



USER MANUAL

LG Digital Signage

(MONITOR SIGNAGE)

Please read the user manual before using this product to ensure safe and convenient use.

Android 11.0

Table of Contents

Safety Precautions4

- Safety Notes for Power and AC Adaptors.....5
- Precautions When Moving the Product7
- Installation Precautions.....8
- Precautions When Cleaning Product.....10
- Precautions When Using Product11
- Precautions When Using Remote Control.....13
- Screen Afterimage Cautions14
- Cautions When Disposing of the Product14

Using the remote control 15

Connecting to the Server 18

- Connecting to a PC.....18
- Connecting to External Devices.....18

LG IFP OS Solution..... 21

- An IFP OS Solution for Education.....21

[Launcher]..... 22

- [Status Bar].....25
- [Shortcut Area]30
- [Shortcut Management].....41
- [Wallpaper]43

[System Bar] 45

- [Navigation Bar].....48
- [Application Center].....49
- [Small Tools]53

[Multi-Windows] 61

[All Apps] 69

- [Note]69
- [Palette].....80
- [Finder].....88
- [Browser]95
- [Settings]97
- [Cloud Drive]109
- [OfficeSuite].....111
- [Photo].....111
- [Music].....113
- [Video].....113
- [Keeper]114
- [Email].....115
- [LG ConnectedCare DMS]116
- [LG CreateBoard Lab].....118
- [LG CreateBoard Share].....119
- [PIP]120
- [AirClass]121

Small Tools 128

- [Menu]..... 128
- [Annotation]..... 129
- [CountDown]..... 131
- [Capture]..... 132
- [Stopwatch]..... 133
- [Spotlight]..... 134
- [Freeze]..... 135
- [ScreenLock]..... 135
- [Record]..... 136
- [Split-screen]..... 137

Media Specifications 138

- Video..... 138
- Photo..... 141

Controlling Multiple Products.. 142

- Command Reference List..... 142
- Reception/Transmission Protocol..... 143

Before Reporting Product Malfunction..... 147

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Safety Precautions

The following safety instructions are to prevent accidental damage or personal injury by guiding the users to use the product safely and correctly.

Safety instructions are categorised into 'warning' and 'caution,' as defined below.

WARNING

Indicates that the violation of instructions may cause serious injury or even death.

CAUTION

Indicates that the violation of instructions may cause slight injury or damage to the product.

Model corresponding to sentence colour

COMMON	ENCLOSURE	LED
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Safety Notes for Power and AC Adaptors

WARNING

- For power cords and AC adaptors, use the proper product supplied by the manufacturer or an approved standard product. If you wish to use another power cord, ensure it meets the national standards. If the power cord is defective, contact the manufacturer or the nearest authorised service centre for replacement.
- Operate it from the power source (voltage, etc.) indicated in the product specifications.
 - There is a risk of fire or electric shock due to product damage. If you are unsure of the type of power supply provided at the location you wish to install, please contact a professional equipment company.
- Always connect the power cord to a grounded outlet.
 - It may result in electrical shock, injury, or product damage.
- Ensure that the power cord and AC adaptor are firmly plugged in so that the connection is not loose.
 - Poor connections can lead to fire or electric shock.
- In the presence of thunder and lightning, never touch the power cord and signal cable because it can be very dangerous.
 - Otherwise, this may result in electric shock.
- Take care not to place any heavy objects (electronics, clothing, etc.) on or step on the power cord or AC adaptor. In addition, do not bend or pull the power cord and AC adaptor with excessive force.
 - Damaged wires can cause fire or electric shock.
- Do not connect the power cord or AC adaptor to a socket if it has been damaged by a sharp object.
 - Otherwise, this may result in electric shock.
- Do not insert conductors (metal chopsticks, etc.) into the other socket while the power cord is connected to one side of the socket. In addition, do not touch the power cord immediately after it is unplugged from the socket.
 - Otherwise, this may result in electric shock.
- Do not connect multiple electrical appliances or heating devices to a multi socket. Use a dedicated multi socket with a ground terminal.
 - Overheating may result in a fire.

- If water or any foreign substance enters the product, disconnect the power cord immediately and contact the service centre.
 - Product damage may result in fire or electric shock.
- Keep the power cord and AC adaptor away from heating devices.
 - The casing of the wires may melt, causing fire or electric shock.
- Do not disassemble, repair or modify the power cord or AC adapter by yourself.
 - Otherwise, this may result in fire or electric shock.
- The power cord serves as the main power disconnection device. Install the product near an easily accessible socket.
- If the product is connected to the AC wall power source, switching off the product will not completely cut off the AC power.
- Power consumption will be "0" only when the power cord is unplugged.
- Use the device coupler as a shut-off device.

 **CAUTION**

- Wipe off any dirt on the socket, power cord pins, and AC adaptors to keep them clean.
 - Overheating caused by dust layers may result in fire or electric shock.
- Wipe off any water on the socket, power cord pins, and AC adaptors to keep them clean. Do not touch the power cord or AC adaptor if your hands are wet.
 - Otherwise, this may result in electric shock.
- Do not turn the product on or off by connecting or disconnecting the power cord. In other words, do not use the power cord as a switch.
 - This may cause an electric shock or product malfunction.
- Do not remove the power cord when the product is in use.
 - Otherwise, the product may be damaged due to electrical shock.

Precautions When Moving the Product

WARNING

- Please make sure to contact the service centre before moving the product.
 - Otherwise, it may result in electric shock or damage to the product.
- Turn off the power and make sure all connected cables are disconnected before moving the product.
 - Otherwise, it may result in electric shock or damage to the product.
- When moving the product, be careful not to apply any force and do not press the front panel.
 - Otherwise, it may result in electric shock or damage to the product.
- When moving the product, comply with the standard requirements for personnel according to weight. (25 kg or less per person, use a moving equipment if it exceeds 100 kg)
 - It may cause personal injury or product damage. Using the product after it has been dropped may result in electric shock or fire. Contact the service centre.
- Do not hold the product upside down while holding the stand alone. (Only applicable for models with a stand.)
 - It may cause damage to the product, such as stand distortion or damage to the panel.

CAUTION

- Do not throw away the product box. The product can be placed inside the box when moving it.

Installation Precautions

WARNING

- Please make sure to contact the service centre before installing the product.
 - Otherwise, it may result in electric shock or damage to the product.
- Do not drop or apply excessive force to the product. Keep the product out of reach of children. Do not throw toys or objects onto the product panel.
 - It may result in personal injury or damage to the product/panel.
- Do not place heavy objects, sit, or hang on the product.
 - If the product falls, it may cause personal injury.
- Do not touch the overheated surface of the product.
 - This can cause personal injury.
- Install the product firmly fixed on a floor, wall, etc. to prepare against external impact such as wind or an earthquake.
 - Be sure to refer to the manual provided.
- Be careful not to let children climb or hang on the product.
 - If the product falls, it may cause personal injury.
- Do not install near a heating device such as an electric stove or lighting equipment.
 - It may cause fire, electric shock, or malfunction.
- Do not install the product by yourself. Be sure to request a service personnel designated by the service centre to install the product.
- Do not install the product on a wall where it could come into contact with oil or oil mist.
 - This may damage the product and cause it to fall.
- Do not leave the power cord, signal cables, etc. in one's walking path.
 - It may result in electric shock, fire, damage to the product, or personal injury if you trip over the product.
- Do not drop the product and external devices by connecting them with a short cable.
 - It may result in personal injury or damage to the product.
- If dropped or if the case is damaged, turn off the power, disconnect the power cord, and contact the service centre.
 - Failure to take proper action may result in fire or electric shock.
- Install in a dry place free of dust and moisture. Do not use the product in any environment that exceeds the temperature or humidity limits.
 - It may cause electric shock, fire, or damage to the product.
- Install safely in a place where it can withstand the weight of the product.
 - A lack of strength may cause the product to fall.
- Take a comfortable and natural posture when handling the product to avoid straining your muscles.
- Do not install the product in an unstable location, such as shaky shelves, slanted surfaces, locations that vibrate and locations where the product cannot be securely supported. Do not place a cloth or other objects between the product and the furniture supporting the product.
 - Doing so may cause the product to fall or be knocked over, resulting in personal injury or product damage.

 **CAUTION**

- Do not install the product in a place with electromagnetic interference.
- If the product is installed in a special place other than the normal conditions of use, serious problems may occur in image quality, lifespan, and appearance due to the influence of the surrounding environment. Please make sure to check with our service personnel before installation. Be careful of unwarranted conditions and places such as places where lots of fine dust is generated, places where lots of oil mist is generated, places where chemicals are used, places exposed to direct sunlight, places where the temperature is too high or too low, and places with high humidity when installing the product.
- Place the product a minimum distance (100 mm) away from the wall to ensure good ventilation.
 - If it is installed too closely to the wall, it may cause product damage or fire due to a rise in internal temperature.
- When the power cord is connected, make sure that the vents are not blocked by tablecloths, curtains, or other objects (such as plastic).
 - It may be deformed or fire can break out due to internal heat.
- Do not install it in a place where ventilation is not available (such as a bookcase or closet), or in a separately created outside place, or on a carpet or a cushion.
 - Fire can break out due to internal heat.
- Install the product in a flat, secure place, and in a place sufficiently strong to support it.
 - If the product falls, it may cause personal injury or product damage.
- When installing the product on a shelf or cabinet, make sure that the bottom end of the product is not protruding forward.
 - The product may fall due to unbalanced centre of gravity, which may cause personal injury or damage to the product. Be sure to use cabinets or shelves that fit your product.
- An easily accessible power disconnection device must be installed in the indoor wiring circuits.
- Components that comply with the requirements of IEC 61643 must be provided inside or outside the product.
- When installing the product outdoors, set the mode to [Screen Off & Backlight (Outdoor mode)].
 - Enable the [Outdoor mode] to reduce the risk of the internal humidity and condensation.
- When the temperature is below zero, the product may fail to start operating within one hour as the temperature needs to be raised in the enclosure first.

Precautions When Cleaning Product

WARNING

- Always keep the product and inside of the product clean.
 - If you do not clean the product, dust will accumulate inside and may create a fire hazard or damage to the product.
- Contact the service centre for internal cleaning of the product.
 - It may result in fire, electric shock, and damage to the product.
- When cleaning the product, disconnect the power cord and wipe it gently with a soft cloth to prevent scratches.
 - Electric shock and screen damage may occur due to scratches.
- When cleaning the frame, spray water on a soft cloth 2-4 times, then slowly wipe in one direction.
(This does not apply to LED models.)
 - Too much moisture can cause staining.
- Do not physically come in contact with the screen of the LED Package.
 - This may cause damage to the product.
- To clean the product, use an air gun to lightly remove dust from the front frame and the screen.
 - If there are foreign substances in between the LEDs on the screen, it may cause a defect in the screen.

CAUTION

- When cleaning the product or panel, disconnect the power cord and wipe it gently with a soft cloth. Do not spray water directly on the product or wipe it with a wet mop. In particular, never use any cleaners, air fresheners, mosquito repellents, lubricants, automotive and industrial polishes, abrasives, thinners, benzene, alcohol, etc. as they may damage the product or panel.
 - This may cause a fire, electric shock, or product damage (deformation, corrosion or breakage).

Precautions When Using Product

WARNING

- Do not use the product in any environment that exceeds the temperature or humidity limits.
 - Otherwise, it may result in electric shock or damage to the product.
- If you are using the product for a long time, take occasional breaks to protect your eyesight.
 - Otherwise, your eyesight may be weakened.
- Listening to the sound loudly or using it for a long time can adversely affect your hearing.
- If water or any foreign substance goes inside the product, turn off the power, unplug the power cord and contact the service centre.
 - If used without taking appropriate measures, it may cause electric shock or fire.
- In the event that no image appears on the screen or no sound is heard, stop using the product. Immediately turn off the power, unplug the power cord and contact the service centre.
 - If used without taking appropriate measures, it may cause electric shock or fire.
- Do not apply shock to the product or the screen by dropping an object onto the product.
 - It may cause personal injury, product failure, or screen damage.
- If you smell something unusual, hear a strange noise, or see smoke coming out of the device, unplug the power cord and contact the service centre.
 - If used without taking appropriate measures, it may result in electric shock or fire.
- Never disassemble, repair, or modify the product at the user's discretion. If necessary, contact the service centre.
 - It may result in electric shock or fire.
- Do not place objects filled with liquid, such as a vase or a cup on the product to allow liquid to get inside the product.
 - Otherwise, this may result in electric shock, fire, product malfunction, or deformation.
- Do not press hard on the surface of the product with your hands or scratch it with a sharp object such as nails, pencils, or pens. And do not impact the front or sides of the screen with a hard object, such as a metal object, and do not scratch the screen.
 - Damage to the product may cause malfunction.
- Do not touch the product after it has been exposed to sunlight or strong light since it will be hot.

- Do not use high voltage products near the device. (electronic mosquito swatter, etc.)
 - Electric shock could cause the device to malfunction.
- In the event of a gas leak, never touch the socket and open windows for ventilation.
 - Otherwise, it may cause electric shock or fire.
- If the product or case is dropped and damaged, turn off the power and disconnect the power cord.
 - If used without taking appropriate measures, it may result in electric shock or fire. Contact the service centre.
- Be careful to not let children touch small accessories.
 - If swallowed by a child, consult a doctor immediately.
- Keep children away from the product. In addition, do not let them throw toys or objects onto the product screen.
 - It may cause personal injury, product failure, or screen damage.
- To shut off the power of the unit, you must disconnect all connected power cords.

**CAUTION**

- The panel of the product is a high-tech product consisting of more than millions of pixels. In some cases, unusual colour spots may appear on the screen when using the product. These inactive pixels are not product defects and do not affect the performance and reliability of the product.
- Do not store or use flammable substances near the product.
 - It may result in explosion or fire.
- Use at an appropriate distance from the product.
 - Continuous use in excessive proximity may adversely affect your eyesight.
- Set the resolution and frequency according to the product specifications.
 - It can adversely affect your eyesight.
- Take breaks when using the device for long periods to maintain your health and vision.

Precautions When Using Remote Control

WARNING

- Please avoid humid places.
 - Otherwise, it may result in electric shock or damage to the product.
- Do not expose the battery to excessive heat, such as direct sunlight, fireplaces, or heat generators.
 - This can cause fire or personal injury.
- When replacing batteries used in remote controls, be careful not to let children eat them. Keep the batteries out of reach of children.
 - If swallowed by a child, consult a doctor immediately.
- Do not dispose of batteries by burning them.
 - Batteries can be disposed of at your local recycling centre or at a dealer that handles batteries.
- Waste batteries, including rechargeable batteries, should be recycled separately from normal waste.
 - Used batteries and rechargeable batteries can be disposed of at your local recycling centre or at a dealer that handles batteries and rechargeable batteries.

CAUTION

- Do not short-circuit or disassemble the battery.
 - It may cause electric shock or fire.
- Remote control recognition may be difficult under sunlight or strong lighting. In this case, please change the product's location.
- Check if there are any obstacles between the product and the remote control.
- Do not mix new and old batteries.
 - It may cause the battery to burst or leak, resulting in a fire or electric shock.
- Do not use batteries other than those specified. Do not insert non-rechargeable batteries into the charger.
 - It may cause the battery to burst or leak, resulting in a fire or electric shock.

Screen Afterimage Cautions

- Watching still images for a long time may damage the screen and cause an afterimage. Third-party products may also have this phenomenon, and damages resulting from them are not covered by the warranty.
 - Be sure to use a screen saver when using the screen for a long time.

Cautions When Disposing of the Product

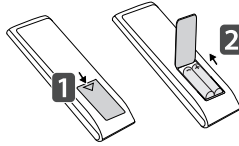
- Do not dispose of this product with general household waste.
- Disposal of this product must be carried out in accordance to the regulations of your local authority.

Using the remote control

This manual explains how to operate the product using a remote control. Please read the manual to ensure proper use of the monitor.

To replace the battery, open the battery cover, align the ⊕ and ⊖ direction of the battery to be replaced (1.5 V AAA) with the label on the battery compartment, and close the battery cover.

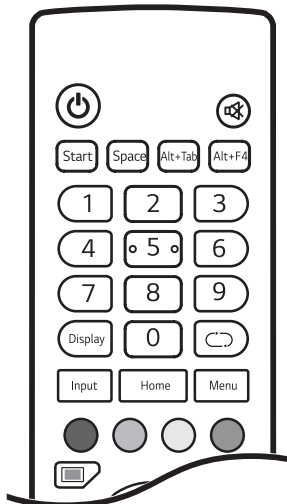
When removing the battery, perform the above procedure in reverse order. The picture may be different from the actual accessories.



CAUTION

- Using the new battery with the old one may damage the remote control.
- Ensure that the remote control points to the remote control sensor of the monitor.
- Some remote control features may not be supported, depending on the model.
- Be careful not to expose the product's internal and external batteries to excessive heat, such as direct sunlight, fire, etc.

* The remote control varies depending on the model.



Power Turns the monitor on or off.

Mute Mutes all sounds.

Start (Built-in computer) Has the same function as the Windows key.

Space (Built-in computer) Has the same function as the Space key.

Alt+Tab (Built-in computer) Has the same function as the Alt + Tab keys.

Alt+F4 (Built-in computer) Has the same function as the Alt + F4 keys.

Number Buttons Enters numbers depending on the settings.

Display Displays the currently applied external input on the screen.

Input Displays the external input settings window.

Home Returns to the default screen.

Input This feature is not supported by the current models.

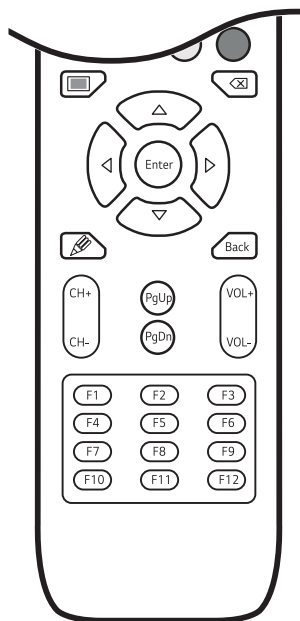
Menu Displays the general settings window.

● Enables or disables the power button or touch function of the front of the product.

● Enables or disables the power button on the front of the product.

○ Enables or disables the touch function.

● Turns the screen pause function on or off. (You can use the screen zoom in/out setting function.)




 Turns on or off the whole screen.

 (Built-in computer) Has the same function as the Backspace key.

 Moves between menus or options.

Enter Selects a menu or option and confirms the input selection.

 Launches the Note app.

Back Moves back one step in the user operation feature.

CH+/- Selects the channel.

PgUp Moves to the top of the screen.

PgDn Moves to the bottom of the screen.

VOL+/- Adjusts volume.

Function Keys (Built-in computer) Has the same function as the Function keys.

Connecting to the Server

Various external devices can be connected to the monitor. Select an external device to connect by switching the input mode. Some separate cables are not provided. For more information on connecting external devices, refer to the User Manual provided with each device.

Connecting to a PC

Some separate cables are not provided. This monitor supports the *Plug and Play feature.

* Plug and Play: a feature that enables a PC to recognise devices attached by the user without device configuration or user intervention when powering up.

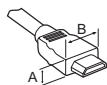
Connecting to External Devices

Some separate cables are not provided. Connect an HD receiver, DVD, or VCR player to the monitor, and select an appropriate input mode.

For the best image and audio quality, connect the monitor and external devices using an HDMI cable.

! NOTE

- We recommend using HDMI connection to get the best image quality from your monitor.
- To comply with the specifications of the product, use a shielded interface DVI-D/HDMI cable with a ferrite core.
- The screen may flicker if the monitor is turned on when it is cold. This is normal.
- Some red, green, or blue spots may appear on the screen. This is normal.
- Use a High Speed HDMI^{®/TM} cable. (3 m or less)
- Use a certified cable that displays the HDMI logo. The screen may not appear or a connection error could occur if a non-certified cable is used.
- Recommended HDMI Cable Types
 - High-Speed HDMI^{®/TM} Cable
 - High-Speed HDMI^{®/TM} Ethernet Cable



HDMI : $A \leq 11.65 \text{ mm}$; $B \leq 20.65 \text{ mm}$

USB : $A \leq 8.3 \text{ mm}$; $B \leq 16 \text{ mm}$

- If you cannot hear sound in HDMI mode, check your PC environment. Some PCs require manual changes to the default audio output to HDMI.
- To use HDMI PC mode, turn your PC/DTV to PC mode.
- HDMI PC may cause device compatibility issues.
- Connect with the monitor power cable unplugged.
- If you are connecting a gaming device to your monitor, use the cable provided with the gaming device.
- The content received through the HDMI INPUT port may not be sent through the HDMI OUT port. (The HDMI OUT port supports Android/VGA/USB only.)
- Specific external input terminals and touch-out terminals are linked. When using touch-out terminals, connect the terminals to the correct external terminals. (For touch-enabled models)
 - HDMI1/HDMI2 : Touch 1
 - HDMI3/VGA : Touch 2

! CAUTION

- Connect the signal input cable and tighten the screw by turning it clockwise.
- Pressing the screen for a long time with a finger may cause temporary distortion to appear on the screen.
- Do not place objects that may reflect light within 50 cm of the front of the set.
- Afterimage may appear if the same scene is outputted for a long time. Use a screen saver if possible.
- Video abnormalities may occur when using a wireless device in the vicinity of the monitor.

! **NOTE**

- Content related to the software is subject to change without prior notice due to product upgrades.
- The descriptions and features in the manual may not be supported, depending on the model and country.
- This product supports SNMP 2.0.

LG IFP OS Solution

An IFP OS Solution for Education

- A new OS launcher with clearly defined functional areas and more efficient shortcuts
- A new system bar for centralised controls and customisation
- A unique IFP solution for efficient and flexible multi-window operation
- Handwriting recognition, graphics, keyword search, Smart Excel and handwriting correction in Smart Note
- More shortcut tools to help users improve interaction in class
- More flexible screen sharing, clientless mirroring, custom screen sharing and desktop synchronisation



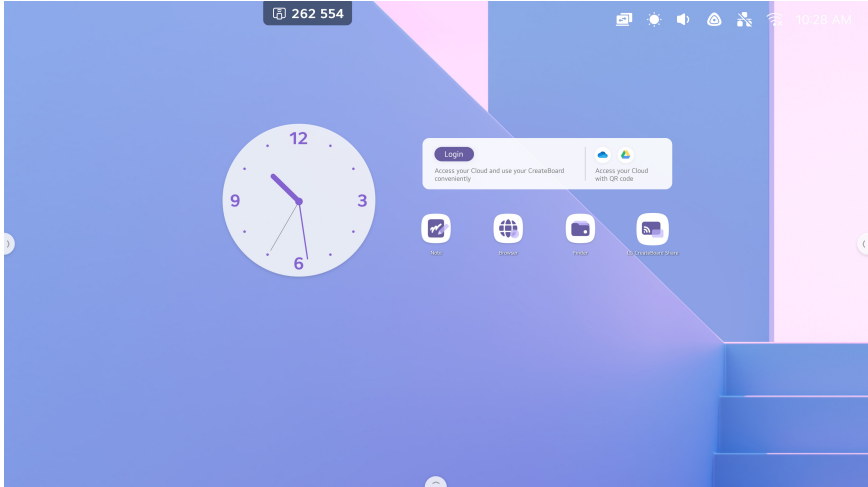
CAUTION

- The basic UI/UX, apps and menus in the manual may be different from those in the product.

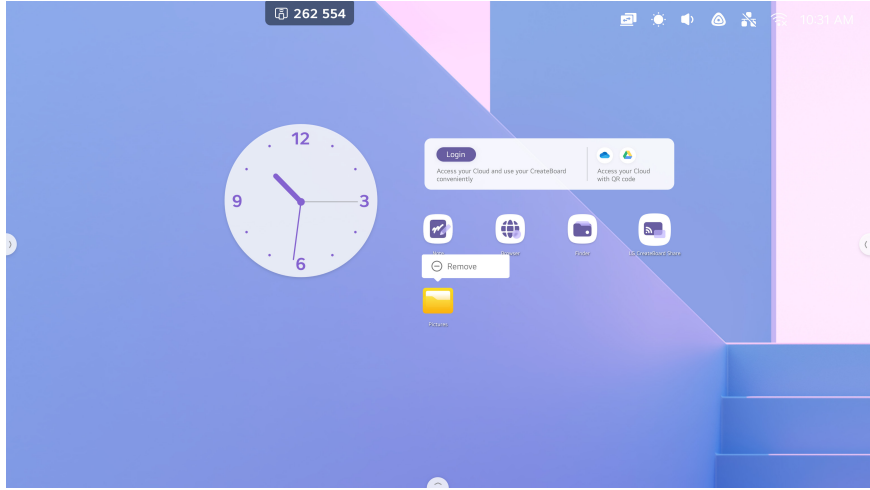
[Launcher]

[Launcher] adds a shortcut area for users in the functional area, enabling users to easily and efficiently launch applications, files and web pages that are commonly used for educational purposes. Users can get started quickly by dragging or sending frequently used applications, folders/files and web pages to [Launcher]. The desktop can also be customised using various wallpapers.

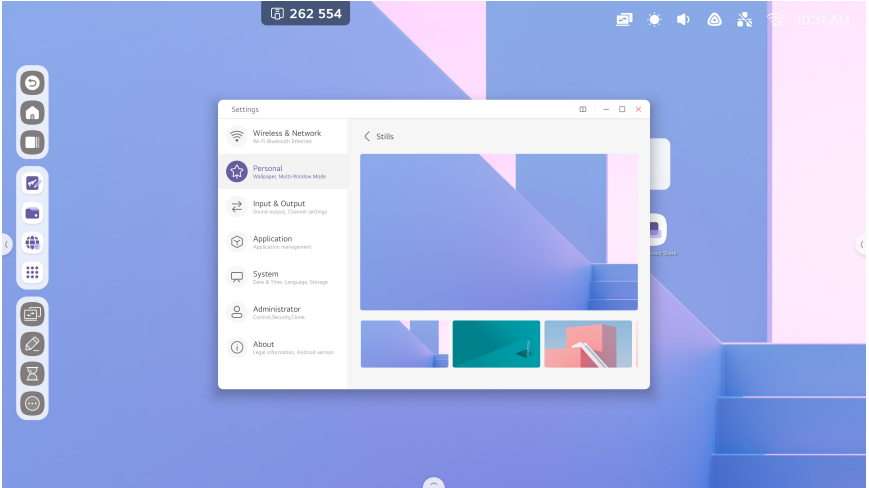
- 1 The option to turn on [Launcher] is displayed by default on Android.



2 Create and manage shortcuts to apps, files and websites in [Launcher].




3 Customise your desktop using various wallpapers.

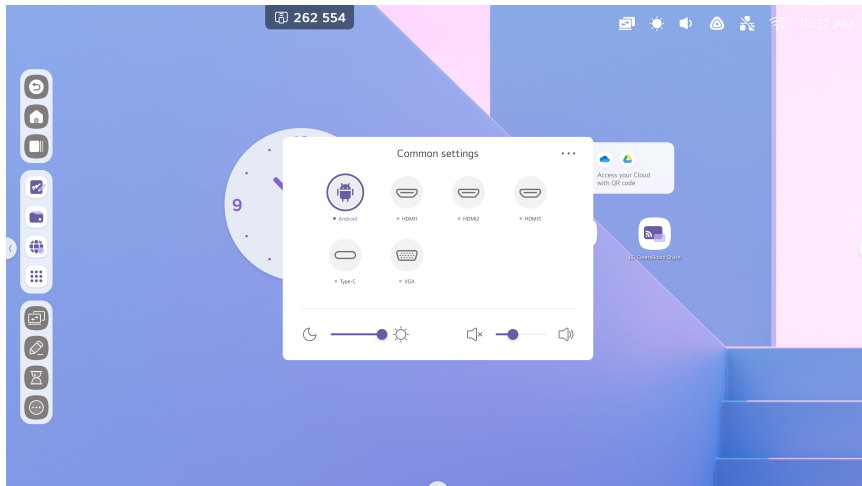


[Status Bar]


The Status Bar is displayed in the upper-right corner and provides access to the following menus:

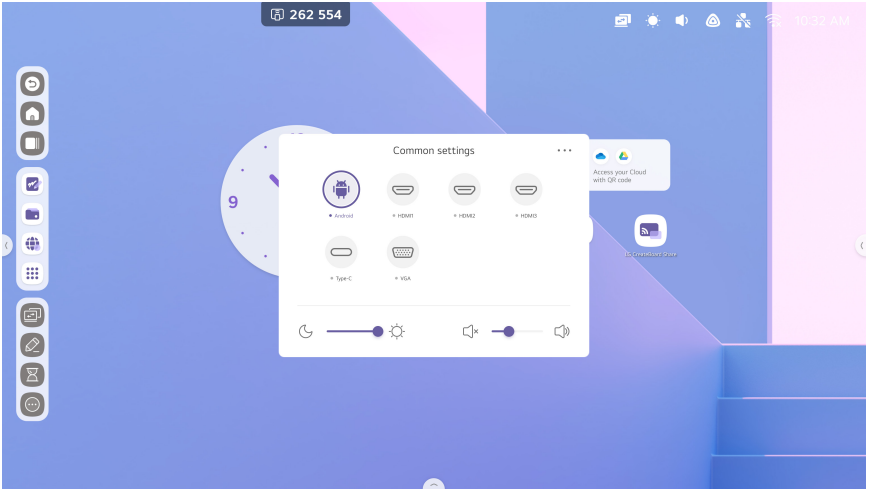
[Touch Menu]

Click the  icon to open the [Touch Menu] to switch to an input source.




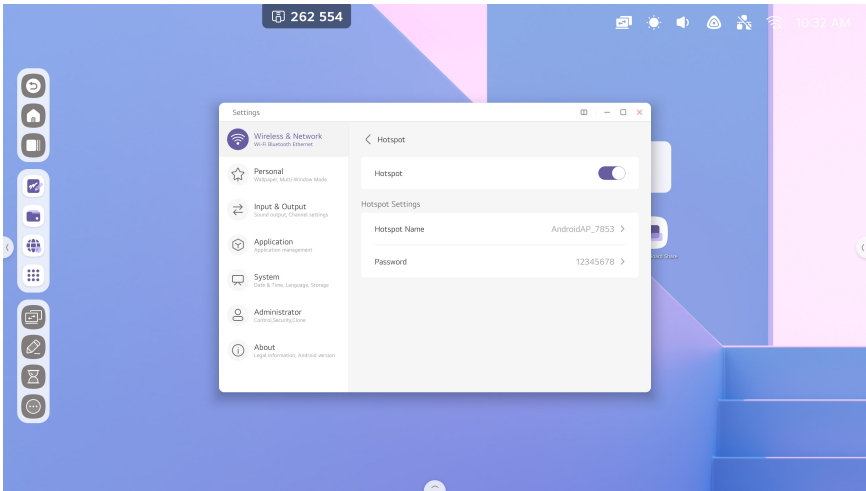
[Brightness and Sound]

Click the  icon to open the [Touch Menu] to adjust the screen brightness and volume.




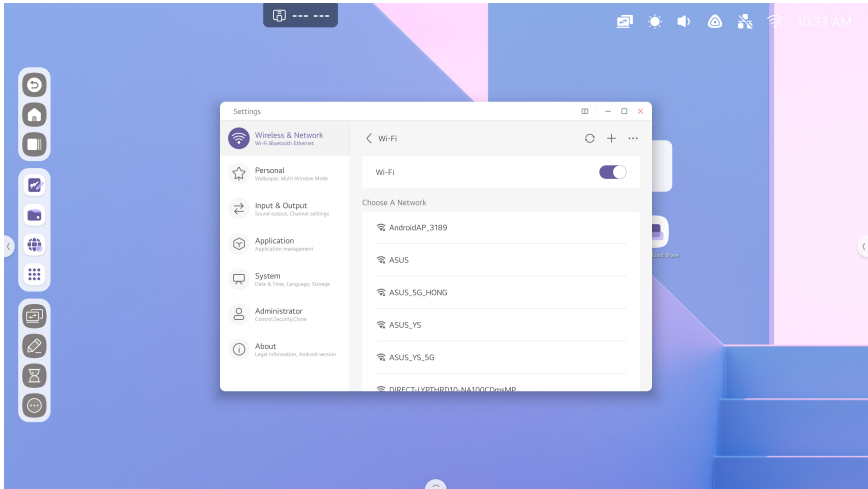
[Hotspot]

Click the  icon in the upper-right corner to open the [Settings] → [Hotspot] pages.



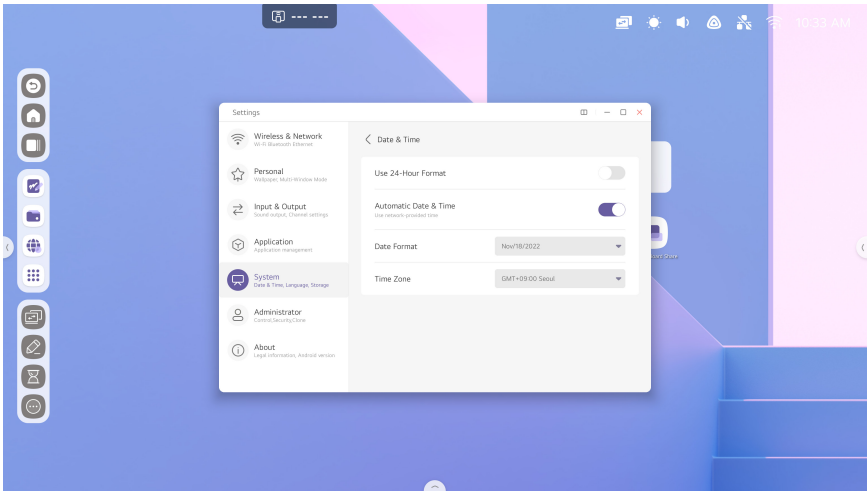
[Wi-Fi]

When users add a Wi-Fi module, the  icon appears in the upper-right corner. Click this icon to open the [Settings] → [Wi-Fi] pages.



[Date & Time]

Click **03:41 AM** to open the [Settings] → [Date & Time] pages.



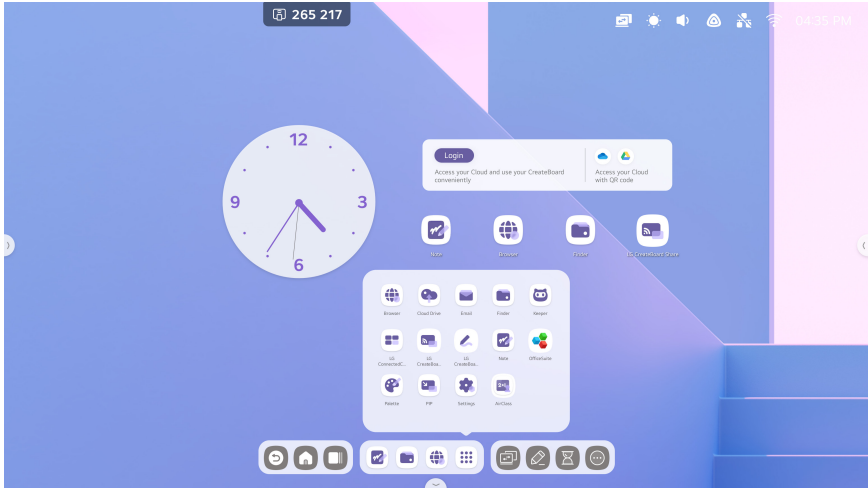
[Shortcut Area]

Shortcuts are displayed in the centre of the screen and can have the following types:

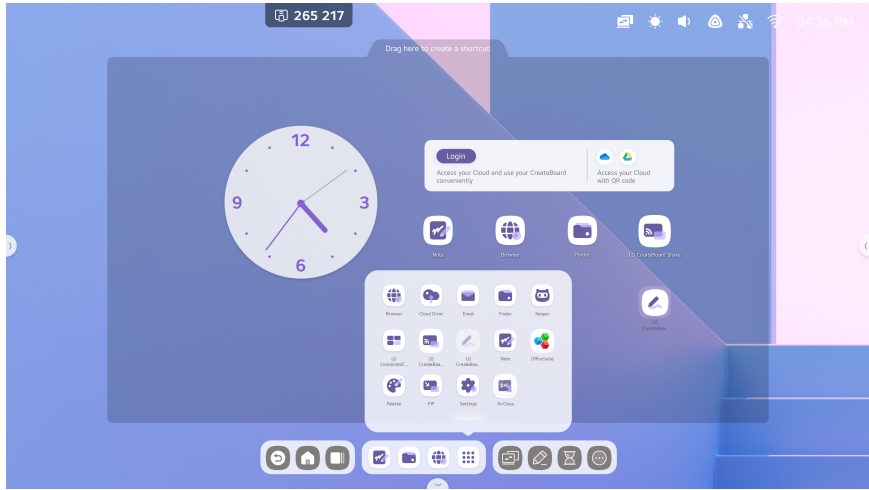
Application Shortcuts

Users can create shortcuts by dragging the icons from [All Apps] to [Launcher].

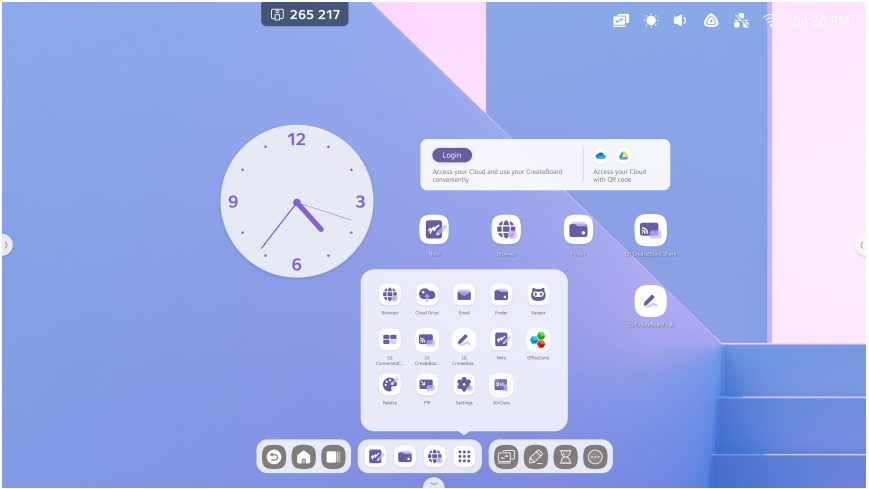
Step 1: Drag an app icon from [All Apps].



Step 2: Place it in the Shortcuts area.



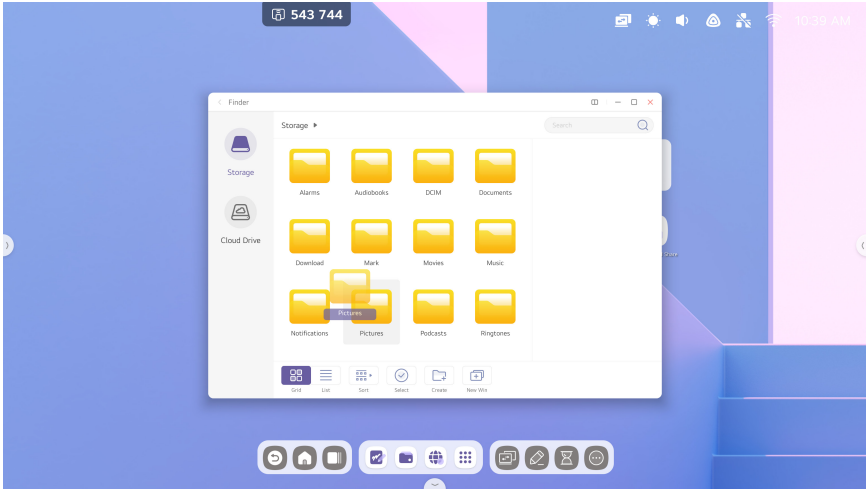
Step 3: Raise your hand to add an app shortcut icon.



[File Shortcut]

Users can create files/folders by dragging or sending the files/folders from [Finder] to [Launcher].

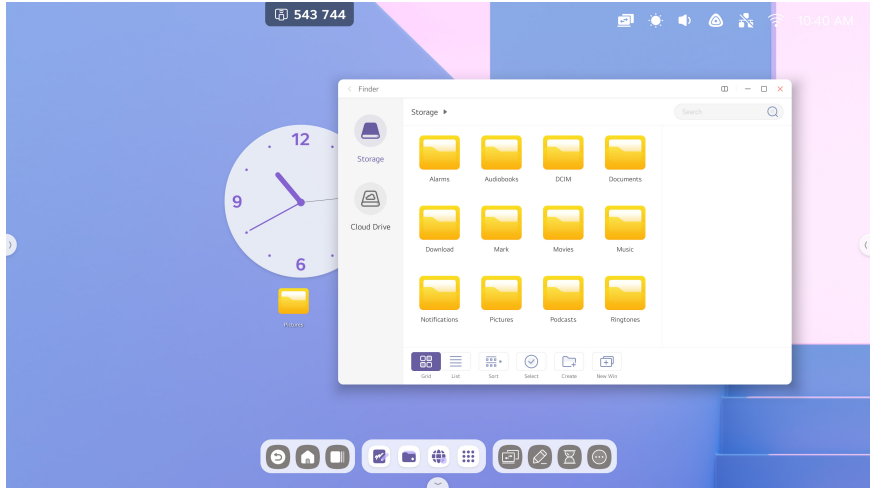
Step 1: Drag a file/folder from [Finder].



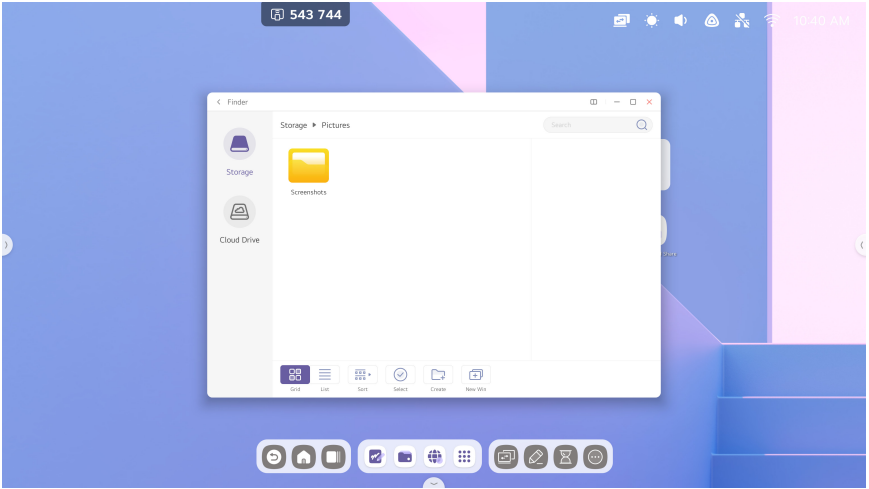
Step 2: Place it in the Shortcuts area.



Step 3: Raise your hand to create a shortcut icon.

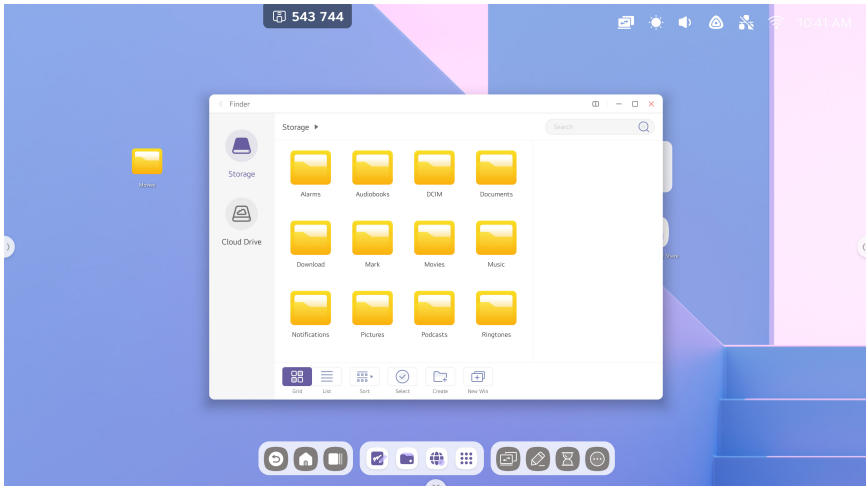
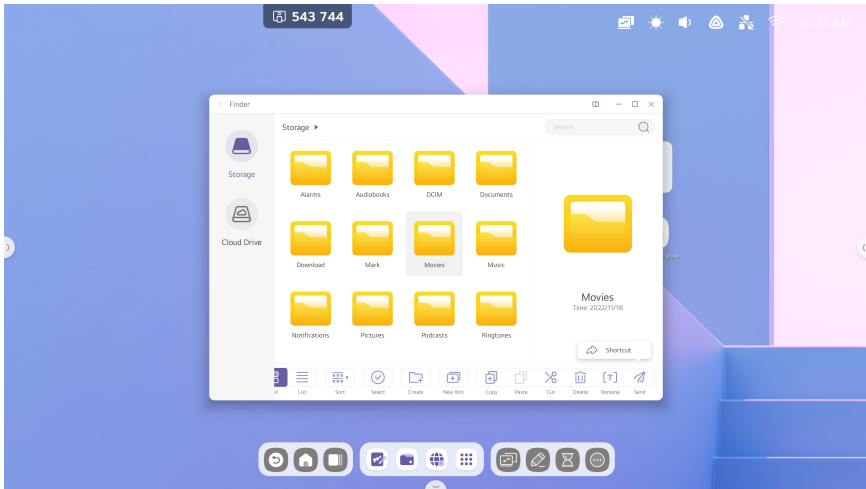


This enables users to quickly open the path by clicking the shortcut.



Shortcuts can also be created in the following way:

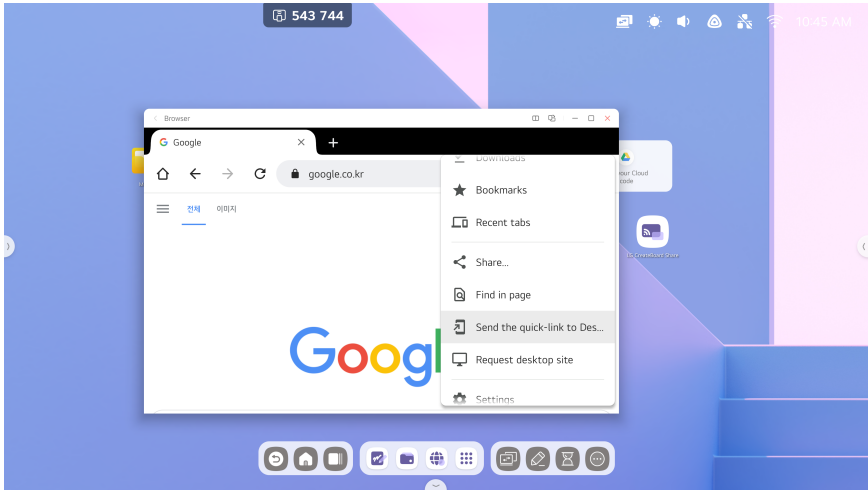
Select a file → click [Send] at the bottom → select [Shortcut] to create a shortcut for the file.



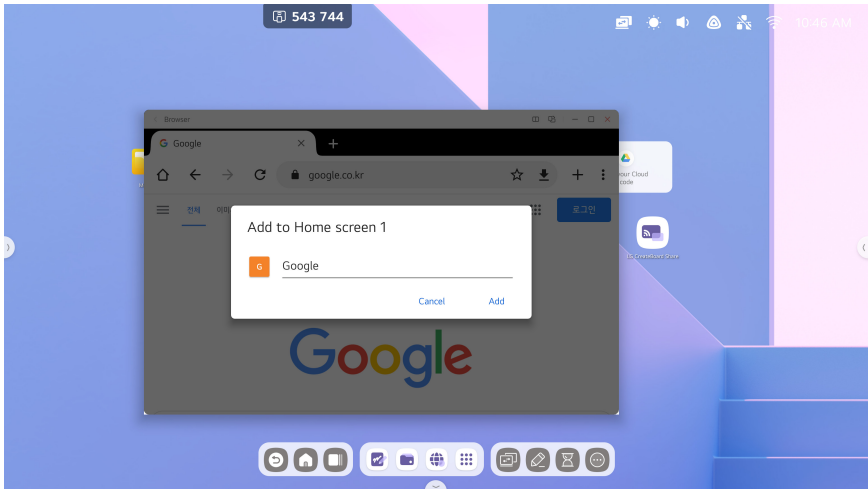
This enables users to quickly open the file by clicking the shortcut.

[Website Shortcut]

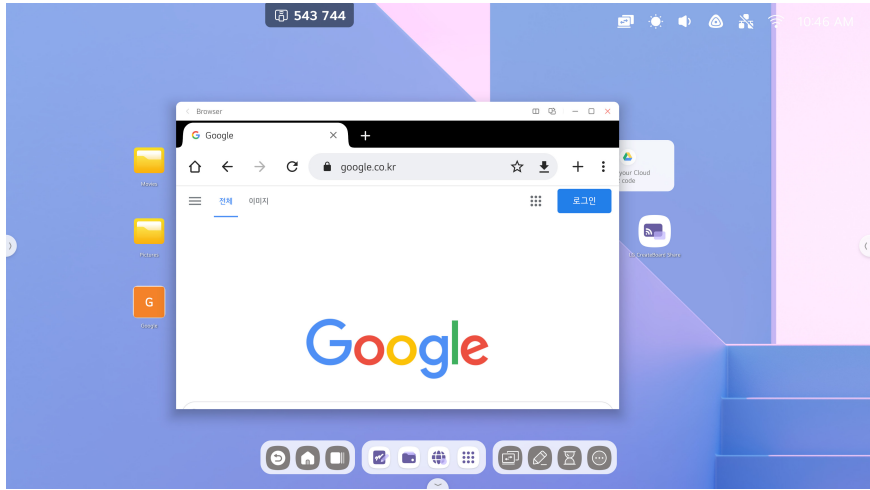
Step 1: Open a website and click [Send the quick-link to Desktop].



Step 2: Name the shortcut so that it can be easily located.

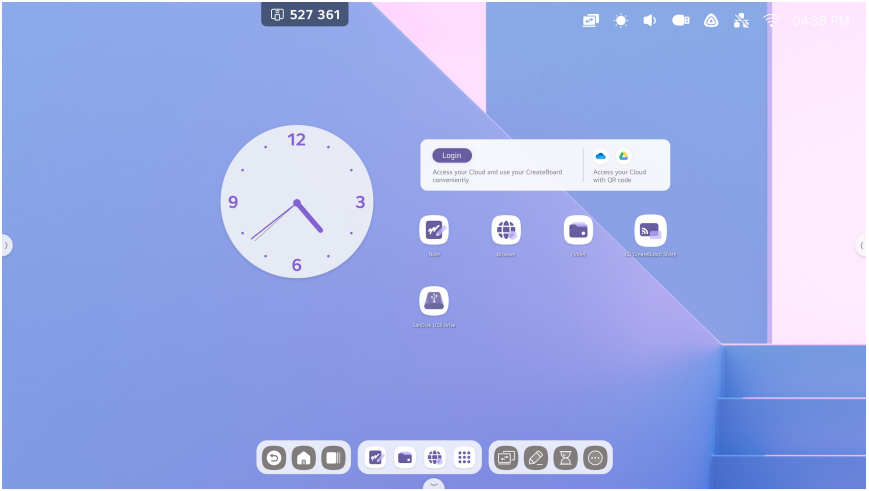


This enables users to quickly open the website by clicking the shortcut.



[USB Shortcut]

When a USB flash drive is connected, a shortcut is created in [Launcher]. Click the shortcut to open the USB flash drive in [Finder].

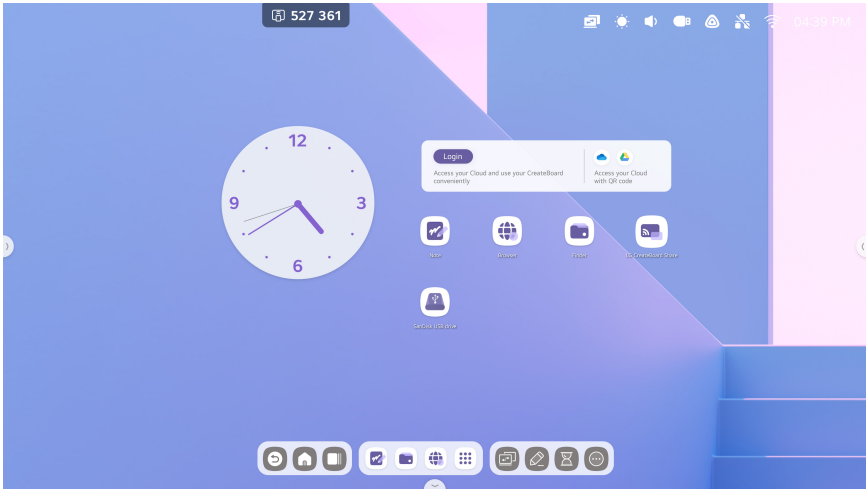


[Shortcut Management]

Long press or drag a shortcut to manage it.

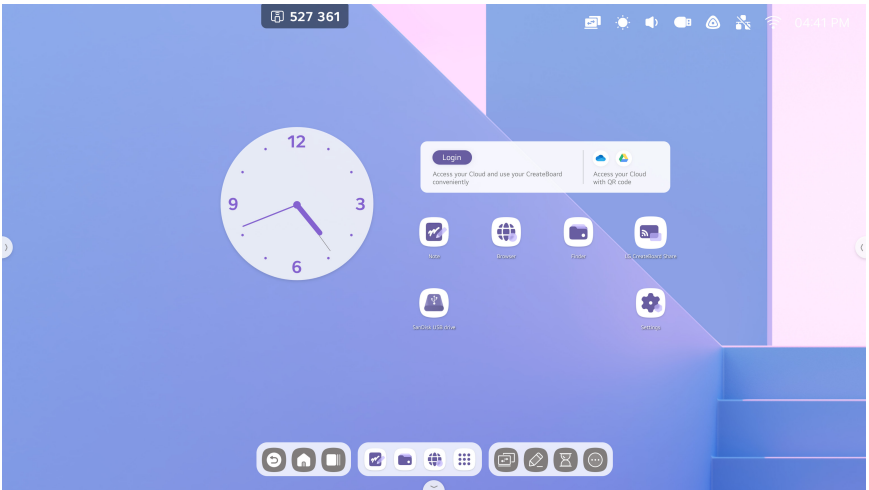
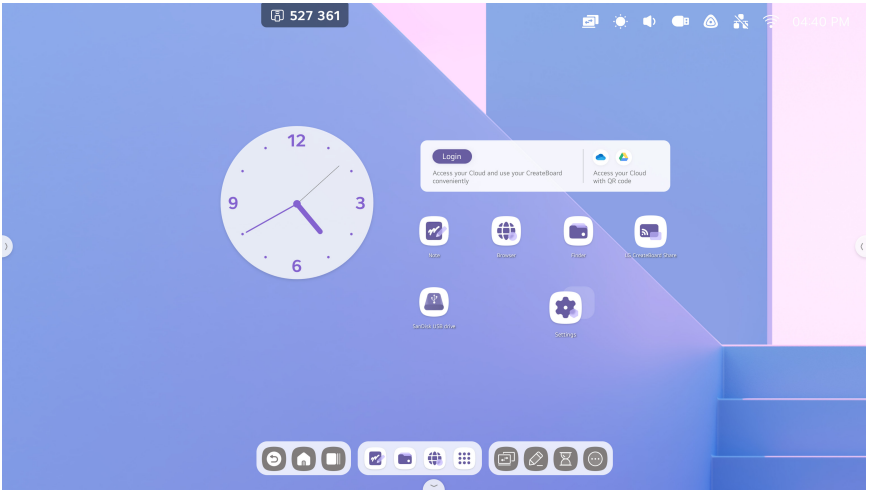
[Remove]

Long press the shortcut to show the menu bar and click [Remove] to remove the shortcut from [Launcher].



[Change Position]

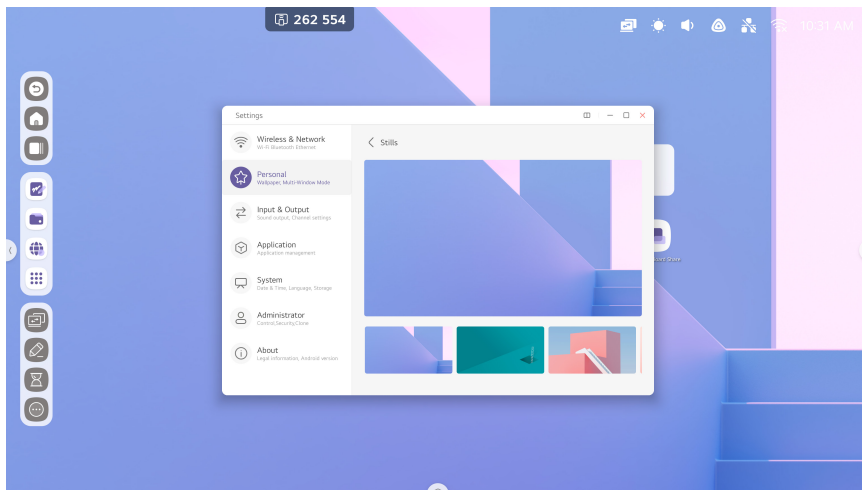
Long press or drag a shortcut to change its position in [Launcher].



[Wallpaper]

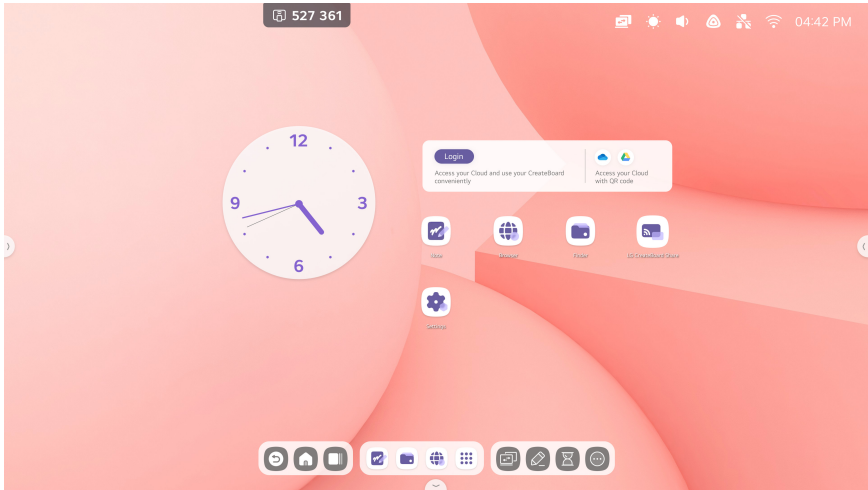
Customise your desktop using wallpapers in [Launcher].

[Default Wallpaper]



[Custom Wallpaper]

Go to [Settings] → [Personal] → [Wallpaper] → [Stills] or open the [Dynamic] page to set your desktop wallpaper.

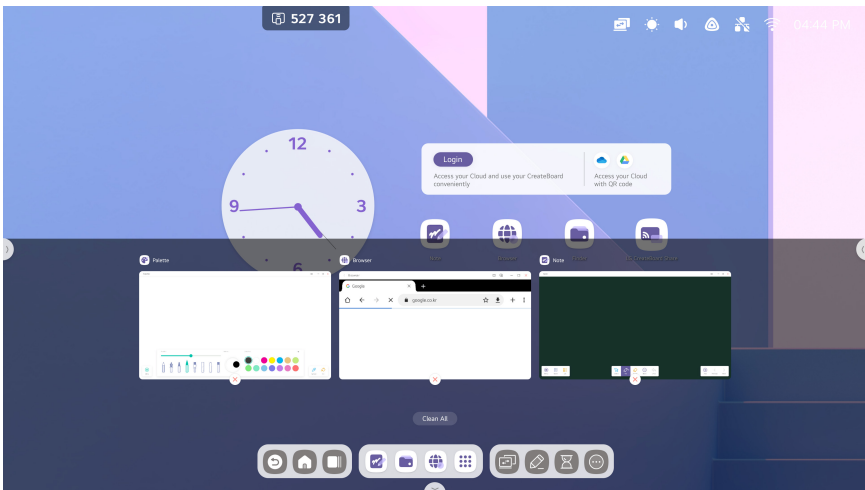


[System Bar]

The [System Bar] provides a solution to efficiently manage and switch between tasks from the centre and use tools in multiple scenarios. It integrates three parts of the main content, Task Manager, Application Manager, and Tool Manager, allowing users to launch items in unity from this integrator. In addition, it enables users to customise the configuration and management features based on their preferred teaching practices. By default, users can access the system bar from the bottom and both sides and also hide or display it on the [Settings] menu, depending on their preferences.

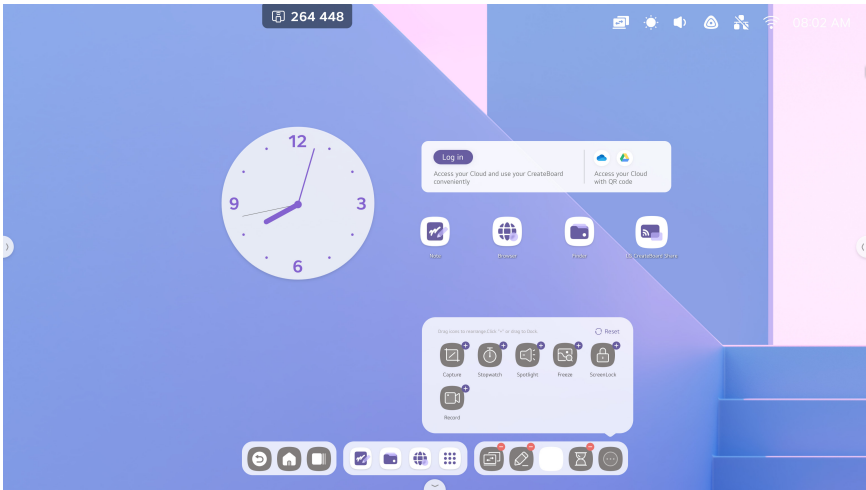
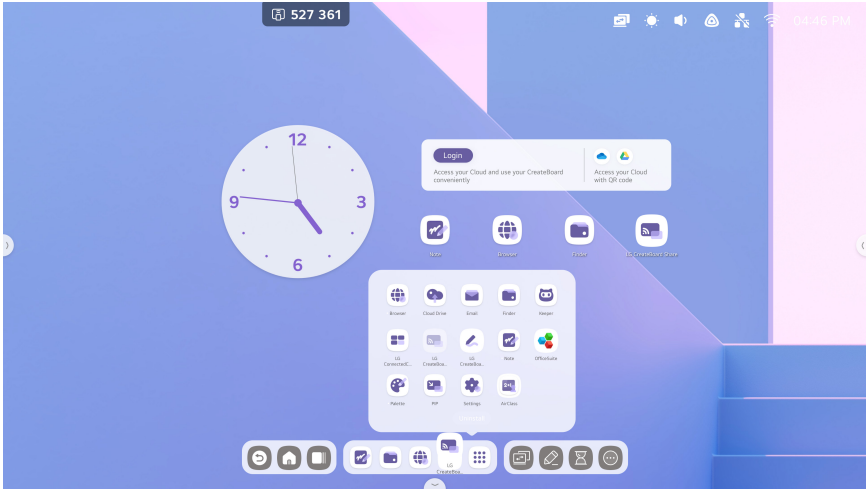
1. Control the processes for input sources, tasks, apps and tools from the centre.

Input Sources and Apps in Use






2. Customise the [System Bar] by changing its content and position.

Customising Content



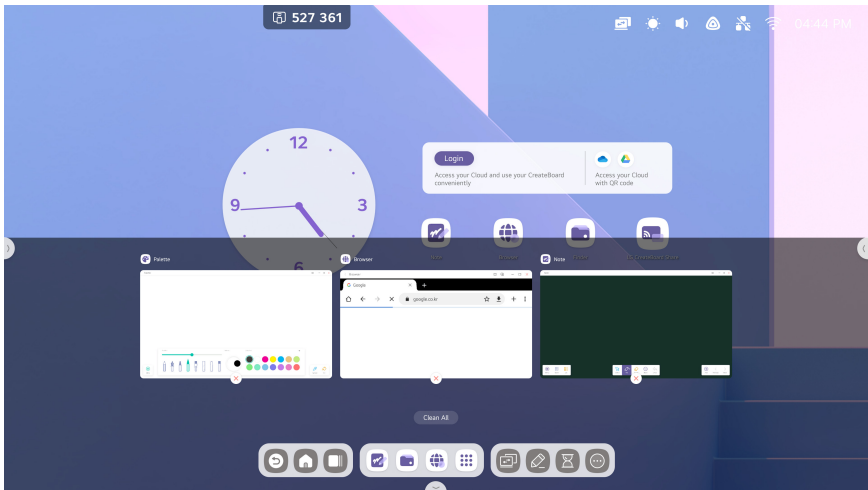
[Navigation Bar]

A task manager in the [System Bar]. Users can control the processes for the tasks using the following buttons:

Content	Description
[Back]	Click  to go back to the most recently used interface.
[Home]	Click  to go back to the desktop.
[Backstage]	Click  to display a window showing recent apps and input sources.

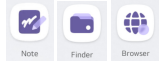
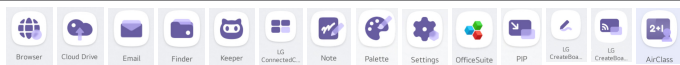
[Backstage]

Simply click the [Clean all] key to remove all processes or drag a process up to remove it. A new process can also be entered by clicking on it.



[Application Center]

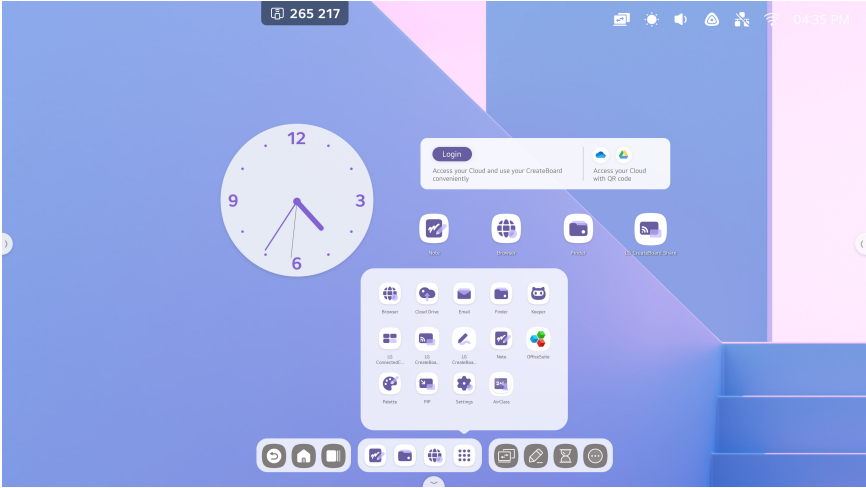
An app launcher and manager in the [System Bar]. All apps can be located here.

Content	Description
[Default Shortcut]	 <p>The [System Bar] shows the following default apps: [Note], [Finder], [Browser] Click the shortcut to start a process.</p>
[All Apps]	 <p>The apps installed by default include: [Browser], [Cloud Drive], [Email], [Finder], [Keeper], [LG ConnectedCare DMS], [Note], [Palette], [Settings], [OfficeSuite], [PIP], [LG CreateBoard Lab], [LG CreateBoard Share], [AirClass]</p>
Apps in Use	Click a currently running app and continue the process.

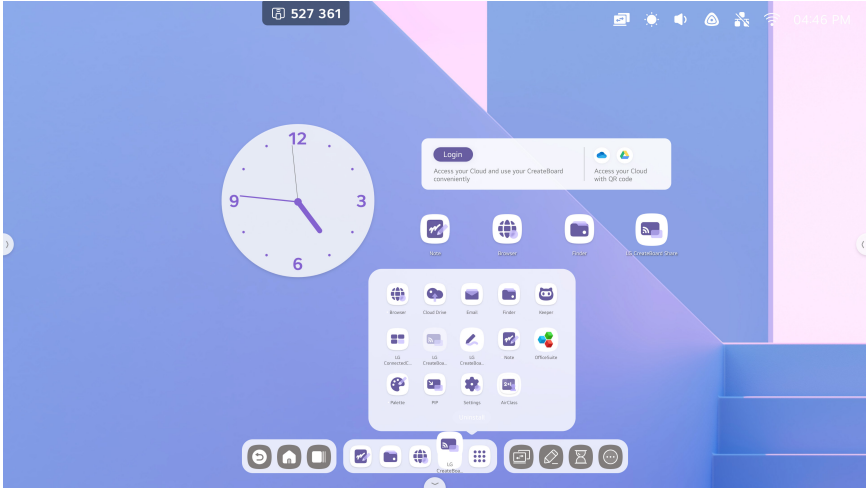
[Default Shortcut]

Shortcuts can be created for four small, commonly used apps in the [System Bar]. Drag and drop the shortcut of an app from [All Apps] to replace it.

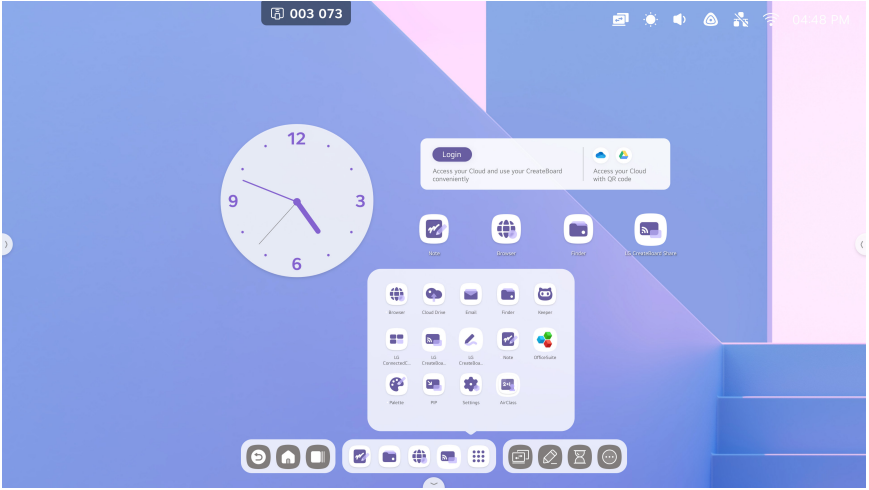
Step 1: Click [All Apps] and find the desired app.



Step 2: Long press and drag the app icon.



Step 3: Move it to the [System Bar] and create a shortcut in the default shortcut area.

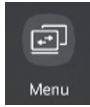
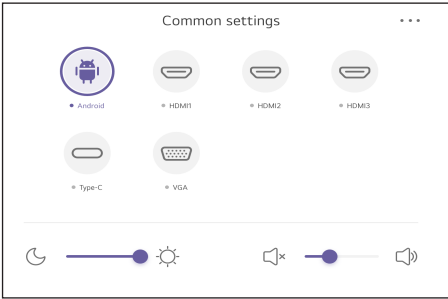
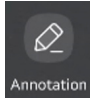
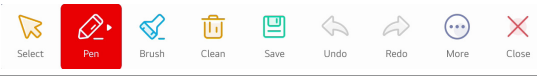
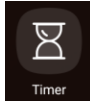
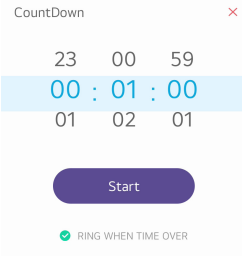


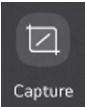
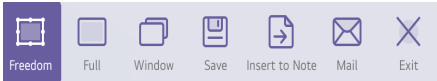
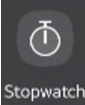
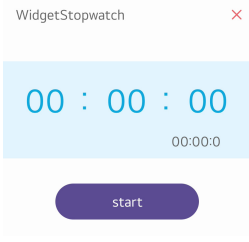
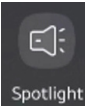

[Small Tools]









This tool can be used to provide a fun experience for students and to improve interactive learning.

Toolbar

Including [Menu], [Annotation], [CountDown], [Capture], [Stopwatch], [Spotlight], [Freeze], [ScreenLock], [Record] and [Split-screen]

Icon	Function	Description
	[Menu]	 <ol style="list-style-type: none"> 1 Displays all input sources, including [PC], [Android], [HDMI], [Type-C] and [VGA]. 2 Displays more advanced settings, including [Audio], [Screen], [Display] and [Adjust] for the input source.
	[Annotation]	 <ol style="list-style-type: none"> 1 Add annotations on the apps, videos, websites, documents, or images. 2 Write a memo on the content from Android or other input sources on the screen. 3 Share annotations via QR code, save them to a cloud disc and add them to the Note app.
	[CountDown]	 <p>Use this tool to specify a desired time after which to receive a notification.</p>

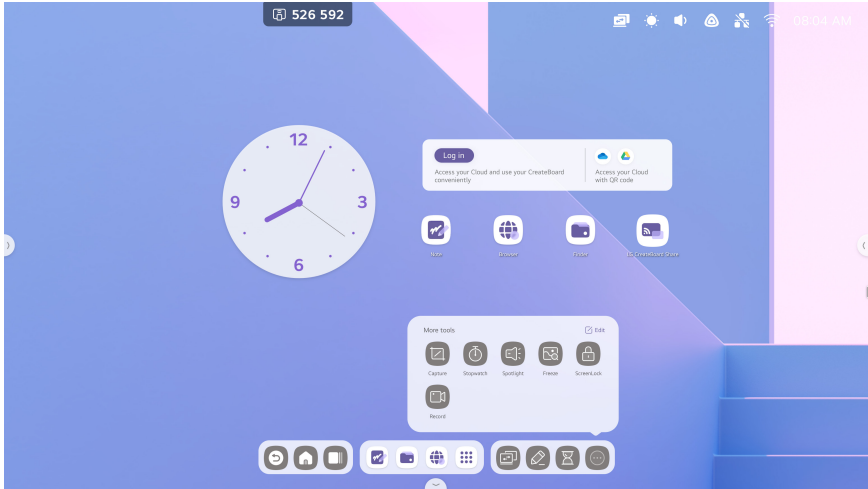
Icon	Function	Description
	[Capture]	 <ol style="list-style-type: none"> 1 Captures screenshots of everything on the screen, including content from apps, websites and videos. 2 Users can select from [Freedom], [Full] and [Window] modes. 3 Supports the feature that adds images to the whiteboard for editing.
	[Stopwatch]	 <p>Use this tool to count seconds from 0 to measure the elapsed time.</p>
	[Spotlight]	 <p>Focus on a specific area of the screen.</p>

Icon	Function	Description
 Freeze	[Freeze]	    Zoom+ Zoom- Full-screen Close <hr/> Pin and zoom in/out of the current content on the screen.
 ScreenLock	[ScreenLock]	Lock the screen with [ScreenLock], and unlock it by entering the password set in [Settings].
 Record	[Record]	Record the screen itself.
 Split-screen	[Split-screen]	Two apps can be used on one screen by splitting the screen into two.

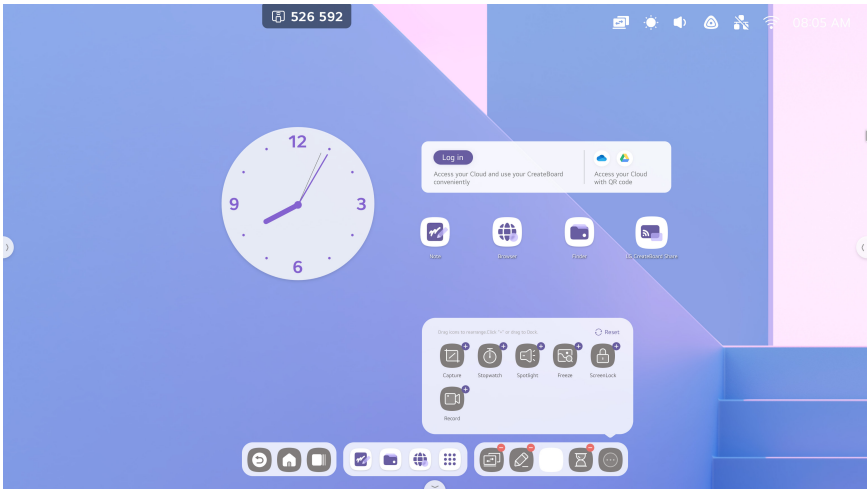
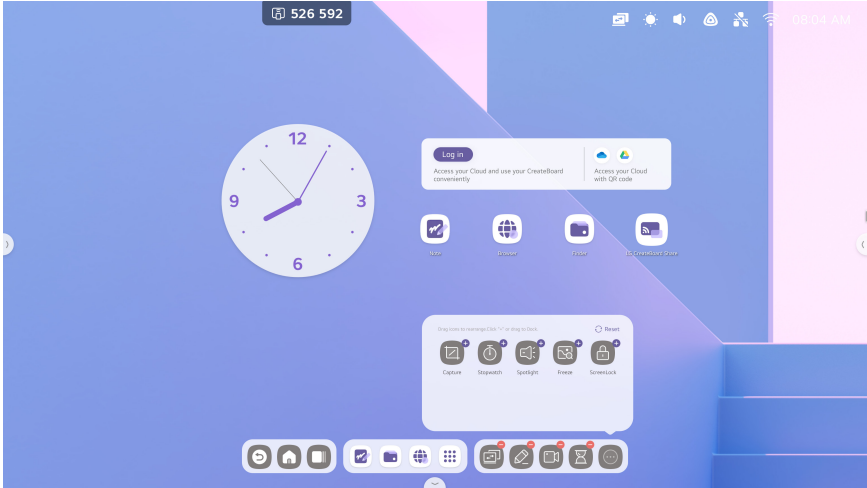
[Tools Customise]

Users can create four small icons for commonly used tools in [System Bar]. Select a tool from [More] to edit the tools.

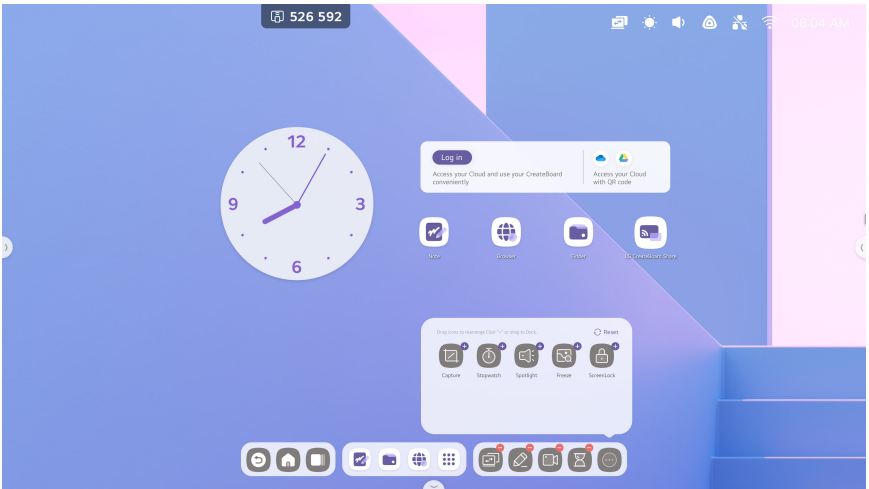
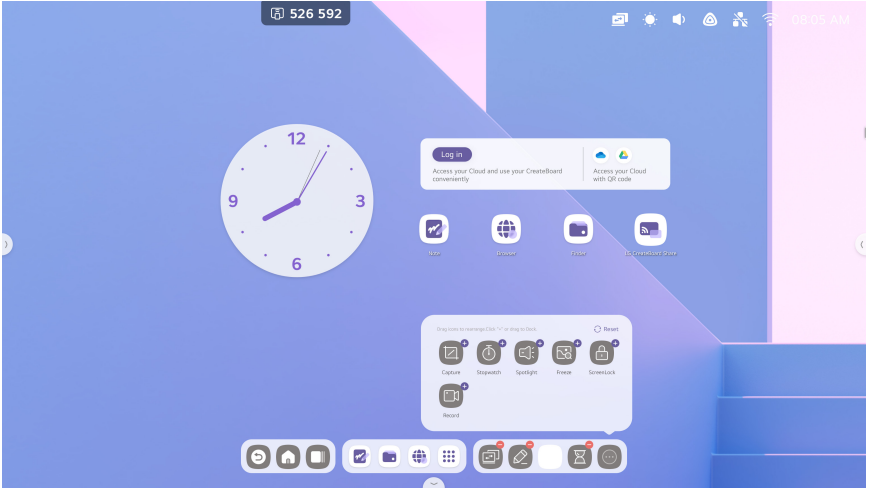
Step 1: Click [Edit] or long press the tool icons to switch to Edit mode.



Step 2: Click - to remove an item in [System Bar].

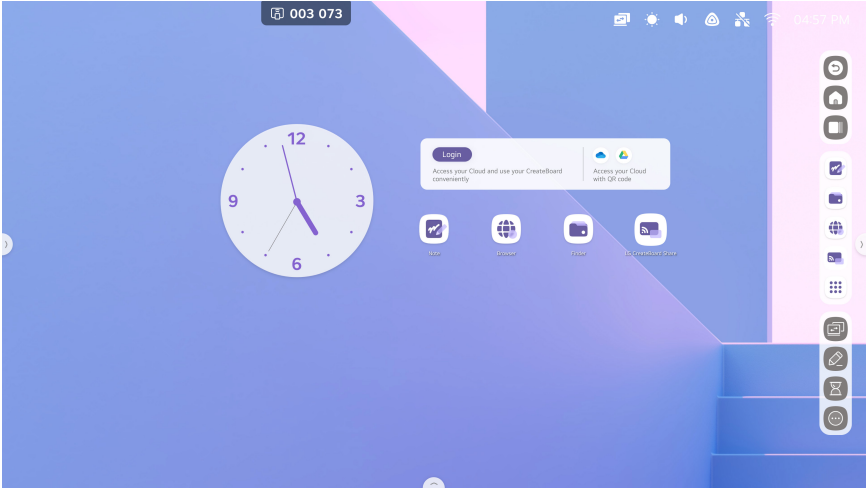
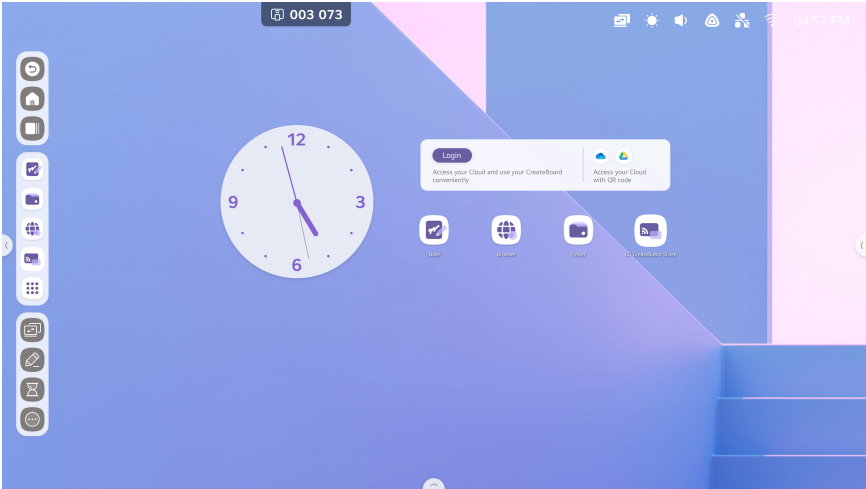


Click + to add an item in [System Bar].

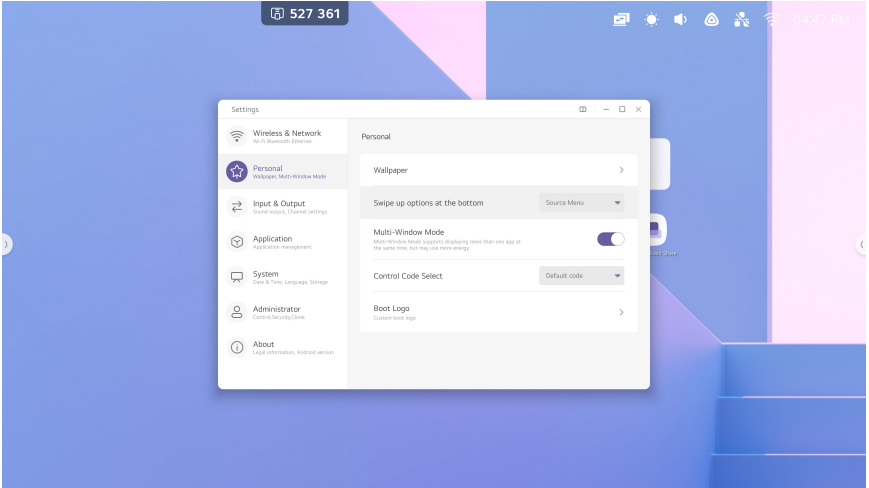


[System Bar Settings]

By default, the system bar can be accessed from the bottom and both sides.



Users can also hide or display the system bar from the [Settings] menu to suit their preferences.

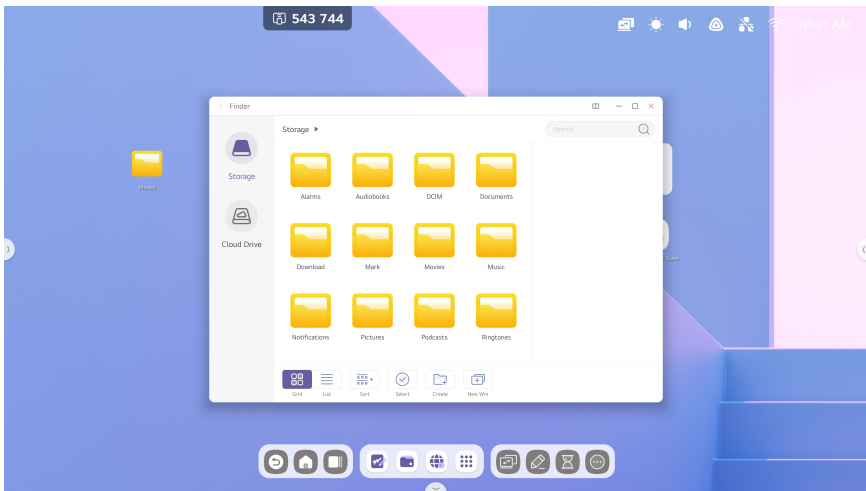


[Multi-Windows]

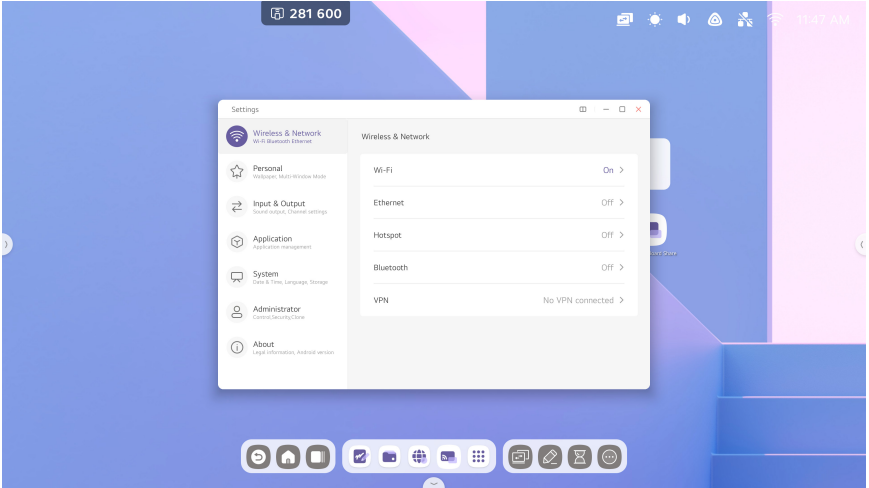
[Multi-Windows] provides users with a new operating solution for the IFP. The content is displayed in a window, and users can stand in front of a large screen and efficiently read information within the range of vision. Applications are also managed in a window, enabling users to adjust the display size and position of the window freely and comfortably. For example, a multi-task operating solution allows users to display and use multiple applications and tools at the same time when presenting the content from the training software and writing down points on the board. Users can also drag and drop content across different applications to exchange information more conveniently and efficiently between them.

1 A larger screen solution provides improved readability for users.

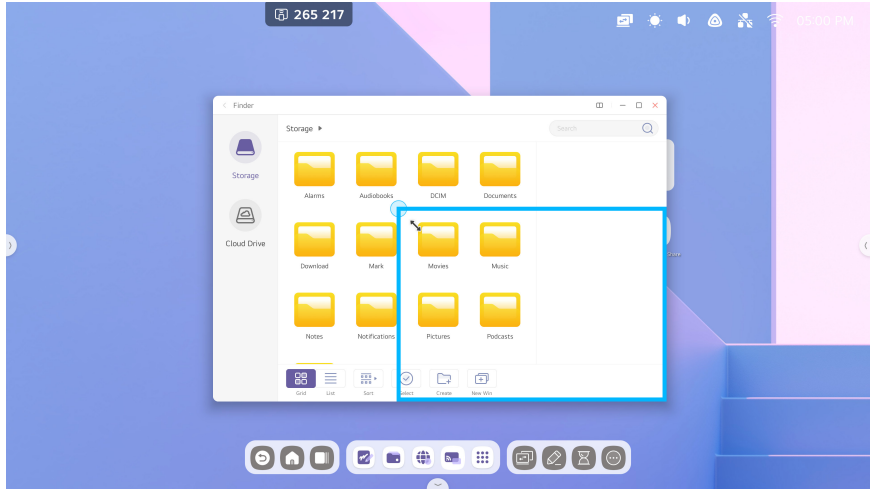
Example 1: [Finder] in Windows mode:



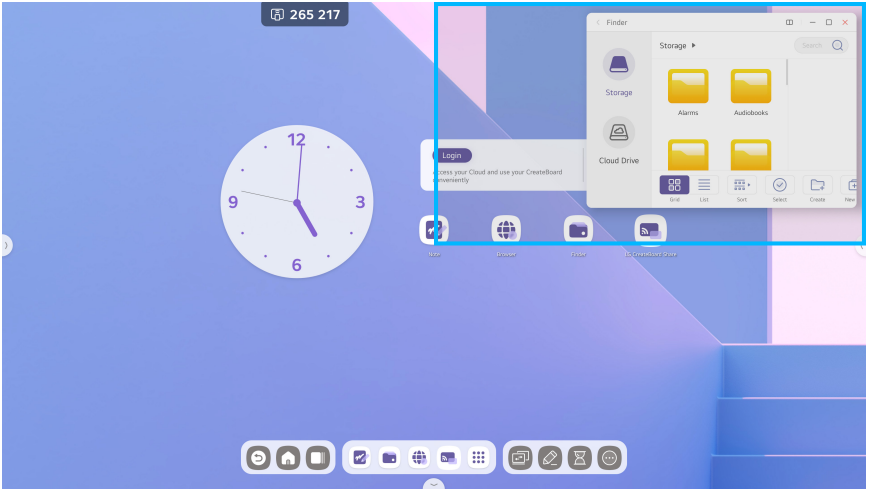
Example 2: [Settings] in Windows mode:



2 Easily control the size and location of the window.
Example 1: Drag the edge to change the size of the window.



Example 2: Drag the top bar of the window to the edge of the screen to quickly reduce it to one quarter of the screen size.

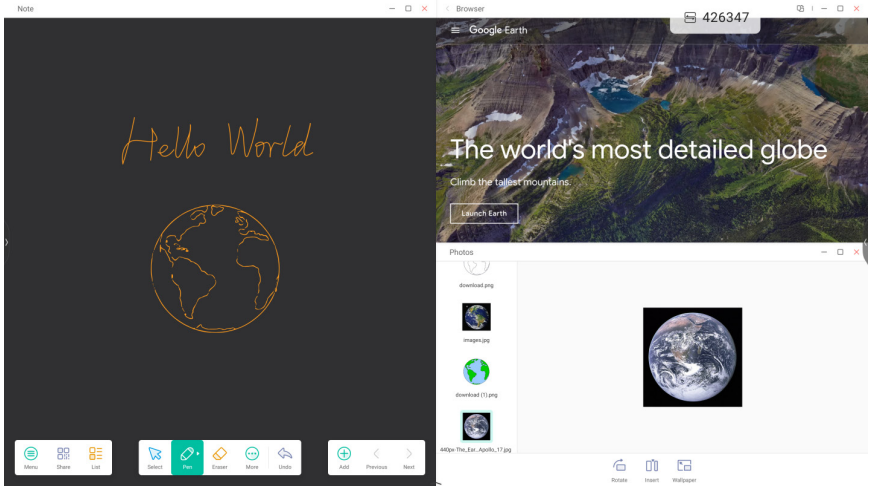


3 Display more apps and tools on the screen.

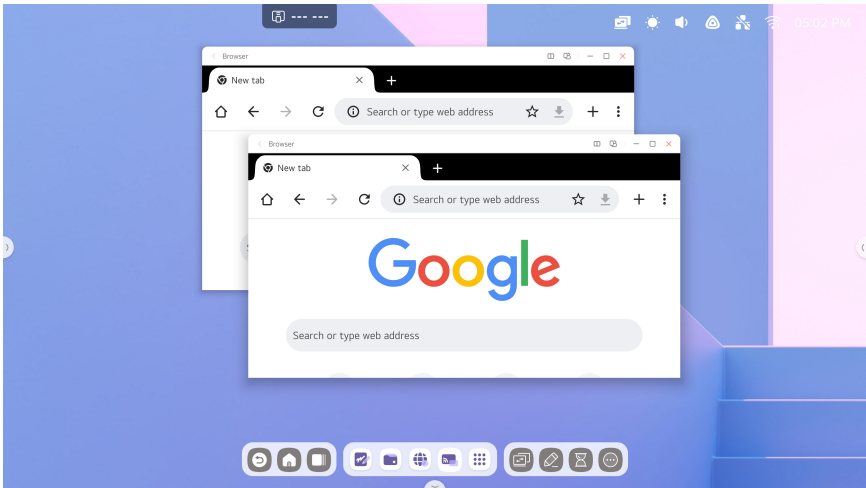
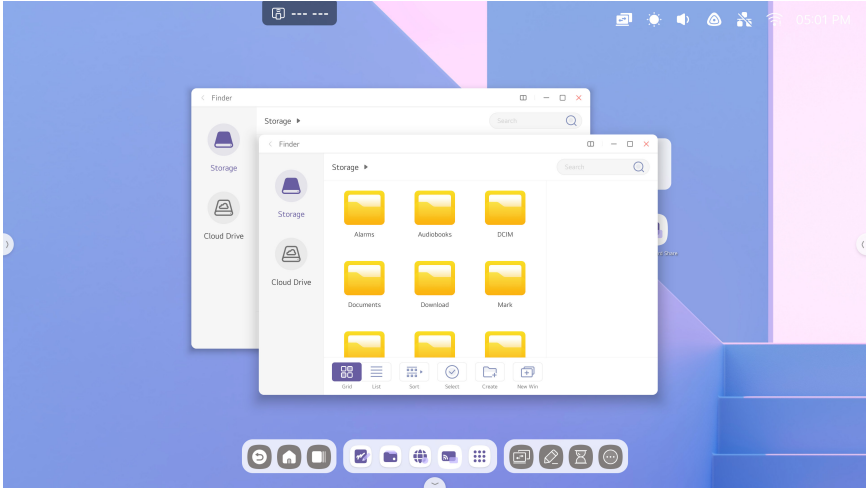
Example 1: Efficiently displays content when writing in [Note].

The image shows a split-screen view of a mobile device. On the left is a note-taking application with a dark green background. The note contains the text "Hello World" written in white cursive. Below the text is a small globe icon with a red location pin. At the bottom of the note, there is a toolbar with icons for drawing and editing. On the right is a browser window displaying two search results. The first result is for "Google Earth" from www.google.com, featuring a description and several navigation buttons. The second result is for "Earth - Wikipedia" from en.wikipedia.org, providing a brief definition and alternative names for Earth. Below the search results is a "People also ask" section with two questions: "What is earth real name?" and "What is Earth explain?".

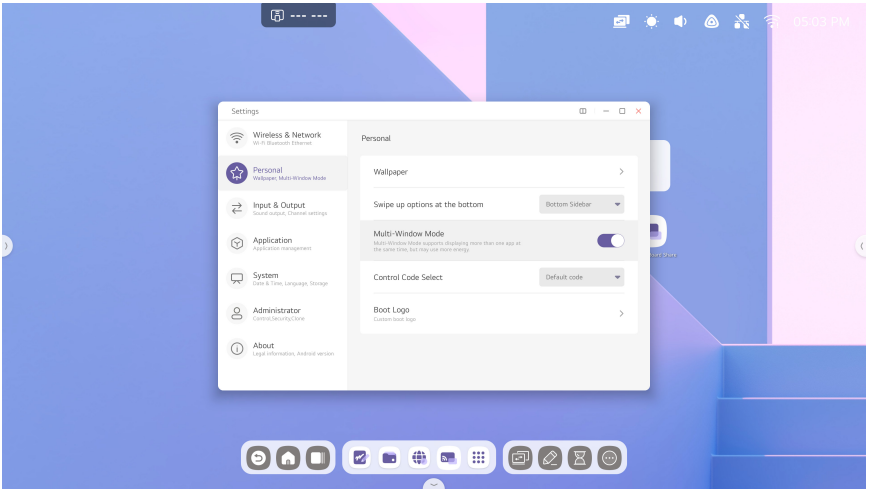
Example 2: Displays three apps on the screen at the same time.



Tip: A new window can be opened in [Finder] and [Browser].



4 [Multi-Window Mode]




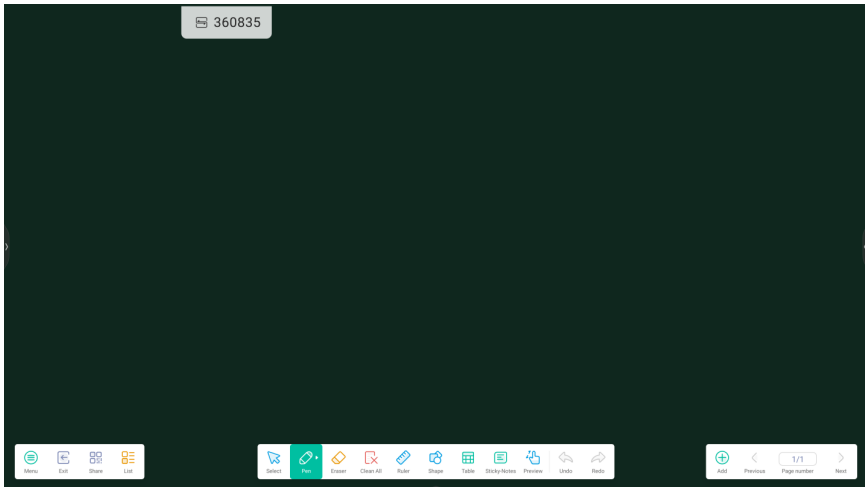
[All Apps]

A variety of custom IFP applications are available to use, depending on the teaching scenarios. The default apps include [Note], [Palette], [Finder], [Browser], [Settings], [Cloud Drive], [OfficeSuite], [Photo], [Music], [Video], [Keeper], [Email], [LG ConnectedCare DMS], [PIP], [LG CreateBoard Lab], [LG CreateBoard Share] and [AirClass].

There are no separate applications for [Photo], [Music], and [Video], but files can be opened in the [Finder] application.

[Note]

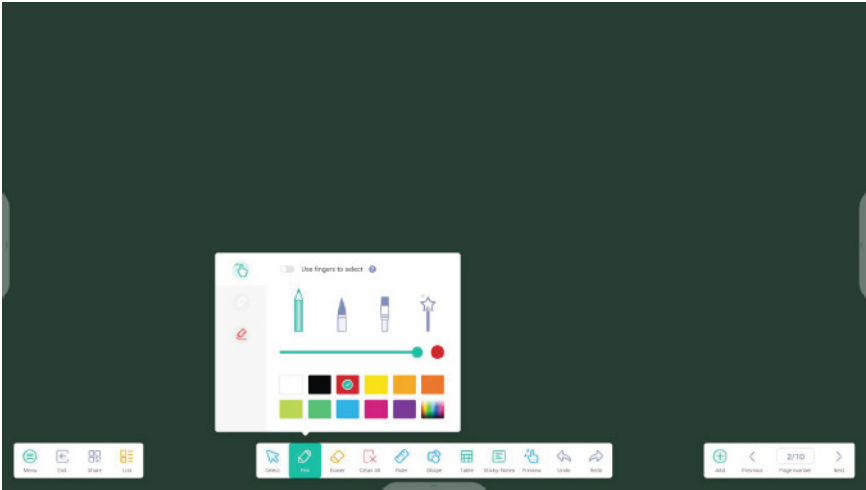
Click  to open [Note].



[Pen]

[Note] offers a wide range of colours and pen styles for users to choose from.

The Dual Pen function enables you to designate two colours and use the writing in the [Note] app.

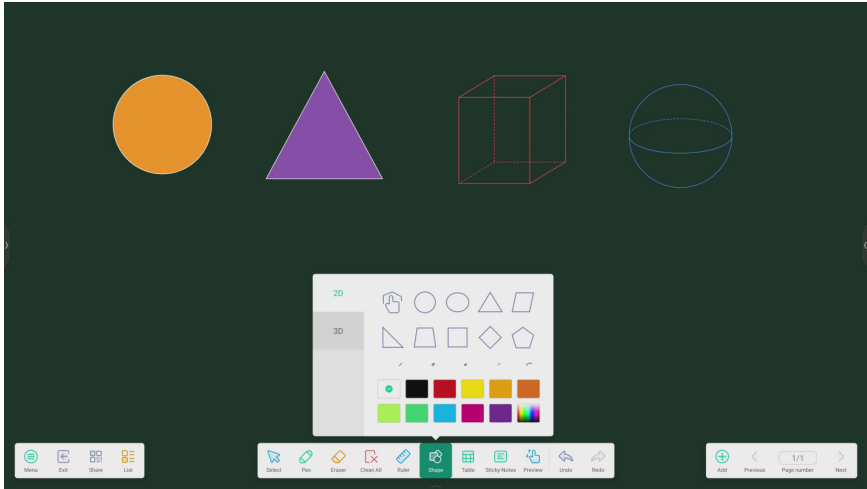


CAUTION

- When using the dual pen, different colours may appear, depending on the angle of contact between the pen and the screen.

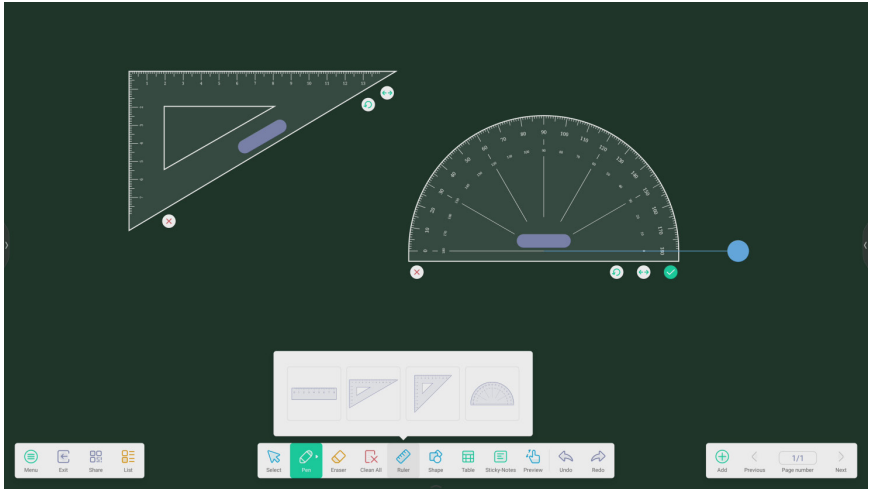
[Shape]

[Note] has a variety of built-in shapes, including two-dimensional planar and three-dimensional geometric shapes, so that users can quickly and conveniently show shapes to students.



[Ruler]

The [Ruler] tool eliminates the need for users to use an actual ruler and can also be used when a class is taught in [Note].



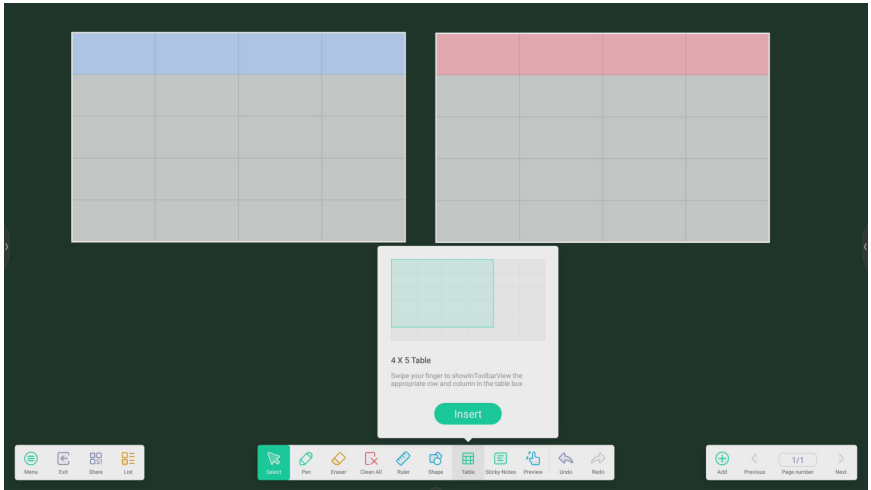
[Sticky Notes]

The [Sticky Notes] tool of [Note] simulates real-life scenes, pins important information on canvas for users to see, and can also be used as a brainstorming tool.



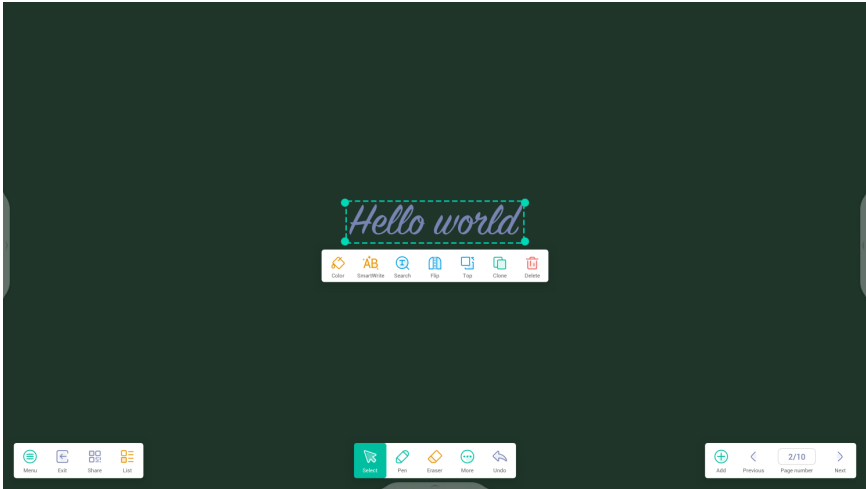
[Table]

[Note] provides a feature for creating and displaying multiple tables at the same time.



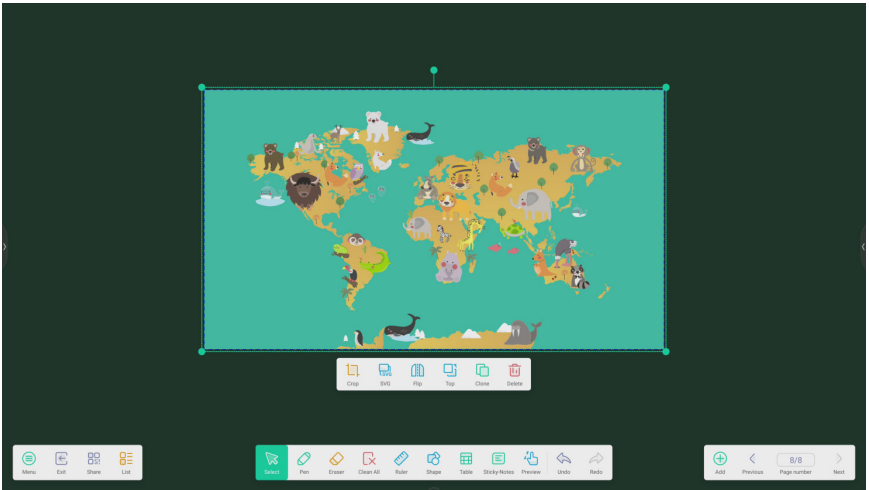
Extended Pen Features

Select handwritten text to intelligently recognise handwriting as a font. Users can also search for and mirror handwriting.



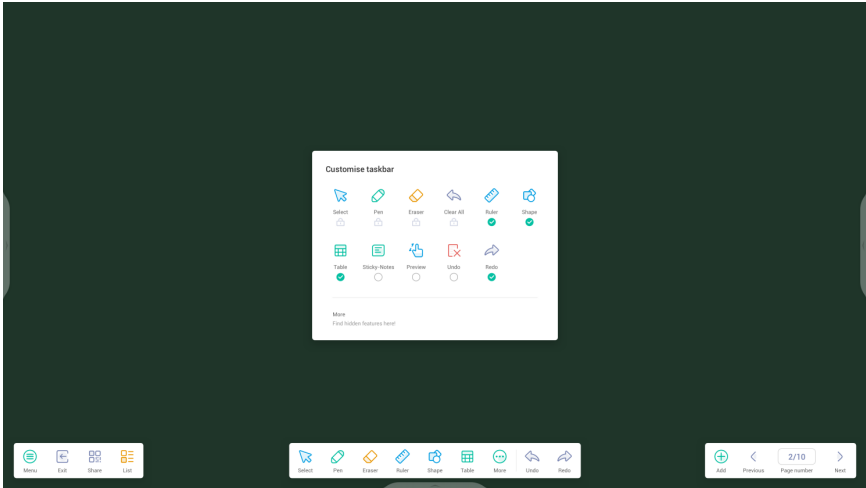
Extended Image Features

Select an image to convert it to a vector image and mirror the image.



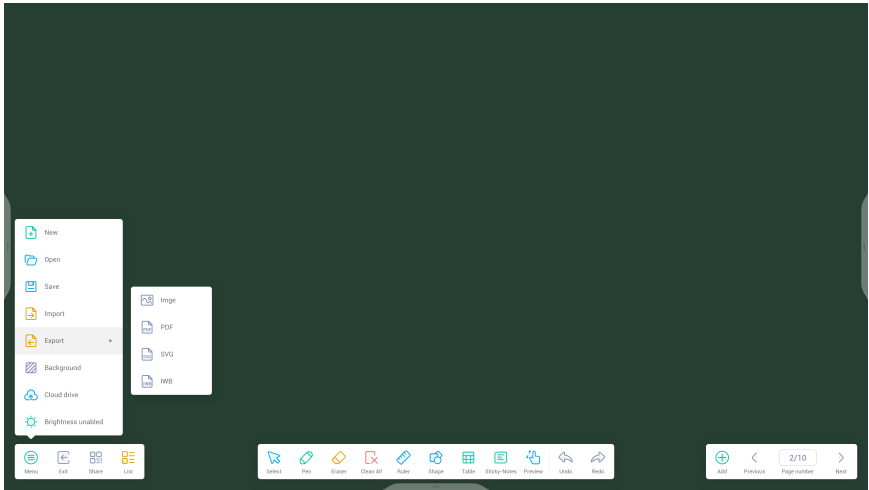
Custom Toolbar

When using the [Note] app in full screen, users can select which tools to include in the toolbar and which tools to hide from the sub-menu of [More].



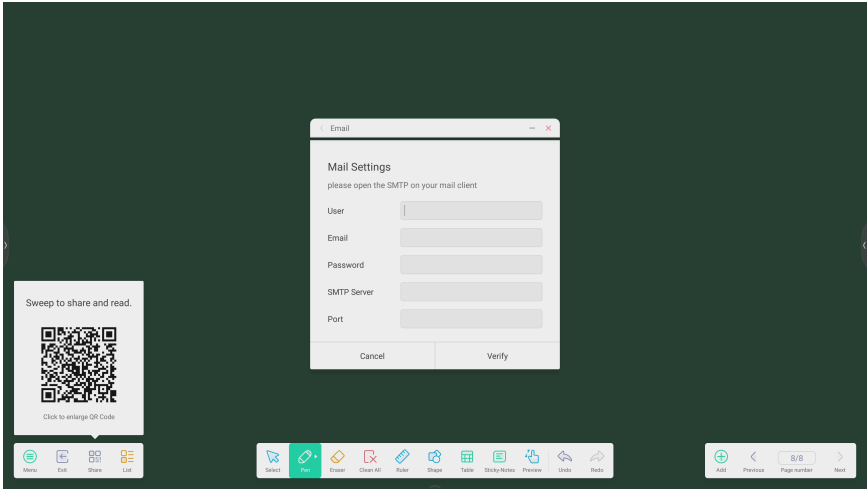
Importing and Exporting Multi-format Files

[Note] supports importing and exporting files in various formats.




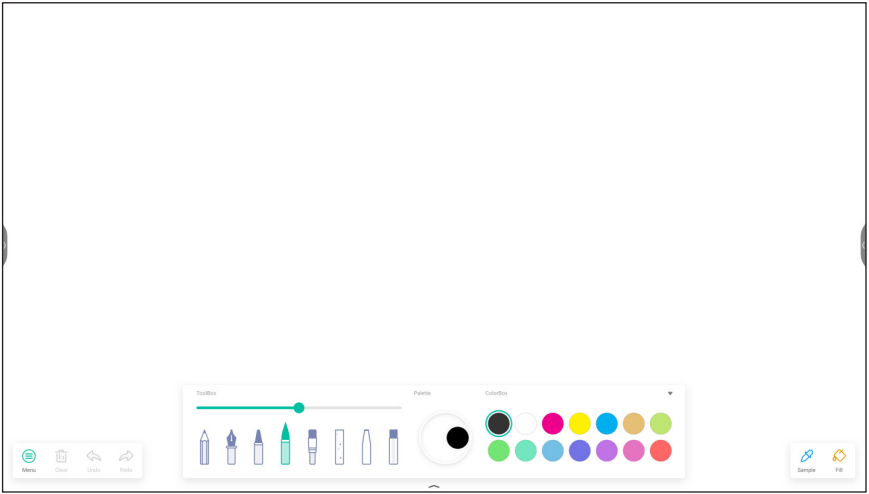
Different Ways to Save Files

In addition to saving files to your local computer or U disc, [Note] also enables users to scan files from their mobile phone to save or email them.




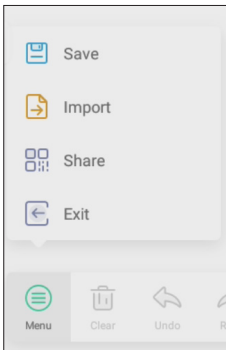
[Palette]

Click  to open [Palette].




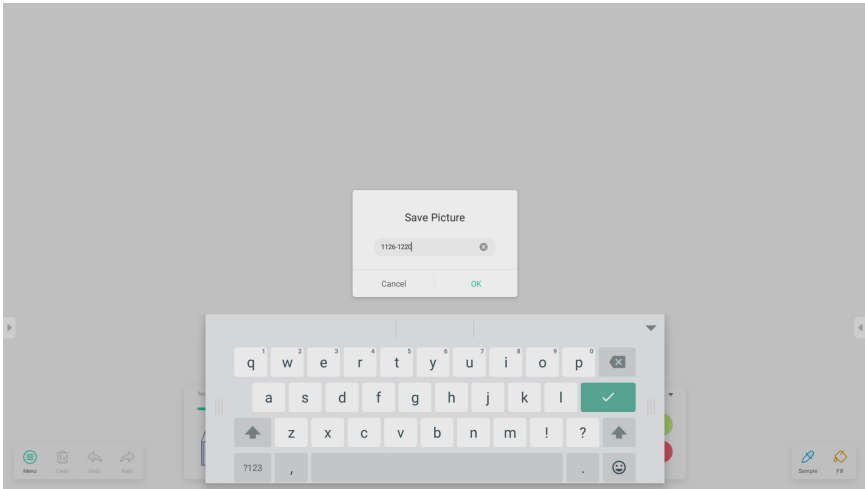
[Menu]

Click  to open [Menu].




Menu - Save

Click  Save in the [Menu] window and select a location in which to save the file.
Next, type in the file name.




Users can now click [OK] to save work in the [Palette] to the local memory.

Menu - Import

Click  in the [Menu] window to import images to the [Palette] app. The imported image can be used as the background for the current page.




Menu - Share


Click  **Share** in the [Menu] window to generate a QR code. Your work can then be shared in the palette with other users.




Menu - Exit

Click  **Exit** to exit the [Palette] app. Any unsaved work will be lost.

[Clear]

Click  to clear all content on the page.

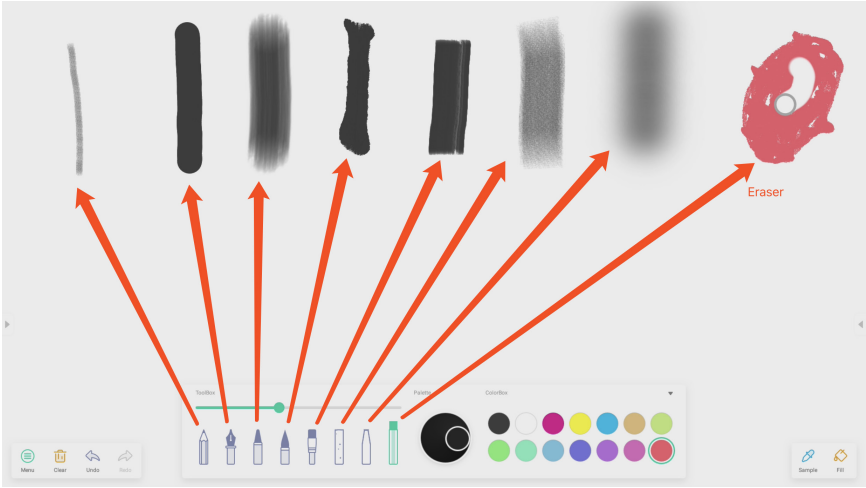
[Undo]

Click  to return to the previous step.

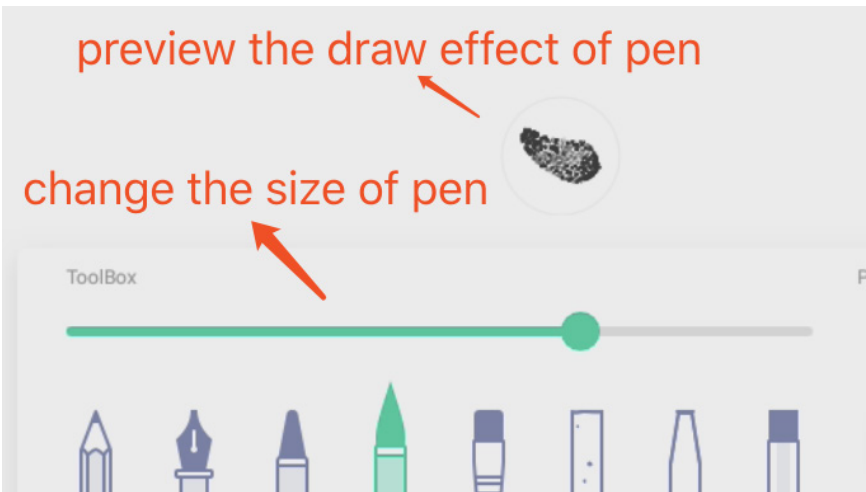
[Redo]

Click  to restore the step.

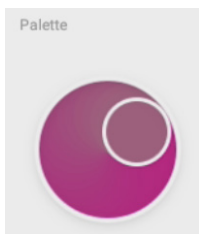
Pen



Pen Stroke Slider

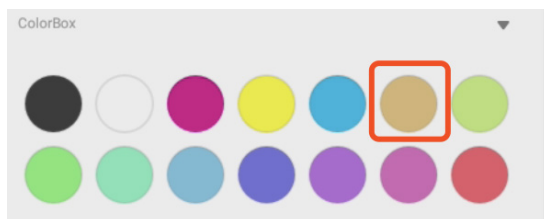


[Palette]



The [Palette] can be used to create custom colours that are not included in [Color Box].

Step 1. Click a colour in [Color Box]. See the example below.



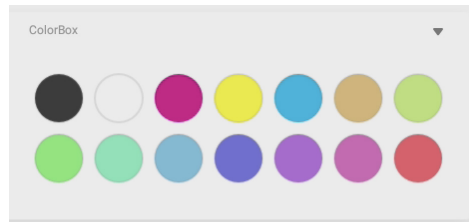
Step 2. Drag the roller clockwise in [Palette].



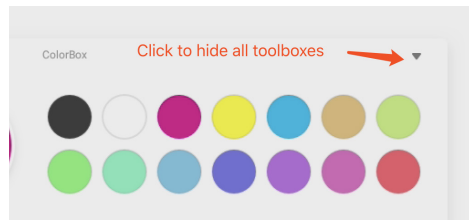
Repeat steps 1 and 2 to obtain a colour not included in [Color Box].



Colour Selector

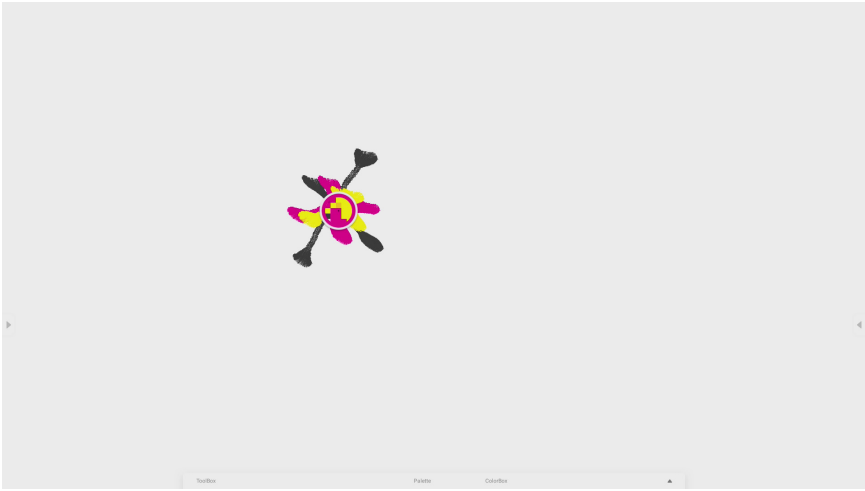



Hiding or Displaying the Toolbar

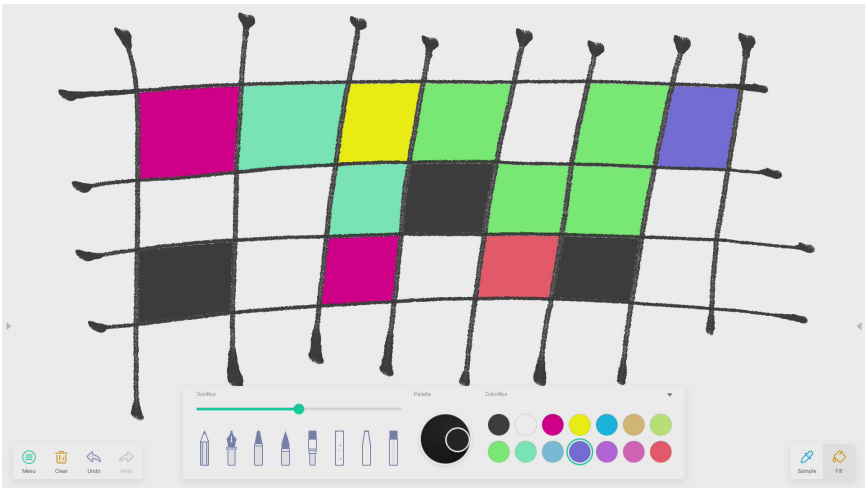


[Sample]


Click  to click a colour in the workspace.

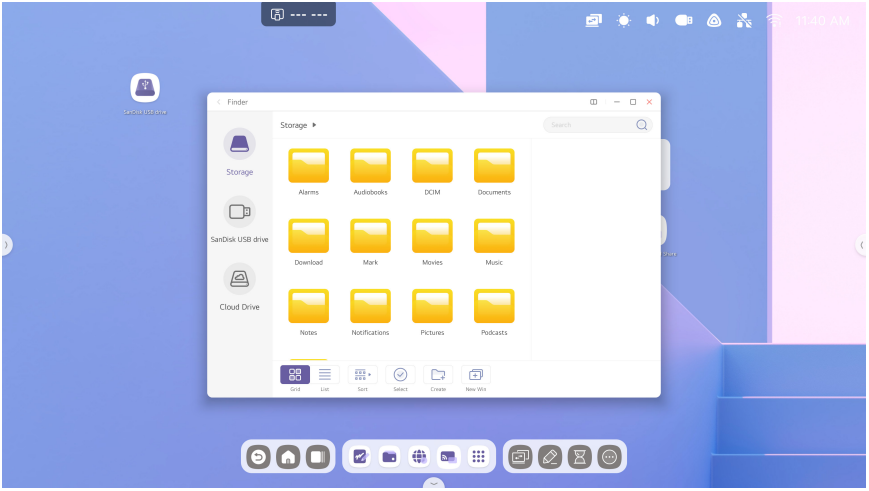
**Fill**

Click  to switch from Pen mode to Fill mode. In this mode, users can select a colour in [Color Box] and fill a closed area with the colour.

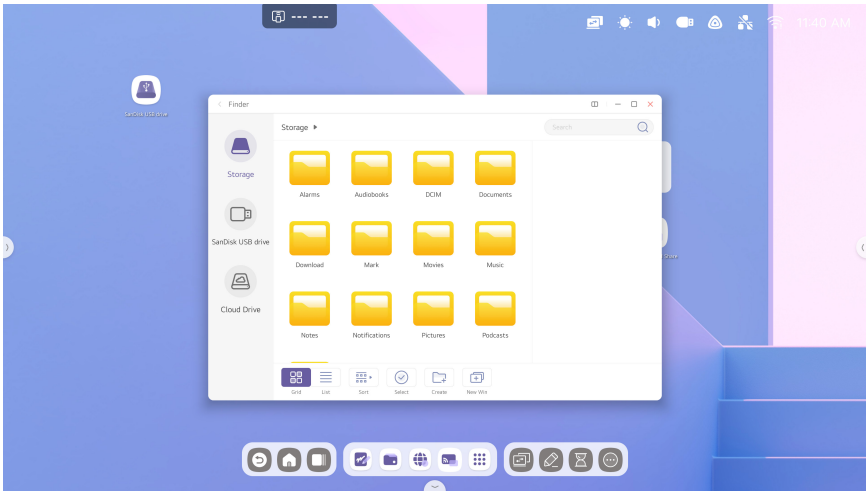


[Finder]

Click  to open [Finder].



[Storage]

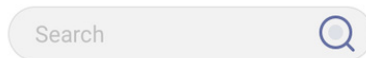



Users can explore resources stored by category in the local storage, including documents, whiteboard data (pages saved on the whiteboard and quick screenshots), videos, pictures and audio.

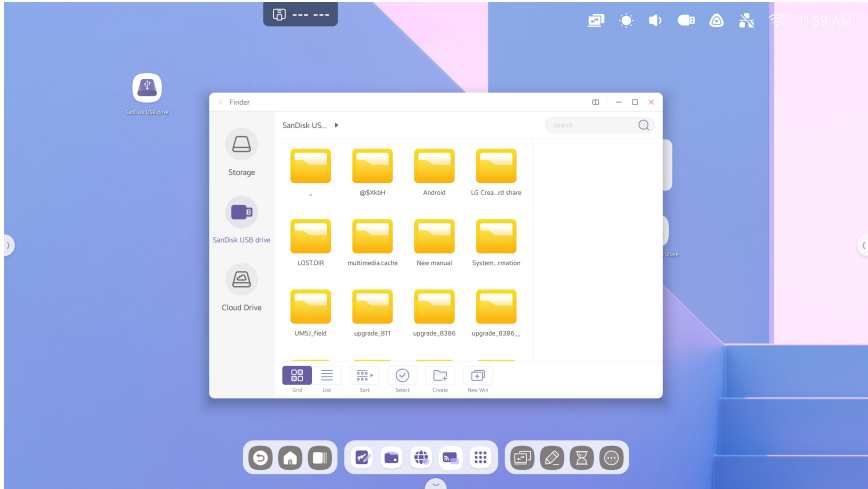
Back

Click the < button to return to the previous page.

Search

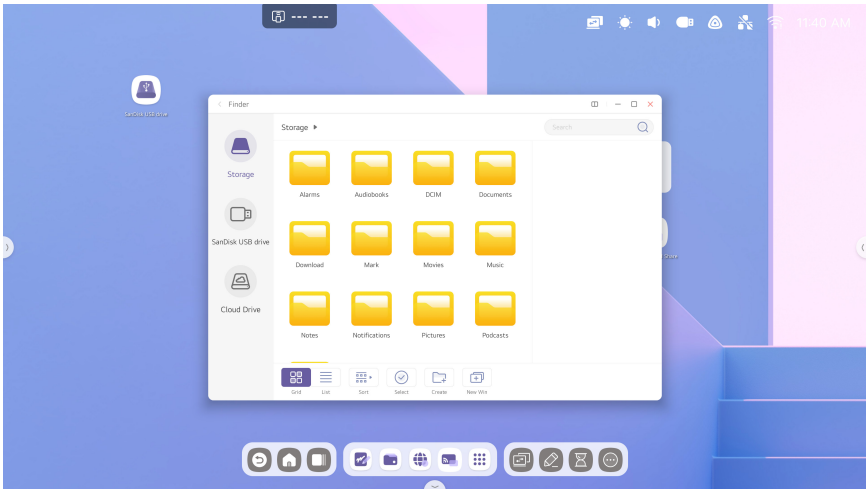


In the input box on the upper-right corner of the interface, type the name of the resource you wish to search for and click  to search. For example, a resource named "word" can be located by typing "word".

[USB]

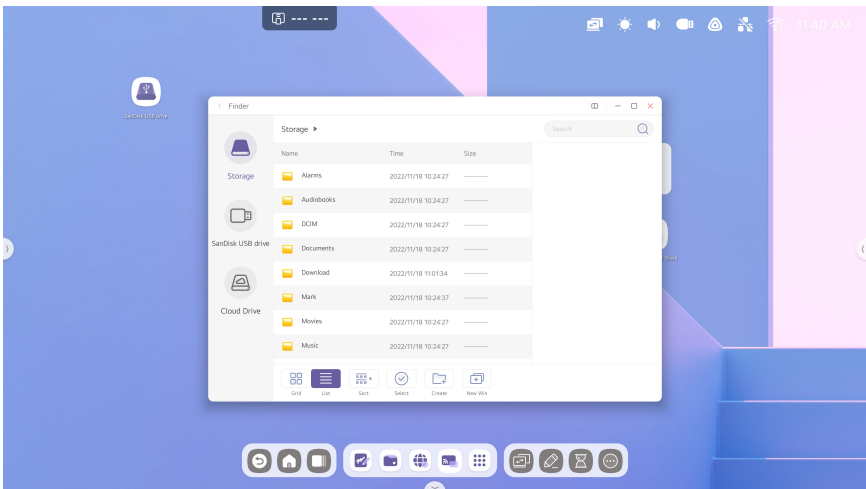
Users can explore resources stored by category in [USB], including documents, whiteboard data (pages saved on the whiteboard and quick screenshots), videos, pictures and audio.


[Grid] View

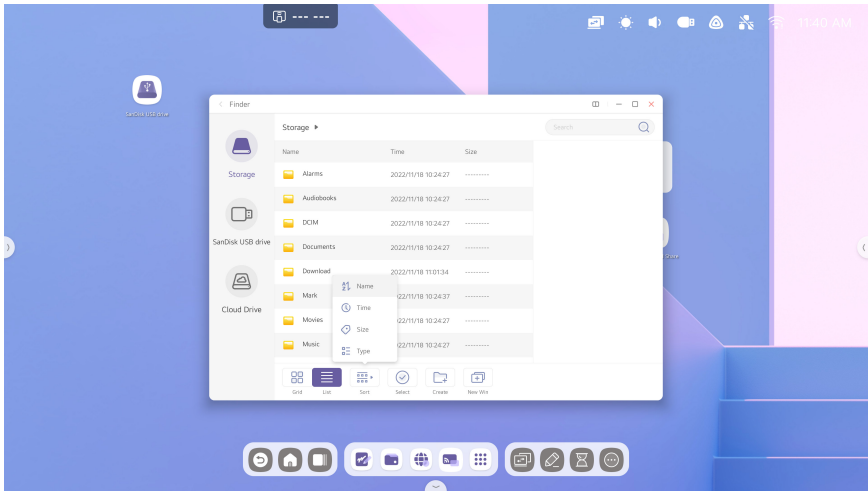



Click  to display resources in the grid view. By default, resources are displayed in this view.

[List] View




Click  to display resources in the list view.


[Sort]

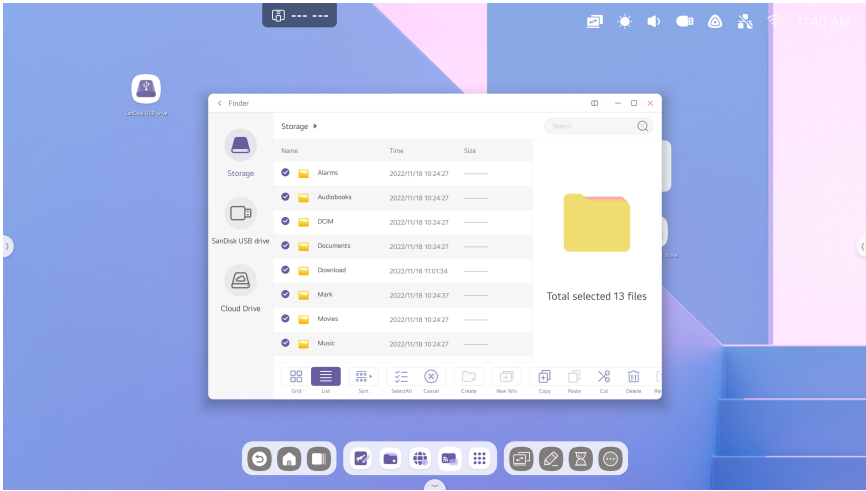
Click the  button to open the menu, as shown in the figure. Resources can be sorted by name, type, size and time. By default, resources are sorted by name.

[Select]

When you click the  button to switch to , a selection box appears in the upper-left corner of the resource. Resources can then be selected as required.

Select All]

Click the  button to select all resources in the current directory.




Click  to cancel the selection.

Copy

When a resource is selected, the Copy button is displayed. Click  to copy the currently selected resource.


Paste

Once a resource has been copied or cut, the  button can be used. The copied or cut resource can be pasted to the specified location as required. A resource can only be pasted when the default folder displays all resource locations.


Cut

When a resource is selected, the Cut button is displayed. Click  to cut the currently selected resource.

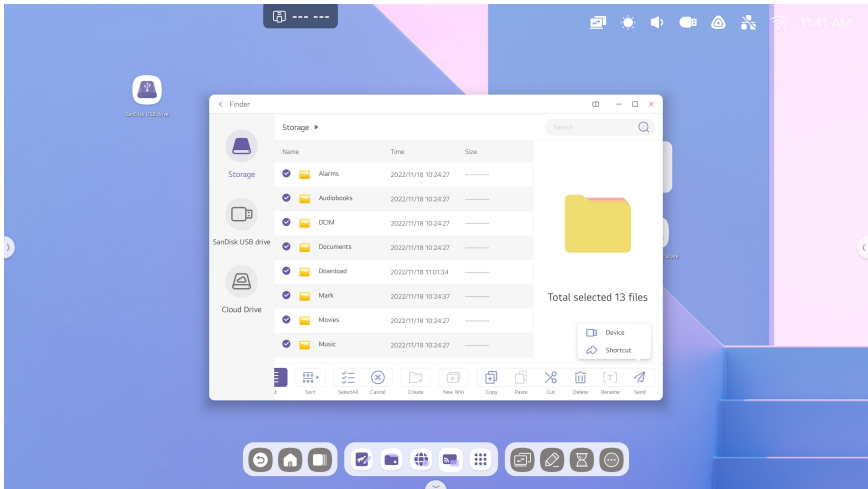
How to Delete


Click  to delete the selected resource.

Rename

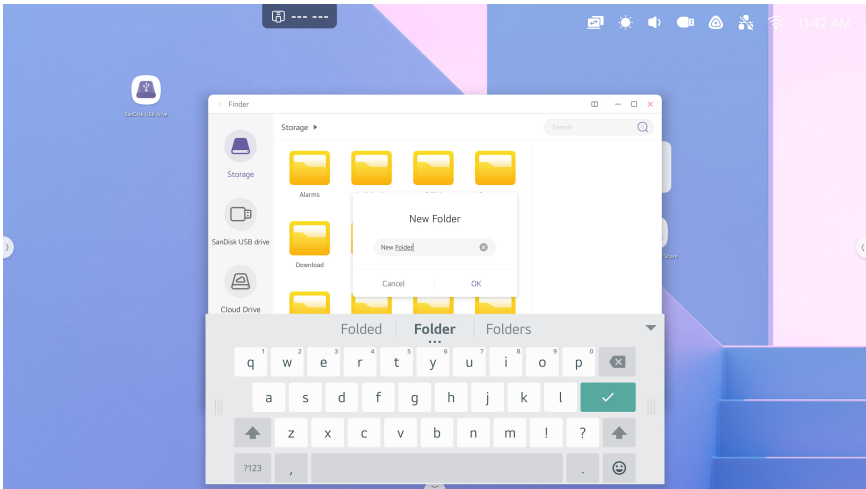
Click  to rename the selected resource.

Other Features




Click  to display the [Send To] button. The selected file can be sent to the destination folder.

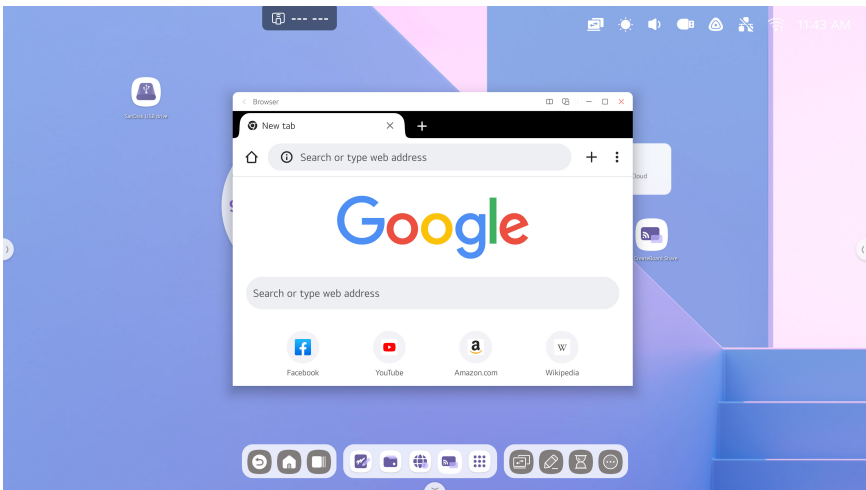
[Create]



Click [Create] to create a new folder in the current directory.

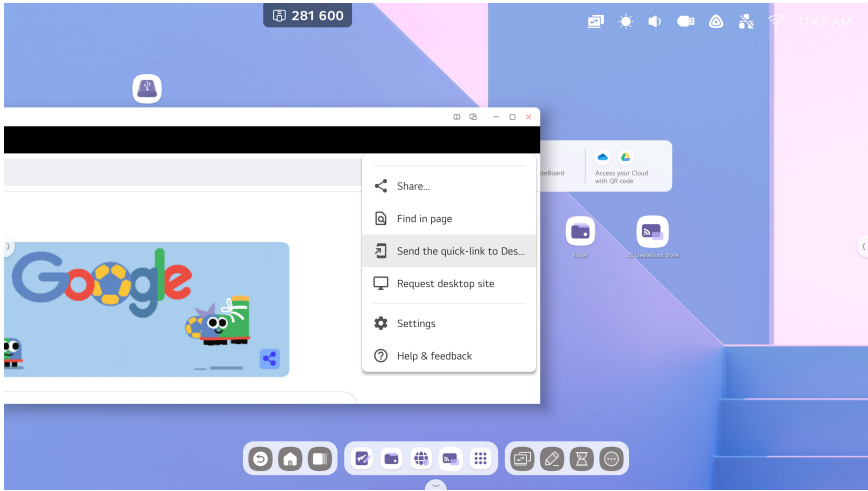
[Browser]

Click  to open [Browser].




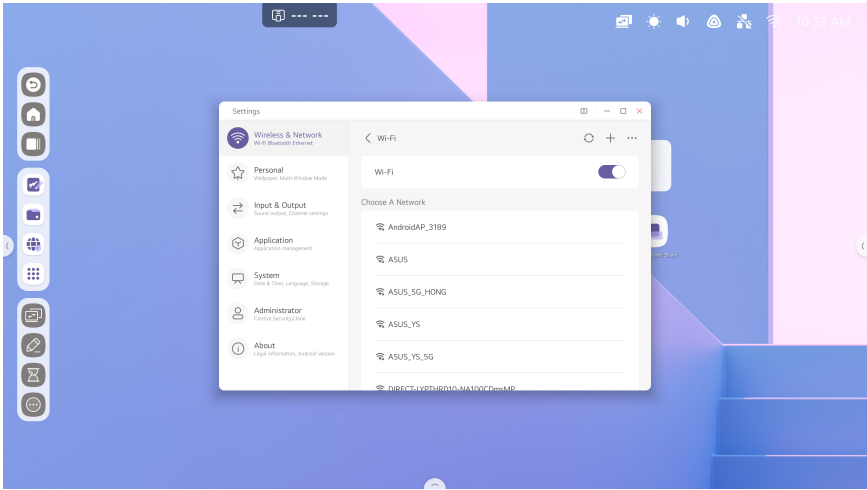
Long press an image or text, and then drag it to [Note].

In [Browser] > [More Settings], click **Send the quick-link to Desktop** to add a quick link to your desktop.

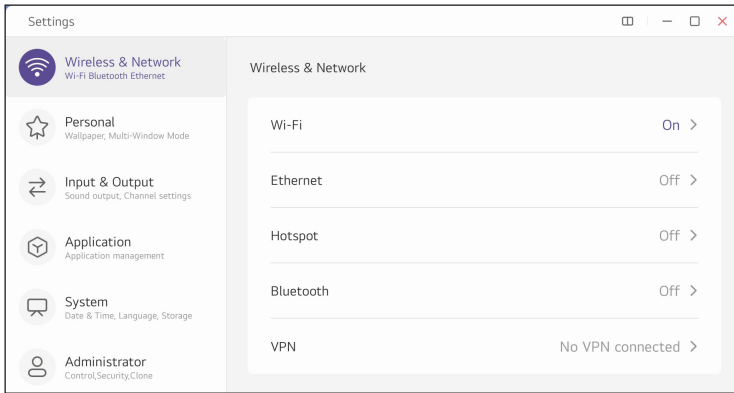


[Settings]

Click  to open the [Settings] menu.



[Wireless & Network]



Wi-Fi

Click the [Wi-Fi] menu to enter the [Wi-Fi] interface and manage and view [Wi-Fi] connections.

If your [Wi-Fi] network does not appear, click **+** and add the [Wi-Fi] network manually.

You can also click **...** to view the [Wi-Fi] address and install the certificate.

[Ethernet]

View and control the network status with wired network settings or manually configure the static IP and proxy settings.

[Hotspot]

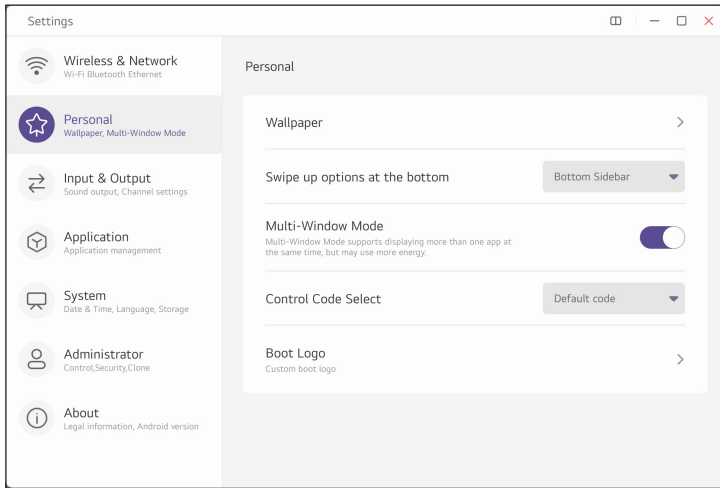
Use [Hotspot] to view and control hotspots or to manually set the hotspot name, password and frequency.

[VPN]

Add a [VPN] connection, and manage the [VPN] configuration and status in the [VPN] settings.

[Bluetooth]

Connect and set up Bluetooth devices.

[Personal]**[Wallpaper]**

[Wallpaper] supports both Stills and Dynamic wallpapers. Users can select a [Wallpaper] for their desktop.

[Swipe up options at the bottom]

The swipe up options at the bottom can be set according to the user's preferences.

- [Bottom Sidebar] : Access the system bar from the bottom of the screen.
- [Source Menu] : Displays the Common Settings menu instead of the system bar.

[Multi-Window Mode]

[Multi-Window Mode] allows you to switch to Full Screen mode or Window mode.

[Control Code Select]

Set up the protocol for network or RS232C connection.

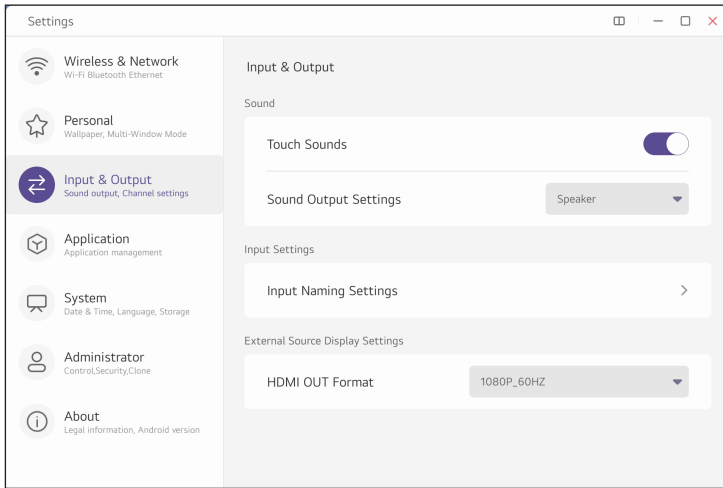
- * To use LG protocols, select LG Standard Code.

[Boot Logo]

Set whether or not to show the logo at boot time. The logo can be replaced with any desired image.

- * The default boot logo is an LG logo.

[Input & Output]



[Touch Sounds]

Set whether or not to enable [Touch Sounds] on your device.

[Sound Output Settings]

Use these settings to configure the sound output.

[Input Naming Settings]

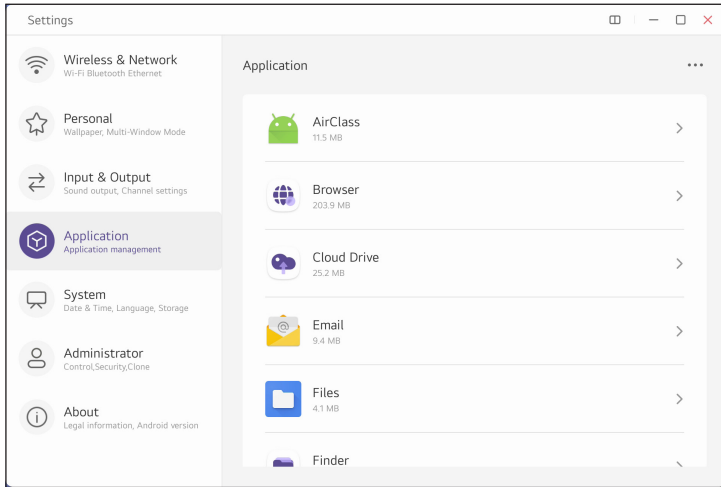
Use these settings to enable the input naming feature. Users can customise the input name and apply it to the OSD menu and input display.

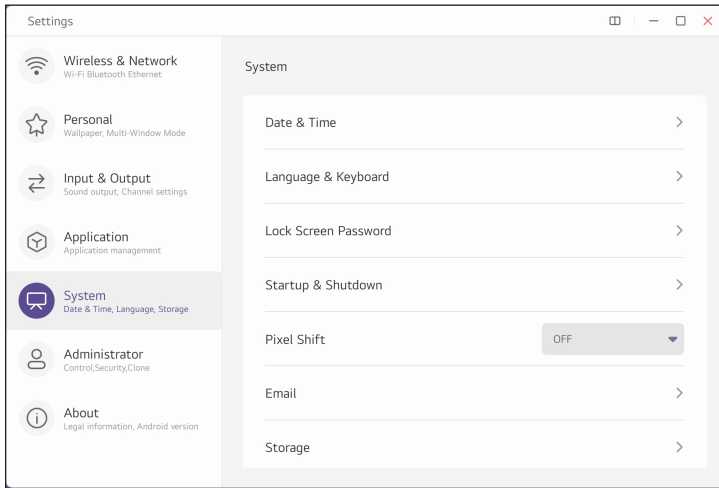
[External Source Display Settings]

Use [External Source Display Settings] to set the HDMI OUT resolution.

[Application]

View and manage the applications installed on your device and configure additional system settings and display options. The default settings of the application can also be restored.



[System]**[Date & Time]**

Set date and time options, such as 24-hour format, network time, date format and time zone.

[Language & Keyboard]

Configure language and keyboard settings.

Users can view currently supported input methods for all devices in [Virtual Keyboard]. These include Android's basic input method, Google Pinyin input, Zhuyin input and Korean input methods. Enable or disable a method using the Enable/Disable button on the right.

[Lock Screen Password]

Users can set, change and clear the screen lock password.

If no screen lock password has been set, users can only set a screen lock password.

The screen lock password must be a four-digit number. Enter and confirm the password to set the screen lock password.

Once the screen lock password has been set, it can be cleared and changed. To change the screen lock password, enter and confirm the current screen lock password and then reset it. To clear the screen lock password, simply enter the current screen lock password.

[Startup & Shutdown]

- [Startup channel] : Set the input to use when booting up the device.
- [Standby After Startup (Black Screen)] : Set the device to wait in Standby mode on bootup. (The power is on, but the screen is not turned on.)
- [Auto Power Off] : The power is automatically turned off when there is no external input or touch action for four hours.
- [Wake On Lan] : Turn on the device remotely using the network.
- [No Signal Power Off] : The power is automatically turned off if there is no external input or touch action for the time set by the user.
- [DPM (Display Power Management)] : The power is automatically turned off if there is no external input or touch action for the time set by the user. It automatically turns on when an external input is connected to the device.
- [Sleep timer] : The power is turned off if there is no action for the time set by the user.
- [Power Off Reminder] : For a scheduled power off, a pop-up text is displayed to remind the user.
- [Add Schedule (ON)] : Add a scheduled day and time at which to turn on the device.
- [Add Schedule (OFF)] : Add a scheduled day and time at which to turn off the device.

[Pixel Shift]

Shift pixels based on the settings.

[Email]

Users can log in to a unique email account that supports the SMTP protocol in the [Email] module.

[Storage]

Check the memory area of the system, including internal storage and external storage devices. An external storage device needs to be connected first to be displayed (e.g. USB disc). The storage device can be ejected by clicking the icon.

[System Update]

In the [System Update] module, the version information of the current system and the status of system updates can be viewed. When a new system is released, the [Check Update] button can be used to find updates and download the new system.

[Reset Factory]

Clear data and reset the settings to restore the factory settings.

The internal memory usage, including memory used, can be viewed by [System], [Apps], [Photos], [Files], [Videos] and [Audio].

[Security]

Credential Storage

- View all trusted computers and user certificates, control the activation status of those certificates, and view the details of each certificate.
- Certificates can also be managed by installing and removing a certificate.

Mode

- USB Lock : Lock the USB port of the device to prevent the device from recognising a USB drive, even if it is connected.
- Mode: Turn on Secure mode to disable the Cast feature and block screen sharing.

Password

- Set, change and clear the password for entering the [Security] menu.

[Embedded OS]

If [Embedded OS] is disabled, it can be used only with external input except for Android OS (input).

[Unknown sources]

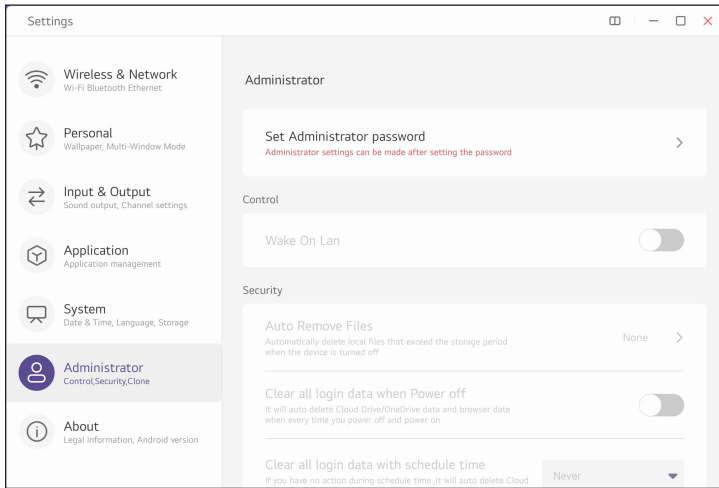
If [Unknown sources] is enabled, it is possible to install third-party apps other than the pre-installed apps on the product.



CAUTION

- Proper installation and operation of third-party apps cannot be guaranteed.

[Administrator]



[Change password]

The administrator can access the menu by entering the password and can set sub-items. After setting the initial password, the password can be changed.

[Wake On Lan]

The [Wake On Lan] function can be enabled/disabled.

[Auto Remove Files]

The administrator can set the period and files to be deleted. The files are automatically deleted when the power is turned off.

[Clear all login data when power off]

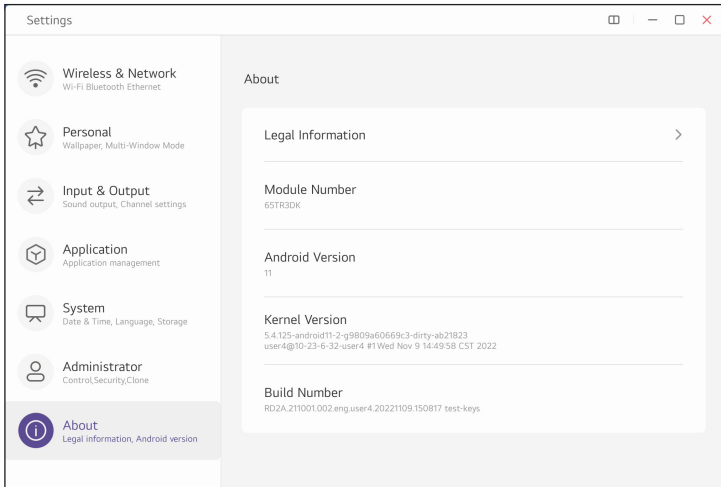
If this function is enabled, the linked Cloud Drive account and browser data are automatically deleted when the power is turned off.

[Clear all login data with schedule time]

According to the schedule specified by the administrator, the linked Cloud Drive account and browser data are automatically deleted.


[About]

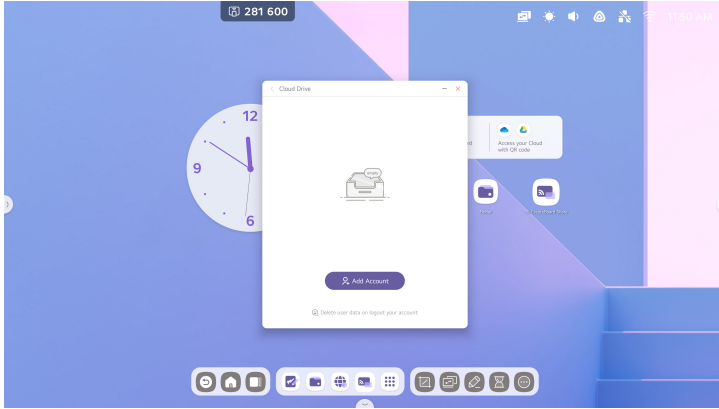
Users can view the legal information and version information of the device.




[Cloud Drive]

Integration services and data management with Cloud using Google Drive or One Drive are possible.

Click  to open [Cloud Drive].



[Add Account]

Click  to add an account and select a drive type.



[Use the default account]

- Use the default account

Select [Use the default account] to set the default account.

[Use the default file name when save]

- Use the default file name when save

Select [Use the default file name when save].




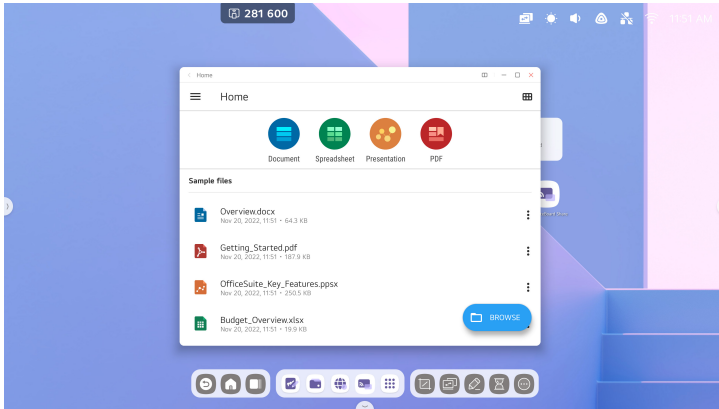
2020-12-01-06-27-43.png

The default file name is in the year-month-day-hour-minute-second format.

[OfficeSuite]

Files can be viewed and edited in MS Office and PDF format.

Click  to open [OfficeSuite].

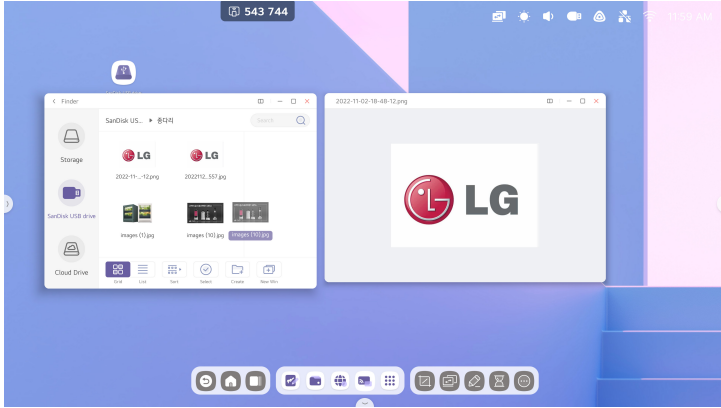



[Photo]


1 Click an image to open [Photo].




2 Drag the image from [Finder] to [Photo] to open it.



Click the  button to rotate the current image 90 degrees.

Click the  button to add the current image to the [Note] app.

Click the  button to set the current image as your wallpaper.

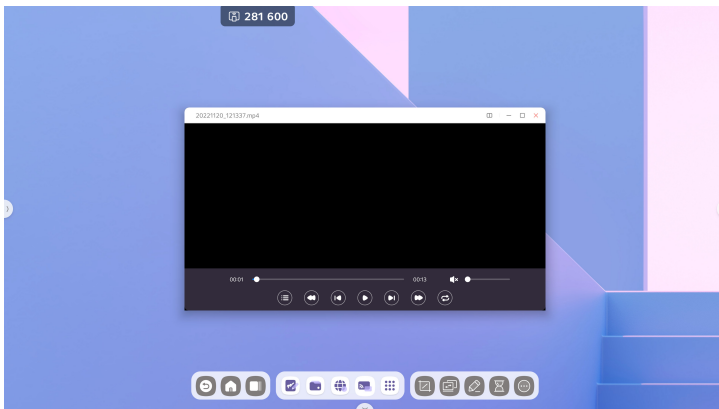
[Music]

Click a music file to open [Music].



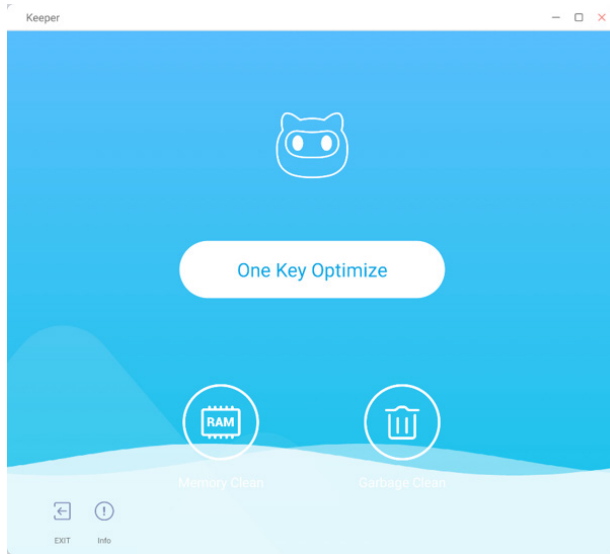
[Video]

Click a video file to open [Video].




[Keeper]

Click  to display the [Keeper] interface, as shown below. Users can optimise memory, clean up garbage and detect system usage on intelligent tablet computers.



[One Key Optimize]


Click  to clean up disc garbage and detect system usage to optimise memory.

[Memory Clean]

Click  to optimise memory.

Click [Optimise Again] to optimise it again.


[Garbage Clean]

Click  to clean up the recycle bin.


Click [Clean Again] to clean it up again.

Version information


Click  to view the system version information.

Click  again to close the window.

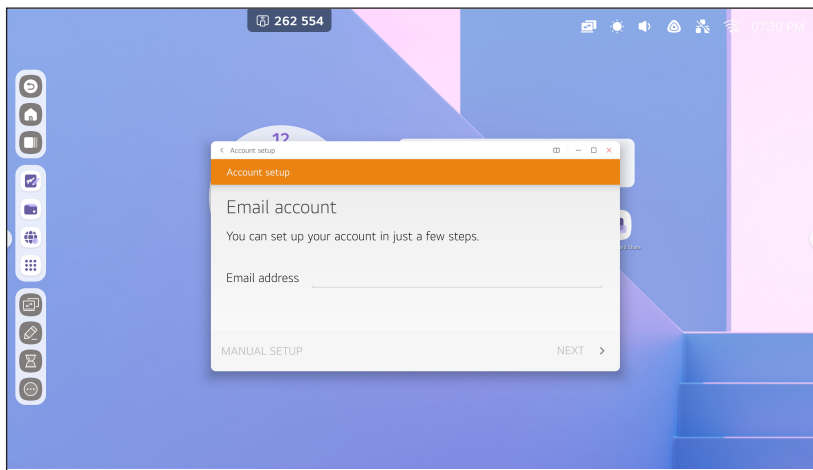
[Exit]

Click  to exit [Keeper].

[Email]

Click  to open the [Email] app.

Users can use email services that support POP3 and IMAP protocols and log in to their own email account.



[LG ConnectedCare DMS]

Click  to open the [LG ConnectedCare DMS] app.

A failure diagnosis and prediction service can be accessed by installing the [LG ConnectedCare DMS] (failure diagnosis) solution.

How to Install

Install the [LG ConnectedCare DMS] solution.

- 1 [Enter Account Number]: Enter the 6-digit account number to install the [LG ConnectedCare DMS] solution.
Account Number: This is the assigned number when registering the [LG ConnectedCare DMS] solution. When you enter the account number, you will receive the corresponding account name.
- 2 [Confirm Account Number]: Displays the account number and corresponding account name, and checks the validity of the account number.

If an account number is registered, the corresponding account name is displayed, after which you can proceed with the installation of the [LG ConnectedCare DMS] solution.

If the account number is not registered, the account name is displayed as Unknown, in which case you cannot proceed with the installation.

[On] / [Off]

Enable/Disable the [LG ConnectedCare DMS] solution.

[Account]

Displays the account number and name of the currently connected user.

[Version]

Displays the version of the [LG ConnectedCare DMS] solution.

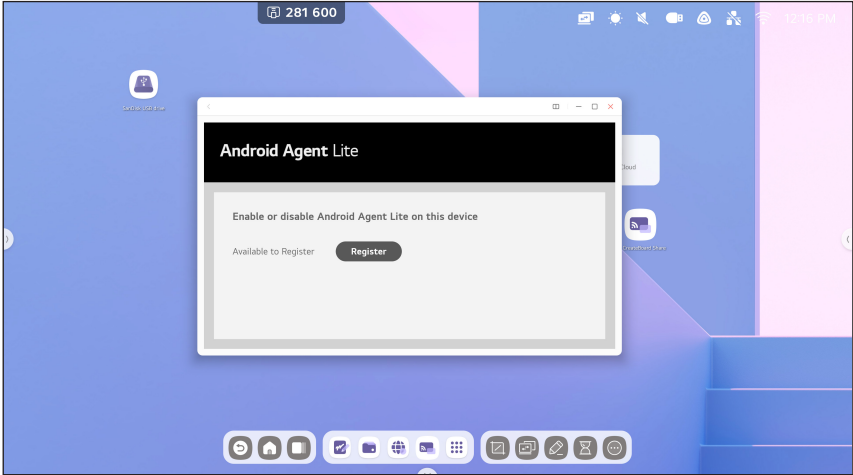
[Server Status]

Displays the connection status between the set and server.

Content	Description
[Connected]	Indicates that the set and server are integrated.
[Not Connected]	Indicates that the set and server are not integrated.
[Waiting for Approval]	Displays the status of waiting for a response from the server.
[Rejected]	Indicates when the server rejects the integration.

[Reset]

Resets the [LG ConnectedCare DMS] information that has been set up.



[LG CreateBoard Lab]

Click  to open the [LG CreateBoard Lab] app.

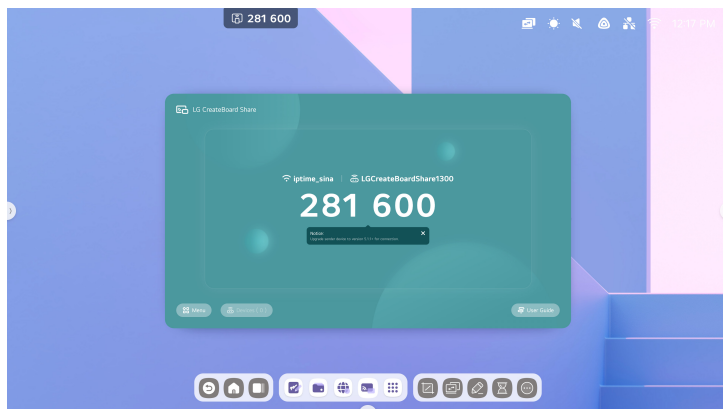
Provides the [Note] app and another writing solution. Additional functions will be provided through future app updates.

NOTE

- Refer to the separate [LG CreateBoard Lab] app manual.


[LG CreateBoard Share]

These tools are designed to support seamless screen sharing and collaboration.



Content	Description
Screen copy	If you start sharing the screen, your device becomes the master device with which to share the screen. If you join screen sharing, your device becomes a slave device, sharing the screen of the master device.
Allow this device to be discovered	When this option is enabled, users can search the server from the sender device.
Permission Mode	When this mode is enabled, all devices require permission to cast.
Support Chromecast	When this option is enabled, users can search the server from Chromecast-enabled devices.
Support Airplay device	When this option is enabled, users can search the server from Airplay-enabled devices.
Support Miracast device	When this option is enabled, users can search the server from Miracast-enabled devices.
Share screen via website	Share the screen by accessing the URL link. No separate app/programme is required.
Device Name	Change the device name of the server so that all clients can identify it.
Start automatically on boot	Allow the server application to run automatically when the device starts.
Code refresh rate	Set the time interval to change the connection code in order to prevent users from remembering it.
Floating window size	Set the size of the floating window at the top to Normal (connection code with an icon), Small (icon only), or Minimise (disabled).

[PIP]

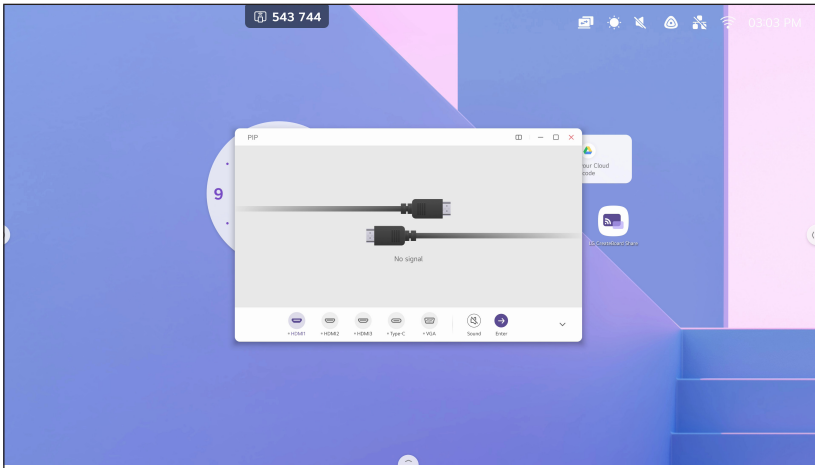
Click  to open [PIP] app.

Supported functions may differ depending on the model.

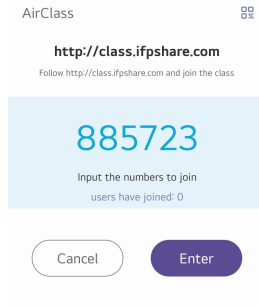
It supports the use of [PIP] function and enables users to set the external input, screen size, and volume of the sub-screen.

NOTE

- Depending on the resolution conditions of the external input signal, the sub-screen quality may deteriorate.
- If the Multi-window Mode in [Settings] menu is On, you can check the app in [All Apps], and if the Multi-window Mode is Off, you can check the app in [Small Tools].



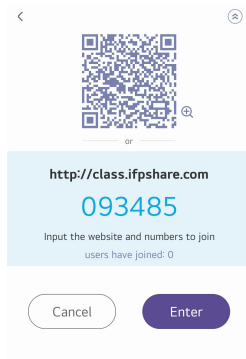
[AirClass]



Scanning a QR Code

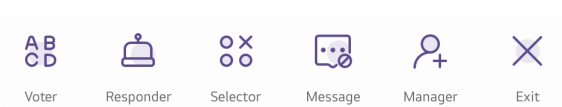
The class can be joined from a mobile phone by simply scanning the QR code. The class can also be joined by typing in a URL in the browser.

Ensure your mobile phone is on the same LAN as the IFP. The class cannot be joined from a different LAN.




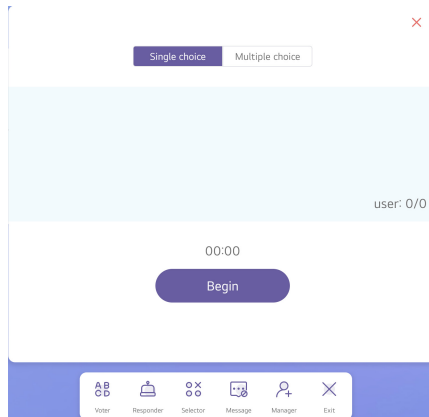
Starting a Class

Once most students have joined the class, the class can be started by clicking the [Start Class] button. A button panel is displayed, as below.



[Voter]

In the button panel, click  to start the [Voter] part. The [Voter] toolbar is displayed, as shown above.



[Single choice]

The [Single choice] button is selected by default. Students can submit only one answer to a question in this mode.

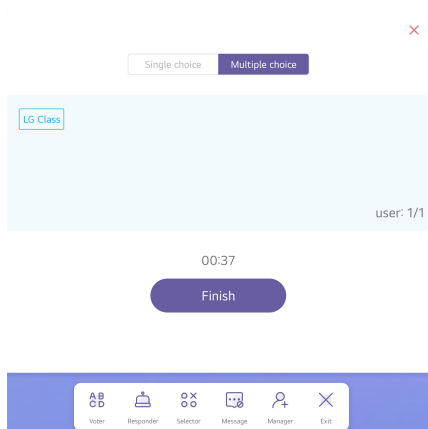
[Multiple choice]

When the [Multiple choice] button is selected, students can submit more than one answer to the question.

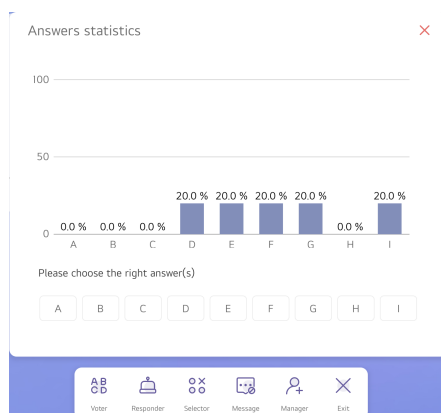
[Begin]

Click [Begin] to begin answering the questions. The name of the student who answered the question turns blue. Click the name item to display the names in a pop-up window.

Students can repeatedly submit their answers until the [Finish] button is clicked. However, only the most recently submitted answer will be accepted when the session is finished.

**[Finish]**

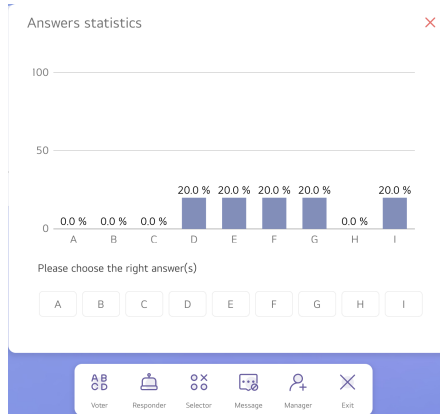
Click [Finish] to finish answering the questions. The [Answer Statistics] page can then be accessed in full screen.



Answer Statistics

Choose the correct answer and calculate the accuracy. The incorrect answer bar is displayed in red.


When you click the question bar, the names of the students who vote for the answer are displayed in a pop-up window.

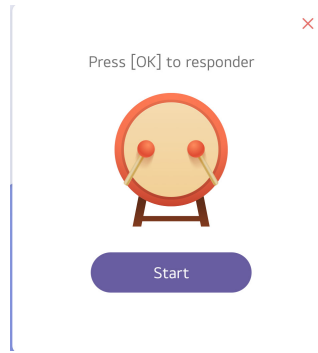


Exit

Click **X** in [Answer Statistics] to exit the mode.


[Responder]

Click the  button in the button panel to access the Responder part.

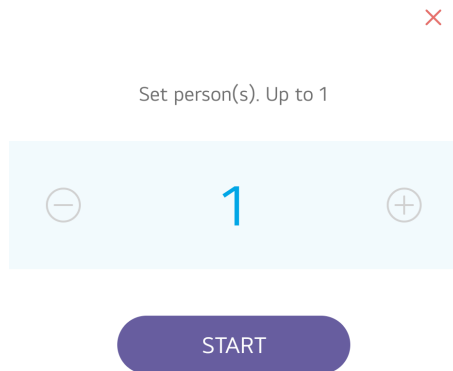
**[Start]**

Click the [Start] button to start a [Responder] session. Students can join the Responder session by pressing the [OK] button on their phones.

[Selector]

Click the  button in the button panel to access the Selector part. Users can select one or more students at random and ask them to answer the question.

The Selector session can only be started when there is more than one student in the class.





[Start]

Set the number of people to be selected by clicking the [+] or [-] button. Click [Start] to start the selection, or click ✕ to stop.

[Reset]

Click [Reset] to restart the Selector session.

[Message]

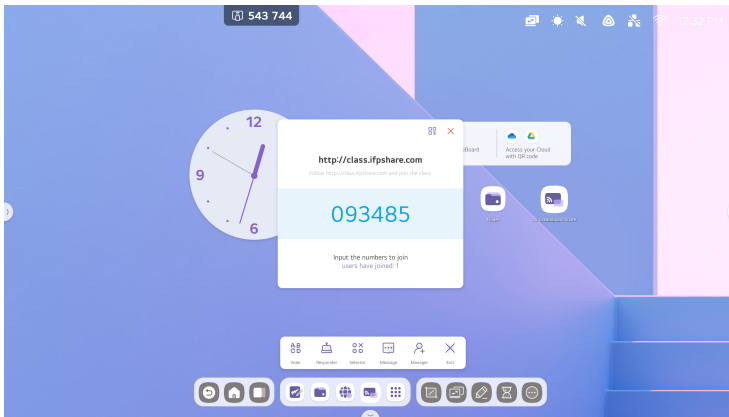
Click the [Message] button to enable or disable the Message part. When the Message feature is enabled, the  button icon is displayed. The icon changes to  when the feature is disabled.


Once the Message feature is enabled, students can post a message from their phones. Messages are updated in real time in the IFP.

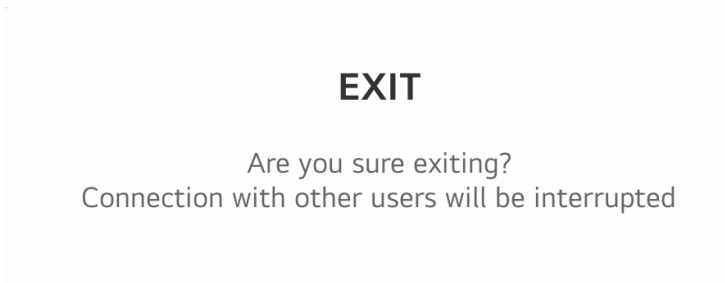


[Manager]

To make it easier for students to join the class, click the  button in the button panel to display the QR code.

**[Exit]**

Click the  button in the button panel to exit the app. A confirmation dialogue box is displayed, as shown below. Click [Cancel] to close the dialogue box, or click [Exit] to confirm the exit.



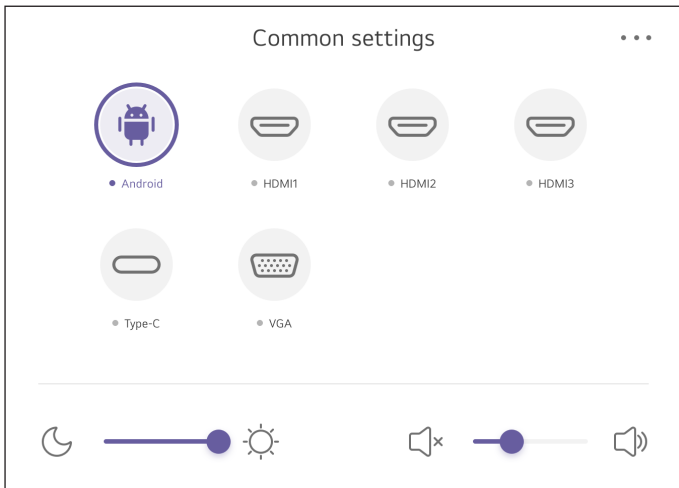
Small Tools

Use these tools to provide a seamless and fun learning experience for students and improve interactive learning. The default IFP OS tools include [Menu], [Annotation], [CountDown], [Capture], [Stopwatch], [Spotlight], [Freeze], [ScreenLock], [Record] and [Split-screen].

[Menu]

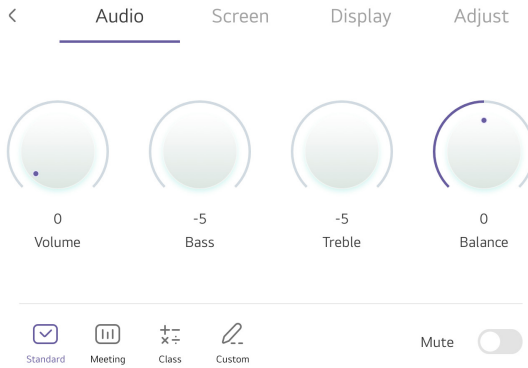
[Common Settings]

View all input sources, such as PC, Android, HDMI, Type-C and VGA.




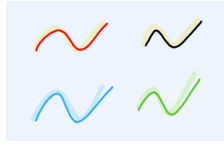
Advanced Setting

View more settings, such as [Audio], [Screen], [Display] and [Adjust].



[Annotation]



Add annotations on the apps, videos, websites, documents, or images.

Content	Description
[Select]	It is changed to the touch function instead of the annotation function.
[Pen]	  <p>Click to switch to pen mode and click again to specify the colour and thickness of the pen.</p>
[Brush]	Click to switch to brush mode and click again to specify the colour and thickness of the brush.
[Clean]	Clear the annotations on the screen.

Content	Description
[Save]	Save the current annotations and content on the screen to the image in the repository. Once they are saved, a dialogue box will be displayed. Click the [Cancel] button to close the dialogue box, and click the [Open] button to go to [Finder].
[Undo]	Return to the previous step.
[Redo]	Restore the step.
[Finder]	Open the [Finder] app to view the file.
[Insert]	Add the annotated screen to the [Note] app.
[Share]	View the screen on mobile via a QR Code.
[Cloud]	View the screen on the cloud drive using your cloud account.
[Close]	Ignore the annotations and close the tool.

[CountDown]

Use this tool to specify a desired time after which to receive a notification.

Content	Description
	Click the button to close the tool.
[Ring]	When [RING WHEN TIME OVER] is selected, the timer rings to notify users when the time is up.
[Start]	Click the button to start the countdown.
[Pause]	Click the button to pause the countdown.
[Reset]	Click the button to reset the countdown.
	Click the icon to show the timer in full screen or restore it.
Shrink	Click anywhere outside the timer to shrink it. Click again to restore it.

[Capture]

Captures screenshots of everything on the screen, including content from apps, websites and videos.

Content	Description
[Freedom]	A default size option. Capture a custom screenshot with a default initial size.
[Full]	Click the button to change it to full screen size.
[Window]	Click the button to focus on the largest window and change it to the size of the window.
[Save]	Save the image to the repository.
[Insert to Note]	Click the button to add the screenshot directly to [Note].
[Mail]	Click the button to send the screenshot via email.
[Exit]	Click to exit Screenshot mode.

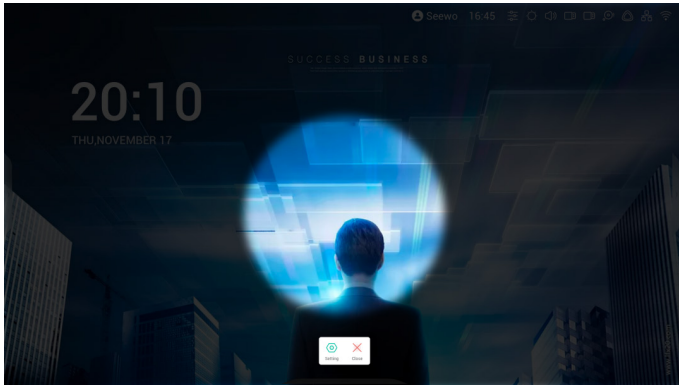
[Stopwatch]

Use this tool to count seconds from 0 to measure the elapsed time.

Content	Description
✕	Click the button to close the tool.
[Start]	Tap the stopwatch to start measuring the time.
[Pause]	Click the button to pause the measurement.
[Lap]	Click the button to record and display multiple laps in the list.
Shrink	Click anywhere outside the stopwatch to shrink it. Click the button to restore it.

[Spotlight]





Focus on a specific area of the screen.



[Freeze]

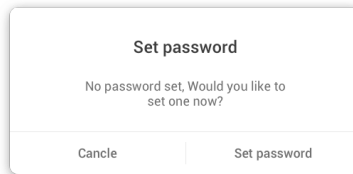
Pin and zoom in/out of the current content on the screen.



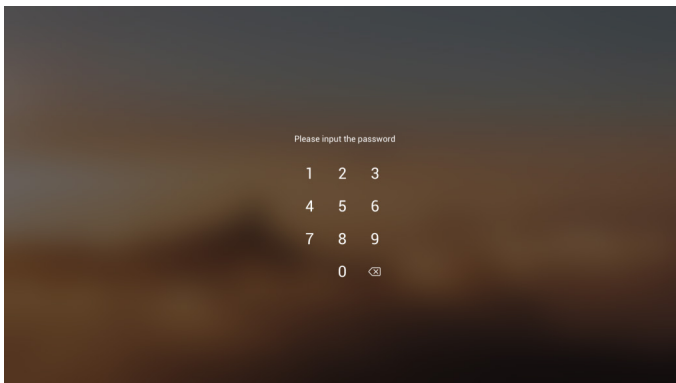
Content	Description
[Zoom +]	Click  to enlarge the screen.
[Zoom -]	Click  to reduce the screen.
[Full-screen]	Click  to restore the original screen size.
[Close]	Click the  button to exit the mode.

[ScreenLock]

Lock the screen with [ScreenLock], and unlock it by entering the password set in [Settings].



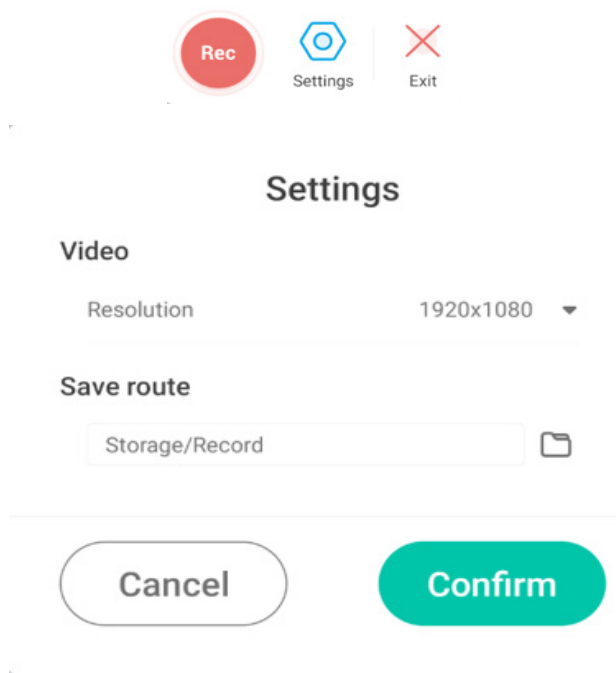
The screen will be locked once the password is set. To unlock the screen, enter the password.



[Record]

Record the screen itself.

Users can set the resolution and path to save the recording.



[Split-screen]

Two apps can be used on one screen by splitting the screen into two.

Apps that support split-screen function: [Settings], [Finder], [Browser], [Keeper], [Note], [Palette]

NOTE

- If the Multi-window mode is off, you can check and run it from [Small Tools].

Media Specifications

Video

File Extension	Codec		Max Bitrate
	Video	Audio	
.3g2	H.263	AAC, AMR_NB	Requirements: Max Resolution: 1920 x 1088 30 Fps, 5 Mbps
.3gp .avi	H.264		Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	H.263		Requirements: Max Resolution: 1920 x 1088 30 Fps, 5 Mbps
	Mpeg-4		Requirements: Max Resolution: 1920 x 1088 30 Fps, 50 Mbps
	H.263	Mpeg1/2 Layer3, AAC, LPCM	Requirements: Max Resolution: 1920 x 1088 30 Fps, 5 Mbps
	H.264		Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	Mpge-1		Requirements: Max Resolution: 1920 x 1088 30 Fps, 80 Mbps
	Mpge-2		Requirements: Max Resolution: 1920 x 1088 30 Fps, 80 Mbps
	Mpge-4		Requirements: Max Resolution: 1920 x 1088 30 Fps, 50 Mbps
	Mjpeg		Requirements: Max Resolution: 1920 x 1080 30 Fps, 150 Mbps
.flv	H.263	Mpeg1/2 Layer3, AAC	Requirements: Max Resolution: 1920 x 1088 30 Fps, 5 Mbps
	VP6		Requirements: Max Resolution: 1920 x 1088 30 Fps, 40 Mbps
	H.264		Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
.f4v	H.264	AAC	Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
.mkv	H.264	AAC, Mpeg1/2 Layer3	Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	H.265		Requirements: Max Resolution: 3840 x 2160 60 Fps, 160 Mbps
	Vc-1		Requirements: Max Resolution: 1920 x 1088 30 Fps, 45 Mbps

File Extension	Codec		Max Bitrate
	Video	Audio	
.mov	H.264	AAC, PCM	Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	H.265		Requirements: Max Resolution: 3840 x 2160 60 Fps, 160 Mbps
	MPEG-4		Requirements: Max Resolution: 1920 x 1088 30 Fps, 50 Mbps
	MJPEG		Requirements: Max Resolution: 1920 x 1080 30 Fps, 150 Mbps
.mp4	H.264	AAC	Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	H.265		Requirements: Max Resolution: 3840 x 2160 60 Fps, 160 Mbps
	MPEG-4		Requirements: Max Resolution: 1920 x 1088 30 Fps, 50 Mbps
.vob	MPEG-2	Mpeg1/2 Layer3, PCM	Requirements: Max Resolution: 1920 x 1088 30 Fps, 80 Mbps
.mpg .mpeg	H.264	Mpeg1/2 Layer3, AAC	Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	MPEG-1		Requirements: Max Resolution: 1920 x 1088 30 Fps, 80 Mbps
	MPEG-2		Requirements: Max Resolution: 1920 x 1088 30 Fps, 80 Mbps
.ts	H.264	GAAC, Mpeg1/2 Layer3	Requirements: Max Resolution: 3840 x 2160 30 Fps, 160 Mbps
	H.265		Requirements: Max Resolution: 3840 x 2160 60 Fps, 160 Mbps
	MPEG-2		Requirements: Max Resolution: 1920 x 1088 30 Fps, 80 Mbps
	MPEG-4		Requirements: Max Resolution: 1920 x 1088 30 Fps, 50 Mbps
	VC-1 (AP)		Requirements: Max Resolution: 1920 x 1088 30 Fps, 45 Mbps
All licences required to support the specifications above must be obtained by the customer.			

Audio			
File	Format	Audio Codec	Supported Range
.aac	AAC	AAC	Sample Rate: 8 K ~ 96 KHz Bit Rate: 24 K ~ 576 Kbps
.ape	Monkey's Audio	Monkey's Audio	Sample Rate: Up to 48 KHz Bit Rate: Up to 1411 Kbps
.flac	FLAC	FLAC	Sample Rate: Up to 192 KHz Bit Rate: Up to 1411 Kbps
.m4a	ALAC	ALAC	Sample Rate: 8 K ~ 96 KHz Bit Rate: 24 K ~ 576 Kbps
.mp3	MPEG Audio Layer3	MPEG1/2 layer3	Sample Rate: 8 K ~ 48 KHz Bit Rate: 32 K ~ 320 Kbps
.ogg	Vorbis	Vorbis	Sample Rate: 8 K ~ 48 KHz Bit Rate: Up to 256 Kbps
.wav	WAV	LPCM	Sample Rate: 8 K ~ 192 KHz Bit Rate: Up to 320 Kbps
All licences required to support the specifications above must be obtained by the customer.			

Photo

File	Format	Supported Range	
.bmp	BMP	Max Resolution: 8000 x 8000 Min Resolution: 4 x 4	Requirements: Max Resolution: 8000 x 8000 Preview (Default); full screen playback not allowed
.gif	GIF	Max Resolution: 8000 x 8000 Min Resolution: 4 x 4	Max Resolution: 8000 x 8000 Preview (Default); full screen playback not allowed
.jpeg .jpg	JPEG	Max Resolution: 8000 x 8000 Min Resolution: 4 x 4	Progressive support: 4000 x 4000, Baseline support: 8000 x 8000
.png	PNG	Max Resolution: 8000 x 8000 Min Resolution: 4 x 4	

Controlling Multiple Products

Command Reference List

		Command	Data
		1	(Hexadecimal Numbers)
01	Power	30	000-003
02	Treble	31	000-100
03	Bass	32	000-100
04	Balance	33	000-100
05	Contrast	34	000-100
06	Brightness	35	000-100
07	Sharpness	36	000-100
08	Sound mode	37	000-004
09	Volume	38	000-100
10	Mute	39	000-001
11	Video Source	3A	See Video Source.
12	Aspect Ratio	3B	000-002
13	Language	3C	See Language.
14	Picture Mode	3D	000-003
15	Hue	3E	000-100
16	Backlight	3F	000-100
17	Colour Temperature	40	000-002
18	Remote Control	41	See Remote Control.
19	IR	42	000-001

Reception/Transmission Protocol

Transmission

(Start)(Set ID)(Type)(Command)(Data) (Cr)

- * (Start): A command to start RS-232C control. Starts with 0x3A.
- * (Set ID): A command to select the settings. The set ID is fixed to 01(30 31).
- * (Type): A command to configure a feature's settings or check the status of a feature.
(Settings: 0x53 / Check: 0x47)
- * (Command): A command to control the settings.
- * (Data): Transmits command data.

Acknowledgement

Set success (Success)

Reply: 34 30 31 2B 0D

Set fail (Fail)

Reply: 34 30 31 2D 0D

- * ACK (acknowledgement) is sent in this format, depending on the processing status of the command inputted to the product.
- * When the Type value is sent as 0x47 to check the settings value of the function, the value of the Data should be sent as 000(30 30 30).

01. Power (Command: 30)

Controls the power on/off of the monitor.

Transmission

(3A)(30 31)(Type)(30)(Data)(0D)

Data 000(30 30 30): Backlight off
 001(30 30 31): Backlight on
 002(30 30 32): Power off
 003(30 30 33): Power on

02. Treble (Command: 31)

Adjusts treble.

Transmission

(3A)(30 31)(Type)(31)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

03. Bass (Command: 32)

Adjusts bass.

Transmission

(3A)(30 31)(Type)(32)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

04. Balance (Command: 33)

Adjusts sound balance.

Transmission

(3A)(30 31)(Type)(33)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

05. Contrast (Command: 34)

Adjusts screen contrast.

Transmission

(3A)(30 31)(Type)(34)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

06. Brightness (Command: 35)

Adjusts screen brightness.

Transmission

(3A)(30 31)(Type)(35)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

07. Sharpness (Command: 36)

Adjusts screen sharpness.

Transmission

(3A)(30 31)(Type)(36)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

08. Sound Mode (Command: 37)

Select the Sound mode.

Transmission

(3A)(30 31)(Type)(37)(Data)(0D)

Data 000(30 30 30): Video
 001(30 30 31): Standard
 002(30 30 32): Custom
 003(30 30 33): Classroom
 004(30 30 34): Meeting

09. Volume (Command: 38)

Adjusts volume.

Transmission

(3A)(30 31)(Type)(38)(Data)(0D)

Data 000(30 30 30)-100(31 30 30)

10. Mute (Command: 39)

Mutes/unmutes the sound.

Transmission

(3A)(30 31)(Type)(39)(Data)(0D)

Data 000(30 30 30): Off
 001(30 30 31): On

11. Video Source (Command: 3A)

Selects the video source.

Transmission**(3A)(30 31)(Type)(3A)(Data)(0D)**

Data 000(30 30 30): VGA
 001(30 30 31): HDMI1
 002(30 30 32): HDMI2
 021(30 32 31): HDMI3
 101(31 30 31): Android
 103(31 30 33): PC Slot

12. Aspect Ratio (Command: 3B)

Adjusts aspect ratio.

Transmission**(3A)(30 31)(Type)(3B)(Data)(0D)**

Data 000(30 30 30): 16:9
 001(30 30 31): 4:3
 002(30 30 32): PTP

13. Language (Command: 3C)

Selects an OSD language.

Transmission**(3A)(30 31)(Type)(3C)(Data)(0D)**

Data 000(30 30 30): English
 001(30 30 31): French
 002(30 30 32): Spanish
 003(30 30 33): Chinese (Standard)
 004(30 30 34): Chinese (Cantonese)
 005(30 30 35): Portuguese
 006(30 30 36): German
 007(30 30 37): Dutch
 008(30 30 38): Polish
 009(30 30 39): Russian
 010(30 31 30): Czech
 011(30 31 31): Danish
 012(30 31 32): Swedish
 013(30 31 33): Italian
 014(30 31 34): Romanian
 015(30 31 35): Norwegian
 016(30 31 36): Finnish
 017(30 31 37): Greek
 018(30 31 38): Turkish
 019(30 31 39): Arabic
 020(30 32 30): Japanese
 021(30 32 31): Ukrainian

14. Picture Mode (Command: 3D)

Select the Picture mode.

Transmission**(3A)(30 31)(Type)(3D)(Data)(0D)**

Data 000(30 30 30): Standard
 001(30 30 31): Bright
 002(30 30 32): Soft
 003(30 30 33): Customer

15. Hue (Command: 3E)

Adjusts screen hue.

Transmission**(3A)(30 31)(Type)(3E)(Data)(0D)**

Data 000(30 30 30)-100(31 30 30)

16. Backlight (Command: 3F)

Adjusts backlight.

Transmission**(3A)(30 31)(Type)(3F)(Data)(0D)**

Data 000(30 30 30)-100(31 30 30)

17. Colour Temperature (Command: 40)

Adjusts colour temperature.

Transmission**(3A)(30 31)(Type)(40)(Data)(0D)**

Data 000(30 30 30): Cool
 001(30 30 31): Standard
 002(30 30 32): Warm

18. Remote Control (Command: 41)

Sends a key code for the IR remote control.

Transmission**(3A)(30 31)(Type)(41)(Data)(0D)**

Data 000(30 30 30): Vol+
001(30 30 31): Vol-
010(30 31 30): Up
011(30 31 31): Down
012(30 31 32): Left
013(30 31 33): Right
014(30 31 34): OK
020(30 32 30): Menu
021(30 32 31): Input Source
022(30 32 32): Exit
031(30 33 31): Blank
032(30 31 32): Freeze

19. IR (Command: 42)

Adjusts the remote control (IR).

Transmission**(3A)(30 31)(Type)(42)(Data)(0D)**

Data 000(30 30 30): Enable
001(30 30 31): Disable

Before Reporting Product Malfunction

- » Each model may have different points to check.
- » For more instructions on PC settings, please refer to Windows Help.

Model corresponding to sentence colour


COMMON	VIDEO WALL	SMALL INCH	ENCLOSURE	OLED	STRETCH	TOUCH
--------	------------	------------	-----------	------	---------	-------

Issues Related to Use

- The power won't turn on.
 - Check if the power cord is correctly plugged into the power outlet.
 - During sub-zero operation, it may not be operated within one hour due to the temperature increase in the container.
 - For models with circuit breakers, ensure that the circuit breakers are connected correctly. The circuit breaker switch should be on (red).
 - For models using an AC adaptor, disconnect the AC adaptor, clean the contact terminals, and turn the power on again.
 - Check the LAN cable for damage when using POE power.
 - Do not connect the AC adapter when using POE power.
- The 'Unknown Product' message appears when the product is connected.
 - Check if the PC (graphics card) driver is installed.
 - Check the user manual of the PC (graphics card) to see if the plug and play feature is supported.

Issues Related to Screen (Video)

- The message "No Signal" or "Unsupported Mode" appears.
 - The signal cable is not connected between the PC and the product, or the cable connection status is unstable. Check the signal cable.
 - Check the input source in the external input menu.
 - The signal on the PC (graphics card) may be out of the vertical or horizontal frequency range of the product. Adjust the frequency range by referring to the Specifications in this manual.
- The position of the screen is incorrect.
 - Check if the graphics card resolution and frequency are supported. If the frequency exceeds the supported range, use PC settings to set the resolution to the recommended value.
 - When using a D-Sub analogue signal, pressing the **AUTO** button on the remote control automatically selects the appropriate screen for the currently set mode. If the adjustment is not satisfactory, adjust the display settings manually in the OSD menu. (This may not be supported, depending on the model.)

- The screen is displayed abnormally.
 - Connect a cable that matches the input source signal.
 - Condensation may form on the screen. It disappears after operating the product for a certain period of time.
 - The condensation that forms inside the product is a natural phenomenon, not a quality defect. (IPX6 is a standard to protect the product from 100L of water per minute and not from infiltration of moisture in the air into the set.)
 - When connecting the panel and the Signage box, check their serial numbers and make sure they match. If the serial numbers match, unplug the power cord and plug it in again to run the [Clear Panel Noise] feature. (The system will reboot automatically after running the feature.)
Alternatively, the feature can be run from  (**Settings**) → [Display] → [Advanced Settings] → [OLED Panel Settings] → [Clear Panel Noise] menu.
- The PC BIOS settings screen is not displayed normally.
 - Some PCs do not support non-standard aspect ratios when the graphics card driver has not been set up (e.g. in the BIOS settings screen). This is not a product issue. It is related to the graphics card's aspect ratio design for the BIOS settings screen. Connect to a monitor with a standard aspect ratio (4:3 or 16:9), and set up the PC BIOS before using it.
- The screen flickers or shakes.
 - If you turn the monitor on when it is cold, the screen may flicker. This is normal.
 - Make sure that the current resolution and frequency settings of the graphics card are supported by the monitor.
- Stripes appear in the background.
 - When using a D-Sub analogue signal, pressing the **AUTO** button on the remote control automatically selects the appropriate screen for the currently set mode. If the adjustment is not satisfactory, adjust the display settings manually in the OSD menu. (This may not be supported, depending on the model.)
- Horizontal noise appears, or the characters look blurred.
 - When using a D-Sub analogue signal, pressing the **AUTO** button on the remote control automatically selects the appropriate screen for the currently set mode. If the adjustment is not satisfactory, adjust the display settings manually in the OSD menu. (This may not be supported, depending on the model.)
- The image is not displayed.
 - Check that the cable is properly connected between the panel and the Signage box.

Issues Related to the Screen (Colour)

- The screen resolution is low (16 colours).
 - Use PC settings to set the colour to 24 bits (True Colour) or above.
- The screen colour is unstable or looks black and white.
 - Check the connection status of the signal cable. Alternatively, reinsert the graphics card.
- Black spots or bright spots appear on the screen.
 - Some pixels (red, green, blue, black) are visible on the screen due to the unique characteristics of the display panel. This is not a product malfunction.
- The screen brightness looks dark.
 - Adjust the brightness and contrast.
 - The backlight needs to be repaired.
 - If the internal temperature of the enclosure rises, the screen brightness may be reduced. Clean the heat exchanger or filter in the enclosure periodically.

Issues Related to Sound

- The audio doesn't work.
 - Check if the audio cable is connected properly.
 - Adjust the volume of the product or external device.
 - Check if the sound is set correctly.
- The sound is too dull.
 - Select the appropriate equaliser sound.
- The sound is too low.
 - Adjust the volume of the product or external device.
- For some models, you will need to purchase external speakers separately since they do not have speakers built-in.

Other Issues

- The power suddenly turned off.
 - Check if the auto-off feature is on.
 - Power supply is interrupted. Check if the power cord is correctly plugged into the power outlet.
 - Check the power control settings.
 - If the internal temperature of the enclosure rises, the power may turn off. Clean the heat exchanger or filter in the enclosure periodically.
 - Check if the fan is working properly.
 - ⚙️ **(Settings)** → [General] → [System Information] → [Fan Status].

 **CAUTION**

- Since afterimage can occur when a specific fixed screen is used for a long time, it is recommended to limit the use to a certain time per day for each model size and to display the video content with a small number of fixed characters or logos.

Recommended daily operation time (55 inches: 18 hours, 65 inches: 12 hours)
- Some horizontal lines may appear when the [Clear Panel Noise] feature is performed. It is for normal execution of the feature, and there is no need to be concerned. If the power is turned on or a power outage occurs during operation of the [Clear Panel Noise] feature, there may be a problem in the operation.
- Turn on the power five minutes after [Clear Panel Noise] operation.
- During the execution of the [Clear Panel Noise] feature, the external speaker connected to the product may output sound.
- [Clear Panel Noise] : Corrects screen problems that may occur when the screen is turned on for a long time.
- Use the [Screen Protection Mode Setting] feature in [OLED Panel Settings] to effectively prevent the formation of an afterimage.

Issues Related to Touch

- Touch does not respond.
 - This may occur if the touch USB cable between the PC and product is not connected properly. Remove and reconnect the cable after 10 seconds.
 - Ensure that the power cord of the PC is firmly plugged into a power socket, and restart the PC.
 - Touch may not respond if the system is down due to an unstable network. Reconnect the LAN cable or restart your PC.
 - If your PC and product are not connected with a signal cable, touch does not respond. Check the signal cable connection.
 - Touch may not respond if the product is powered off. Check the product power. Check the power supply.
 - Failure to use a grounded socket may result in interruption or a touch error. Always connect the power cord to a grounded socket.
 - Check if the screen is currently on.
 - An interruption or touch error may occur in the following cases:
 - If you tap the screen with your nail or fingertip
 - If you hold the touch pen on or near the tip
 - If you press the touch pen with strong force on the screen
- The location of a touch does not correspond to the touch coordinates.
 - This may occur when the touch screen is not calibrated properly. Change your PC settings.
- Touch is applied to another monitor.
 - This may occur if the product is not set as the default monitor when multiple monitors are being used. Set the product as the default monitor.
 - This may occur when the touch screen is not calibrated properly. Change your PC settings.
- Multi-touch does not respond.
 - The content played (e.g. Paint) may not support Multi-touch. Use content that supports Multi-touch.
 - Remove the USB cable and reconnect it after 10 seconds.
 - Restart the content (e.g. Paint).
 - Restart your PC.
 - Multi-touch may not work stably on the edge of the touch screen.
 - If the interval between two touches is too short, a touch error may occur.

CAUTION

- Touch compatibility by OS
 - IOS: MacOS v11.5.1 or later
 - Windows: Windows 10 Pro 1803 or later
 - Chrome: Chrome OS 92.0.4515.162 or later

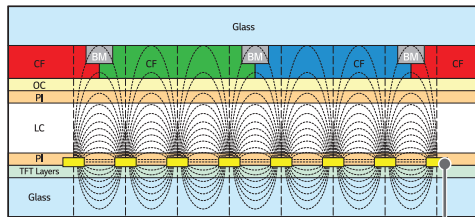
Afterimage

- After-image appears when the product is turned off.
 - Pixels may be damaged rapidly if a still image is displayed on the screen for a long period of time. Use the screen-saver function.
 - Switching from a screen with high differences in luminance (black and white or grey) to a darker screen may cause an afterimage. This is normal due to the display characteristics of this product.
- When the LCD screen is in a still pattern for extended periods of use, a slight voltage difference may occur between the electrodes that operate the liquid crystal (LC). The voltage difference between the electrodes increases over time and tends to keep the liquid crystal aligned in one direction. At this time, the previous image remains, which is called an afterimage.
- Afterimages do not occur when continuously changing images are used but take place when a certain screen is fixed for a long time. The following are operational recommendations for reducing the occurrence of afterimages when using a fixed screen. The maximum recommended time for switching the screen is 12 hours. Shorter cycles are better for preventing afterimages.

Recommended Usage Condition

1 Change the background colour and text colour at equal intervals.

- Afterimages occur less when the colours to be changed are complementary to one another.



ITO or MoTi Pixel Layer

2 Switch the screen at equal time intervals.

- Take caution, and ensure that text or images from before the screen change are not left in the same location after the screen change.



