INSTALLATION MANUAL

LED TV*

* LG LED TV applies LCD screen with LED backlights.

Please read this manual carefully before operating your set and retain it for future reference.

LN34*
UN34*

MFL71970601
(2302-REV02)

www.lg.com

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Location and Function of Controls

Parts and Button

Basic functions

	Power On (Press) Power Off[1] (Press and Hold) Menu Control (Press[2]) Menu Selection (Press and Hold[3])

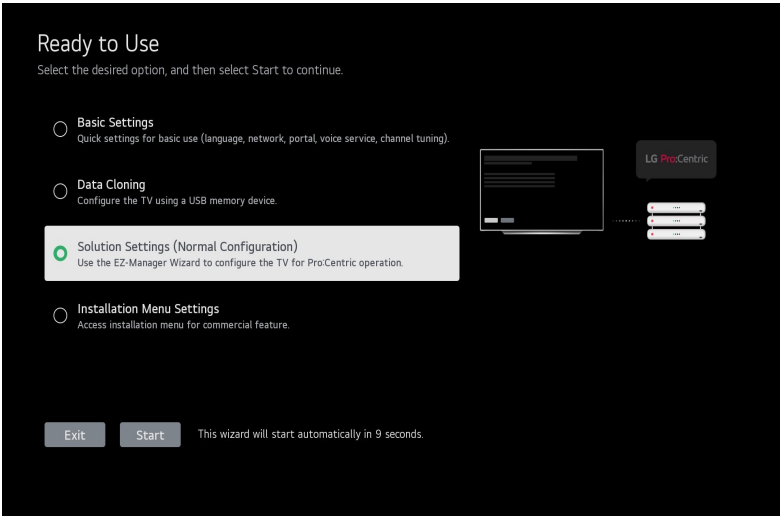
1 All running apps will close.
2 You can access and adjust the menu by pressing the button when TV is on.
3 You can use the function when you access menu control.

First Use Wizard

* Image shown may differ from your TV.

(Depending on model)

- There are four options - **Basic Settings**, **Data Cloning**, **Solution Settings**, and **Installation Menu Settings**. Each menu can access by **START** button.
  (Normal Configuration is the default focus item.)



Basic Settings

* Image shown may differ from your TV.

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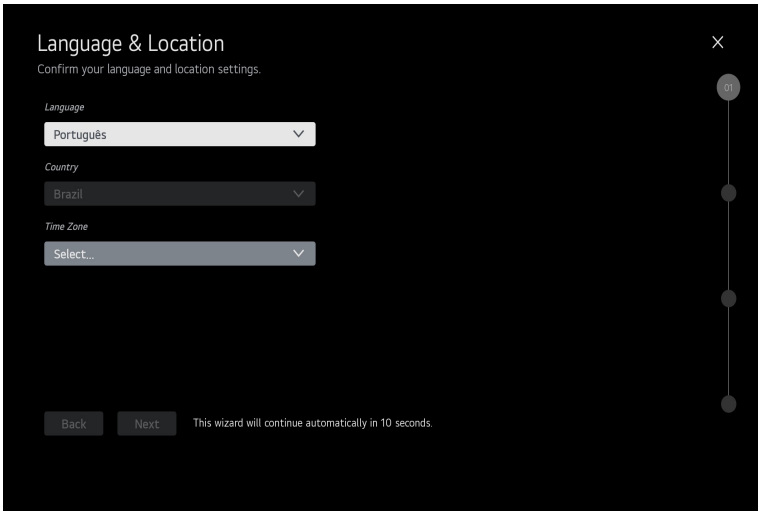
This menu is for Basic Settings related to language, network, portal, voice service coverage and channel tuning without SI (Pro:Centric) setting. There are four steps for it.

Language & Location

(Depending on model)

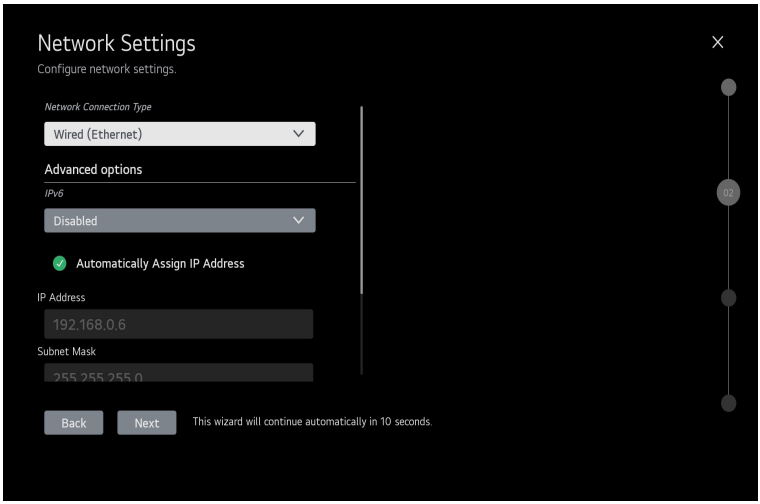
- Select the **Language** and **Country**. Some countries need to select the Time Zone.



Network Settings

(Depending on model)

- Set Network connection. You can connect easily to wired/wireless network. ("Network" on page 28)
  Wireless (Auto Wi-Fi) : Connect a default hidden SSID/PW. (SSID : lgwebostv, PW : procentric, Security : WPA/WPA2 PSK)



Portal Settings

(Depending on model)

- Set the Portal Mode and Portal Auto Start.

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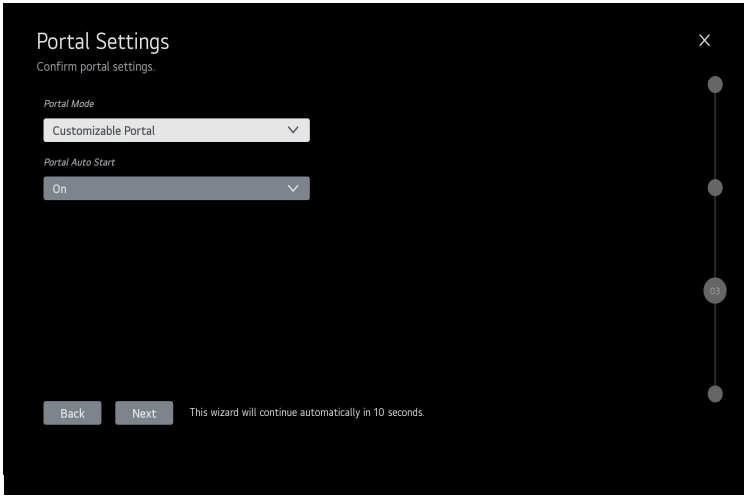
Portal Mode

(Depending on model)

- You can select 'Default Portal' (Use webOS default portal), 'Customizable Portal' (Use editable Portal), or 'None' (Do not use portal).

Portal Auto Start

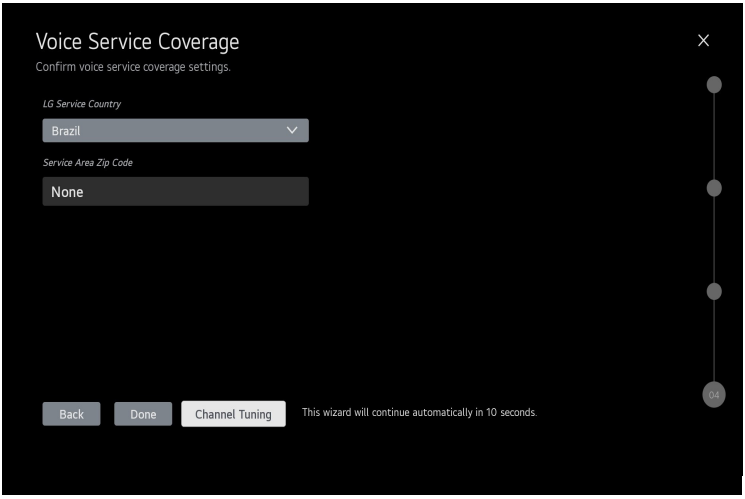
- You can select 'On' or 'Off'. If you select 'On', Portal (Home Launcher) will be execute automatically after TV on.



Voice Service Coverage

(Depending on model)

- Set the voice service coverage. You can set **LG Service Country** and **Service Area Postcode** for voice service.



Data Cloning

(Depending on model)

Access Data cloning menu of TV Manager application for applying cloning file.

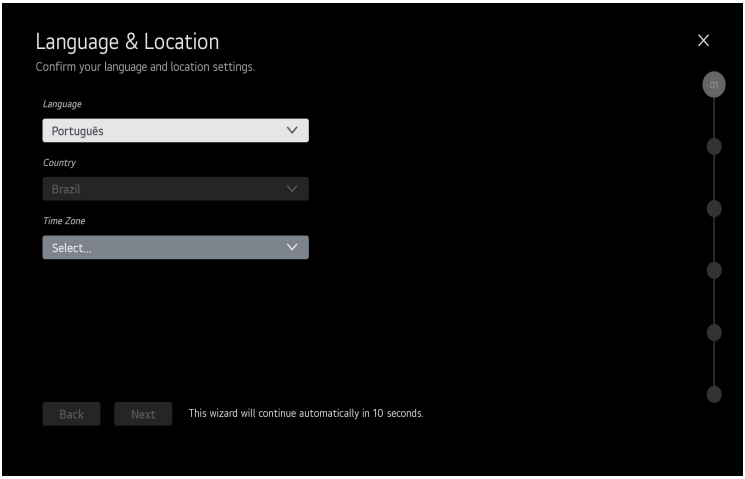
Solution Settings

(Depending on model)

The Pro:Centric Platform enables you to simply install, manage and use guest-centric solutions. The default Domain "procentric.local" and IP Server Address are needed to be registered in DNS TV will contact the IP Server using the default Domain "procentric.local" via IP on server search page. If TV doesn't contact the Server, TV will search the pre-defined channel earlier than all channels.

Language & Location selection

(Depending on model)

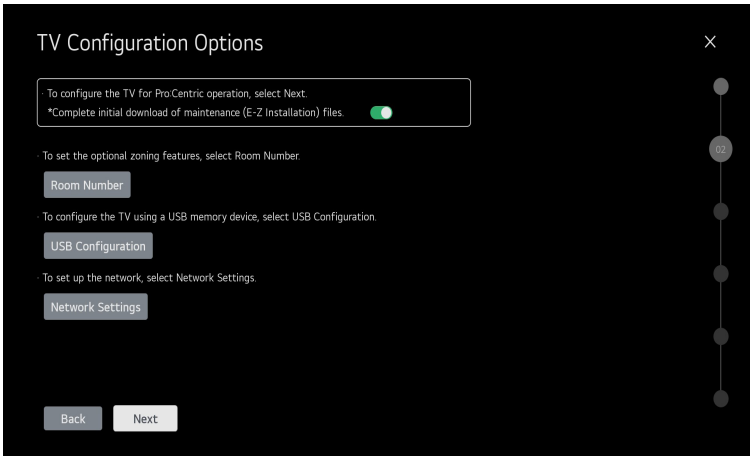


- Please select the **Language** and **Country**. Some countries need to select the **Time Zone.**

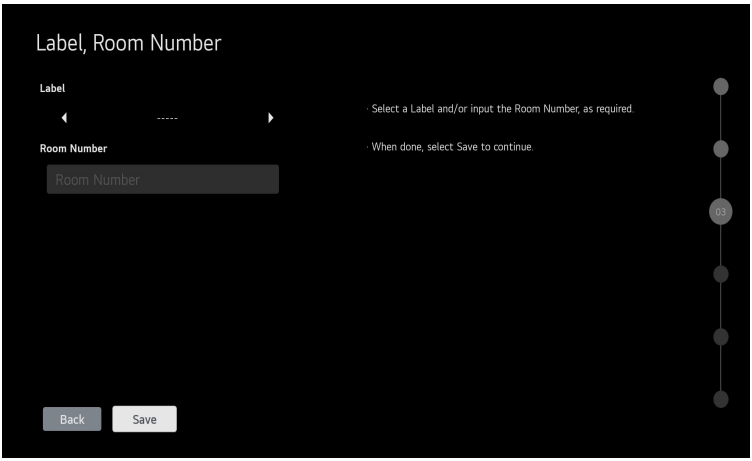
TV Configuration Options

(Depending on model)

1 From the TV Configuration Options screen, you can choose how to proceed with the configuration of this TV. Whether you will configure the TV for Pro:Centric operation via the wizard or use a USB memory device to configure the TV, you may first wish to set the Room Number on the TV. Also, you can configure the network environment.

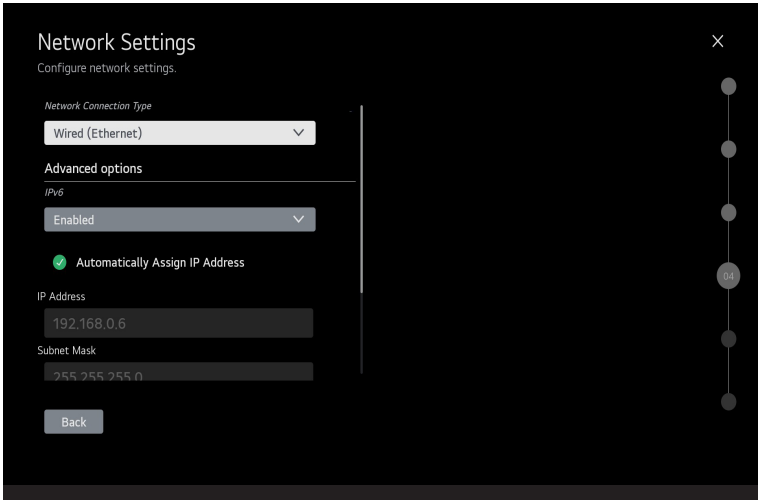


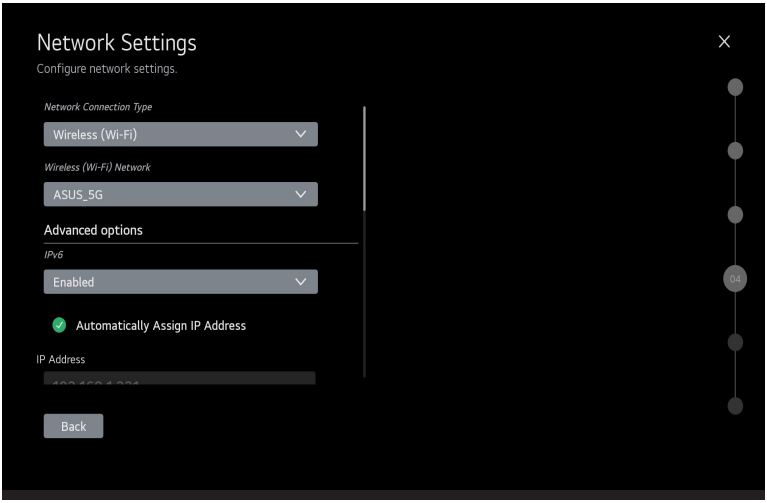
- Complete initial download of maintenance(On/Off Toggle): you can choose the option whether to skip the maintenance files download during the EZ-Manager process.
- If you intend to set Room Number as part of the TV configuration, use the Room Number option to assign the Room # for this TV before you continue with additional configuration.
- In the Label field, use the Left/Right arrow keys to specify a North, South, East, or West designation for this TV.
- In the Room Number field, you can use the number keys on the Installation Remote to direct enter a room number or use the virtual keyboard on the TV screen.

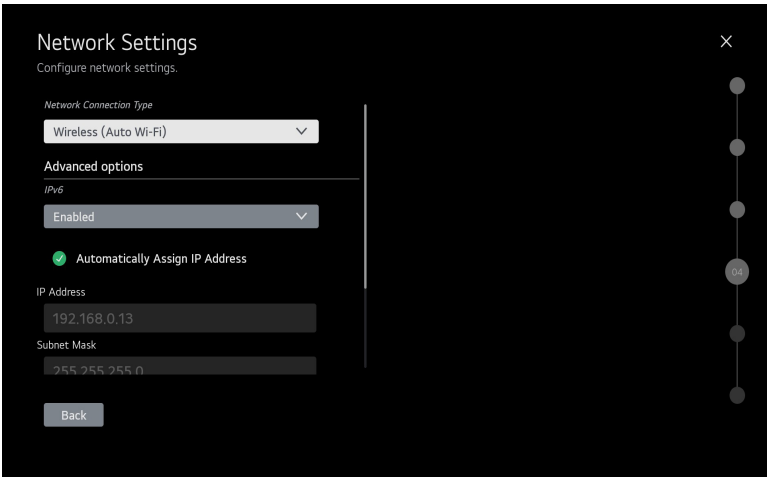


- If you intend to apply the files via USB, use USB Configuration option to access TV Manager app. (“TV Manager” on page 52)
- If you intend to set network, use the Network Settings option. You can connect easily to wired/wireless network by this option. (”Network” on page 28)

  Wireless (Auto Wi-Fi) : Connect a default hidden SSID/PW. (SSID : lgwebostv, PW : procentric, Security : WPA/WPA2 PSK)





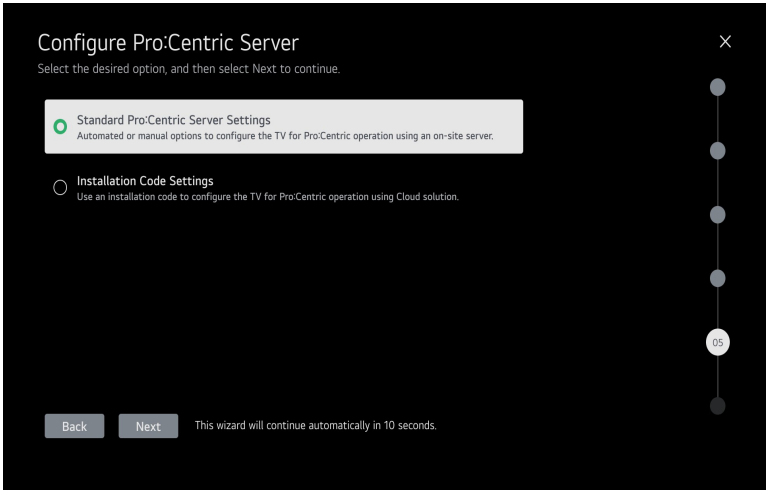

Network Settings
Configure network settings.
Network Connection Type
Wireless (Auto Wi-Fi)
Advanced options
IPv6
Enabled
Automatically Assign IP Address
IP Address
192.168.0.13
Subnet Mask
255.255.255.0
Back
04

Configure Pro:Centric Server

(Depending on model)

You can select two options.

- Standard Pro:Centric Server Settings : Default Automatic / Manual Pro:Centric Server Configuration
- Installation Code Settings : Installation Code based simple installation for Cloud solution

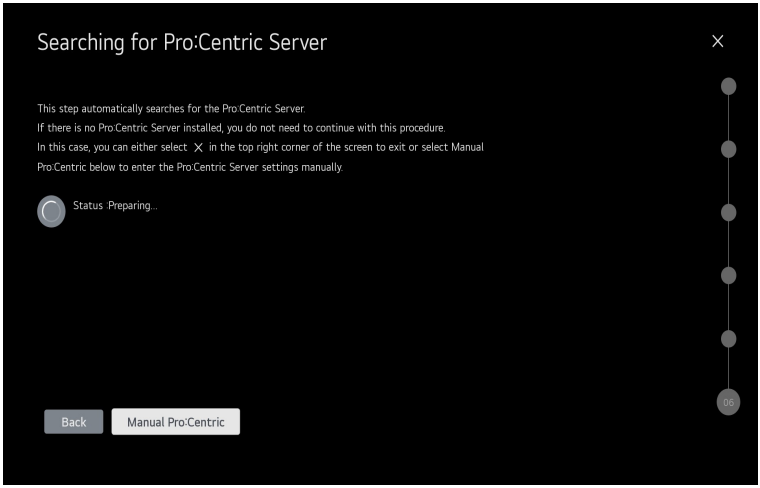


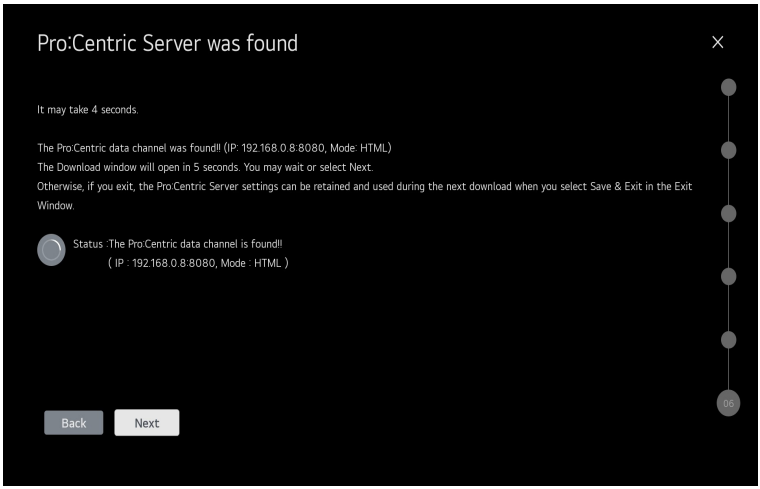
Standard Pro:Centric Server Settings

(Depending model)

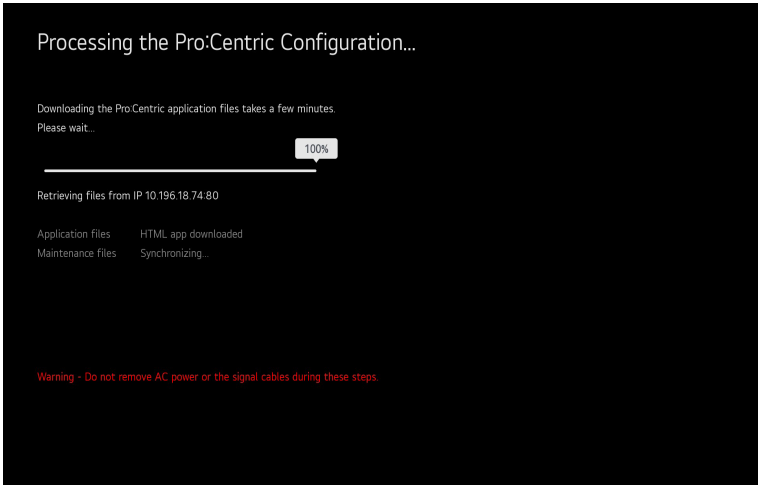
Automatically for Setup

1 This step automatically searches for the Pro:Centric Server. If was found the Pro:Centric data programme, select the **Next**.

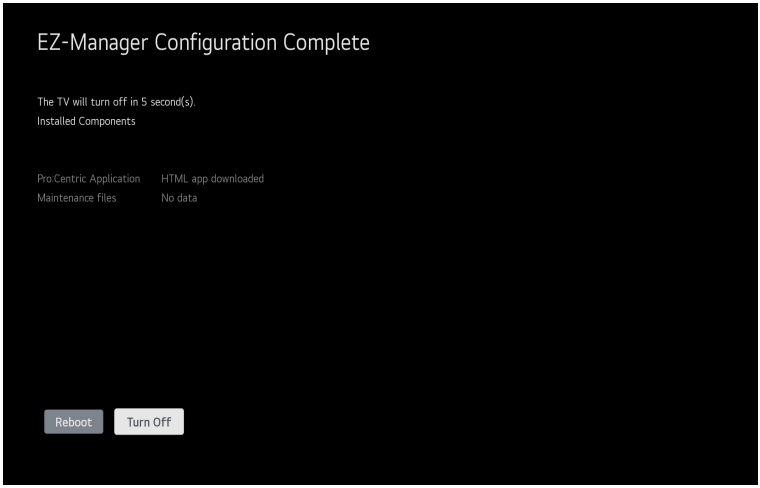




2 Downloading the Pro:Centric application files takes few minutes.

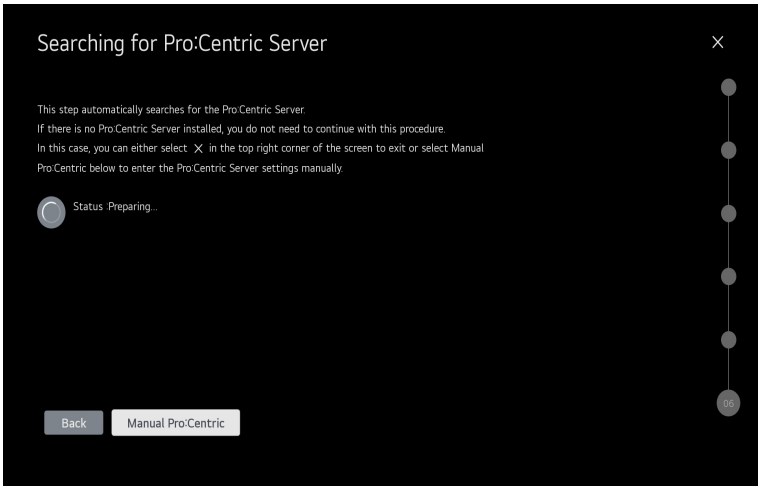


3 After the installation is completed, the following screen will be displayed.

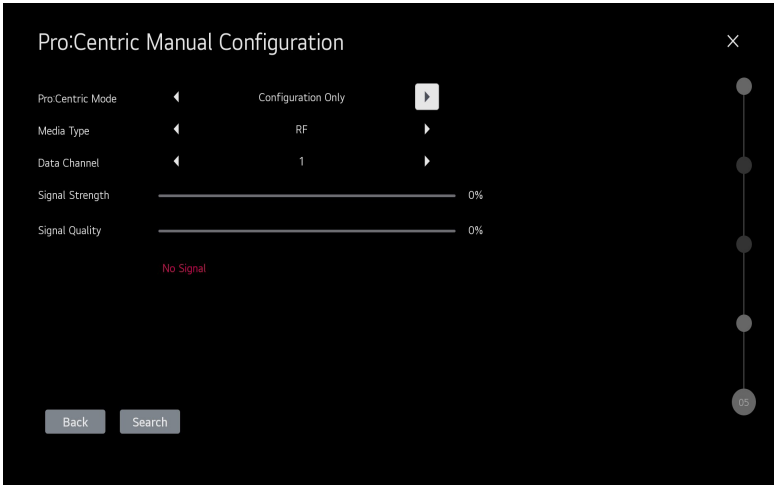


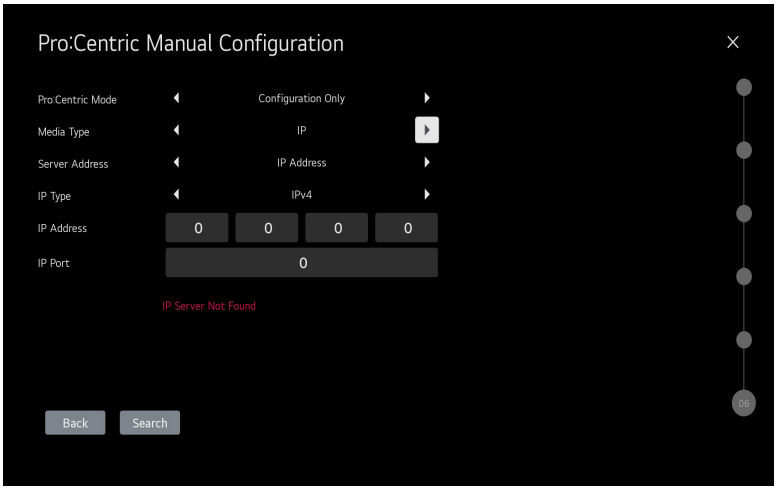
Manually for Setup

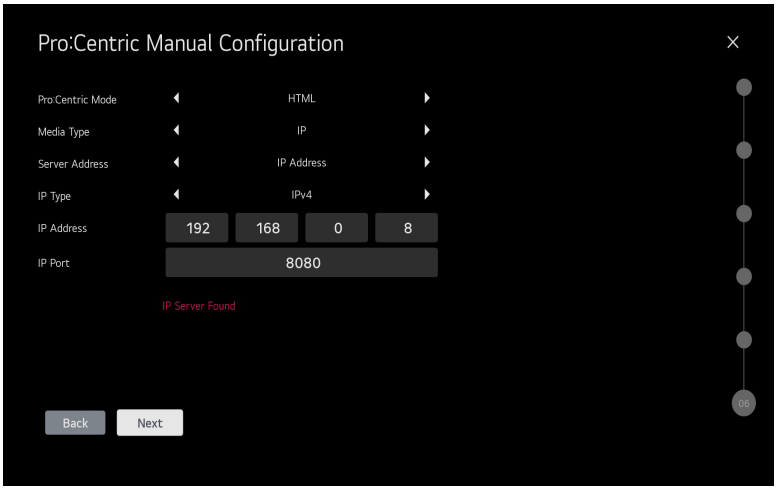
1 Please select the **Manual Pro:Centric**.



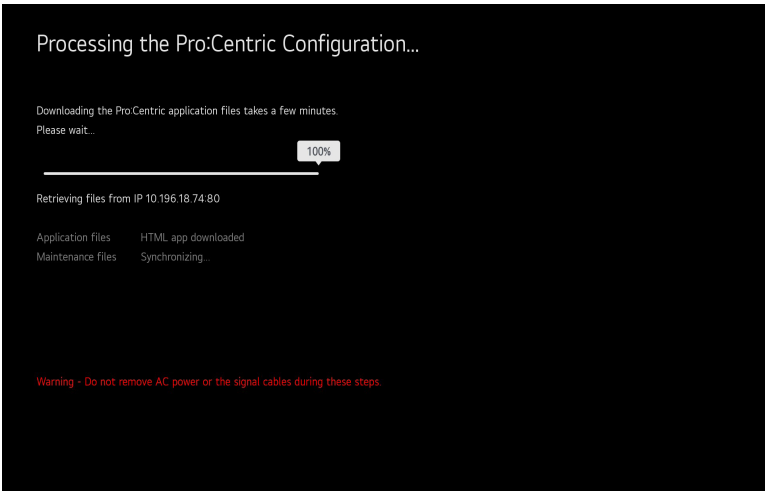
2 Configure the appropriate Pro:Centric settings in the TV. (Taiwan does not support RF)



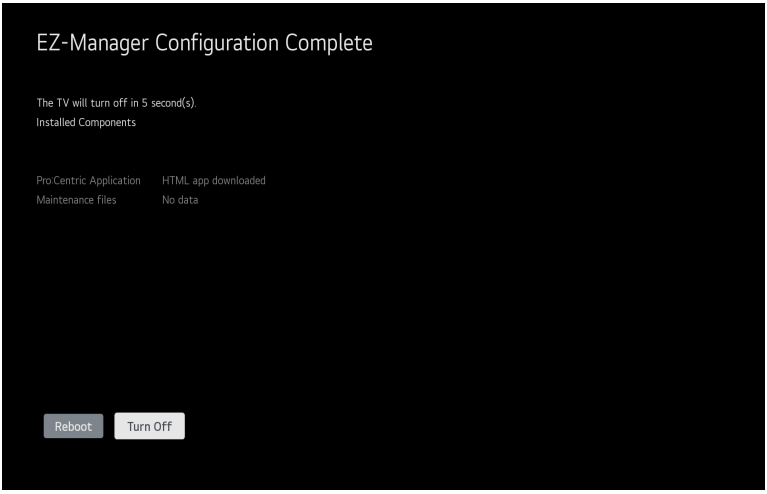

Pro:Centric Manual Configuration
Pro:Centric Mode
Configuration Only
Media Type
IP
Server Address
IP Address
IP Type
IPv4
IP Address
0
0
0
0
IP Port
0
IP Server Not Found
06
Back
Search


Pro:Centric Manual Configuration
Pro:Centric Mode
HTML
Media Type
IP
Server Address
IP Address
IP Type
IPv4
IP Address
192
168
0
8
IP Port
8080
IP Server Found
06
Back
Next

3 Downloading the Pro:Centric application files takes few minutes.



4 After the installation is completed, the following screen will be displayed.



Installation Code Settings

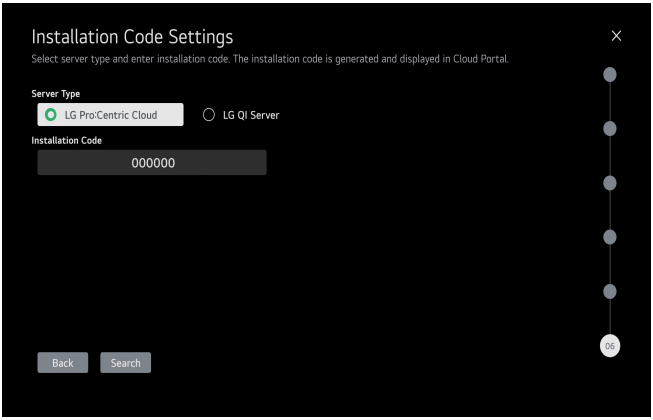
(Depending on model)

From the Installation Code Settings screen, You can input the installation code that issued from Cloud Portal.

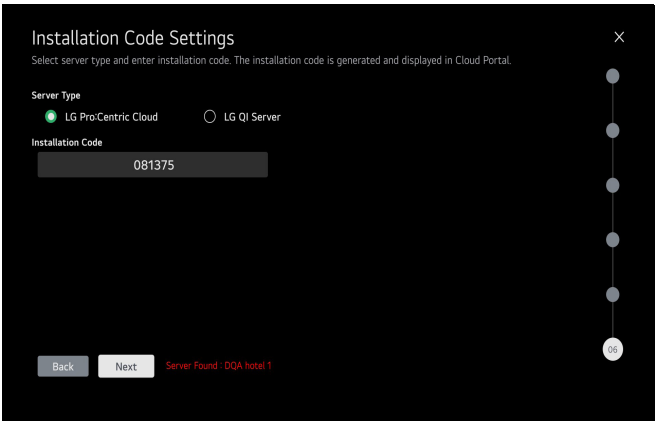
ENGLISH

1 Server Searching

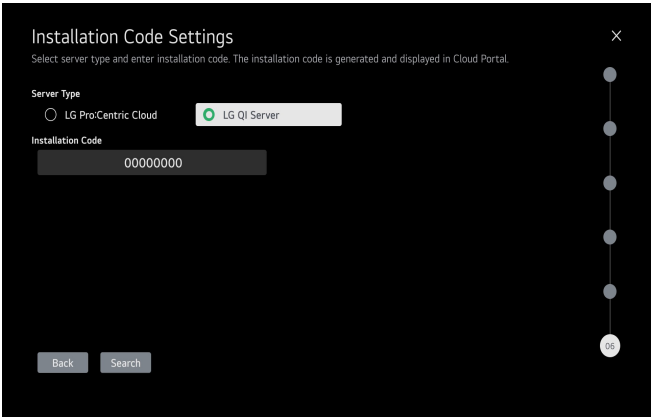
LG Pro:Centric Cloud



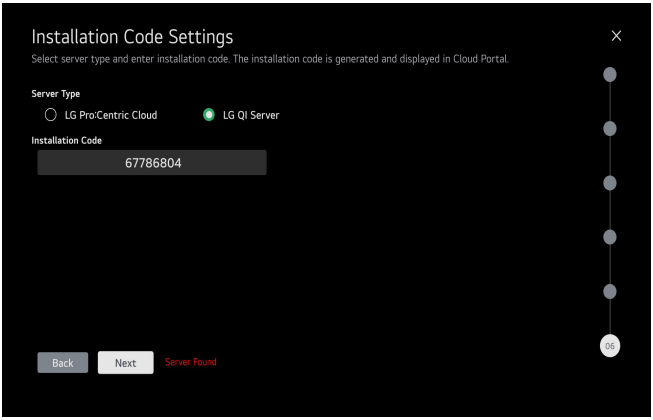
- Server search succeed : The message "Server Found [property name]" is displayed. And the search button changes to the next button.
- In case of invalid code : The message "Invalid Installation Code" is displayed.
- In case of network error : The message "Server Not Found" is displayed.



LG QI Server

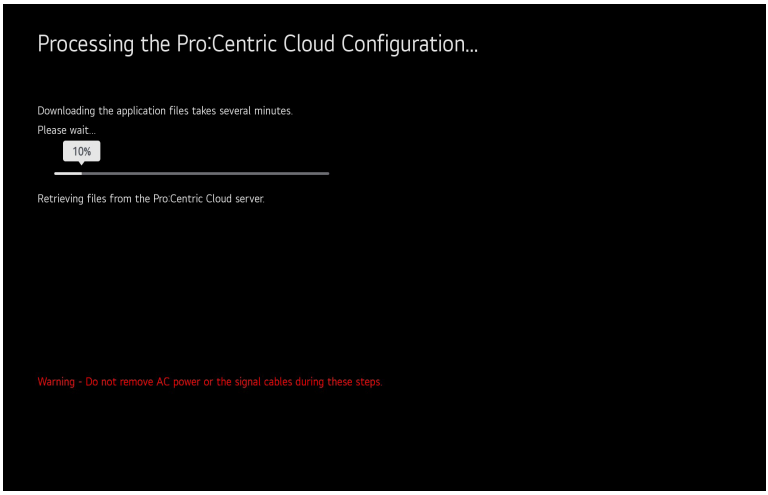


- Server search succeed : The message "Server Found" is displayed. And the search button changes to the next button.
- In case of error : The message "Server Not Found" is displayed.



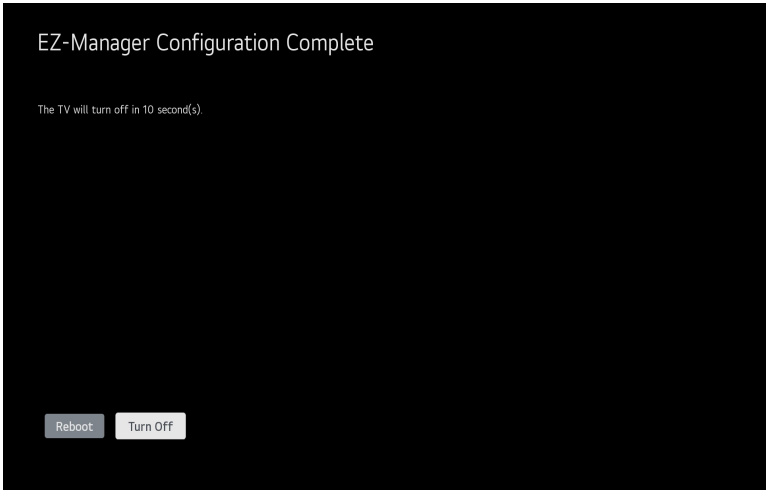
2 Download Pro:Centric App

- After clicking the next button, Downloading the Pro:Centric application files takes few minutes.



3 Download Complete

- After the installation is completed, the following screen will be displayed.



Installation Menu Settings

(Depending on model)

Access Installation menu for commercial feature settings.

Installation Menu

* Image shown may differ from your TV.

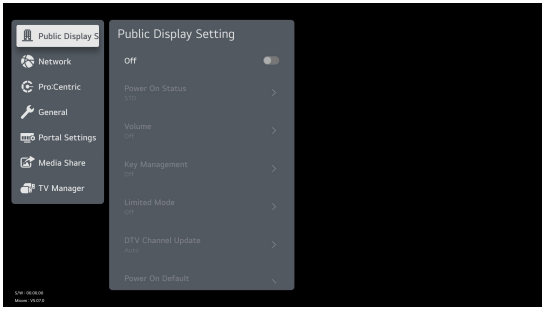
Introduction

The abundant functions for Hotel TV linked with software installation can be projected on OSD as 'Installation Menu'.

The wide range of hotel features can be performed simply on additional window to enhance the LG hotel TV's easy installation and convenient operation for Hotelier and System Integrators.

1 Press the Setting button for more than 5 seconds using the user remote control, banner will appear at top left on the screen.
2 Enter a four digit password and press '**OK**' button.
   - The TV is set with the initial password "1-1-0-5".

Public Display Settings



- When Public Display Settings is set to On, all functions of Public Display Settings apply.

Power On Status

- Decide to select working status of TV Set when turn on main power.
- You can select PWR, STD, LST.
- PWR always make TV set On status when turn on main power .
- STD make Stand-by status when turn on main power.
- LST make TV set work like previous power status. As same concept as Power Backup mode; If main power were turned off in Power On status, TV set would work in On status. If main power were turned off in Stand-by status, TV set would work in Stand-by status.
- If there Block All is both IR Operation and Local Key Operation from Key Management, In order to turn on the TV when turned off situation, change the value of the PWR. (Reference the Key Management)
- The default value depends on each model.

Volume

- Decide to apply volume policy of ‘Start Volume’, ‘Maximum Volume’ and ‘Minimum Volume’ as On or Off.
- (0 ≤ Min ≤ Start ≤ Max ≤ 100)

Start Volume

- This entry sets the start volume level when is power on.
  - The level is specified as a number between minimum volume to maximum value. (Min ≤ Start ≤ Max)
  - The default setting is ‘Off’.
  - When selected to 'On', if the value is lower then the minimum specified in the minimum volume entry, the minimum volume entry must be used.
  - When selected to 'On', if the value is larger then the maximum specified in the maximum volume entry, the maximum volume value must be used.
  - Access to a volume in ‘Timer Power On’ must be fixed to start volume when Public Display Settings (On) and ‘Start Volume’ (Off, 0 ~ 100) were set simultaneously.

Maximum Volume

- This entry sets the maximum volume level the set. The level is specified as a number between ‘Minimum Volume’ to 100. (Min ≤ **Max** ≤ 100).
  - The default value is 100.

Minimum Volume

- This entry sets the minimum volume level the set. The level is specified as a number between 0 to ‘Maximum Volume’. (0 ≤ **Min** ≤ Max)
  - The default value is 0.

Key Management

- Manage key usability of Local(Front) Key and Remote Control.

IR Operation

- Decide whether work the LG remote control or not.
  - When set to ‘Normal’, all remote keys are available.
  - ‘Use PWR Only’ makes block all remote keys except power key.
  - When set to ‘Block All’, all normal remote keys don’t work.

Local Key Operation

- Decide to operate ‘Local Key’ working behavior.
  - When set to ‘Normal’, all local keys are available.
  - ‘Use PWR Only’ makes block all local keys except power key.
  - When set to ‘Block All’, all local keys don’t work.

Limited Mode

- Configure TV function's limitation. When selected to 'On', following sub-menus will be worked by below.

ENGLISH

Setup Menu

- Permit to tune and manage Channels.

Channel Change

- Decide to change channel or not.

Menu Display

- Function to decide whether work with menu of control key or not.
  - Although select Off, the action that press a Menu button for 5 seconds to enter 'Installation Menu' is available.
  - When select On, Menu works.

OSD Display

- Decide to display OSD or not.
  - When is set to 'Off', all OSD is not displayed except some exception.
  - Although select 'Off', the action that press a Menu button for 5 seconds to enter 'Installation Menu' and entering service menu are available. (In-Start, Power-Only, Adjust, Installation Menu…)

System Provider Mode

- 'System Provider Mode' allows access to the menu system from the front panel or remote control but access is controlled as follows:
  - When value is 'On', Accessible Items on the menu system, others are not permissible. (Depending on model)
    - » Input select screens
    - » Sleep timer
    - » Aspect Ratio
    - » Caption
    - » Channels (Except for Channel Tuning & Settings and Channel Manager)
    - » Input Manager

DTV Channel Update

- It is a mode to set whether to update DTV Channel automatically or not.
- When set to 'Auto', update Channel map according to DTV Channel's stream information.
- When set to 'Manual', keep Channel map even though DTV Channel's information is changed.

Power On Default

- Set the channel to display, etc. when turn on power.
- When is set to Off, it is not applied to the subordinate Input, Channel, A/V Setting, Aspect Ratio menu.
- When is set to On, it can set by entering the subordinate menu.

Input

- Set whether it is turned on by the set input source or by the last stored input source.

Channel

- Select start channel number if Input is TV.

A/V Setting

- If 'A/V Setting' is changed from 'Off' to 'On', A/V parameters that are set before entering 'Installation Menu' are applied whenever turn on power.

Aspect Ratio

- The aspect ratio determines the default aspect ratio that the set returns to on power up.

Aux Source Setting

- Set to On or Off.
- Set to enable or disable for each external input.
- User cannot disable the current input.

Power Management

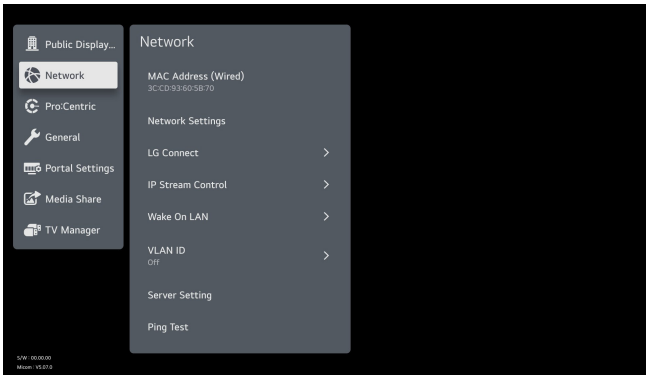
- Turn off the TV if no input control command is received from either the Local or IR Key within a selected hours.
  - Activity on either of these inputs shall reset the 'Power Management' timer.
  - This entry can be set to a value which is corresponding to the desired hours (1Hour to 7Hours).
  - Default value is 'Off'

Factory Reset

- Change all settings to their default values.

Network

(Depending on model)



MAC Address

- Displays the MAC address (not customizable).

Network Setting

One-click network connection

- Connects easily to a network.
- This menu supports to connect to an available network.

IP Stream Control

(Depending on model)

Audio PTS Offset

- Controlling output stream timing of audio.

Video PTS Offset

- Controlling output stream timing of video.

IGMP

- You can set IGMP version. (2 or 3)

Wake On LAN

- Sets the Wake On LAN function.
  - The Wake On LAN feature enables the TV to receive software updates and/or be powered ON upon receipt of Magic Packet data via the wired LAN. To facilitate use of this feature, note that the appropriate wired connection must be made.

Server Setting

(Depending on model)

- Set up to connect your TV to a SuperSign server.

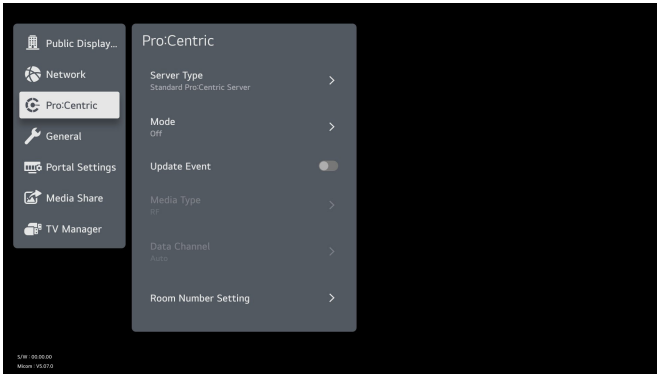
Ping Test

(Depending on model)

- Check your network status with the ping test.

Pro:Centric

(Depending on model)



Server Type

(Depending on model)

- You can set to 'Standard Pro:Centric Server', 'Installation Code Server'.

Type

(Depending on model)

- You can set to 'LG Pro:Centric Cloud', 'LG QI Server'.
- If you select 'LG Pro:Centric Cloud', you can configure Cloud.
- If you select 'LG QI Server', you can configure QI Server.

Installation Code

(Depending on model)

- If you input the 6-digit installation code when 'Type' is 'LG Pro:Centric Cloud', the server is automatically searched.
- If you input the 8-digit installation code when 'Type' is 'LG QI Server',, the server is automatically searched.
- The results of the server search are displayed in a pop-up.
- If you click the 'Confirm' button in the popup, the installation code is saved.
- If you click the 'Cancel' button in the popup, the installation code is restored to previous value.

Mode

- Sets whether or not enable Pro:Centric and the service method.
- You can set to Off, Configuration Only, GEM or HTML. The default value is Off. (Depending on model)

Update Event

- When set to 'Enable', Hour and Minute items are enabled and then the Update Event function is enabled.
- When set to 'Disable', 'Hour' and 'Minute' items are disabled and then the Update Event function is disabled.

Room Number Setting

- You can set Label and Room Number using the Room Number Setting.

Media Type

(Depending on model)

- Sets the media type to RF or IP.
- The default value is RF.

RF

(Depending on model)

- **Data Channel**
  - Sets the Channel at which the Pro:Centric data is received.

IP

- P:C IP Setting
  - Server Address is set to IP Address.
  - Can select IPv4 or IPv6 type using 'IP Type'. (Depending on model)

(IP Address)	Set IPv4 or IPv6 address.
(Port Number)	Sets the actual port or number where the Pro:Centric server is running.

  - Server Address is set to Domain Name.

(Domain Name)	Sets the domain name where the Pro:Centric server is running.
(Port Number)	Sets the actual port or number where the Pro:Centric server is running.

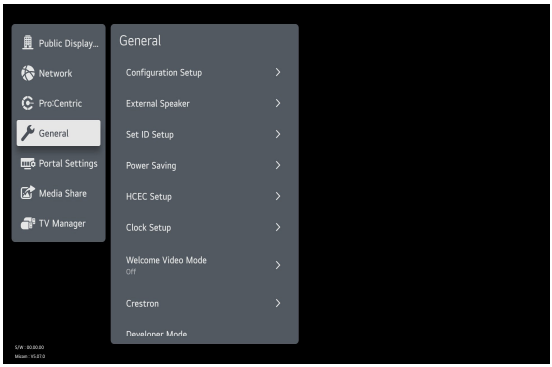
  - The default value of IP(IPv4) is 0 and the range is between 0 and 255.
  - The default value of IP(IPv6) is 0 and the range is between 0 and FFFF.
  - The default value of Port is 0 and the range is between 0 and 65535.

Receive Data

(Depending on model)

- Sets Enable or Disable.

General



Configuration Setup

Select RCU

- It is a mode to set whether to use Select RCU or not. When set to 'Enable', You can adjust 'Number of RCU' menu.

Number of RCU

- Number of RCU value range 1~16. (When 'Select RCU' is set to 'Enable')
- Number of RCU value range 0. (When 'Select RCU' is set to 'Disable')
  - RCU (Remote Control Unit) : It is special RCU that operates only setted number of RCU in TV.

Splash Offset Time

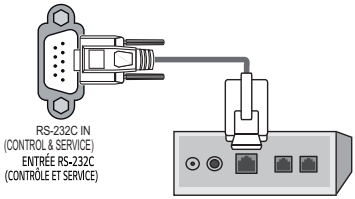
(Depending on model)

- Set the splash image display time.
- When Splash Offset Time is set to Off, logo(splash image) do not display.
- The time can be set to between 0 and 10 seconds.

RS232 DC Power Outlet

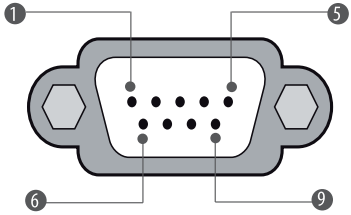
(Depending on model)

- It is a mode to decide whether to output DC or not for power supply to IB Box in Installation Menu. We offer a output terminal in one Pin of RS232C Jack for the use of communication.
- 5 V DC Power Outlet and 12 V DC Power Outlet must operate mutually exclusively. That is, only one of the two sides must be turned on.
  - You can select **Off**, '5 V' or '12 V'.
    - » When select '5 V' the 5 V is forwarded through the port. when select '12 V' the 12 V is forwarded through the port.



Interface box

» Type of Connector: D-Sub 9-Pin Male



Male connector on box, viewed towards connector.

No.	Signal	Signal requirements
1	VCC	
2	RX RS232	Standard RS232 specification
3	TX RS232	Standard RS232 specification
4	IR from TV	
5	GND	Power ground
6, 8	Not connected	
7	2 A	+5 V DC 10 %, max 100 mV ripple
9	1.5 A	+12 V DC 10 %, max 100 mV ripple

One Channel Map

(Depending on model)

- If set to 'Enable', the TV will operate as below.
  - A. When the TV is auto-scanning, it searches both air and cable channels.
  - B. User can assign a channel number him/herself by manual scan.
  - C. In 'Channel Edit' window, all channels are shown in a single list regardless of input source.
  - D. Automatically scanned channels may not have the user-desired channel numbers.
- If user change the 'Enable/Disable' value, an pop-up window will be displayed to warn that all channel will be deleted. The Default value is 'Enable'.

DTV Channel Update

- It is a mode to set whether to update DTV Channel automatically or not.
- When set to 'Auto', update Channel map according to DTV Channel's stream information.
- When set to 'Manual', keep Channel map even though DTV Channel's information is changed.

On Timer Operation

(Depending on model)

- It is a mode to select 'Timer Power On' working one time or repeatedly.
- 'Once': 'Timer Power On' in the user menu operates only one time.
- 'Repeat' : 'Timer Power On' operates repeatedly.

USB Auto Playback

(Depending on model)

- When set to 'Movie', TV finds and plays the USB's movie files located at the root(top) directory Movies if USB is plugged in.
- When set to 'Photo', TV finds and plays the USB's photo files located at the root(top) directory Photos if USB is plugged in.
- If it reaches the last file, it starts the first file again

15Min Auto Off

(Depending on model)

- When set to 'Enable', TV will turn off if there is no signal in 15Min.

Auto Sensing

- If set to 'On', the input is automatically switched when the input signal that you set to "ON' is received.
- If set to 'Disable', the input is not switched when the input signal is received.
  - SIMPLINK and Auto Sensing cannot work simultaneously. If SIMPLINK is set to On, Auto Sensing is automatically set to Disable.
  - If the signal is removed while Auto Sensing (automatic input switch) is enabled, the input returns to the previous setting.
    If the several input are connected by enabling Auto Sensing and the automatic input returns to the previous setting.
    If the several inputs are connected by enabling Auto Sensing and the automatic input switch is performed several times, the input returns to the previous setting only for the last input and does not repeat the operation for the rest.

Quick Start+

(Depending on model)

- This setting puts your TV in standby mode when it's turned off so it will start up more quickly the next time it's turned on.

InStant On

(Depending on model)

- Set to 'Instant On Mute Mode' or 'Instant On Reboot mode' to enable the Instant On feature. The Instant On feature allows the TV to turn On when AC power is applied, but with video and audio muted (Muted On). The TV retains its On status while appearing to be Off. Pressing the POWER button toggles Off/On the video and audio mutes, so that the TV appears to turn On instantly.
  - If this item is set to Instant On Mute Mode, the TV will not reboot to check for and download updates at turn Off. TV seems to be turned off to user(panel is off), but both micom and chipset are on.
  - If this item is set to Instant On Reboot mode, the TV will reboot to check for and download updates from the Pro:Centric server at every turn Off.
  - If this item is set to Instant On Mute mode or Instant On Reboot mode when 'Update Event' is 'Disable', 'Update Event' is set to 'Enable' and 'Update Time' is set to auto(random) time. (Depending on model)

Always on Display

(Depending on model)

- Even when the TV has not been used, it provides optimized wallpaper. When the TV is turned off, it switches to Always on Display to display the selected screen wallpaper.
- This function is supported when instant on is set to instant on mute.
- Set by the Guest
  - If set to 'Off', only one category can be enabled and you can select which category to show with Initial Mode when entering menu. (Clock, Art Piece, Movement, Moments)
  - If set to 'On', 3 categories can be enabled. (Clock, Art Piece, Movement)
- Detail Settings (Go to Always on Display)
  - Screen Off : Automatically turns off Always On Display screen after a selected time.
  - Slide Show Speed : You can set slide show speed.
  - Set Time to Turn On : You can set Always on Display on schedule.

Insert Image

(Depending on model)

- Set to On or Off.
- It is a mode to decide whether to display background image when using Clock app, Bluetooth Sound Sync app, Audio Programme app, No Signal state and watching Radio programme.
- You can download the background image at TV Manager app.

No Signal Image

(Depending on model)

- You can set to 'Off', 'Default Image' or 'Downloaded'.
- It is a mode to decide whether to use no signal image when there is no signal.
- When set to 'Off', do not use no signal image.
- When set to 'Default Image', use no signal image using the default image.
- When set to 'Downloaded', use no signal image using the downloaded image. (Depending on model)

No Signal Text

(Depending on model)

- Set to 'On' or 'Off'.
- It is a mode to decide whether to use no signal text when there is no signal.

DPM

(Depending on model)

(On Europe models, it is indicated by DPM (Standby Mode))

- You can configure the DPM (Display Power Management) function.
- If this option is not set to Off, the TV set enters the DPM mode when there is no input signal.
- If you set this option to Off, the DPM function is disabled.

PM Mode

(Depending on model)

- Power Off (Default)
  - Set the normal DC Off mode.
- Sustain Aspect Ratio (Depending on model)
  - Set the power mode of the HDMI Switching IC, which detects HDMI external input signals in the TV Standby state after DPM Power Off turns off the TV.
- Network Ready
  - Set the Active Standby mode when TV turns off.
  - TV seems to be turned off but it keeps to be on.
  - TV goes through the normal DC On process when it turns on.

Healthcare Headphone Mode

(Depending on model)

- **Healthcare Headphone On**
  - Mute is always applied to TV Speaker.
  - Sound Out menu is displayed as Internal TV Speaker + Wired Headphone, and all Sound Out submenus are gray out (Disable).
  - Internal TV Speaker / Headphone Simultaneous output, Volume key is adjust TV volume (Mute off).
  - Select TV Speaker User Interface. Volume key adjusts the internal TV Speaker volume.
  - Select Headphone User Interface. Volume key adjusts the headphone volume.
- **Healthcare Headphone Off**
  - Sound Out Normal Scenario on Commercial Hotel TV.
  - Sound Out has Menu in default mode (Internal TV Speaker + Audo Out (Optical)).

Screen Saver

(Depending on model)

- When the currently displayed app has not received any user input for an hour, it will be replaced by a Screen Saver.
- If you turn this option 'Off', the current picture may create an afterimage burned onto your screen, possibly permanently.

Default Sound Out

(Depending on model)

- You can configure the Sound Out to be set after power on.
- You can select Off, TV Speaker, Optical, LG Sound Sync., HDMI ARC
- If you set this option to Off, the TV maintains Sound Out after power on.
- If you set this option to HDMI ARC, SIMPLINK is enabled.
- If a SIMPLINK-enabled device is connected to the TV and item SIMPLINK is enabled, the SIMPLINK device Audio Mode will have priority over the setting of this item when the TV is turned ON.

USB Power

(Depending on model)

- You can control the power status of USB port according to the mode.
  - Default : When the TV is turned on, the USB device is powered. USB devices can be used regardless of 'Instant On' state.
  - Warm Off: When the TV is turned on, the USB device is powered. USB devices are available. However, if 'InStant On' is 'Instant On Mute Mode' or 'Instant On Reboot' mode and TV State is 'Instant On', the USB device is powered off.
  - Always Off: No power is supplied to the USB device. However, USB port power may be temporarily supplied when the TV is turned on.

- Please do not turn off the display when the connected USB storage device is working.
- When Turned off the power of USB storage device is suddenly, the stored files or the USB storage device may be damaged.

Mute Icon Stay Visible

(Depending on model)

- If the volume level is 0 or mute, keep the mute indication.

External Speaker

(Depending on model)

Volume Control

- Selects the volume control method of an external speaker.
- You can select 'Off', 'Int Variable', 'Fixed' or 'Ext Variable'. (Depending on model)
- Ext Variable uses the External Vol Up/Down Control Line to change the volume up to 2 Watts.
- Int variable is linked to the main volume OSD and change the volume up to 2 Watts.
- Fixed produces a fixed output. The default is Off.

Output

- This item is ensabled when Volume Control is set to 'Int Variable', 'Fixed' or 'Ext Variable'.
- You can choose one of 7 steps. (0.01/0.03/0.05/0.1/0.2/0.5/1/1.5/2 Watts).
- The Default is 2 Watts.

- Some models support the volume up to 1Watt.

TV Speaker Off

- You can turn off TV speaker to hear sound from only external speaker.

Audio Line Out

(Depending on model)

Volume Control

- Selects the volume control method of an audio line out.
- You can select 'Off', 'Int Variable', 'Fixed', 'Ext Variable'. (Depending on model)
- Ext Variable uses the External Vol Up/Down Control Line to change the volume up to 0.02 Watts.
- Int variable is linked to the main volume OSD and change the volume 0 - 0.02 Watts.
- Fixed support fixed volume only - 0.02 Watts

TV Speaker Off

- You can turn off TV speaker to hear sound from only audio line out.

Set ID Setup

Set ID Lock

- Set the 'Set ID' item in the user menu whether to activate or not.
- Set to On (Work) or Off (Do Not Work).

Set ID

- Set the 'Set ID' of TV Set with 1~99.

- Some models support the Set ID up to 1000.

Power Saving

Static Saving

- It is the item for setting the level to reduce the backlight control from the items for saving the consuming power, which is increased or decreased by 10 steps from 0 to 100. 100 makes the consuming power set to the same one from the TV. 0 reduces the consuming power to the minimum. The default value is 100.
  - The value displayed at the OSD is not changed and only the actual setting value is converted to percentage based on the static saving value to set.
  - 0 ~ 30: HIGH, 40 ~ 60 : MID, 70 ~ 90 : LOW, 100 : OFF.

Minimum Backlight

- This function controls the minimum backlight in case of using the Ambient Light sensor.

Keyless Off Hours

- Automatically TV will be turned off if there is no key input for the preset time period.

HCEC Setup

(Depending on model)

CEC Mode

(Depending on model)

- You will have 2 modes to choose [Default], [HCEC].
- If [Default] is selected, you can use SIMPLINK which is provided in LG TV. Also you can enable and disable SIMPLINK through SIMPLINK MENU.
- If [HCEC] is selected, you can use TVLink-HCEC Protocol. (For more detailed information, please refer to TVLink-HCEC Protocol document)

IR Decoding

- When 'IR Decoding' is set to 'Enable', the TV decodes and changes it into a CEC Message and sends it to Command via the HDMI CEC Line. The default value is Disable.

Device ID

- Sets the ID of a device(Logical Address) connected to the CEC Line. You can choose 'All' and from '0 x 01' to '0 x 0E'(All, 0 x 01 ~ 0 x 0e).
- The default value is 'All'.

StandBy

- Set the sending and receiving scenario of OpStandBy(0 x 0c) command.
- Ths detailed scenario is described on the table below.

	Send	Receive
Send Only	O	X
Receive Only	X	O
All	O	O
Off	X	X

HTNG Public Display Mode

(Depending on model)

- If you use following functions via TVLink-HCEC, HTNG Public Display Mode will be set as "Yes" automatically.
  - Power On Default, Start Volume, Maximum Volume, Minimum Volume, or Start Volume.
- Even if Public Display Settings is set as No, above settings are still effective.

Clock Setup

(Depending on model)

ENGLISH

Mood Display Setup

(Depending on model)

- You can setup Mood Display features.

Clock Display

(Depending on model)

- You can select 'Enable' or 'Disable'.
- After selecting 'Enable', you can see the LED Clock TV.

Dimming Standby

(Depending on model)

- Standby Dimming value Range : 1~2

Dimming PowerOn

(Depending on model)

- PowerOn Dimming value Range: 1~5

Clock Source

- You can select 'Off', 'Pro:Centric', 'TV', 'NTP', 'Admin'.
- NTP : Clock is synchronized using Network Time Protocol. It's only enabled when network cable is connected. (Depending on model)
- Admin : It's automatically set to Admin when clock is updated by commercial protocols like TVLink-HCEC, TVLink-Interactive, or HCAP API.
- Off : Clock is synchronized using any available clock source.
- Pro: Centric : Clock is synchronized using Pro:Centric server. (Depending on model)
- TV : Clock is synchronized using particular TV channel.
  - **Input** (Depending on model)
    - » You can select 'Input' according to 'Clock Source'.
    - » You can select 'RF' or 'IP' when Clock Source is 'Pro:Centric'.
    - » You can select TV source when Clock Source is 'TV'.
    - » Input is set to 'None', 'HCAP', 'Protocol', 'HTNG' automatically when Clock Source is 'Admin'.
  - **Channel / Frequency** (Depending on model)
    - » Sets the Frequency to get the time information when Clock Source is 'Pro:Centric'.
    - » You can select channel when Clock Source is 'TV'.
  - **Timezone (City) / Timezone (Custom) / Timezone (Offset)** (Depending on model)
    - » In the case when there is difference between the time information received from the Teletext and the time of the current area, it can be set up to correct this. The initial value is 0, and it can be changed in the range of -12 Hrs ~ +14 Hrs. (Timezone (Offset) range is -12 Hrs ~ +12 Hrs)

Welcome Video Mode

(Depending on model)

- You can set to Off, Once or Repeat.

Operation

- The video displays after your TV is turned on and the boot logo appears.
- If Welcome Video is enabled and a video is downloaded on the TV, the video plays.
- The time it takes a video to be displayed may differ depending on the decoding time of the video.
- Controls for playing the video are not available. (Pause, stop, fast forward, etc.)
- Videos in any file format that the TV supports can be downloaded and displayed.

Crestron

(Depending on model)

Crestron Connected

- The connection status of the server type shall be indicated by pictures and phrases. (Disconnected, Connecting, Connected)
- Type: You can select the server type you want to connect to (Off, Control System, Virtual Control, Fusion)
- CONNECT: If you press the button once, a set tries to connect to the server and the button phrase is changed into DISCONNECT. In this case, the upper items are immutable. To disconnect and change upper items, pressing the button again is needed.
- Information for connecting with the server
  - Type: Control System
    - » Server: Enter the IP information of the server
    - » Port: Enter the Port information for the server
    - » IP ID: A unique ID that distinguishes crestron equipment from server
  - Type: Virtual Control
    - » Room ID: A unique ID that distinguishes room from server. If the IP ID is the same, but the Room ID is different, the server recognizes it as a different crestron equipment.
    - » Server, Port, IP ID are the same as Control System's.
  - Type: Fusion
    - » Method: Connection direction can be selected. (Device to Fusion, Fusion to Device)
    - » Device to Fusion: How to connect from set to server
    - » URL: Server URL
    - » Port: Server Port
    - » Fusion to Device : How to connect from server to set
- Auto Discovery: The ability to locate other Crestron equipment in the network
- SSL: Communication security with server can be established. The following items are meaningful only at SSL on
  - User, Password: When the Authentication function is turned on on the server, User and Password must be entered to connect with the server.
  - Verify Certificate: A feature that checks whether a certificate installed on a server is valid. If it is not valid, it does not connect to the server
  - Certificate Download: The certificate must be stored in the set to perform the Verify Certificate function. Only certificates with extensions .pem, .crt in the USB root directory are recognized and can be added or deleted through the menu. All certificates stored at the time of Factory Reset are deleted.

XiO Cloud

- The connection status with XiO Cloud is displayed. (Disconnected, Connecting, Connected)
- CONNECT: If you press the button once, a set tries to connect to the server and the button phrase is changed into DISCONNECT. To disconnect, pressing the button again is needed.

Developer Mode

(Depending on model)

- This feature provides great convenience to the app developers.
- Set up to install the Developer mode app.

Security

Port Control

(Depending on model)

- Unused ports can be blocked for network security

Lock Mode

- If 'Lock Mode' is 'Yes', the following features will be unavailable.
- USB
  - If set to 'Enable', USB devices do not work in relative features. (Updates via USB are possible regardless of the 'USB' lock. However, some models cannot be updated via USB.)
- Factory Reset
  - If it is set to 'Enable', 'Reset to Initial Settings' item in the user menu is disabled.

Password Change

- To ensure more security, Password can be changed by installers' own design.

TV Information

- You can check the TV information.

Check Items

- You can Inspect the TV status.

TV Manager Password Protection

- You can set password for protect access to TV Manager.
- When TV Manager password protection is activated, the password is required for access to TV Manager.

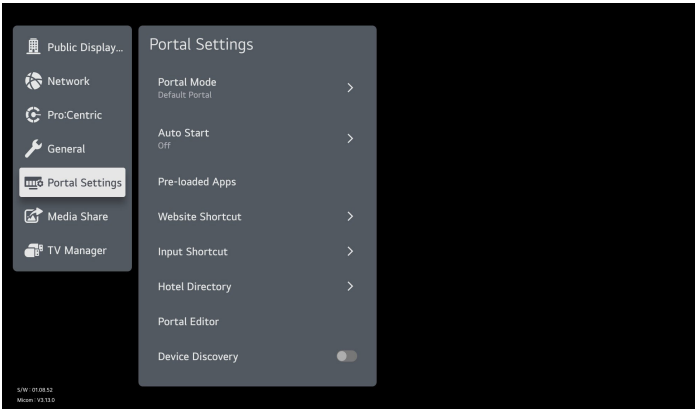
SW Update

(Depending on model)

- You can update TV software by Firmware Over The Air(FOTA) server.

Portal Settings

(Depending on model)



Portal Mode

(Depending on model)

- You can select 'Default Portal' (Use webOS default portal), 'Customizable Portal' (Use editable Portal), or 'None' (Do not use portal).

Auto Start

(Depending on model)

- You can select 'Off', 'Website Shortcut', or 'Portal Mode'.
- If you select 'Website Shortcut', Shortcut app will be excute automatically after TV on.
- If you select 'Portal Mode', Portal(Home Launcher) will be excute automatically after TV on.

PreLoaded App

(Depending on model)

- If you want to use a particular app, you can choose from the menu. you can setting each apps activation.

Website Shortcut

(Depending on model)

Shortcut

- Sets Enable or Disable. When it is set to Enable, Website Shortcut app is displayed at launcher bar.

Shortcut Name

- You can set Website Shortcut app name (title).

Shortcut URL

- Sets URL to connect when excute Website Shortcut app.

Shortcut Icon

- You can select default icon, fav icons, downloaded icon or Download(Go to TV Manager).
- You can download the shortcut icon at TV Manager app.

Tile Color (Color Code)

- You can change Website Shortcut app tile color using RGB color code.

Input Shortcut

(Depending on model)

Shortcut

- Sets Enable or Disable. When it is set to Enable, Input Shortcut app is displayed at launcher bar.

Shortcut Name

- You can set Input Shortcut app name (title).

Shortcut Icon

- You can select default icon, downloaded icon or Download(Go to TV Manager).
- You can download the shortcut icon at TV Manager app.

Tile Color (Color Code)

- You can change Input Shortcut app tile color using RGB color code.

Hotel Directory

(Depending on model)

- Set the information to display at Hotel Directory app.

Facility or Service Name

- Set the facility or service name.

Details or Extension

- Set the detailed information.

Related Photo

- You can select None, downloaded images or Download (Go to TV Manager).
- You can download the directory images at TV Manager app.

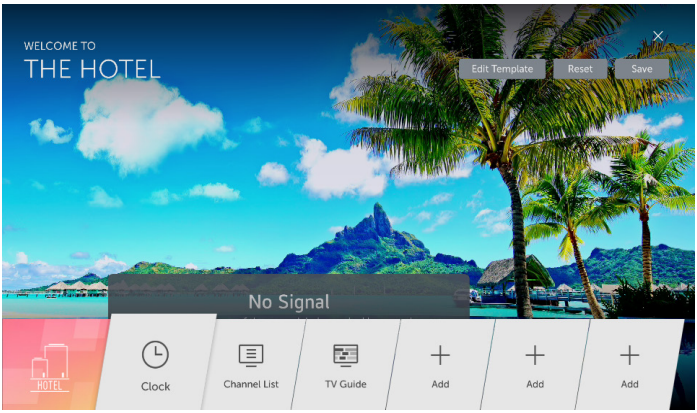
Portal Editor

(Depending on model)

- If you press 'Portal Editor' menu, each portal editor is launched according to 'Portal Mode'.

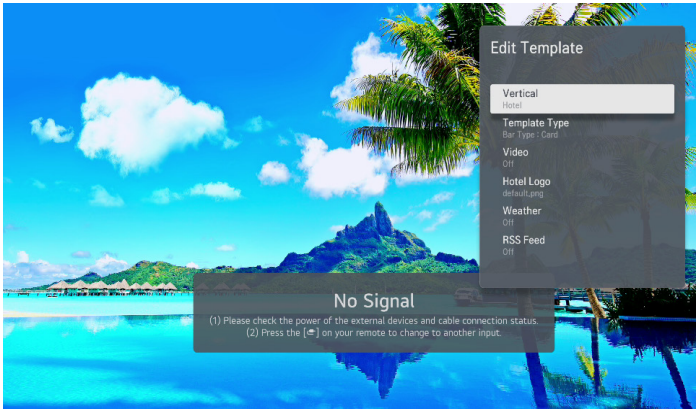
Customizable Portal

* Images shown may differ from your TV.



- Welcome Message, Hotel Name
  - You can set the welcome message and hotel name by selecting the upper left area.
- App List
  - You can add an application by selecting the Add button from the list at the bottom.
  - You can replace another application by selecting an already added application tile.

- Edit Template



  - Vertical
    - » You can set Vertical when selecting focus. Select between Hotel or Hospital.
  - Template
    - » You can set Template when selecting focus. Select between Bar Type or Tile Type.
  - Video
    - » You can set this mode to On/Off when selecting Customizable Portal.
    - » You can download the video at TV Manager app.
  - Logo
    - » You can select images for Default/Downloaded image.
    - » You can download the icon at TV Manager app.
  - Weather
    - » You can set whether or not to show weather information.
    - » You can set the city.
  - RSS Feed
    - » You can set whether or not to show RSS feed.
    - » You can set the URL to get the RSS feed information.
    - » You can set scroll speed of RSS feed.

- Reset
  - You can reset to the state before saving the customizations.

- Save
  - Save your customizations.

Device Discovery

(Depending on model)

A function that enables sets connected to one network to search to each other.

Portal Manager

(Depending on model)

This feature enables you to group together multiple monitor sets on a single network into the same group and copy portal setting data on a group basis. This feature has two modes, Master and Slave.

Master

- Add, edit, and delete group.
- Distribute your device's portal data.
- All monitor sets initially come in Master mode.

Slave

- Remove monitor sets for their groups.
- Monitor sets that have been added to a group are automatically switched to Slave mode. Conversely, when a monitor set has been deleted from a group, it is automatically initialized and switched to Master mode.
- If a new Slave has been added to an existing group, or if the portal data has not been properly distributed from master, the Cloning button will be activated.
- You can duplicate the master device's portal setting data by using Cloning.

Group Management

- Creating a New Group
  1 Click Add New Group.
  2 Enter a group name.
  3 Click Add Device, select the devices you wish to add to the group, and add them.
  4 Click Done, and you will see that a new group has been created.
- Editing a Group
  1 Click the group you wish to edit.
  2 Add a new device by using Add Device.
  3 Delete a device by using Delete Device.
  4 Check whether the devices in the group are connected to a network by using Device Check.
  5 If there are any sets of devices in the group that are not portal data synchronized, Distribute button will be activated.
  6 You can re-distribute the master device's portal setting data to the group by using Distribute.
- Deleting a Group
  1 Click Delete Group.
  2 Select the group you wish to delete and click Delete.
  3 Check that the group you selected has been deleted.
- All Devices View: This page enables you to manage all slave monitor sets that are connected to the same network.
  1 Click All Devices View.
  2 Click Reset Device Mode.
  3 Select the slave monitor set whose device mode you wish to change and click Initializing.

Portal Distribution

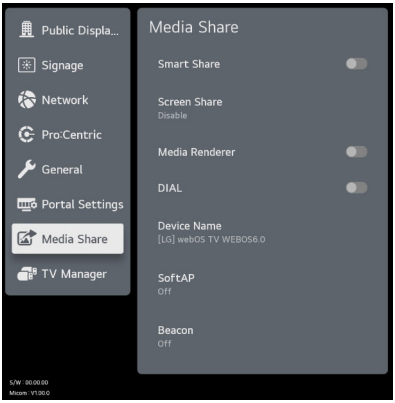
1 Select your desired group and click Distribute.
2 Set power off on the slave sets by using remote controller after distribution is completed.
3 Check that the data have been copied on the slave sets after a 1 minute.

* How to Use

- Monitor: Run, add, delete or edit app on the portal setting of the installation menu
- You can create up to 25 groups.
- You can add up to 12 slave devices to a group.
- A list of devices you can add to your desired group appears only when the following conditions have been met:
  - The devices you wish to add must be on the same network as the master device.
  - The devices you wish to add must be in Master mode, and they must not belong to any existing group.
  - The UPnP feature must be enabled.
    » Hotel : you must do one of the things listed below.
    i. Enable SmartShare(dlna) ⇨ reboot
    ii. Enable DIAL ⇨ reboot
    iii. Enable Media Renderer(DMR) ⇨ reboot
    iv. Enable LG connect ⇨ reboot
- It may not work properly in wireless network environments. It is recommended you use a wired network.

Media Share

(Depending on model)



SmartShare

(Depending on model)

- Smart Share enables DLNA function. If this value is enabled, TV acts as Media Player and displays Media Server contents through Smart Share app.

Screen Share

(Depending on model)

- Screen Share enables WiFi p2p functions. If this value is enabled, Screen Share app is displayed at launcher bar and TV can display the screen of mobile phone or laptop.
- If you want Completely Exit Screen Share App, Click 'X' Button on right top side.

LG Presenter

(Depending on model)

- LG Presenter uses wired/wireless connection to share PC screen(Windows or Mac OS). If this value is enabled, LG Presenter app is displayed at launcher bar and TV can display the screen of PC or laptop.

Media Renderer

(Depending on model)

- Media Renderer enables the TV to act as a Media Renderer device to receive contents from devices on the same network.

DIAL

(Depending on model)

- With this DIAL service, you can launch the target app at Smart Home Launcher bar without select the target app by remote controller. Before this function enables, the target app should be selected at Installation Menu ⇨ **Portal Settings** ⇨ **Preloaded App**.

Device Name

- When media devices(ex: smart phone, desktop, laptop) are searching TV, this string will be displayed.

SoftAP

(Depending on model)

- SoftAP is similar to Access Point. When this value is On, Wi-Fi Service application is displayed at the launcher bar. SoftAP is activated when user selects On in the Wi-Fi Service application.
- Regardless of the Instant On mode, the SoftAP setting stays unchanged after power off/on. (Depending on model)

Use Default

- If you want to use default password(this password was generated randomly), you must select 'Enable' in this item.

Security Key

- If you want to change default password, you need to change 'Use Default' value into 'Disable'.

Wi-Fi Signal Strength

- You can control wireless signal strength on SoftAP. This is controlled by 5 step. If you select 'Not Used', wireless signal strength will be set to Max value.

Wi-Fi Channel

- You can control the wireless channel in SoftAP mode. It is controlled by 1 to 11 channels(2.4GHz). The 5GHz channel is controlled by the channel supported by the country where it is set. However, DFS channels cannot be set. If you select'Auto', the SoftAP's wireless channel is set to a random channel.

Mode

(Depending on model)

- You can select NAT(Network address translation) mode and BRIDGE mode for Soft AP.

Security Type

(Depending on model)

- This menu is activated only when Bridge mode is selected.
- Type of security authentication protocol required for wireless connectivity
- WPA2-PSK, 802.1X EAP, and OPEN are available from this menu.

Radius Server IP, Radius Server Port, Radius Server Key

(Depending on model)

- This menu is activated only when Bridge mode is selected and 802.1X EAP is selected.
- If you want to use 802.1X, you must enter the IP address of the authentication server that manages the user's credentials, as well as the Port and Key information.

VLAN ID

(Depending on model)

- This menu is activated only when Bridge mode is selected.
- SoftAP VLAN ID is needed when you want to separate TV packets and SoftAP packets.
- The packets via SoftAP are tagged when the packets go through LAN port to external network.
- It is not compatible with Network ⇨ VLAN ID. (SoftAP VLAN is not available if LAN port or AUX port in VLAN ID is set.)

Beacon

(Depending on model)

- This option enables BLE Beacon, one of Bluetooth 4.0's features.
- Beacon Mode (On/Off Toggle): enables the Beacon feature.
- The iBeacon/Eddystone Type Beacon features are supported.

iBeacon

- Beacon UUID (hex): Set the UUID.
  - Field1: 4byte hex value (8 digits)
  - Field2: 2byte hex value (4 digits)
  - Field3: 2byte hex value (4 digits)
  - Field4: 2byte hex value (4 digits)
  - Field5: 6byte hex value (12 digits)
- Major (0–65535): Sets the Major value.
- Minor (0–65535): Sets the Minor value.

Eddystone

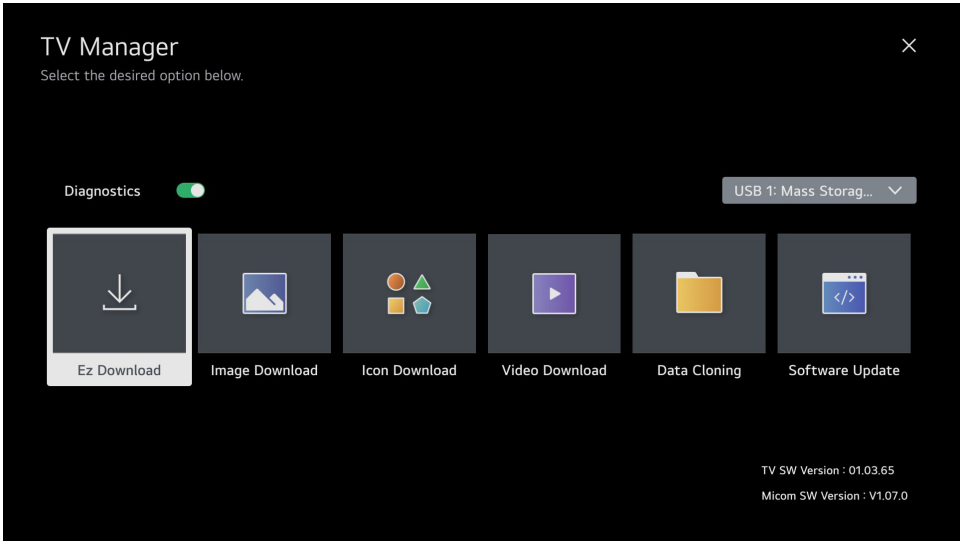
- Frame: Set UUID or URL.
  - Beacon UUID (hex): Set the UUID
    - » Field1: 10 byte hex value (20 digits)
    - » Field2: 6 byte hex value (12 digits)
  - Setting the URL method
    - » URL Prefix: Sets the prefix of the URL.
    - » URL Suffix: Set the suffix of the URL.
    - » URL: Enter the part of the URL that excludes the prefix and suffix.
    - » URL string length is limited to 15 characters.

- Some models do not support background screening services in iOS.
- A reboot is recommended for the settings to be applied properly.
- The UUID value is hexadecimal and the exact number of digits must be entered.
- The distance of the beacon may vary depending on the external device.
- Beacon's distance may vary depending on the app you use on your external device.
- The Beacon feature uses Bluetooth Low Energy (BLE) technology and is therefore susceptible to radio waves. 2.4 GHz environment if not, normal operation may not be possible.

TV Manager

* Images shown may differ from your TV.

You can update files from a USB memory device to TV through the TV manager.

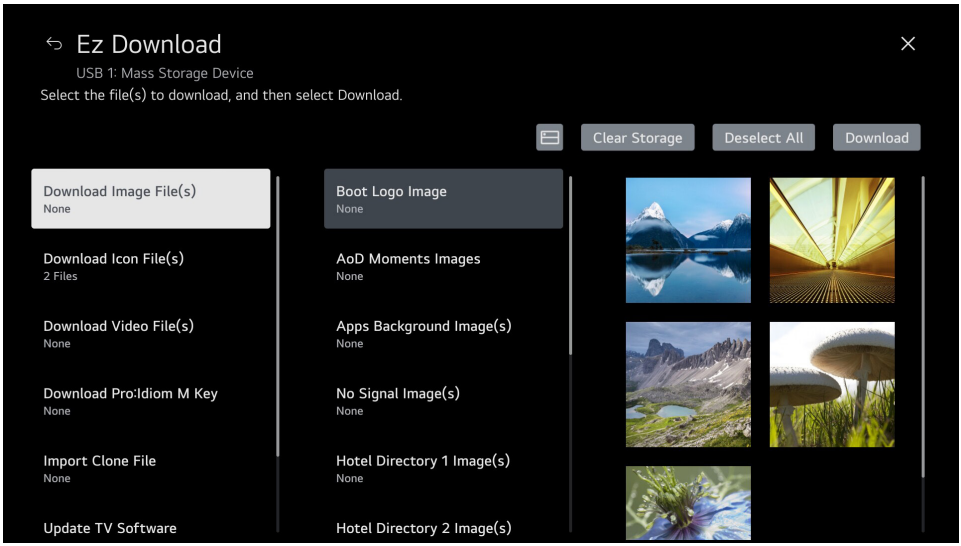


Diagnostics

(Depending on model)

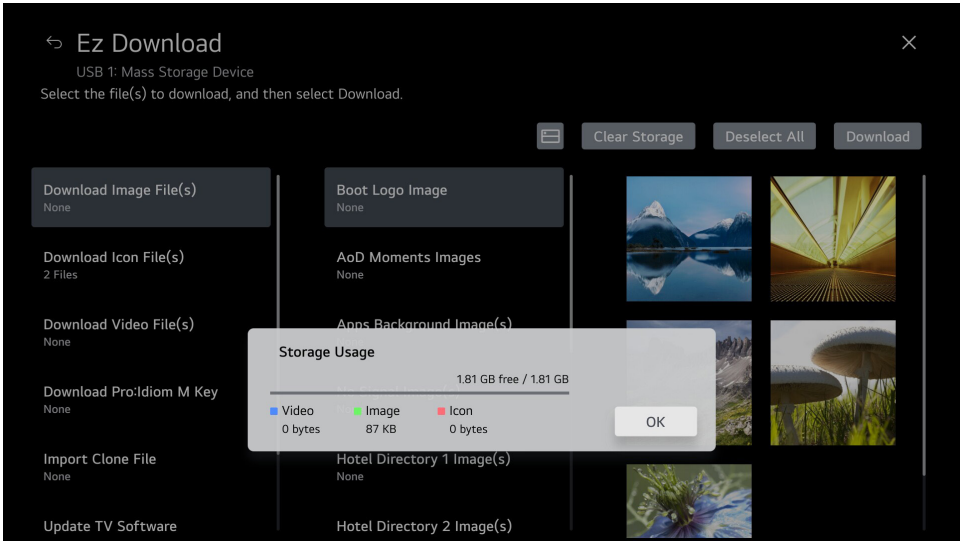
- Sets Enable or Disable. When it is set to Disable, user can't control TV via RMS. The changed setting is applied after reboot.

Ez Download

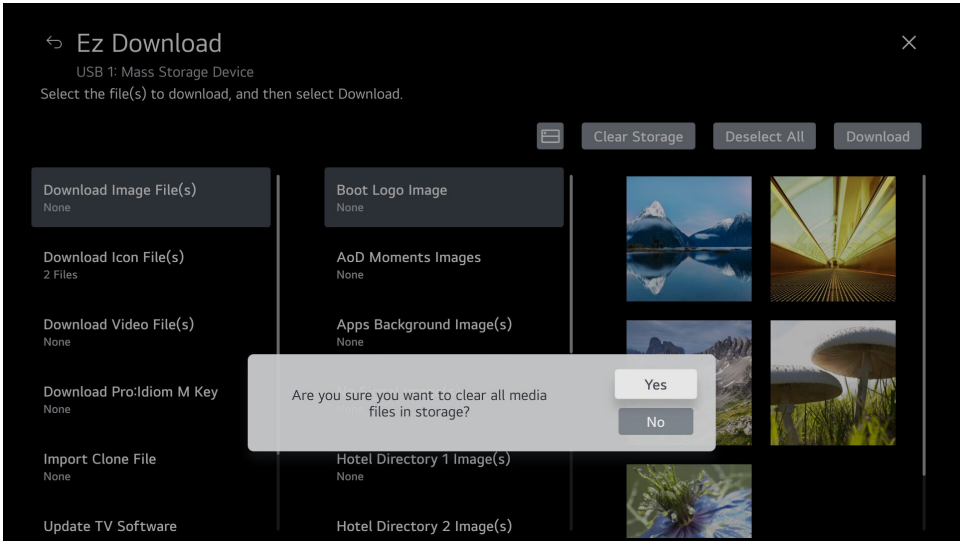


- Ez Download is a function that enables users to download the desired items all at once, such as EPK (software update file), TLL, Media files, Micom, Pro:Idiom M Key. (Depending on model)
  - Media files, Pro:Idiom M Key files, and Software Update files must be stored in a folder named "LG_DTV" in the root directory of the USB memory device.
    - » Clone (.tlx) files should simply be stored in the root directory of the USB device.
    - » If you press 'EZ Download' menu, EZ Download is launched.
    - » The "Download Pro:Idiom M Key" option only appears if a ".pim" file is detected on the USB device.
    - » Pro:Idiom M key file name should be specified as checksum with MD5 and extension should be specified as "pim". (case-insensitive)
    - » Pro:Idiom M Key file should be encoded by ANSI(ASCII).
    - » Pro:Idiom M Key file length should be 1024 bytes. (32 bytes * 32)
    - » If file name or the length are wrong, the file download will be failed.
    - » If you do "Factory Reset", Pro:Idiom M Key will return back to default Key.

- When the download is completed and a DZM file is created on the USB memory device, the TV Manager is automatically run by the DZM file.
  Then go to Ez Download automatically and select the file you downloaded previously.



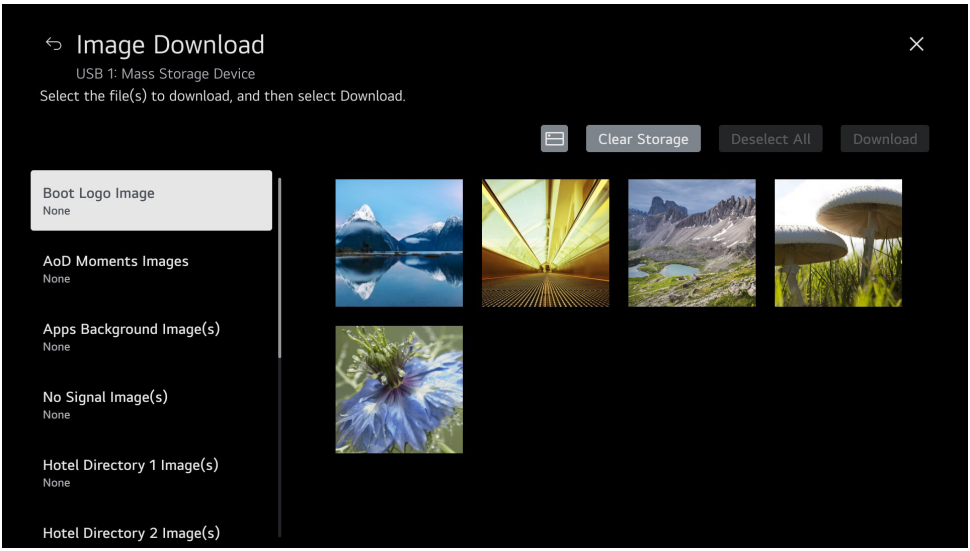
- Press button to display storage usage information.



- Press the "Clear Storage" button to delete the downloaded media files.

Image Download

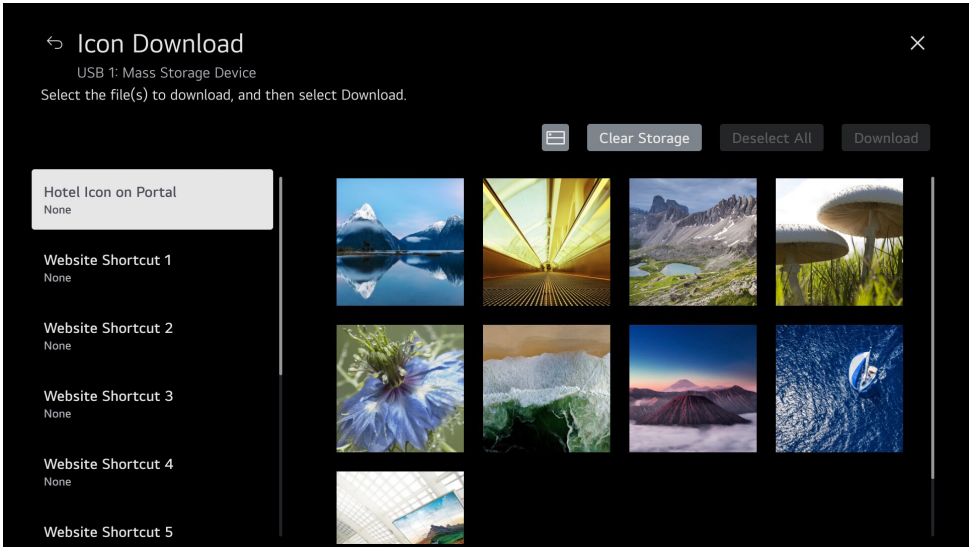
(Depending on model)



- The download sequence is Image Download ⇨ Select Image(s) ⇨ Download.
- The image files must be stored in a folder named "LG_DTV" in the root directory of the USB memory device.
- Press the "Clear Storage" button to delete the downloaded images.
  - **Boot Logo Image** (Depending on model)
    - » Boot Logo Image can download only one file.
    - » Boot Logo Image update function supports only JPG, JPEG (up to 6 MB per image) or BMP (up to 5.93 MB per image) format file.
    - » We recommend you that splash image resolution match the TV`s panel resolution.
    - » Max resolution of splash image : Full HD ⇨ 1920 x 1080, HD ⇨ 1360 x 768.
    - » Min resolution of splash image : 64 x 64.
  - **Apps Background Image(s), No Signal Image(s), Hotel Directory Image(s)** (Depending on model)
    - » Image update function supports only JPG, JPEG, PNG format file(s).
    - » Max resolution of image : UHD ⇨ 3840 x 2160, Full HD ⇨ 1920 x 1080, HD ⇨ 1360 x 768.
    - » Min resolution of image : 64 x 64.
    - » The maximum number of images to choose from per feature is 12.
    - » Images per feature can not be downloaded beyond 10 MB.
    - » If you updates the images, original images will be removed.
    - » If you want to use 'Apps Background Image(s)' in Bluetooth Sound Sync app, Live TV's Radio Programme and Clock app, please change the value of 'Insert Image' property to enable ('Insert Image' in Installation ⇨ **General** ⇨ **Configuration Setup**).
    - » If you want to use 'No Signal Image(s)', please change the value of 'No Signal Image' property to 'Downloaded'('No Signal Image' in Installation ⇨ General ⇨ Configuration Setup).
  - **AoD Moments Images** (Depending on model)
    - » AoD Moments function supports only JPG, JPEG, PNG format files.
    - » Images can not be downloaded beyond 100 MB
    - » If you updates the images, original images will be removed
    - » At least 16 images must be selected.

Icon Download

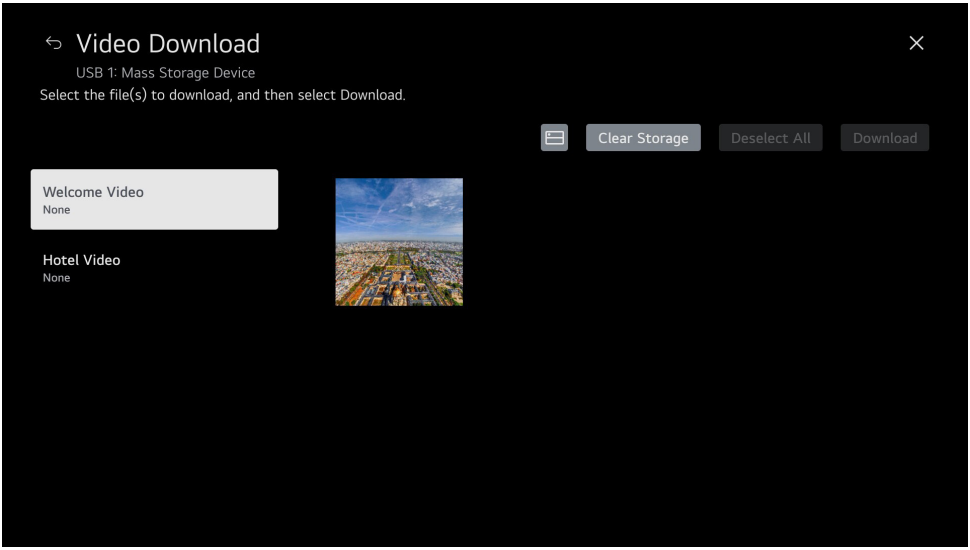
(Depending on model)



- If you updates the images, original images will be removed.
- The download sequence is Icon Downalod ⇨ Select Images ⇨ Download.
- Icon update function supports only JPG, JPEG, PNG format file.
- Press the **Clear Storage** button to delete the downloaded icons.
  - Hotel Icon on Portal, Website Shortcut, Input Shortcut
    - » The image files must be stored in a folder named "LG_DTV" in the root directory of the USB memory device.
    - » Image files can download only one file.
    - » Max resolution of icon : UHD ⇨ 3840 x 2160, Full HD ⇨ 1920 x 1080, HD ⇨ 1360 x 768.
    - » Min resolution of icon : 64 x 64.
  - IPTV Channel Logo File (Depending on model)
    - » This feature copies the "channelLogo" folder on the USB memory device.
    - » Copy only files with the image format "JPG, JPEG, PNG".
    - » We recommend you that the maximum resolution of the channel logo image file is 1920x1080 or lower.

Video Download

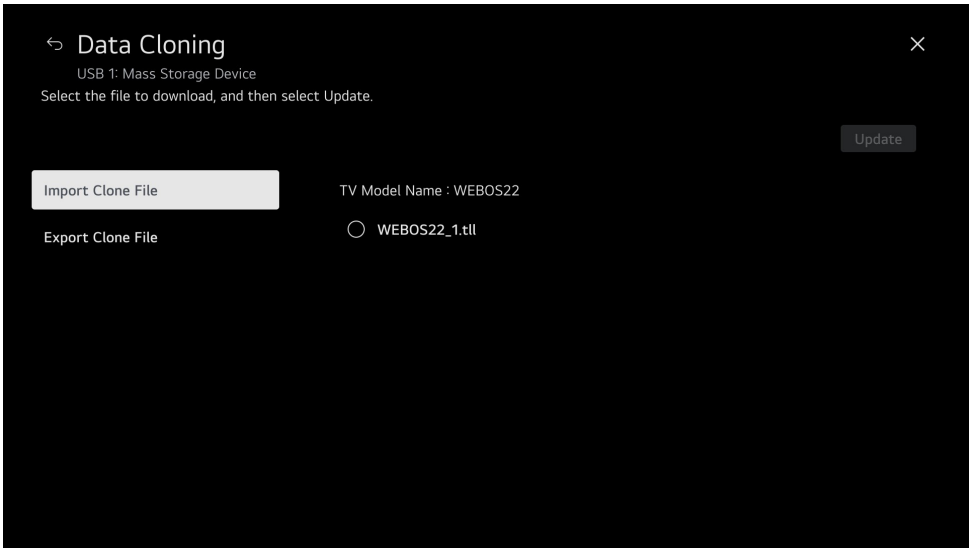
(Depending on model)



- The video files must be stored in a folder named "LG_DTV" in the root directory of the USB memory device.
- The download sequence is Video Download ⇨ Select video file ⇨ Download.
- Video files can only download one file each.
- If you updates the video file, original file will be removed.
- Press the "Clear Storage" button to delete the downloaded videos.

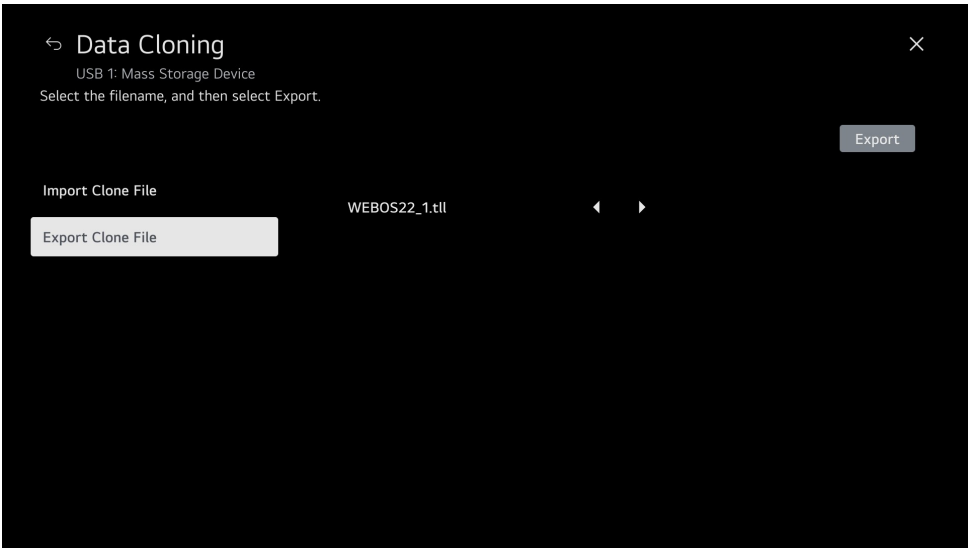
Data Cloning

Import Clone File



- Once the internal TV data and its programme map information are written to the USB memory device, the user can perform "Import Clone File" with a clone (.tll) file located in the root directory of the USB memory device. The user should not turn TV off nor unplug the USB device while processing.

Export Clone File



- "Export Clone File" creates a clone (.tll) file in the root directory of the USB memory device. The user must not turn TV off nor unplug the USB device while processing.

USB Download Menu

ENGLISH

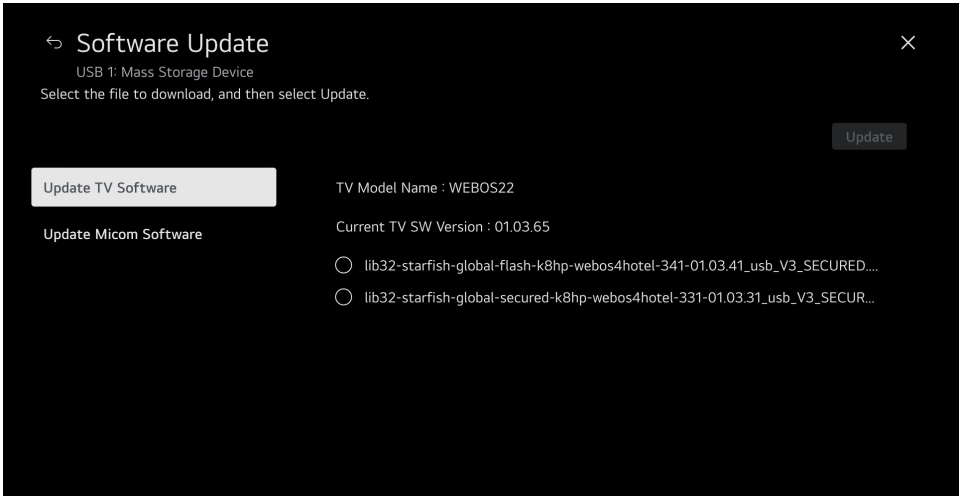
USB Cloning

An Installation can quickly set up and clone multiple TV sets at a property. These cloned TVs will all have the same Master TV Setup: Installation Menu settings, User A/V settings and the programme Map. This newer procedure significantly decreases the installation time that would be necessary if the standard RS-232C method were used instead.

- **Overview USB Cloning Procedure**
  : Commercial TVs have the capability to support cloning internal TV data and programme information with an external clone device called "USB Cloning", in order to copy TV data accurately and quickly. The clone internal functions use slightly different internal processes for the two types of commercial TVs. However, the UI of cloning feature remains the same in both. Regarding the demands over the current cloning feature for quicker cloning, better portability and etc, we would like to announce the cloning process via USB port, named as USB Cloning. USB cloning process is divided into 2 main processes. One is writing the previously saved TV data into the TV, and one another is reading of current TV data into USB memory card. To avoid any confusion due to the words, it is clearly specified as "Import Clone File" and "Export Clone File" in the whole process.
- **Data To Be Cloned**
  : The data cloned are the same data cloned by previous USB Cloning. Details are explained in the following:
  - TV data includes :
    - » Installation Menu settings
    - » Main menu settings (Audio, Picture etc)
  - Analog / Digital Programme information includes:
    - » Programme numbers
    - » Programme label
    - » Programme attributes including programme type, skipping status and etc.
-

Software Update

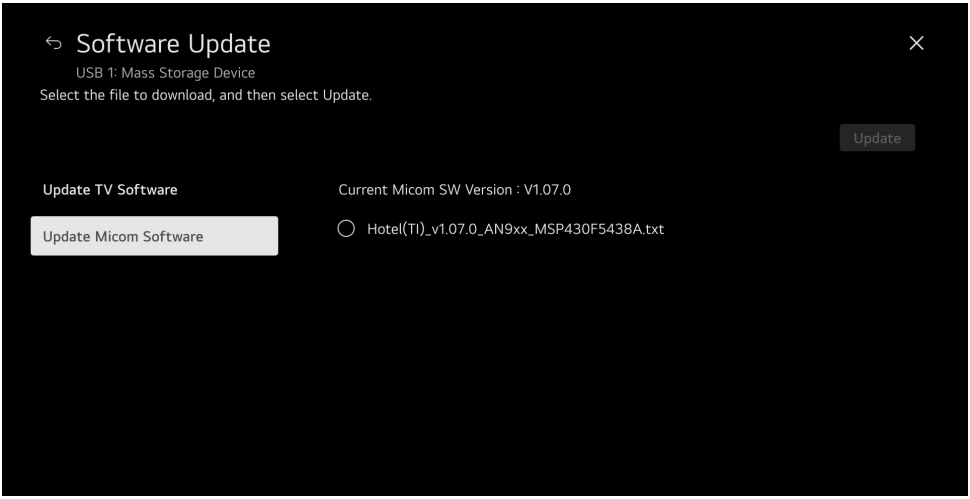
Update TV Software



- This feature updates the TV software using the EPK file contained in a folder named "LG_DTV" in the root directory of the USB memory device.
- The download sequence is Software Update ⇨ Update TV Software ⇨ Select file(EPK) ⇨ Update.

Update Micom Software

(Depending on model)



- This feature updates the Micom software using the txt or the hex file contained in a folder named "LG_DTV" in the root directory of the USB memory device.
- The download sequence is Software Update ⇨ Update Micom Software ⇨ Select file(txt) ⇨ Update.

IR Codes

ENGLISH

- This feature is not available for all models.

▶ A Type

Code (Hexa)	Function	Code (Hexa)	Function
08	(POWER)	44	OK
95	ENERGY SAVING	43	SETTINGS
AF	LIVE ZOOM*	28	(BACK)
0B	INPUT	5B	EXIT
F0	TV/RAD	72	
10-19	Number Key 0-9 Alphabet buttons (Space)	71	
53	LIST	63	
1A	Q.VIEW	61	
02	+	20	TEXT
03	−	21	T.OPT(T.Option)
7C	SMART	39	CC
B5	APP	B1	■
09	MUTE	B0	▶
00	P PAGE	BA	❚❚
01	P PAGE	8F	◀◀
AB	GUIDE	8E	▶▶
0C	PORTAL	DC	3D/*
AA	INFO	9F	DATA/*
40	∧	91	AD/*
41	∨	E8	ALARM/*
07	<		
06	>		

▶ B Type

Code (Hexa)	Function	Code (Hexa)	Function
00	∧CH / ∧PAGE	45	Q.MENU
01	CH∨ / PAGE∨	4C	— (Dash) / LIST
02	+ VOL	4D	PICTURE
03	VOL —	52	SOUND
06	▶	5B	EXIT
07	◀	61	(Blue)
08	⏻ (Power)	63	(Yellow)
09	(Mute)	71	(Green)
0B	(Input)	72	(Red)
0E	SLEEP	79	RATIO
0F	TV	7C	(Home)
10 - 19	Number Key 0 - 9	8E	▶▶
1A	Q.VIEW	8F	◀◀
1E	FAV	91	SAP/✱ / AUDIO
28	BACK	AA	ⓘINFO
39	CAPTION	B0	▶
40	▲	B1	■
41	▼	BA	❚❚
43	(Settings)	AB	GUIDE/✱
44	OK		

▶ C Type

Code (Hexa)	Function	Code (Hexa)	Function
00	CH ∧ PAGE	C0	(Green)
01	CH ∨ PAGE	C1	(Red)
02	VOL +	C2	(Yellow)
03	VOL −	C3	(Blue)
06	>	8E	▶▶
07	<	8F	◀◀
08	⏻ (Power)	B0	▶
09	MUTE DELETE	B1	■
10 - 19	Number Key 0 - 9, ␣ (Space)	BA	❚❚
28	↩ (Back)	AA	INFO ⓘ
39	CC CHAR/NUM	AB	GUIDE
40	∧	7C	SMART
41	∨	7E	SIMPLINK
43	MENU SETTINGS	DC	3D/*
44	OK ENTER ◉	60	PIP/*
0B	INPUT	61	PIP INPUT/*
0C	PORTAL	71	PIPCH+/*
0E	TIMER	72	PIPCH-/*
1A	FLASHBK	63	SWAP/*
4C	– (Dash)	91	VD/*
5B	EXIT	-	TV
		-	DVD

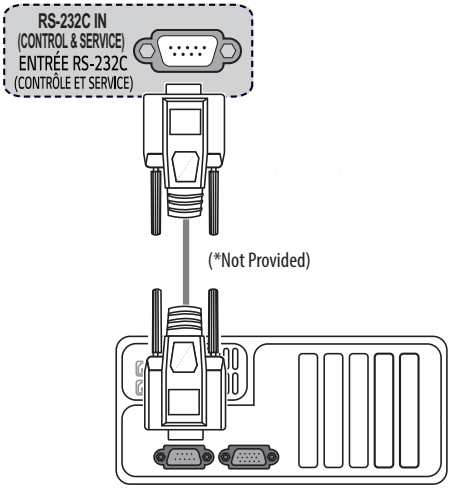
External control device Setup

RS-232C Setup

Connect the RS-232C (serial port) input jack to an external control device (such as a computer or an A/V control system) to control the product's functions externally.

Connect the serial port of the control device to the RS-232C jack on the product back panel.

- RS-232C connection cables are not supplied with the product.



(Depending on model)

Phone jack Type

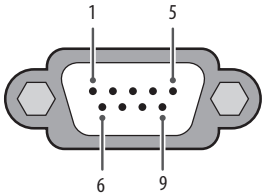
(Depending on model)

- You need to purchase the phone-jack to RS-232C cable required for the connection between the PC and the TV, which is specified in the manual.

* For other models, connect to the USB port.

* The connection interface may differ from your TV.

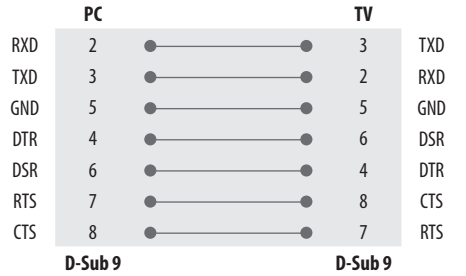
Type of Connector : D-Sub 9-Pin Male



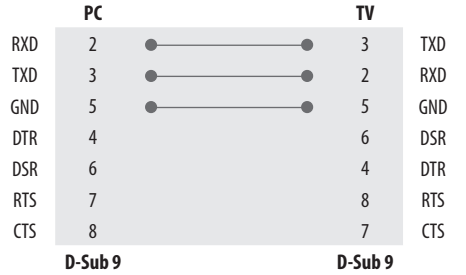
No.	Pin name
1	3.5 V
2	RXD (Receive data)
3	TXD (Transmit data)
4	IR OUT from TV
5	GND
6	No Connection
7	No Connection (5 V available in some models)
8	No Connection
9	No Connection (12 V available in some models)

RS-232C Configurations

7-Wire Configurations
(Standard RS-232C cable)



3-Wire Configurations
(Not standard)



Communication Parameters

- Baud rate: 9,600 bps (UART)
- Data length: 8 bits
- Parity : None
- Stop bit: 1 bit
- Communication code: ASCII code
- Use a crossed (reverse) cable.

IR OUT Using Guide

Suitable / Not Recommend remote-controller data format

Item	Formats
Suitable data format	NEC, RC5, Toshiba
Not recommend data format	Continuous data format (short burst/gap signal)

IR Receiver specifications

Carrier frequency	37.9 KHz
Peak Wavelength	940 nm
Minimum burst length	Min. 300 us
Minimum gap time is required of	Min. 350 us
Data word length	Max. 100 ms
Minimum gap time in the data stream is needed of	Min. 50 ms

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
High Level Out Pulse Width	Twh	Burst Wave = 600 *µs*	400	-	800	*µs*
Low Level Out Pulse Width	Twl	Period = 1.2 ms	400	-	800	*µs*

- If not use the remote-controller with data formats recommended, IR output signals will be suppressed automatically by IR receiver.
- In this case, LG does not guarantee IR working function.
- To make sure of this matter, here are two methods as below.
  - Use the remote-controller with suitable data formats.
  - Use the IR dongle receiver of the set-top box.

Command Reference List

(Depending on model)

	Command1	Command2	Data (Hexadecimal)
01. **Power**	k	a	00 to 01
02. **Aspect Ratio**	k	c	(See p. 68)
03. **Screen Mute**	k	d	(See p. 69)
04. **Volume Mute**	k	e	00 to 01
05. **Volume Control**	k	f	00 to 64
06. **Contrast**	k	g	00 to 64
07. **Brightness**	k	h	00 to 64
08. **Color**	k	i	00 to 64
09. **Tint**	k	j	00 to 64
10. Sharpness	k	k	00 to 32
11. OSD Select	k	l	00 to 01
12. Remote Control Lock Mode	k	m	00 to 01
13. Balance	k	t	00 to 64
14. Colour Temperature	x	u	00 to 64
15. Energy Saving	j	q	(See p. 71)
16. Auto Configuration	j	u	01
17. Equalizer	j	v	(See p. 71)
18. Tune Command	m	a	(See p. 71)
19. Program [Skip]/[Add]	m	b	00 to 01
20. Key	m	c	(See p. 72)
21 Control Backlight	m	g	00 to 64
22. Input select	x	b	(See p. 72)
23 Channel (Programme) Block/Unblock	m	d	(See p. 73)
24. Fail Over Mode	m	i	(See p. 73)
25. Fail Over Input Select	m	j	(See p. 73)
26. internal storage media contents play	s	n, a8	(See p. 74)

- During USB operations such as DivX or EMF, all commands except Power(ka) and Key(mc) are not executed and treated as NG.

Transmission / Receiving Protocol

ENGLISH

(Depending on Model)

Transmission

[Command1][Command2][ ][Set ID][ ][Data][Cr]

[Command1] : First command to control the TV. (j, k, m or x)

[Command2] : Second command to control the TV.

[Set ID] : You can adjust the set ID to choose desired monitor ID number in option menu. Adjustment range is 1 to 1000*. When selecting Set ID '0', every connected set is controlled. Set ID is indicated as decimal (1 to 1000)* on menu and as Hexa decimal (0 x 0 to 0 x 63)* on transmission/ receiving protocol.

* Some models range as follows: Decimal - 1 to 99 / Hexa decimal - 0 x 0 to 0 x 63

[Data] : To transmit command data. Transmit 'FF' data to read status of command.

[Cr] : Carriage Return

ASCII code '0 x 0D'

[ ] : ASCII code 'space (0 x 20)'

OK Acknowledgement

[Command2][ ][Set ID][ ][OK][Data][x]

* The set transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

Error Acknowledgement

[Command2][ ][Set ID][ ][NG][Data][x]

* The set transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data 00 : Illegal Code

1 Power (Command: k a)

▶ To control Power On/Off of the set.

Transmission

[k][a][ ][Set ID][ ][Data][Cr]

Data 00 : Off
Data 01 : On

Ack

[a][ ][Set ID][ ][OK/NG][Data][x]

▶ To Show TV is Power On/Off.

Transmission

[k][a][ ][Set ID][ ][FF][Cr]

Ack

[a][ ][Set ID][ ][OK/NG][Data][x]

* Similarly, if other functions transmit '0 x FF' data based on this format, Acknowledgement data feed back presents status about each function.
* OK Ack., Error Ack. and other message may display on the screen when TV is power on.

2 Aspect Ratio (Command: k c) (Main Picture Size)

▶ To adjust the screen format. (Main picture format) You can also adjust the screen format using the picture settings.

Transmission

[k][c][ ][Set ID][ ][Data][Cr]

Data 01 : 4:3 (Normal screen - Just Scan Off)
Data 02 : 16:9 (Wide screen - Just Scan Off)
Data 06 : Original (Just Scan Off)
Data 09 : Just Scan

* Please make sure that the model doesn't support both Vertical Zoom and All-Direction Zoom mode.

Ack

[c][ ][Set ID][ ][OK/NG][Data][x]

* Using the PC input, you select either [16:9] or [4:3] screen aspect ratio.
* In DTV/HDMI (1080i 50 Hz / 60 Hz, 720p 50 Hz / 60 Hz, 1080p 24 Hz /30 Hz / 50 Hz / 60 Hz), Component (720p, 1080i, 1080p) mode, [Just Scan] is available.
* Full Wide is supported only for Digital, Analogue, AV.

3 Screen Mute (Command: k d)

▶ To select screen mute on/off.

Transmission

[k][d][ ][Set ID][ ][Data][Cr]

Data 00 : Screen mute off (Picture on) / Video mute off
Data 01 : Screen mute on (Picture off)
Data 10 : Video mute on

Ack

[d][ ][Set ID][ ][OK/NG][Data][x]

* In case of video mute on only, TV will display On Screen Display (OSD). But, in case of Screen mute on, TV will not display OSD.

4 Volume Mute (Command: k e)

▶ To control volume mute on/off.
You can also adjust mute using the mute button on remote control.

Transmission

[k][e][ ][Set ID][ ][Data][Cr]

Data 00 : Volume mute on (Volume off)
Data 01 : Volume mute off (Volume on)

Ack

[e][ ][Set ID][ ][OK/NG][Data][x]

5 Volume Control (Command: k f)

▶ To adjust volume.
You can also adjust volume with the volume buttons on remote control.

Transmission

[k][f][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64
* Refer to "Real data mapping".

Ack

[f][ ][Set ID][ ][OK/NG][Data][x]

6 Contrast (Command: k g)

▶ To adjust screen contrast.
You can also adjust contrast in the picture settings.

Transmission

[k][g][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64
* Refer to "Real data mapping".

Ack

[g][ ][Set ID][ ][OK/NG][Data][x]

7 Brightness (Command: k h)

▶ To adjust screen brightness.
You can also adjust brightness in the picture settings.

Transmission

[k][h][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64
* Refer to "Real data mapping".

Ack

[h][ ][Set ID][ ][OK/NG][Data][x]

8 Colour (Command: k i)

▶ To adjust the screen colour.
You can also adjust colour in the picture settings.

Transmission

[k][i][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64
* Refer to "Real data mapping".

Ack

[i][ ][Set ID][ ][OK/NG][Data][x]

9 Tint (Command: k j)

▶ To adjust the screen tint.
You can also adjust tint in the picture settings.

Transmission

[k][j][ ][Set ID][ ][Data][Cr]

Data Red : 00 to Green : 64
* Refer to "Real data mapping".

Ack

[j][ ][Set ID][ ][OK/NG][Data][x]

10 Sharpness (Command: k k)

▶ To adjust the screen sharpness.
You can also adjust sharpness in the picture settings.

Transmission

[k][k][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 32
* Refer to "Real data mapping".

Ack

[k][ ][Set ID][ ][OK/NG][Data][x]

11 OSD Select (Command: k l)

▶ To select OSD (On Screen Display) on/off when controlling remotely.

Transmission

[k][l][ ][Set ID][ ][Data][Cr]

Data 00 : Off
Data 01 : On

Ack

[l][ ][Set ID][ ][OK/NG][Data][x]

12 Remote Control Lock Mode (Command: k m)

▶ To lock the front panel controls on the monitor and remote control.

Transmission

[k][m][ ][Set ID][ ][Data][Cr]

Data 00 : Off
Data 01 : On

Ack

[m][ ][Set ID][ ][OK/NG][Data][x]

* If you are not using the remote control, use this mode. When main power is on/off, external control lock is released.
* In the standby mode, if key lock is on, TV will not turn on by power on key of IR & Local Key.

13 Balance (Command: k t)

▶ To adjust balance.
You can also adjust balance in the audio settings.

Transmission

[k][t][ ][Set ID][ ][Data][Cr]

Data L : 00 to R : 64
* Refer to "Real data mapping".

Ack

[t][ ][Set ID][ ][OK/NG][Data][x]

14 Color Temperature (Command: x u)

▶ To adjust Colour Temperature. You can also adjust Colour Temperature in the picture settings.

Transmission

[x][u][ ][Set ID][ ][Data][Cr]

[Data] L : 00 to R : 64

* Refer to "Real data mapping".

Ack

[u][ ][Set ID][ ][OK/NG][Data][x]

15 Energy Saving (Command: j q)

► To reduce the power consumption of the TV. You can also adjust Energy Saving in picture settings.

Transmission

[j][q][ ][Set ID][ ][Data][Cr]

Power Saving Function					Level				Description
7	6	5	4		3	2	1	0	
0	0	0	0	Low Power	0	0	0	0	Off
0	0	0	0	Low Power	0	0	0	1	Minimum
0	0	0	0	Low Power	0	0	1	0	Medium
0	0	0	0	Low Power	0	0	1	1	Maximum
0	0	0	0	Low Power	0	1	0	0	Auto

► 'Auto' is available in TV that supports 'Intelligent Sensor'.

Ack

[q][ ][Set ID][ ][OK/NG][Data][x]

16 Auto Configuration (Command: j u) (Only RGB support model)

► To adjust picture position and minimize image shaking automatically. It works only in RGB (PC) mode.

Transmission

[j][u][ ][Set ID][ ][Data][Cr]

Data 01 : To set

Ack

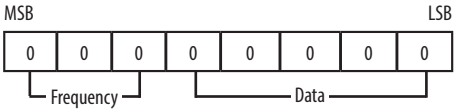
[u][ ][Set ID][ ][OK/NG][Data][x]

17 Equalizer (Command : j v)

► To adjust equalizer.

Transmission

[j][v][ ][Set ID][ ][Data][Cr]



7	6	5	Frequency	4	3	2	1	0	Step
0	0	0	1st Band	0	0	0	0	0	0 (decimal)
0	0	1	2nd Band	0	0	0	0	1	1 (decimal)
0	1	0	3rd Band	...	...	...	...	...	...
0	1	1	4th Band	1	0	0	1	1	19 (decimal)
1	0	0	5th Band	1	0	1	0	0	20 (decimal)

Ack

[v][ ][Set ID][ ][OK/NG][Data][x]

18 Tune Command (Command: m a)

► Select channel to following physical number.

Transmission

[m][a][ ][Set ID][ ][Data 00][ ][Data 01][ ][Data 02][Cr]

Data 00 : High channel data
Data 01 : Low channel data
ex. No. 47 → 00 2F (2FH)
No. 394 → 01 8A (18AH),
DTV No. 0 → Don't care
Data 02 : [Antenna]
0 x 00 : Analogue Main
0 x 10 : DTV Main
0 x 20 : Radio
[Cable]
0 x 80 : Analogue Main
0 x 90 : DTV Main
0 x A0 : Radio
[Satellite]
0 x 40 : DTV Main
0 x 50 : Radio Main
Channel data range
Min : 00 Max : 270F (0 to 9999)

Ack

[a][ ][Set ID][ ][OK/NG][Data][x]

19 Program Skip/Add (Command: m b)

► To set skip status for the current Channel.

Transmission

[m][b][ ][Set ID][ ][Data][Cr]

Data 00 : Skip
Data 01 : Add

Ack

[b][ ][Set ID][ ][OK/NG][Data][x]

20 Key (Command: m c)

► To send IR remote key code.

Transmission

[m][c][ ][Set ID][ ][Data][Cr]

Data IR CODES

Ack

[c][ ][Set ID][ ][OK/NG][Data][x]

21 Control Backlight (Command: m g)

► To control the backlight.

Transmission

[m][g][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64

Ack

[g][ ][Set ID][ ][OK/NG][Data][x]

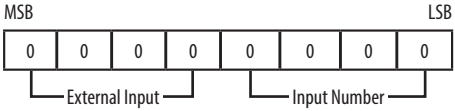
22 Input select (Command: x b) (Main Picture Input)

► To select input source for main picture.

Transmission

[x][b][ ][Set ID][ ][Data][Cr]

Data Structure



External Input				Data
0	0	0	0	DTV
0	0	0	1	Analogue
0	0	1	0	AV
0	1	0	0	Component
0	1	1	0	RGB
0	1	1	1	HDMI
1	0	0	0	
1	0	0	1	
1	0	1	0	

Input Number				Data
0	0	0	0	Input1
0	0	0	1	Input2
0	0	1	0	Input3
0	0	1	1	Input4

Ack

[b][ ][Set ID][ ][OK/NG][Data][x]

23 Channel(Programme) Block/Unblock (Command :m d)

► This command may work differently depending on model and signal.

► For South Korea, North/Latin America except Colombia Model
Transmission

[m][a][ ][0][ ][Data00][ ][Data01][ ][Data02][ ][Data03][ ][Data04][ ] [Data05][Data06][Cr]

[Data 00]: Physical Channel Number

[Data 01][Data 02]: Major Channel Number

- Data 01 : High Channel data
- Data 02 : Low Channel data

  00 00 ~ 27 0F (Decimal: 0 ~ 9999)

[Data 03][Data 04]: Minor Channel Number

- Data 03: High Channel data
- Data 04: Low Channel data

[Data 05] : Input Source

- 02 : Antenna TV (DTV)
- 06 : Cable TV (CADTV)
- 0b : Cable DTV Plus

[Data 06] : block(01)/unblock(00)

* Block/Unblock Command Examples
Block/Unblock Cable DTV (DVB-T) Channel 18-2

Set ID = 01

Data 00 = Physical Channel Number 18 = 12 (HEX)

Data 01 & 02 = Major Channel Number is 18 = 00 12 (HEX)

Data 03 & 04 = Major Channel Number is 2 = 00 02 (HEX)

Data 05 = cable DTV = 06

Data 06 : block(01)/unblock(00)

Result :

md 01 12 00 12 00 02 06 (01/00)

24 Fail Over Mode (Command: m i)

► Selects the Fail Over mode.
Transmission

[m][i][ ][Set ID][ ][Data][Cr]

Data 00: Off

Data 01: Auto

Data 02: Manual

Ack

[i][ ][Set ID][ ][OK/NG][Data][x]

25 Fail Over Input Select (Command: m j)

► Selects an input source for fail over. (This feature is only available when Fail Over is set to Custom.)
Transmission

[m][j][ ][Set ID][ ][Data1][ ][Data2][ ][Data3][ ][Data4]. . . [ ] [DataN][Cr]

Data1-N (Input priority 1-N)

Data 20: AV1

Data 21: AV2

Data 22: AV3

Data 90: HDMI1

Data 91: HDMI2

Data 92: HDMI3

Data 93: HDMI4

Ack

[j][ ][SetID][ ][OK/NG][Data1][Data2][Data3][Data4]. . . [DataN][x]

* Some input signals may not be available for all models.
* The data number (N) may vary depending on the model. (The data number depends on the number of supported input signals.)

26 Internal storage media contents play (Command: s n, a8)

► Plays media stored in the internal memory.

► This command may work differently depending on model and signal.

Transmission

[s][n][ ][Set ID][ ][a][8][ ][Data][Cr]

Data 01 : media contents play

Acknowledgement

[n][ ][Set ID][ ][OK/NG][a][8][ ][Data][x]

* **Real data mapping**

00 :	Step 0
⋮	
A :	Step 10 (Set ID 10)
⋮	
F :	Step 15 (Set ID 15)
10 :	Step 16 (Set ID 16)
⋮	
64 :	Step 100
⋮	
6E :	Step 110
⋮	
73 :	Step 115
74 :	Step 116
⋮	
CF :	Step 199
⋮	
FE :	Step 254
FF :	Step 255

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