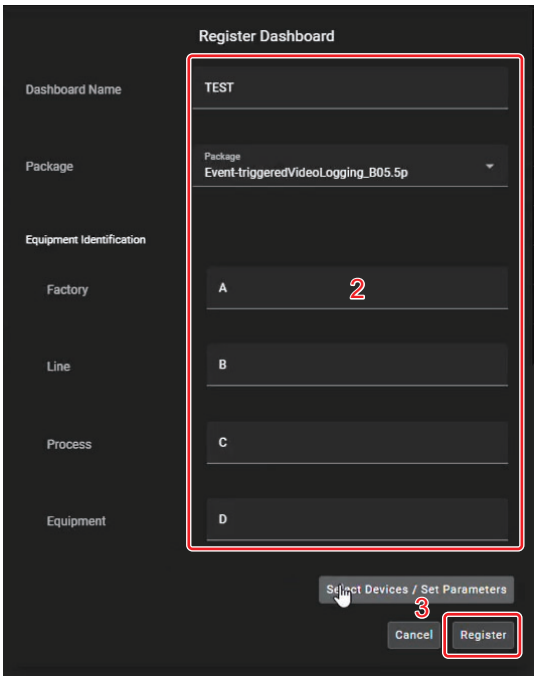
1 Click the **Register Dashboard** Button at the top right of the *Package List Screen*.

The *Register Dashboard Screen* will appear.



2 Configure the information on the *Register Dashboard Screen*.

Setting Item	Description
Dashboard Name	Enter a desired name. It will be displayed in Synapse and Grafana. Example: *TEST*
Package	Select **Event-triggered Video Logging Package**.
Equipment Identification	Optional input fields. Includes factory name, line name, process name, and equipment name.



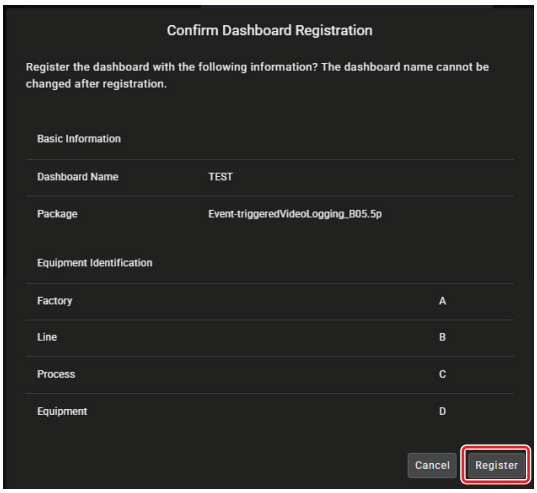
3 Click the **Register** Button.

The Confirm *Dashboard Registration Screen* will appear.

4 Click the **Register** Button.

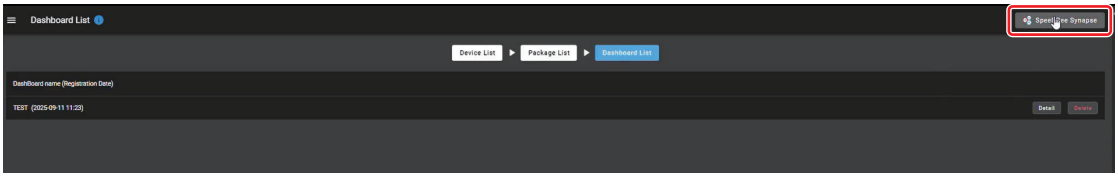
Dashboard registration takes approximately 30 seconds.

Once registration is complete, the system will transition to the *Dashboard List Screen*.



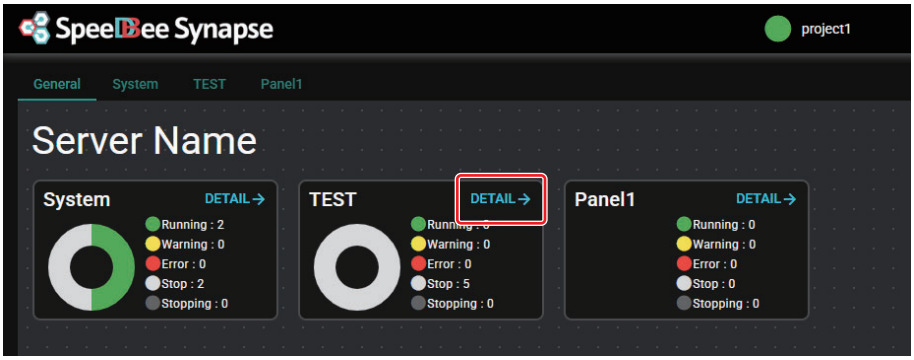
Dashboard List Screen - Launching Synapse

1 Click the **SpeeDBee Synapse** Button at the top right of the *Dashboard List Screen*.
The *SpeeDBee Synapse Screen* will appear.



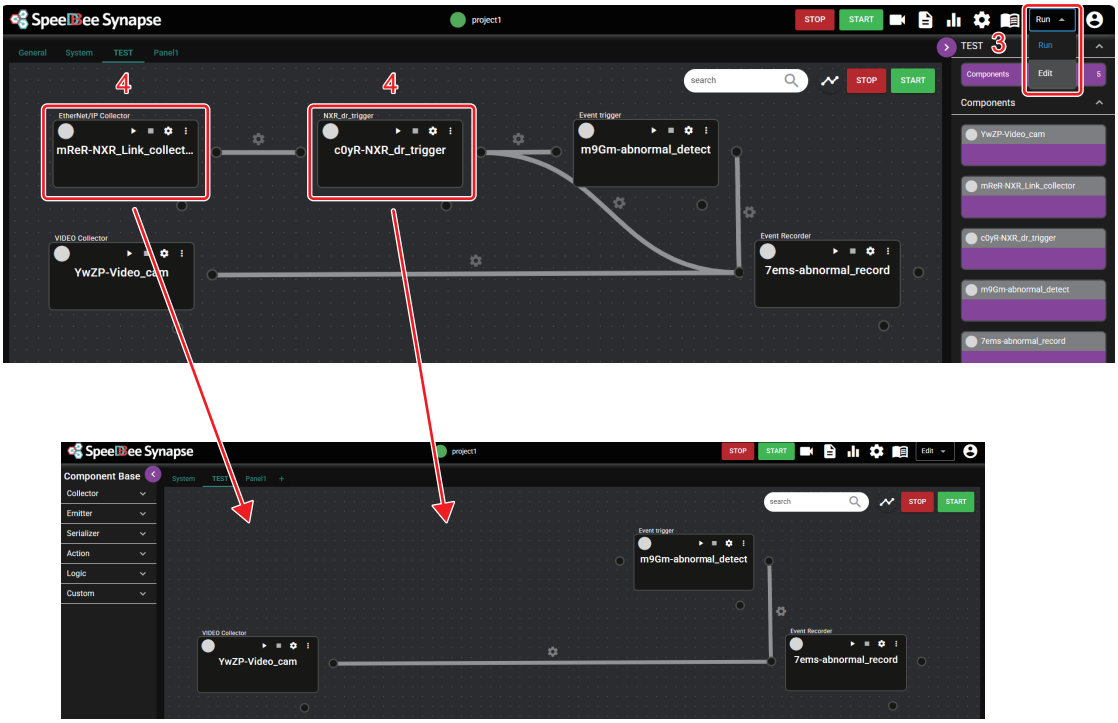
2 A panel has been added with a custom dashboard name (e.g., TEST).
Click **DETAIL** on the corresponding panel.

The screen will transition to the *Synapse Connection Screen*.

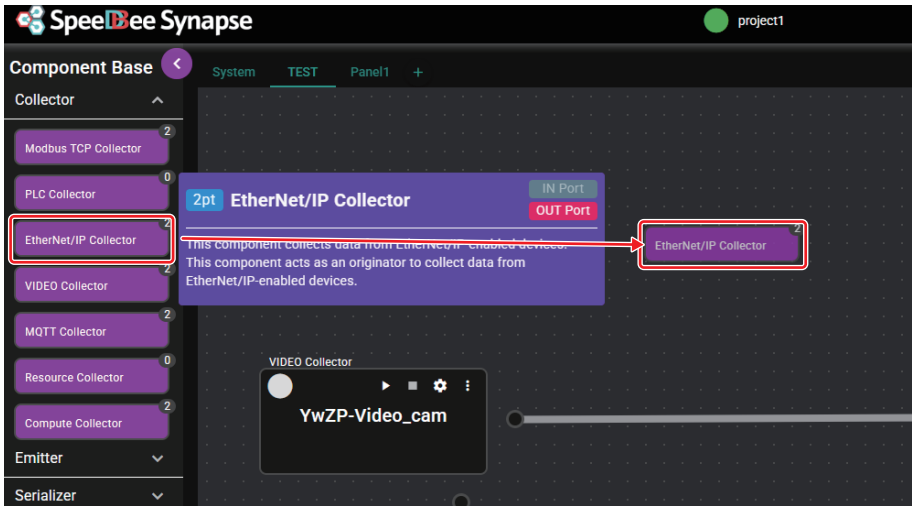


3 Change **Run** to **Edit**.

4 Delete the EtherNet/IP Collector Component and the NXR_dr_trigger Component.

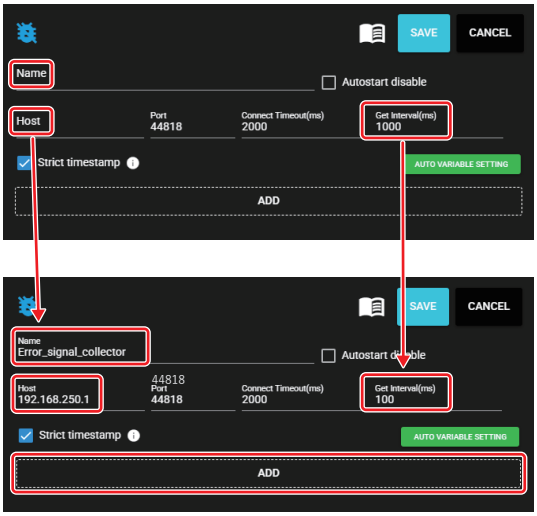


5 From the tab on the left, select **EtherNet/IP Collector** and place it.



6 Configure the placed **EtherNet/IP Collector**.

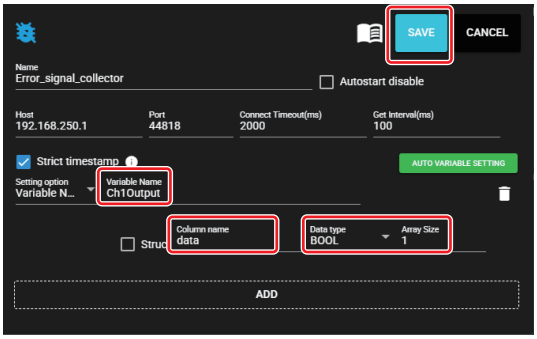
Item	Description
Name	The name of the component. Example: Error_signal_collector
Host	The IP address of the host. Set the IP address of the NX102-9000. Example: 192.168.250.1
Get Interval	The data acquisition interval. Set to 100 ms.



7 Click the **ADD** Button to continue configuration.

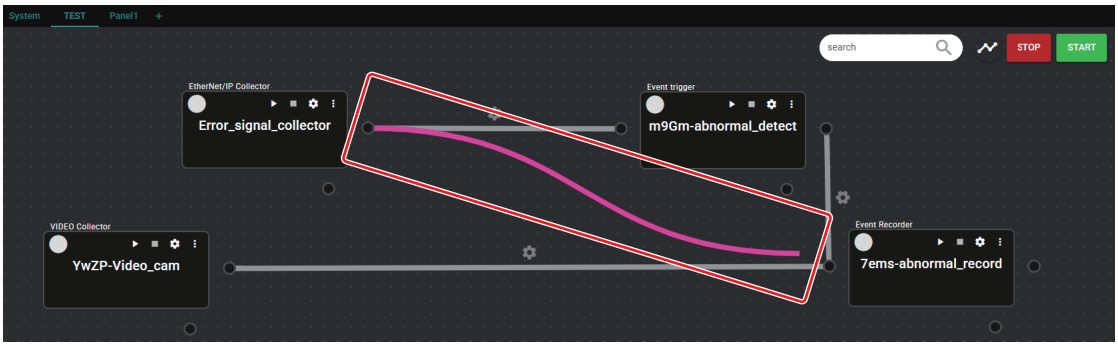
After configuration, click the **SAVE** Button.

Item	Description
Variable Name	Set the NX-OD variable. Example: Ch1Output
Column Name	The name of the acquisition column. Example: data
Data Type/ Array Size	Set the data type of the variable Ch1Output. Example: BOOL, 1

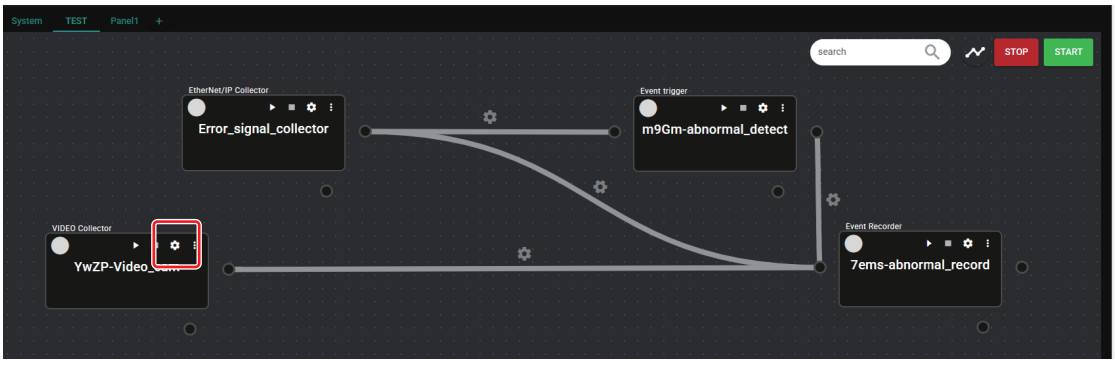


8 Connect the output port ● on the right side of the created component to the input port ● on the left side of the *Event trigger*.

9 Connect the output port ● on the right side of the created component to the input port ● on the left side of the *Event Recorder*.



10 Click the ⚙ Button on the *VIDEO Collector Component*.



11 Modify the contents of **RTSP URL** to match the IP address of the IP camera.

In the example below, the following change is made:

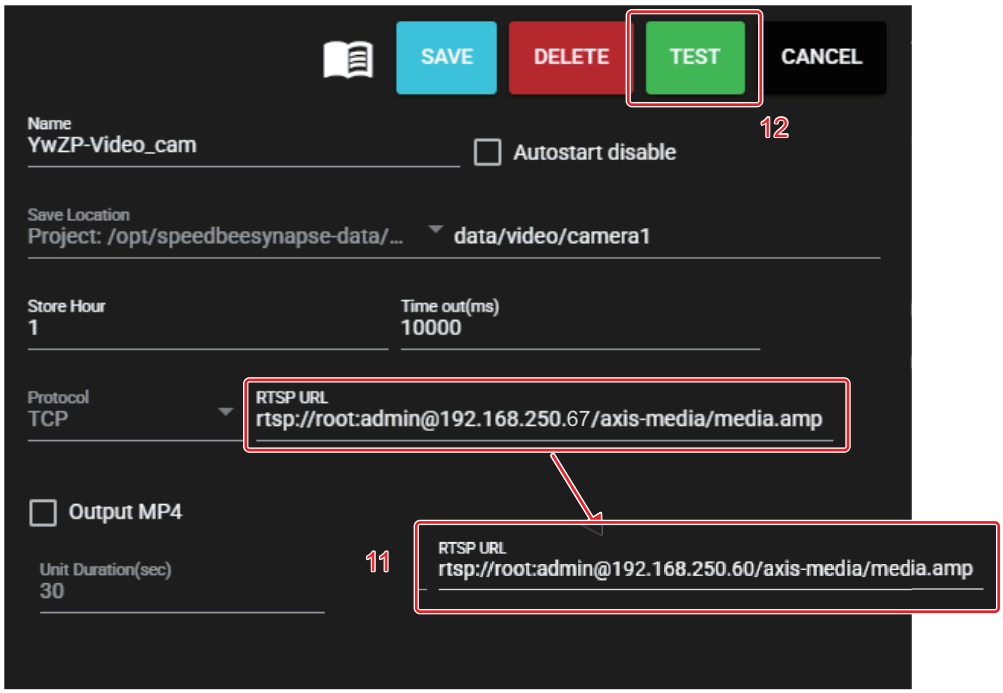
rtsp://root:admin@192.168.250.67/axis-media/media.amp

↓

rtsp://root:admin@192.168.250.**60**/axis-media/media.amp

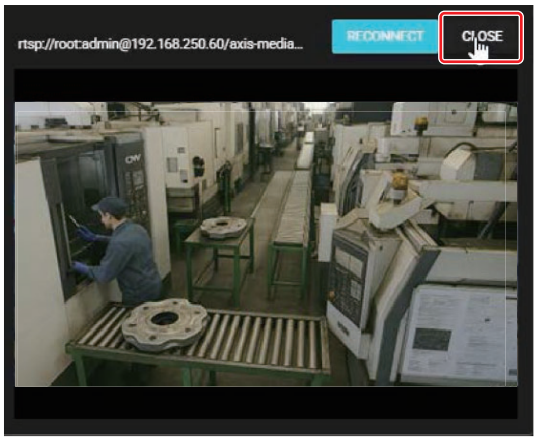
12 Click the **TEST** Button.

The camera will start.

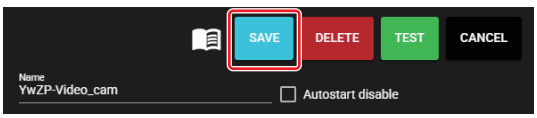


13 Click the **CLOSE** Button.

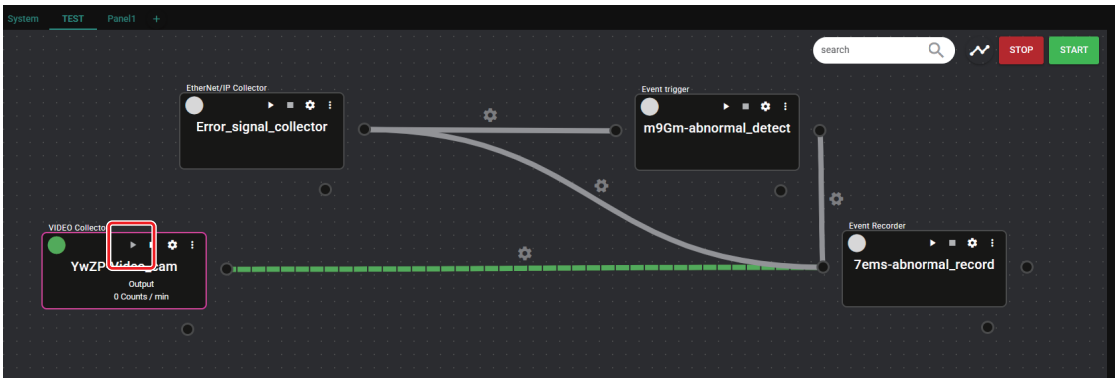
Return to the previous screen.



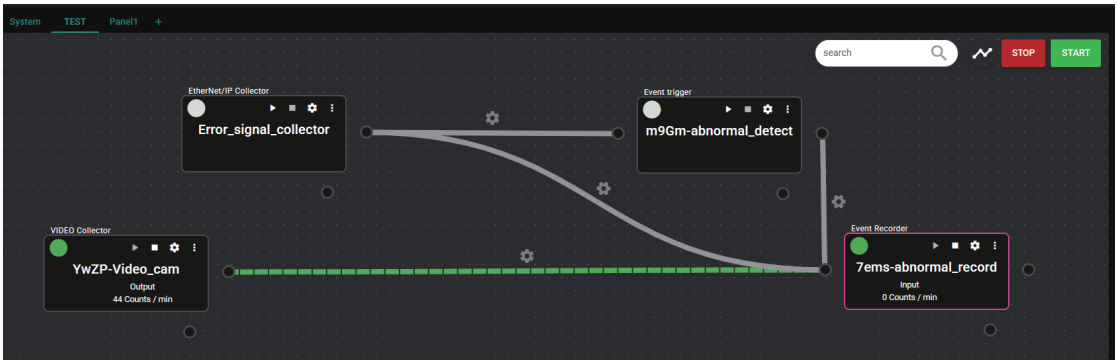
14 Click the **SAVE** Button.



15 Click the ▶ Button on the *VIDEO Collector Component*.



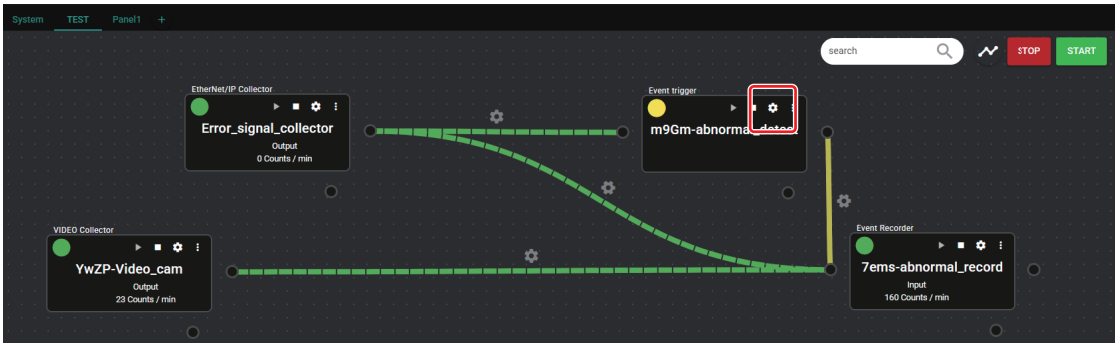
After a short wait, the flow link will change from yellow to green.



16 Click the ▶ on the following two components:

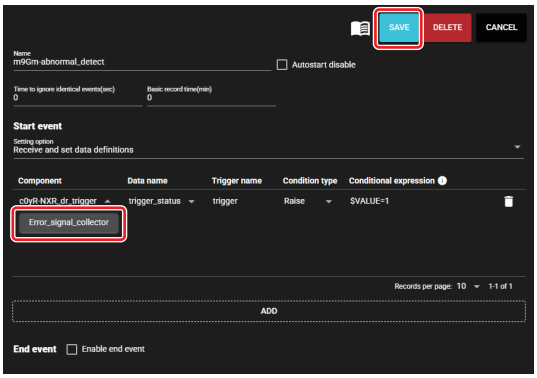
EtherNet/IP Collector and **Event trigger**

17 Click the ⚙ Button on the *Event trigger Component*.

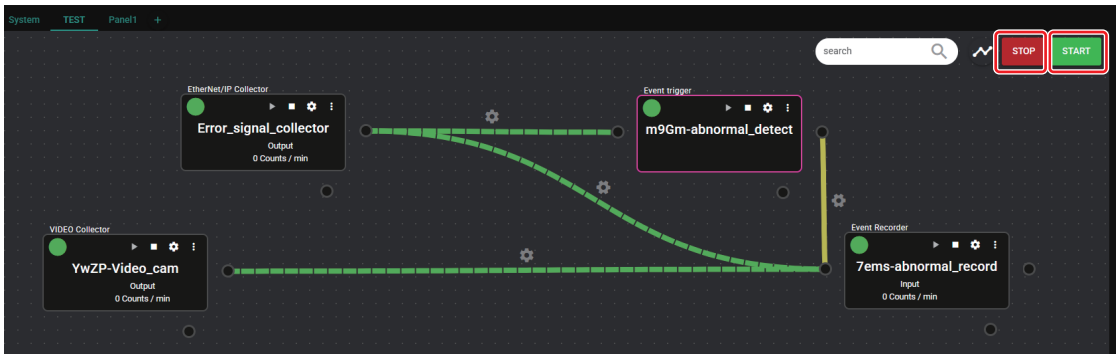


18 In the component settings, configure the name assigned to the Ethernet/IP Collector.
After configuration, click the **SAVE** Button.

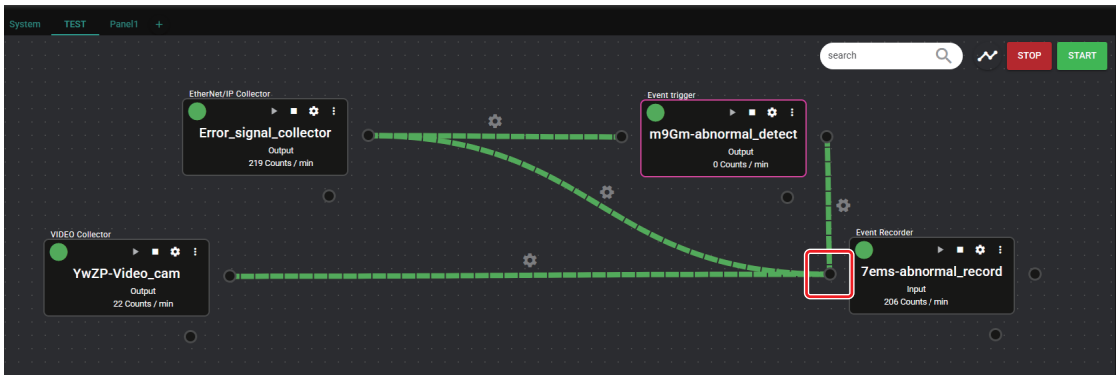
In this example, the component name **Error_signal_collector** set in step 5 is used.



19 Click the **STOP** Button, then click the **START** Button to restart.



20 Right-click the input port ● of the *Event Recorder Component*.



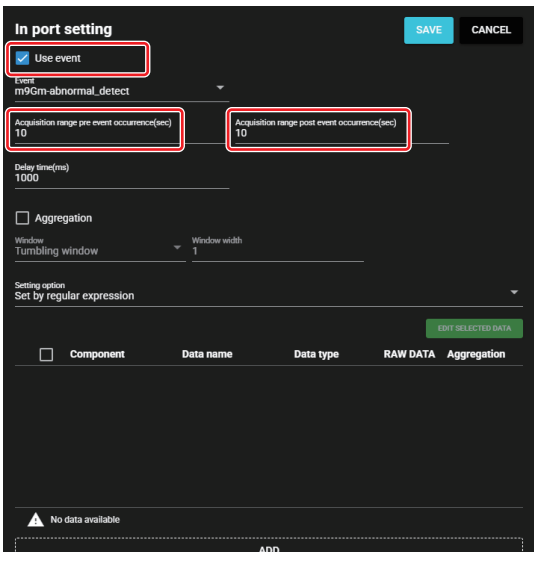
21 Configure **In port setting**:

☑ Use event

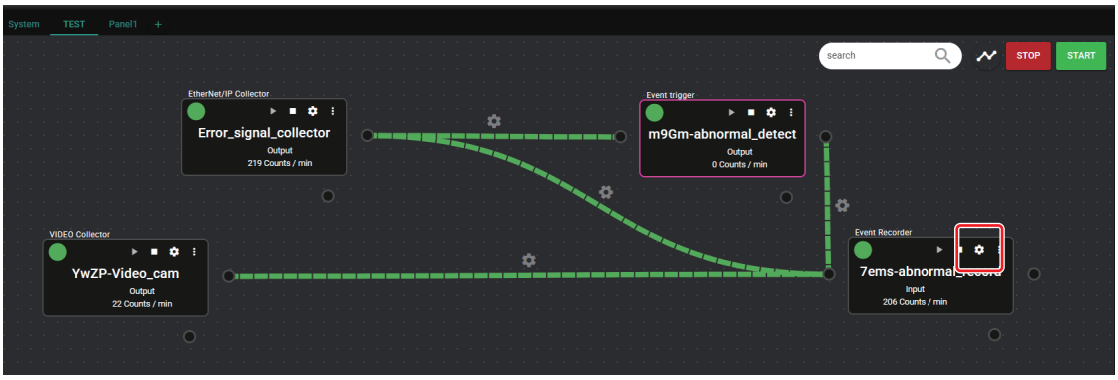
- Acquisition range pre event occurrence(sec): Modify as needed (e.g., 10 seconds)
- Acquisition range post event occurrence(sec): Modify as needed (e.g., 10 seconds)

Since there is a time lag between event detection and recording, set a longer duration before the start event. Specifically, add approximately 3 seconds to the actual recording time.

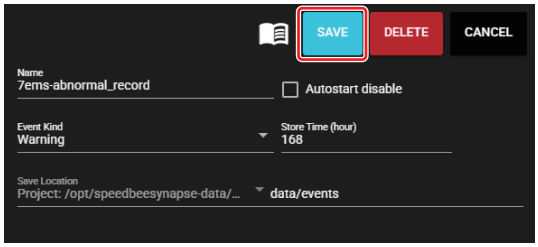
Once configuration is complete, click the **SAVE** Button.



22 Click the ⚙ on the *Event Recorder Component*.



The default retention time is 168 hours (one week). Modify as needed, then click the **SAVE** Button.

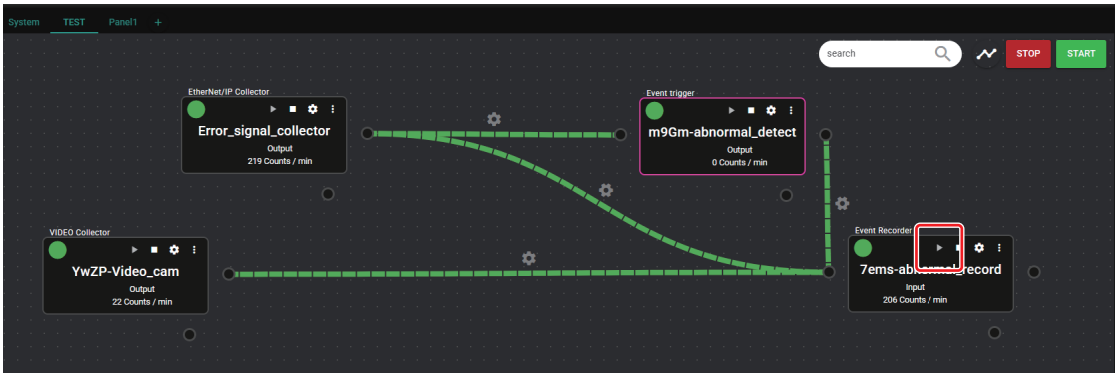


Precautions for Correct Use

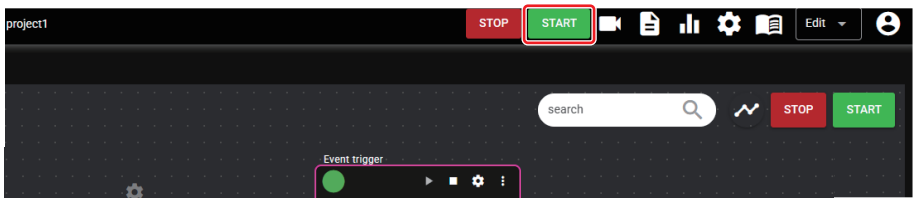
■ Data Storage Location

Always use an external USB memory device with a capacity of 2GB or more.
The internal memory of the Data Flow Controller does not have sufficient capacity, and event videos cannot be saved.
Refer to *section 2-5 Changing the Data Storage Location* in the *DX Series Dashboard Generator User's Manual* for configuration steps.

23 Click the ▶ on the *Event Recorder Component*.



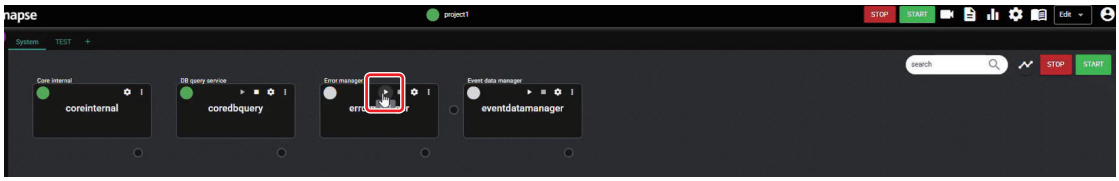
24 Click the **START** Button.



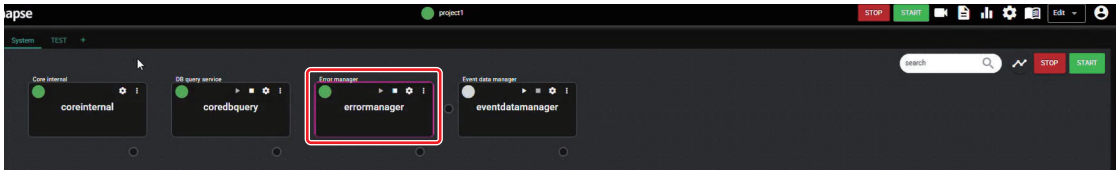
25 Click the *System Tab* at the top left (for Error Manager configuration).

The *System Panel* will appear.

26 Click the ▶ (**Launch**) Button on the *Error Manager Component*.



The Error Manager will start.

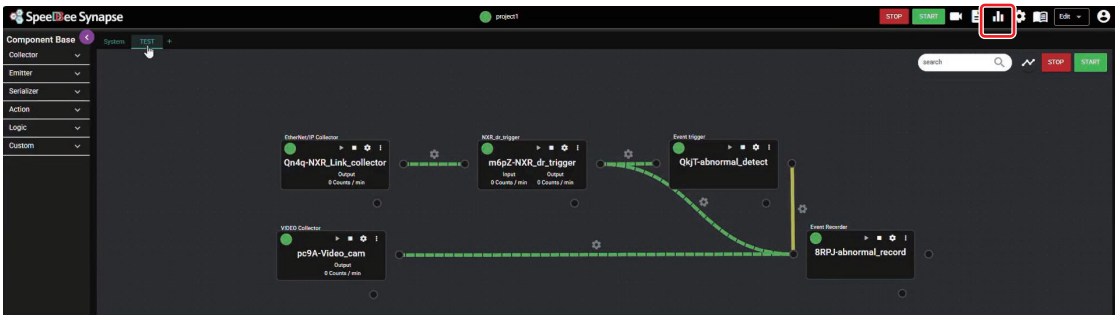


Note: Error Manager is required for Grafana to retrieve data from Synapse.

Dashboard List Screen - Launching Grafana

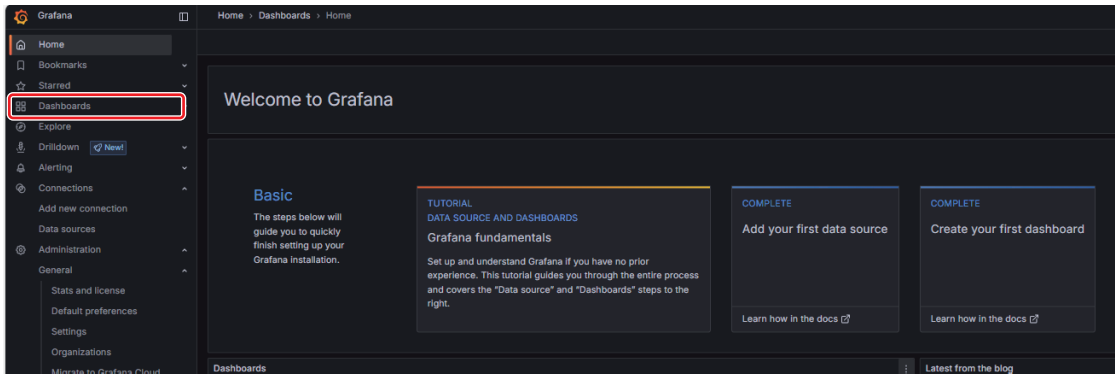
1 Click the graph icon in the upper-right corner of the *Synapse Screen*.

The *Grafana Screen* will appear.



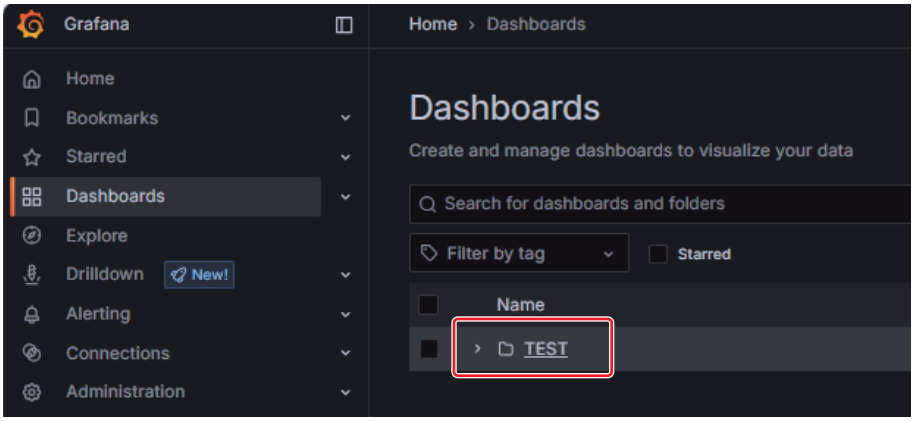
2 Click **Dashboards**.

The screen switches.



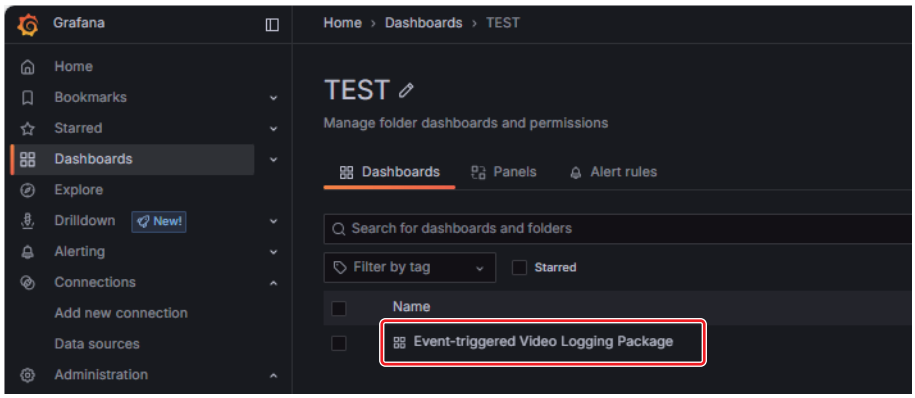
3 Click any dashboard name that has been added.

Example: TEST



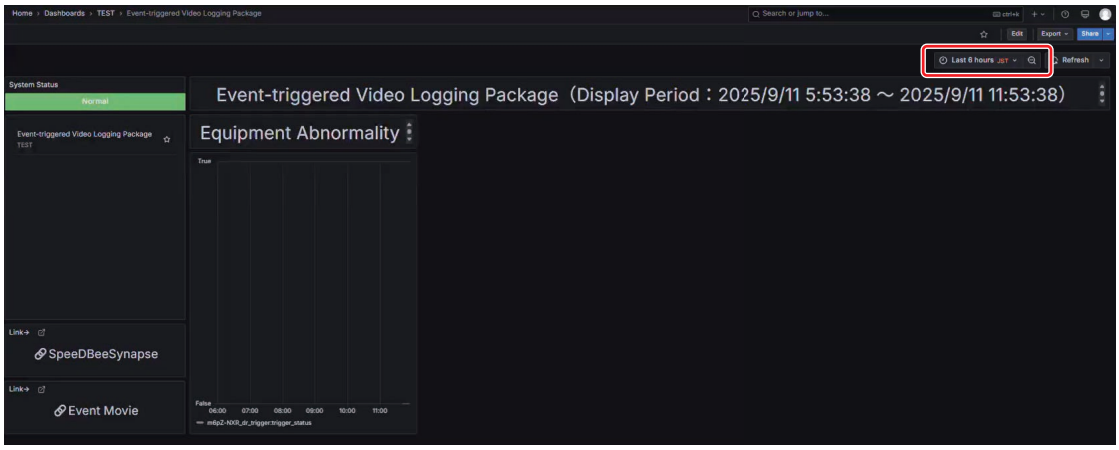
4 Click **Event-triggered Video Logging Package**.

The screen switches.

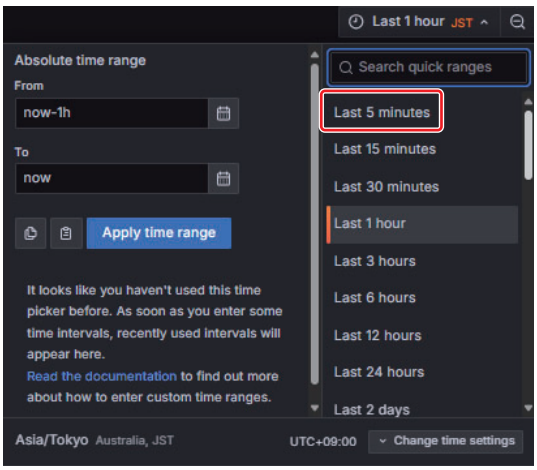


5 The KPI is displayed as a graph.

To change the time range on the horizontal axis, use the dropdown menu labeled **Last 1 hour JST**.

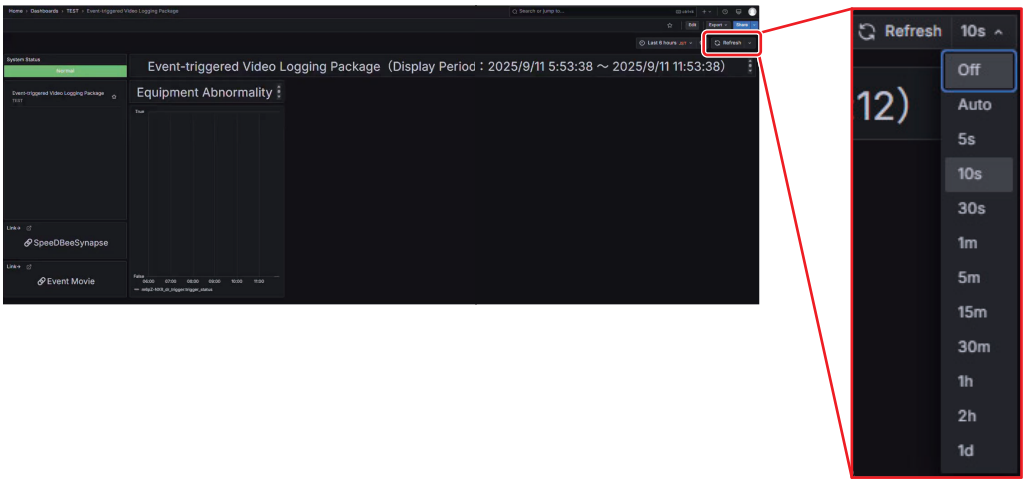


In this example, **Last 5 minutes** is selected.



Note: The vertical axis (values) of the graph automatically adjusts its scale based on the range of acquired data.

6 A graph with the updated time range on the horizontal axis will be displayed.
To adjust the data refresh frequency, click **Refresh** Button at the top right.
Select the desired interval from the dropdown menu.

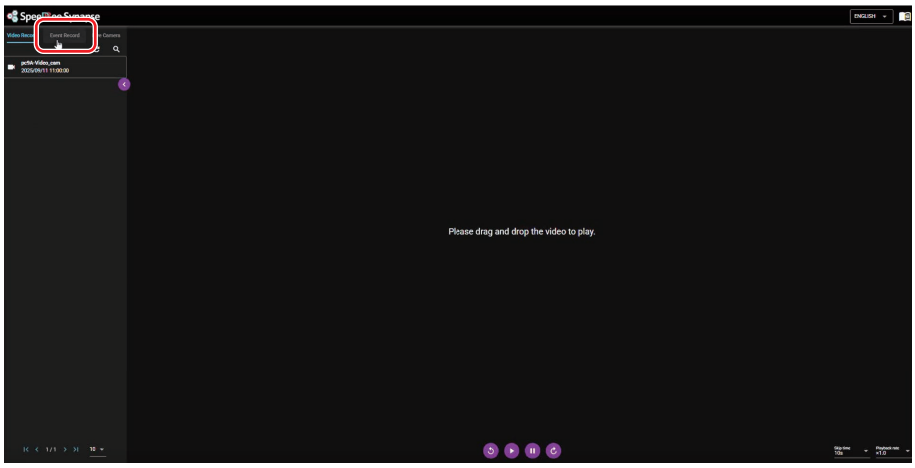


2-4 Playback of Event Videos

This section describes the procedure for playing back event videos.

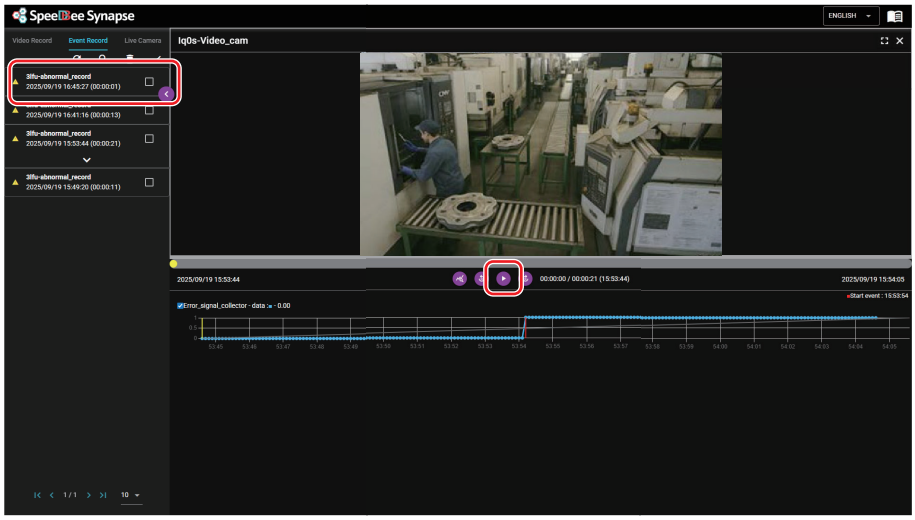
1 Click the viewer icon at the top right of the *SpeeDBee Synapse Panel*.

2 Click **Event Record**.



3 Click on the desired recorded data from the list.

Click ► to start playback.



For details on the video playback feature, refer to the i-Trigger Operation Guide for SpeeDBee Synapse:
https://www.saltyster.com/ss-docs/speedbeesynapse/i-trigger/viewer.html

OMRON Corporation **Industrial Automation Company**

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Contact for inquiries for this procuct (only for DX-series)

DataPF-contactdesk-OC@omron.com

Operation Hours: 9:00 to 17:00 (except Saturdays, Sundays, and Dec. 31 to Jan. 3), JST

Tutorial Video

https://www.fa.omron.co.jp/dx1/video-manual/en/

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