



SLW-21A-SEURA Smart TV IR and IP Commands User Guide

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SLW-21A-SEURA Smart TV IR and IP Commands



Smart TV IR & IP Commands

Séura Smart TVs utilize the webOS operating system to deliver enhanced smart functionality.

COMPATIBLE SKUS:
SLW-21A-SEURA
SLW-32A-SEURA

1-800-957-3872
1230 ONTARIO ROAD, GREEN BAY, WI 54311
WWW.SEURA.COM

Specifications

- Compatible SKUs: SLW-21A-SEURA, SLW-32A-SEURA
- Address: 1230 Ontario Road, Green Bay, WI 54311
- Website: www.seura.com

Product Information

The Smart TV supports both IR and IP commands for external control devices. It comes with a variety of key codes to facilitate remote control functions such as channel selection, volume adjustment, navigation, power control, input selection, and more.

External Control Device Setup

To set up an external control device:

1. Connect the USB to Serial converter/RS-232C input jack to the external control device.
2. Ensure compatibility with the control port on the TV.
3. Note that not all models may support this type of connectivity.
4. Cable for the connection between the PC and the TV must be specified in the manual.

Connection Instructions

For USB to Serial converter with USB Cable:

- Connect USB Type (PC) to USB IN (TV).
- Use RS-232C with RS232C Cable for PC (RS-232C IN) to Control & Service (TV) connection.

For Phone jack Type:

- For other models, connect to the USB port.
- Refer to the manual for specific connection interfaces.

RS-232C Configurations

For 3-Wire Configurations (Not standard):

- RXD – PC 2 / TV 2 TXD
- TXD 3 GND 5 / RXD 3 GND 6

Set ID: For Set ID number, see Real Data Mapping on page 6 of the manual.

FAQ

1. What are the compatible SKUs for the Smart TV?

The compatible SKUs are SLW-21A-SEURA and SLW-32A-SEURA.

2. How do I connect an external control device to the TV?

To connect an external control device, use the USB to Serial converter/RS-232C input jack as per the instructions provided in the manual.

3. Is a USB cable provided for connectivity?

No, a cable for the connection between the PC and the TV is not provided. Please refer to the manual for specifications.

Séura Smart TVs utilize the webOS operating system to deliver enhanced smart functionality.

COMPATIBLE SKUS:

SLW-21A-SEURA

SLW-32A-SEURA

1-[800-957-3872](tel:800-957-3872)

1230 ONTARIO ROAD, GREEN BAY, WI 54311

WWW.SEURA.COM

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

KEY CODES

- This feature is not available for all models.

Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
--------------	----------	------	--------------	----------	------

00	CH +, PR +	R/C Button	53	List	R/C Button
01	CH -, PR -	R/C Button	5B	Exit	R/C Button
02	Volume +	R/C Button	60	PIP(AD)	R/C Button
03	Volume -	R/C Button	61	Blue	R/C Button
06	> (Arrow Key / Right Key)	R/C Button	63	Yellow	R/C Button
07	< (Arrow Key / Left Key)	R/C Button	71	Green	R/C Button
08	Power	R/C Button	72	Red	R/C Button
09	Mute	R/C Button	79	Ratio / Aspect Ratio	R/C Button
0B	Input	R/C Button	91	AD (Audio Description)	R/C Button
0E	SLEEP	R/C Button	9E	LIVE MENU	R/C Button
0F	TV, TV/RAD	R/C Button	7A	User Guide	R/C Button
10 - 19	* Number Key 0 - 9	R/C Button	7C	Smart / Home	R/C Button
1A	Q.View / Flashback	R/C Button	7E	SIMPLINK	R/C Button
1E	FAV (Favorite Channel)	R/C Button	8E	▶▶ (Forward)	R/C Button
20	Text (Teletext)	R/C Button	8F	◀◀ (Rewind)	R/C Button
21	T. Opt (Teletext Option)	R/C Button	AA	Info	R/C Button
28	Return (BACK)	R/C Button	AB	Program Guide	R/C Button
30	AV (Audio / Video) Mode	R/C Button	B0	▶ (Play)	R/C Button
39	Caption/Subtitle	R/C Button	B1	■ (Stop / File List)	R/C Button
40	Λ (Arrow Key / Cursor Up)	R/C Button	B5	RECENT	R/C Button
41	V (Arrow Key / Cursor Down)	R/C Button	BA	(Freeze / Slow Play / Pause)	R/C Button
42	My Apps	R/C Button	BB	Soccer	R/C Button
43	Menu / Settings	R/C Button	BD	● (REC)	R/C Button
44	OK / Enter	R/C Button	DC	3D	R/C Button
45	Q.Menu	R/C Button	99	AutoConfig	R/C Button
4C	List, - (ATSC Only)	R/C Button	9F	App / *	R/C Button
4D	PICTURE	R/C Button	9B	TV / PC	R/C Button
52	SOUND	R/C Button			

* Key code 4C (0x4C) is available on ATSC/ISDB models which use major/minor channel. (For South Korea, Japan, North America, Latin America except Colombia models)

EXTERNAL CONTROL DEVICE SETUP

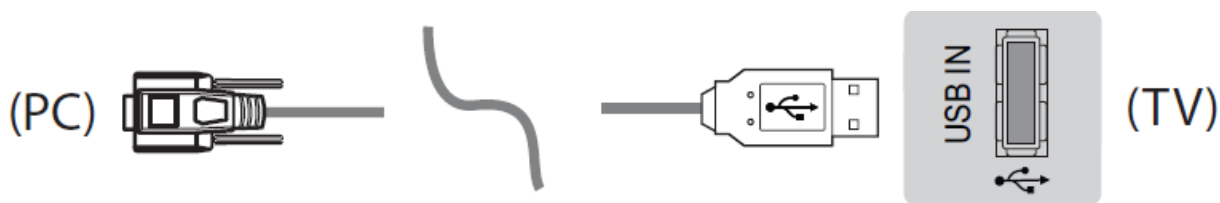
- Image shown may differ from your TV.

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

Note: The type of control port on the TV can be different between model series.

- Please be advised that not all models support this type of connectivity.
- Cable is not provided.

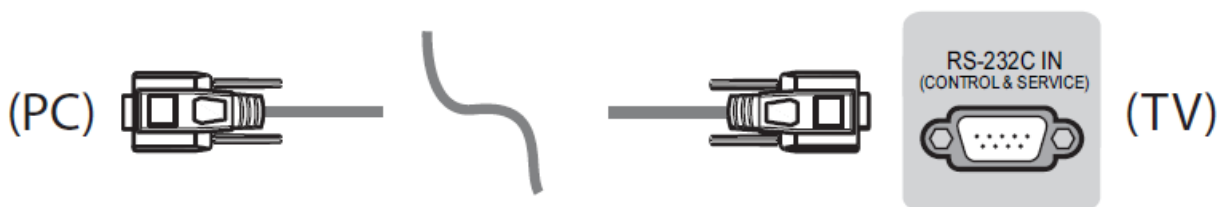
USB to Serial converter with USB Cable USB Type



- LGTV supports PL2303 chip-based (Vendor ID : 0x0557, Product ID : 0x2008) USB to serial converter which is not made nor provided by LG.
- It can be purchased from computer stores that carry accessories for IT support professionals.

RS-232C With RS232C Cable DE9 (D-Sub 9pin) Type

- You need to purchase the RS-232C (DE9, D-Sub 9pin female-to-female type) to RS-232C cable required for the connection between the PC and the TV, which is specified in the manual.

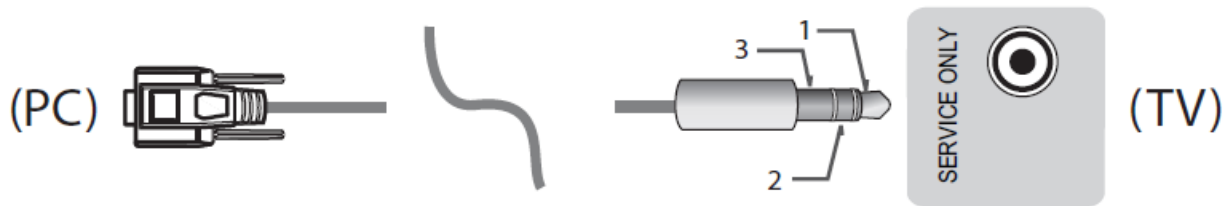


The connection interface may differ from your TV.

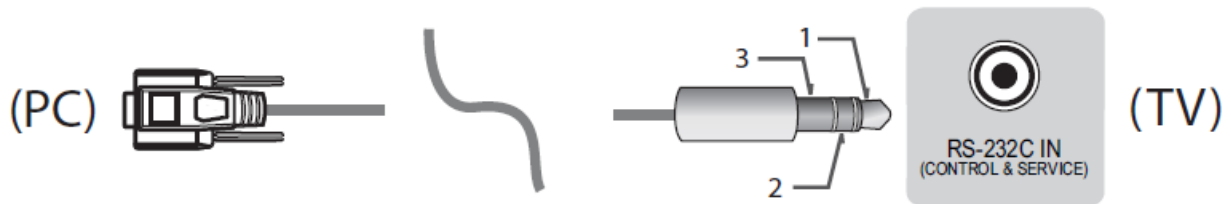
Phone jack Type

- You need to purchase the phone-jack to RS-232 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.

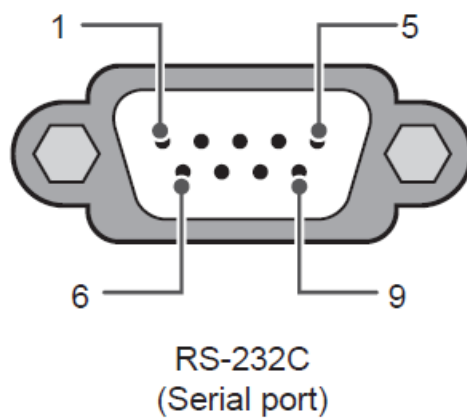
- The connection interface may differ from your TV.



- or

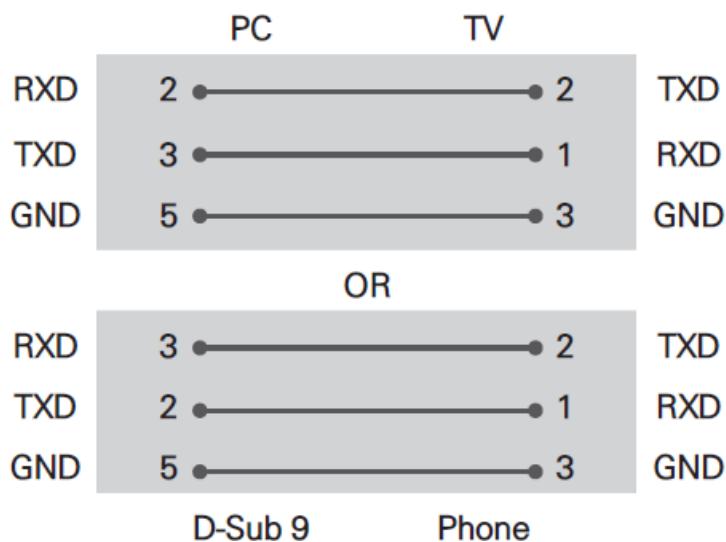


Customer Computer



RS-232C configurations

3-Wire Configurations(Not standard)



Set ID

For Set ID number, see “Real Data Mapping” on p.6

1. Press SETTINGS to access the main menus.
2. Press the Navigation buttons to scroll to (*General → About this TV or OPTION) and press OK.
3. Press the Navigation buttons to scroll to SET ID and press OK.
4. Scroll left or right to select a set ID number and select CLOSE. The adjustment range is 1-99.
5. When you are finished, press EXIT.
* (Depending on model)

Communication Parameters

- Baud rate : 9600 bps (UART)
- Data length : 8 bits
- Parity : None
- Stop bit : 1 bit
- Communication code : ASCII code
- Use a crossed (reverse) cable.

Command reference list

(Depending on model)

	COMMAN D1	COMMAN D2	DATA (Hexa decimal)		COMMAN D1	COMMAN D2	DATA (Hexadecim al)
01. Power*	k	a	00 to 01	15. Balance	k	t	00 to 64
02. Aspect Ratio	k	c	(p.7)	16. Color (C olour) Temp erature	x	u	00 to 64
03. Screen Mute	k	d	(p.7)	17. ISM Method (Onl y Plasma T V)	j	p	(p.8)
04. Volume Mute	k	e	00 to 01	18. Equalize r	j	v	(p.8)
05. Volume Control	k	f	00 to 64	19. Energy Saving	j	q	00 to 05
06. Contrast	k	g	00 to 64	20. Tune Co mmand	m	a	(p.9)
07. Brightness	k	h	00 to 64	21. Channel (Programme) Add/Del(Ski p)	m	b	00 to 01
08. Color/ C olour	k	i	00 to 64	22. Key	m	c	Key Codes
09. Tint	k	j	00 to 64	23. Control Backlight, C ontrol Panel Light	m	g	00 to 64
10. Sharpness	k	k	00 to 32	24. Input sel ect (Main)	x	b	(p.11)
11. OSD Select	k	l	00 to 01	25. 3D (Only 3D models)	x	t	(p.11)
12. Remote Control Lock Mode	k	m	00 to 01	26. Extende d 3D (Only 3 D models)	x	v	(p.12)
13. Treble	k	r	00 to 64	27. Auto Co nfigure	j	u	(p.12)
14. Bass	k	s	00 to 64				

* **Note:** During playing or recording media, all commands except Power (ka) and Key (mc) are not executed and treated as NG.

With RS232C cable, TV can communicate "ka command" in power-on or power-off status. but with USB-to-Serial converter cable, the command works only if TV is on.

Transmission / Receiving Protocol

Transmission

[Command1][Command2][][Set ID][][Data][Cr] [Command 1] : First command to control the TV. (j, k, m or x)

[Command 2] : 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 in TV is 1 to 99. If [Set ID] value is selected to '0', every connected set can be controlled.

* [Set ID] is indicated as decimal (1 to 99) on menu and as Hexadecimal (0x00 to 0x63) on transmission/receiving protocol.

[DATA] : To transmit command data (hexadecimal). Transmit 'FF' data to read status of command.

[Cr] : Carriage Return – ASCII code '0x0D'

[] : Space – ASCII code '0x20'

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

Real data mapping (Hexadecimal b Decimal)

* When you enter the [data] in hexadecimal, refer to following conversion table.

* Channel Tune (ma) Command uses two-byte hexadecimal value([data]) to select channel number.

00 : Step 0

01 : Step 1 (Set ID 1)

...

0A : Step 10 (Set ID 10)

...

0F : Step 15 (Set ID 15)

10 : Step 16 (Set ID 16)

...

32 : Step 50 (Set ID 50)

33 : Step 51 (Set ID 51)

...

63 : Step 99 (Set ID 99)

...

C7 : Step 199

C8 : Step 200

...

FE : Step 254

FF : Step 255

...

01 00 : Step 256

...

27 0E : Step 9998

27 0F : Step 9999

...

* Commands may work differently depending on model and signal.

1. Power (Command: k a)

- To control Power *On or Off of the set.

Transmission[k][a][][Set ID][][Data][Cr] Data 00 : Power Off 01 : *Power On

- Ack [a][][Set ID][][OK/NG][Data][x] To Show TV is Power On or *Off Transmission [k][a][][Set ID][][FF][Cr] Ack [a][][Set ID][][OK][Data][x] * Similarly, if other functions transmit 'FF' data based on this format, Acknowledgement feedback presents status about each function.

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 Aspect Ratio in the Q.MENU. or PICTURE menu.

Transmission [k][c][][Set ID][][Data][Cr] Data 01 : Normal screen

(4:3)

02 : Wide screen

(16:9)

04 : Zoom

05 : Zoom 2

(Latin America except Colombia Only)

06 : Set by Program/ Original

07 : 14:9

(Europe, Colombia, Mid-East, Asia except South Korea and Japan)

09 : * Just Scan

0B : Full Wide

(Europe, Colombia, Mid- East, Asia except South Korea and Japan)

10 to 1F : Cinema Zoom 1 to 16

0c : 21:9 (Depending on model)

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/Component mode (high-definition), Just Scan is available.

* Full wide mode may work differently based on model and is supported for DTV fully, and ATV, AV partially.

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

01 : Screen mute on (Picture off)

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)

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

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 menu.

Transmission [k][g][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

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 menu.

Transmission [k][h][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

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

8. Color/Colour (Command: k i)

- To adjust the screen Color(Colour).

You can also adjust colour in the PICTURE menu.

Transmission [k][i][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

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 menu.

Transmission [k][j][][Set ID][][Data][Cr] Data Red : 00 to Green : 64

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 menu.

Transmission [k][k][][Set ID][][Data][Cr] Data Min : 00 to Max : 32

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 : OSD off 01 : OSD 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 : Lock off 01 : Lock on

Ack [m][][Set ID][][OK/NG][Data][x] * If you are not using the remote control, use this mode.

When main power is off & on (plug-off and plug-in, after 20 – 30 seconds), external control lock is released.

* In the standby mode (DC off by off timer or 'ka', 'mc' command), and if key lock is on, TV will not turn on by power on key of IR & Local Key.

13. Treble (Command: k r)

- To adjust treble.

You can also adjust in the AUDIO menu.

Transmission [k][r][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

Ack [r][][Set ID][][OK/NG][Data][x] * (Depending on model)

14. Bass (Command: k s)

- To adjust Bass.

You can also adjust in the AUDIO menu.

Transmission [k][s][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

Ack [s][][Set ID][][OK/NG][Data][x] *

(Depending on model)

15. Balance (Command: k t)

- To adjust balance.

You can also adjust balance in the AUDIO menu. Transmission [k][t][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

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

16. Color(Colour) Temperature (Command: x u)

- To adjust colour temperature. You can also adjust Color(Colour) Temperature in the PICTURE menu.

Transmission [x][u][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

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

17. ISM Method (Command: j p) (Only Plasma TV)

- To control the ISM method. You can also adjust ISM Method in OPTION menu.

Transmission [j][p][][Set ID][][Data][Cr] Data Min : 02: Orbiter

08: Normal

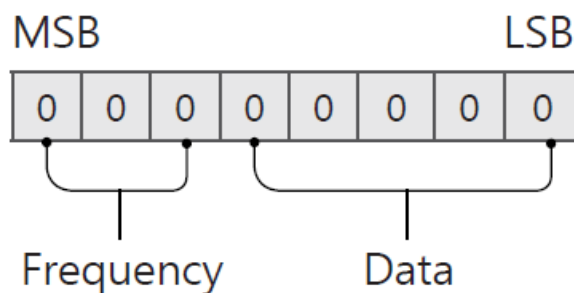
20: Color(Colour) Wash

Ack [p][][Set ID][][OK/NG][Data][x]

18. Equalizer (Command : j v)

- Adjust EQ of the set.

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	1	20(decimal)

Acknowledgement [v][][Set ID][][OK/NG][Data][x] * It depends on model, and can adjust when sound mode is EQ adjustable value.

19. Energy Saving (Command: j q)

- To reduce the power consumption of the TV. You can also adjust Energy Saving in PICTURE menu.

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

00 : Off

01 : Minimum

02 : Medium

03 : Maximum

04 : Auto (For LCD TV / LED TV) /

Intelligent sensor (For PDP TV)

05 : Screen off

* (Depending on model)

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

20. Tune Command (Command: m a)

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

For Europe, Mid-East, Colombia, Asia except South Korea and Japan Model

- Select channel to following physical number.

Transmission [m][a][][Set ID][][Data 00][][Data 01][][Data 02][Cr] * Analog Antenna/Cable

[Data 00][Data 01] Channel Data Data 00 : High byte channel data Data 01 : Low byte channel data

- 00 00 ~ 00 C7 (Decimal : 0 ~ 199)

- Data 02 : Input Source (Analog)

- 00 : Antenna TV (ATV)

- 80 : Cable TV (CATV)

* Digital Antenna/Cable/Satellite

- [Data 00][Data 01]: Channel Data

- Data 00 : High Channel data

- Data 01 : Low Channel data

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

- Data 02 : Input Source (Digital)

- 10 : Antenna TV (DTV)

- 20 : Antenna Radio (Radio)

- 40 : Satellite TV (SDTV)

- 50 : Satellite Radio (S-Radio)

- 90 : Cable TV (CADTV)

- a0 : Cable Radio (CA-Radio)

* Tune Command Examples:

1. Tune to the Analog antenna (PAL) Channel 10. Set ID = All = 00

Data 00 & 01 = Channel Data is 10 = 00 0a Data 02 = Analog Antenna TV = 00

Result = ma 00 00 0a 00

2. Tune to the digital antenna (DVB-T) Channel 01. Set ID = All = 00

Data 00 & 01 = Channel Data is 1 = 00 01 Data 02 = Digital Antenna TV = 10

Result = ma 00 00 01 10

3. Tune to the satellite (DVB-S) Channel 1000. Set ID = All = 00

Data 00 & 01 = Channel Data is 1000 = 03 E8 Data 02 = Digital Satellite TV = 40

Result = ma 00 03 E8 40

Ack [a][][Set ID][][OK][Data 00][Data 01] [Data 02][x][a][][Set ID][][NG][Data 00][x] For South Korea, North/Latin America except Colombia Model

- To tune channel to following physical/major/minor number.

Transmission [m][a][][0][][Data00][][Data01] [][Data02][][Data03][][Data04][][Data05][Cr] Digital channels have a Physical, Major, and Minor channel number. The Physical number is the actual digital channel number, the Major is the number that the channel should be mapped to, and the Minor is the sub-channel. Since the ATSC tuner automatically maps the channel from the Major / Minor number, the Physical number is not required when sending a command in Digital.

* Analog Antenna/Cable

- Data 00 : Physical Channel Number
 - Antenna (ATV) : 02~45 (Decimal: 2 ~ 69)
 - Cable (CATV) : 01, 0E~7D (Decimal : 1, 14~125)
- [Data 01 ~ 04]: Major/Minor Channel Number
- Data 01 & 02: xx (Don't care)
- Data 03 & 04: xx (Don't care)
- Data 05: Input Source (Analog)
 - 00 : Antenna TV (ATV)
 - 01 : Cable TV (CATV)

* Digital Antenna/Cable

- Data 00 : xx (Don't care)
- [Data 01][Data 02]: Major Channel Number
- Data 01 : High byte Channel Data
- Data 02 : Low byte Channel Data
 - 00 01 ~ 27 0F (Decimal: 1 ~ 9999)
- [Data 03][Data 04]: Minor Channel Number
- Data 03 : High byte Channel Data
- Data 04 : Low byte Channel Data
- Data 05 : Input Source (Digital)
 - 02 : Antenna TV (DTV) – Use Physical Channel Number
 - 06 : Cable TV (CADTV) – Use Physical Channel Number
 - 22 : Antenna TV (DTV) – Don't Use Physical Channel Number
 - 26 : Cable TV (CADTV) – Don't Use Physical Channel Number
 - 46 : Cable TV (CADTV) – Use Physical/Major Channel Number Only (One Part Channel)
 - 66 : Cable TV (CADTV) – Use Major Channel Number Only (One Part Channel)

Two bytes are available for each major and minor channel data, but usually the low byte is used alone (high byte is 0).

* Tune Command Examples:

1. Tune to the Analog cable (NTSC) channel 35. Set ID = All = 00

Data 00 = Channel Data is 35 = 23

Data 01 & 02 = No Major = 00 00

Data 03 & 04 = No Minor = 00 00

Data 05 = Analog Cable TV = 01

Total = ma 00 23 00 00 00 00 01

2. Tune to the digital antenna (ATSC) channel 30-3. Set ID = All = 00

Data 00 = Don't know Physical = 00

Data 01 & 02 = Major is 30 = 00 1E

Data 03 & 04 = Minor is 3 = 00 03

Data 05 = Digital Antenna TV = 22

Total = ma 00 00 00 1E 00 03 22

Ack [a][][Set ID][][OK][Data 00][Data 01][Data 02][Data 03][Data 04][Data 05] [x][a][][Set ID][]

[NG][Data 00][x] For Japan Model

- To tune channel to following physical/major/minor number.

Transmission [m][a][][0][][Data00][][Data01][][Data02][][Data03][][Data04][][Data05][Cr] * Digital Antenna/Satellite

Data 00: xx (Don't care)

- [Data 01][Data 02]: Major Channel Number
- Data 01: High byte Channel Data
- Data 02: Low byte Channel Data
 - 00 01 ~ 27 0F (Decimal: 1 ~ 9999)
- [Data 03][Data 04]: Minor/Branch Channel Number (Don't care in Satellite)
- Data 03: High byte Channel Data
- Data 04: Low byte Channel Data
- Data 05 : Input Source (Digital/Satellite for Japan)
 - 02 : Antenna TV (DTV)
- 07 : BS (Broadcasting Satellite)
- 08 : CS1 (Communication Satellite 1)
- 09 : CS2 (Communication Satellite 2)

* Tune Command Examples:

1. Tune to the digital antenna (ISDB-T) channel 17-1.

Set ID = All = 00

Data 00 = Don't know Physical = 00 Data 01 & 02 = Major is 17 = 00 11 Data 03 & 04 =

Minor/Branch is 1 = 00 01 Data 05 = Digital Antenna TV = 02

Total = ma 00 00 00 11 00 01 02

2. Tune to the BS (ISDB-BS) channel 30.

Set ID = All = 00

Data 00 = Don't know Physical = 00 Data 01 & 02 = Major is 30 = 00 1E Data 03 & 04 = Don't Care

= 00 00 Data 05 = Digital BS TV = 07

Total = ma 00 00 00 1E 00 00 07

* This feature is varied based on the model.

Ack [a][][Set ID][][OK][Data 00][Data 01][Data 02][Data 03][Data 04][Data 05] [x][a][][Set ID][][NG]

[Data 00][x]

21. Channel(Programme) Add/Del(Skip) (Command: m b)

To skip current channel(programme) for next time. Transmission [m][b][][Set ID][][Data][Cr] Data 00 :

Del(ATSC,ISDB)/Skip(DVB) 01 : Add

Ack [b][][Set ID][][OK/NG][Data][x] * Set the saved channel status to del(ATSC, ISDB)/ skip(DVB) or add.

22. Key (Command: m c)

- To send IR remote key code.

Transmission [m][c][][Set ID][][Data][Cr] Data Key code – p.2.

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

23. Control Backlight (Command: m g)

For LCD TV / LED TV

- 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] Control Panel Light (Command: m g)

For Plasma TV

- To control the panel light.

Transmission [m][g][][Set ID][][Data][Cr] Data Min : 00 to Max : 64

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

24. Input select (Command: x b)

(Main Picture Input)

- To select input source for main picture. Transmission [x][b][][Set ID][][Data][Cr]

- Data

- 00 : DTV
- 02 : Satellite DTV
- ISDB-BS (Japan)
- 03 : ISDB-CS1 (Japan)
- 04 : ISDB-CS2 (Japan)
- 11 : CATV
- 01 : CADTV
- 10 : ATV
- 20 : AV or AV1 21 : AV2
- 40 : Component1
- 60 : RGB
- 41 : Component2
- 90 : HDMI1
- 92 : HDMI3
- 91 : HDMI2
- 93 : HDMI4

Ack [b][][Set ID][][OK/NG][Data][x] * This function depends on model and signal.

25. 3D(Command: x t) (only 3D models)

(Depending on model)

- To change 3D mode for TV.

Transmission [x][t][][Set ID][][Data 00][][Data 01][][Data 02][][Data 03][Cr] * (Depending on model) Data Structure

- [Data 00] 00 : 3D On
01 : 3D Off 02 : 3D to 2D 03 : 2D to 3D
- [Data 01] 00 : Top and Bottom
01 : Side by Side
02 : Check Board
03 : Frame Sequential 04 : Column interleaving 05 : Row interleaving
- [Data 02] 00 : Right to Left
01 : Left to Right
- [Data 03] 3D Effect(3D Depth): Min : 00 – Max : 14 (*transmit by Hexadecimal code)
[Data 02], [Data 03] functions depend on model and signal.
If [Data 00] is 00 (3D On), [Data 03] has no meaning.
* If [Data 00] is 01 (3D off) or 02 (3D to 2D), [Data 01], [Data 02] and [Data 03] have no meaning.
* If [Data 00] is 03 (2D to 3D), [Data 01] and [Data 02] have no meaning.
* If [Data 00] is 00 (3D On) or 03 (2D to 3D), [Data 03] works when 3D Mode (Genre) is manual only.
* All 3D pattern options ([Data 01]) may not be available according to broadcasting/video signal.

[Data 00]	[Data 01]	[Data 02]	[Data 03]
00	O	O	O
01	X	X	X
02	X	X	X
03	X	O	O

X : don't care

Ack [t][][Set ID][][OK][Data00][Data01][Data02][Data03][x] [t][][Set ID][][NG][Data00][x]

26. Extended 3D(Command: x v) (only 3D models) (Depending on model)

- To change 3D option for TV. Transmission [x][V][][Set ID][][Data 00][][Data 01][Cr]
- [Data 00] 3D option
00 : 3D Picture Correction
01 : 3D Depth (3D Mode is Manual Only) 02 : 3D Viewpoint
06 : 3D Color Correction 07 : 3D Sound Zooming 08 : Normal Image View 09 : 3D Mode (Genre)
[Data 01] It has own range for each 3D option determined by [Data 00].
1. When [Data 00] is 00
00 : Right to Left 01 : Left to Right
2. When [Data 00] is 01, 02
Data Min: 0 – Max: 14 (*transmit by Hexadecimal code)
Data value range(0 – 20) converts Viewpoint range (-10 – +10) automatically (Depending on model)
* This option works when 3D Mode (Genre) is manual only.
3. When [Data 00] is 06, 07
00 : Off

01 : On

4. When [Data 00] is 08

00 : Revert to 3D video from 3D-to-2D converted 2D video

01 : Change 3D video to 2D video, except 2D-to-3D video

* If conversion condition doesn't meet, command is treated as NG.

5. When [Data 00] is 09

00 : Standard

01 : Sport

02 : Cinema

03 : Extreme

04 : Manual

05 : Auto

Ack [v][][Set ID][][OK][Data00][Data01][x][v][][Set ID][][NG][Data00][x]

27. Auto Configure (Command: j u) (Depending on 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 Auto Configure


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

Network IP Control

(For USA only)

How to connect

1. Connect your TV to a wired or wireless network.

2. Press and hold the  (Settings) button on the remote control for at least 5 seconds on the Live TV screen.

Once the Live TV channel banner appears at the top of the screen, enter 828 and press the OK button to enter the 'IP Control Setup' menu.

* The 3-digit password (default password: 828) can be changed using Password Change.

3. After entering the 'IP Control Setup' menu, set the 'Network IP Control' submenu to 'On'. The reboot popup window will appear. Select 'Yes' to reboot your TV.

* Set to 'Off' when the feature is not in use.

4. Open a terminal program (e.g. putty, teraterm) on a computer and connect to your TV with your TV's IP address through telnet service and the port number 9761 as shown below.

ex) username : ~\$ telnet 10.186.119.107 9761

5. If the connection is successful, the following message will appear. Or if 'NG' appears when you press Enter, the connection has been established.

Trying 10.186.119.107...

Connected to 10.186.119.107.

Escape character is '^]'.

6. Enter a command like the example shown below and press Enter.

VOLUME_MUTE on

7. If the command has been successfully entered, 'OK' will appear. If not, 'NG' will appear.

8. To exit the program, enter 'quit' and press Enter. Then, the following message will appear.

quit

Connection closed by foreign host

* Power ON through WOL(Wake On Lan)

You can turn on the TV, after setting the 'Mobile TV On' submenu(Setting > General > Mobile TV On) to 'On' and installing the app related with WOL(Wake On Lan) through iOS or Google Play on your mobile phone.

Command reference list

	COMMAND	NOTE
01. Power	POWER off	ex) POWER off
02. Aspect Ratio	ASPECT_RATIO [4by3 / 16by9 / setbyoriginal]	ex) ASPECT_RATIO 4by3
03. Screen Mute	SCREEN_MUTE [screenmuteon / video muteon / allmuteoff]	ex) SCREEN_MUTE screenmuteon
04. Volume Mute	VOLUME_MUTE [on / off]	ex) VOLUME_MUTE on
05. Volume Control	VOLUME_CONTROL [0 to 100]	0 to 100 (Decimal) ex) VOLUME_CONTROL 15
06. Contrast	PICTURE_CONTRAST [0 to 100]	0 to 100 (Decimal) ex) PICTURE_CONTRAST 50
07. Brightness	PICTURE_BRIGHTNESS [0 to 100]	0 to 100 (Decimal) ex) PICTURE_BRIGHTNESS 50
08. Color/Colour	PICTURE_COLOUR [0 to 100]	0 to 100 (Decimal) ex) PICTURE_COLOUR 50
09. Tint	PICTURE_TINT [0 to 100]	0 to 100 (Decimal) ex) PICTURE_TINT 50
10. Sharpness	PICTURE_SHARPNESS [0 to 50]	0 to 50 (Decimal) ex) PICTURE_SHARPNESS 25
11. OSD Select	OSD_SELECT [on / off]	ex) OSD_SELECT on
12. Remote Control Lock Mode	REMOTECONTROLER_LOCK [on / off]	ex) REMOTECONTROLER_LOCK on
13. Balance	AUDIO_BALANCE [0 to 100]	0 to 100 (Decimal) ex) AUDIO_BALANCE 50
14. Color(Colour) Temperature	PICTURE_COLOUR_TEMPERATURE [0 to 100]	0 to 100 (Decimal) ex) PICTURE_COLOUR_TEMPERATURE 50

15. Equalizer	AUDIO_EQUALIZER [1 to 5] [0 to 20]	1 to 5(Frequency band) 0 to 20(Step decimal) * Precondition : All settings > sound > sound mode settings > Equalizer on ex) AUDIO_EQUALIZER 2 10
16. Energy Saving	ENERGY_SAVING [screenoff / maximum / medium / minimum / off]	ex) ENERGY_SAVING screenoff
17. Tune Command	CHANNEL_SETTING_ATSC_ATV [Channel Number] antenna CHANNEL_SETTING_ATSC_ATV [Channel Number] cable CHANNEL_SETTING_ATSC_DTV [Channel Number] cablemaj	ex) CHANNEL_SETTING_ATSC_ATV 11 antenna
	CHANNEL_SETTING_ATSC_DTV [Maj. Channel Number] [Min.Channel Number] antennanotphy CHANNEL_SETTING_ATSC_DTV [Maj. Channel Number] [Min.Channel Number] cablenotphy	ex) CHANNEL_SETTING_ATSC_DTV 10 2 antennanotphy
18. Channel(Programme) Add/Del	CHANNEL_ADD_DELETE [add / delete]	ex) CHANNEL_ADD_DELETE add

19. Key	KEY_ACTION [exit / channelup / channeldown / volumeup / volumedown / arrowright / arrowleft / volumemute / deviceinput / sleepreserve / livetv / previouschannel / favoritechannel / teletext / teletextoption / returnback / avmode / captionsubtitle / arrowup / arrowdown / myapp / settingmenu / ok / quickmenu / videomode / audiomode / channellist / bluebutton / yellowbutton / greenbutton / redbutton / aspectratio / audiodescription / programmorder / userguide / smarthome / simplelink / fastforward / rewind / programinfo / programguide / play / slowplay / soccerscreen / record / 3d / autoconfig / app / screenbright / number0 / number1 / number2 / number3 / number4 / number5 / number6 / number7 / number8 / number9]	ex) KEY_ACTION ok
20. Control Backlight	PICTURE_BACKLIGHT [0 to 100]	0 to 100 (Decimal) * Precondition : All settings > picture > Energy Saving off ex) PICTURE_BACKLIGHT 50
21. Input select	INPUT_SELECT [dtv / atv / cadtv / catv / avav1 / component1 / hdmi1 / hdmi2 / hdmi3]	ex) INPUT_SELECT dtv
22. 3D (only 3D models)	PICTURE_3D [off / 3dto2d]	ex) PICTURE_3D off
	PICTURE_3D 2dto3d [righttoleft / lefttoright] [0 to 20]	ex) PICTURE_3D 2dto3d righttoleft 10
	PICTURE_3D on [topandbottom / sidebyside / checkboard / framesequential / columninterleaving / rowinterleaving] [righttoleft / lefttoright] [0 to 20]	ex) PICTURE_3D on topandbottom righttoleft 0

23. Extended 3D (only 3D models)	PICTURE_3D_EXTENSION picture correction [0 / 1]	0 : Right to Left 1 : Left to Right * Precondition : 1) PICTURE_3D on X X X ex) PICTURE_3D_EXTENSION picture correction 0
	PICTURE_3D_EXTENSION [colorcorrection / sound] [0 / 1]	0 : off 1 : on * Colorcorrection, Sound Precondition : 1) PICTURE_3D on X X X Colorcorrection ex) PICTURE_3D on topandbottom righttoleft 0 PICTURE_3D_EXTENSION colorcorrection 1 Sound ex) PICTURE_3D on topandbottom righttoleft 0 PICTURE_3D_EXTENSION sound 1
	PICTURE_3D_EXTENSION normal [0 / 1]	0 : off 1 : on * Precondition : 1) PICTURE_3D on X X X ex) PICTURE_3D_EXTENSION normal 0
	PICTURE_3D_EXTENSION [depth / viewpoint] [0 to 20]	0 to 20 : Viewpoint range * Depth precondition : 1) PICTURE_3D 2dto3d X X 2) PICTURE_3D_EXTENSION genre 4 * Viewpoint precondition : 1) PICTURE_3D 2dto3d X X Depth ex) PICTURE_3D 2dto3d righttoleft 0 PICTURE_3D_EXTENSION genre 4 PICTURE_3D_EXTENSION depth 0 Viewpoint ex) PICTURE_3D 2dto3d righttoleft 0 PICTURE_3D_EXTENSION viewpoint 0
	PICTURE_3D_EXTENSION genre [0 to 5]	0 : Standard / 1 : Sport / 2 : Cinema / 3 : Extreme / 4 : Manual / 5 : Auto * Precondition : 1) PICTURE_3D 2dto3d X X ex) PICTURE_3D_EXTENSION genre 2

* This feature is varied based on the model.




* During playing or recording media, all commands except Power and Key commands are not executed and treated as NG.

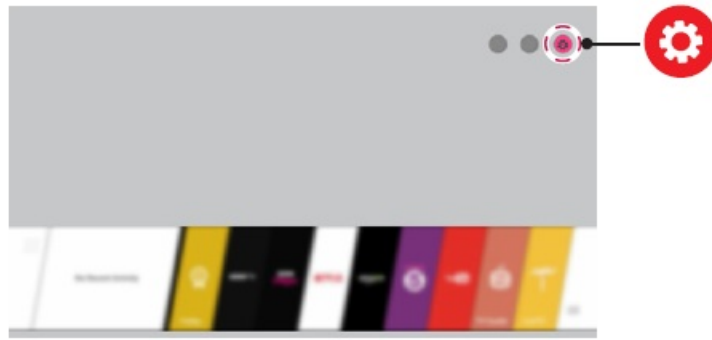
* Image shown may differ from your TV.



* Image shown on a PC or mobile phone may vary depending upon the Operating System (OS).

* Depending upon the version of the software, icon position can be changed.


Network Settings

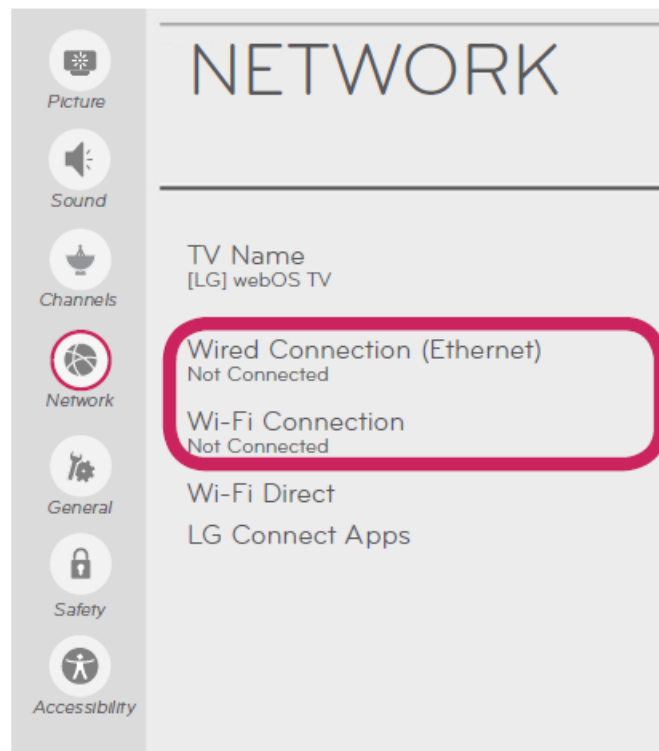
1. Press the  (Home) button to access the Smarthome menu. Select  (Settings) and press  Wheel (OK).
- 2.



Select  (All Settings) and press  Wheel (OK).



3. Select the Network  Wired Connection (Ethernet) or Wi-Fi Connection.

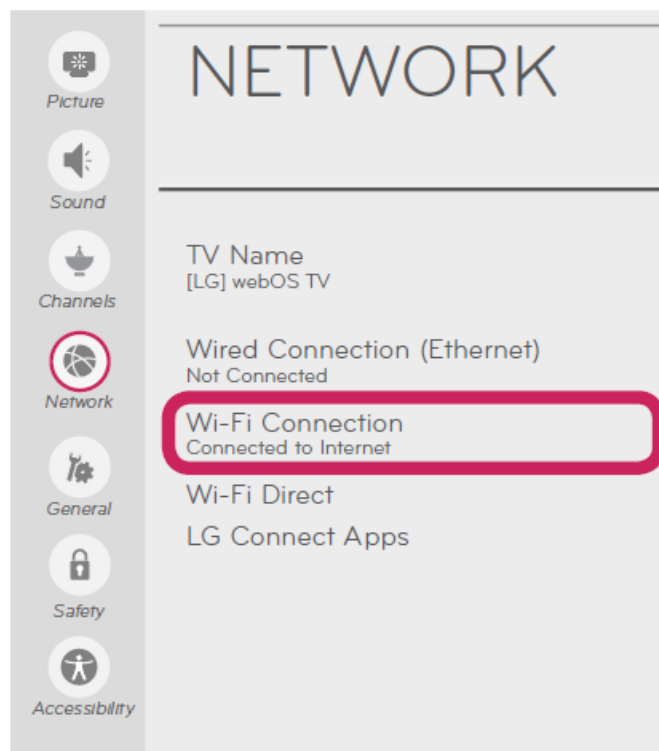


4. The device automatically tries to connect to the available network (wired network first).
When you select the Wi-Fi Connection, the network list available is displayed. Choose the network you wish to use.

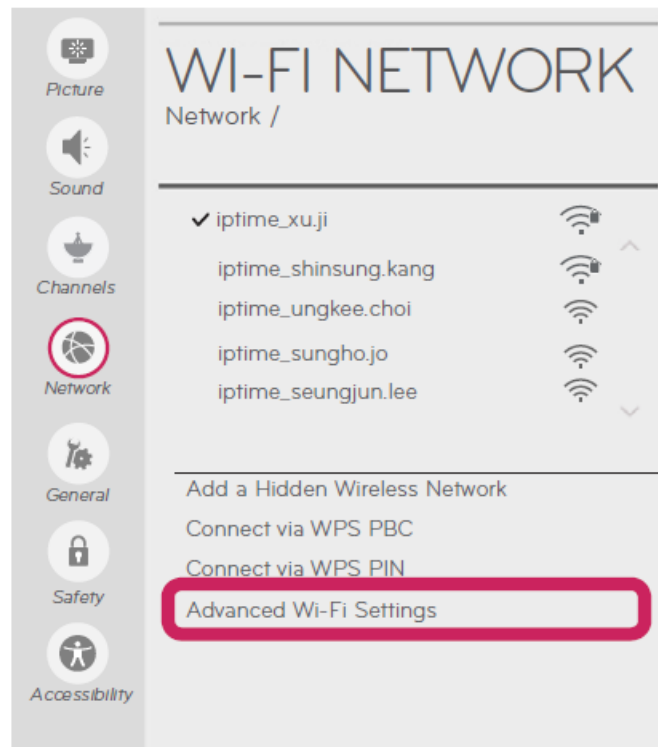


For wireless AP (Router) that has the  symbol, you need to enter the security key.

5. If the connection is completed, Connected to Internet is displayed.






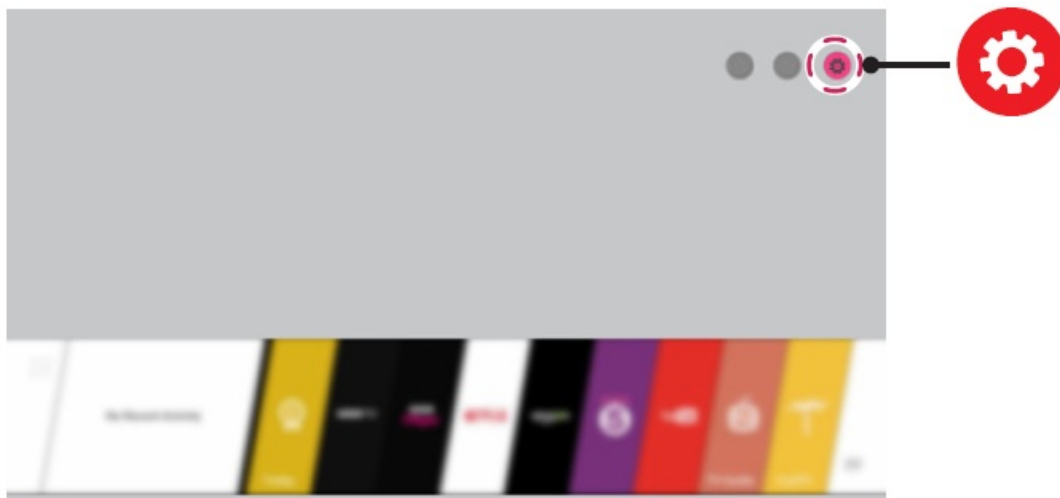
You can check the status of connection in Advanced Wi-Fi Settings.





Troubleshooting Network Problems



Depending upon the version of the software, icon position can be changed.

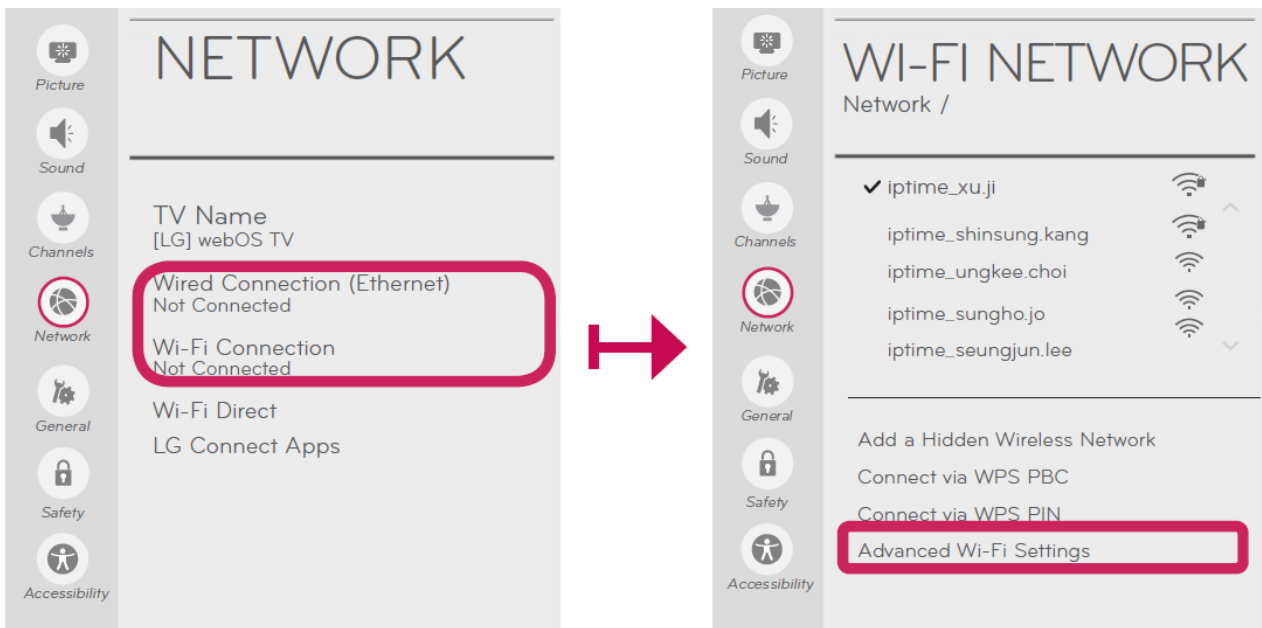
1. Press the  (Home) button to access the Smarthome menu. Select  (Settings) and press  Wheel (OK).
- 2.



Select  (All Settings) and press  Wheel (OK).



3. Select the Network  Wired Connection (Ethernet) or Wi-Fi Connection  Advanced Wi-Fi Settings.



Follow the instructions below that match to your network status.

Check the TV or the AP (Router).



When X appears next to TV:

1. Check the connection status of the TV, AP (Router) and cable modem.
2. Power off and power on in the following order; (1st) the cable modem, wait for the cable modem to reset, (2nd) the AP (Router), wait for the AP (Router) to reset and (3rd) the TV.
3. If you are using a static IP, enter the IP directly.
4. Contact Internet service provider or AP (Router) manufacturer.

Check the AP (Router) or consult your Internet service provider.



When X appears next to Gateway:

1. Unplug the power cord of the AP (Router) or cable modem, wait 10 seconds. Reapply power.
2. Initialize (Reset) the AP (Router) or cable modem.
3. Contact Internet service provider or AP (Router) manufacturer.



When X appears next to DNS:

1. Unplug the power cord of the cable modem or the AP (Router), wait 10 seconds. Reapply power.
2. After the cable modem or AP (Router) has initialized (Reset), try to reconnect.
3. Check that the MAC address of the TV/AP (Router) is registered with your Internet service provider. (The MAC address displayed on the right pane of the network status window should be registered with your Internet service provider.)
4. Check the AP (Router) manufacturer's website to make sure your router has the latest firmware version installed.

SmartShare PC SW Installation & Setting

Install the SmartShare PC SW program on your PC.

1. Go to www.lg.com . Then, select your region.
2. Select SUPPORT.
3. Select Software & Firmware. Then, search for your model. Then, select SmartShare PC SW.
4. Download the SmartShare PC SW and install it on your PC. You can run the program when installation is complete.







NOTE










SmartShare service is only available if TV and other devices are connected to the same AP (Router).



SmartShare Connection to Smartphone

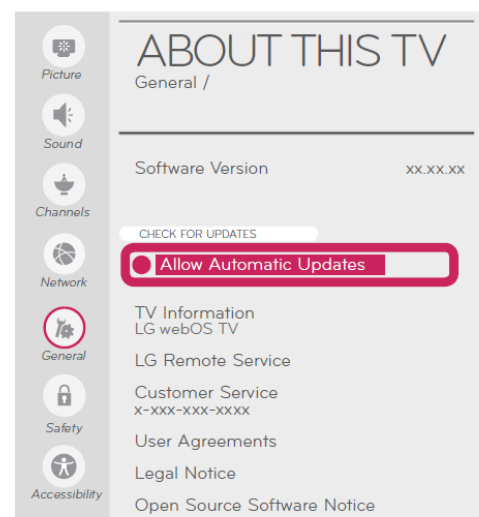
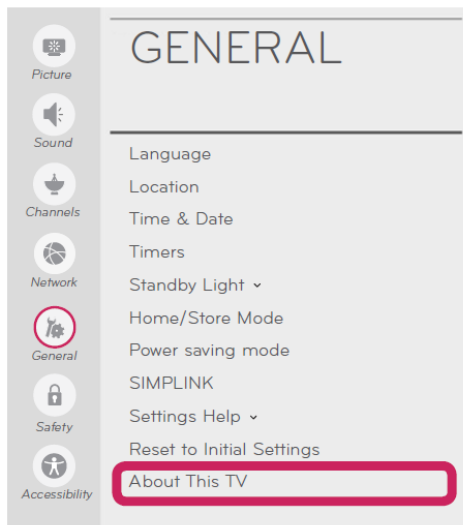
1. Check that Wi-Fi is enabled on your smartphone. To use SmartShare, both devices must be on the same local network.
2. Install/run the app for sharing content on your smartphone (It's called LG TV Plus on LG phones).
3. Enable your smartphone to share content files with other devices.
4. Open Device Connector application on TV.  (Home)  Device Connector  Smartphone  CONTENTSHARE.
5. Select the file type you want to play (movie, audio, or photo).
6. Select a movie, music, or photo file to play on the TV.
7. Play the media file to view and enjoy it on your TV.

Updating the TV Firmware






 (Home)   (Settings)   (All Settings)   General  About This TV  CHECK FOR UPDATES

You can check the Software Version and update it. If you check the Allow Automatic Updates, the TV will check for updated software automatically each time the set is turned on (Internet Connection is required).

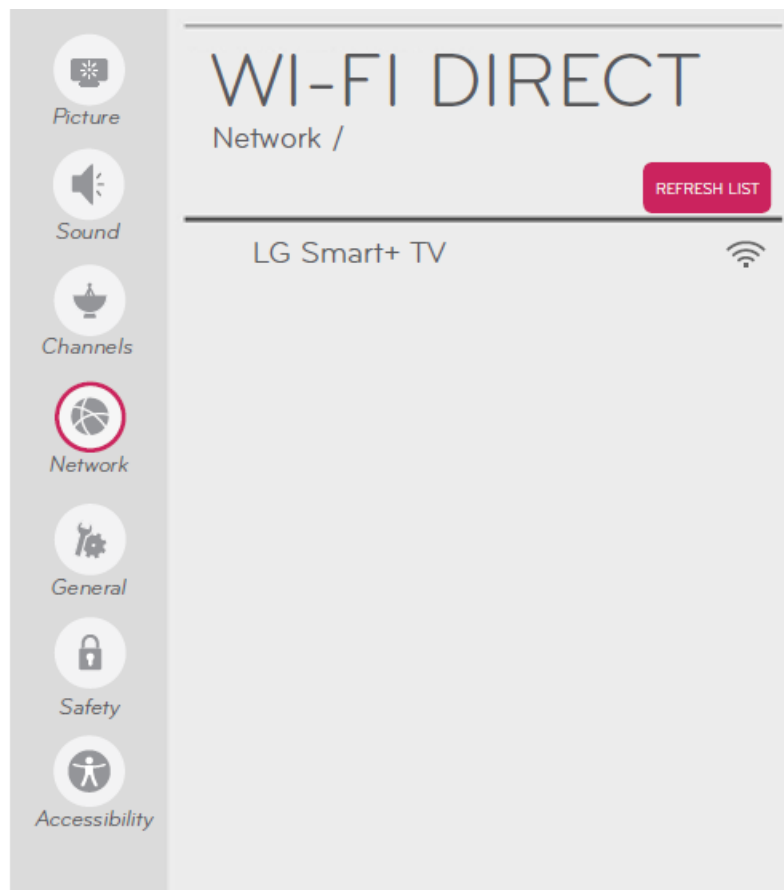
* When the TV is turned on for the first time after a software update, initialization of the TV may take approximately one minute.



Wi-Fi Direct Setting

 (Home)   (Settings)   (All Settings)   Network  Wi-Fi DIRECT

If a local network is not available, you can connect a portable device directly to the TV using Wi-Fi Direct. With SmartShare, you can share files or screens of devices connected to Wi-Fi Direct.



1. When you open Wi-Fi Direct menu, a list of available devices appears. Select your device.
 2. When you are prompted to the connection request, select Yes. Wi-Fi Direct is now connected to your TV.
- * You can only use devices that support WiFi Direct.



Miracast Setting

Miracast allows a portable device to send video and sound securely to the TV wirelessly.

(Home) / (Input) (Screen Share)

1. Miracast should be set to ON on your portable device.
2. When your TV is detected, select the device on your portable device.

When connection is completed, the device screen appears on the TV screen.

* If you turn Listen Mode to ON after launching the Screen Share app, you can connect the device without starting the Screen Share app.

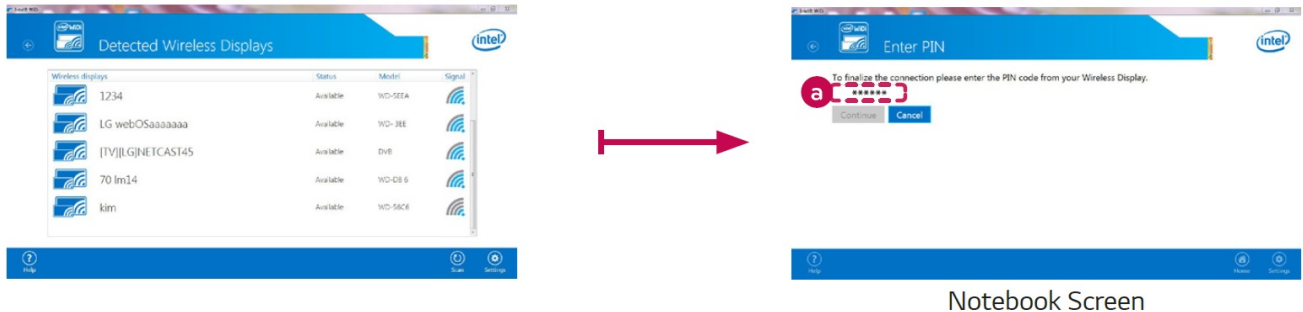
WiDi (Wireless Display) Setting

Intel® WiDi (Wireless Display) technology enables easy and fast connection without wires or internet network for mirrored and dual monitor display on your TV. You can sit back and experience your favorite movies, videos, photos, online shows and more in full HD on your TV with great image clarity and sound.

(Home) / (Input) (Screen Share)

1. On the TV Intel® WiDi is set to On. Your laptop runs the Intel® WiDi program.

- * LG TVs do not need to register.
 - * For more information on Intel® WiDi, visit <http://intel.com/go/widi>.
 - * You can control your PC using the Magic Remote. (above WiDi version 4.2)
2. It detects LG webOS TVs available, which supports WiDi. In the list, select the TV you want and click Connect.
- Enter the number shown on the screen into the input field (a) on your laptop and then click Continue.
- 3.



The laptop screen appears on the TV screen. The wireless environment may affect the screen display. If the connection is poor, the Intel® WiDi connection may be lost.

Troubleshooting Wi-Fi Network Problems

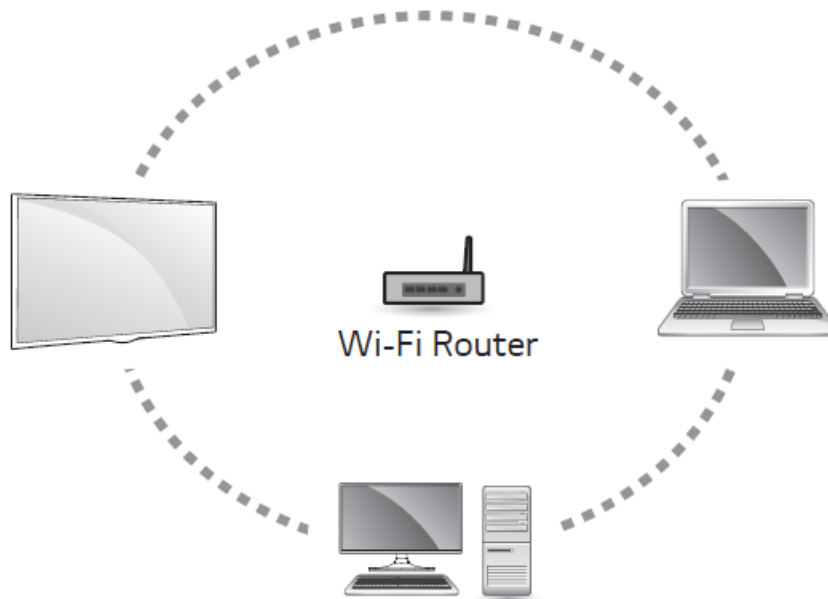
Checkpoints

- Make sure that you have the latest version of the software.
 - If you are using a Wi-Fi router, check whether you have the latest firmware installed.
 - If there are any available updates, update the firmware according to the manufacturer's instructions.
 - Check the current software version and if there is an available update, install it.

(Home)
 (Settings)
 (All Settings)
 General
 About This TV
 TV Software Version

- Check if the same symptom occurs with two or more Wi-Fi devices.
 - Wi-Fi problems may be related to network condition and a device that is connected to the network.
 - If other Wi-Fi devices can connect to the Internet at the same location as the TV, then your Wi-Fi router is probably normal.
- Check the power and Ethernet cables of the Wi-Fi router.
 - When the Ethernet cable connected to the Wi-Fi router is loose or disconnected, network problems can occur.
 - Check all power and Ethernet cables of the Wi-Fi router to see if they are correctly connected.
- Check the Wi-Fi router to see if the router is set to the recommended wireless settings. If network problems continue, reset your network devices.
- Check the signal strength of the Wi-Fi router to connect to from the TV UI.
 - The that is next to the Wi-Fi router name (SSID) in the menu indicates the sensitivity of the receiver.
 - It is recommended that you connect to a Wi-Fi network with 3 or more bars of signal strength.
 - If the number of bars indicating signal strength are less than 3, the network connection status may be weak or unstable, so shorten the distance between the Wi-Fi router and the TV.

- If the signal strength of the Wi-Fi router is weak, wireless speed slowdowns and network disconnection may occur.
- To supplement wireless coverage of network equipment, your Wi-Fi router should be placed in the middle of the network equipment.



- Interference Factors

If there is any interference from surrounding equipment, the network connection may be weak or unstable. –

Wireless telephones that operate in the 2.4 GHz or 5 GHz bandwidth

- Wireless speakers that operate in the 2.4 GHz or 5 GHz bandwidth
- Video transmitters that operate in the 2.4 GHz or 5 GHz bandwidth
- Other wireless devices (Microwaves, cameras, baby monitors, neighboring wireless devices, etc.) that operate in the 2.4 GHz or 5 GHz bandwidth.


- How to reduce the effects of interference between Wi-Fi and Bluetooth devices

- Set the channel on your wireless network equipment to avoid the 2.4 GHz or 5 GHz bandwidth which has lots of interference.
- If possible, use the 5 GHz wireless network.
- If the Wi-Fi router is located too far away or in environments with high interference, the network connection may be weak or unstable.
- In this case, move the Wi-Fi router closer to the TV or check if there are any obstructions (e.g., concrete walls, cabinets) between the two devices.

- Radio Frequency (RF) Interference and Absorbing Obstructions

<i>Type of Barrier</i>	<i>Interference Potential</i>	<i>Type of Barrier</i>	<i>Interference Potential</i>	<i>Type of Barrier</i>	<i>Interference Potential</i>
Wood	Low	Water	Medium	Plaster	High
Synthetic material	Low	Bricks	Medium	Concrete	High
Glass	Low	Marble	Medium	Bulletproof glass	High
Metal	Very High				

Documents / Resources

 <p>Smart TV IR & IP Commands</p>	<p>SEURA SLW-21A-SEURA Smart TV IR and IP Commands [pdf] User Guide</p> <p>SLW-21A-SEURA Smart TV IR and IP Commands, SLW-21A-SEURA, Smart TV IR and IP Commands, TV IR and IP Commands, IP Commands, Commands</p>
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References

- [User Manual](#)

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