

Integrating an LG Commercial display with Mira Connect™

LG Commercial 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 LG Commercial display.

Mira Connect communicates and controls the LG Commercial display directly over Ethernet, over an RS-232 connection (RS-232 control requires the Global Caché IP2SL interface), or via infrared (requires a Global Caché IP2IR IP to infrared (IR) interface).



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

Important Information

Mira Connect uses the LG factory-default device ID '01' when sending commands to control the LG Commercial display. Please set the device ID in the display to '01' using the IR remote and navigating the display's on-screen UI.

If controlling a display wall with multiple LG Commercial displays with daisy-chained RS-232 connections, contact our [support team](#) for help with setting a broadcast ID of '00' for powering on/off of all the LG displays in the video wall together.

Integration Steps

To integrate an LG Commercial display with Mira Connect, follow these steps:

Step 1. 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.* See our [getting started guide](#) for more information about WAN options during installation.

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.

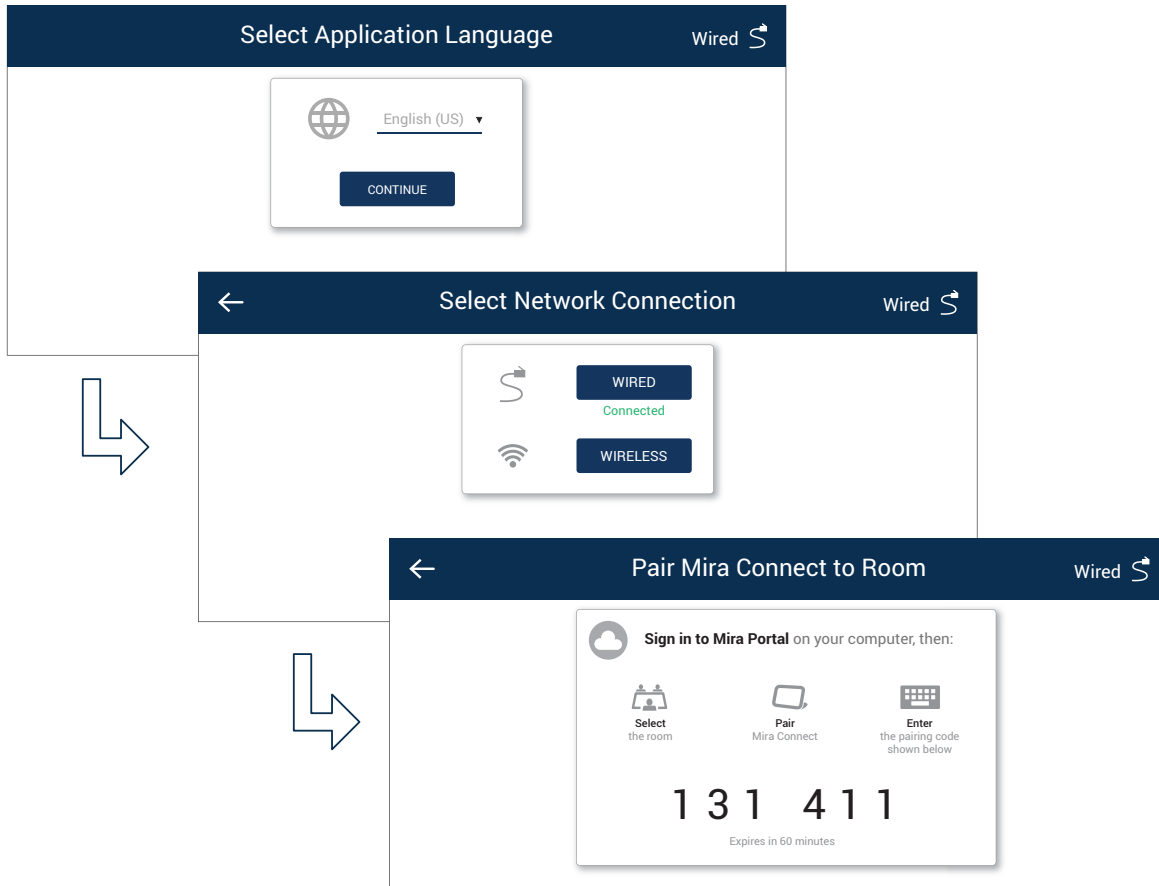


Figure 2: Select the language, select the network connection, and receive a pairing code.

Step 2. Add the display

This step depends on how Mira Connect will connect to the display:

Step 2a. Controlling over an Ethernet connection To integrate an LG Commercial display with Mira Connect over Ethernet, follow the instructions in the LG Installation manual to set the power management mode, PM Mode, to ‘Screen Off Always’ to ensure the Ethernet interface stays active after the display is powered off.

On some displays, to access this option, press and hold the Settings / button for five seconds and enter the password of 0000 followed by the ‘OK’ key.

Using Wake-on-LAN: Mira Connect can also use Wake-on-LAN to power on the display. To use Wake-on-LAN, first enable it on the LG display’s user interface, and then in Mira Portal, enter the MAC address of the display and port of the display on the Connections tab. Do not enter a MAC address of a Global Caché IP2SL if controlling the display over RS-232.

If the display's power management settings or Wake-on-LAN are not set correctly, the display may not respond to commands sent over Ethernet when the display is powered off. If your display doesn't have these power options or a Wake-on-LAN option, we recommend controlling the display over RS-232 or over infrared.

Add Equipment

Didn't find your equipment? [Request it!](#)

Equipment Type*
LG LV/UV/UX Series

Model*
Universal

Simulate equipment

CONNECTION
VIDEO INPUTS
SCREEN MOTION
OPTIONS

IP Address or Hostname*
192.168.80.110

MAC Address
01:23:45:67:89:10

The MAC Address is needed if using wake on LAN

Port Number*
9761

The default port 9761 is for direct ethernet connection to the equipment.

RESET TO DEFAULT

i Questions about LG LV/UV/UX Series?
[See the integration guide.](#)

CANCEL ADD EQUIPMENT

Figure 3: Wake-on-LAN requires entering the MAC address of the display and the port number of the LG Commercial display.



Figure 4: When Mira Connect can communicate with the device, a green check mark is visible.

Step 2b. Controlling over an RS-232 connection To integrate an LG Commercial display with Mira Connect using RS-232, first set up the Global Caché IP2SL device on the network. Next, add the LG Commercial display to the room in Mira Portal (<https://mira.aveosystems.com>), enter the IP address of the Global Caché IP2SL device and press ‘add equipment’.

Mira Connect will connect to the LG Commercial display and show the status of the connection. Mira Portal will show the equipment status as a green circle if the connection is valid, otherwise the red triangle warning symbol, will appear indicating the IP address is not correct or the device has been set to a different baud-rate or the RS-232 cable is not pinned out correctly when controlled over RS-232.

Step 2c. Controlling with Infrared To integrate an LG Commercial display using infrared, first set the Global Caché IP2IR device on the network. Next add the LG Commercial display (IR) display to the room in Mira Portal, enter the IP address of the display as the IP address of the Global Caché IP2IR interface and enter which IR port (1, 2, or 3) the IR emitter is connected to on the Global Caché IP2IR. A single Global Caché IP2IR device can support up to three different displays.

Note, when using IR display drivers, there may be discrete power on and power off buttons instead of an on/off switch or just a power toggle depending upon the device.

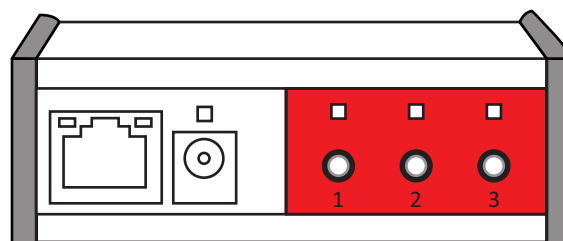


Figure 5: The Global Caché IP2IR interface supports three devices.

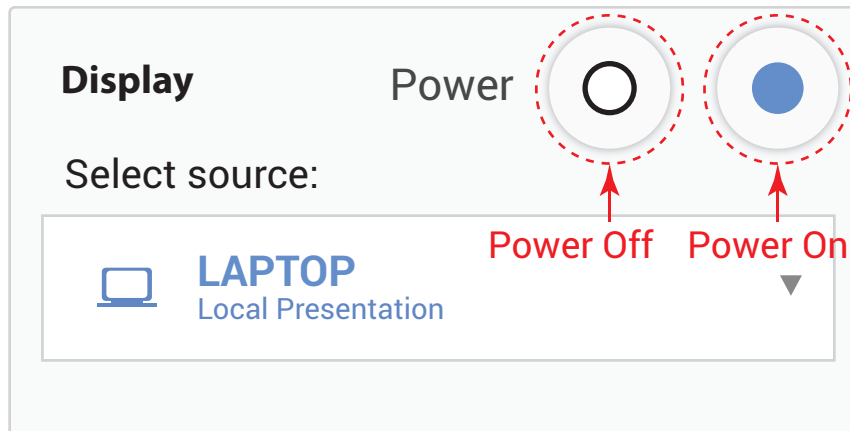


Figure 6: Power on/off control for an IR-controlled display with separate power on and power off commands.

Step 3. Configure the video inputs

To specify which video inputs are used on the display, select Edit from the device's menu, select the Video Inputs tab and enable an input, select an icon, and enter text labels for the desired inputs. This will create a display menu as shown in the following figure.

An optional display name may be entered which is useful if you have multiple displays in a room.

A display card and menu will not appear on Mira Connect until you have enabled at least one input on the display.

Add Equipment
Didn't find your equipment? [Request it!](#)

Equipment Type *

LG LV/UV/UX series

Model *

Universal

Simulate equipment

✓ CONNECTION
✓ VIDEO INPUTS

<input type="checkbox"/> HDMI 1				Display Name (Optional)
<input checked="" type="checkbox"/> HDMI 2	Icon	Label		<p>Menu Preview</p> <p>This menu will appear on Mira Connect. The Display Name entered above will be used to label the display. Drag items to change order. The first item is the default selected input.</p> <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p>Select source:</p> <div style="background-color: #007bff; color: white; padding: 5px; margin-bottom: 5px;"> 🖥️ LAPTOP Local Presentation </div> <div style="padding: 5px;"> 🖥️ ROOM COMPUTER Soft Codec </div> </div>
		LAPTOP	Description (Optional) Local Presentation	
<input checked="" type="checkbox"/> HDMI 3	Icon	Label	Description (Optional)	
		ROOM COMPUTER	Soft Codec	
<input type="checkbox"/> PC				

Questions about LG LV/UV/UX Series?
[See the integration guide.](#)

CANCEL ADD EQUIPMENT

Figure 7: Enable the desired inputs on the display.

Control Interface

- Network connection with TCP, port 9761, when connecting directly over Ethernet.
- Network connection with TCP, port 4999, using the Global Caché IP2SL interface. Use Global Caché's iHelp program to discover the device's IP address, then browse into the device to set the desired static IP address and set the baud rate to 9,600bps (the LG Commercial display default). The Global Caché IP2SL (part number 151.0010.001) is available as an accessory from Aveo Systems.
- When using the Global Caché IP2SL interface for serial control, see the [Global Caché Integration Guide](#) for how to configure the Global Caché IP2SL. Ensure the baud-rate on the Global Caché IP2SL (defaults to 19,200 bps) matches the baud-rate configured on the LG Commercial display.
- The default RS-232 settings for an LG Commercial display is 9,600 baud with no parity, 8 data bits, one stop bit, and no flow control.
- Use a cross-over RS-232 RS-232 cable as shown in the following figure(s).
- Network connection with TCP, port 4998, using the Global Caché IP2IR interface for IR control.

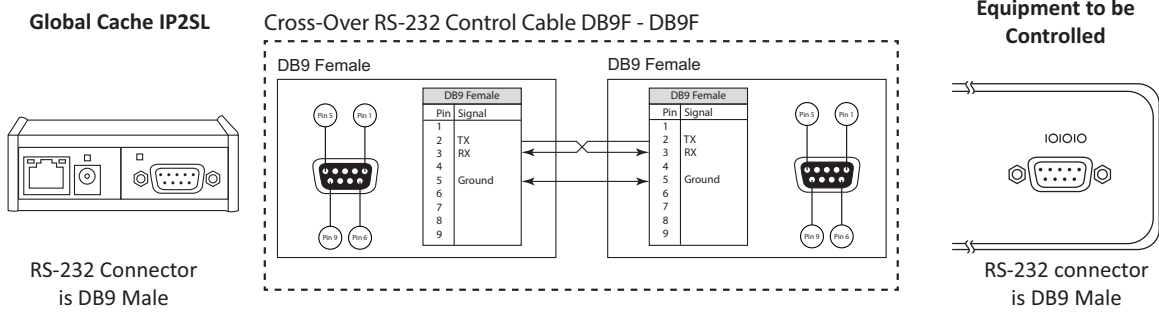


Figure 8: A cross-over serial cable.

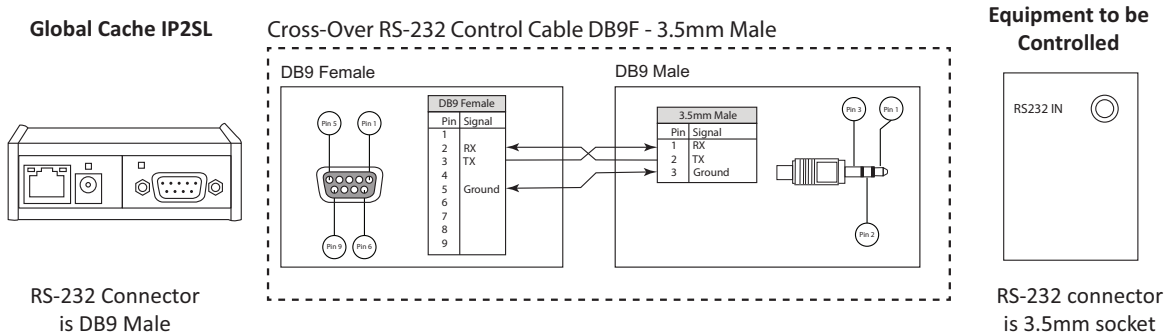


Figure 9: A cross-over serial cable with a 3.5mm connector.

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 following models of LG Commercial displays (and other LG displays that have the same API commands)

LG-LV340nn, LG-UV340nn, and LG-UX340nn commercial TV's (recommend RS-232 control due to limited PM Mode options for these models if they do not have a Wake-on-LAN option),

UH series, and other commercial signage displays.

LG Digital Signage displays including 75TR3DJ-B family.

Version Tested

Tested with LG Commercial device LG-LV340C firmware 3.00.72, 65UH5E-B firmware 030341.

Troubleshooting

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

Step 1a. Troubleshooting Ethernet

1. If Mira Connect connects only when the display is powered on, ensure the power management, PM Mode, is set properly as described in this document or use Wake-on-LAN. Check the LG Commercial display's user guide for additional information.
2. If the equipment connects but doesn't respond to commands, ensure the device ID of the LG Commercial display has been set to '01'.
3. If the equipment does not connect, ensure the IP address is correct for the device.
4. If the device supports Wake-on-LAN, then enter the MAC address of the LG Commercial display and communication port (9761 when controlling the display directly. Enter the port 4999 if controlling the display over RS-232 with a Global Caché IP2SL) on the Connections tab in Mira Portal. Ensure Wake-on-LAN is enabled in the device or you'll only be able to power off the device, but won't be able to power it on.
5. If a MAC address for the LG Commercial display is specified, Mira Connect will automatically use Wake-on-LAN to power on the device and then control the display over Ethernet. The LG Commercial display will show as 'connected' in Mira Portal once a MAC address has been specified because Mira Connect knows it can't communicate with the LG Commercial display until it is powered on.
6. Test that Mira Connect can power on and power off the device using Wake-on-LAN. If the device will not power on, double check the MAC address for the device, and confirm that the device's Wake-on-LAN mode has been enabled.
7. If the Mira Connect is on a wireless network and the device 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 to be on the same network as the device (and not connected through a router) for Wake-on-LAN packets to work properly.
8. If the display cannot be powered on over Ethernet when powered off, control the display with RS-232 or Infrared.

Step 1b. Troubleshooting RS-232 connection

1. If the equipment connects but doesn't respond to commands, ensure the device ID of the LG Commercial display has been set to '01'.
2. If Mira Connect cannot connect to the LG Commercial display, ensure the IP address is correct for the Global Caché IP2SL interface.
3. Ensure the baud-rate for the Global Caché IP2SL is set to 9,600 bps and matches the baud-rate on the LG Commercial display. See our [Global Caché integration guide](#) for more information on how to configure the baud-rate, set a static IP address, and more.
4. Ensure the cable is pinned out as described in this guide. Most RS-232 connection issues are either baud-rate related or are resolved by reversing the transmit and receive pins on the RS-232 cable. See our [RS-232 best practices](#) for best practices when using RS-232.
5. For more information on how to troubleshoot RS-232 connections, see our [RS-232 troubleshooting](#) article.

Step 1c. Troubleshooting Infrared

1. If Mira Connect cannot connect to the LG Commercial display, ensure the IP address entered for the LG Commercial display is the correct IP address for the Global Caché IP2IR interface.
2. If Mira Connect shows a green connected state, but does not control the LG Commercial display, ensure the IR emitter is plugged into the connector (1, 2, or 3) of the Global Caché IP2IR that matches the connector value entered in the device's Connections tab in Mira Portal. Port 1 is the port closest to the Ethernet connector
3. Ensure the LED over the connector port on the Global Caché IP2IR is flashing when a command is sent to the LG Commercial display and the IR emitter is mounted securely over the IR receiver window on the LG Commercial display.

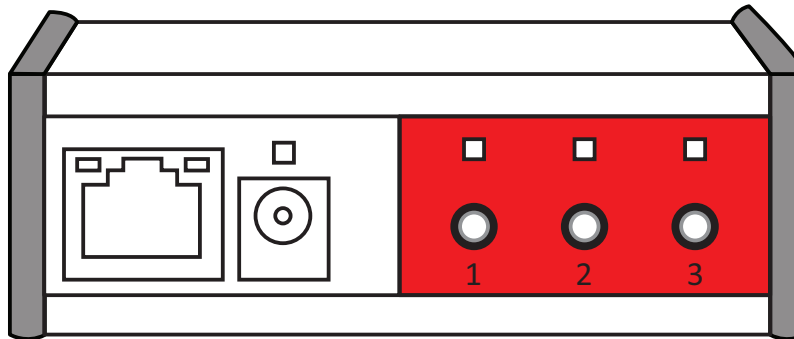


Figure 10: Ensure the IR connector (1, 2, or 3) connected to the LG Commercial display is the same as the IR connector specified in the 'Connection' tab in Mira Portal.

4. If the LG Commercial display isn't responding to power on or power off IR commands, then edit the device options and enable the 'power toggle' option. Enabling this option will cause a single power toggle command to be sent on power on and power off rather than individual power on/power off commands.

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

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