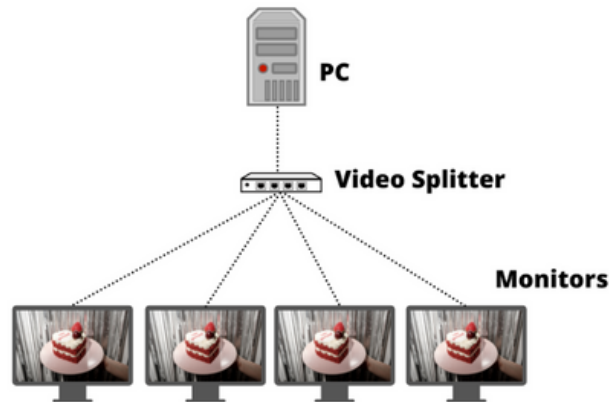# One-to-Many Display Over IP

BY EZCAST

Abstract

Connecting to multiple monitors allows users to implement more efficient communication across space. To achieve the objective, you must know which special equipment you need: A wireless presentation solution or video splitter

Figure 1: *Diagram of equipment connected via a four-port video splitter*

There are many benefits to having multiple displays in a room and many scenarios where it can be implemented:

- In an office, school or conference, two or more TVs can be connected together for a presentation in a large room.
- At a restaurant or bar, a movie can be displayed to many screens.
- Displaying promotions or advertisements in shopping malls or commercial centers.
- Gamers can use many screens connected to a single source in a gaming competition that requires many players to watch the game at the same time.

Figure 2: *Equally comfortable viewing for all visitors at once*

This article explains how to cast to multiple screens from a single source. Meanwhile, we also explain the advantages of using AV over IP and Wi-Fi-based products. When you link your displays together, they will show the same content without the need for an extra receiver or cable. We will also guide you step by step using a wireless presentation system and a video splitter.

1. One-to-Many Display Over IP

The one-to-many display is designed to share the video and audio from a single source to multiple displays. The traditional one-to-many display solution adopts devices such as HDMI splitter to split display content to multiple screens. However, due to the limitation of HDMI transmission technology, it is difficult to extend and expand the content.

The cost to either keep HDMI signal stable over long HDMI cables or add the display ports of HDMI to support multiple monitors simultaneously is very high. In contrast, by using an IP-based one-to-many display solution, users can get good A/V performance and quality on multiple displays. All of this can be done by leveraging existing stable and low-cost Ethernet or Wi-Fi hardware. EZCast's one-to-many display solution is suitable for all scenarios, such as conferences and digital signage, etc.

2. One-to-Many Display Solutions

Regardless of what the purpose is, streaming the same content on multiple screens is becoming increasingly popular. Therefore, in the next sections, we will discuss some efficient options and how we can take advantage of them.

Various methods are available for replicating a signal across multiple monitors. For example, you can employ a VGA Y-splitter cable, a video card, or a video splitter. However, we will further explain why a wireless presentation solution or a Wi-Fi HDMI Splitter might be more suitable options.

Figure 3: *Commercial use of EZCast ProAV Ethernet Series*

ProAV Ethernet is a one-to-many display solution based on Ethernet. Since Ethernet has higher bandwidth and is stable, data loss is less likely to happen. ProAV Ethernet uses UDP Multicast over ethernet [1] to transmit video and audio data.

Follow the steps to use the one-to-many display with ProAV Ethernet:

(1) Prepare multiple ProAV ERs and one ProAV ET.
(2) Connect ProAV ERs and the ProAV ET to the same switch via Ethernet.
(3) Find the SW/SP switch on the front panel of ER and ET.
(4) Switch SW/SP mode to SP.
(5) Connect display source with ET and screens with ERs with HDMI cables. Power on the devices.
(6) ER will show the display content automatically.

Figure 4: *HDMI Splitter over Ethernet (1 to N)*
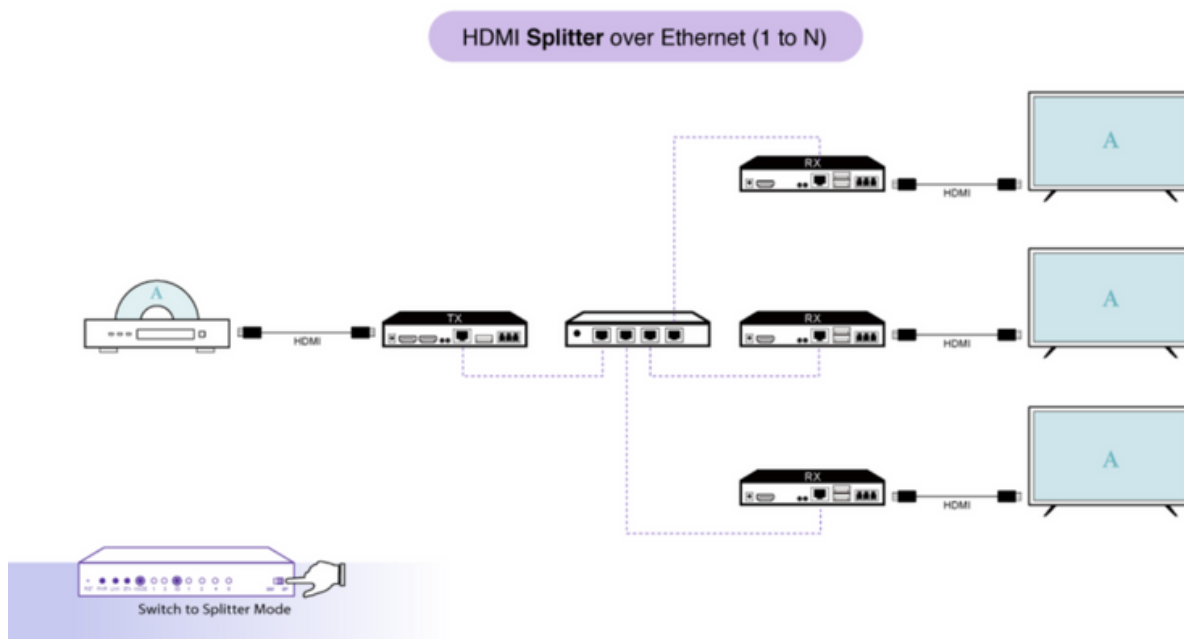
Due to IP switcher ports being compatible with many IP switches, the number of endpoint devices that can be connected to the matrix switcher is no longer a limitation. The result is that an application is no longer restricted to finite inputs and outputs. It becomes a scalable system.

Besides, analog AV facilities are gradually being replaced by IP-based products as IP-based products can easily leverage your current infrastructure. It is ideal for systems that require high bandwidth, long-distance, and even just for future expansion. You will see it being implemented everywhere, from malls to stadiums and from small organizations to universities!

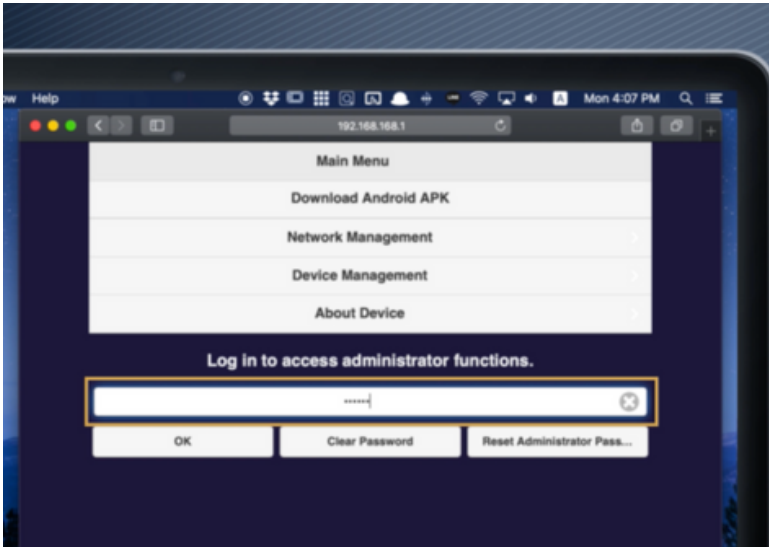**3. QuattroPod Series for the Conference**

Figure 5: *QuattroPod Series One-to-Many*

QuattroPod is a one-to-many display solution based on Wi-Fi. In the wireless environment, multiple devices use the same channel and share the bandwidth. Using UDP multicast to transmit video and audio data is easy to be disturbed by the environment and interfere with each other's devices. It may cause data loss and display incomplete, so QuattroPod uses TCP Multicast over Wi-Fi [1] to transmit video and audio data to ensure the image quality.

Follow these steps to use the one-to-many display on QuattroPod

(1) Prepare multiple QuattroPod receivers and one QuattroPod transmitter. Then log in to the Admin Setting page of QuattroPod Receivers web setting.
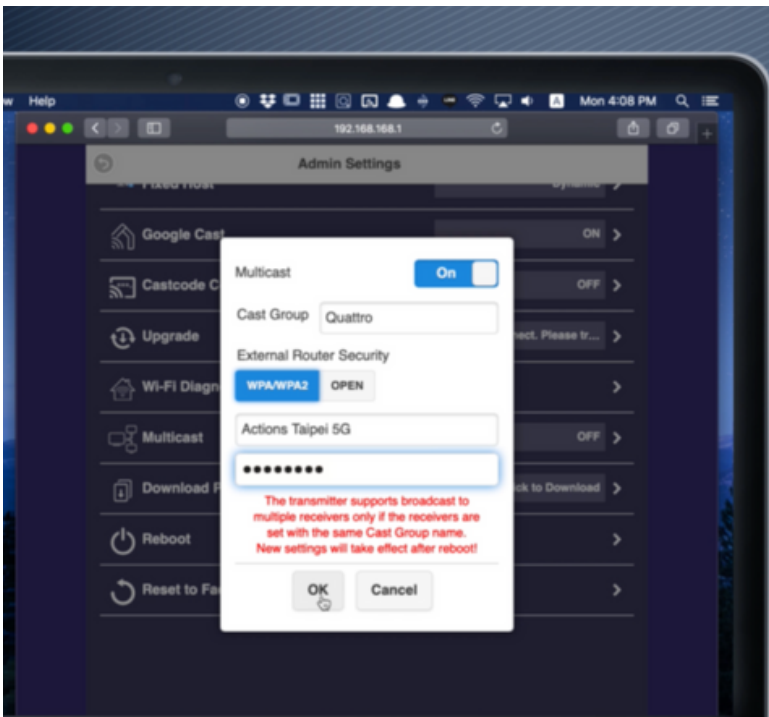
STEP 1

Enter the admin password
Go to "Admin Settings".

(2) Find the Multicast option. After that, name your cast group. Then enter the SSID and PSK of your wireless router and Multicast ID.
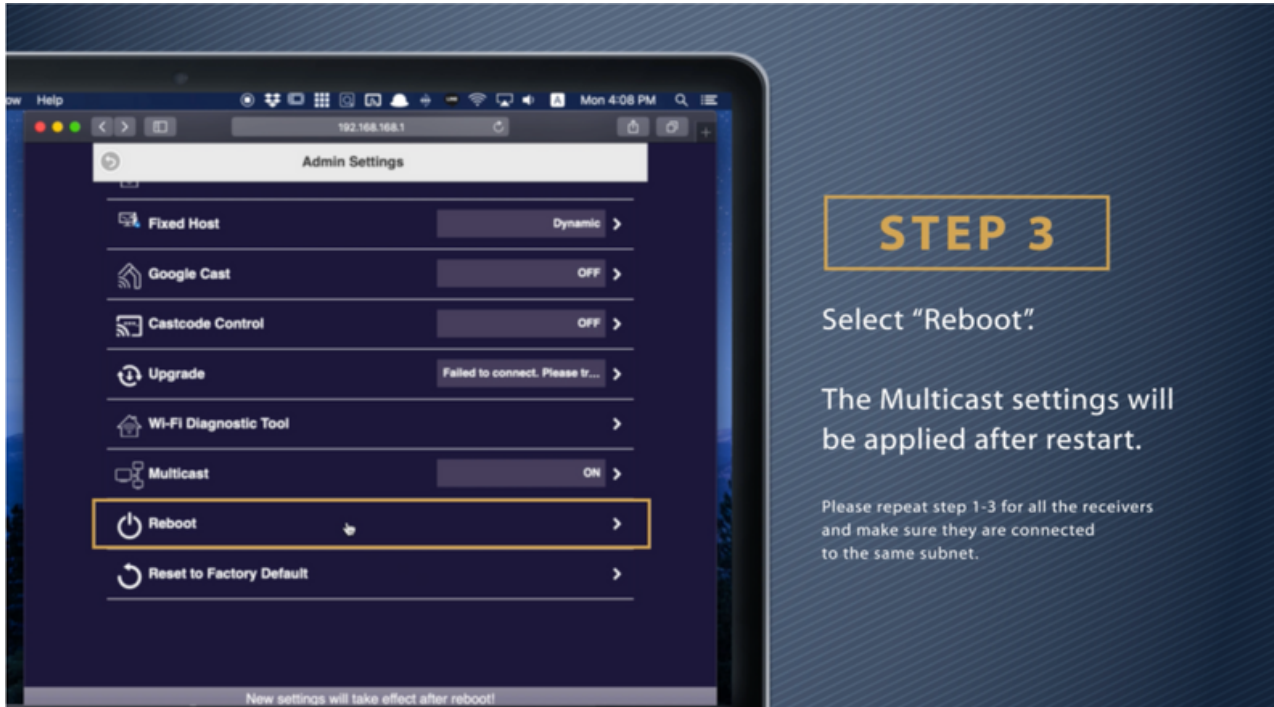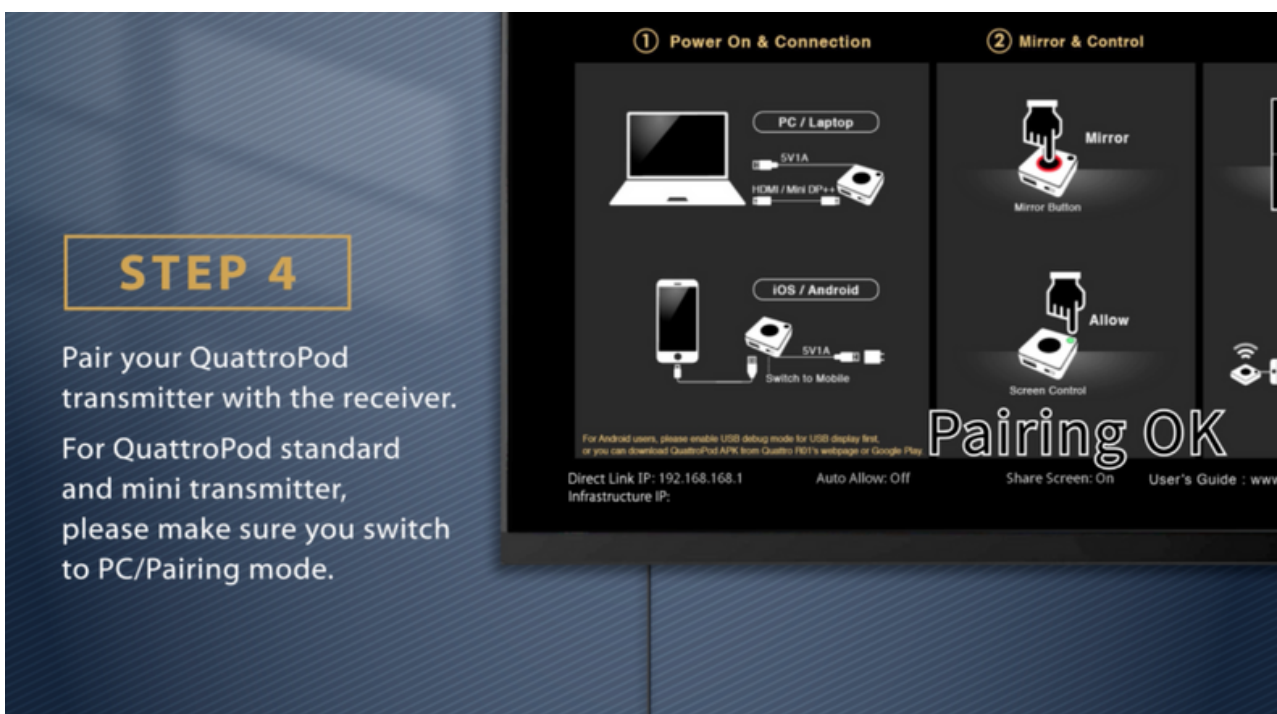

STEP 2

Select "MultiCast".

I. Switch On Multicast.

II. Name your Cast Group.

III. Enter the SSID and password of the router which you wish to connect to.

(3) Select "Reboot". Then Multicast settings will be applied after restart. (Please repeat steps 1-3 for all the receivers and make sure they are connected to the same subnet.)

(4) Pair the QuattroPod transmitter with the QuattroPod receiver (you can directly insert the USB connector of the transmitter into the receiver USB port, or download the pairing file).

(5) Connect display source with transmitter and screen with receivers via HDMI. Power on the devices. When the indicator light of the transmitter shows ready, click the main button. The receiver will show the display content.

4. Why EZCast?

As can be seen, EZCast offers various solutions in different product lines, which can successfully meet your necessities of creating multimedia information systems at various levels.

There are many options in the market, however, they are usually extremely expensive. In contrast, EZCast offers products at a cost-saving price but deliver the content with more efficiency.

EZCast offers audio/video extending solutions based on Wi-Fi and Ethernet to meet the requirements of various industries. This feature makes it possible to wirelessly cast to many devices so there are no boundaries. Furthermore, they provide a simple interface to set up your solution. If you need more information, please contact us.

For more information on EZCast ProAV offered solutions, please visit:

https://www.ezcast.com/product/proAV

For more information on QuattroPod Series, please visit:

https://ezcast-pro.com/quattropod-series-backup/

Reference

[1] Display multicast technology over IP based on Ethernet and Wi-Fi