Integrating a Sharp display with Mira Connect™

Sharp Aquos and Professional Displays can be controlled with Mira Connect™, Aveo Systems®' smart control appliance.

This integration guide provides detailed steps for configuring Mira Connect (using Mira Portal) to control the Sharp display.

Mira Connect communicates and controls Sharp displays over an Ethernet network or over RS-232 using a Global Caché IP2SL interface.

Figure 1: The Mira Connect AV control system controls thousands of devices, including Sharp displays.

Getting the Display Ready to be Controlled

Before controlling the display, configure the display using the following settings to enable Ethernet control and to allow the display to be turned on over the Ethernet interface after the display has been turned off.

Important note: On Sharp Aquos displays, if these 'internet setup' steps are not performed, the display will not be controllable over its network interface. If 'Quick Start Mode' is not enabled, the display will not be able to be turned on via network control after it has been turned off.

Sharp Aquos consumer display configuration steps include:

1. Use the IR remote to power on the display.
2. Press the Menu button on the IR remote.
3. Under 'Initial Setup' menu, set Quick Start Mode to On.
4. Under the 'Smart TV' menu, select 'Internet Setup' and set the Connection Type to Wired, assuming you are using wired Ethernet to connect the display to your network.
5. Under 'Wired Setup', set the Connect Type to Manual and enter the IP address info and press Connect.
6. Under the 'Smart TV' menu, select 'AQUOS Remote Control', and if the status is set to Disable, then change it to Enable and confirm under 'Detailed Settings' that the Control port is set to 10002 (the default).
7. Exit the menu

Integration Steps

To integrate a Sharp display with Mira Connect, follow these steps:

1. Add a room in Mira Portal
2. Pair a Mira Connect to the room (or use UI Preview to *Preview Mira Connect in a web browser*)
3. Add the display
4. Enable and label the video inputs on the Sharp display

These steps are described in more detail next.

Step 1. Add a room to Mira Portal

To get started, create an organization, site, and room in Mira Portal if you don't already have a room. Follow the tutorial for creating a room after creating a Mira Portal account. There is no cost to creating a Mira Portal account.

Next, pair a Mira Connect to the room or use the *Preview Mira Connect in a web browser* feature.

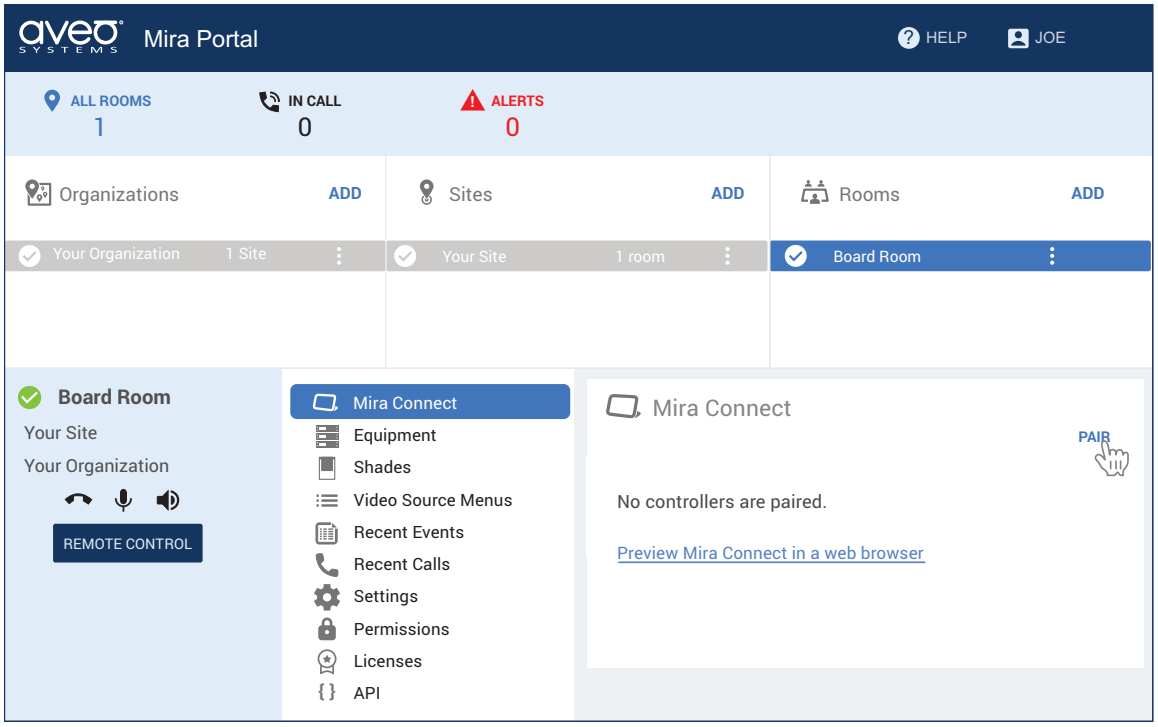

Figure 2: Create an organization, site, and room in Mira Portal and then pair the Mira Connect to the room.

Step 2. Pair Mira Connect to the room

If you have a Mira Connect appliance, connect it to the network and power it up. Mira Connect appliances can use a PoE network connection. *Mira Connect requires WAN access to pair with the room in Mira Portal*.

The *Preview Mira Connect in a web browser* feature opens a new browser tab and creates an interactive demo of the user interface before you have a Mira Connect or any equipment. The preview feature uses Mira Connect's built-in equipment emulators to create an interactive user experience before any equipment is purchased.

To pair a Mira Connect control system to your room:

- For Mira Connect appliances, select your language, network (wired or wireless), and then Mira Connect will show a pairing code. Enter the pairing code into Mira Portal to associate the Mira Connect with the room in Mira Portal.
- If you are using Mira Connect software, follow the instructions in the Mira Connect Software Quick Install Guide to install the Mira Connect software and get a pairing code.

The following figures show the pairing steps when using Mira Connect appliances.

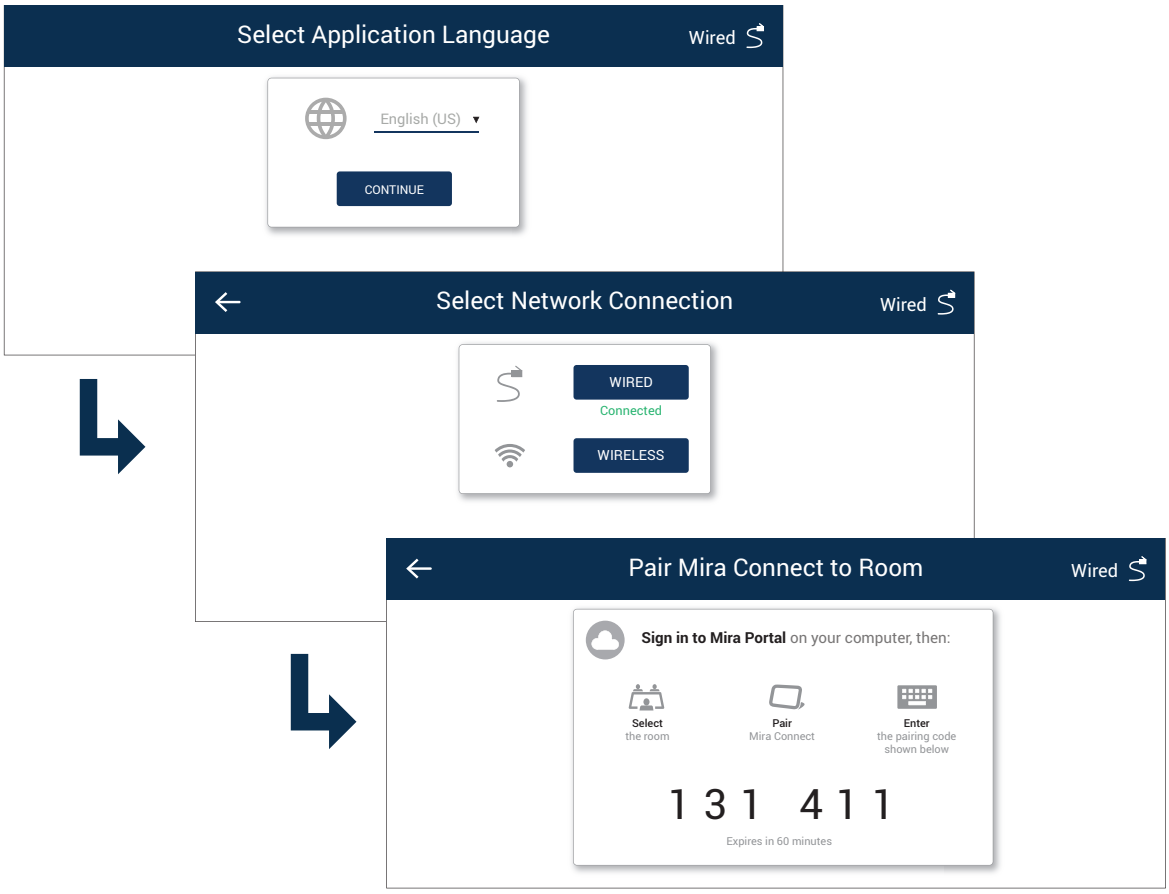

Figure 3: Select the language, select the network connection, and receive a pairing code.

Step 3. Add the Sharp display

Next, add the Sharp display to the room in Mira Portal (https://mira.aveosystems.com), enter its IP address and press 'add equipment'. Mira Connect will connect to the Sharp display system and show the status of the connection.

Some Sharp Aquos displays require wake-on-LAN to power on the display once it is powered off. If your display requires wake-on-LAN, you can enter the MAC address of the display and port number (defaults to 10002 for Aquos and 10008 for PNUH models). Sharp 4P series displays use port 8888.

If your display does not require wake-on-LAN to power on once powered off, then do not enter a MAC address.

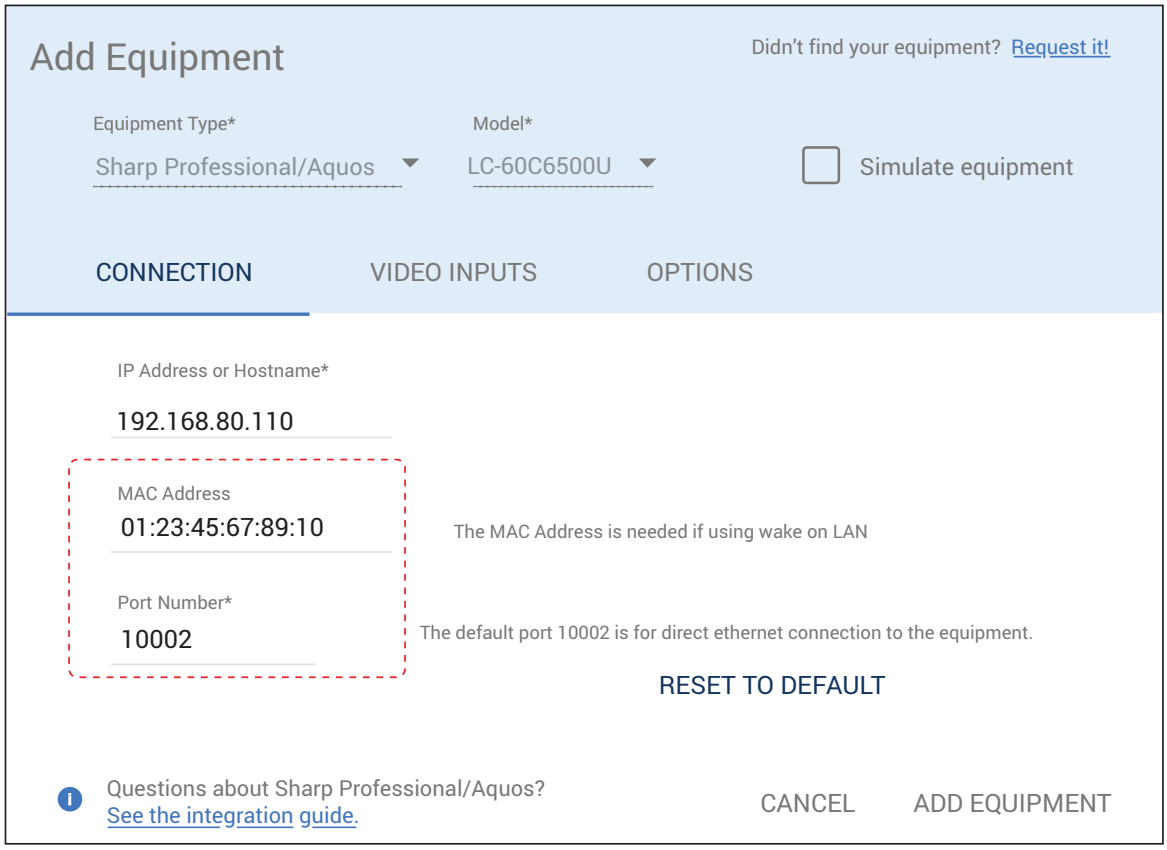

Figure 4: Select a Sharp display, select the model, and enter the IP address and optionally a MAC address.

Mira Portal will show the equipment status as a green circle if the IP address is valid, otherwise the warning symbol, will appear indicating the IP address is not correct, or the display has been set to a network port different from the default of 10002, 10008 for professional displays, and port 8888 for 4P series.

If controlling over RS-232, the connection will fail if the the baud rate on the display does not match the baud rate on the Global Caché IP2SL or the RS-232 cable is not pinned out correctly.

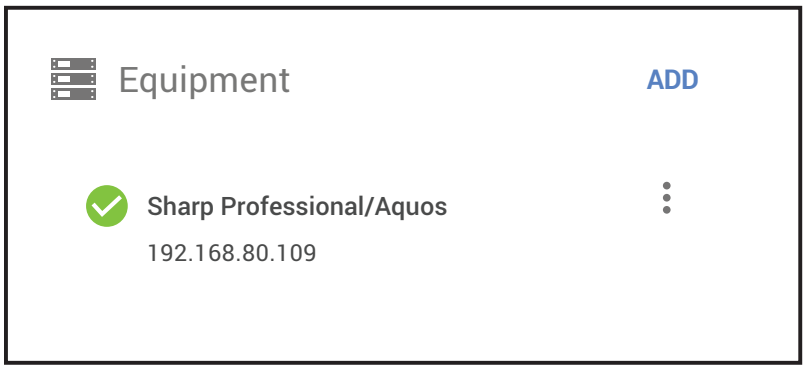

Figure 5: The connection status when Mira Connect can connect to the Sharp display.

Step 4. Enable Video Inputs

To specify which video inputs are used on the display, edit the display by selecting the three dots to the right of the equipment entry. Select Edit and select the Video Inputs tab and enable an input, select an icon, and enter text labels for the desired inputs. Enabling at least one input will create a display card on Mira Connect for the display.

If connecting the output of another device, such as a video switcher or TV tuner, to an input on the display click the 'Use Sources Connected to Other Equipment' link and choose the device and the desired output from the device.

The display menu will be built and previewed on the Video Inputs tab within Mira Portal. An optional display name may be entered which is useful when there are multiple displays in a room.

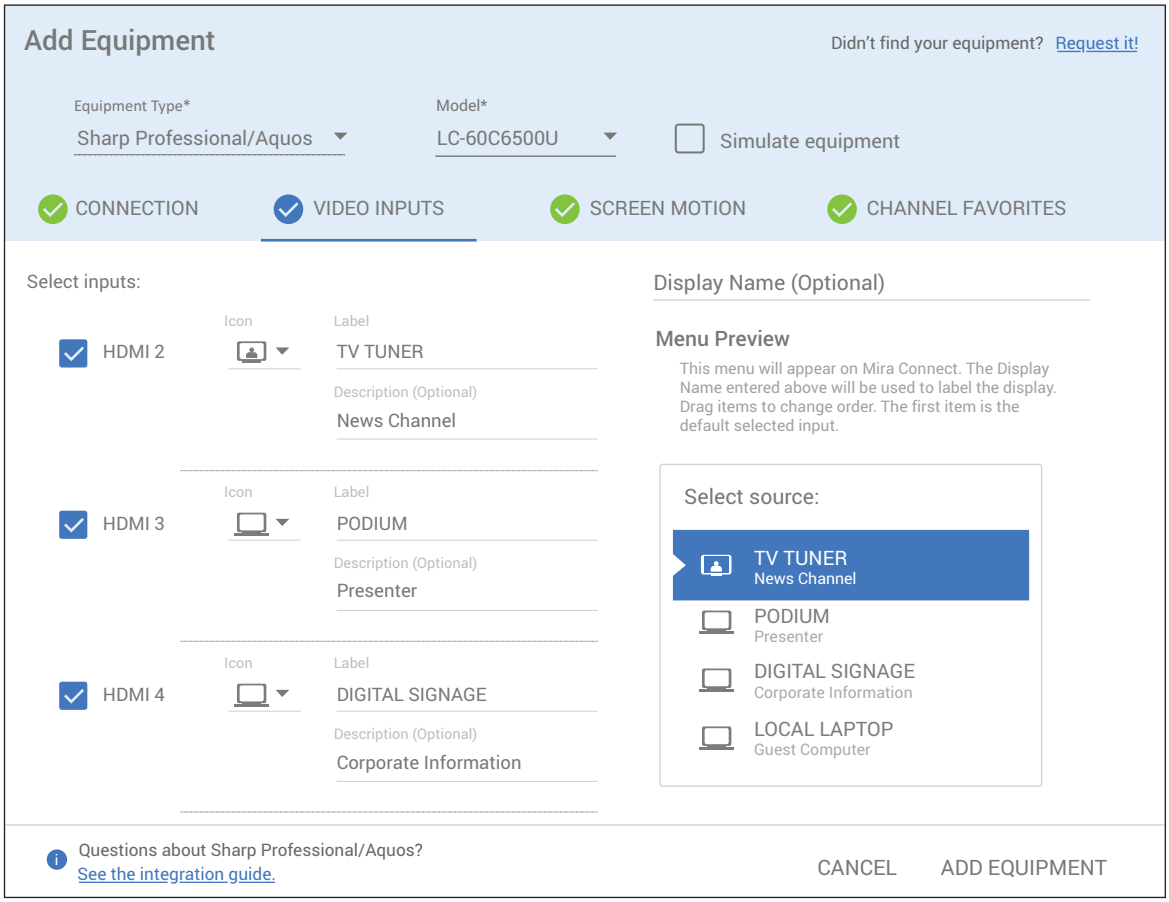

Figure 6: Enable and label display inputs on the Sharp display.

Volume Control

There is support for volume control of the display when controlled over Ethernet or RS-232.

The display's volume control is used when there is no other DSP audio conference device with a room volume control point or no video conferencing system for volume control. If there are multiple displays in the room, the first display that has been added will be the display whose volume Mira Connect controls.

Models Supported

Mira Connect supports the Clear Touch Supported models include 4P-series, 4T-B60CJ1U, 4T-B70CJ1U, 4T-B80CJ1U, 8M-B70AU, LC-32LE653U, LC-60C6500U, LC-60C6600U, LC-60EQ10U, LC-60EQ30U, LC-60LE650U, LC-60LE660U, LC-60LE661U, LC-60SQ10U, LC-60SQ15U, LC-60SQ17U, LC-60TQ15U, LC-60UQ17U, LC-70C6500U, LC-70C6600U, LC-70EQ10U, LC-70EQ30U, LC-70LE650U, LC-70LE660U, LC-70LE661U, LC-70SQ10U, LC-70SQ15U, LC-70SQ17U, LC-70TQ15U, LC-70UC30U, LC-70UD1U, LC-70UQ17U, LC-80LE642U, LC-80LE650U, LC-80LE661U, LC-80UH30U, LC-80UQ17U, LC-90LE657U, PN-B401, PN-B501, PN-C751H, PN-C861H, PN-CE701H, PN-E603, PN-E703, PN-E803, PN-H701, PN-L651H, PN-L652B, PN-L751H, PN-L752B, PN-L851H, PN-L862B, PN-LE601, PN-LE701, PN-LE801, PN-LE901, PN-M401, PN-M501, PN-R426, PN-R496, PN-R556, PN-R606, PN-R706, PN-R903A, PN-U423, PN-U473, PN-U553, PN-UH431, PN-UH501, PN-UH551, PN-UH601, PN-UH701, PN-UH861, PN-V550A, PN-V600A, PN-V601A, PN-V701, PN-Y326, PN-Y436, PN-Y496, PN-Y556, and universal models. models.

If you don't see your Aquos consumer model, select Universal (Aquos Consumer). If you don't see your Professional or Aquos Board display, select Universal (Professional and Aquos Board)

Software Versions

Tested with Sharp Aquos device firmware 2.23 and numerous Sharp PNUH displays.

Control Interface

Mira Connect communicates with the display as follows:

Network connection using TCP, port 10002.

- Only one Mira Connect should control a Sharp display at a time as the display's API interface doesn't always support multiple control connections reliably.
- Wake-On-LAN is supported with Sharp Aquos displays over port 10002. To enable Wake-On-LAN, enter the MAC address for the display on the Connections tab.

Sharp Professional displays use TCP, port 10008.

Sharp 4P series displays use TCP, port 8888.

RS-232 control uses a network connection using TCP, port 4999 when using the Global Caché IP2SL for RS-232 control.

- If using the Global Caché IP2SL for serial control, see our Global Caché Integration Guide. Ensure the baud rate on the Global Caché IP2SL matches the baud rate configured on the Sharp display. Default RS-232 settings for Sharp displays 9600 baud, no parity, 8 data bits, one stop bit, and no flow control. Typically the cable is a cross-over DB9F to DB9F.

To ensure the display's IP address doesn't change over time, set a static IP address on the device by browsing into the device and configuring the network settings.

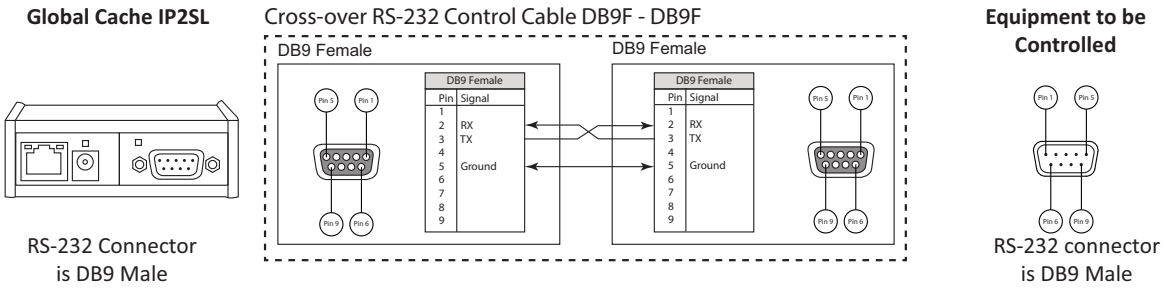

Figure 7: A cross-over RS-232 cable is typically required to connect to a Sharp display.

Troubleshooting

If you are having trouble controlling a Sharp display, follow these steps:

Controlling over Ethernet

- If the equipment does not connect, ensure the IP address is correct for the display.
- Note some Sharp displays require enabling Ethernet for control with a UI option on the display that will be named something like “Monitor Control via Network”. Make sure to enable that option if you are having trouble connecting to the display over the network.
- If you don’t see that option, make sure you are running the latest firmware for the display. For example, the PN-L862B series displays require firmware version 1.1.0 to support control over Ethernet.
- If the equipment connects only when the display is powered on, ensure the power management is set properly as described in this document or use Wake-on-LAN. Check the display’s user guide for additional information.
- If the display requires Wake-on-LAN, then enter the MAC address and communication port (10002 when controlling an Aquos display directly, port 4999 if controlling the display over RS-232 with a Global Cache IP2SL), or port 10008 for a Sharp Aquos board/PNUH display on the Connections tab in Mira Portal. Mira Connect will automatically use Wake-on-LAN to power on the display and then control the display over Ethernet. Wake-on-LAN is supported on the Sharp Aquos displays, and many of the professional displays.
- If the Mira Connect is on a wireless network and the display is on a wired network, it’s likely the Wake-on-LAN packets will not be received by the display. The Mira Connect device needs be on the same network as the display for Wake-on-LAN packets to work properly.
- If the display cannot be powered on over Ethernet when powered off, control the display with RS-232 or Infrared.
- Ensure that static IP addresses (or reserved lease) have been set for the display so the IP address doesn’t change over time.

Controlling over RS-232

- If the equipment does not connect, ensure the IP address is correct for the IP2SL interface.
- Ensure the baud-rate for the IP2SL is set to 9600. See the Global Caché Integration Guide for more information.

- Ensure the cable is pinned out as described in this guide. Most RS-232 connection issues are resolved by reversing the transmit and receive pins on RS-232. For more information on how to troubleshoot RS-232 connections, see our RS-232 troubleshooting article.'

For more information please contact our Sales Department at sales@aveosystems.com.

About Aveo Systems

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