



STB-5500

HD Commercial Interface Set-top Box

Commercial Mode Setup Guide

Interactive Pro:Centric® •
Functionality
RF or IP Content Delivery •

EXPERIENCED INSTALLER

EZ-Manager Wizard
pages 22 – 31

Custom Master STB Setup
pages 48 – 50

Cloning Procedures
pages 51 – 57

For Customer Support/Service, please call:

1-888-865-3026

The latest product information and documentation is available online at:

www.lg.com/us/business

MODEL and SERIAL NUMBER

The model and serial numbers of this STB are located on the back of the cabinet. For future reference, LG suggests that you record those numbers here:

Model No. _____ Serial No. _____



WARNING:

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

WARNING:

This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **Wash hands after handling.**

NOTE TO CABLE/TV INSTALLER:

This reminder is provided to call the cable TV system installer's attention to Article 820-40 of the National Electrical Code (U.S.A.). The code provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of the cable entry as practical.

REGULATORY INFORMATION:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION:

Do not attempt to modify this product in any way without written authorization from LG Electronics U.S.A., Inc. Unauthorized modification could void the user's authority to operate this product.

COMPLIANCE:

The responsible party for this product's compliance is: LG Electronics U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs, NJ 07632, USA • Phone: 1-201-816-2000

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1000 Sylvan Avenue, Englewood Cliffs, NJ 07632

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where it exits from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination in order to avoid injury from tip-over.



13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Never touch this apparatus or antenna during a thunder or lightning storm.
15. When mounting an STB on the wall, make sure that none of the electrical cabling bears any of the weight of the STB. Install in accordance with the manufacturer's instructions.

16. Power Cord

Caution: Check the STB specifications in the Owner's Manual to determine power requirements.

Periodically examine the cord of your appliance, and if its appearance indicates damage or deterioration, unplug it, discontinue use of the appliance, and have the cord replaced with an exact replacement part by an authorized servicer. Protect the power cord from physical or mechanical abuse, such as twisting, kinking, or pinching or being closed in a door or walked upon. Pay particular attention to plugs, wall outlets, and the point where the cord exits the appliance.

Do not use a damaged or loose power cord. Be sure to grasp the plug when unplugging the power cord. Do not pull on the power cord to unplug the STB.

Do not stick metal objects or any other conductive material into the power cord. Do not touch the end of the power cord while it is plugged in.

17. Overloading

Do not connect too many appliances to the same AC power outlet as this could result in fire or electric shock. Do not overload wall outlets. Overloaded wall outlets, loose or damaged wall outlets, extension cords, frayed power cords, or damaged or cracked wire insulation are dangerous. Any of these conditions could result in fire or electric shock.

18. Outdoor Use/Wet Location



Warning: To reduce the risk of fire or electrical shock, do not expose this product to rain, moisture or other liquids.

Do not touch the STB with wet hands. Do not install this product near flammable objects such as gasoline or candles or expose the STB to direct air conditioning.

Do not expose to dripping or splashing and do not place objects filled with liquids, such as vases, cups, etc., on or over the apparatus (e.g., on shelves above the unit).

19. Grounding

(Except for devices that are not grounded) Ensure that you connect the earth ground wire to prevent possible electric shock (i.e., an STB with a three-prong grounded AC plug must be connected to a three-prong grounded AC outlet). If grounding methods are not possible, have a qualified electrician install a separate circuit breaker. Do not try to ground the unit by connecting it to telephone wires, lightning rods, or gas pipes.

20. Disconnect Device

The power plug is the disconnecting device. The power plug must remain readily accessible.

As long as this unit is connected to the AC wall outlet, it is not disconnected from the AC power source even if the unit is turned off.

(Continued on next page)

IMPORTANT SAFETY INSTRUCTIONS

(Continued from previous page)

21. Outdoor Antenna Grounding

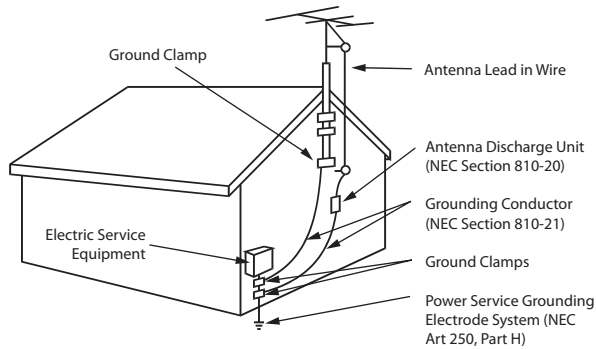
If an outside antenna or cable system is connected to the product, follow the precautions below.

An outdoor antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits or where it can come into contact with such power lines or circuits as death or serious injury can occur.

Be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges.

Article 810 of the National Electrical Code (NEC) in the U.S.A. provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Antenna Grounding According to NEC, ANSI/NFPA 70



22. Cleaning

When cleaning, unplug the power cord and wipe gently with a soft cloth to prevent scratching. Do not spray water or other liquids directly on the STB as electric shock may occur. Do not clean with chemicals such as alcohol, thinners or benzene.

23. Transporting Product

Make sure the STB is turned Off and unplugged and that all cables have been removed. Do not press against or put stress on the STB.

24. Ventilation

Install the STB where there is proper ventilation. Do not install in a confined space such as a bookcase. Do not cover the STB with cloth or other materials (e.g., plastic) while it is plugged in. Do not install in excessively dusty places.

25. If you smell smoke or other odors coming from the STB or hear strange sounds, unplug the power cord, and contact an authorized service center.

26. Keep the product away from direct sunlight.

27. Do not install this product on a wall if it could be exposed to oil or oil mist. This may damage the product and cause it to fall.

28. Do not allow an impact shock or any objects to fall into the product.

29. Do not touch the ventilation openings, as they may become hot while the STB is operating. This does not affect the performance of the product or cause defects in the product.

30. Do not use high voltage electrical equipment near the STB (e.g., a bug zapper). This may result in product malfunction.

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Notes

- Installer Menu content is intended for use primarily by qualified TV installation technicians.
- Refer to the STB-5500 Owner's Manual for additional information on STB installation, specifications, maintenance, and safety instructions.
- Design and specifications subject to change without prior notice. This document provides examples of typical screen displays. Your displays may vary from those shown in this document.

STB-5500 Introduction / Setup Checklist

Introduction

The STB-5500 set-top box is designed to be connected to a compatible commercial display panel to create a system that provides Pro:Centric[®] functionality via RF or IP and that can tune RF and IP content. The STB-5500 may be used with LG Commercial Hospitality TVs (LP645H, LT670H, etc.) that support Multiple Protocol Interface (MPI), or the STB-5500 may be used with LG Commercial Public Display TVs (LD450C, LT560C, etc.) or LG Commercial Monitors (M3203CCBA, M3204C, etc.) that support the TV-Link Monitor (TLM) interface. The STB-5500 may also be used with commercial non-LG TVs that support SONIFI's Multiple Television Interface (MTI) protocol.

Setup Checklist

See also the STB-5500 Owner's Manual for information on STB installation and hardware and cable connections.

Installation and Setup

___ Unpack the STB and all accessories.

Accessories provided:

- AC/DC Power Adapter
- HDMI Cable
- MPI/MTI Cable (proprietary cable for LG MPI or SONIFI MTI control of display panel)
- TLM Cable (proprietary cable for LG TLM control of display panel)
- A/V Adapter Cable

___ Obtain an LG Installer Remote for configuration purposes.

If you are connecting the STB to an LG display panel, the LG remote provided with the display should be sufficient. If you are connecting the STB to a non-LG display panel or if you intend to use multiple STBs/displays in a single room installation environment, an LG Installer Remote dedicated to STB control is available for purchase. For additional information and/or to purchase an STB Installer Remote, contact your LG service representative. See also Reference section, "STB Installer Remote."

___ Determine the installation location for the STB and display panel stand or mount.

___ Determine mounting and installation requirements, for example, AC power source outlet, antenna/cable service connectors, any external equipment required for system operation, all necessary cables, wires, and connectors, and any other additional required hardware, etc.

___ Install the display panel on VESA mount or stand.

Note: It may be advisable to make all cable connections before installing on VESA mount or stand.

Hardware Connections

___ Install any additional hardware as appropriate to your institution, LAN, etc.

Cable Connections

___ Make all required connections to the STB jack panels, as described in this document.

Commercial Mode Setup

___ Complete appropriate procedures as described in this document for Commercial Mode operation.

This section describes how to connect the STB-5500 to establish communication with a compatible commercial display panel (LG Hospitality TV, LG Public Display TV, LG Commercial Monitor, or commercial non-LG TV with MTI support).



Caution: If you are replacing an existing/currently installed display panel, you cannot simply swap out one display panel for another. You must follow the procedure below from step 1 in order to establish Television/Display Control communication between the STB and the new display panel. Also, make sure the new display panel supports the video output resolution set in the STB. Note that you may need to change the STB setting (STB Installer Menu item 105 VID OUT FORMAT) as required.

Before You Begin

Refer to the appropriate subsection(s) below before proceeding to connect the STB. In particular, make sure each display panel is in the proper, known state.

LG Display Panel Prerequisites

- The display panel should be in a known state. That is, the display panel should be either in a factory default state or custom configured (in its default mode) with selected settings, for example, the aspect ratio, that you wish to use in conjunction with the STB.
- For newer LG Public Display TVs, when you power ON the TV for the first time, a Welcome Wizard will be displayed, and you will need to complete the first two steps of the wizard before you can successfully connect the STB. First, you will need to select the Language (Step 1), and then you will need to select the Mode Setting (Step 2). For Step 2, you MUST select "Home Use." After this, you can either continue with the wizard and select additional desired configuration settings, or you can use the EXIT key on the remote to exit the wizard.

Commercial Non-LG Display Panel Prerequisites

- The display panel must be in a known state; however, note that you may need to perform initial steps to configure the display (i.e., the TV) and/or its MTI port for MTI communication. Refer to the manufacturer's documentation for further information.

Note: You also will need to perform steps to enable the MTI protocol (disabled by default) on the STB as part of the Commercial Mode setup AFTER the STB is connected to the display panel. See Reference section, "Enabling or Disabling the MTI Protocol on the STB" for further information. In order to complete these steps, you need to see the STB's HDMI video output. Use the display panel's IR remote to manually switch the display panel to the appropriate HDMI input.

- It is highly recommended that you set the display's start channel/Power On source to HDMI 1 since, when Television/Display Control communication is established, the STB default configuration automatically sends Television/Display Control commands to switch the connected display panel to its HDMI 1 input. Because some non-LG displays default to an RF channel at turn ON (or at loss of communication), setting the display's Power On source to HDMI 1 will eliminate the potential for the display's momentary interruption of the STB's HDMI output each time the STB/display is turned ON. This will also eliminate the potential for temporary signal interruption from the STB when the STB's PTC software is being updated.

STB-5500 Cabling Connections (Cont.)

LG Installer Remote

- An LG Installer Remote (not supplied) is required to complete the procedure below, as well as STB/display panel configuration procedures in this document. If you are connecting the STB to an LG display panel, the LG remote provided with the display should be sufficient. However, if you are connecting the STB to a non-LG display panel or if you wish to take advantage of the STB's multi-code feature, LG's STB-dedicated Installer Remote will be required. See Reference sections, "Installer Remote Typical Key Functions" and "STB Installer Remote," for further information.

Connect the STB to the Display Panel

This procedure only describes the essential STB/display panel connections. See Reference section, "STB-5500 Jack Panels," for further information on the additional jack panel ports and connectors.

1. Make sure the STB is not connected to power. If a display panel is being replaced in an existing STB/display panel installation, remove power from the STB.
2. Turn ON the display panel.
3. Refer to the STB-5500 Cabling diagram on page 11, and complete the following connections:
 - a) Make the appropriate Television/Display Control connection between the STB-5500 and the display panel.
 - For LG Hospitality TVs: Use the MPI/MTI cable provided to connect MPI/MTI TELEVISION CONTROL on the STB-5500 front jack panel to the MPI port on the rear jack panel of the display.
 - For LG Public Display TVs or LG Commercial Monitors: Use the TLM cable provided to connect RS-232C TELEVISION CONTROL on the STB-5500 rear jack panel to the DB9 RS-232 CONTROL connector on the rear jack panel of the display.
 - For commercial non-LG TVs: Use the MPI/MTI cable provided to connect MPI/MTI TELEVISION CONTROL on the STB-5500 front jack panel to the MTI (typically labeled "DATA") port on the rear jack panel of the display.*

Note: Commercial interfaces and their respective cables (MPI/MTI or TLM as specified above) support IR pass-through.

- b) Use the HDMI cable provided to connect HDMI OUT on the STB-5500 rear jack panel to the HDMI 1 input connector on the rear jack panel of the display.

Note: When Television/Display Control communication is established, the STB default configuration automatically sends Television/Display Control commands to switch the connected display panel to its HDMI 1 input.

- c) For RF delivered content, connect a 75 ohm coaxial wire from the Antenna/CATV wall jack to ANTENNA/CABLE IN on the STB-5500 rear jack panel. For IP delivered content, connect an RJ-45 Ethernet (CAT5) cable from the institution's network to the LAN port on the STB-5500 rear jack panel.

(Continued on next page)

* As indicated in the prerequisites, the MTI protocol required for communication between the STB and the commercial non-LG display panel is disabled by default. Remember that you will need to enable the MTI protocol as part of the Commercial Mode setup.

STB-5500 Cabling Connections (Cont.)

(Continued from previous page)

- d) Insert the DC power plug of the AC/DC power adapter provided into the POWER connector on the rear jack panel of the STB-5500, and then plug the AC/DC adapter into a standard 120V 60 Hz AC power outlet.

When power is applied to the STB-5500, the LED on the STB's front jack panel turns red (steadily if the STB is in its default standby mode or with periodic blinks in accordance with the current value of Installer Menu item 002 AC ON).

Also, for LG display panels or if the MTI protocol has already been enabled on the STB (i.e., you are replacing one non-LG display panel with another non-LG display panel), the display panel will be turned OFF by the STB as soon as the STB is powered and establishes Television/Display Control communication with the display.*

Note: Once Television/Display Control communication is established between the STB-5500 and the display panel, the STB-5500 will be in control of the display panel, and certain resident panel functions, like panel buttons, typically will no longer operate.

Note: If connected to an LG Hospitality TV, the STB also will change several of the TV's Installer Menu settings in order to facilitate communication and functionality. See the table following this procedure for a listing of all Hospitality TV Installer Menu items that will be changed by the STB.

4. Use the Installer Remote to turn ON the STB/display panel.

In its default standby mode, while the STB is turning ON and sending the turn ON command to the display, the STB LED blinks at a constant rate. (If the Instant ON feature set with Installer Menu item 002 is enabled on the STB, you will not see this initial LED sequence.) Once both the STB and the display panel are ON, the STB LED remains lit but blinks off twice in rapid succession every five seconds.

If the STB is brand new, out-of-box, the first image you should see on the display panel is a prompt to select the video output resolution (see "Setting the Video Output Resolution" on page 21). If the STB is not brand new, out-of-box, it is possible that the video output resolution has previously been set and/or that the EZ-Manager Wizard has previously been completed or exited.**

5. If applicable, select the video output resolution (i.e., the STB's video output format), and then complete the appropriate Commercial Mode setup procedures, as described in this document.

Note: It is recommended that you complete STB-5500 Commercial Mode setup procedures before you make external equipment connections to the STB-5500.

* If the display panel is not turned OFF after power is applied, then Television/Display Control communication has not been established. If you are using an LG display panel, check that the display is in a known state, and repeat the procedure from step 1. If you are using a commercial non-LG TV as a display panel in a new STB installation, the display panel will not be turned OFF because the MTI protocol has not yet been enabled. Remember that you will need to enable the MTI protocol as part of the Commercial Mode setup.

** If you are using a commercial non-LG TV as the display panel, and you do not see video on the display, verify the display panel is on the appropriate HDMI input so that you can complete step 5. Also, see Reference section, "Enabling or Disabling the MTI Protocol on the STB," and make sure to enable the MTI protocol as part of the Commercial Mode setup.

STB-5500 Cabling Connections (Cont.)

The following table is only valid for LG Hospitality TVs that are used with the STB-5500. The table lists the Installer Menu items on the TV that are changed by the STB when MPI Television/Display Control communication is established. See also step 2 of procedure above.

Note: The total number of Installer Menu items may vary by Hospitality TV model. Some items listed below are not available on/applicable for all Hospitality TVs.

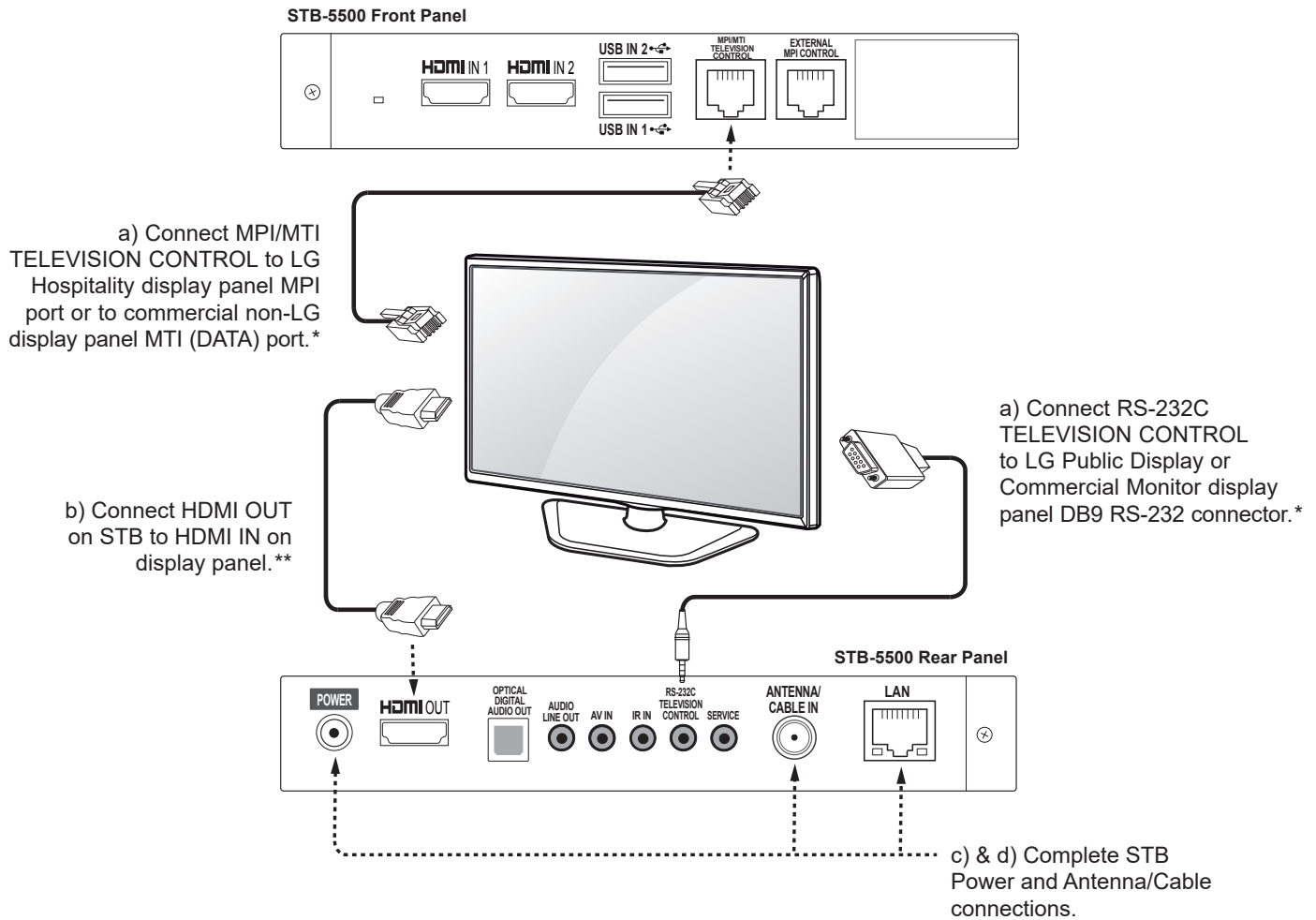
Installer Menu Item on LG Hospitality TV (Display Panel)	STB-5500 will set the value to:	Comments
004 STRT CHANNEL	0	Start channel on the display is set to Aux.
007 STRT VOLUME	63	Based on the setting of STB Installer Menu item 111 PANEL VOL PRE. Maximum setting is recommended.
008 MIN VOLUME	0	Minimum allowable volume is set on the display.
009 MAX VOLUME	63	Maximum allowable volume is set on the display.
040 AUTO CAMPORT	0	Automatic switching to Camport (Video 2) is disabled on the display.
041 SIMPLINK EN	0	SIMPLINK is disabled on the display.
042 AUTO INPUTS	0	Auto-sensing is disabled for all Aux inputs on the display.
046 STRT AUX SRCE	3 (HDMI 1) 5 (HDMI 2) 7 (HDMI 3)	Based on the setting of STB Installer Menu item 100 VIDEO INTERFAC (see detailed Installer Menu item descriptions). By default, the display's start Aux source is set to HDMI 1.
047 AUX STATUS	1	The display's Aux source will be reported as a channel number.
053 DIS. CH-TIME	1	The display's native Channel-Time display is disabled.
090 KEY LOCK	1	Key Lock is enabled on the display. If item 090 is changed in the STB's Installer Menu, the STB will update the value in the display's Installer Menu accordingly.
096 DEF. ASP. RATIO*	3	The display's default aspect ratio will be set to Just Scan.
118 POWER SAVINGS	1	b-LAN module is always powered on the display.
119 DATA CHANNEL	0	Data Channel is disabled on the display.

* This setting is applicable with STB PTC v1.00.035 or later.

STB-5500 Cabling Connections (Cont.)

STB-5500 Cabling Diagram

See also step 2 of procedure above.



* Only one Television/Display Control connection should be used. The proper connection depends on the type of display panel to be controlled.

** The STB default configuration automatically sends Television/Display Control commands to switch the connected display panel to its HDMI 1 input.

Commercial Mode Overview

This document describes how to set up the STB-5500 for Commercial Mode operation. STB-5500 functionality is based on “ownership” of the Channel Map; that is, the Channel Map resides in the STB’s CPU or Protocol Translation Controller (PTC), or it resides in a Pro:Centric application or an external device from the solution provider. The STB-5500 supports several different operation modes: LG’s Free-To-Guest (FTG) Mode via the STB CPU, Application Tuning Mode (ATM) with Pro:Centric application, or Pass-through Mode (default). When in Pass-through Mode, the STB-5500 may also be externally controlled via its EXT MPI CONTROL port.

Pass-through Mode

This mode allows you to configure individual STBs for Pro:Centric and/or FTG Mode operation. This mode also allows external control via the EXT MPI CONTROL port on the STB jack panel.

There are two methods for configuring individual STBs that are currently in Pass-through Mode: either using the EZ-Manager Wizard or the Custom Master STB Setup procedure.

EZ-Manager Wizard

When the STB is in a factory default state, the EZ-Manager Wizard provides automated and manual options for configuring essential items for Pro:Centric operation and also provides an option for using a USB memory device to configure the STB. Use the Installer Remote to make selections and complete each step. See “EZ-Manager Wizard” on pages 22 to 31 for detailed information.

Custom Master STB Setup

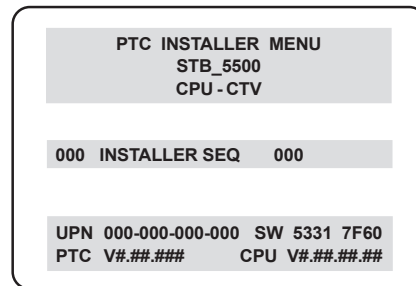
The Custom Master STB Setup procedure enables you to create a customized Master STB Setup for Pass-through Mode or FTG Mode configuration purposes. Use the Installer Remote to configure Installer Menu items as required for STB operation and set up STB features (Picture, Sound, Channels, etc.). See “Custom Master STB Setup” on pages 48 to 50 for detailed information.

Installer Menu

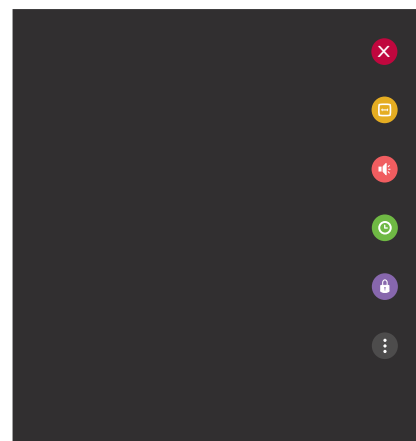
To create a Master STB Setup, you will need to know how to access the commercial controller (PTC) Installer Menu and make changes to the default values as required. If necessary, familiarize yourself with the Installer Menu and how to make and save changes. Refer to pages 36 to 47 for information on accessing the Installer Menu and for detailed descriptions of the Installer Menu items.

STB Setup Menus

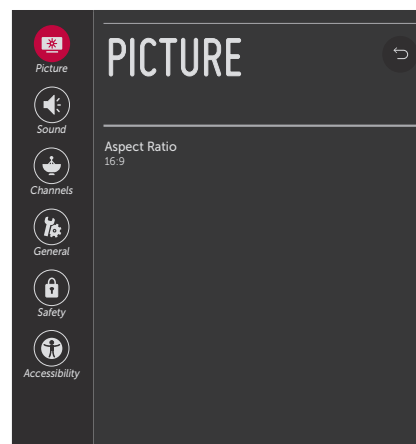
On-screen setup menus control the features of the STB/display. Use the Installer Remote to access the STB setup menus, and set the STB/display features to the desired configuration for the end user.



Typical Installer Menu



STB Setup Menus (Quick Settings)



STB Setup Menus (Advanced Settings)

Cloning

Cloning refers to the process of using a Master STB Setup to configure a Target STB. Both STBs must be identical models. The Master STB's clonable setup menu features should be configured as part of the Master STB Setup. If there are features in the Master STB's setup—channel icons or labels, digital font options, etc.—that are not set or that are set incorrectly, those features also will not be set or will be set incorrectly in the Target STBs. Refer to pages 51 to 57 for detailed information on Clone (.tlx) files and cloning requirements and procedures.

External MPI Control

To control the STB using an external MPI control device, you must use the STB's EXT MPI CONTROL port for communication purposes.

Note: The STB-5500 is not equipped with an MPI card slot.

FTG Mode

In this mode, the STB's CPU is configured with an FTG Channel Map, and the CPU controls and restricts the tuning operation of the STB based on this FTG Channel Map. The FTG Channel Map enables the decryption of each Pro:Idiom[®] encrypted channel and also provides logical channel mapping of physical RF channels (digital and analog), IP streams, and Aux inputs. In addition, depending on the types of channels included in the FTG Channel Map, FTG Mode provides the option to select either logical or physical tuning (see note below) during configuration.

Note: Logical channel mapping of physical RF channels eliminates dash tuning (for example, physical 19-3 can be mapped to logical channel 9). It also allows physical RF channels, IP streams, and Aux inputs to be listed in any order, not only in physical numeric ascending order. Physical channel tuning requires that you include the dash when direct entering RF channel numbers and Aux inputs (the latter designated by 130-0 through 137-0).

Note: Physical channel tuning is not available when IP channels are included in the FTG Channel Map.

FTG Mode Features

FTG Mode provides the following features:

- Logical or physical channel tuning of physical RF channels and Aux inputs.
- Logical channel tuning of IP streams.
- Mapping of RF channels with minor (program) numbers up to 999.
- FTG Channel Map of up to 600 channels.
- Start Channel set for RF, Aux input, or IP delivered content.
- Pro:Centric data delivery over RF or IP.
- STB Zoning (including channel restrictions by Zone) and Wi-Fi Zoning options for location-specific configuration.

LG's Cloud Configuration Tool enables you to create an FTG Configuration (.tlx) file, which may be used to configure the CPU for FTG Mode. Configuration utilities enable you to create/edit an FTG Channel Map and configure Installer Menu settings. You can also create a Clone (.tlx) file from a Master STB Setup that may be used to configure the CPU for FTG Mode.

Note: STB Zoning and Wi-Fi Zoning features are supported via ".tlx" file. See Reference section, "Using the STB's Zoning Features," for further information.

Commercial Mode Overview (Cont.)

In this mode, the STB's CPU must be configured with an FTG Channel Map and FTG Installer Menu settings using one of the following processes:

- Local: Configure an individual STB-5500 via its USB port using a USB memory device / ".tlx" file. The file may be either a Clone file (see "Cloning Procedures" on pages 51 to 57) or an FTG Configuration file (see "Cloud Configuration Tool Overview" on pages 58 to 63).
- Remote: Configure all STB-5500s at the site using a Pro:Centric server head end device (Example: PCS400R). Refer to the **Pro:Centric Server Admin Client User Guide** for further information.

While the STB is in FTG Mode:

- Users can still access the Installer Menu using an LG Installer Remote; however, all Installer Menu items will be read-only.
- Any FTG Mode configuration changes must be made using a ".tlx" file (typically edited in the Cloud Configuration Tool). Channel Map and Installer Menu configuration utilities enable you to make changes, respectively, to the FTG Channel Map and FTG Installer Menu settings as necessary. See information on local configuration in this document or refer to documentation for the server for information on remote management.
- If it becomes necessary to restore the STB to Pass-through Mode, there are several options that will enable you to do so. See Reference section, "Restoring Factory Defaults on the STB(s)," for further information.

Pages 58 to 63 provide overviews of the utilities that comprise the Cloud Configuration Tool. Refer to the **Cloud Configuration Tool User Guide** for further information on the Cloud Configuration Tool.

Remote Management in FTG Mode

When the STB is configured for FTG Mode, remote management of the FTG Channel Map and FTG Installer Menu settings is provided by a Pro:Centric server, via a Clone/Configuration (.tlx) file loaded on the Pro:Centric Admin Client. See the **Pro:Centric Server Admin Client User Guide** for further information.

Application Tuning Mode / Pro:Centric Direct

In Application Tuning Mode, the STB's Channel Map resides in an application, such as LG's Pro:Centric Direct HTML application. With Pro:Centric Direct, the Channel Map is created in the Pro:Centric server's Admin Client web editor, and the tuning operation of the STB is controlled and restricted based on this Pro:Centric Direct Channel Map.

Application Tuning Mode with the Pro:Centric Direct HTML application provides the following features:

- Decryption of each Pro:Idiom[®] encrypted channel.
- Logical channel tuning of physical RF channels (digital and analog) and IP streams.
- Mapping of RF channels with minor (program) numbers up to 999.
- Start Channel set for RF or IP delivered content.
- Pro:Centric data delivery over RF or IP.
- STB Zoning (Installer Menu items only) and Wi-Fi Zoning options for location-specific configurations.

You must use the Pro:Centric Direct Admin Client / Channel Map configuration utility to create the Pro:Centric Direct Channel Map, define channel attributes, and set the Start Channel. Refer to the **Pro:Centric Direct Admin Client User Guide** for further information.

Note: STB Zoning and Wi-Fi Zoning features are supported via “.tlx” file—typically a Clone (.tlx) file that has been created from a Master STB Setup. See Reference section, “Using the STB’s Zoning Features,” for further information.

While the STB is in Application Tuning Mode:

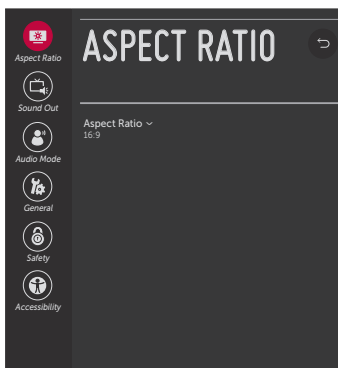
- Users can still access the Installer Menu using an LG Installer Remote; however, all Installer Menu items will be read-only.
- While it is possible to update an STB’s Installer Menu and/or Setup Menu settings locally using a USB memory device / Clone (.tlx) file, any Pro:Centric Direct configuration changes are typically made remotely via the Pro:Centric server / Pro:Centric Direct Admin Client. The Admin Client’s Channel Map configuration utility enables you to create and edit the Pro:Centric Direct Channel Map, while the TV Configuration utility (in conjunction with a Clone [.tlx] file loaded on a server carousel) enables you to make changes to STB Installer Menu and/or Setup Menu settings.
- If it becomes necessary to restore the STB to Pass-through Mode, it is possible to do so. See Reference section, “Restoring Factory Defaults on the STB(s),” for further information.

Refer to the **Pro:Centric Direct Admin Client User Guide** for further information on configuration and management via the Pro:Centric Direct Admin Client.

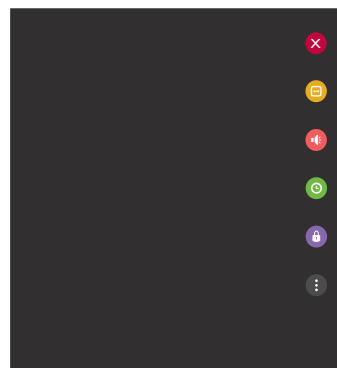
Determining the STB Operating Mode

To determine the operating mode of the STB, press **MENU** on the Installer Remote. The menu displayed depends on the operating mode. See examples below.

If the Function Menu appears, the STB is in a mode (FTG, ATM, PPV, etc.) that does not allow the end user to change the fundamental STB setup. If the STB setup menus (Quick Settings) appear, the STB is in Pass-through Mode.



Function Menu
Indicates the STB is not in Pass-through Mode. While the STB is in this mode, Installer Menu settings can be accessed as read-only.



STB Setup Menus
Shows that the STB is in Pass-through Mode.

Pro:Centric Operation

The STB-5500 supports LG's Pro:Centric Java application, as well as the Pro:Centric Direct HTML application. Only one application may be implemented at a time. The following sections provide an overview of the application features and functionality.

Interactive Menu Features

Both the Pro:Centric Java application and the Pro:Centric Direct HTML application enable guests to locate and select television entertainment, check the daily weather, view hotel and surrounding amenities, etc., via custom portal interactive menus. The Pro:Centric Java application provides multiple templates for portal interactive menus, while the Pro:Centric Direct HTML application, in addition to providing multiple templates for portal interactive menus, also enables you to custom-create portal and application content.

Pro:Centric application features include:

- Portal and information screens/pages (including a "Welcome" page) that include branding logos.
- An optional customized user interface (custom "skins").
- Billboards and points-of-interest maps that can be customized to focus on hotel amenities, local attractions and businesses, restaurants, news, events, etc.
- An optional Weather billboard that includes a local radar map, current conditions, and a four day forecast.
- An interactive channel guide that provides a channel list with channel icons. An electronic program guide (EPG) is an optional feature that displays up to three days of programming information viewable by channel and time.
- Video spooling that enables the hotel to deliver a video file to guest TVs for promotion and information purposes.

In addition to the those indicated above, the Pro:Centric Direct HTML application also offers the following features:

- Optional messaging features, including notices, ticker text, and ad banners.
- Additional media support, specifically music accompaniment, for portal displays.
- An optional flight information display.

For each Pro:Centric application, an Admin Client web editor/content wizard is provided for customer configuration of portal content. The Pro:Centric Direct Admin Client features the Pro:Centric Direct Project Editor, which provides design tools (including templates) that enable customization of all portal pages. Please contact your LG service representative for further information.

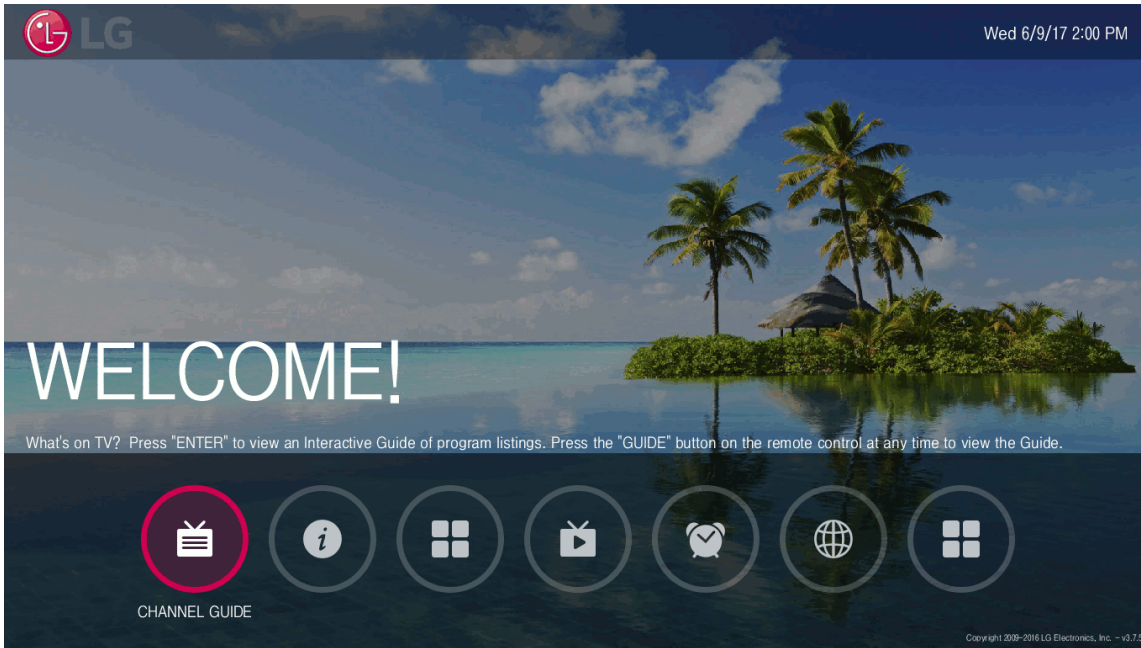
Note: Customized content is typically defined by the service integrator and/or hotel administrators. LG does not provide hotel-specific content.

Interactive Menu Navigation

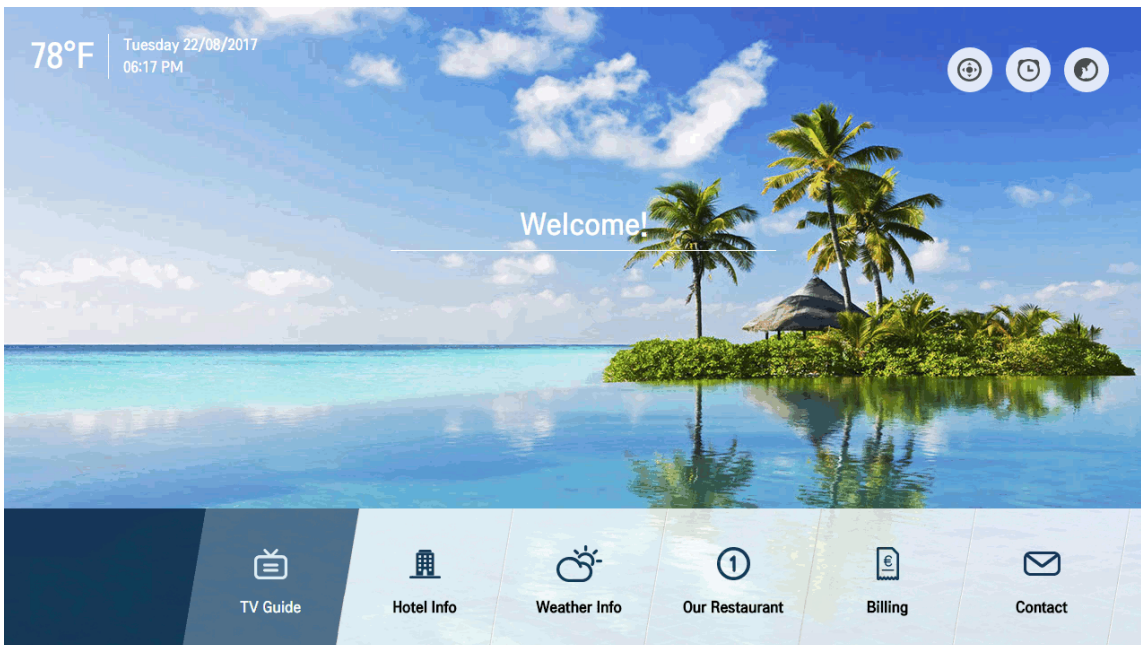
An LG Pro:Centric-capable remote control provides access to both interactive menus and regular STB/display features. Press **PORTAL** on the remote to access the interactive menus.

Note: Interactive menu options may vary, depending on Pro:Centric features enabled for the site and/or customized content. The following examples show typical portal interactive menus.

Example: Pro:Centric Java Application Portal



Example: Pro:Centric Direct HTML Application Portal



Pro:Centric Operation (Cont.)

Pro:Centric Java Application Setup

The Pro:Centric Java (GEM) application operates in conjunction with FTG and PPV Modes. This section provides an overview of the setup required for the Pro:Centric features. Administration and management options for the Pro:Centric server are described in detail in the *Pro:Centric Server Admin Client User Guide*. This document describes only those settings that must be specified on the STB to enable Pro:Centric remote management and/or the Pro:Centric Java application.

- Remote management (E-Z Installation): The Pro:Centric Admin Client provides remote management facilities for downloading software updates as well as facilities for downloading a Clone/Configuration (.tlx) file for FTG Mode configuration.
- Pro:Centric Java application: The application comprises the Pro:Centric interactive menus/features described on page 16. Pro:Centric application settings are managed via the Pro:Centric Admin Client for the Java application.

The Pro:Centric remote management facilities and application download are based on Installer Menu item settings that are used to set up the STB's Pro:Centric features. The Installer Menu / Pro:Centric server settings can be configured using one of the methods described below.

STB in Factory Default State

When the STB is in a factory default state, the EZ-Manager Wizard provides automated or manual options for configuring the Pro:Centric server settings. See "EZ-Manager Wizard" on pages 22 to 31 for further information. The EZ-Manager Wizard also provides a USB Configuration option that enables you to configure an STB for FTG Mode using a Clone/Configuration (.tlx) file stored on a USB memory device. The ".tlx" file incorporates FTG Installer Menu settings, including Installer Menu items 098 PRO:CENTRIC and 119 DATA CHANNEL, which are used to set up the STB's Pro:Centric features.

STB in Pass-through Mode

If the EZ-Manager Wizard has been exited and the STB is in Pass-through Mode, either:

- Set Installer Menu items 098 PRO:CENTRIC and 119 DATA CHANNEL to the appropriate values. See Installer Menu information on pages 36 to 47 for further details. Also, as necessary, refer to "Custom Master STB Setup" on pages 48 to 50 and/or cloning information on pages 51 to 57.
- Configure the appropriate Pro:Centric server settings in the IP Environment / Pro:Centric Menu. You must use this option, in particular, if you wish to configure IP settings for the Pro:Centric server. See "Accessing the IP Environment Menu" on page 64 and "Pro:Centric Setup" on pages 68 to 70 for further information.

Note: When the STB is in either Pass-through Mode or FTG Mode, you can also leave Installer Menu item 119 DATA CHANNEL set to its default value (255) to enable the STB's Data Channel Auto Search feature to set the DATA CHANNEL value. See item 119 description on page 46 for additional information.

STB in FTG Mode

If the STB is already in FTG Mode, use the Cloud Configuration Tool to update Installer Menu items #98 Pro:Centric and #119 Data Channel (along with their affiliated fields). Then, transfer the FTG Installer Menu settings to the STB. Refer to the FTG Mode overview on pages 13 to 14 for further information on FTG Mode operation and configuration. Also, see note above regarding the option to use the STB's Data Channel Auto Search feature to set the DATA CHANNEL value.

Pro:Centric Direct HTML Application Setup

The Pro:Centric Direct HTML application operates only in Application Tuning Mode (ATM). This section provides an overview of the setup required for the Pro:Centric Direct features. Administration and management options for the Pro:Centric server are described in detail in the *Pro:Centric Direct Admin Client User Guide*. This document describes only those settings that must be specified on the TVs to enable Pro:Centric remote management and/or the Pro:Centric Direct HTML application.

- Remote management (E-Z Installation): The Pro:Centric Direct Admin Client provides remote management facilities for downloading software updates as well as facilities for downloading Installer Menu configuration updates via Clone (.tlx) file to the STBs at the site/institution.

Note: The Pro:Centric Direct Channel Map is created and maintained in the Pro:Centric Direct Admin Client. Thus, any Clone file that is loaded on the server for remote configuration may only contain Installer Menu and/or Setup Menu profiles.

- Pro:Centric Direct HTML application: The application comprises the Pro:Centric interactive menus/features described on page 16. Pro:Centric Direct application settings are managed via the Pro:Centric Direct Admin Client.

The Pro:Centric remote management facilities and application download are based on Installer Menu item settings that are used to set up the STB's Pro:Centric features. The Installer Menu / Pro:Centric server settings can be configured using one of the methods described below.

STB in Factory Default State

When the STB is in a factory default state, the EZ-Manager Wizard provides automated or manual options for configuring the Pro:Centric server settings. See "EZ-Manager Wizard" on pages 22 to 31 for further information. The EZ-Manager Wizard also provides a USB configuration option that enables you to configure the STB's Installer Menu settings using a Clone (.tlx) file stored on a USB memory device. Installer Menu items 098 PRO:CENTRIC and 119 DATA CHANNEL are used to set up the STB's Pro:Centric features.

STB in Pass-through Mode

If the EZ-Manager Wizard has been exited and the STB is in Pass-through Mode, either:

- Set Installer Menu items 098 PRO:CENTRIC and 119 DATA CHANNEL to the appropriate values. See Installer Menu information on pages 36 to 47 for further details. Also, as necessary, refer to "Custom Master STB Setup" on pages 48 to 50 and/or cloning information on pages 51 to 57.
- Configure the appropriate Pro:Centric server settings in the IP Environment / Pro:Centric Menu. You must use this option, in particular, if you wish to configure IP settings for the Pro:Centric server. See "Accessing the IP Environment Menu" on page 64 and "Pro:Centric Setup" on pages 68 to 70 for further information.

Note: When the STB is in either Pass-through Mode or Application Tuning Mode, you can also leave Installer Menu item 119 DATA CHANNEL set to its default value (255) to enable the STB's Data Channel Auto Search feature to set the DATA CHANNEL value. See item 119 description on page 46 for additional information.

Pro:Centric Operation (Cont.)

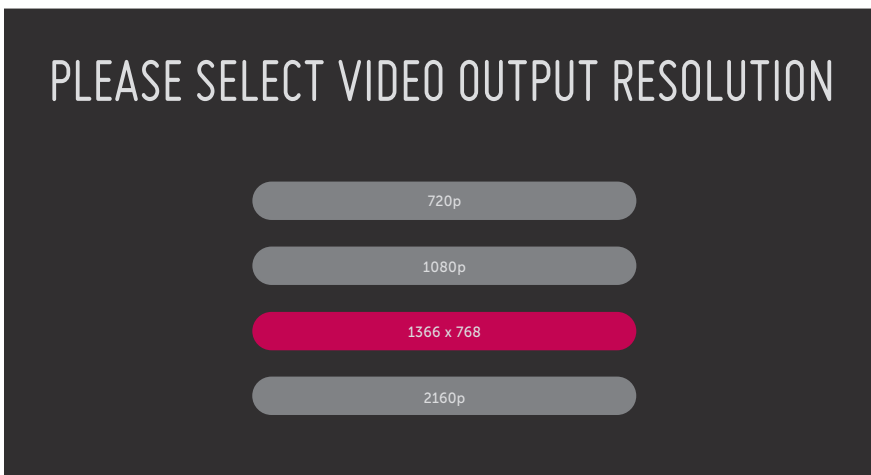
STB in Application Tuning Mode

If the STB is already in Application Tuning Mode, use a Master STB of the same model to create and export a Clone (.tlx) file with the desired settings for Installer Menu items 098 PRO:CENTRIC and 119 DATA CHANNEL. Then, transfer (import) the Clone file to the Target STB. Refer to the Application Tuning Mode / Pro:Centric Direct overview on pages 14 to 15 for further information on Pro:Centric Direct operation and configuration. To transfer the Clone file remotely, use the appropriate utilities in the Pro:Centric Direct Admin Client to upload the Clone file to the Pro:Centric server and set up its distribution to the Target STB(s) at the site. See also note above regarding the option to use the STB's Data Channel Auto Search feature to set the DATA CHANNEL value.

Setting the Video Output Resolution

The first time you turn ON the STB/display panel, a Please Select Video Output Resolution menu will be displayed, and you will need to select the appropriate option—720p, 1080p, 1366 x 768, or 2160p—for the STB's video output format. You cannot proceed with STB configuration until you make a selection.

Refer to documentation for the applicable display panel(s) to determine the appropriate setting. The selected resolution should be compatible with the display panel's native video resolution. For example, 2160p requires a UHD display panel.



Note: After it is turned ON, the STB begins an initialization process, and it may take several minutes for the Please Select Video Output Resolution menu to be displayed.

1. Use the Up/Down arrows on the Installer Remote to select the appropriate video output resolution option, and then press **OK**.

The STB's default video output resolution is 720p. If you select this option, the Please Select Video Output Resolution menu will close and the EZ-Manager Wizard Welcome screen will be displayed (see pages 22 to 31 for information on the EZ-Manager Wizard). Proceed with Commercial Mode setup as required.

If you select one of the other three resolution options (1366 x 768 is selected/highlighted as the recommended resolution), a Changing Video Output Resolution message will be displayed, and the STB will reboot within a few seconds to change the resolution per your selection. Continue with step 2.

2. When the STB reboot is complete (it may take a few minutes), you will be prompted to confirm the new video output resolution. Use the arrow keys on the Installer Remote to select **YES** in the confirmation screen, and then press **OK** on the Installer Remote.

Note: If there is no user interaction within 10 seconds, or if you select "NO" in the confirmation screen, the STB will reboot and revert to the default resolution. After this reboot is complete, the Please Select Video Output Resolution menu will be redisplayed.

Once you select and confirm the video output resolution, the EZ-Manager Wizard will be displayed. Proceed with Commercial Mode setup as required.

Note: If required at a later time, you can also change the video output resolution in the STB Installer Menu (item 105 VID OUT FORMAT) or via USB memory device / ".tx" file. In either case, the STB will need to reboot (see item 105 description on page 45 for additional information).

EZ-Manager Wizard

The primary purpose of the EZ-Manager Wizard is to guide you through the process (automated or manual) of configuring the essential Installer Menu items for Pro:Centric operation. The wizard is initiated once the video output resolution is set (see previous page) and subsequently each time the STB/display panel is turned ON, until one of its configuration methods has been completed or the wizard is exited. Use the Installer Remote to make selections and complete each wizard step.

While the EZ-Manager Wizard is intended primarily for Pro:Centric-related configuration, the wizard also offers Zoning as well as USB configuration options.

- STB-5500s support the STB Zoning and Wi-Fi Zoning features, both of which enable location-specific settings (see Reference section, “Using the STB’s Zoning Features,” for further information). The EZ-Manager Wizard enables you to set the STB Zone # and/or the Wi-Fi Zone # in the STB as part of the configuration process.
- The EZ-Manager Wizard also enables you to access the STB Manager / USB download options as part of the configuration process, if desired, to perform USB configuration and/or update functions.



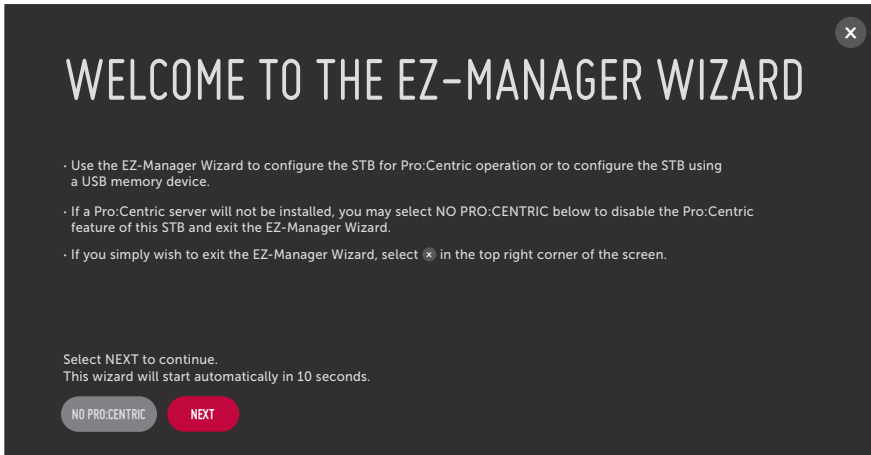
Caution: Do NOT unplug the STB power cord or remove the antenna cable or, if applicable, the LAN cable during the configuration process, as doing so will interrupt the current step and may corrupt the configuration data.

Before You Begin

- If you plan to create a Master STB Setup using the procedure described on pages 48 to 50, be sure to exit the EZ-Manager Wizard in order to avoid setting modes that may restrict the custom setup procedure. See also “Initiate Configuration or Exit the EZ-Manager Wizard” on the following page.
- If it has been completed or exited and therefore does not display, the EZ-Manager Wizard can be reactivated; however, this requires that you restore the STB to a factory default condition. See Reference section, “Restoring Factory Defaults on the STB(s),” for further information.
- Each wizard step is allotted a time frame after which the wizard proceeds without user interaction. If the Pro:Centric server is configured on the system and if no location-specific settings are required in the STB, for example, STB Zone, Wi-Fi Zone, Label, and/or Room Number settings, you can simply turn ON the STB/display, and once initiated, the wizard will proceed through each of the configuration steps with no further user interaction.
- If any of the configuration steps fails, you will see a “Diagnostics” screen with an indication of the failure. You will then have the opportunity to reinitiate the configuration process from the previous screen or exit the EZ-Manager Wizard.
- If you would like to enable the DIAL and/or SoftAP Media Share features or select pre-loaded/ Smart Launcher applications on an STB that will eventually be configured for FTG Mode, you will need to use the IP Environment Menu to do so before the STB is configured for FTG Mode. Refer to “IP Environment Setup” on pages 64 to 71 for information on the IP Environment Menu. See also “Custom Master STB Setup” on pages 48 to 50.

Initiate Configuration or Exit the EZ-Manager Wizard

The Welcome screen provides a brief introduction to the EZ-Manager Wizard.



Note: If there is no user action in this screen within 10 seconds, the wizard will proceed to the first configuration step. Once the wizard has proceeded, it is not possible to return to the Welcome screen; however, if you simply wish to exit the wizard, you can do so by selecting the **X** button from the subsequent screen(s).

From the Welcome screen, you have the following options:

- To proceed with the EZ-Manager Wizard, use the arrow keys on the Installer Remote to select/highlight **NEXT**, and then press **OK**. Then, continue to the “STB Configuration Options” section on the following page.
- To exit the wizard, but retain the use of the Pro:Centric remote management feature on this STB (i.e., Installer Menu item 119 DATA CHANNEL set to 255) in the future, use the arrow keys on the Installer Remote to select/highlight the **X** button at the top right of the screen, and then press **OK**. In the confirmation pop-up window, select **EXIT**, and then press **OK** once more on the Installer Remote.
- If you do not intend to install a Pro:Centric server on this system and you do not wish to use the wizard’s Zoning or USB configuration options, exit the wizard as follows: Use the arrow keys on the Installer Remote to select/highlight **NO PRO:CENTRIC**, and then press **OK**. This will disable the Pro:Centric feature of this STB (i.e., Installer Menu item 119 DATA CHANNEL will be set to 0) and exit the wizard. In the confirmation pop-up window, select **EXIT**, and then press **OK** once more on the Installer Remote.

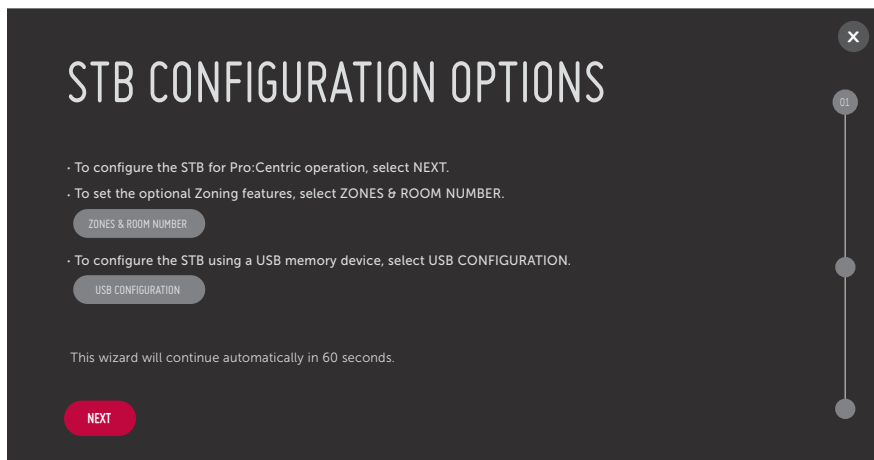
EZ-Manager Wizard (Cont.)

STB Configuration Options

From the STB Configuration Options screen, you can choose how to proceed with the configuration of this STB/display (assuming you do not opt to exit the wizard, which you may also do at any time).



Note: If you intend to use the Zoning feature(s) on the STB for location-specific configuration purposes, select the “Zones & Room Number” option from this screen and assign the appropriate STB Zone # and/or the Wi-Fi Zone # in the STB BEFORE you continue with additional configuration.



Note: If there is no user action in this screen within one minute, the wizard will automatically continue to the next configuration step.

Use the Up/Down arrow keys on the Installer Remote to navigate between options on this screen.

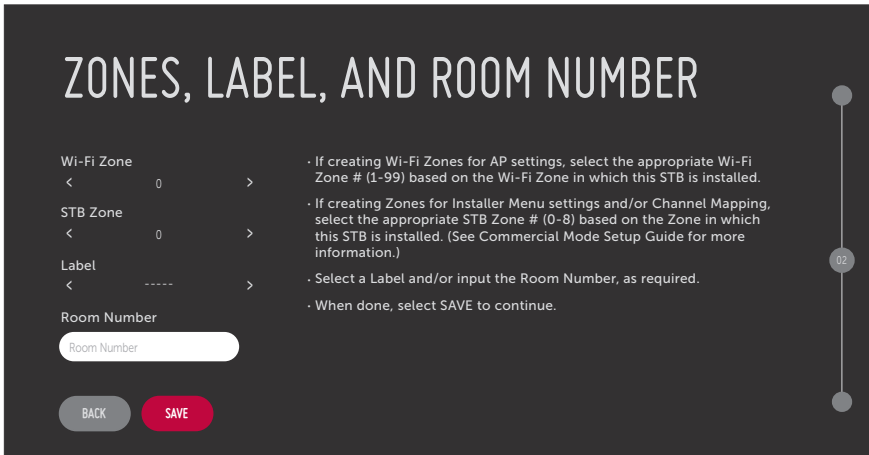
- To continue with Pro:Centric configuration, select **NEXT** (default) and press **OK** on the Installer Remote. See “Configure Pro:Centric Settings” on pages 26 to 30 for additional information.
- To set the Zoning feature(s) on the STB, select **ZONES & ROOM NUMBER**. See “Zones and Room Number Assignments” below for further information.
- To access the STB Manager / USB download options, select **USB CONFIGURATION**. See “USB Configuration” on pages 30 to 31 for further information.

Note: If you choose to exit the EZ-Manager Wizard from this point on, you will have the option to save any settings made by selecting **SAVE & EXIT** in the exit confirmation pop-up window. Or, you can exit the wizard without saving any settings by simply selecting **EXIT** in the confirmation pop-up window.

Zones and Room Number Assignments

You may complete one or more of the fields in the Zones, Label, and Room Number screen or leave them at their default settings (STB Zone and Wi-Fi Zone) or blank (Label and Room Number), as desired. However, if you intend to use either of the Zoning features—STB Zoning and/or Wi-Fi Zoning—on this STB, you **MUST** specify the appropriate values in the STB Zone and/or Wi-Fi Zone fields as described on the following page. See also Reference section, “Using the STB’s Zoning Features,” for further information.

Note: Zoning features are only applicable for STBs that will be configured using a “.tlx” file (local or remote configuration).



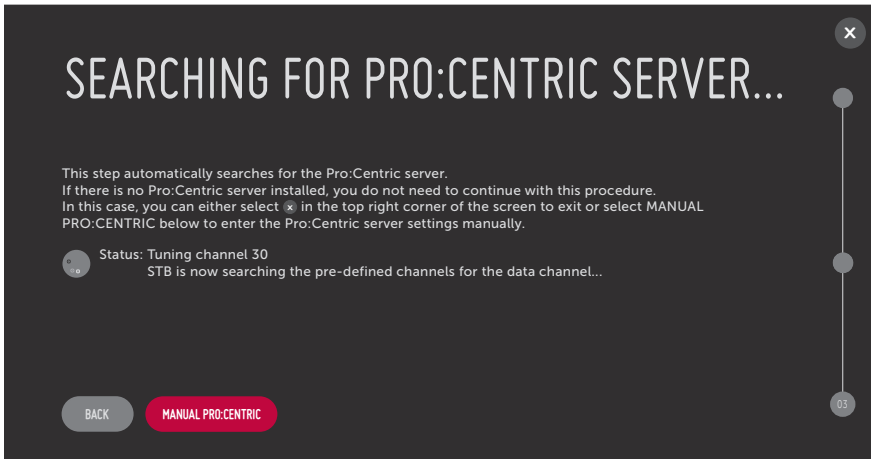
- Complete the appropriate field(s) as described below. Use the Left/Right arrow keys on the Installer Remote to navigate between each of the fields.
 - Wi-Fi Zone:** Enables you to set a Wi-Fi Zone # so that the STB can be configured with a particular access point's login data for wireless networking. Login data (i.e., SSID, security type, and security key) may be provided in a Clone/Configuration (.tlx) file.
To assign a Wi-Fi Zone, navigate to the Wi-Fi Zone field at the top left of the screen, and use the Left/Right arrow keys to specify the desired Wi-Fi Zone # (1–99).
 - STB Zone:** Enables you to set an STB Zone # so that the STB can be configured with Installer Menu and/or Setup Menu settings intended only for the assigned Zone. The Installer Menu and/or Setup Menu settings may be provided in a Clone/Configuration (.tlx) file. If the STB is being configured for FTG Mode, the STB Zone # setting also allows the STB to omit channels that have been restricted in the FTG Channel Map.
To change the STB Zone from its default value (0), navigate to the STB Zone field, and use the Left/Right arrow keys to specify the desired STB Zone # (1–8).
 - Label:** Allows you to select a North, South, East, or West text label for this STB. In the Label field, use the Left/Right arrow keys to select the applicable label.
 - Room Number:** Allows you to specify the number of the room—up to 16 characters—in which the STB is located. To enter a room number, navigate to the Room Number field and press **OK**. You can then use the number keys on the Installer Remote to direct enter a room number, or you can use the arrow keys to select the appropriate alphanumeric character(s) from the pop-up virtual keyboard at the bottom of the screen. When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.
Note: The STB name (default: STB's serial number) will be changed to the room number specified here. See “Media Share Setup” on pages 70 to 71 for further information on the STB name.
- When you are ready to continue, use the arrow keys to select **SAVE**, and then press **OK** on the Installer Remote to return to the STB Configuration Options screen. Then, proceed as required; i.e., select **NEXT** to configure Pro:Centric settings or select **USB CONFIGURATION** to use a USB memory device to complete the configuration.

EZ-Manager Wizard (Cont.)

Configure Pro:Centric Settings

Once you select “NEXT” from the STB Configuration Options screen, the Searching for Pro:Centric Server screen is displayed.

Note: Select the “BACK” button, where available, to check previous settings, as necessary.



You have the following options:

- You can allow the EZ-Manager Wizard to proceed with a series of automated steps to configure the STB for Pro:Centric operation and then to look for the Pro:Centric application and maintenance (E-Z Installation) files to download. In this case, the wizard uses a search algorithm to determine the Data Channel and the Pro:Centric Application Mode to set in the STB.

Continue with the “Automated Pro:Centric Configuration” subsection below.

- If you already know the settings (i.e., Data Channel and Pro:Centric Application Mode) that need to be configured in order for the STB to connect to the Pro:Centric server and/or if the Pro:Centric server is not yet installed, you may expedite the setup process by entering this data manually.

Continue with the “Manual Pro:Centric Configuration” subsection on page 28.

Automated Pro:Centric Configuration

Note: If the server is not yet configured on the system or if Pro:Centric data delivery will be over IP and there is no Domain Name System (DNS) server, use the manual configuration option to configure the TV’s Pro:Centric server settings (see “Manual Pro:Centric Configuration” subsection on page 28). See also note below regarding DNS requirements.

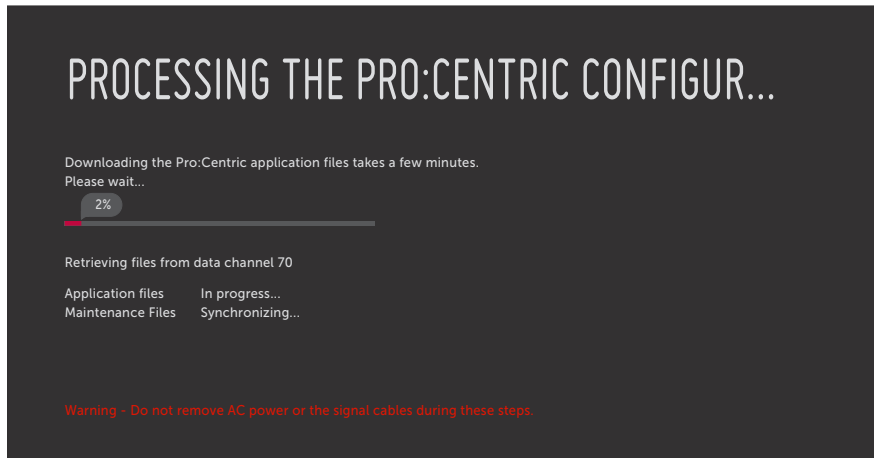
Note: If there is a DNS server at the site, you can create a “procentric.local” DNS entry with the Pro:Centric server’s IP address. Also, the Pro:Centric server’s port number must be set to “80” to allow the automated Pro:Centric IP configuration via the EZ-Manager to find the server.

Once the Pro:Centric data channel is found (a Pro:Centric Server Was Found screen will be displayed) and the Pro:Centric Application Mode is determined, the wizard will advance to the Processing the Pro:Centric Configuration screen, which shows the progress of the data downloads (see example on following page). Note that some steps may require a few minutes.

(Continued on next page)

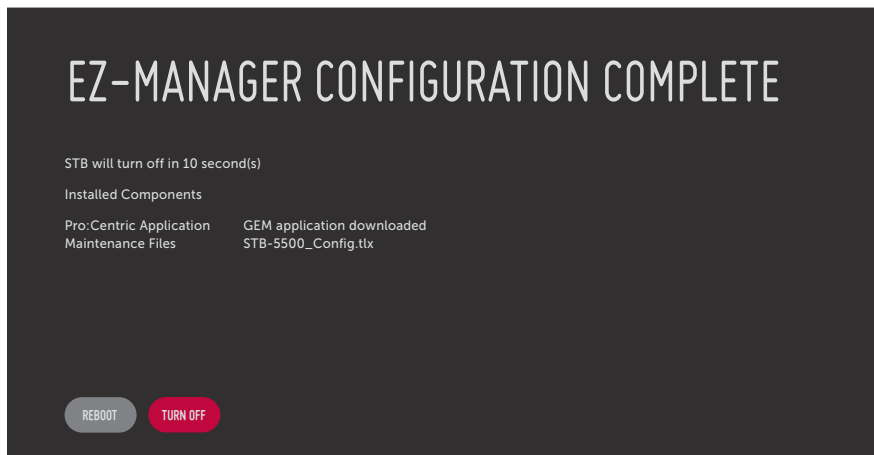
(Continued from previous page)

If the process is successful, no further user interaction is required, though, in some instances, where the option (for example “NEXT”) is available, you may manually move forward to subsequent steps within the wizard to speed up the process.



Note: If, after completing the search, the STB is unable to find the Pro:Centric data channel (while the Searching for Pro:Centric Server screen is on display), the wizard will stop and show a Diagnostics screen that enables you to manually return to the previous screen (to reinitiate the configuration) or exit the wizard.

When the Pro:Centric Configuration is complete, an EZ-Manager Configuration Complete screen is displayed (see example below), and after 10 seconds, the wizard exits, and the STB turns OFF.



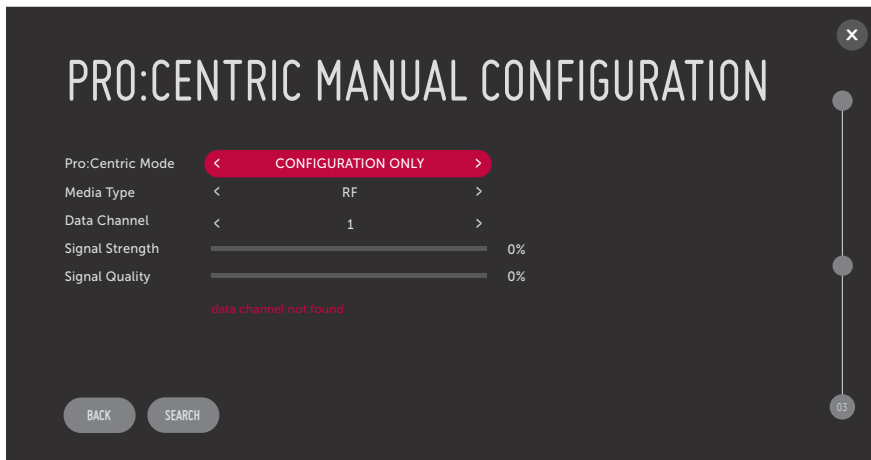
Note: With the EZ-Manager Configuration Complete screen on display, you can also manually turn off or reboot the STB. If desired, select **TURN OFF** or **REBOOT**, respectively, and then press **OK** on the Installer Remote.

EZ-Manager Wizard (Cont.)

Manual Pro:Centric Configuration

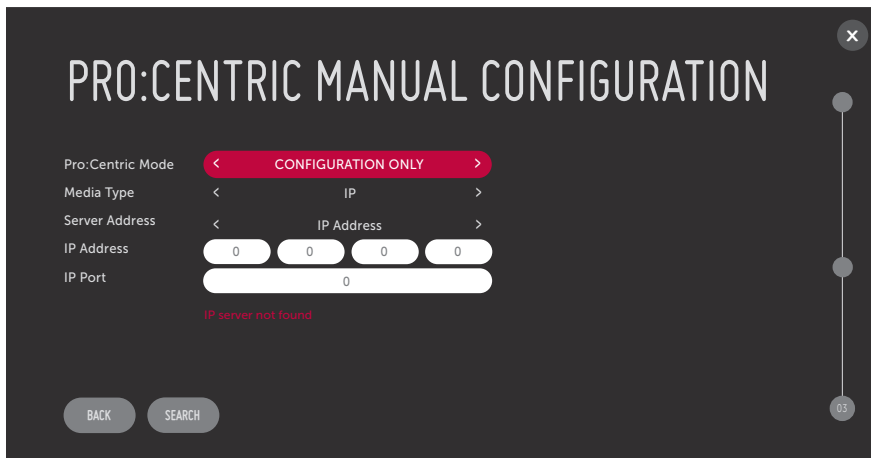
1. With the Searching for Pro:Centric Server screen on display, use the Left/Right arrow keys on the Installer Remote to select **MANUAL PRO:CENTRIC** at the bottom right of the screen, and then press **OK**.

In the Pro:Centric Manual Configuration screen (see examples below), you will be able to configure the appropriate Pro:Centric settings in the STB. Use the Up/Down arrow keys on the Installer Remote to navigate between fields.



Pro:Centric Manual Configuration Screen with RF Media Fields

Note: By default, the Pro:Centric Manual Configuration screen initially shows RF configuration fields.



Pro:Centric Manual Configuration Screen with IP Media Fields

2. In the Pro:Centric Mode field, use the Left/Right arrow keys to select the appropriate Pro:Centric Application Mode—**FLASH**, **GEM** (Java), **HTML**, or **CONFIGURATION ONLY**.

Note: For remote management only, select **CONFIGURATION ONLY**. The STB will search for E-Z Installation data downloads; however, Pro:Centric application data will not be downloaded, i.e., Installer Menu item 098 PRO:CENTRIC will be set to 0.

3. Refer to the appropriate subsection below, depending on the Pro:Centric server configuration, to complete the remaining fields.

(Continued on next page)

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RF Configuration

- a) In the Media Type field, use the Left/Right arrow keys to select **RF**.
- b) In the Data Channel field, use the Left/Right arrow keys to select the RF channel number that will be used by the Pro:Centric server as its data channel. The Data Channel value can be set from 1 to 135.*

IP Configuration

- a) In the Media Type field, use the Left/Right arrow keys to select **IP**.
Note: When you select “IP” as the Media Type, the default RF Data Channel and Signal Strength/Quality fields are replaced with Server Address, IP Address, and IP Port fields.
- b) The Server Address field provides the option to specify the domain name of the Pro:Centric server instead of the server’s IP address. Use the Left/Right arrow keys to select the desired option—IP Address or Domain Name—for defining the server.
- c) Depending on your selection in the previous step, either:
 - Enter the Pro:Centric server IP address in the IP Address field. The IP address must match the IPv4 multicast address that is set in the Pro:Centric server.
 - Enter the Pro:Centric server domain name in the Domain Name field. Note that in order for the domain name to be resolved to an IP address, there must be a DNS entry for the domain name.

For each data entry field: Use the arrow keys to select the field and press **OK**. Then, you can either use the number keys on the Installer Remote to direct enter data values, or you can use the arrow keys to select the appropriate number(s)/alphanumeric character(s) from the pop-up virtual keyboard displayed at the bottom of the screen. When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.

- d) Enter the Pro:Centric server port number in the IP Port field. The port number must match the port number that is set in the Pro:Centric server.
4. Once all fields are completed as required, you have two options:
- To save the data entered and exit the wizard, use the arrow keys to select the **⊗** button at the top right of the screen, and then press **OK**. In the subsequent pop-up confirmation window, select **SAVE & EXIT**, and then press **OK** once more. The Pro:Centric application and/or E-Z Installation data will be downloaded to the STB at a later time. This option is useful, in particular, if the Pro:Centric server has not yet been configured.
 - To initiate a real-time download of Pro:Centric application and/or E-Z Installation data, use the arrow keys to select **SEARCH** and press **OK** to verify the configuration data provided in step 3. When the data is verified, the “SEARCH” button becomes a “NEXT” button. Select **NEXT** and press **OK** to continue (see also note below).

Note: With RF configuration, Pro:Centric server data must be present on the RF channel selected as the STB’s Data Channel in order for you to select “NEXT” (you will see a “data channel found” message below the Signal Quality indicator). With IP configuration, Pro:Centric server data must be present via the wired LAN cable connection in order for you to select “NEXT” (you will see a “IP server found” message below the IP Port field).

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* PCS150R and later Pro:Centric servers do not support HRC or IRC cable channel frequencies.

EZ-Manager Wizard (Cont.)

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If you opt to initiate a real-time download in the last step, the EZ-Manager Wizard will proceed with the Pro:Centric application and/or E-Z Installation data downloads (see Processing the Pro:Centric Configuration screen example on page 27). When the Pro:Centric configuration is complete, an EZ-Manager Configuration Complete screen (see example on page 27) is displayed, and after 10 seconds, the wizard exits, and the STB turns OFF.

Note: With the EZ-Manager Configuration Complete screen on display, you can also manually turn off or reboot the STB. If desired, select **TURN OFF** or **REBOOT**, respectively, and then press **OK** on the Installer Remote.

USB Configuration

STB Manager / USB download options enable you to download configuration or software files individually from a USB memory device to the STB. You can also use the Ez Download utility available from the menu to select multiple types of files to be downloaded at one time using one process.

Each of the USB download functions requires that you have the appropriate file(s) loaded on a USB memory device. If you wish to perform a software update or download background image files, the software update/image file(s) must be stored in a folder named “LG_DTV” in the root directory of the USB memory device. Clone/Configuration (.tlx) files should simply be stored in the root directory of the USB device.

The procedure below assumes the desired file(s) is/are already loaded onto the USB device. For further information on the STB Manager / USB download options and file requirements, and/or information on creating Clone/Configuration (.tlx) files, refer to the appropriate section(s) in this document.

Before You Begin

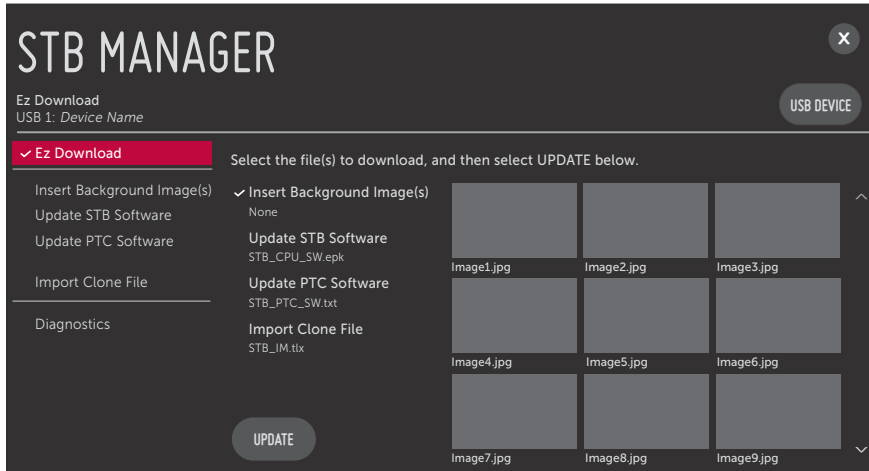
- If you intend to use the Zoning feature(s) on this STB, make sure to set the appropriate STB Zone # and/or Wi-Fi Zone # in the EZ-Manager’s Zones, Label, and Room Number screen BEFORE continuing with USB Configuration. See “STB Configuration Options” on page 18 for further information.
- Ensure the USB device to be used has been formatted with FAT format.
- When creating files to be downloaded, avoid using special characters (?, &, @, etc.) in filenames.
- Refer to “Ez Download Utility” on pages 32 to 35 for further information on the Ez Download utility.
- Refer to “Custom Master STB Setup” on pages 48 to 50 for information on creating a Clone (.tlx) file, and/or refer to “Creating an FTG Configuration File” on pages 58 to 60 for information on creating a FTG Configuration (.tlx) file for FTG Mode configuration.
- See Reference section, “Downloading Background Images using a USB Memory Device,” for background image guidelines.
- See Reference section, “Updating STB Software using a USB Memory Device,” for further information on software updates.

USB Configuration via EZ-Manager Wizard

With either the STB Configuration Options or the Zones, Label, and Room Number screen on display, proceed as follows to configure the STB/display using the USB memory device.

1. Insert the USB memory device with the appropriate file(s) into either of the STB's USB ports.
2. Use the arrow keys on the Installer Remote to select **USB CONFIGURATION**, and then press **OK**.

You will be redirected to the STB Manager / USB download options.



Note: You can select the **X** button at the top right corner of the screen and press **OK** on the Installer Remote at any time to return to the EZ-Manager Wizard.

Note: Ez Download is always selected by default when you initially access the STB Manager. Also note that Diagnostics is for service use only.

3. If more than one USB memory device is currently connected to the STB, be sure to select the USB device that contains the file(s) you wish to use. If necessary, use the arrow keys on the Installer Remote to select/highlight the **USB DEVICE** button at the top right of the screen and press **OK**. Then, use the Up/Down arrow keys to select the appropriate USB device from the pop-up list of USB devices displayed at the top of the screen.
4. Select the appropriate option from the STB Manager, and initiate the desired download(s).

Update progress will be shown on the screen. Do NOT remove the USB device while updates are in progress. When the update process is complete, the STB will reboot. Upon restart, depending on the type of update(s) completed, either the EZ-Manager STB Configuration Options screen will be redisplayed (software and/or image updates only) or the STB will tune according to the Start Channel setting in the Installer Menu (STB configured with Clone/Configuration file).

Note: If the STB Configuration Options screen is redisplayed (software and/or image updates only), you can either proceed with configuration via the EZ-Manager Wizard or exit the EZ-Manager Wizard, as required.

Note: If you updated the STB configuration with a Clone/Configuration file that included a change to Installer Menu item 105 VID OUT FORMAT, when the reboot is complete, you will be prompted to confirm the new video output resolution. See item 105 description on page 45 for further information.

5. Remove the USB memory device, and verify that the appropriate configuration/update(s) is/are resident on the STB.

Ez Download Utility

The Ez Download utility, available from the STB Manager, enables you to select multiple files at one time from the files loaded on a USB memory device. You may use this utility to download any one or all of the following to an STB:

- One Clone or FTG Configuration (.tlx) file
- One STB (CPU) software update
- One PTC software update
- Up to 12 background images

Before You Begin

- Ensure the USB device has been formatted with FAT format.
- Software update and background image files must be stored in a folder named “LG_DTV” in the root directory of the USB memory device. Clone/Configuration (.tlx) files should simply be stored in the root directory of the USB device.
- If the EZ-Manager Wizard appears on the screen when you turn ON the STB/display, you can use the wizard’s “USB Configuration” option to access the Ez Download utility (see “STB Configuration Options” and/or “USB Configuration” on pages 24 and 30, respectively, as necessary).
- If the STB is currently in Pass-through Mode and you intend to use the Zoning feature(s) on this STB for location-specific configuration purposes, make sure to set the appropriate STB Zone # and/or Wi-Fi Zone # in the STB when directed to do so in the procedure below.
- When creating files to be downloaded, avoid using special characters (?, &, @, etc.) in filenames.
- Refer to “Custom Master STB Setup” on pages 48 to 50 for information on creating a Clone (.tlx) file, and/or refer to “Creating an FTG Configuration File” on pages 58 to 60 for information on creating an FTG Configuration (.tlx) file for FTG Mode configuration.
- See Reference section, “Downloading Background Images using a USB Memory Device,” for background image guidelines.
- See Reference section, “Updating STB Software using a USB Memory Device,” for further information on software updates.



Caution: Do not unplug the STB power cord or remove the USB memory device during a data download, as doing so may cause the STB to malfunction or harm the USB device, respectively.

Accessing and Using the Ez Download Utility

1. If it is not ON already, turn ON the STB/display panel.
2. The next step depends on whether the EZ-Manager Wizard appears on the screen when you turn ON the STB/display:
 - If the wizard is displayed, you can access the Ez Download utility via the wizard, as indicated above (see “Before You Begin”). However, to continue with this procedure and access the Ez Download utility from the STB menus, exit the EZ-Manager Wizard. Then, continue with step 3.
 - If the wizard is not displayed, go directly to step 3.


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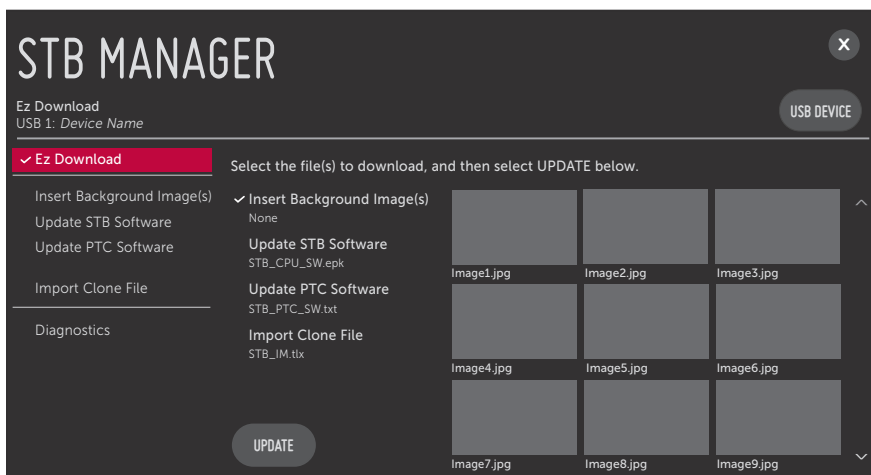
3. If the STB is currently in Pass-through Mode, you would like to transfer (import) a “.tlx” file to the STB via the Ez Download utility, and you intend to use one or both of the STB’s Zoning feature(s), set the appropriate STB Zone # and/or Wi-Fi Zone # in the STB at this time. See Reference section, “Using the STB’s Zoning Features,” for further information.



Note: In order for the proper STB Zone and/or Wi-Fi Zone profile data to be applied, the appropriate STB Zone # and/or Wi-Fi Zone # must be set in the Target STB(s) BEFORE you continue with the Ez Download utility.

4. Insert the USB memory device with the appropriate file(s) into either of the STB’s USB ports.
5. To access the STB Manager from the STB menus:
 - Press **MENU** on the Installer Remote to display the STB setup menus (STB is in Pass-through Mode) or the Function Menu (STB is not in Pass-through Mode).
 - If the Quick Settings Menu is displayed at the right of the screen (i.e., the STB is in Pass-through Mode), select the **All Settings**  menu icon and press **OK** to access the advanced STB setup menus.
 - Use the arrow navigation keys to select/highlight either the **General** menu icon from the STB setup menus or the **Safety** menu icon from the Function Menu. Then, press the number “7” key a total of seven times.

Note: Ez Download is always selected by default when you initially access the STB Manager. Also note that Diagnostics is for service use only.



6. If more than one USB memory device is currently connected to the STB, be sure to select the USB device that contains the file(s) you wish to use. If necessary, use the arrow keys on the Installer Remote to select/highlight the **USB DEVICE** button at the top right of the screen and press **OK**. Then, use the Up/Down arrow keys to select the appropriate USB device from the pop-up list of USB devices displayed at the top of the screen.

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Ez Download Utility (Cont.)

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7. If it is not currently selected, use the arrow keys to select **Ez Download**, and then press **OK**.

As illustrated in the example above, when Ez Download is selected, a list of files/file types is displayed on the screen. Remember that Background Image, STB Software (CPU) and PTC Software files must be stored in the LG_DTV folder and the Clone/Configuration (.tlx) files must be stored in the root directory on the USB device.

Note: Select the **X** button in the top right corner of the screen, as necessary, to exit the STB Manager. If you accessed the STB Manager via the EZ-Manager Wizard, you will be returned to the last screen on display before you selected the “USB Configuration” option. If you accessed the STB Manager via the STB menus, you will be returned to program viewing.

8. To select a file:

- Use the arrow keys on the Installer Remote to select/highlight the appropriate file type field, and then press **OK**. A list of available files will be displayed to the right of the file type fields.
- Then, use the arrow keys to select the desired file.

Note: With the exception of background image files, the utility will only allow you to select one of each file type for downloading. For example, if there are two files in the Ez Download “Import Clone File” list, you can only select one or the other of those two files.

Note: The initial default value for each file type is “None.” After the Ez Download utility is run, a file is automatically created and stored on the USB device that was used. The file, which will have a “.dzm” file extension, maintains a history of the file(s) previously used with the Ez Download utility. The next time(s) you use this USB device with the Ez Download utility, the file(s) selected for the last download will be pre-selected for the current download, thus facilitating the process of configuring additional STB-5500s using the same USB device.

Note: The current STB software (CPU) or PTC software version is always displayed above the listing of available STB software and PTC software files, respectively. Ensure the software version of the selected file is the correct version before applying the update to this STB.

9. If a Clone/Configuration (.tlx) file that includes an FTG Channel Map is selected, a Channel Tuning / Channel Banner Display field will be displayed at the right of the screen. If the FTG Channel Map comprises RF channels and Aux inputs *only* (the latter designated by 130-0 through 137-0), you can choose the format for the channel tuning/banner display. Use the arrow keys on the Installer Remote to select **Logical** tuning or **Physical** tuning. A checkmark will appear at the left of the selected option. Logical tuning is selected by default.

Note: If an FTG Channel Map includes IP channels, only logical tuning is available. Also, if the selected “.tlx” file does not include an FTG Channel Map, the message, “No Channel Map in Clone file,” will be displayed at the right of the screen.

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10. When you are ready to continue, use the arrow keys on the Installer Remote to select **UPDATE**, and then press **OK**.

Update progress will be shown in a new screen. Do NOT remove the USB device while updates are in progress. When the Ez Download process is complete, an overview of the results will briefly be displayed and then, the STB will reboot.

11. Remove the USB memory device, and verify that the appropriate configuration/update(s) is/are resident on the STB.

Note: If you updated the STB configuration with a Clone/Configuration file, upon restart (and, if applicable, confirmation of new video output resolution—see note below), the STB tunes according to the Start Channel setting in the Installer Menu. If a Start Channel is specified, the STB will tune to that channel, though in the case of FTG Mode configuration, a channel banner will only be displayed if the Start Channel is included in the FTG Channel Map (depending on your selection in step 9, the channel banner will display either the Start Channel's logical channel number or physical RF channel number). Otherwise, the STB will either return to the last channel tuned (STB in Pass-through Mode) or tune to the first channel in the FTG Channel Map (STB in FTG Mode). In the latter case, remember that the channels in the FTG Channel Map are always arranged in logical order, regardless of your selection in step 9.

Note: If you updated the STB configuration with a Clone/Configuration file that included a change to Installer Menu item 105 VID OUT FORMAT, when the reboot is complete, you will be prompted to confirm the new video output resolution. See item 105 description on page 45 for further information.

Installer Menu

Use the Installer Menu to set up, change, or view operational settings. This section describes how to access, use, and exit the Installer Menu on location; however, you should also refer to the Installer Menu descriptions in this document if you are configuring the STB using an FTG Configuration (.tix) file created using LG's Cloud Configuration Tool.

Refer to the table on pages 38 to 40 for brief descriptions of Installer Menu items. More detailed descriptions follow the table listing.

Accessing the Installer Menu

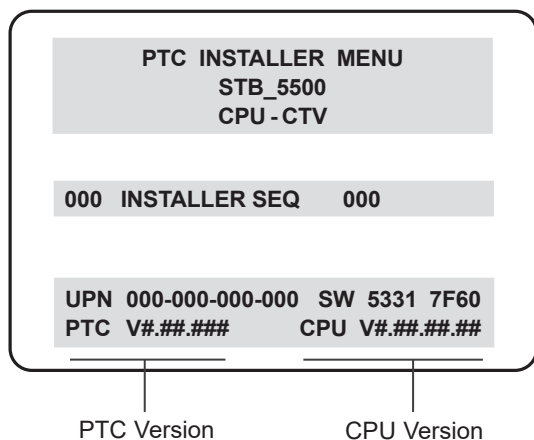
1. Turn ON the STB/display panel.

If the EZ-Manager Wizard appears on the screen when you turn ON the STB/display, exit the wizard.

2. Using an Installer Remote, press **MENU** repeatedly until the on-screen display of the setup menus (if the STB is in Pass-through Mode) or the Function Menu (if the STB is not in Pass-through Mode) no longer toggles, and then press the STB Installer Menu entry sequence (e.g., **9-8-7-6**) + **EXIT** to access the STB Installer Menu.

Note: The default Installer Menu entry sequence is "9876"; however, if Installer Menu item 000 INSTALLER SEQUENCE has been modified, the entry sequence may be one of three additional options. See Installer Menu detailed descriptions for further information.

The Installer Menu opens with item 000 INSTALLER SEQ 000.



Typical Installer Menu

The menu header identifies this as the STB-5500 Installer Menu. In the Installer Menu footer, you can see the current software versions of the STB, as indicated.

Note: If the password (entry sequence) is not entered or registered correctly, you will see the message "ENTER STB PASSWORD 0000" at the top of the screen instead of the STB Installer Menu header. Once you re-enter the correct password (e.g., press 9-8-7-6 + EXIT), the STB Installer Menu will display.

Note: If an LG Hospitality TV (for example, LP645H, LT670H, etc.) is being used as the display panel (connected to MPI/MTI TELEVISION CONTROL on the STB) and you press the TV Installer Menu entry sequence + OK, you will access the TV's Installer Menu instead of the STB's Installer Menu. The TV's Installer Menu is accessible as read-only while the STB is in control of the display.

Note: If the STB is not in Pass-through Mode, the Installer Menu is accessible as read-only. Also, the STB Zone # will be indicated in the Installer Menu header under the configuration mode indicator described on the following page.

As part of the Installer Menu header (in all modes), two 3-character acronyms are displayed to indicate the STB's current configuration mode. The table below lists all possible mode identifiers for the STB-5500.

Acronym	Description
CPU-CTV	Pass-through Mode with Channel Lineup in CPU
CPU-FTG	FTG Mode via CPU
CPU-P:C	Application Tuning Mode via CPU
MPI-EXT	External MPI Control
PTC-CTV	Pass-through Mode with Channel Map in PTC

Navigating Within the Installer Menu

Use the Up/Down arrow keys on the Installer Remote to sequence through the available menu items, or access an item directly by keying in the item number and then pressing **MENU**. For example, to access the SLEEP TIMER option, which is item 015, press 0-1-5 + MENU.

Installer Menu items not relevant to the STB are not present in the Installer Menu; therefore, some numbers are missing. For example, item 006 will not appear. In addition, items that are dependent on other Installer Menu item settings will not be initially accessible. For example, item 046 STRT AUX SRCE will not display in the Installer Menu unless item 004 STRT CHANNEL is set to 0. See Installer Menu detailed descriptions for further information.

Modifying Installer Menu Settings

Refer to the table starting on the next page for an overview of the available Installer Menu items, including their item numbers, functions, value ranges, and default values.

To change an Installer Menu item value, use the Left/Right arrow keys on the Installer Remote to select the appropriate value, or direct enter a valid value. To save the new setting, press **OK** once on the Installer Remote. If you have additional items to modify, use the Up/Down arrow keys to navigate to a new Installer Menu item or access an item directly as described in the previous section. Note that invalid values will not be saved.



Caution: In order for Installer Menu item changes to be saved, you must press **OK** as indicated above and then exit the Installer Menu as described below. Never remove power from the STB while in the Installer Menu. Also, remember that Installer Menu settings may affect options available from the STB setup menus or the Function Menu.

Exiting the Installer Menu and Activating Settings

After you have saved all desired Installer Menu item changes (i.e., press **OK** once on the Installer Remote to save changes), press **OK** again to exit the Installer Menu. Any changes you make will be stored in non-volatile memory.

Note: Each time you exit the Installer Menu in Pass-through Mode, all V-Chip (Parental Control) settings in the STB are reset to their default values; that is, the Lock System, if previously enabled from the Safety Menu, will now be disabled, and the individual Parental Control settings will be restored to default values.

Installer Menu (Cont.)

Installer Menu Items 000 through 053

Item	Function	Value Range	Default Value	Brief Description of Function
000	INSTALLER SEQ	0–3	0	Leave default set to 0.
001	POWER MANAGE	0–7	0	Selects the number of hours of inactivity allowed before the STB automatically turns itself OFF. Set to 0 to disable Power Management.
002	AC ON	0–3	0	Determines the status of the STB/display panel (ON, Instant ON enabled, etc.) when AC power is applied. See detailed descriptions.
003	BAND/AFC	0–3	1	Selects the RF Tuning Band: 0=Broadcast, 1=CATV, 2=HRC, 3=IRC
004	STRT CHANNEL	0–127, 253, 255	255	Channel tuned when the STB/display panel is turned ON. (Set to 255 to tune to channel tuned before the STB/display was turned OFF.)
005	CHAN LOCK	0 / 1	0	If set to 1, cannot tune from current channel.
007	STRT VOLUME	0–63, 255	255	Volume level when the STB/display panel is turned ON. (Set to 255 to use volume level before the STB/display was turned OFF.)
008	MIN VOLUME	0–63	0	Sets the minimum allowable volume setting.
009	MAX VOLUME	0–63	63	Sets the maximum allowable volume setting.
010	MUTE DISABLE	0 / 1	0	Set to 1 to disable the Mute function.
011	KEY DEFEAT	0 / 1	0	If set to 1, menu navigation buttons/functions on LG Hospitality and commercial non-LG display panels are not functional/available. N/A for LG Public Displays or LG Commercial Monitors.
015	SLEEP TIMER	0 / 1	1	Set to 1 to enable the Sleep Timer feature.
016	EN. TIMER	0 / 1	0	Set to 1 to enable On/Off timers.
017	ALARM	0 / 1	1	Set to 1 to enable the Alarm feature in the Function Menu.
020	FEATURE LEVEL	0, 16–24	0	Determines an additional IR code scheme to which the STB will respond.
021	V-CHIP	0 / 1	1	Set to 1 to enable V-Chip (Parental Control) functions.
022	MAX BLK HRS	0–99	12	Determines the number of Parental Control blocking hours that can be set in the Function Menu.
023	CAPTION LOCK	0 / 1	0	Set to 1 to retain the caption setting selected before the STB/display panel was turned OFF.
028	CH. OVERRIDE	0 / 1	1	If set to 0, users can only tune to channels that are included in the PTC Channel Map. See detailed descriptions.
029	OLD OCV	0 / 1	0	Set to 1 to remap the PTC's direct tune channels for STB Aux inputs from 13x to 9x.
030	ACK MASK	0 / 1	0	If set to 1, enables the ACK feature of MPI.
031	POLL RATE	20–169	94	Selects the poll rate for MPI.
032	TIMING PULSE	186–227	207	Sets the baud rate for MPI.
035	HDMI1 ENABLE	0–2	1	Set to 0 to disable STB HDMI 1. Set to 1 (DTV Mode) or 2 (PC Mode), as applicable, to enable STB HDMI 1.
039	REAR AUX EN.	0 / 1	1	Set to 1 to enable the display panel AV input jack.
041	SIMPLINK EN	0 / 1	0	Determines the status of the SIMPLINK feature. See detailed descriptions.
042	AUTO INPUTS	0–255	0	Determines the STB Aux inputs for which auto-sensing is enabled. See detailed descriptions.
046	STRT AUX SRCE	1, 3, 5, 7, 255	255	Sets the starting STB Aux source (if item 004 STRT CHANNEL is set to 0).
047	AUX STATUS	0 / 1	0	Controls the MPI status channel response for STB Aux sources. Set to 1 for the STB Aux source to be reported as its channel number.
049	DIS. AUDIO M.	0–9	0	Determines the availability of the Sound Out (Audio) Menu in the STB menus, as well as the default Audio Mode when STB is turned ON. See detailed descriptions.
053	DIS. CH-TIME	0 / 1	0	Set to 1 to disable the STB's native Channel-Time display.

Installer Menu Items 069 through 108

Item	Function	Value Range	Default Value	Brief Description of Function
069	EN. CH-T COL.	0 / 1	1	Set to 1 to enable custom color for MPI display characters.
070	FOR. CH-TIME	0–7	2	Chooses custom foreground color for MPI display characters.
071	BCK. CH-TIME	0–7	2	Chooses custom background color for MPI display characters.
073	CH NOT AVBLE	0 / 1	0	If set to 1 and item 028 CH. OVERRIDE is set to 0, a “CHANNEL NOT AVAILABLE” message is displayed if user attempts to direct tune a channel that is not included in the channel lineup.
075	REVERT CH	0 / 1	0	If set to 1 and loss of MPI communication occurs, STB tunes to the Start Channel.
078	UPN MSB	0–255	0	User programmable number, most significant byte.
079	UPN MSB-1	0–255	0	User programmable number, most significant byte - 1.
080	UPN MSB-2	0–255	0	User programmable number, most significant byte - 2.
081	UPN LSB	0–255	0	User programmable number, least significant byte.
082	CHKSM ERROR	0 / 1	1	Enforces rigid MPI checksum.
083	HANDSHK TIME	0–5	5	Relaxes MPI timing to be compatible with PC-based Windows-controlled systems.
084	PERMANENT BLK	0 / 1	0	Set to 1 to remove the blocking hours setting in the Function Menu for Parental Control and make the block permanent.
086	V. MUTE TIME	0–50	0	Use to extend the normal video mute time during channel change.
088	EN NOISE MUTE	0 / 1	1	(Analog channels only) If set to 1, audio is muted if no signal is present.
090	KEY LOCK	0 / 1	1	If set to 1, all LG Hospitality and commercial non-LG display panel button functions are locked. N/A for LG Public Displays or LG Commercial Monitors.
091	HDMI2 ENABLE	0–2	1	Set to 0 to disable STB HDMI 2. Set to 1 (DTV Mode) or 2 (PC Mode), as applicable, to enable STB HDMI 2.
092	HDMI3 ENABLE *	0–2	0	Set to 0 to disable STB HDMI 3. Set to 1 (DTV Mode) or 2 (PC Mode), as applicable, to enable STB HDMI 3.
094	SAP MENU EN	0 / 1	1	Set to 1 to enable the SAP feature in Function Menu.
096	DEF. ASP. RATIO	0–4	2	Sets the default aspect ratio. See detailed descriptions.
097	AUDIO OUTPUT	0, 9, 10	9	Set as required in accordance with external audio equipment connected to the STB. See detailed descriptions.
098	PRO:CENTRIC	0–3	0	Set to 0 to disable Pro:Centric operation. Set to 1 for Flash Mode. Set to 2 for GEM (Java Application) Mode. Set to 3 for HTML Mode.
100	VIDEO INTERFAC	3–5	3	Selects the HDMI connection for display panel: 3 = HDMI 1, 4 = HDMI 2, 5 = HDMI 3
101	IR FEEDBACK	0 / 2	0	Set to 2 to disable the STB's MMR feature.
102	ATSC BAND	0–4	4	Selects the RF band used by the ATSC tuner. See detailed descriptions.
103	ATSC TUNE MODE	0 / 1	1	Set to 1 (default) for Physical Channel tuning. Set to 0 for Virtual Channel tuning.
104	START MINOR CH	0–255	0	Selects the Minor Start Channel number. Set to 0 for analog (NTSC) channel.
105	VID OUT FORMAT	1, 4, 5, 6	1	Sets the format for video output: 1 = 720p, 4 = 1080p, 5 = 1366 x 768, 6 = 2160p
106	ASP RATIO LOCK	0 / 1	0	Set to 0 to use the default aspect ratio each time the STB/display panel is turned ON. Set to 1 to retain the aspect ratio set before the STB/display panel was turned OFF.
107	BANNER SELECT	0 / 1	1	Selects the type of banner to display during channel change.
108	PANEL COM	0–3	2	Set to match the display panel baud rate: 0 = 1200, 1 = 2400, 2 = 9600, 3 = 115200

* HDMI 3 port on expansion interface connector.

Installer Menu (Cont.)

Installer Menu Items 110 through 122

Item	Function	Value Range	Default Value	Brief Description of Function
110	PANEL DELAY	1 – 15	8	Sets the display panel communication delay time. See detailed descriptions.
	PANEL INST ON*	0 / 1	0	Controls the STB's display panel Instant ON feature. See detailed descriptions.
111	PANEL VOL PRE	0 – 100	100	Determines a preset fixed volume level to set in the display panel.
113	PANEL TYPE	0 – 4	4	Sets the display panel communication command set. See detailed descriptions.
116	VIDEO MUTE EN	0 / 1	0	(Analog channels only) If set to 1, video mutes (blank screen) when no signal is present.
117	FACT DEFAULT	0 / 1	0	Set to 1 to restore the factory default settings of all Installer Menu items.
119	DATA CHANNEL	0 – 135, 253, 255	255	Set to 0 to disable. Set from 1 to 135 to match the RF channel number used by the Pro:Centric server as its data channel. Set to 255 to use Auto Search to find the Pro:Centric RF channel. (See detailed descriptions.)
121	UPDATE TIME HR	0 – 23, 128, 255	128	Sets the Wake For Update hour. The value "128" is displayed as "OFF." Directly entering 128 turns the Wake For Update feature OFF.
122	UPDATE TIME MN	0 – 59, 255	0	Sets the minute for Wake For Update. (See detailed descriptions.)

* This item is applicable with STB PTC v1.00.035 or later.

Detailed Descriptions of Installer Menu Items

000 - INSTALLER SEQUENCE

Specifies entry sequence to the Installer Menu.

0 = 9876 1 = 4321
2 = 1478 3 = 3698

001 - POWER MANAGE (Power Management)

Energy saving feature. Determines the number of hours, in the range 1 to 7, of inactivity allowed, either at the display control panel or from the remote, before the STB automatically turns itself OFF. If set to 0, Power Management is disabled.

002 - AC ON (AC Power Switchable)

Determines the status of the STB/display panel when AC power is applied. Set to 0 (default) for standard STB/display panel turn ON/OFF operation.

If set to 1, the STB/display panel will turn ON when AC power is applied. Pressing the POWER button is not necessary. This is desirable if the STB is plugged into a switched AC outlet. Though note that if the Pro:Centric application is loaded (i.e., item 98 PRO:CENTRIC is not set to 0), the STB will reboot and initiate an update event once every 24 hours.* During the update event, the STB checks for and downloads any available updates from the Pro:Centric server (item 119 DATA CHANNEL set from 1 to 135 or 253). The time at which this event occurs depends on the setting of item 121 UPDATE TIME HR. See item 119 and 121 descriptions for further information. Once the update cycle is complete, the STB completes the reboot and resumes its ON state.

Note: If set to 1, the STB does not respond to ON/OFF commands from the remote, and the Sleep Timer is also nonfunctional.

Set to 2 or 3 to enable the Instant ON feature as required. The Instant ON feature allows the STB to turn ON when AC power is applied, while the display panel remains OFF. The STB remains powered ON, and the POWER button only toggles the display panel on and off. Set to the appropriate value to enable Instant ON with reboot (value 2) or Instant ON without reboot (value 3), respectively. See bullets below for further information on reboot functionality.

- Instant ON with reboot: The STB will reboot and, if applicable (i.e., item 119 set from 1 to 135 or 253), check for and download any available updates from the Pro:Centric server each time the display panel is turned OFF. This setting is not recommended if the STB will be configured with a resident application.
- Instant ON without reboot: The STB will not reboot to check for and download updates each time the display panel is turned OFF, with the following exception: the first time the display is turned OFF after this item is set to 3, the STB will reboot and initiate an update event (Data Channel Auto Search and/or check for and download of updates—see also paragraph below). This setting is recommended if the STB will be configured with a resident application. In this mode, the standard check for and download of updates is under application control. Refer to your site-specific documentation for further information on configuring the STB with a resident application.

* Exception applicable with STB PTC v1.00.043 or later: If the STB is externally rebooted within the previous 24 hours, the subsequent update event will take place at the next designated reboot time, which could be up to 48 hours from the time of the external reboot.

When this item is set to 2 or 3, the STB also will reboot and initiate an update event once every 24 hours. During the update event, the STB, as applicable, performs a Data Channel Auto Search (item 119 set to 255) and/or checks for and downloads any available updates from the Pro:Centric server (item 119 set from 1 to 135 or 253). The time at which this event occurs depends on the setting of item 121. See item 119 and 121 descriptions for further information. Once the update cycle is complete, the STB completes the reboot and resumes its ON state with the display panel OFF.

Note: Instant ON is not supported when the STB is in MPI-EXT Mode.

003 - BAND/AFC (Band/Automatic Frequency Control)

Selects the RF tuning band used by the NTSC tuner:

0 = Broadcast	1 = Cable (default)
2 = HRC	3 = IRC

Determine the RF band used by the RF distribution system, and then select the appropriate value for this item before tuning channels or running Auto Tuning (Channel Search). See also item 102 ATSC BAND.

004 - STRT CHANNEL (Start Channel)

If active, this function allows you to determine the initial Major Start Channel number when the STB/display panel is turned ON. This feature is useful for an in-house information channel, since the STB/display would always select that channel when it is turned ON. If set to 255, the last channel tuned before the STB/display was turned OFF will be the channel tuned when the STB/display is turned ON again.

0 = Aux	127 = Map to Major CH 4
1 – 125 = Major Ch. #	253 = IP Start Channel
126 = Map to Major CH 3	255 = Last Channel

For a digital (ATSC) Start Channel, always remember to set item 104 to the Minor Start Channel number. If setting this item to 0 (Aux), make sure to also set item 046 STRT AUX SRCE to the appropriate value.

Note: 126 and 127 are mapped only in SONIFI PPV Mode.

Note: The IP Start Channel shown above can only be set in the Cloud Configuration Tool, which is typically used to configure STB CPUs for FTG Mode. The same applies for the additional Major Channel number range of 128–135 in Physical tuning and 128–999 in Virtual tuning mode. When the STB is in FTG Mode, the appropriate values will be visible in the (read-only) Installer Menu. For an IP Start Channel, item 004 will show value 253, the IP address, and the port number. For an RF Start Channel, item 004 will show the channel's Major and Minor numbers.

Note: If the STB is being configured for Application Tuning Mode operation with Pro:Centric Direct, the Start Channel is set in the Pro:Centric Direct Admin Client, and Installer Menu item 004 is automatically updated accordingly. When the STB is in Application Tuning Mode, the appropriate values will be visible in the (read-only)

Installer Menu. For an IP Start Channel, item 004 will show value 253, the IP address, and the port number. For an RF Start Channel, item 004 will show the channel's Major and Minor numbers.

005 - CHAN LOCK (Channel Lock)

Channel Lock is ideal if the system must always be on the same channel. Changing channels with the Channel Up/Down or keypad numbers is impossible. Channel Lock is inactive if set to 0 (default). Generally, this feature is used in connection with item 004 STRT CHANNEL where the Start Channel may, for example, be set to 3 or 4. If the Start Channel is 3, then the STB will remain locked on channel 3.

NOTE: For items 007, 008, and 009

For legacy reasons, the scale used is 0–63. The PTC software will translate this to the 0–100 scale used by the STB.

To translate an STB volume level to the Installer Menu value, use the following formula:

$$\text{Installer Value} = \frac{\text{STB Value} \times 63}{100}$$

Enter only the whole number (disregard fractions).

007 - STRT VOLUME (Start Volume)

This function allows the Installer to determine the initial volume level setting when the STB/display panel is turned ON. This feature is useful for an in-house information channel, since the STB/display will always select that volume level when it is turned ON. The range of values is 0 to 63, 255. If set to 255, the last volume level before the STB/display was turned OFF will be the current volume level when the STB/display is turned ON again.

008 - MIN VOLUME (Minimum Volume)

This function determines the minimum volume level allowable with the Volume (VOL) Up/Down control. In this way, for example, someone cannot set the volume too low to hear. The value range is from 0 to 63. The factory default is 0, which provides the full range of volume control, if item 009 MAX VOLUME is set to 63. It is recommended to set the same value on every STB.

Note: The minimum volume level cannot have a value setting higher than the maximum volume level (described below).

009 - MAX VOLUME (Maximum Volume)

This function determines the maximum volume level allowable with the Volume (VOL) Up/Down control. In this way, for example, someone cannot set the volume level high enough to disturb others. The value range is 0 to 63, with 63 as the default, which gives the user the full range of volume control, if item 008 MIN VOLUME is set to 0. It is recommended to set the same value on every STB.

Note: The maximum volume level cannot have a value setting lower than the minimum volume level (described above).

Installer Menu (Cont.)

010 - MUTE DISABLE

Enables or disables sound mute function. If set to 1, sound cannot be muted. If set to 0, sound can be muted.

011 - KEY DEFEAT

Applicable for LG Hospitality and commercial non-LG display panels only. If set to 1, Key Defeat is enabled, which means that end users cannot access or navigate within the STB's on-screen menu(s) from the display panel; i.e., menu navigation buttons will not function. Set to 0 to disable Key Defeat. Note that all IR features remain functional regardless of this setting; users can always access the STB's menus by pressing MENU on the remote.

Note: This feature does not apply to LG Public Displays or LG Commercial Monitors since the STB will always disable those displays' panel buttons and the processing of IR.

015 - SLEEP TIMER

If set to 1, the Sleep Timer feature is enabled and available to the end user. Set to 0 to disable the Sleep Timer feature.

016 - EN. TIMER (Enable On/Off Timers)

If set to 1, the Timer function is enabled and available to the end user. Set to 0 to disable On/Off timers.

Note: The STB clock must be set in order for timers to be used.

017 - ALARM

If set to 1, the Alarm feature is enabled and available to the end user in the Function Menu (i.e., the STB is not in Pass-through Mode). Set to 0 to disable the Alarm feature.

Note: The STB clock must be set before the Alarm feature will work.

020 - FEATURE LEVEL

Determines an additional IR code scheme to which the STB will respond, allowing for the use of unique IR codes based on "bed number" in a multi-STB/display single room installation. First determine the IR mode; then select the bed number.

Values	IR Mode	Bed #
0	Disabled	N/A
16–24	Multi-code Remote	1–9

Note: The STB-dedicated Installer Remote is required for use of this feature. For further information, see Reference section, "STB Installer Remote."

021 - V-CHIP (Parental Control)

Set to 1 to activate V-Chip (Parental Control) and have it available to the end user to filter and control or otherwise restrict programming content that can appear. Set to 0 to turn off the V-Chip feature (not available to user); no programming restrictions can be set.

022 - MAX BLK HRS (Maximum Block Hours)

Sets hours from 0 to 99 for the maximum number of Parental Control blocking hours that can be set in the Function Menu (i.e., the STB is not in Pass-through Mode). Default setting is for 12 blocking hours.

Note: This item is not available in the Installer Menu when item 021 V-CHIP is set to 0 or when item 084 PERMANENT BLK is set to 1.

023 - CAPTION LOCK

If set to 0, captions are OFF when the STB/display panel is turned ON. If set to 1, the caption setting selected before the STB/display was turned OFF will be the current caption setting when the STB/display is turned ON again.

028 - CH. OVERRIDE (Channel Override)

This item either allows or restricts tuning of channels that are NOT in the PTC Channel Map. If set to 1, end users can tune channels that are not in the PTC Channel Map by direct keypad entry. If set to 0, users are restricted to only the channels that are in the PTC Channel Map. In the case of CPU-CTV Mode, there are no channels in the PTC Channel Map; therefore, direct keypad entry is not available. Also, when this item is set to 0, the PTC Channel Map (PTC-CTV Mode)/CPU channel lineup (CPU-CTV Mode) is locked, and user access to channel settings in the STB setup menus is restricted.

Note: This item is not applicable when the STB is in FTG Mode or Application Tuning Mode.

029 - OLD OCV (On Command Video™)

Set to 1 to remap the PTC's direct tune channels for STB Aux inputs from 13x to 9x. This allows 2-digit only tuning systems (i.e., legacy OCV) to direct tune STB Aux inputs. See also Reference section, "STB Aux Input Configuration."

030 - ACK MASK

MPI Communication Parameter. When set to 1, enables the ACK feature of MPI.

031 - POLL RATE

MPI Communication Parameter. Selects the poll rate for MPI. Step size of 16 ms. Changing from default may affect communication via MPI.

032 - TIMING PULSE

MPI Communication Parameter. Sets the baud rate for MPI. Step size of 4.3 uS. Changing from default may affect communication via MPI.

035 - HDMI1 ENABLE

Set to 1 to enable STB HDMI 1 input in DTV Mode. Set to 2 to enable STB HDMI 1 input in PC Mode. Set to 0 to disable STB HDMI 1 input.

039 - REAR AUX EN. (Rear Aux Enable)

Set to 1 to enable STB Aux (AV) input. Set to 0 to disable STB Aux (AV) input.

041 - SIMPLINK EN

Set to 0 to disable the SIMPLINK feature. Set to 1 to enable SIMPLINK functionality (does not enable remote control access to the SIMPLINK Menu).

Note: When both this item *and* item 042 AUTO INPUTS are enabled in the Installer Menu, HDMI inputs will be detected by SIMPLINK, but the Auto Input(s) Sensing Feature will not function.

042 - AUTO INPUTS

Determines the Aux inputs for which auto-sensing is enabled. Set to 0 to disable auto-sensing for all available inputs. Set to 255 to enable auto-sensing for all available inputs. For information on options for individual input settings, see Reference section, "Auto Input(s) Sensing Feature."

Note: In order for auto-sensing to be enabled for an input, that input must also be enabled in the Installer Menu. For example, to enable auto-sensing for HDMI 1, item 035 HDMI1 ENABLE must also be set to 1 or 2. Also, see note above regarding STB operation when both this item and item 041 SIMPLINK EN are enabled.

046 - STRT AUX SRCE (Start Aux Source)

Sets the starting STB Aux source. When turned ON, the STB/display panel will tune to the starting Aux source if item 004 STRT CHANNEL is set to 0.

1 = AV 3 = HDMI 1 5 = HDMI 2
7 = HDMI 3 255 = Last Aux

Note: In order for an Aux input to be selected as the starting Aux source, the input also must be enabled in the Installer Menu.

Note: This item is not available in the Installer Menu unless item 004 STRT CHANNEL is set to 0.

047 - AUX STATUS

Controls the MPI status channel response for STB Aux sources. Set to 1 for the STB Aux source to be reported as its channel number. Set to 0 for the STB Aux source to be reported as channel 0. See Reference section, "STB Aux Input Configuration," for Direct Access channel numbers.

049 - DIS. AUDIO M. (Disable Audio Menu)

Determines the availability of the Sound Out (Audio) Menu in the STB menus. Also determines the default Audio Mode when STB is turned ON. See the table below and set as required.

Value	Sound Out Menu Status	Default Audio Mode at STB Turn ON
0 (default)	Enabled	Display Speaker
1	Disabled	Display Speaker
2	Enabled	External Speaker (Optical*)
3	Disabled	External Speaker (Optical*)

4	Enabled	LG Sound Sync (Optical*)
5	Disabled	LG Sound Sync (Optical*)
6	Enabled	LG Sound Sync (Wireless*/BT*)
7	Disabled	LG Sound Sync (Wireless*/BT*)
8	Enabled	Display Speaker + Audio Out (Optical*)
9	Disabled	Display Speaker + Audio Out (Optical*)

* Connect to/via STB.

Note: If a SIMPLINK-enabled device is connected to the STB and item 041 SIMPLINK EN is set to 1 (enabled), the SIMPLINK device Audio Mode will have priority over the setting of this item when the STB/display is turned ON.

Note: When this item is set to 6 or 7, the Bluetooth Sound Sync Media Share feature is not available. If Bluetooth Sound Sync is currently enabled in the IP Environment / Media Share Menu, it will be disabled.

053 - DIS. CH-TIME (Disable Channel-Time Display)

Set to 1 to disable the STB's native Channel-Time display, when a custom channel label/channel information will be provided by the MPI command. Set to 0 to enable the STB's native Channel-Time display.

069 - EN. CH-T COL. (Enable Display Characters Custom Color)

Set to 1 to enable custom color for MPI display characters. Set to 0 to disable custom color for MPI display characters.

070 - FOR. CH-TIME (Display Characters Foreground Color)

Set the foreground color for MPI display characters according to the following color chart:

0 = Black 2 = Green 4 = Red 6 = Yellow
1 = Blue 3 = Cyan 5 = Violet 7 = White

If the foreground and background colors for the display characters are the same, the background will be transparent.

Note: This item and item 071 BCK. CH-TIME also apply to the "Channel Not Available" message if item 073 CH NOT AVBLE is set to 1 (enabled).

Note: Items 070 FOR. CH-TIME and 071 BCK. CH-TIME are only available in the Installer Menu when item 069 EN. CH-T COL. is set to 1.

071 - BCK. CH-TIME (Display Characters Background Color)

See description for item 070 FOR. CH-TIME above. The color chart is the same for both items.

073 - CH NOT AVBLE (Channel Not Available)

If set to 1 and item 028 CH. OVERRIDE is set to 0, a "CHANNEL NOT AVAILABLE" message is displayed when a user attempts to direct tune a channel that is not included in the channel lineup.

Note: This item is not available in the Installer Menu when item 028 CH. OVERRIDE is set to 1.

Note: This item is only applicable when the STB is in PTC-CTV Mode.

Installer Menu (Cont.)

075 - REVERT CH (Revert to Start Channel)

If set to 1 and loss of MPI communication occurs, the STB automatically tunes to the specified Start Channel.

Note: This item is not available in the Installer Menu when item 004 STRT CHANNEL is set to 255.

078 - UPN MSB (UPN Most Significant Byte)

User programmable number, most significant byte readable by MPI command. Note: Not linked to serial number.

079 - UPN MSB-1 (UPN Most Significant Byte-1)

User programmable number, most significant byte-1 readable by MPI command. Note: Not linked to serial number.

080 - UPN MSB-2 (UPN Most Significant Byte-2)

User programmable number, most significant byte-2 readable by MPI command. Note: Not linked to serial number.

081 - UPN LSB (UPN Least Significant Byte)

User programmable number, least significant byte readable by MPI command. Note: Not linked to serial number.

082 - CHKSM ERROR (Checksum Error)

Enforces rigid MPI checksum validation. Set to 1 for validation. Set to 0 to disable (does not check checksum on MPI async port). SPI is always checked.

083 - HANDSHK TIME (Handshake Time)

Adds an additional delay to the handshake time which is 64 msec, thus relaxing MPI timing requirements to be compatible with PC-based Windows controlled systems. Range is 0 - 5. (Timeout = 25.5MS + [25.5 MS* Handshake time].)

084 - PERMANENT BLK (Permanent Block)

Allows Parental Control blocking schemes to be permanent by disabling the user's ability to limit blocking hours in the Function Menu. Set to 1 to install Parental Control restrictions permanently. Set to 0 for user-specified hours control of blocking schemes. See also item 022 MAX BLK HRS.

Note: This item is not available in the Installer Menu when item 021 V-CHIP is set to 0.

086 - V. MUTE TIME (Video Mute Time)

Use to extend the normal video mute time during channel change. For example, you may wish to extend the normal video mute time to prevent the display of encrypted video (i.e., from a Pro:Idiom encrypted channel) that has not yet been decrypted. When set to 0, the normal video mute time is not extended. Set from 1 to 50 to increase the normal video mute time in 100 ms step increments up to a maximum of 5 seconds (e.g., the value of 25 represents 2.5 seconds, or 25 x 100 ms = 2.5 seconds).

088 - EN NOISE MUTE (Enable Noise Mute)

Applicable for analog channels only. If set to 1, audio mutes if no signal is present.

090 - KEY LOCK

Applicable for LG Hospitality and commercial non-LG display panels only. If set to 1 (default), Key Lock is enabled, which means that all display panel button functions will be locked, i.e., non-functional. Set to 0 to disable Key Lock.

Note: This feature does not apply to LG Public Displays or LG Commercial Monitors since the STB will always disable panel buttons and the processing of IR on those displays.

091 - HDMI2 ENABLE

Set to 1 to enable STB HDMI 2 input in DTV Mode. Set to 2 to enable STB HDMI 2 input in PC Mode. Set to 0 to disable STB HDMI 2 input.

092 - HDMI3 ENABLE*

Set to 1 to enable STB HDMI 3 input in DTV Mode. Set to 2 to enable STB HDMI 3 input in PC Mode. Set to 0 to disable STB HDMI 3 input.

094 - SAP MENU EN (2nd Audio Program)

Set to 1 to enable the SAP feature in the Function Menu (i.e., the STB is not in Pass-through Mode). Set to 0 to disable the SAP feature in the Function Menu.

096 - DEF. ASP. RATIO (Default Aspect Ratio)

Selects the aspect ratio to be set as default each time the STB/display panel is turned ON:

0 = Set By Program	1 = 4:3	2 = 16:9 (default)
3 = Just Scan	4 = Zoom	

Note: See also item 106 ASP RATIO LOCK. This item (i.e., item 096) is not available in the Installer Menu when item 106 is set to 1.

097 - AUDIO OUTPUT

Determines availability of the analog audio output to be used by external audio equipment connected to the Audio Line Out jack on the STB. Set to 0 to disable audio output. Set to 9 (default) to enable fixed line level (typically 400 mVrms ± 100 mVrms @10KΩ) output. Set to 10 to enable volume control of audio output. See also Reference section, "External Audio Line Out Specifications."

098 - PRO:CENTRIC

Selects the Pro:Centric Application Mode. Set to 0 (default) to disable the Pro:Centric application. Set to 1 for Flash Mode. Set to 2 for GEM (Java Application) Mode. Set to 3 for HTML Mode. For Flash or GEM Mode, the STB must be turned OFF/ON two times to initiate the Pro:Centric application download. Once you exit the Installer Menu, turn OFF the STB/display panel for at least

* HDMI 3 port on expansion interface connector.

one minute. When you turn the STB/display back ON, the STB will start the appropriate library based on the setting of this item. Wait until TV programming appears on the display, and then turn the STB/display back OFF, this time for a few minutes, to initiate the application download. When you turn the STB/display back ON, press the PORTAL key on the Installer Remote, and verify that the Pro:Centric application appears on the display.

For HTML Mode, once you exit the Installer Menu, turn OFF the STB/display panel for at least one minute to initiate the Pro:Centric application download. When you turn the STB/display back ON, wait several minutes to allow the STB to load the Pro:Centric application after the initial download. Then, press the PORTAL key on the Installer Remote, and verify that the Pro:Centric application appears on the display.

Note: This item is not available in the Installer Menu when item 119 DATA CHANNEL is set to 0.

100 - VIDEO INTERFAC

Selects the HDMI port on the display panel to be used for HDMI input from the STB. Set to 3 for HDMI 1 (default). Set to 4 for HDMI 2. Set to 5 for HDMI 3.

If you change the value of this item, make sure to reconnect the HDMI cable from the STB to the appropriate HDMI port on the display panel once you have exited the Installer Menu.

101 - IR FEEDBACK

If set to 0, the STB's MMR (Magic Motion Remote) feature is enabled (default), and a compatible LG MMR (not supplied) may be used with the STB. If set to 2, the MMR feature is disabled.

102 - ATSC BAND

Selects the RF band used by the ATSC tuner.

0 = Broadcast 1 = Cable 2 = HRC
3 = IRC 4 = Same as NTSC (default)

103 - ATSC TUNE MODE

Sets the ATSC tuning mode. Default set to 1 for Physical Channel tuning. Set to 0 for Virtual Channel tuning.

104 - START MINOR CHANNEL

When a digital (ATSC) Start Channel has been specified for item 004 STRT CHANNEL, this item sets the Minor Start Channel number. Set to 0 when an analog (NTSC) Start Channel has been specified for item 004.

Note: This item is not available in the Installer Menu when item 004 STRT CHANNEL is set to 0 or 255.

105 - VID OUT FORMAT

Selects the format for video output (i.e., the resolution):

1 = 720p (default) 5 = 1366 x 768
4 = 1080p 6 = 2160p

If you change the video output format on location, once you exit the STB Installer Menu, a Changing Video Output Resolution pop-up banner will appear at the bottom of the display screen, and then the STB will reboot to change the resolution per your selection. When the reboot is complete, a confirmation pop-up banner for the new video output resolution will be displayed. To confirm the new video output resolution, use the arrow keys on the Installer Remote to select **YES** in the confirmation banner, and then press **OK** on the Installer Remote.

If there is no user interaction within 10 seconds of the prompt for confirmation, or if you select "NO" in the confirmation banner, the STB will reboot and revert to the former resolution.

Note: If this item is updated via a Clone/Configuration (.tlx) file loaded on a Pro:Centric server, no confirmation is required.

Note: Refer to documentation for the applicable display panel(s) to determine the appropriate resolution setting. The selected resolution should be compatible with the display panel's native video output resolution. If necessary/desired, you can use STB Zone designations to create multiple profiles to differentiate item 105 settings by display panel brand. See Reference section, "Using the STB's Zoning Features," for further information on STB Zones.

106 - ASP RATIO LOCK (Aspect Ratio Lock)

Set to 0 to use the default aspect ratio each time the STB/display panel is turned ON (see item 096 DEF. ASP. RATIO). If set to 1, the aspect ratio set before the STB/display panel was turned OFF will be the current aspect ratio when the STB/display panel is turned ON again.

107 - BANNER SELECT

Selects the type of banner to display during channel change. Set to 1 for channel label display, plus channel information (full banner). Set to 0 for channel label display only (small banner).

108 - PANEL COM (Panel Communication)

Applicable only for LG Public Display TVs and Commercial Monitors that use the RS-232C TELEVISION CONTROL port for STB-to-display panel communication. Set to match the display panel baud rate:

0 = 1200 1 = 2400
2 = 9600 (default) 3 = 115200

110 - PANEL DELAY

For all display panels with the exception of LG Hospitality/MPI display panels, after the STB sends the turn ON command to the display panel, the display panel requires time to complete its power on sequence before it begins accepting commands from the STB. This item sets the time, in seconds, to delay the STB's subsequent communication with the display panel. The default value is 8 seconds. See also item 110 PANEL INST ON description below. A second item 110 value allows you to enable the STB's display panel Instant ON feature for LG displays.

Installer Menu (Cont.)

For all display panels, this item (PANEL DELAY) also sets the amount of elapsed time required before the STB accepts successive POWER key presses. That is, if this item is set to 8 seconds, and you press the POWER key to turn ON the STB, you will need to wait 8 seconds for the STB to accept the POWER key again if you then decide you want to turn OFF the STB. Vice versa is also true.

Note: The amount of time required for the display's power on sequence varies by display panel brand/model. Thus, depending on the brand/model of display panel connected to the STB, you may be able to decrease or you may need to increase the Panel Delay value, accordingly. For example, if you are using the STB with an LG PW1000 or PW1500 projector, it is recommended that you set the delay to 10 or more seconds.

110 - PANEL INST ON*

See also item 110 PANEL DELAY description above. This is a second item 110 value that enables the STB to control an LG display panel, such that it turns ON instantly, as described below (see also note regarding non-LG display panel exception).

When item 002 AC ON is set to 2 or 3 (i.e., Instant ON is enabled on the STB), this item determines if the STB is to leave the LG display panel always ON or if the display panel is to be turned OFF when the STB is turned OFF. In the case of the former, the LG display panel is always ON, but video and audio are both muted (i.e., no video is visible and no audio is audible) when the STB is turned OFF. Set to 1 to enable display panel Instant ON.

Note: This feature is not applicable for commercial non-LG display panels. If you replace a non-LG display panel with an LG display panel, make sure to also disable the MTI protocol.

Note: This item is not available in the Installer Menu unless item 002 is set to 2 or 3.

111 - PANEL VOL PRE (Panel Volume Preset)

Determines a preset fixed volume level (gain) to set in the display panel. The audio signal (volume level) is dynamically controlled in the STB. The default value is 100 to provide a typical 1:1 ratio of volume level to sound output when the STB is connected to an LG display panel.

Note: Sound output may vary by display panel brand/model. Thus, depending on the brand/model of display panel connected to the STB, you may need to adjust the preset volume level to achieve the desired sound output.

113 - PANEL TYPE

Sets the TLM command set to communicate with the display panel. This setting is only applicable for LG Public Display TVs and Commercial Monitors that use the RS-232C TELEVISION CONTROL port for STB-to-display panel communication.

The default value (4) will be appropriate for most current display models. See Reference section, "Display Panel Specifications," to determine the appropriate setting for the display panel being used.

Note: If you need to enable the MTI protocol (i.e., the STB is connected to a commercial non-LG display), see Reference section, "Enabling or Disabling the MTI Protocol on the STB," for further information.

116 - VIDEO MUTE EN (Video Mute Enable)

Applicable for analog channels only. If set to 1, video mutes (blank screen) when no signal is present.

117 - FACT DEFAULT (Factory Default)

Set to 1 and press OK to restore the factory default settings of all Installer Menu items. Once complete, the value returns to 0.



Caution: If set to 1, this clears all STB Installer Menu custom settings and restores the factory default settings. It also clears the channel lineup, including any assigned channel icons and custom text labels.

Note: See also Reference section, "Restoring Factory Defaults on the STB(s)," for further information.

119 - DATA CHANNEL

Set to 0 to disable. Set from 1 to 135 to match the RF channel number that will be used by the Pro:Centric server as its data channel. If left at or set to (default value) 255, the STB's Data Channel Auto Search feature will be enabled. See additional information below.**

Data Channel Auto Search feature

When this item is set to 255 (default), once every 24 hours, the STB attempts to find an active Pro:Centric server.

- If connected to an IP network, the STB will first check for a "procentric.local" DNS entry. If the Pro:Centric server IP address is obtained from a DNS server, the DATA CHANNEL value will be changed from 255 to 253, which designates an IP data channel.

Note: The automated IP configuration feature requires a "procentric.local" DNS entry, which enables the Auto Search to obtain the Pro:Centric server's IP address. This feature also expects the Pro:Centric server's port number to be set to "80."

- If an IP data channel is not found, the STB searches for an RF data channel. The STB will initiate a search of 10 predefined RF channels (10, 20, 30, ... 100) and then, if necessary, perform a complete search of the RF channels (1 to 135). If the Pro:Centric RF channel is found, the DATA CHANNEL value will be changed from 255 to match the server's RF channel number.

The time at which the Auto Search occurs depends on the setting of item 121 UPDATE TIME HR. See item 121 description for further information.

* This item is applicable with STB PTC v1.00.035 or later.

** PCS150R and later Pro:Centric servers do not support HRC or IRC cable channel frequencies.

Note: Pro:Centric updates are downloaded from the Pro:Centric server to the STB when the STB/display panel is turned OFF. While Pro:Centric updates are in progress, it is not possible to turn ON the STB/display.

Note: The Data Channel value also is automatically set to 253 if Media Type is set to "IP" either in the EZ-Manager Wizard (see "EZ-Manager Wizard" on pages 22 to 31) or in the STB's IP Environment / Pro:Centric Menu (see "Pro:Centric Setup" on pages 68 to 70) or if Installer Menu item #119 Data Channel is set to "IP Address" or "IP Domain Name" in the Cloud Configuration Tool, which is typically used to configure STB CPUs for FTG Mode operation. It is not possible to change the value to "253" directly in the Installer Menu.

121 - UPDATE TIME HR

Based on the settings of this item and item 122 UPDATE TIME MN, the Wake For Update feature wakes the STB once daily to check for and, if applicable, download updates from the Pro:Centric server.

Set the Wake For Update hour from 00 to 23. This item uses the 24-hour clock format. The default value "128" is displayed as "DFT," which means Default Time. Directly entering 128 resets the default value (Default Time) for this item. See additional information below.*

Under standard STB/display panel OFF/ON operating conditions (i.e., item 002 AC ON is set to 0), a Wake For Update event occurs when the STB/display is OFF and causes the STB to temporarily turn ON, perform the update cycle, and then turn back OFF, all while the display remains OFF. If item 002 AC ON is set to 2 or 3 for Instant ON, then the STB is always ON and Wake For Update occurs when the display is OFF. The Wake for Update event causes the STB to reboot in order to perform the update cycle and then return to its ON state with the display panel OFF. See also description for item 002.

Random Distribution of Update Time: If this item is set to 128 (Default Time), the time at which a Data Channel Auto Search (item 119 set to 255) and/or an Instant ON update (item 002 set to 2 or 3) occurs is determined as follows: Each STB initiates the search and/or checks for updates during the 2 AM hour (if the STB clock is set) or after two hours of elapsed time from when AC power was applied (if the STB clock is not set). Also, in this case, a fixed update time minute from 0 to 59 that has been assigned to each STB is used. (The intention of this feature is to prevent all of the installed STBs from performing updates at the same time; however, note that in installations that have a large quantity of STBs with this feature, there will be some STBs that have the same update minute assignments.) The update time for the STB is displayed at the right of this item in the Installer Menu, for example:

121 UPDATE TIME HR DFT [02:34]

If the display is ON when a Wake For Update is to occur, the update will take place the next time the display is turned OFF.



Caution: UPDATE TIME HR should NEVER be set to 255. This setting is intended for factory use only.

Note: Brackets are only shown around the DFT (Default Time) setting. Any other time value for this item will not be shown with brackets.

Note: This item is not available in the Installer Menu when item 119 DATA CHANNEL is set to 0, except when item 002 AC ON is set to 2 or 3 for Instant ON. In addition, this item is not available in the Installer Menu when item 002 AC ON is set to 1, unless item 098 is not set to 0.

Note: The STB clock must be set in order for a Wake For Update event to occur at the precise time of day in accordance with item 121 and item 122 settings.

122 - UPDATE TIME MN

Set the Wake For Update minute from 0 to 59. If item 121 is NOT set to 128 and you wish to invoke the "random" minute assignment on the STB, set this item to 255. See also description for item 121 UPDATE TIME HR above.

Note: This item is not available in the Installer Menu unless item 121 UPDATE TIME HR is set from 00 to 23.

Note: The STB clock must be set in order for a Wake For Update event to occur at the precise time of day in accordance with item 121 and item 122 settings.

* STB PTC versions earlier than v1.00.043 display this default as "OFF;" however, the functionality remains as described.

Custom Master STB Setup

This section describes how to create a customized Master STB Setup for cloning purposes when the STB is in Pass-through Mode. All cloning (export and import) processes on the STB are performed via USB memory device / “.tlx” file. The Master STB Setup may be exported to a Clone (.tlx) file, which can then be used (i.e., imported) to configure either STBs that are to remain in Pass-through Mode or STBs that are to be configured for FTG Mode.

Cloning requirements and procedures are described in detail on pages 51 to 57.

Note: You can also use the Cloud Configuration Tool to create an FTG Configuration (.tlx) file for FTG Mode configuration/cloning purposes, if desired (see pages 58 to 60). However, it is not possible to customize STB setup menu settings in the Cloud Configuration Tool. If you wish to include customized STB setup menu settings in the STB configuration, in addition to the channel lineup and Installer Menu settings, perform the Master STB Setup procedure to create a Clone (.tlx) configuration file.


Before You Begin

- It is recommended that you disconnect all STB Aux inputs if you intend to run Auto Tuning (Channel Search). Under certain conditions, Auto Tuning is disabled if there is an Aux input active.
- A Clone (.tlx) file comprises Installer Menu settings, IP Environment Menu settings (with the exception of unique STB attributes and settings), and all STB sources’ (analog, digital, AV, HDMI, etc.) clonable setup menu settings. See also “Clonable STB Setup Menu Features” list below.
- If the “.tlx” file (either a Clone or FTG Configuration file) to be imported on the Target STB(s) contains an FTG Channel Map, the Target STB(s) will be configured for FTG Mode, though as part of the import process, depending on the types of channels included in the Channel Map, you may have the option to select either logical or physical channel tuning. If you would like the Target STB(s) to remain in Pass-through Mode, the “.tlx” file should not include an FTG Channel Map.

Clonable STB Setup Menu Features

Sound	General	Accessibility
Sound Out	Language	Pointer Options
	Time & Date	Menu Transparency
Channels	– Clock Mode (Auto/Manual)	Closed Captions
Channel Tuning	– Time Zone	Audio Guidance
Channel Manager	Timers (No Signal Power Off)	STB Power Sound
Channel Label		

Note: Some menu options vary between analog and digital channels and Aux inputs.

Note: The Quick Settings Menu is initially displayed when you press **MENU** on the Installer Remote. Select the **All Settings**  menu icon to access the advanced STB setup menus. Several advanced settings are duplicated in the Quick Settings Menu.

Custom Master STB Setup Procedure

1. Turn ON the STB/display panel.

The next step depends on whether the EZ-Manager Wizard appears on the screen when you turn ON the STB/display:

- If the wizard is displayed, the STB is in the required factory default state. Exit the wizard, and then continue with step 2.
- If the wizard is not displayed, restore the STB to a factory default condition before continuing with this procedure. See Reference section, “Restoring Factory Defaults on the STB(s),” as necessary, for further information.

2. Set Installer Menu items.

This step provides specific instruction only on the Installer Menu items that should be set on a Master STB. Refer to pages 36 to 47 for detailed information on all Installer Menu items.

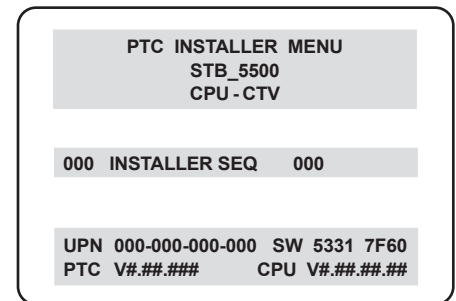
- Use the Installer Remote to access the Installer Menu (see “Accessing the Installer Menu” on page 36 for further information).
- Set Installer Menu item **003 BAND/AFC**, as appropriate.
 - Broadcast: Set to 0.
 - Cable: Set to 1 (default).
 - HRC: Set to 2.
 - IRC: Set to 3.
- Set any other Installer Menu items that affect your TV programming network to the required configuration. For example, set the panel display type (if applicable), enable/disable Aux inputs, set a Start Channel, etc.
- After you have adjusted all Installer Menu item settings as required, and if you do not need to configure any IP Environment settings (see note below), press **OK** once on the Installer Remote to save your changes; then, press **OK** again to exit the menu.

Note: If you intend to configure settings in the IP Environment Menu, which is accessible from the Installer Menu, you can proceed directly to step 3. All Installer Menu settings will be saved automatically when you access the IP Environment Menu.

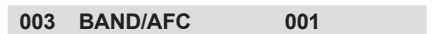
3. Configure IP Environment settings.

Note: You cannot return directly to the Installer Menu from the IP Environment Menu; thus, you may wish to set all Installer Menu items as needed before you access the IP Environment Menu. Otherwise, you will need to reaccess the Installer Menu to set additional items.

Navigate to Installer Menu item 119 DATA CHANNEL, and press **2-5-3 + MENU** to launch the IP Environment Menu. Then, complete network configuration as required. In particular, if you intend to use the Wi-Fi Zoning feature, you must configure the wireless network connection as part of the Master STB Setup. See “IP Environment Setup” on pages 64 to 71 for further information.



Typical Installer Menu




Adjust the value for this Installer Menu item, as required.

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Custom Master STB Setup (Cont.)

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4. Set up STB/display panel features.

On-screen setup menus control the features of the STB/display. Press **MENU** on the Installer Remote, and select the **All Settings**  menu icon from the Quick Settings Menu to access the advanced STB setup menus. Then, set Picture, Sound, Channels, etc. options to the desired configurations. See “Clonable STB Setup Menu Features” list on page 48 and also notes below.

Note: If you intend to use the Zoning feature(s) on this STB, make sure to assign the appropriate STB Zone # and/or Wi-Fi Zone # at this time as described in Reference section, “Using the STB’s Zoning Features.”

Note: If desired and if appropriate, you can run Auto Tuning (see step 5) prior to completing this step.

5. (Optional) Run Auto Tuning.

If you are creating a Master STB Setup for cloning purposes and you want the Target STB(s) to remain in Pass-through Mode or Application Tuning Mode, as applicable, do NOT run Auto Tuning. If you export a Master STB Setup that includes an auto-tuned/edited channel lineup, thereby creating a Clone (.tlx) file with an FTG Channel Map, and then import the Clone file to a Target STB, this will put the Target STB in FTG Mode.

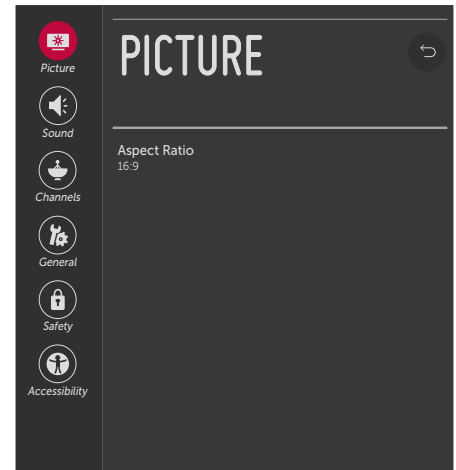
Note: When you import a Clone/Configuration (.tlx) file that contains an FTG Channel Map on a Target STB (for FTG Mode configuration), depending on the types of channels included in the Channel Map, you may have the option to select either logical or physical channel tuning. For either selection, the channel sequence will be based on the order in which the channels appear in the FTG Channel Map. You can view and/or edit the channel sequence in the Cloud Configuration Tool, as required.

- a) Use the Installer Remote to access the Channels Menu. Then, select **Channel Tuning** and follow the on-screen instructions to search for all available digital and analog channels.
- b) Use the **Channel Manager** option in the Channels Menu to edit the channel lineup, as necessary. Add/delete channels per your system requirements.

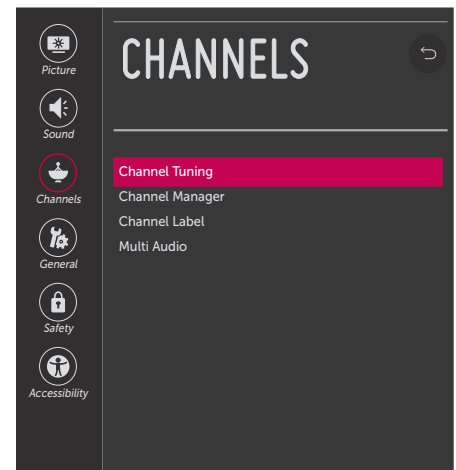
6. Verify the STB/display panel setup.

Make sure the STB/display features are set per your requirements. Also, if applicable, verify that the channel lineup is correct.

The Master STB Setup is now ready to be saved (exported) to a USB memory device. See “Cloning Procedures” on pages 51 to 57.



Use the STB setup menus to set the display features to the desired configuration for the end user. This example illustrates the advanced STB setup menus.



(Optional) Use Channels Menu options to run Auto Tuning and edit the channel lineup.

Cloning typically refers to the process of using a Master STB Setup to configure a Target STB. This section describes how to save (export) a Master STB Setup and then transfer (import) it to a Target STB using a USB memory device / Clone (.tlx) file.

You can also create an FTG Configuration (.tlx) file using the Cloud Configuration Tool and then use the Import Clone File procedure to transfer the configuration to Target STBs. Refer to “Creating an FTG Configuration File” on pages 58 to 60, as necessary.

Exporting a Clone File

This section describes how to use the STB Manager “Export Clone File” option to export Master STB Setup configuration to a USB memory device / Clone (.tlx) file.


Before You Begin

- Ensure the USB device has been formatted with FAT format.
- If applicable, complete the Custom Master STB Setup procedure (see pages 48 to 50).
- If you would like the Target STB(s) to remain in Pass-through Mode or Application Tuning Mode, as applicable, after the Clone file is imported, ensure the Master STB does not have an auto-tuned/edited channel lineup; otherwise, importing the exported file will result in the Target STB(s) being configured for FTG Mode.
- If you intend to use the STB Zoning feature(s), make sure to assign the appropriate STB Zone # and/or Wi-Fi Zone # as described in Reference section, “Using the STB’s Zoning Features,” BEFORE performing the procedure below. Also, for Wi-Fi Zoning in particular, the STB’s wireless network connection settings should be configured in the IP Environment Menu before exporting is initiated.
- It is not possible to clone a Master STB’s clock. Either set a Target STB’s clock manually, or use the Auto Clock setting in the STB setup menus.



Caution: Do not unplug the STB power cord or remove the USB memory device while exporting is in progress, as doing so may cause the STB to malfunction or harm the USB device, respectively.

Export Clone File Procedure

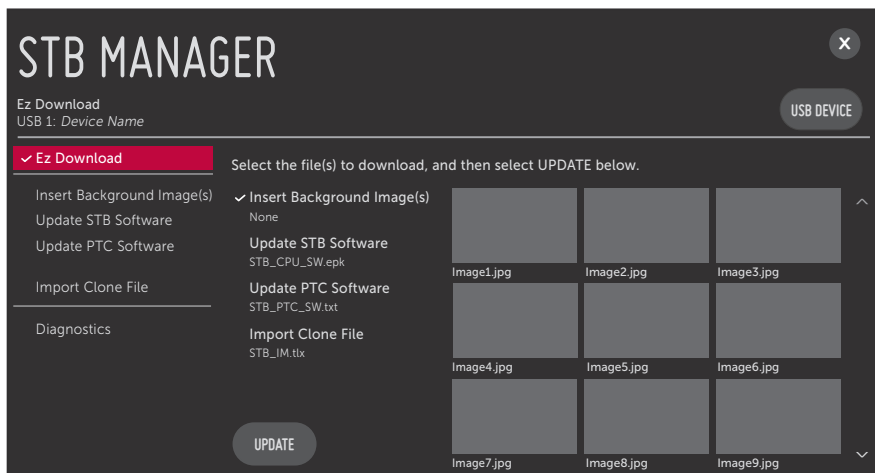
1. Ensure the Master STB/display panel is set up completely and turned ON.
2. Insert the USB memory device into either of the USB ports on the Master STB.
3. Press **MENU** on the Installer Remote to display the STB setup menus (STB is in Pass-through Mode) or the Function Menu (STB is already in FTG Mode).
4. (STB in Pass-through Mode only) From the Quick Settings Menu displayed at the right of the screen, select the **All Settings**  menu icon and press **OK** to access the advanced STB setup menus.
5. Use the arrow navigation keys to select/highlight either the **General** menu icon from the STB setup menus or the **Safety** menu icon from the Function Menu. Then, press the number “**7**” key a total of seven times to display the STB Manager.

Note: Ez Download is always selected by default when you initially access the STB Manager. Also, note that Diagnostics is for service use only.

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Cloning Procedures (Cont.)

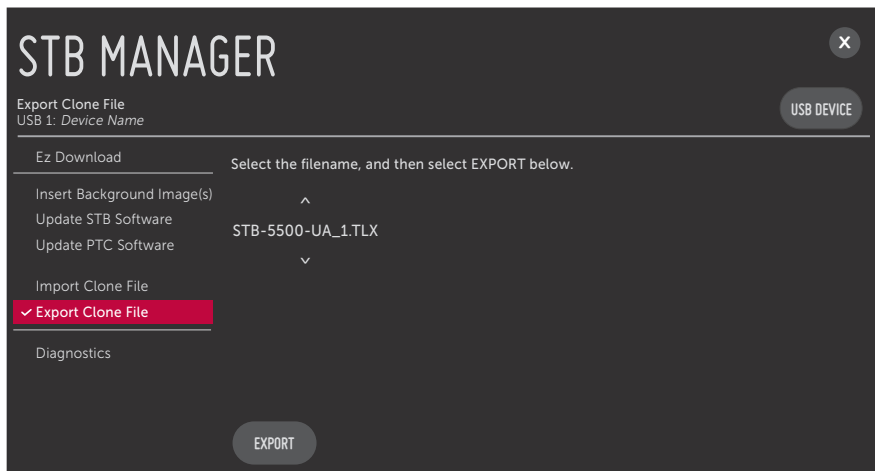
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6. If more than one USB memory device is currently connected to the STB, be sure to select the USB device on which you wish to save the Clone file. If necessary, use the arrow keys on the Installer Remote to select/highlight the **USB DEVICE** button in the top right corner of the screen and press **OK**. Then, use the Up/Down arrow keys to select the appropriate USB device from the pop-up list of USB devices displayed at the top of the screen.



7. To gain access to the "Export Clone File" option in the STB Manager, key in the following number sequence on the Installer Remote: **9-8-7-6**.
8. Use the Up/Down arrow keys to select **Export Clone File**, and then press **OK**. Clone filename parameters will be displayed on the screen.




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9. Modify the filename, as required. While the STB model element of the filename may not be changed, you can differentiate this Clone file from other STB-5500 Clone files by changing the numeric assignment appended to the end of the filename. Select/highlight the filename, and then use the Up/Down arrow keys on the Installer Remote to scroll through numeric assignments until the desired number is shown.
10. When you are ready to continue, i.e., when you have selected the desired filename, press **OK** on the Installer Remote to select/activate the **EXPORT** button at the bottom of the screen, and then press **OK** on the Installer Remote once more to export the file.

Export progress will be displayed on the screen. This process may take a few minutes. Do NOT remove the USB device while exporting is in progress. When the export process is complete, an EXPORT COMPLETE pop-up banner will be displayed at the bottom of the screen.

11. Press **OK** to return to STB Manager screen. To return to program viewing, select the  button at the top right corner of the screen.
12. Remove the USB memory device from the Master STB.



Note: If the Master STB has a channel lineup, during the export process, logical channel numbers are automatically assigned in ascending order, starting with 0 (zero), to the physical RF channels of the STB channel lineup to create an FTG Channel Map. See also note below.



Note: If the exported Clone file is to be used for FTG Mode configuration (i.e., it contains an FTG Channel Map), it is highly recommended that you open the file in the Cloud Configuration Tool—BEFORE transferring (importing) the file to any Target STBs—to verify FTG Channel Map and FTG Installer Menu settings. This will also enable you to confirm channels and add channel attributes, labels, etc.

Importing a Clone File

This section describes how to transfer (import) a Clone or Configuration (.tlx) file from a USB memory device to an STB using the STB Manager “Import Clone File” option. The “.tlx” file may be created either from a Master STB Setup that was saved (exported) from a Master STB or in the Cloud Configuration Tool.

Before You Begin

- Ensure the USB device has been formatted with FAT format.
- Avoid using special characters, such as ?, &, @, etc., in the Clone/Configuration (.tlx) filename.
- If the EZ-Manager Wizard appears on the screen when you turn ON the Target STB/display panel, you can use the wizard’s “USB Configuration” option to access the STB Manager and complete the import procedure (see “STB Configuration Options” and/or “USB Configuration” on pages 24 and 30, respectively, as necessary).
- You may also use the Ez Download utility to import the Clone/Configuration (.tlx) file. See “Ez Download Utility” on pages 32 to 35 for further information.

Cloning Procedures (Cont.)

- If the Target STB is currently in Pass-through Mode and you intend to use the STB's Zoning feature(s)—i.e., the Clone/Configuration (.tlx) file you are importing contains an FTG Channel Map and/or FTG profile(s) with STB Zone and/or Wi-Fi Zone assignments—make sure to set the appropriate STB Zone # and/or Wi-Fi Zone # in the STB when directed to do so in the procedure below. See Reference section, “Using the STB's Zoning Features,” for further information.
- If you would like the Target STB(s) to remain in Pass-through Mode or Application Tuning Mode, as applicable, after the Clone/Configuration (.tlx) file is imported, ensure the “.tlx” file does not contain an FTG Channel Map; otherwise, the import procedure will result in the Target STB(s) being configured for FTG Mode.
- If a Clone (.tlx) file (exported Master STB Setup) contains an FTG Channel Map, the physical RF channels in the FTG Channel Map have been assigned logical channel numbers (see “Exporting a Clone File” above). When you import the Clone file with the FTG Channel Map to the Target STB(s), you will have the option to select either logical or physical channel tuning. Even if you select physical channel tuning, the (list of) physical RF channels in the FTG Channel Map will remain in logical order.
- If an FTG Configuration (.tlx) file (created in the Cloud Configuration Tool) contains an FTG Channel Map, each logical channel number in the FTG Channel Map has been assigned a physical RF channel, an IP channel, or an Aux input (the latter designated by 130-0 through 137-0—see also Reference section, “STB Aux Input Configuration”).

Note: If the FTG Channel Map includes RF channels and Aux inputs *only*, when you import the FTG Configuration file on the Target STB(s) you will have the option to select either logical or physical channel tuning. If you select physical channel tuning, the physical RF channels and Aux inputs in the FTG Channel Map will remain in logical order. Physical channel tuning is not available when the FTG Channel Map includes IP channels.

- If the Clone/Configuration (.tlx) file was edited/created in the Cloud Configuration Tool, it may contain multiple zoned FTG Installer Menu profiles for different STB/TV models. Make sure it includes the appropriate Installer Menu profile(s) for the Target STB(s) before performing the procedure below.



Caution: Do not unplug the STB power cord or remove the USB memory device while importing is in progress, as doing so may cause the STB to malfunction or harm the USB device, respectively.

Import Clone File Procedure


1. Turn ON the Target STB/display panel.
2. The next step depends on whether the EZ-Manager Wizard appears on the screen when you turn ON the STB/display:
 - If the wizard is displayed, you can complete the import procedure via the wizard, as indicated above (see “Before You Begin”). However, to continue with this procedure and access the “Import Clone File” option from the STB menus, exit the EZ-Manager Wizard. Then, continue with step 3.
 - If the wizard is not displayed, go directly to step 3.
3. If applicable (see also “Before You Begin” above), make sure to assign the appropriate Zone designation(s) in the Target STB at this time.

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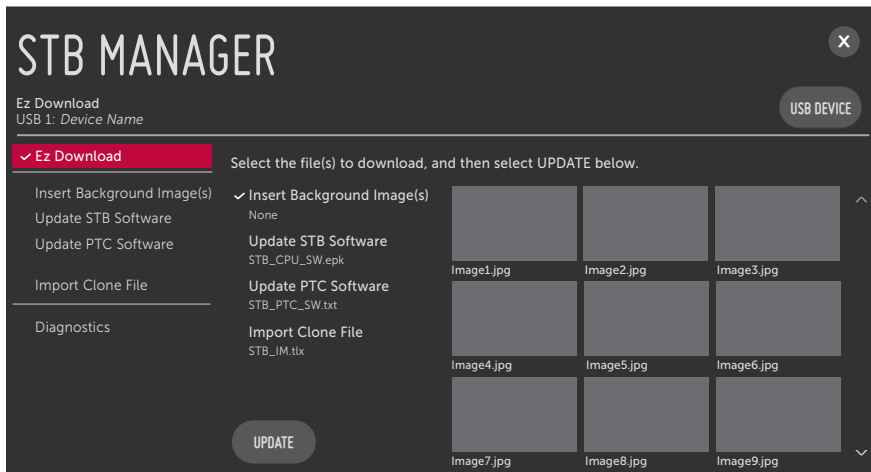
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Note: In order for the proper STB Zone and/or Wi-Fi Zone profile data to be applied, the appropriate STB Zone # and/or Wi-Fi Zone # must be set in the Target STB BEFORE importing is initiated.

4. Insert the USB memory device with the Clone/Configuration (.tlx) file into either of the USB ports on the Target STB.
5. Press **MENU** on the Installer Remote to display the STB setup menus (STB is in Pass-through Mode) or the Function Menu (STB is already in FTG Mode).
6. (STB in Pass-through Mode only) From the Quick Settings Menu displayed at the right of the screen, select the **All Settings**  menu icon and press **OK** to access the advanced STB setup menus.
7. Use the arrow navigation keys to select/highlight either the **General** menu icon from the STB setup menus or the **Safety** menu icon from the Function Menu. Then, press the number “7” key a total of seven times to display the STB Manager.

Note: Ez Download is always selected by default when you initially access the STB Manager. Also note that Diagnostics is for service use only.



8. If more than one USB memory device is currently connected to the STB, be sure to select the USB device that contains the “.tlx” file you wish to use. If necessary, use the arrow keys on the Installer Remote to select/highlight the **USB DEVICE** button in the top right corner of the screen and press **OK**. Then, use the Up/Down arrow keys to select the appropriate USB device from the pop-up list of USB devices displayed at the top of the screen.



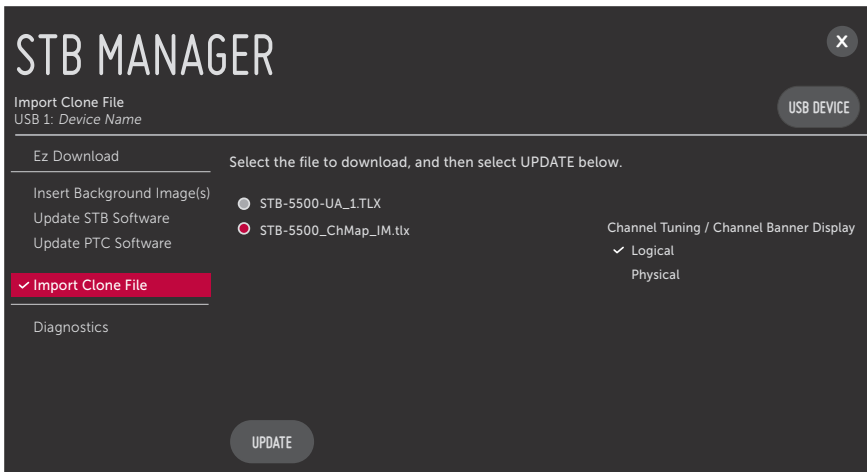
9. Use the Up/Down arrow keys to select **Import Clone File**, and then press **OK**.

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Cloning Procedures (Cont.)

(Continued from previous page)

A list of the “.tlx” files stored in the root folder of the USB memory device will be displayed on the screen.



10. Use the arrow keys on the Installer Remote to select/highlight the “.tlx” file to import, and then press **OK**.

Note: Filenames of exported Clone files are comprised of the STB model and a numeric element, for example, STB-5500-UA_1.TLX.

11. If the Clone/Configuration (.tlx) file includes an FTG Channel Map with RF channels and Aux inputs *only*, you can choose the format for the channel tuning/banner display. Use the arrow keys to select the desired Channel Tuning / Channel Banner Display option—either Logical or Physical—at the right side of the screen. A checkmark will appear at the left of the selected option. Logical tuning is selected by default.

Note: If an FTG Channel Map includes IP channels, only logical tuning is available. Also, if the “.tlx” file does not include an FTG Channel Map, the message, “No Channel Map in Clone file,” will be displayed at the right of the screen.

12. When you are ready to continue, select **UPDATE** on the screen and then press **OK** on the Installer Remote.

Import progress will be displayed on the screen. This process may take a few minutes. Do NOT remove the USB device while importing is in progress. When the import process is complete, an IMPORT COMPLETE pop-up banner will briefly be displayed at the bottom of the screen, and then, the STB will reboot.

13. Remove the USB memory device from the Target STB, and verify that the appropriate configuration is now resident on the Target STB.

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Note: If the Target STB was previously in Pass-through Mode, and the Clone/Configuration (.tlx) file that was imported contained an FTG Channel Map, the Target STB CPU is now in FTG Mode. Upon restart (and, if applicable, confirmation of new video output resolution—see note below), the STB tunes according to the Start Channel setting in the Installer Menu. If a Start Channel is specified, the STB will tune to that channel, though, in the case of FTG Mode configuration, a channel banner will only be displayed if the Start Channel is included in the FTG Channel Map (depending on your selection in step 11, the channel banner will display either the Start Channel's logical channel number or physical RF channel number). Otherwise, the STB will either return to the last channel tuned (STB in Pass-through Mode) or tune to the first channel in the FTG Channel Map (STB in FTG Mode). If the latter, remember that the channels in the FTG Channel Map are always arranged in logical order, regardless of your selection in step 11.

Note: If you updated the STB configuration with a Clone/Configuration (.tlx) file that included a change to Installer Menu item 105 VID OUT FORMAT, when the reboot is complete, you will be prompted to confirm the new video output resolution. See item 105 description on page 45 for further information.

Cloud Configuration Tool Overview

This section provides an overview of LG's Cloud Configuration Tool web application, which is used for FTG Mode configuration. For best results, it is recommended that you access the Cloud Configuration Tool using one of the following web browsers: Google Chrome™ 51 or later or Mozilla Firefox® 47 or later.

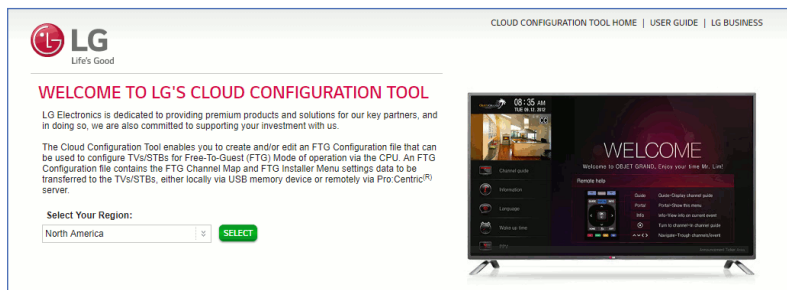
Creating an FTG Configuration File

The subsections below briefly describe how to use the Cloud Configuration Tool to create an FTG Configuration (.tfx) file (i.e., for FTG Mode configuration) that can be saved to a USB memory device. The Cloud Configuration Tool provides options both for advanced and new users. If you are not familiar with the steps to create an FTG Configuration file, you may choose a wizard setup that will guide you through the process of creating a new file. Refer to the **Cloud Configuration Tool User Guide** for further information. See also sample screens on pages 61 to 63 of this document.

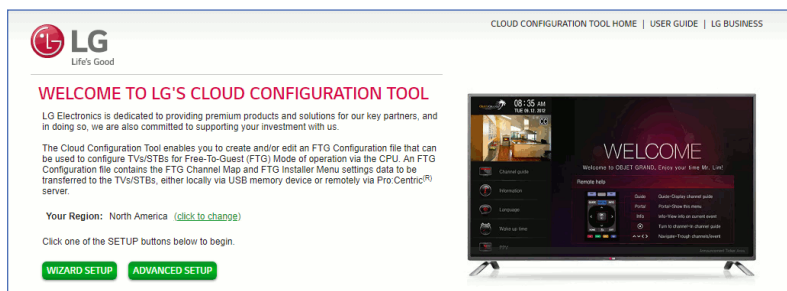
Note: There is also an option to save (export) configuration from an STB, which may be desirable or required if you want to save customized STB setup menu settings to the FTG Configuration file and/or if you do not know the RF channels at the site. See “Exporting a Clone File” on pages 51 to 53 for further information.

Access the Cloud Configuration Tool and Select a Setup Option

1. Launch a web browser, and navigate to the following URL: **cct.procentric.tv**.
2. On the Welcome web page, make sure **North America** (default) is selected in the Select Your Region field, and then click on the **SELECT** button at the right of the field.



3. Once you select your region, you can choose the desired setup option, depending on your familiarity with the utilities and/or your file requirements:



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- If you are creating an FTG Configuration file from scratch and this is your first time using the Cloud Configuration Tool, you may wish to select the Wizard Setup, which will guide you through the essential steps of creating the file—building the Channel Map and/or the Installer Menu profile(s). To initiate the Wizard Setup, click on the **WIZARD SETUP** button.

On the next wizard page you will be prompted to indicate whether you would like to create an FTG Channel Map. Note that an FTG Channel Map is required for FTG Mode operation. Once you complete (or bypass) Channel Map activities and proceed to the next step, you will be prompted to indicate whether you would like to create an Installer Menu profile. The final wizard step enables you to review a summary of the FTG Configuration (.tlx) file contents and then save (export) the file to your PC.

- To view and/or base a new FTG Configuration file on an existing FTG Configuration (.tlx) file, or if you do not require wizard guidance to complete your activities, click on the **ADVANCED SETUP** button.

The File Manager web page will be displayed, and you have a number of options.

The following procedure provides an overview of the Advanced Setup. Refer to the **Cloud Configuration Tool User Guide** for further information on both the Wizard Setup and the Advanced Setup.

Advanced Setup Overview

1. When you select **ADVANCED SETUP** from the Welcome page (see “Access the Cloud Configuration Tool and Select a Setup Option” above), the File Manager page is displayed (see example on page 61).
2. (Optional) If desired/appropriate, you may view and/or base the new FTG Configuration file on an existing FTG Configuration (.tlx) file:

- Click on the **BROWSE** button at the right of the Find File to Upload field, and select/double-click on the desired “.tlx” file. Then, click on the **UPLOAD** button below the Find File to Upload field.

Once the file is successfully uploaded, the Find File to Upload field is replaced with a Loaded From File summary of the file’s contents, including a Channel Map Summary, Installer Menu Summary, and Setup Menu Summary.

- Double-click on each item in the Loaded From File summary at the left of the page that you would like to copy to the FTG Configuration List at the right of the page. As you move your mouse over the contents of a summary field, the field will be highlighted in blue, and **»»»** arrows at the right of the field will indicate that the data may be copied to the FTG Configuration List.
- Edit the configuration of the items in the FTG Configuration List as well as the FTG Configuration List itself, as necessary, to create a new file.

Note: While Setup Menu profiles can be included in the new FTG Configuration file (i.e., the profile[s] can be copied to the FTG Configuration List), Setup Menu profiles are not available for editing. However, on the File Manager page, you may change the Zone assignment for a Setup Menu profile, as required, for those models on which the STB Zoning feature is supported.

Note: If desired, you can click on the **UPLOAD NEW FILE** button below the list of Loaded From File items to select a different existing FTG Configuration file. If you want to add Installer Menu and/or Setup Menu profiles from more than one existing file to the new FTG Configuration file, make sure to transfer the appropriate items from the currently uploaded file to the FTG Configuration List before uploading a different file.

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Cloud Configuration Tool Overview (Cont.)

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3. If you need to edit the FTG Channel Map from an existing file (see previous step) or create a new FTG Channel Map, click on **CHANNEL MAP** in the menu options bar at the top left of the page to access the Channel Map web page (see example on page 62), and edit/create the FTG Channel Map. Up to 600 logical channels—combined total of both RF and IP mapped channels—can be defined in the FTG Channel Map.
4. (Optional) To load default FTG Installer Menu settings by model, click on **INSTALLER MENU** in the menu options bar at the top left of the page to access the Installer Menu web page (see example on page 63), select the desired model/chassis ID and the desired Zone, and then click on the **CREATE PROFILE** button to create a new profile.

The new model profile will be added to the Installer Menu Profile List at the top right of the page, and the Installer Menu items for the selected model will now be displayed on the lower half of the page. The Summary tab shows the features that are available for configuration. Click on any Installer Menu item in the Summary tab or a category (User, Tuning, Audio, etc.) tab to view and/or edit its parameters, as required.

Note: Unless you select a different Zone assignment when you create the new profile, the default Zone 0 is assigned automatically. See Reference section, “Using the STB’s Zoning Features,” for further information on the STB Zoning feature and setting the STB Zone # in the TV(s).

5. Click on **FILE MANAGER** in the menu options bar at the top left of the page to return to the File Manager web page. The FTG Configuration List will now be populated with summaries of the FTG Channel Map, FTG Installer Menu profile(s), and, if applicable, Setup Menu profile(s) you created or added in the previous steps. Review and edit the FTG Configuration List, as necessary.

Note: If you need to edit the Channel Map or an Installer Menu profile, double-click on the desired item to access the Channel Map page or the Installer Menu page, as applicable. When you return to the File Manager page, the FTG Configuration List is automatically updated with all Channel Map and Installer Menu changes. (Installer Menu and/or Setup Menu profile Zone assignments may be changed on the File Manager page.)

Note: To remove an individual item from the FTG Configuration List, click on the **X** at the right of the applicable item. At the prompt for confirmation , either click **yes** to confirm and remove the item immediately, or click **no** to retain the item. To clear all current FTG Configuration List contents, click on the **CLEAR LIST** button at the bottom right of the FTG Configuration List.

6. Export the FTG Configuration List contents to an FTG Configuration (.tlx) file on the PC’s hard drive for later use:

- Type a brief descriptive name in the File Name field at the bottom of the FTG Configuration List (avoid using special characters, such as ?, &, @, etc.).
- Click on **EXPORT FILE**.
- In the Save As window (if applicable—see note below), select the desired location to which to export the file (you can also edit the file name here, if necessary), and click **Save**.

Note: Depending on the browser you are using and its current settings, files may automatically be saved to the “Downloads” or another designated folder on your PC. If you want to be able to select the folder in which to save the FTG Configuration file, check your browser settings.

7. Transfer the FTG Configuration (.tlx) file to a USB memory device, and proceed to “Importing a Clone File” on pages 53 to 57 to transfer the FTG Configuration file to an STB-5500.

File Manager Web Page Overview

The File Manager page (displayed after you select ADVANCED SETUP from the Welcome page) enables you to compile, modify, and save (export) FTG Configuration (.tlx) files. The following example provides an overview reference of the functions available on the File Manager page.

Data contained in uploaded FTG Configuration (.tlx) file. Users may choose to copy some or all of this data to the FTG Configuration List.

Data to be saved in the FTG Configuration (.tlx) file. This data may include contents transferred from an uploaded file and/or Channel Map/ Installer Menu contents created or modified in the Cloud Configuration Tool.

The screenshot shows the File Manager interface with the following elements and annotations:

- Cloud Configuration Tool menu bar:** Located at the top, it includes 'FILE MANAGER', 'INSTALLER MENU', and 'CHANNEL MAP'. A callout states: "Cloud Configuration Tool menu bar provides access to all utilities."
- Upload Section:** Features a "Find file to upload:" input field, a "BROWSE" button, and an "UPLOAD" button. A callout explains: "Data contained in uploaded FTG Configuration (.tlx) file. Users may choose to copy some or all of this data to the FTG Configuration List."
- Loaded From File Panel:** Displays data from an uploaded file, such as "Channel Map Summary" (9 Mapped RF Channels, 0 Mapped IP Channels), "Installer Menu Summary (1 profile)" (Zone: 0 - Model: STB-5500 (0 items modified)), and "Setup Menu Summary" (empty). A callout notes: "Data to be saved in the FTG Configuration (.tlx) file. This data may include contents transferred from an uploaded file and/or Channel Map/ Installer Menu contents created or modified in the Cloud Configuration Tool."
- FTG Configuration List Panel:** Shows the current configuration list with fields for "Channel Map Summary", "Installer Menu Summary", and "Setup Menu Summary", all currently empty. It includes an "EXPORT FILE" button and a "CLEAR LIST" button. A callout states: "Save (export) or reset (i.e., clear) the FTG Configuration List."
- File Name Input:** A field labeled "File name:" with the text "FTG_Configuration.tlx" and an "EXPORT FILE" button. A callout explains: "The name of the new FTG Configuration file to be created."
- Upload New File Button:** A green "UPLOAD NEW FILE" button. A callout states: "Upload a new file, as required."

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Cloud Configuration Tool Overview (Cont.)

Channel Map Web Page Overview

On the Channel Map page, you can create, view, and edit a Logical Channel Map.

Search for existing channels or clear the FTG Channel Map.

(Advanced Setup only) Cloud Configuration Tool menu bar provides access to all utilities.

Click the appropriate button to add a new RF or IP channel to the FTG Channel Map.

(Wizard Setup only) Proceed to next step.

The screenshot shows the 'CHANNEL MAP' page in a web browser. At the top, there is a navigation bar with 'FILE MANAGER', 'INSTALLER MENU', and 'CHANNEL MAP'. Below this is a search bar labeled 'CHANNEL MAP Search: (enter Logical or Label)' with a search icon and a 'CLEAR CHANNEL MAP' button. To the right of the search bar are two buttons: 'RF CHANNEL' and 'IP CHANNEL'. A 'NEXT STEP' button is also visible. Below the search bar is a table of channels with the following columns: Logical, Channel Icon, Label, RF IP Address, Major, Minor, PLP ID, IP Type, IP Port, Prog #, Source Address, Attribute, Restricted from Zones, and Actions. The table contains several rows, including CBS, NBC, CNN, ABC, PBS, History, and Discovery. At the bottom of the page, there is a copyright notice: 'Copyright © 2018 LG Electronics. All Rights Reserved. PRIVACY | LEGAL | LG CORPORATE'.

Click the appropriate icon to either edit an existing Logical Channel's data (see below) or remove a channel from the FTG Channel Map.

Select a channel icon (select "No Logo" if applicable), and/or enter a custom channel label.

As applicable, assign the RF, Major, and Minor channel numbers and PLP ID or enter the IP Address, Type, IP Port, and Program # data for the channel.

Set Zone restriction(s) per channel. Zones you select will be listed in the Restricted from Zones column. See Reference section, "Using the STB's Zoning Features," for further information.

Logical	Channel Icon	Label	RF IP Address	Major	Minor	PLP ID	IP Type	IP Port	Prog #	Source Address	Attribute	Restricted from Zones	Actions
0	no logo	17 Character Limit	1	1	0					ATSC 3.0	<input type="checkbox"/> Encrypted <input checked="" type="checkbox"/> OSD <input type="checkbox"/> Blank Video	<input type="checkbox"/> Zone 1 <input type="checkbox"/> Zone 2 <input type="checkbox"/> Zone 3 <input type="checkbox"/> Zone 4 <input type="checkbox"/> Zone 5 <input type="checkbox"/> Zone 6 <input type="checkbox"/> Zone 7 <input type="checkbox"/> Zone 8	<input type="button" value="SAVE"/> <input type="button" value="CANCEL"/>

Enter a logical channel number.

Set channel attributes. Check/select Encrypted, OSD, or Blank Video.

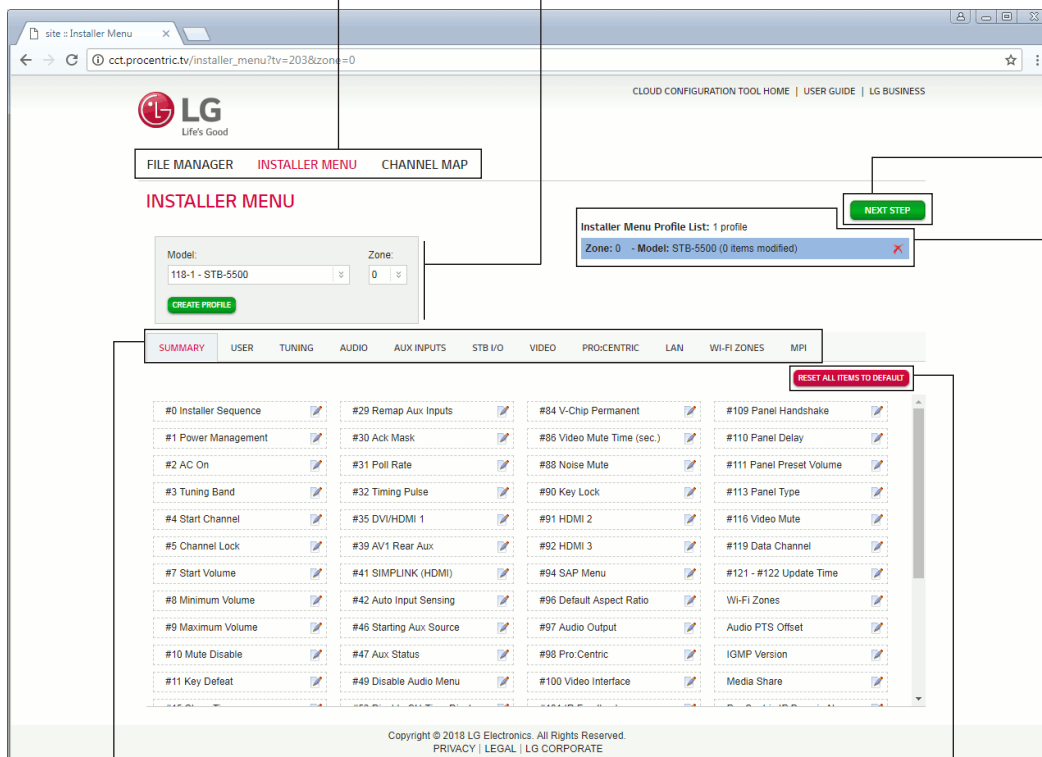
After adding a new channel or editing an existing channel, save or cancel the changes.

Cloud Configuration Tool Overview (Cont.)

Installer Menu Web Page Overview

(Advanced Setup only) Cloud Configuration Tool menu bar provides access to all utilities.

Load default Installer Menu for selected model. Assign Zone as applicable. Once you click on CREATE PROFILE, this Installer Menu profile will be listed under the Installer Menu Profile List, and Installer Menu items will be displayed on the lower half of the page.



(Wizard Setup only) Proceed to next step.

Installer Menu profiles to be included in the FTG Configuration (.tx) file. The currently active profile is highlighted.

Select tabs for categories of Installer Menu items to set up STB.

Reset default values for currently active configuration profile. A RESET button is also available within each category tab.

Note: The Pro:Centric tab enables you to set up Pro:Centric-specific parameters, the LAN tab enables you to set up a variety of LAN features, and the Wi-Fi Zones tab enables you to set up Wi-Fi Zones. Refer to the **Cloud Configuration Tool User Guide** for further information. Also, see Reference section, "Using the STB's Zoning Features," for additional information on Wi-Fi Zoning.

IP Environment Setup

The IP Environment Menu enables you to set up the network features of the STB. If you intend to create a Master STB Setup for cloning purposes (see Master STB Setup procedure on pages 48 to 50), all IP Environment settings, with the exception of Wired Network Connection settings, the STB name (editable in the Media Share Menu), DIAL, and SoftAP settings, may be cloned.

Note: With the exception of Network Setting configuration, the IP Environment settings are editable (with the Installer Remote) only if the STB is in Pass-through Mode and read-only when the STB is not in Pass-through Mode.

Accessing the IP Environment Menu

Note: When you enter the IP Environment Menu, the Installer Menu is exited (all current settings are saved automatically upon exit). If you are also in the process of updating Installer Menu items, you may wish to set all items as needed before you access the IP Environment Menu. Otherwise, after exiting the IP Environment Menu, you will need to reaccess the Installer Menu to set additional items.


1. Use the Installer Remote to access the Installer Menu (see “Accessing the Installer Menu” on page 36 for further information).
2. Navigate to Installer Menu item 119 DATA CHANNEL, and press **2-5-3 + MENU** to launch the IP Environment Menu.

Use the Up/Down arrow keys on the Installer Remote to select the desired menu option and then press **OK**. Refer to the following sections for information on each of the IP Environment setup options.

When you have completed your IP Environment configuration as required, press **EXIT** or **↩** on the Installer Remote to exit the IP Environment Menu.

Network Configuration

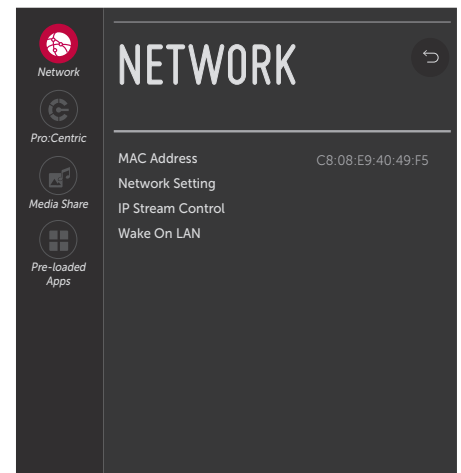
This section describes each of the options available in the Network Menu (see example at right). Refer to the appropriate subsection(s) on the following pages.

 **Note: If you intend to use the Wi-Fi Zoning feature with cloning configuration, you must configure the wireless network connection as part of the Master STB Setup. See “Configuring a Wi-Fi Network Connection” on page 66 for further information.**

Accessing the Network Menu

With the IP Environment Menu on display, use the arrow keys on the Installer Remote to select the **Network** menu option. Then, press **OK**.

Note: The STB’s MAC address is displayed at the top of the Network Menu screen and cannot be modified.



Configuring a Wired Network Connection

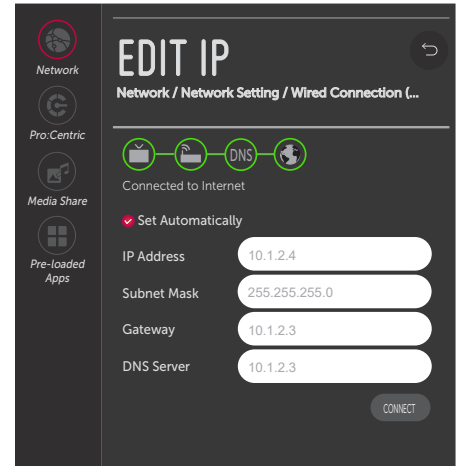
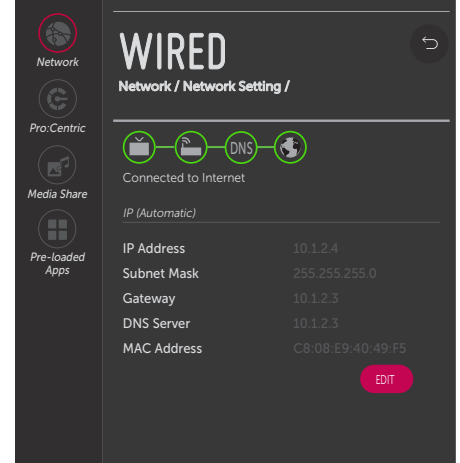
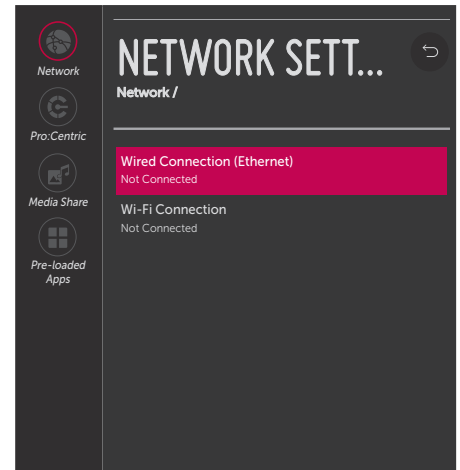
Note: If desired, you can configure both wired and wireless connections to the Local Area Network (LAN). However, note that a wired connection is always prioritized over a wireless connection. That is, if an Ethernet cable is connected between the network and the STB's LAN port, the STB will default to the wired connection. If the Ethernet cable is removed, the STB will then attempt to establish the wireless connection. Whenever the Ethernet cable is reconnected to the STB's LAN port, the STB will re-establish the wired connection.

1. Connect the appropriate cable between the STB and the network.
2. With the Network Menu on display, use the arrow keys on the Installer Remote to select **Network Setting**. Then, press **OK**. A Network Setting screen (see example at right), with Wired and Wi-Fi Connection setup options, will be displayed.

By default, the STB uses DHCP, and if a LAN is detected, the STB will request an IP address from the DHCP server on the network as soon as you select "Network Setting." If the STB is able to connect to the network, a "Connected to Internet" message will be displayed below the Wired Connection (Ethernet) field.

3. If the network is not configured for DHCP, or if you want to specify static IP configuration data or change the network configuration from Manual to Automatic, edit the IP data for this STB as follows:
 - Select **Wired Connection (Ethernet)** and press **OK**.
 - In the Wired screen, select **EDIT** (if not already selected) and press **OK**.
 - In the Edit IP screen, select or de-select the "Set Automatically" checkbox, as required. A checkmark indicates that Automatic configuration is enabled.
 - To manually edit the IP data, for each data entry field: Use the arrow keys on the Installer Remote to select the field and press **OK**. You can use the number keys on the Installer Remote to direct enter numeric values or use the arrow keys to select the appropriate numbers from the pop-up virtual keyboard displayed at the bottom of the screen. (Note, however, that you must use the dot "." key from the virtual keyboard to separate each octet of an IP address.) When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.
 - When all Edit IP fields are set as required, use the arrow keys on the Installer Remote to select **Connect** and press **OK**.

At the top of the screen, you will see a progress display that indicates status as each network element is confirmed (see example at right).



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IP Environment Setup (Cont.)

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If the network is connected successfully, a “Connected to Internet” message will appear just below the progress display. If the network connection is not successful, the progress display will identify the network element in which the connection failed. Check your cabling and/or verify the configuration data, as necessary.

4. Once the wired network configuration is complete, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press ↵ to return to the previous Network Menu level(s) and/or exit the IP Environment Menu.

Configuring a Wi-Fi Network Connection

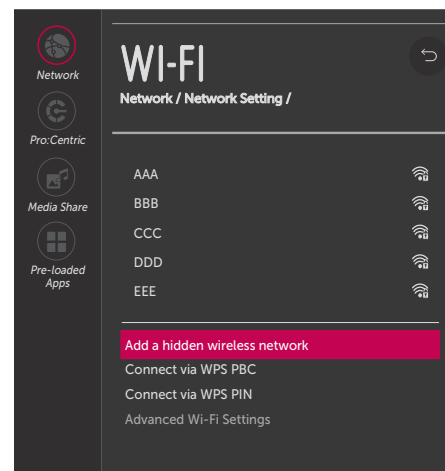
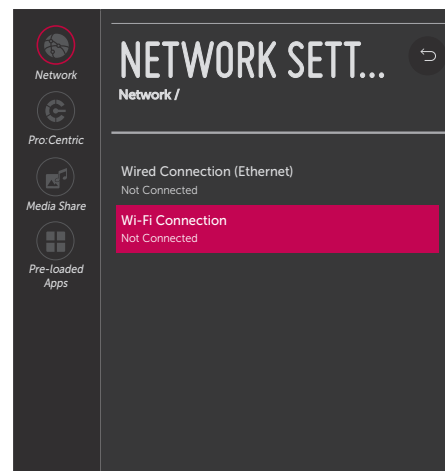
1. With the Network Menu on display, use the arrow keys on the Installer Remote to select **Network Setting**. Then, press **OK**.
2. A Network Setting screen (see example at right), with Wired and Wi-Fi Connection setup options, will be displayed. Select **Wi-Fi Connection** and press **OK**.
3. In the Wi-Fi screen, available access points are listed in the top half of the screen, while additional menu options are listed below. Use the arrow keys on the Installer Remote to select the desired access point, or select the type of wireless connection to configure (see descriptions below). Then, press **OK**.
 - Hidden network: Direct enter the SSID of an access point whose SSID has not been enabled for broadcast (i.e., the access point does not appear in the list of access points).
 - WPS PBC: Connect to a network via an access point that is enabled for PBC.
 - WPS PIN: Complete network/PIN verification via the access point web interface.

Make sure you have the network security password/PIN available if you are attempting to connect to a secured network.

4. Follow the on-screen instructions to complete the appropriate network configuration. Use the Installer Remote to navigate between fields and make entries, etc.

Note: As with a wired connection, you will have the option to specify static IP configuration data for this network connection. Once the initial connection is established, you can select **Advanced Wi-Fi Settings** (initially greyed out) at the bottom of the Wi-Fi screen to view the IP configuration data. In the Advanced screen, select **Edit** and press **OK**, and then modify the IP data, as required. See step 3 of the wired connection procedure above for further information on the Edit IP screen fields.

5. Once the wireless network configuration is complete, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press ↵ to return to the previous Network Menu level(s) and/or exit the IP Environment Menu.



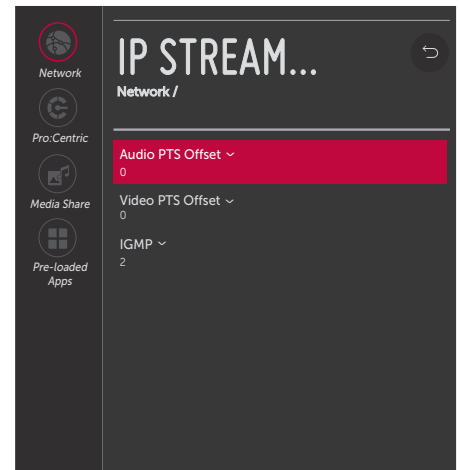
IP Stream Control

If necessary, due to an audio and/or video stream delay, IP Stream Control options enable you to compensate for synchronization irregularities by allowing audio PTS and video PTS offset modifications. This menu also enables you to specify the IGMP version (2 or 3). Note that any modifications to these settings should be performed by qualified personnel only.

1. With the Network Menu on display, use the arrow keys on the Installer Remote to select **IP Stream Control**. Then, press **OK**.
2. In the IP Stream Control screen, use the Up/Down arrow keys on the Installer Remote to select/highlight the appropriate field—Audio PTS Offset, Video PTS Offset, or IGMP Version—and then press **OK**.
3. If you are modifying an offset value, use the Left/Right arrow keys to select the appropriate value for the selected field. Offset values represent offset time in milliseconds (ms) and can be adjusted from -500 ms to +500 ms in 10 ms increments. When you are done, press **OK** on the Installer Remote.

If you are modifying the IGMP version, use the Up/Down arrow keys to select the appropriate version number and press **OK**.

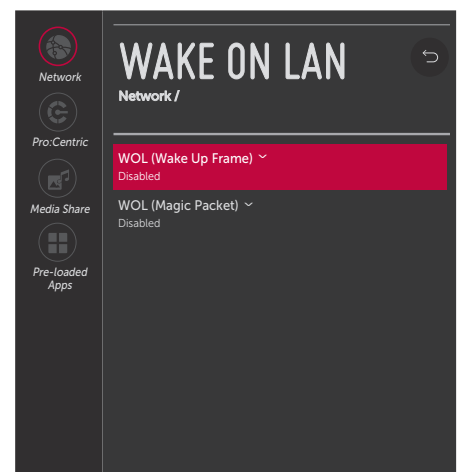
4. Once all modifications are completed as required, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press ↵ to return to the Network Menu and/or exit the IP Environment Menu.



Wake On LAN Setup

The Wake On LAN feature enables the STB to receive software updates and/or be powered ON upon receipt of Wake Up Frame packets and/or Magic Packet data via the wired LAN. To facilitate use of this feature, note that the appropriate wired connection must be made. This menu option enables you to specify Wake On LAN parameters.

1. With the Network Menu on display, use the arrow keys on the Installer Remote to select **Wake On LAN**. Then, press **OK**.
2. In the Wake On LAN screen, use the Up/Down arrow keys on the Installer Remote to select/highlight the desired field and press **OK**. Then, use the arrow keys to select the desired setting—Disabled, Update, or Power On—from the drop-down list of options.
3. Once all fields are completed as required, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press ↵ to return to the Network Menu and/or exit the IP Environment Menu.



IP Environment Setup (Cont.)

Pro:Centric Setup

Pro:Centric options enable you to configure the STB with the appropriate settings to connect to the Pro:Centric server. Use the Up/Down arrow keys on the Installer Remote to navigate between fields.

1. With the IP Environment Menu on display, use the arrow keys on the Installer Remote to select the **Pro:Centric** menu option. Then, press **OK**.
2. Select/highlight the **Media Type** field and press **OK** on the Installer Remote to display the drop-down list of options. Then use the Up/Down arrow keys to select either **RF** or **IP**, as applicable.

Note: If the Media Type has already been set in the EZ-Manager Wizard, the specified value will be reflected in this field.

3. Refer to the appropriate subsection below to configure the STB's Pro:Centric settings to match those of the Pro:Centric server.

While the Pro:Centric application itself is an additional feature (see step 4), the appropriate Pro:Centric server configuration must be completed to enable E-Z Installation (configuration and software) data downloads and, if configured, the Pro:Centric application download.

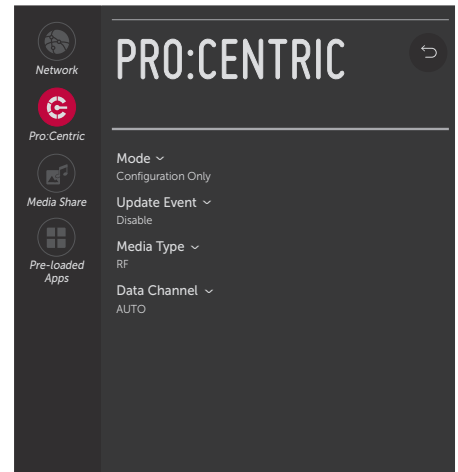
RF Configuration

For STBs in Pass-through Mode or FTG Mode, if the Data Channel is left at its default value (AUTO), the STB's Data Channel Auto Search feature will be enabled. See Installer Menu item 119 DATA CHANNEL description on page 46 for further information.

To change the Data Channel setting, select/highlight the **Data Channel** field and press **OK** on the Installer Remote. Then, use the Up/Down arrow keys to select either **MANUAL** or **AUTO** from the drop-down list of options.

When the Data Channel field is set to "MANUAL," a data entry field is available on the screen, and you can specify the RF channel number that will be used by the Pro:Centric server as its data channel. The Data Channel value can be set from 0 (disabled) to 135.* Use the arrow keys on the Installer Remote to select the Data Channel data entry field and press **OK**. You can then use the number keys on the Installer Remote to direct enter the Data Channel, or you can use the arrow keys to select the appropriate number(s) from the pop-up virtual keyboard displayed at the bottom of the screen. When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.

Note: If the Data Channel has already been set in the Installer Menu (Installer Menu item 119) or in the EZ-Manager Wizard, the specified channel will appear in the Data Channel data entry field. If you change the Data Channel in this menu, Installer Menu item 119 will now show the value you entered here.



Note: By default, the Pro:Centric Menu initially shows RF configuration fields. When "IP" is selected as the Media Type, Server Address and either IP Address and Port Number or Domain Name and Port Number fields appear on the screen (in place of the Data Channel field).

(Continued on next page)

* PCS150R and later Pro:Centric servers do not support HRC or IRC cable channel frequencies.

(Continued from previous page)

IP Configuration

Note: If the server IP address and port number or domain name have already been set in the EZ-Manager Wizard, the specified data will be reflected in the fields displayed.

Note: Setting the Media Type to “IP” automatically sets item 119 DATA CHANNEL in the Installer Menu to 253. You cannot alter this setting unless you revert Media Type to “RF.” Also, it is not possible to direct enter “253” in the Installer Menu.

- a) The Server Address field provides the option to specify the domain name of the Pro:Centric server instead of the server’s IP address. Select/highlight the **Server Address** field and press **OK** on the Installer Remote. Then, use the Up/Down arrow keys to select either **IP Address** or **Domain Name** from the drop-down list of options for defining the server.
- b) Depending on your selection in the previous step, either:
 - Enter the Pro:Centric server IP address in the IP Address field. The IP address must match the IPv4 multicast address that is set in the Pro:Centric server.
 - Enter the Pro:Centric server domain name in the Domain Name field. Note that in order for the domain name to be resolved to an IP address, there must be a DNS entry for the domain name.

For each data entry field: Use the arrow keys to select the field and press **OK**. Then, you can either use the number keys on the Installer Remote to direct enter data values, or you can use the arrow keys to select the appropriate number(s)/alphanumeric character(s) from the pop-up virtual keyboard displayed at the bottom of the screen. When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.

- c) Enter the Pro:Centric server port number in the Port Number field. The port number must match the port number that is set in the Pro:Centric server.
4. Select/highlight the **Mode** field and press **OK** on the Installer Remote to display the drop-down list of options. Then, use the Up/Down arrow keys to select the appropriate Pro:Centric Application Mode setting—**Configuration Only**, **FLASH**, **GEM** (Java), or **HTML**. If the Pro:Centric Application Mode is set to “Configuration Only,” Pro:Centric application data will not be downloaded.

Note: If the mode has already been set in the Installer Menu (item 098 PRO:CENTRIC) or in the EZ-Manager Wizard, the specified mode will be reflected in this field. If you change the mode in this menu, Installer Menu item 098 will now reflect the value you selected here.
 5. Select/specify the appropriate Update Event setting(s), as required. Based on Update Time settings, the Wake For Update feature wakes the STB once daily to check for, and if applicable, download updates from the Pro:Centric server. See Installer Menu item 121 UPDATE TIME HR description on page 47 for additional information on Wake For Update functionality.
 - Select/highlight the **Update Event** field and press **OK** on the Installer Remote. Then, use the Up/Down arrow keys to select either **Enable** or **Disable** from the drop-down list of options. When Update Event is set to “Enable,” an Update Time field is displayed on the screen.

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IP Environment Setup (Cont.)

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- If Update Event is enabled, set the Update Time as required. Use the arrow keys on the Installer Remote to select/highlight the Update Time field, and then press **OK**. Hour, Minute, and Meridiem fields will be displayed. Select each field in turn and specify the appropriate Wake For Update time, as desired. Note that the Update Time set in this menu is based on a 12-hour clock. Ensure the meridiem (AM/PM) specification is set accordingly.
6. Once all fields are completed as required, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press **↵** to exit the IP Environment Menu.

Media Share Setup

The Media Share Menu allows you to enable the following Media Share features on this STB:

- LG Smart Share[®]: Allows guests to use the STB/display panel to access and view data shared either by wired DLNA Certified[®] devices connected to the same LAN as the STB or by wireless LG devices using LG's Smart Share application with Wi-Fi Direct[®].
- Screen Share: Enables screen sharing with a Miracast[®] or Wireless Display (WiDi) capable device (e.g., a laptop with Intel[®] hardware).
- Media Renderer: Enables the STB to act as a media renderer to receive content from DLNA Certified devices on the same network.
- Bluetooth Sound Sync: Allows guests to listen to audio from a Bluetooth-enabled mobile device through the display panel's speakers.
- DIAL (Discovery and Launch): Allows guests to play selected application media on the STB/display panel from a device with DIAL capability. The device may be used to cast any application for which an STB-compatible application has been created/selected for inclusion in the Pre-loaded Apps Menu (for example, YouTube—see also "Pre-loaded Applications" on page 72). Note that the device must be connected to the same network as the STB.
- SoftAP: Enables the STB to function as a 2.4 GHz wireless access point for up to five devices. Note that a wired network connection **MUST** be established in order for guests to use SoftAP.

Note: See also Reference section, "Using Media Share Features," for additional information on these features.

1. With the IP Environment Menu on display, use the arrow keys on the Installer Remote to select **Media Share**. Then, press **OK**.
2. In the Media Share Menu, all features with the exception of SoftAP may be enabled or disabled as follows:
 - Use the Up/Down arrow keys on the Installer Remote to select/highlight the desired feature, and then press **OK**.
 - Then, use the Up/Down arrow keys to select either **Enable** or **Disable** from the drop-down list of options. See also notes on following page regarding Wi-Fi Direct requirement and Bluetooth Sound Sync confirmation.

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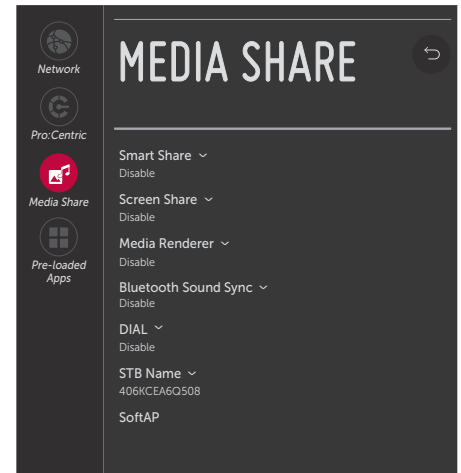
- If you would like to enable SoftAP, complete the SoftAP access configuration as follows:
 - Select/highlight **SoftAP** and press **OK** on the Installer Remote.
 - When you initially access the SoftAP screen (see example at right), the OFF/ON toggle button at the top right of the screen is selected/highlighted by default. Press **OK** on the Installer Remote to turn on SoftAP.
 - To enable use of a randomly generated security key for SoftAP access, set the Use Default field to “Enable” (the Security Key field will subsequently be grayed out and the random security key will be displayed).
 - To specify your own security key for SoftAP access, set the Use Default field to “Disable.” Then, select the **Security Key** field and press **OK**. In the data entry field, you can use the number keys on the Installer Remote to direct enter a numeric security key, or you can use the arrow keys to select the appropriate alphanumeric characters—at least eight, but no more than 64—from the pop-up virtual keyboard displayed at the bottom of the screen. Note that the security key may not contain any special characters (:, /, \, @, etc.). When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.
 - Select the appropriate values in the Wi-Fi Signal Strength, and Wi-Fi Channel fields, as required.
- If desired, you can specify a name for this STB so that it is easy to identify and differentiate from other STBs/TVs for which sharing has been/will be enabled.

Note: By default, the STB name is the STB’s serial number. However, if a room number is specified in the EZ-Manager Wizard or in the General Menu / Room Info screen, the STB name is changed to the room number.

To edit the STB name, use the Up/Down arrow keys to select the **STB Name** field, and then press **OK**. You can then use the number keys on the Installer Remote to direct enter a numeric STB name, or you can use the arrow keys to select the appropriate alphanumeric character(s) from the pop-up virtual keyboard at the bottom of the screen. When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.

- Once all fields are completed as required, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press **↩** to exit the IP Environment Menu.

Note: While Smart Share, Screen Share, Media Renderer, and Bluetooth Sound Sync settings are clonable, DIAL and SoftAP settings, as well as the STB name cannot be cloned.



Notes:

- Screen Share **MUST** be enabled in addition to Smart Share in order for guests to use Wi-Fi Direct.
- If you enable Bluetooth Sound Sync, a pop-up confirmation banner will be displayed since enabling Bluetooth Sound Sync renders Wireless LG Sound Sync unavailable. Select **Yes** to continue.



IP Environment Setup (Cont.)

Pre-loaded Applications

This option allows you to select which of the pre-loaded application icons to display in the STB's Smart Launcher, which appears along the bottom of the screen.

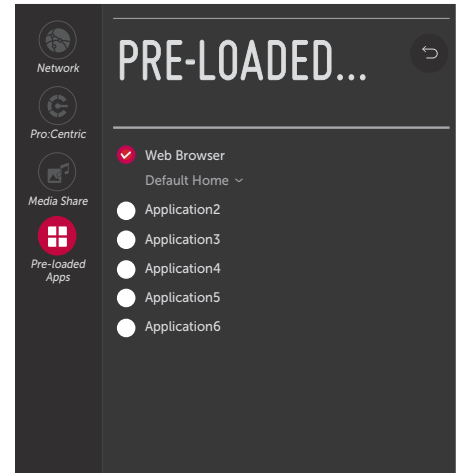
When the Pro:Centric application is disabled, the Smart Launcher is available to end users via the PORTAL key on the remote control. Depending on the remote control being used, the Smart Launcher may also be available to end users via a SMART key.

1. With the IP Environment Menu on display, use the arrow keys on the Installer Remote to select **Pre-loaded Apps**. Then, press **OK**.
2. In the Pre-loaded Apps Menu, a list of available application options is displayed. Use the Up/Down arrow keys to highlight each application you wish to select or de-select, and press **OK** on the Installer Remote. When an application is selected, a checkmark is displayed at the left of the application name.

Note: Though not included in the application list on this screen, Screen Share, Bluetooth Sound Sync, and SoftAP (as Wi-Fi Service) applications are available in the Smart Launcher once they are enabled in the Media Share Menu. See "Media Share Setup" above.

3. When you are done selecting the pre-loaded application icons to be displayed in the Smart Launcher, as required, use the arrow keys on the Installer Remote to return to the IP Environment Menu, as necessary, or press ↵ to exit the IP Environment Menu.

Note: While pre-loaded application selections are clonable, it is not possible to edit pre-loaded application selections in the Cloud Configuration Tool. Thus, if an STB has already been configured for FTG Mode and you would like to add or remove applications, you will need to import a new ".tlx" file with the appropriate model profile. That is, you will need to use a Master STB-5500 to create and export a ".tlx" file with the desired pre-loaded application selections (along with any other applicable Installer Menu settings), which can be transferred (imported) to the Target STB.



Notes:

- Make sure to select any application(s) that may be used in conjunction with the DIAL feature, if applicable.
- If desired, with the Web Browser application, you may specify the default home page.

Reference: Updating STB Software using a USB Memory Device

This section describes how to update STB (CPU) and/or PTC software using the STB Manager “Update STB Software” and/or “Update PTC Software” option(s), respectively, though you may also use the Ez Download utility to update software, if desired. See “Ez Download Utility” on pages 32 to 35 for further information.


Before You Begin

- Software update files must be stored in a folder named “LG_DTV” in the root directory of the USB memory device.
- Ensure the USB device has been formatted with FAT format.

Update the STB/PTC Software

Note: You can check the STB/PTC software versions by accessing the Installer Menu with the Installer Remote. See “Accessing the Installer Menu” on page 36 for further information. PTC and CPU versions are displayed in the Installer Menu footer.

Note for STB CPU Software Update only: If the STB detects a software file on the USB device, it will automatically display an Update STB Software screen, and if the file contains a later version of software than is currently running on the STB, you can start the software update from this screen (select **UPDATE** and press **OK**). Otherwise, you can exit the screen (select **CANCEL** and press **OK**), and access the STB Manager as described below.

1. Turn ON the STB/display panel, and then insert the USB memory device into either of the USB ports on the STB.
2. Press **MENU** on the Installer Remote to display the STB setup menus (STB is in Pass-through Mode) or the Function Menu (STB is not in Pass-through Mode).
3. (STB in Pass-through Mode only) From the Quick Settings Menu displayed at the right of the screen, select the **All Settings**  menu icon and press **OK** to access the advanced STB setup menus.
4. Use the arrow navigation keys to select/highlight either the **General** menu icon from the STB setup menus or the **Safety** menu icon from the Function Menu. Then, press the number “7” key a total of seven times to display the STB Manager (see example on following page).

Note: Ez Download is always selected by default when you initially access the STB Manager. Also note that Diagnostics is for service use only.

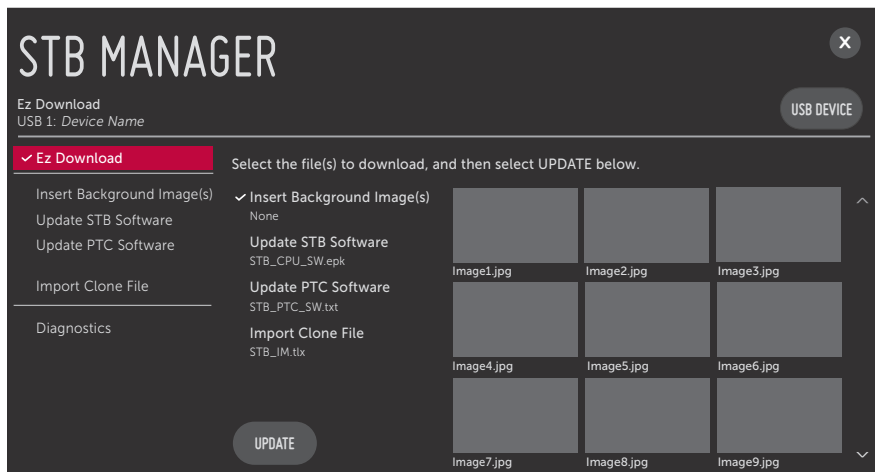
5. If more than one USB memory device is currently connected to the STB, be sure to select the USB device that contains the software file you wish to use. If necessary, use the arrow keys on the Installer Remote to select/highlight the **USB DEVICE** button in the top right corner of the screen and press **OK**. Then, use the Up/Down arrow keys to select the appropriate USB device from the pop-up list of USB devices displayed at the top of the screen.



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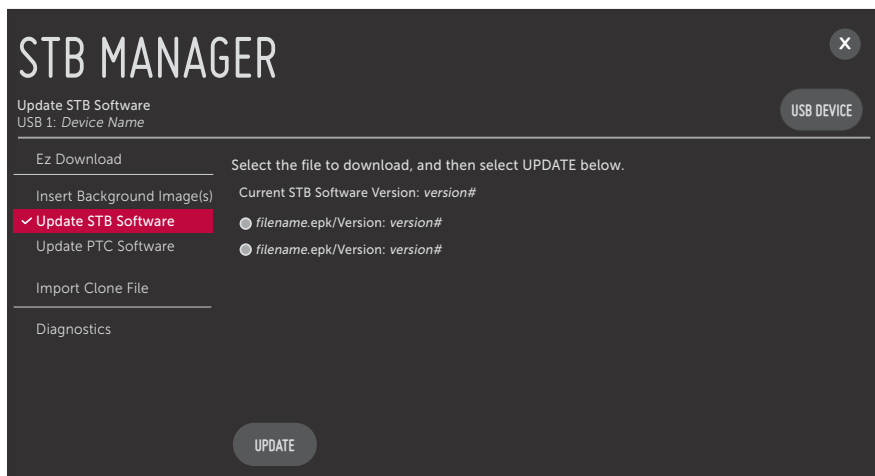
Reference: Updating STB Software using a USB Memory Device (Cont.)

(Continued from previous page)



6. Use the Up/Down arrow keys to select **Update STB Software** or **Update PTC Software**, as applicable, and press **OK**.

Depending on your selection, a list of either STB or PTC software files stored in the LG_DTV folder on the USB memory device will be displayed on the screen. Above the listing of files, you can also see the current version of STB or PTC software. The following screen sample illustrates an Update STB Software screen.



7. Use the arrow keys to select/highlight the update file to download, and then press **OK**.
8. When you are ready to download the update, select **UPDATE** on the screen, and then press **OK** on the Installer Remote.

Software update progress will be displayed on the screen. Do NOT remove the USB device until the software update is complete. When the software update is complete, an UPDATE COMPLETE pop-up banner will briefly be displayed at the bottom of the screen, and then, the STB will reboot.

Reference: Downloading Background Images using a USB Memory Device

Background images are intended for use with audio-only channels and the Bluetooth Sound Sync feature. Once a mobile device has been paired with the STB, guests may choose to display a slideshow on the screen (as opposed to a blank screen or the Bluetooth Sound Sync screen) while audio is playing.

This section describes how to download background images using the STB Manager “Insert Background Image(s)” option, though you may also use the Ez Download utility to download the background image(s), if desired. See “Ez Download Utility” on pages 32 to 35 for further information.


Background Image File Guidelines

- A background image may be either a baseline or progressive JPEG or a 24-bit (RGB 8x8x8) BMP.
- A JPEG image should be no larger than 6 MB.
- A BMP image should be no larger than 5.93 MB.
- The maximum resolution allowed for a background image is 1920 x 1080 pixels (FHD).
- Avoid using special characters, such as ?, &, @, etc., in a background image filename.

Before You Begin

- The background image file(s) must be stored in a folder named “LG_DTV” in the root directory of the USB memory device.
- Ensure the USB device has been formatted with FAT format.

Download the Background Image(s)

1. Turn ON the STB/display panel, and then insert the USB memory device into either of the USB ports on the STB.
2. Press **MENU SETTINGS** on the Installer Remote to display the STB setup menus (STB is in Pass-through Mode) or the Function Menu (STB is not in Pass-through Mode).
3. (STB in Pass-through Mode only) From the Quick Settings Menu displayed at the right of the screen, select the **All Settings**  menu icon and press **OK** to access the advanced STB setup menus.
4. Use the arrow navigation keys to select/highlight either the **General** menu icon from the STB setup menus or the **Safety** menu icon from the Function Menu. Then, press the number “7” key a total of seven times to access the STB Manager (see example on following page).

Note: Ez Download is always selected by default when you initially access the STB Manager. Also note that Diagnostics is for service use only.

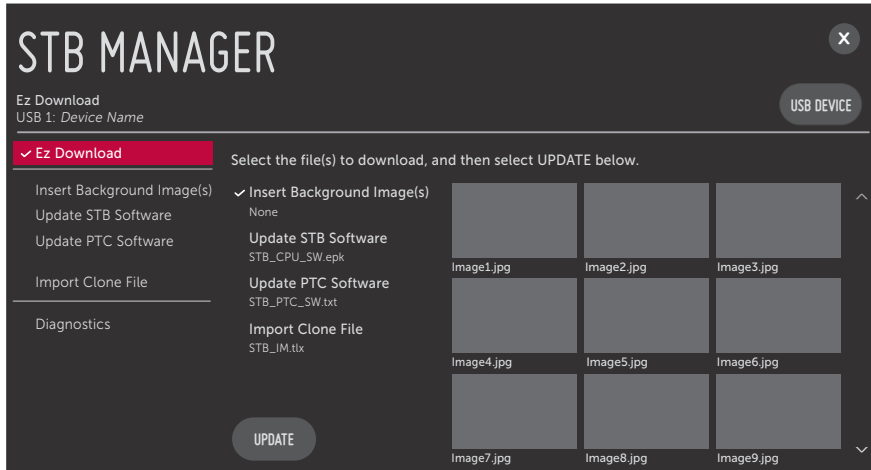
5. If more than one USB memory device is currently connected to the STB, be sure to select the USB device that contains the image file you wish to use. If necessary, use the arrow keys on the Installer Remote to select/highlight the **USB DEVICE** button in the top right corner of the screen and press **OK**. Then, use the Up/Down arrow keys to select the appropriate USB device from the pop-up list of USB devices displayed at the top of the screen.



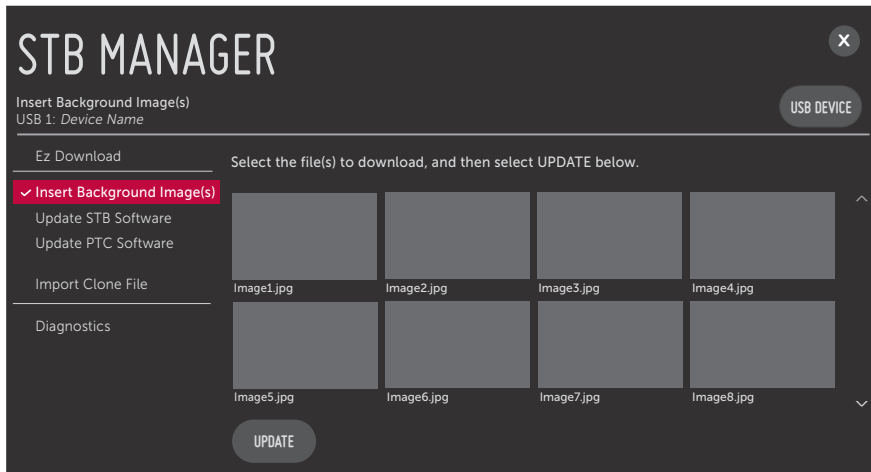
(Continued on next page)

Reference: Downloading Background Images using a USB Memory Device (Cont.)

(Continued from previous page)



6. Use the Up/Down arrow keys to select **Insert Background Image(s)**, and then press **OK**.



7. Use the arrow keys to select/highlight the image file(s)—up to 12 images or 10 MB—to download, and then press **OK**.

8. When you are ready to download the image file(s), select **UPDATE** on the screen, and then press **OK** on the Installer Remote.

Background image update progress will be displayed on the screen. Do NOT remove the USB device until the background image update is complete. When the image update is complete, a **DOWNLOAD COMPLETE** pop-up banner will briefly be displayed at the bottom of the screen, and then, the STB will reboot.

Reference: Display Panel Specifications

This section describes the types of commercial display panels that may be used with the STB-5500.

LG Hospitality TV Panels

The STB-5500 may be used with LG Hospitality TVs (LP645H, LT670H, etc.) that support Multiple Protocol Interface (MPI).

Use the MPI/MTI cable provided to connect the RJ-12 MPI/MTI TELEVISION CONTROL port on the STB-5500 front jack panel to the MPI port on the rear jack panel of the display.

LG Commercial Monitors & Public Display TV Panels

The STB-5500 may be used with LG Commercial Monitors (M3203CCBA, M3204C, etc.) or Public Display TVs (LD450C, LT560C, etc.) that support the TV-Link Monitor (TLM) interface.

Use the 3.5 mm-to-DB9 TLM cable provided to connect the 3.5 mm RS-232C TELEVISION CONTROL jack on the STB-5500 rear jack panel to the RS-232 CONTROL connector on the rear jack panel of the display.

Note that when you use these model display panels, you must set Installer Menu item 113 PANEL TYPE appropriately. For example, if you are using an LG Commercial Monitor or Public Display TV that does not support an xb Input Select command, set Installer Menu item 113 to 2. If you are using an LG Commercial Monitor or Public Display TV that does support an xb Input Select command, set Installer Menu item 113 to 4 (default).

Note: Installer Menu item 113 values 0, 1, and 3 are available to support legacy panel types.

Commercial Non-LG TV Panels

The STB-5500 may be used with commercial non-LG TVs that support SONIFI's Multiple Television Interface (MTI) protocol.

Use the MPI/MTI cable provided to connect the RJ-12 MPI/MTI TELEVISION CONTROL port on the STB-5500 front jack panel to the MTI (typically labeled "DATA") port on the rear jack panel of the display.

Note that some MTI interface configuration may be required on non-LG TVs. Refer to the TV manufacturer's documentation to determine if any configuration is required. Also, you will need to enable the MTI protocol (disabled by default) in the STB. See Reference section, "Enabling or Disabling the MTI Protocol on the STB," for further information.

Reference: STB Aux Input Configuration

DIRECT ACCESS Tuning*		STB		ENABLE					MPI DATA				Installer Menu Item 046 START AUX SRCE (Start Aux Source) Value
				Installer Menu			MPI DATA STATUS TYPE 0x41 SOURCES ENABLED (R/W)		DATA STATUS TYPE 0xD2 CURRENT AV SOURCE (R)		DATA STATUS TYPE 0x0D AUX SOURCE (R)		
Installer Menu Item 029 OLD OCV = 0	Installer Menu Item 029 OLD OCV = 1	Aux Input	Input Mode	Item	Function	Value	Enable Bit	Label	Value	Value	Description		
131-0	91-0	AV	CV	39	REAR AUX EN	1	1	Rear Video (Aux)	1	0	VIDEO	1	
132-0	92-0	HDMI 2	DTV	91	HDMI2 ENABLE	1	2	S-Video Rear	2	0	VIDEO	5	
			PC			2				2	COMPUTER		
133-0	93-0	HDMI 1	DTV	35	HDMI1 ENABLE	1	3	Front Computer	3	0	VIDEO	3	
			PC			2				2	COMPUTER		
135-0	95-0	HDMI 3**	DTV	92	HDMI3 ENABLE	1	5	NTSC Rear Computer	5	0	VIDEO	7	
			PC			2				2	COMPUTER		

* Use Installer Remote to enter channel number indicated based on OLD OCV Installer Menu setting.

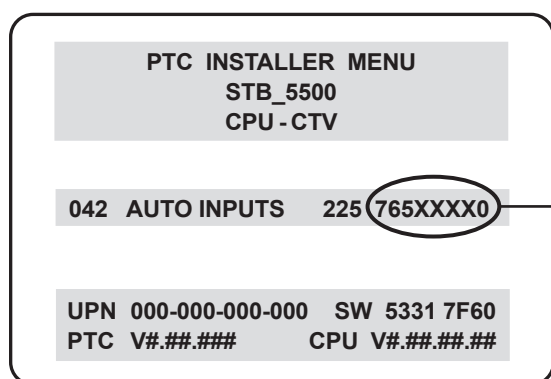
** HDMI 3 port on expansion interface connector.

Reference: Auto Input(s) Sensing Feature

This section provides detailed settings information for Installer Menu item 042 AUTO INPUTS. To disable auto-sensing for all available STB Aux inputs, set item 042 to 0. To enable auto-sensing for all available STB Aux inputs, set item 042 to 255. For specifications on all other available settings (i.e., settings for individual inputs), refer to the Auto Inputs Values table on the following page.

Note: When both item 042 AUTO INPUTS *and* item 041 SIMPLINK EN are enabled in the Installer Menu, the STB's HDMI inputs will be detected by SIMPLINK, but the Auto Input(s) Sensing Feature will not function.

In the Installer Menu, an informational text code is displayed at the right of each Auto Inputs value, for example:



AUTO INPUTS Text Code

This example illustrates Installer Menu item 042 value 225, which enables auto-sensing for all available STB Aux inputs. The input #s in the text code (7, 6, 5, 0 in this example) identify the enabled Aux inputs. See the Input # Assignments table below for a listing of the STB-5500 Aux inputs and their corresponding text code input #s. The Auto Inputs Values table on the following page shows the text codes for all item 042 values.

Each Auto Inputs text code consists of eight characters that identify the STB Aux input(s) for which auto-sensing is enabled. The following table identifies the Installer Menu text code input # for each Aux input that is available on the STB-5500. The table also identifies the Installer Menu item associated with each Aux input. Remember that in order for auto-sensing to be enabled for an input, that input must also be enabled in the Installer Menu.

Input # Assignments

Installer Menu Text Code Input #	STB Aux Input	Installer Menu	
		Item	Function
0	AV	039	REAR AUX EN
6	HDMI 1	035	HDMI1 ENABLE
7	HDMI 2	091	HDMI2 ENABLE
5	HDMI 3*	092	HDMI3 ENABLE

* HDMI 3 port on expansion interface connector.

Reference: Auto Input(s) Sensing Feature (Cont.)

The following table shows all available Aux inputs as if each is enabled in the Installer Menu. The Installer Menu text codes for item 042 will be altered accordingly if any of the available Aux inputs are disabled in the Installer Menu.

Auto Inputs Values

Item 042 Value	STB Aux Inputs				Installer Menu Text Code
	AV	HDMI 1	HDMI 2	HDMI 3	
000	Disabled	Disabled	Disabled	Disabled	DDXXXXD
001	Enabled	Disabled	Disabled	Disabled	DDXXXX0
032	Disabled	Disabled	Disabled	Enabled	DD5XXXXD
033	Enabled	Disabled	Disabled	Enabled	DD5XXXX0
064	Disabled	Enabled	Disabled	Disabled	D6DXXXXD
065	Enabled	Enabled	Disabled	Disabled	D6DXXXX0
096	Disabled	Enabled	Disabled	Enabled	D65XXXXD
097	Enabled	Enabled	Disabled	Enabled	D65XXXX0
128	Disabled	Disabled	Enabled	Disabled	7DDXXXXD
129	Enabled	Disabled	Enabled	Disabled	7DDXXXX0
160	Disabled	Disabled	Enabled	Enabled	7D5XXXXD
161	Enabled	Disabled	Enabled	Enabled	7D5XXXX0
192	Disabled	Enabled	Enabled	Disabled	76DXXXXD
193	Enabled	Enabled	Enabled	Disabled	76DXXXX0
224	Disabled	Enabled	Enabled	Enabled	765XXXXD
225	Enabled	Enabled	Enabled	Enabled	765XXXX0
255	Enabled	Enabled	Enabled	Enabled	765XXXX0

X = Aux input is Disabled or Not Available (i.e., on this STB model)

D = Auto-sensing for input is Disabled

Input # = Auto-sensing for input is Enabled

Reference: Enabling or Disabling the MTI Protocol on the STB

This section describes how to enable or disable the MTI protocol on the STB. Refer to the appropriate procedure below depending on whether you would like to complete the steps via the Installer Menu or using the Cloud Configuration Tool. By default, the MTI protocol is disabled.

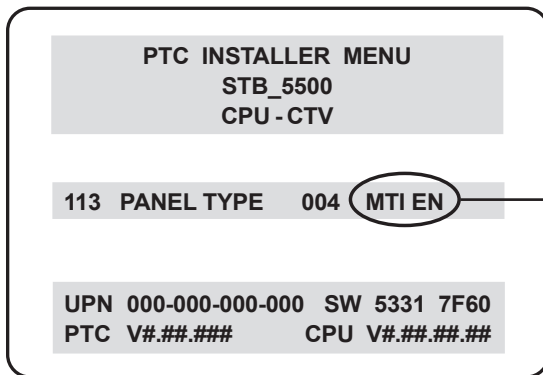
If you do not see the STB's video output on the display, use the display panel's IR remote to manually switch the display panel to the appropriate HDMI input so that you can complete the required procedure.



Caution: When the MTI protocol (used with commercial non-LG displays) is enabled, both MPI and the TLM interface (used with LG Commercial displays) automatically are disabled. And vice versa. If you decide to use the STB with a different display panel in the future, you will need to make sure that the MTI protocol is enabled or disabled appropriately.

Enable/Disable the MTI Protocol via the Installer Menu

1. Use the Installer Remote to access the STB's Installer Menu, and navigate to Installer Menu item 113 PANEL TYPE.



MTI Code

This example indicates that the MTI protocol is enabled. If the MTI protocol is disabled, no text will appear here.

2. Either:

- Press **719 + OK** on the Installer Remote to enable the MTI protocol.
- Press **719 + EXIT** on the Installer Remote to disable the MTI protocol.

Enable/Disable the MTI Protocol using the Cloud Configuration Tool

This procedure describes how to modify the MTI protocol setting using the Cloud Configuration Tool. Once you save the new .tlx file, you can transfer (import) it to a Target STB using a USB memory device.

Note: If the EZ-Manager Wizard appears on the screen when you turn ON the Target STB/display panel, you can use the wizard's "USB Configuration" option to access the STB Manager and complete the import procedure (see "STB Configuration Options" and/or "USB Configuration" on pages 24 and 30, respectively, as necessary). See also "Importing a Clone File" on pages 53 to 57 for further information.

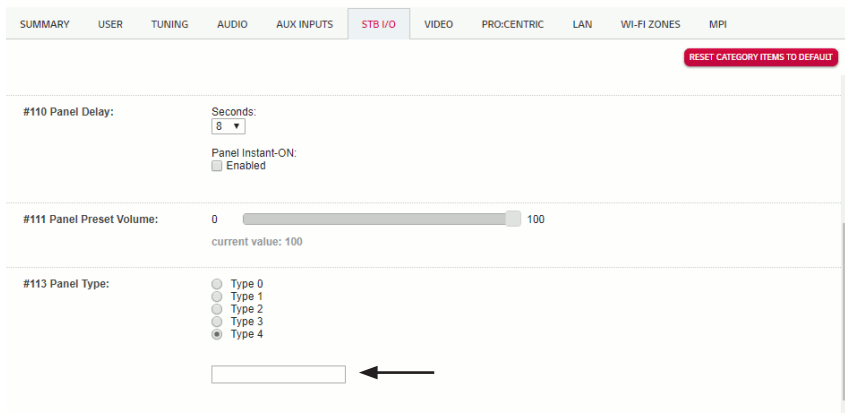
1. Access the Cloud Configuration Tool, and upload an existing file and/or create an STB-5500 Installer Menu profile, as necessary (see "Creating an FTG Configuration File" on pages 58 to 60 for further information).

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Reference: Enabling or Disabling the MTI Protocol on the STB (Cont.)

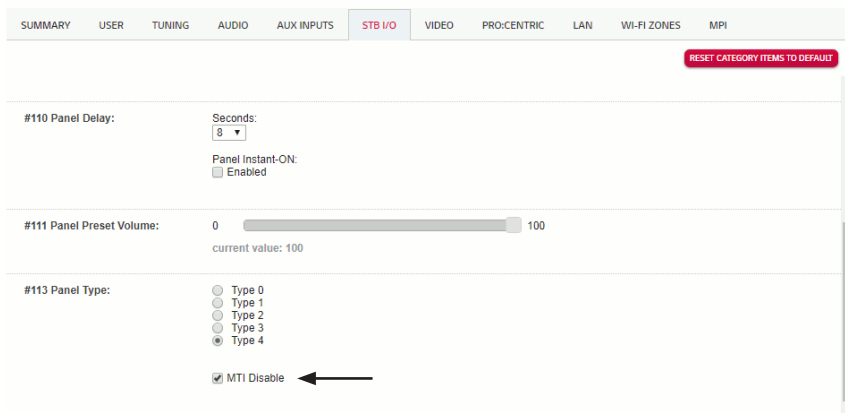
(Continued from previous page)

2. In the Cloud Configuration Tool / Installer Menu web page, click on Installer Menu item #113 Panel Type in the Summary tab, or click on the STB I/O tab.
3. Type **MTI** in the text field at the bottom of the #113 Panel Type options. An “MTI Disable” checkbox will be displayed (with a checkmark if the MTI protocol is currently disabled or without a checkmark if the MTI protocol is currently enabled). See example below.



4. Either:

- Click the “MTI Disable” checkbox to remove the checkmark and enable the MTI protocol.
- Click the “MTI Disable” checkbox to add the checkmark and disable the MTI protocol.



Reference: Restoring Factory Defaults on the STB(s)

This section describes how to restore all factory defaults or just the Installer Menu factory defaults either on a single STB that is currently in Pass-through Mode, FTG Mode, Application Tuning Mode, etc. or on multiple STBs that are currently in FTG Mode.

Restore All Factory Defaults

This section describes how to restore a single STB, regardless of its current mode, to a factory default condition. The following procedure requires that you contact LG technical support to obtain a predefined value/password for Installer Menu item 117 FACT DEFAULT that enables access to initiate a factory “IN-STOP” process, which restores all factory defaults on the STB. This procedure will also reactivate the EZ-Manager Wizard.

1. Use the Installer Remote to access the STB’s Installer Menu.
2. Navigate to Installer Menu item 117 FACT DEFAULT, and key in the value provided by technical support. Then, press **OK**.
3. At the prompt for confirmation, key in the password provided by technical support. This will initiate the IN-STOP that restores the factory defaults on the STB.

Installer Menu Item 117 FACT DEFAULT

If the STB is currently in Pass-through Mode, you can set Installer Menu item 117 FACT DEFAULT to 1 to restore the Installer Menu factory defaults and clear the PTC Channel Map, including any assigned channel icons and custom text labels. Note, however, that if a complete restoration of the STB’s factory defaults is required, see “Restore All Factory Defaults” above.

Additional FTG Mode Options

There are two additional options for restoring Pass-through Mode/Installer Menu factory defaults on STBs that are in FTG Mode. The first enables you to restore a single STB to Pass-through Mode, while the second enables you to restore multiple STBs to Pass-through Mode at one time. However, both options require that you create a “Restore_Pass-through_Mode.tlx” file, i.e., an FTG Configuration file with no data. Refer to the **Cloud Configuration Tool User Guide** for further information.

- Using a USB memory device, import a “Restore_Pass-through_Mode.tlx” file to the STB. Refer to “Importing a Clone File” on pages 53 to 57 for further information on the import procedure.
- If your system uses a Pro:Centric server for remote management of STB-5500s that are in FTG Mode, use the Pro:Centric Admin Client to load a “Restore_Pass-through_Mode.tlx” file on the Pro:Centric server. Refer to the **Pro:Centric Server Admin Client User Guide** for further information.

Reference: Using the STB's Zoning Features

This section describes the STB Zoning and Wi-Fi Zoning features available with the STB-5500. These features are primarily intended for use when the STB is configured for FTG Mode operation; however, Wi-Fi Zoning, along with selected elements of STB Zoning (Installer Menu and Setup Menu profile Zone assignments), may also be used with STB cloning processes using a Clone (.tlx) file. Refer to the appropriate section(s) below for further information on the Zoning features and how to set the STB Zone # and/or Wi-Fi Zone # in an STB that is currently in Pass-through Mode.

STB Zoning Feature

This feature enables you to create localized configurations for STBs/displays in selected “Zones” within the installation site, for example, a hotel lobby, fitness center, restaurant, etc.

Using the STB Zoning Feature with FTG Mode Configuration

The Cloud Configuration Tool may be used to create an FTG Configuration (.tlx) file that contains multiple Installer Menu and Setup Menu profiles, each with its own Zone assignment. Up to nine unique Zones can be designated for STB-5500 FTG Installer Menu and/or Setup Menu profiles. Zone restrictions can also be placed on individual channels in the FTG Channel Map. Thus, for example, you may create an FTG Installer Menu and/or Setup Menu profile to specifically configure an STB/display in the hotel lobby and also restrict the channels that are available to be tuned on that STB/display.

The STB Zone # must be set appropriately on each STB in order for the STBs to be configured correctly. See “Set the STB Zone # and/or Wi-Fi Zone # in the STB” on page 86, and set the STB Zone # in all the STBs in a select area, so that the STBs/displays are configured with corresponding FTG Installer Menu and/or Setup Menu settings and/or can omit channels that have been restricted in the FTG Channel Map. STB Zone 0 is the default STB Zone #.

The following subsections briefly describe how to assign Zone in the Cloud Configuration Tool. Refer to the **Cloud Configuration Tool User Guide** for further information.

FTG Installer Menu Profile Zone Assignments

The Cloud Configuration Tool / Installer Menu web page enables you to create multiple Installer Menu profiles for the same chassis model, each with a different Zone assignment (default = Zone 0) to be included in an FTG Configuration (.tlx) file. For example, you may wish to create one Installer Menu profile for the STB-5500 in the hotel lobby and another Installer Menu profile for the STB-5500 in the fitness center, both of which are different from the Installer Menu profile used for the STB-5500 in standard guest rooms. The STB Zoning feature enables you to save multiple STB-5500 FTG Installer Menu profiles, each with its own Zone assignment, in one FTG Configuration file. If each STB in the aforementioned locations (Zones) has had its STB Zone # set appropriately, as described in the procedure on page 86 or via the EZ-Manager Wizard, the STB(s) will only be configured by the Installer Menu profile that matches its(their) Zone setting.

In the Cloud Configuration Tool / File Manager web page, you can also change the Zone assignment for each Setup Menu profile already present in the FTG Configuration List. See the File Manager and Installer Menu web page overviews on pages 61 and 63 for further information. Note that Setup Menu profiles cannot be created in the Cloud Configuration Tool; they must be saved (exported) from a TV/STB.

FTG Channel Map Zone Restrictions

In the Cloud Configuration Tool / Channel Map web page, you can place Zone restrictions on individual channels that may be prohibited or deemed unsuitable for certain locations. One or more Zone restrictions (1–8) may be placed on each channel that is to be restricted. For example, if you wish to restrict a channel from Zones 2 and 4, select both “Zone 2” and “Zone 4” in the Restricted From Zones field when defining or editing that channel.

Reference: Using the STB's Zoning Features (Cont.)

Note: While a channel can be restricted from up to eight Zones, an STB can only ever be in (set for) one Zone. See also the Channel Map web page overview on page 62.

At the same time, keep in mind that the STB Zone designations are not mutually exclusive. That is, you may opt to place Zone restrictions on selected channels in the FTG Channel Map, but at the same time, you can choose to configure all STBs/displays at the site with the same Installer Menu and/or Setup Menu settings. For example, an FTG Configuration (.tlx) file being used to configure the STBs/displays at a site may contain multiple Installer Menu and Setup Menu profiles with different Zone assignments, as well as an FTG Channel Map with Zone restrictions on several channels. Each STB that still has the default STB Zone 0 setting will *only* be configured by the Installer Menu and/or Setup Menu profile(s) with a Zone 0 designation. If, on the other hand, the STB Zone # is set to 1, the STB will first look in the file for the STB-5500 Installer Menu and/or Setup Menu profile(s) with a Zone 1 designation. If none of the STB-5500 Installer Menu and/or Setup Menu profiles has a Zone 1 designation, the STB will then look for the STB-5500 profile(s) with a Zone 0 designation. For the FTG Channel Map configuration, when the STB Zone # is set to 0, the STB will ignore any Zone restrictions (1–8) that may be placed on channels in the FTG Channel Map. However, when the STB Zone # is set to 1, the STB will omit any channels that have been restricted from Zone 1 in the FTG Channel Map.

Using the STB Zoning Feature with Cloning Configuration

A location-specific configuration / Clone (.tlx) file may be saved (exported) from a Master STB and then be used to configure Target STBs. For example, if the STB Zone # in the Master STB is set to 3 before the Clone file export is initiated, the Master STB's Installer Menu and Setup Menu profiles will be saved with the STB Zone 3 assignment. In order to configure the Target STBs with the Zone 3 Installer Menu and Setup Menu profiles exported from the Master STB, you must set the STB Zone # accordingly in the Target STBs before importing the Clone file. See "Set the STB Zone # and/or Wi-Fi Zone # in the STB" on the following page. Also, see "Cloning Procedures" on pages 51 to 57 for additional information on the cloning processes. STB Zone 0 is the default STB Zone #.

Wi-Fi Zoning Feature

This feature enables you to use a Clone/Configuration (.tlx) file to configure an individual STB or group of STBs with a particular Wi-Fi access point's login data to create "Wi-Fi Zones" within the installation environment.

Using the Wi-Fi Zoning Feature with FTG Mode via CPU Configuration

The Cloud Configuration Tool may be used to create an FTG Configuration (.tlx) file with an FTG Installer Menu profile that contains login data for multiple Wi-Fi access points, each assigned a Wi-Fi Zone #. Up to 100 Wi-Fi Zones can be designated within each FTG Installer Menu profile, thus allowing for distribution of the Wi-Fi network load. For example, if a site has 50 STB-5500s within close proximity, you may wish to create 10 Wi-Fi Zones, each with its own access point that has unique login data, so that no more than five of the STBs are connected to one access point at any given time.

In order for an STB to be configured by the proper Installer Menu profile with the desired Wi-Fi access point login data for wireless networking (i.e., SSID, security type, and security key), you must set both the STB Zone # and the Wi-Fi Zone # in the STB (see "Set the STB Zone # and/or Wi-Fi Zone # in the STB" on the following page for further information). If the Wi-Fi Zone # in the STB is set to 0 (default), the STB will not obtain access point login data from the Installer Menu profile with which it is configured unless the profile contains the global Wi-Fi Zone 100. Any STB that does not find its matching Wi-Fi Zone # in the FTG Configuration file, but that does find the global Wi-Fi Zone 100, will be configured with the global access point login data.

Refer to the **Cloud Configuration Tool User Guide** for further information on defining Wi-Fi Zones in the Cloud Configuration Tool.

Reference: Using the STB's Zoning Features (Cont.)

Using the Wi-Fi Zoning Feature with Cloning Configuration

A location-specific Wi-Fi configuration / Clone (.tlx) file may be saved (exported) from a Master STB and then be used to configure Target STBs. First, the wireless network (i.e., the access point login data) must be configured in the Master STB's IP Environment Menu (see "Configuring a Wi-Fi Network Connection" on page 66). Then, a Wi-Fi Zone # must be set in the Master STB (see "Set the STB Zone # and/or Wi-Fi Zone # in the STB" below). If desired, an STB Zone # may also be set in the Master STB.

For example, if the Wi-Fi Zone # is set to 4 and the STB Zone # is set to 5 before the Clone file export is initiated, the Master STB's Installer Menu profile will be saved with the Zone 5 assignment, and within that Installer Menu profile, the access point login data for wireless networking (i.e., SSID, security type, and security key) will be saved with a Wi-Fi Zone 4 assignment. In order to configure the Target STBs with the proper Installer Menu profile and access point login data, you must set both the STB Zone # and the Wi-Fi Zone # in the Target STBs accordingly before importing the Clone file. See "Set the STB Zone # and/or Wi-Fi Zone # in the STB" below. Also, see "Cloning Procedures" on pages 51 to 57 for additional information on the cloning processes. If the Wi-Fi Zone # in the STB is set to 0 (default), the STB will not obtain access point login data from the Installer Menu profile with which it is configured unless the profile contains the global Wi-Fi Zone 100. Any STB that does not find its matching Wi-Fi Zone # in the Clone file, but that does find the global Wi-Fi Zone 100, will be configured with the global access point login data.

Set the STB Zone # and/or Wi-Fi Zone # in the STB

You can set the STB Zone # and/or the Wi-Fi Zone # in the EZ-Manager Wizard (see "EZ-Manager Wizard" on pages 22 to 31) or, if the STB is in Pass-through Mode, via the STB's setup menus as described below. Note that the following procedure can only be performed while the STB is in Pass-through Mode. You will also be able to specify a Label (North, South, East, West) and Room Number for this STB, if desired.

1. Turn ON the STB/display panel.
2. Press **MENU** on the Installer Remote, and use the arrow navigation keys to select/highlight the **General** menu icon. Then, press **OK**.
3. In the General Menu, use the Up/Down arrow keys to select **Room Info**, and then press **OK**.
4. In the Room Info screen, complete the appropriate fields as described below. Use the Up/Down arrow keys on the Installer Remote to navigate between each of the fields.
 - **Wi-Fi Zone:** Enables you to set a Wi-Fi Zone # so that the STB can be configured with a particular access point's login data for wireless networking. Login data (i.e., SSID, security type, and security key) may be provided in a Clone/Configuration (.tlx) file.

To assign a Wi-Fi Zone, select/highlight the **Wi-Fi Zone** field and press **OK**. Then, use the Left/Right arrow keys to specify the desired Wi-Fi Zone # (1–99). Press **OK** when you are finished.
 - **STB Zone:** Enables you to set a STB Zone # so that the STB can be configured with Installer Menu and/or Setup Menu settings intended only for the assigned Zone. The Installer Menu and/or Setup Menu settings may be provided in a Clone/Configuration (.tlx) file. If the STB is being configured for FTG Mode, the STB Zone # setting also allows the STB to omit channels that have been restricted in the FTG Channel Map (see "FTG Channel Map Zone Restrictions" on page 84).

To change the STB Zone, select/highlight the **STB Zone** field and press **OK**. Then, use the Left/Right arrow keys to specify the desired STB Zone # (0–8). Press **OK** when you are finished.

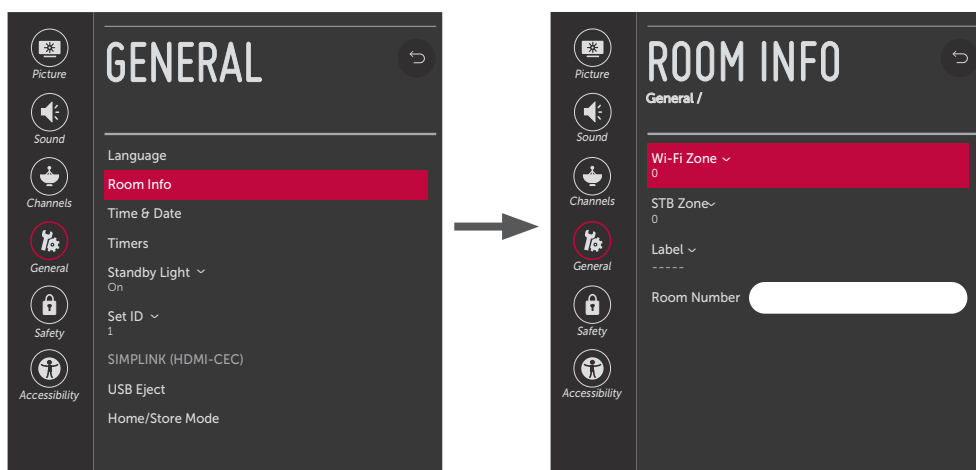
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Reference: Using the STB's Zoning Features (Cont.)

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- **Label:** Allows you to select a North, South, East, or West text label for this STB. Select/highlight the **Label** field and press **OK**. Then, use the Up/Down arrow keys to select the applicable label. Press **OK** when you are finished.
- **Room Number:** Allows you to specify the number of the room—up to 16 characters—in which the STB is located. To enter a room number, use the Up/Down arrow keys to select/highlight the **Room Number** field and press **OK**. You can then use the number keys on the Installer Remote to direct enter a room number, or you can use the arrow keys to select the appropriate alphanumeric character(s) from the pop-up virtual keyboard at the bottom of the screen. When you are done, select **Enter** from the virtual keyboard, and then press **OK** on the Installer Remote.

Note: The STB name (default: STB's serial number) will be changed to the room number specified here. See “Media Share Setup” on pages 70 to 71 for further information on the STB name.



5. When you have completed the fields as necessary, press **↵** to return to and/or exit the STB menus, or press **MENU** to return to program viewing.

Reference: Using Media Share Features

When the appropriate Media Share options are enabled in the IP Environment / Media Share Menu (see “Media Share Setup” on pages 70 to 71, as necessary), guests have the ability to use one or more of the following Media Share features:

- **Smart Share:** Allows guests to use the STB/display panel to access and view media files (photos, videos, music, etc.) shared either by wired DLNA Certified devices (the devices must be connected to the same LAN as the STB) or by wireless LG devices using LG’s Smart Share application with Wi-Fi Direct.
- **Screen Share:** Allows guests to select a Miracast or WiDi capable device, whose screen can be displayed on the display panel screen.
- **Bluetooth Sound Sync:** Allows guests to listen to audio from a Bluetooth-enabled mobile device through the display panel’s speakers.
- **DIAL:** Allows guests to play selected application media on the STB/display panel from a device with DIAL capability. The device may be used to cast any application for which an STB-compatible application has been created/selected for inclusion in the Pre-loaded Apps Menu (see “Pre-loaded Applications” on page 72).
- **SoftAP:** Allows guests to use the STB as a 2.4 GHz wireless access point for up to five devices.

This section provides an overview of the Smart Share, Screen Share, Bluetooth Sound Sync, DIAL, and SoftAP functionality.



Note: Typically, only one Media Share feature may be used at a time. If one feature is currently in use, you may have to exit or turn it off in order to use/turn on another. In some cases, you will be prompted to confirm your action. Follow the display prompts as necessary.

Smart Share

Refer to the subsections below for information on using the Smart Share features.

Smart Share with DLNA Certified Devices

The following steps describe how to access and use the Smart Share feature with wired DLNA Certified devices on the same LAN as the STB.

1. Turn ON the STB/display panel, and then use one of the following methods to access media files/folders, depending on the current configuration of the STB:
 - If the Pro:Centric application is not loaded, press **PORTAL** on the Installer Remote, and use the Left/Right arrow keys to select **Music** or **Photo & Video** from the STB’s Smart Launcher.
 - If the Pro:Centric application is loaded, press **MENU** on the Installer Remote to display the Function Menu, use the Up/Down arrow keys to select/highlight the **General** menu icon, and then press **OK**. In the General Menu, use the Up/Down arrow keys to select **Music** or **Photo & Video**.

Note: Depending on the remote control being used (in any mode), you may also access the Smart Launcher via the SMART key.
2. In the next screen (Music or Photo & Video, depending on your selection in the previous step), select the desired Smart Share device, and then select the desired file(s) to view.

Reference: Using Media Share Features (Cont.)

Smart Share with Wi-Fi Direct

The following steps describe how to access and use Wi-Fi Direct (i.e., to connect to a wireless LG device). Remember that you must also turn ON Wi-Fi Direct and launch the Smart Share application on the LG device.

Note: Screen Share MUST be enabled in the Media Share Menu in addition to Smart Share in order for guests to use Wi-Fi Direct (see “Media Share Setup” on pages 70 to 71).

1. Turn ON the STB/display panel, and press **MENU** on the Installer Remote to display the STB menus (either the setup menus or the Function Menu depending on whether the STB is or is not in Pass-through Mode).
2. Use the Up/Down arrow keys to select/highlight the **General** menu icon, and then press **OK**.
3. In the General Menu, use the Up/Down arrow keys to select **Wi-Fi Direct**, and then press **OK**.



Note: The example at left shows the General Menu when the STB is in Pass-through Mode. The Wi-Fi Direct screen is the same whether the STB is or is not in Pass-through Mode.

Note: If Wi-Fi Direct is currently grayed out, you may need to exit/turn off another Media Share feature in order to use Wi-Fi Direct. For example, make sure that SoftAP is turned off. See also note on previous page regarding simultaneous use of Media Share features.

4. When you access the Wi-Fi Direct screen, the STB will automatically initiate a search for all available Wi-Fi Direct enabled wireless devices, including mobile devices, laptops, etc. Devices found will be listed in the lower half of the screen.

Note: If the search does not initially locate any devices, you can select **REFRESH LIST** and press **OK** to rescan.

5. Use the Up/Down arrow keys to select/highlight the device with which you wish to share, and then press **OK**.

The share request will be sent to the targeted device. The user of that device may choose to allow or not allow the share connection. Similarly, other devices may request share connections with this STB (pop-up share requests typically appear in the bottom right of the display panel screen).

(Continued on next page)

Reference: Using Media Share Features (Cont.)

(Continued from previous page)

6. Use one of the following methods to access media files/folders, depending on the current configuration of the STB:
 - If the Pro:Centric application is not loaded, press **PORTAL** on the Installer Remote, and use the Left/Right arrow keys to select **Music** or **Photo & Video** from the STB's Smart Launcher.
 - If the Pro:Centric application is loaded, use the Up/Down arrow keys to select **Music** or **Photo & Video** from the General Menu.

Note: Depending on the remote control being used (in any mode), you may also access the Smart Launcher via the SMART key.
7. In the next screen (Music or Photo & Video, depending on your selection in the previous step), select the desired Smart Share device, and then select the desired file(s) to view.

Screen Share (Miracast / WiDi)

The following steps describe how to access and use the Miracast / WiDi features.

1. Turn ON the STB/display panel, and then use one of the following methods to access the Screen Share application, depending on the current configuration of the STB:
 - If the Pro:Centric application is not loaded, press **PORTAL** on the Installer Remote, and use the Left/Right arrow keys to select **Screen Share** from the STB's Smart Launcher.
 - If the Pro:Centric application is loaded, press **MENU** on the Installer Remote to display the Function Menu, use the Up/Down arrow keys to select/highlight the **General** menu icon, and then press **OK**. In the General Menu, use the Up/Down arrow keys to select **Screen Share**.

Note: Depending on the remote control being used (in any mode), you may also access the Smart Launcher via the SMART key.

Note: If Screen Share is currently not available in the Smart Launcher or in the General Menu (the latter applicable to FTG Mode only), you may need to turn off another Media Share feature in order to use Screen Share. For example, access the General Menu and make sure that SoftAP is turned off. See also note on page 88 regarding simultaneous use of Media Share features.
2. Follow the on-screen instructions to initiate the Miracast / WiDi connection from your Miracast / WiDi device. Note that you may be prompted to enter a PIN number that appears on the display panel screen into your Miracast / WiDi connection window to complete the connection.

Once the connection is established, the STB display may be used as a second screen for the Miracast / WiDi device.

Bluetooth Sound Sync

The following steps describe how to access and use the Bluetooth Sound Sync feature.

Note: Bluetooth Sound Sync is only accessible from the STB's Smart Launcher. If the Pro:Centric application is loaded, you will need a remote with a SMART key in order to display the Smart Launcher.

1. Turn ON the STB/display panel, and then use one of the following methods to display the STB's Smart Launcher, depending on the current configuration of the STB:

(Continued on next page)

Reference: Using Media Share Features (Cont.)

(Continued from previous page)

- If the Pro:Centric application is not loaded, press **PORTAL** on the Installer Remote.
 - If the Pro:Centric application is loaded, press **SMART** on the Installer Remote (see note above regarding remote with SMART key).
2. Use the Left/Right arrow keys on the Installer Remote to select **Bluetooth Sound Sync**, and then press **OK**.
 3. Follow the on-screen instructions to initiate and confirm pairing between your device and the STB.

Once Bluetooth pairing is successful, audio from the device may be heard through the display panel's speakers. (Make sure the STB volume is at the appropriate level.)

DIAL

The following steps describe how to access and use DIAL. Remember that the device used **MUST** be connected to the same network as the STB.

Note: DIAL may only be used with device applications for which a STB-compatible application (for example, YouTube) has been created/selected for inclusion in the Pre-loaded Apps Menu (see "Pre-loaded Applications" on page 72).

Note: The applications that may be used in conjunction with DIAL are only accessible from the STB's Smart Launcher. If the Pro:Centric application is loaded, you will need a remote with a SMART key in order to display the Smart Launcher.

1. Turn ON the STB/display panel, and then use one of the following methods to display the STB's Smart Launcher, depending on the current configuration of the STB:
 - If the Pro:Centric application is not loaded, press **PORTAL** on the Installer Remote.
 - If the Pro:Centric application is loaded, press **SMART** on the Installer Remote (see note above regarding remote with SMART key).
2. Use the Left/Right arrow keys on the Installer Remote to select the desired application, and then press **OK**.
3. On your device, launch the same application, and use the appropriate options (typically available via Settings) to initiate a connection/pairing with the STB. You may also need to access the Settings options from the application on the STB to complete the pairing operation. Follow the on-screen instructions.

Once the connection/pairing is successful, you will be able to view media from the application on the STB/display panel.

SoftAP

The following steps describe how to access and use the SoftAP feature.

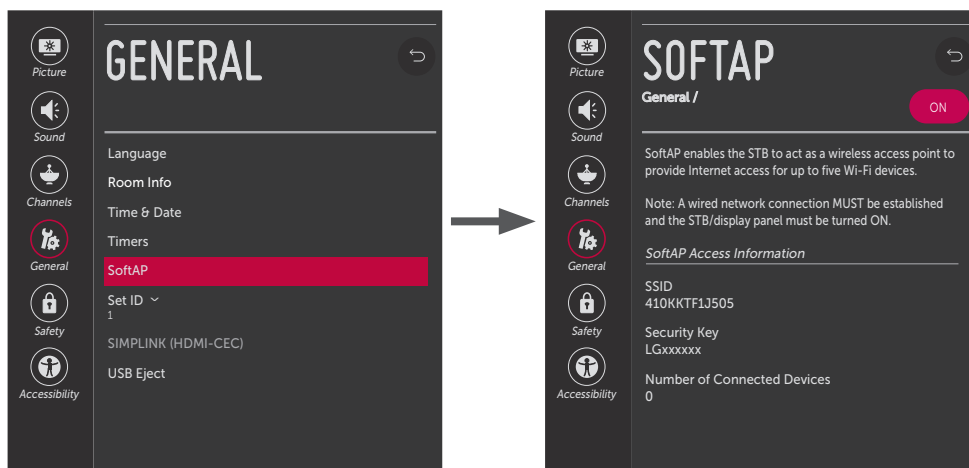
Note: This procedure describes how to access SoftAP from the STB's General Menu. It is also possible to access SoftAP using the Wi-Fi Service option available from the STB's Smart Launcher (via the PORTAL key on the remote control if the Pro:Centric application is not loaded or, depending on the remote control being used [in any mode], via the SMART key).

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Reference: Using Media Share Features (Cont.)

(Continued from previous page)

1. Turn ON the STB/display panel, and press **MENU** on the Installer Remote to display the STB menus (either the setup menus or the Function Menu depending on whether the STB is or is not in Pass-through Mode).
2. Use the Up/Down arrow keys to select/highlight the **General** menu icon, and then press **OK**.
3. In the General Menu, use the Up/Down arrow keys to select **SoftAP**, and then press **OK**.



Note: The example at left shows the General Menu when the STB is in Pass-through Mode. The SoftAP screen is the same whether the STB is or is not in Pass-through Mode.

Note: If SoftAP is currently grayed out, make sure a wired LAN connection has been established.

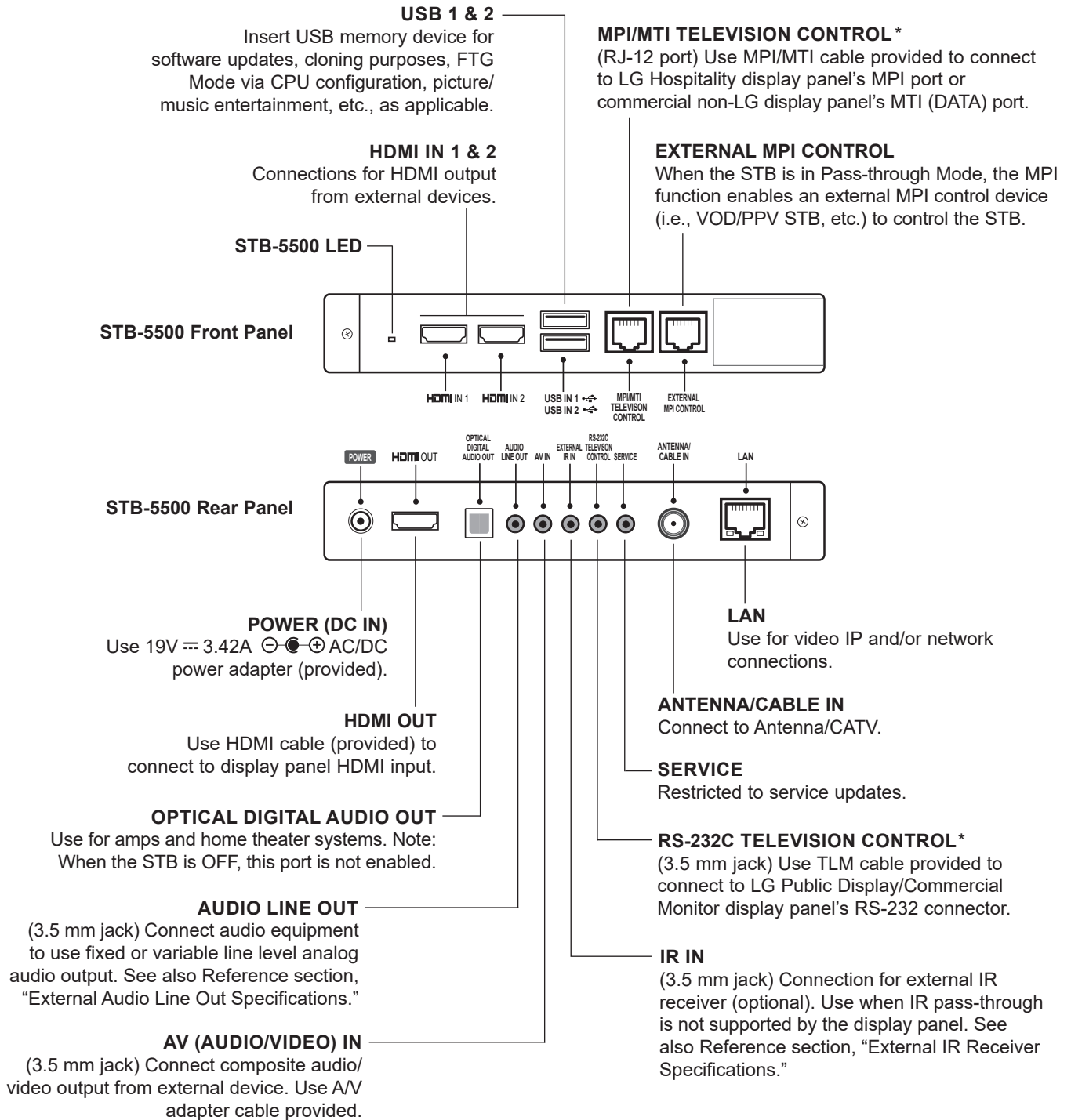
4. When you initially access the SoftAP screen, the OFF/ON toggle button at the top right of the screen is selected/highlighted by default. If SoftAP is currently OFF, press **OK** on the Installer Remote to turn SoftAP ON. When SoftAP is ON, the SoftAP access information, including the SSID and security key, is displayed in the lower half of the screen.
5. Make sure Wi-Fi is turned on on your device, and then look for the STB's SSID in the list of available Wi-Fi networks. Initiate the connection, and enter the security key as requested.

Once a device is connected successfully to the STB's network, you can use it to access the Internet. Up to five devices may be connected at a time; the Number of Connected Devices field in the SoftAP screen shows the number of devices currently connected to the STB Wi-Fi access point.

Note: A wired network connection MUST be established in order for guests to use SoftAP/Wi-Fi Service. Also, the SoftAP/Wi-Fi Service feature may only be used while the STB/display panel is turned ON.

Note: If the Wi-Fi frequency is not automatically detected, set the frequency in the device(s) to 2.4 GHz.

Reference: STB-5500 Jack Panels

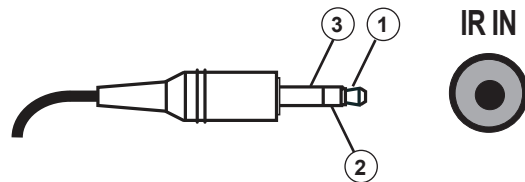


* Only one Television/Display Control connection should be used depending on the type of display panel to be controlled. Refer to "STB-5500 Cabling Connections" on pages 7 to 11, and/or see Reference section, "Display Panel Specifications," for information on determining the appropriate connection.

Reference: External IR Receiver Specifications

The IR IN 3.5 mm stereo jack on the rear panel of the STB-5500 provides an input for an optional external IR receiver. The jack provides external IR VCC of 3.5 volts. Refer to the following diagram for pinout details.


 **Caution: Do NOT insert a mono plug, as this may damage the STB.**

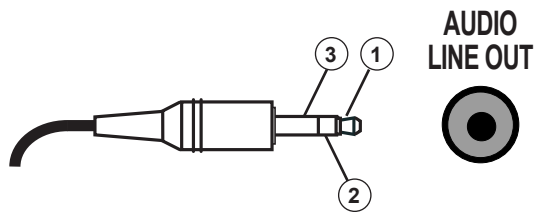


-
- | | |
|---|------------------|
| 1 | +3.5 v (VCC) |
| 2 | IR SIGNAL (VOUT) |
| 3 | GND |
-

Reference: External Audio Line Out Specifications

The AUDIO LINE OUT 3.5 mm stereo jack on the rear panel of the STB-5500 provides stereo analog audio output for external audio equipment. Installer Menu item 097 AUDIO OUTPUT must be set to either 9 or 10 to make analog audio output available. See Installer Menu item 097 AUDIO OUTPUT description on page 44 for additional information. Also, refer to the following diagram for pinout details.

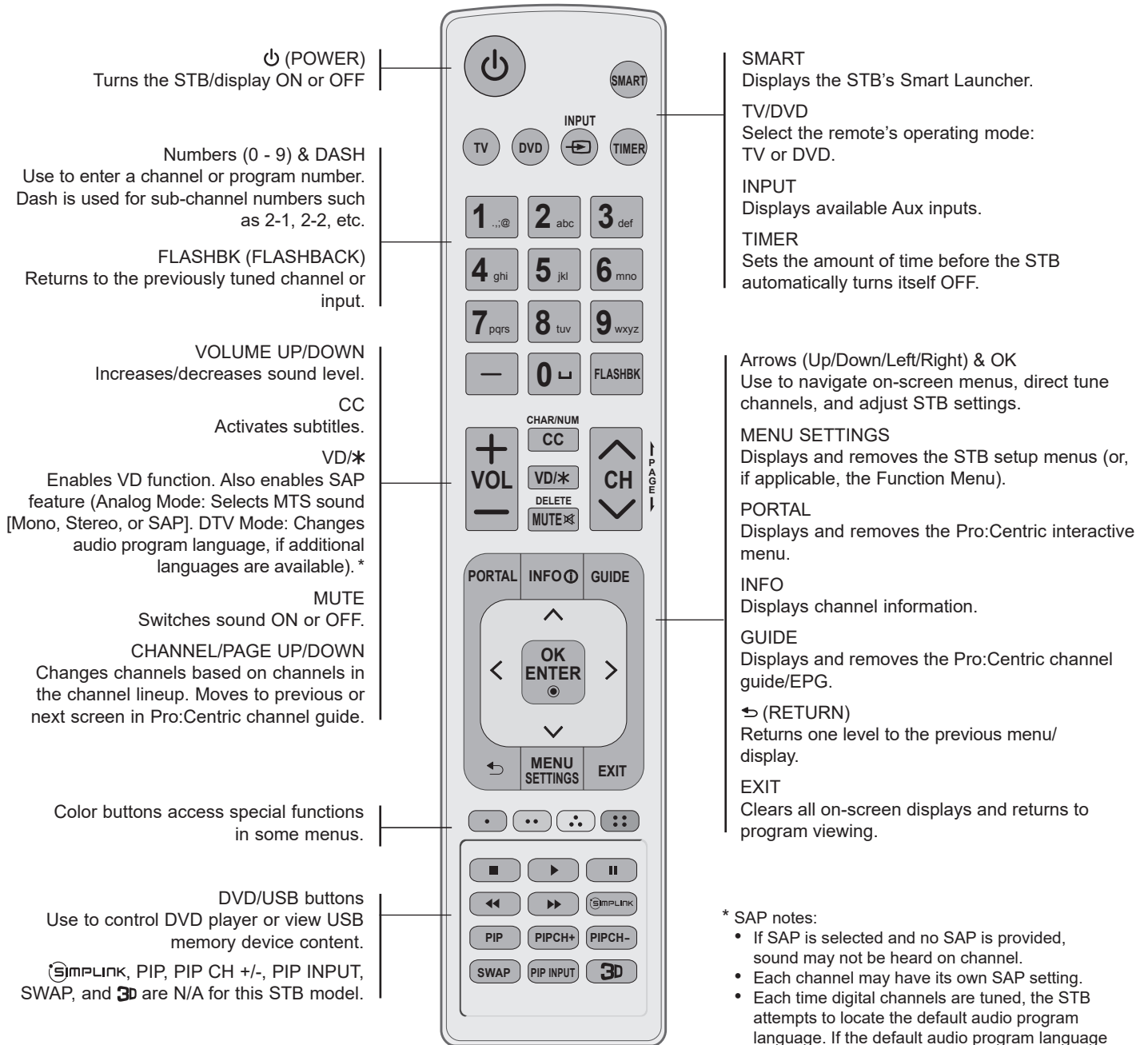
 **Caution: Do NOT insert a mono plug, as this may damage the STB.**



-
- | | |
|---|-----------------|
| 1 | LEFT (Tip) |
| 2 | RIGHT (Ring) |
| 3 | GROUND (Sleeve) |
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Reference: Installer Remote Control Typical Key Functions

An LG Installer Remote is required to set up and operate the STB/display panel. The LG Installer Remote illustrated below shows typical remote control functions and is provided for reference only.



If you are using an LG display panel, the LG remote provided with the display panel should be sufficient. However, if you are using a commercial non-LG display panel or if you intend to use multiple STBs/displays in a single room installation environment, an LG Installer Remote dedicated to STB control (see example at right) is available for purchase.

The STB Installer Remote illustrated on the right shows typical remote control functions and is provided for reference only.

For additional information and/or to purchase an STB Installer Remote, please contact your LG service representative.

Installer Remote Functionality

The STB Installer Remote provides the same standard configuration functionality as a typical LG Installer Remote, along with multi-code capability. See also “Installer Remote Control Typical Key Functions” information on the previous page.

Set the STB Installer Remote IR Code Scheme (Multi-code Feature)

This section describes how to set the STB Installer Remote to send unique IR codes based on “bed number” in a multi-STB/display single room installation. The remote may be set from Bed 1 to Bed 9.

Note: The STB will always respond to the standard LG Installer Remote IR code scheme, i.e., you can always use an LG TV Installer Remote with the STB, regardless of its multi-code IR setting.

The following procedure describes how to set the bed number in the STB Installer Menu and in the STB Installer Remote.

1. Installer Menu item 020 FEATURE LEVEL determines the additional IR code scheme to which the STB will respond. Access the STB Installer Menu, and set item 020 to the desired value (16–24).

The STB Installer Remote must now be set to match the FEATURE LEVEL setting. That is, if item 020 is set to 17 for Bed 2, the STB Installer Remote must also be set to multi-code Bed 2.

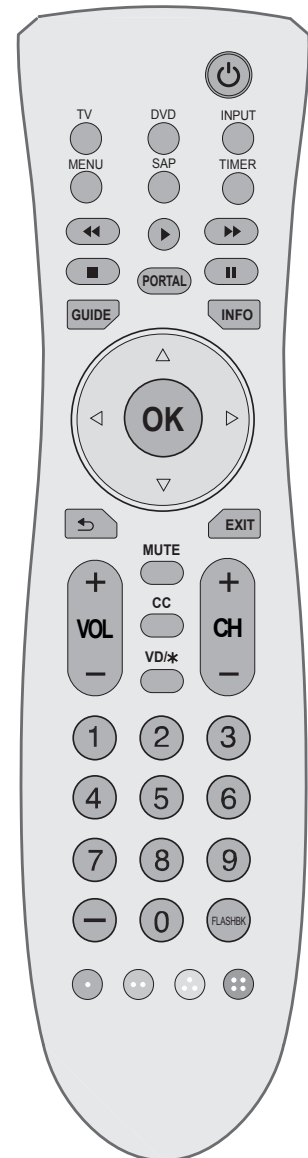
Note: By default, the STB Installer Remote IR code scheme is the same as the standard LG TV Installer Remote IR code scheme.

2. On the STB Installer Remote, press and hold **OK** along with the desired (bed) number key (1–9).

The TV LED at the top left of the remote will light for three seconds and then turn OFF.

3. Once the TV LED turns OFF, release both keys on the remote.
4. Verify that the STB Installer Remote now controls the STB/display, based on your settings.

Note: If necessary, you can restore the STB Installer Remote IR code scheme to the standard LG Installer Remote IR code scheme by pressing and holding **OK** on the remote along with the “0” key.



Troubleshooting

General Troubleshooting (Some Quick and Easy Tips for Resolving Problems)

Installation

Symptom	Possible Cause(s)	Possible Solution(s)
Cannot direct enter channel number.	(STB in Pass-through Mode) Installer Menu item 028 CH. OVERRIDE is set to 0, i.e., disabled (recommended setting).	If Installer Menu item 028 CH. OVERRIDE is set to 0, only channels that are active in the STB's channel lineup can be selected. Set item 028 to 1 to allow access for direct keypad entry to all channels.
	(STB not in Pass-through Mode) The channel entered is not included in the applicable Channel Map.	Channel access is restricted to channels included in the applicable Channel Map, e.g., the FTG Channel Map if the STB is in FTG Mode or the Pro:Centric Direct Channel Map if the STB is in Application Tuning Mode with Pro:Centric Direct. If necessary, make changes to the Channel Map using the appropriate application/content editor.

Power

Symptom	Possible Cause(s)	Possible Solution(s)
No power.	See STB Quick Check flow chart on following page.	

Picture Reception and Sound

Symptom	Possible Cause(s)	Possible Solution(s)
No picture. * See also STB Quick Check flow chart on following page. ** See "STB Cabling Connections" on pages 7 to 11.	Display panel is turned OFF.*	<ul style="list-style-type: none"> Check the Television/Display Control cabling.** Check that the display panel is connected to its AC power source.
	Display panel is not receiving signal from STB or is not displaying STB content.*	<ul style="list-style-type: none"> Check the HDMI cabling.** If you are not using HDMI 1 on the display panel, make sure Installer Menu item 100 VIDEO INTERFAC is set correctly. (TLM or MTI connection only) Check that Installer Menu item 110 PANEL DELAY is set appropriately.
	Antenna/cable not connected.	Connect antenna/cable signal to STB.
	Encrypted program.	Try another channel.
	Wrong tuning band.	Adjust Installer Menu settings.
Normal picture, poor or no sound.	Audio muted.	Press MUTE or use Volume Up key to increase sound level.
	Broadcast problem.	Try a different channel.

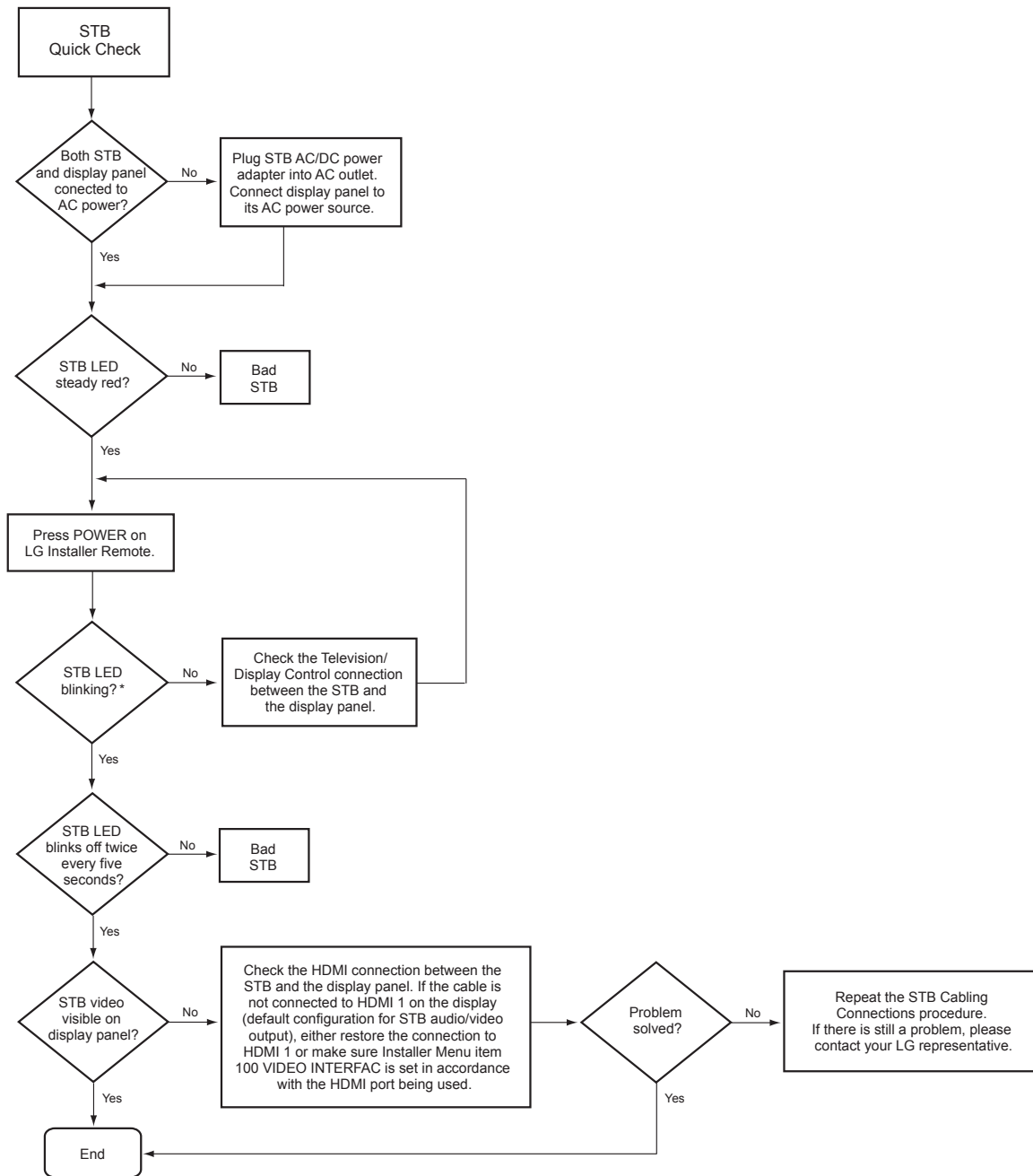
Erratic Operation

Symptom	Possible Cause(s)	Possible Solution(s)
Installer Menu setup.	Wrong Installer Menu settings.	Adjust Installer Menu settings as required.

Installer Remote (not supplied with STB)

Symptom	Possible Cause(s)	Possible Solution(s)
Remote doesn't work.	Television/Display Control not connected properly.	Use appropriate Television/Display Control cable (provided) to connect the STB to the display panel. See "STB Cabling Connections."
	Remote not in TV Mode.	Use MODE key to select "TV"; puts remote into TV Mode.
	Not aimed at IR receiver.	Point remote at IR receiver on display panel.
	Remote too far from IR receiver or IR path is obstructed.	Move remote closer to IR receiver on display panel, darken room, and/or remove obstructions.
	MPI not connected.	If applicable, connect MPI cable to MPI device.
	Weak batteries.	Replace batteries.
	Wrong battery polarity.	Check that "+" and "-" match in battery compartment.
	Too much light in room.	Dim room light.
Wrong Installer Remote.	Requires compatible LG Installer Remote (see examples in this document). Contact your LG representative.	

This flowchart assumes that you have installed the STB/display panel in accordance with the STB Cabling Connections procedure on pages 7 to 11 and a subsequent functionality and/or communication failure has occurred.

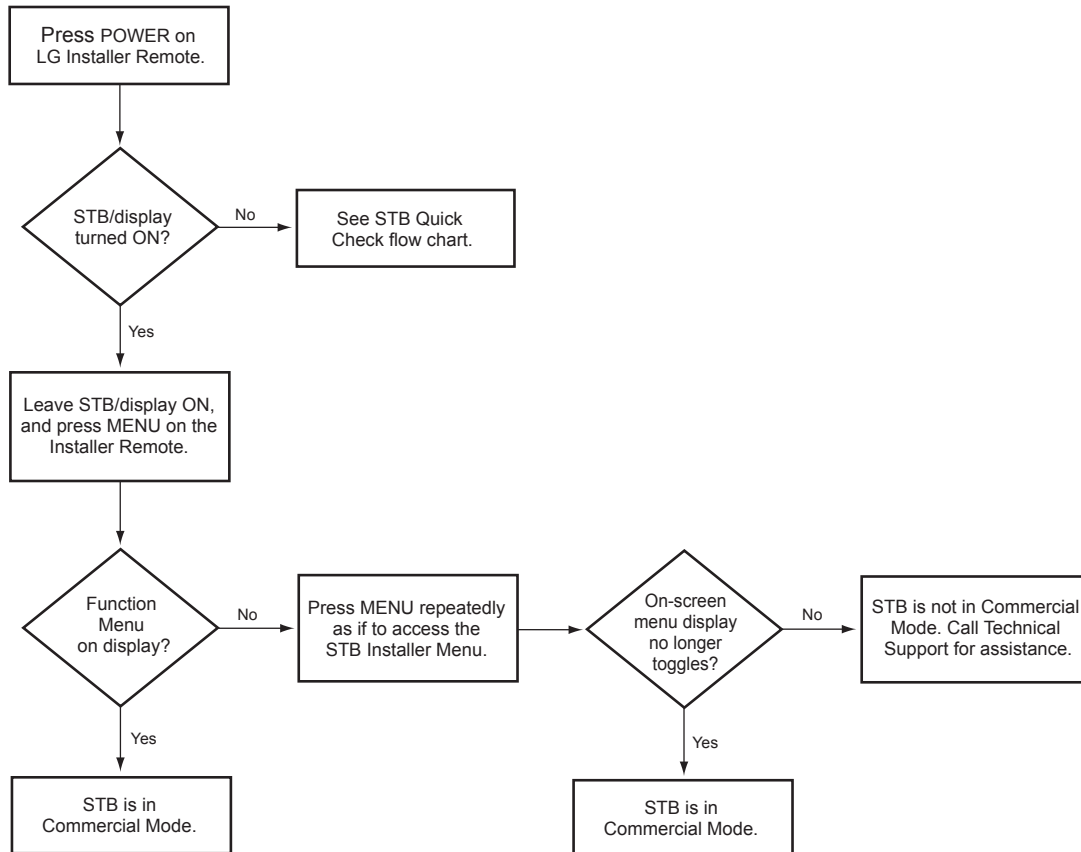


* In its default standby mode, while the STB is turning ON and sending the turn ON command to the display panel, the STB LED blinks at a constant rate. (If the Instant ON feature set with Installer Menu item 002 AC ON is enabled on the STB, you will not see this initial LED sequence.) Once both the STB and the display panel are ON, the STB LED remains lit but blinks off in rapid succession every five seconds.

Troubleshooting (Cont.)

Commercial Mode Check

Use this flowchart to determine whether the STB is currently in Commercial Mode.



Application Tuning Mode

LG commercial TV mode that enables the TV's Channel Map to reside in a Pro:Centric application.

Channel Lineup

Channels set in the STB memory, via Auto Tuning/manual editing.

Channel Map

Typically refers to a logical channel mapping of physical channels (for example, an FTG Channel Map). This allows digital channels, like analog channels, to be tuned without requiring the dash key. Also, channels (analog or digital) can be arranged in any order that seems logical for customer tuning/viewing.

Cloning

The process of capturing a Master STB Setup and transferring it to a Target STB using a USB memory device.

Commercial Mode

A mode of operation that provides a broad range of commercial STB features based on control (settings) provided by the PTC and/or an MPI control device.

CPU

The STB's Central Processing Unit. Responsible for the presentation of video and audio from content received via the STB's tuner or Aux inputs.

E-Z Installation

Enables STB configuration and software file downloads to selected STB models from a Pro:Centric server. Managed and administered via the appropriate Pro:Centric Admin Client.

EZ-Manager Wizard

Lodging model STB configuration wizard that provides configuration options for Pro:Centric operation as well as an option for using a USB memory device to configure an STB.

FTG Mode

LG commercial STB mode that enables decryption of Pro:Idiom encrypted channels and logical channel mapping. STBs may be configured locally using LG's proprietary PC software or remotely using an applicable head end device.

Function Menu

Available via Installer Remote "MENU" key. Indicates the STB is not in Pass-through Mode. Restricts menu options to a subset of the STB setup menus, allowing users to retain functional control, while disabling setup options.

Installer Menu

Defines commercial STB functionality based on the parameters set.

LG Free-To-Guest (FTG)

Refers to a particular commercial mode of operation within an LG STB. See also FTG Mode.

Logical Channel Number

A number assigned to either a physical or virtual channel number in a Logical Channel Map.

Major Channel Number

Typically, the RF channel number assigned to a digital video stream.

Master STB

An STB whose Channel Map and Installer Menu and STB setup menu settings have been configured as a Master STB Setup for cloning purposes.

Minor Channel Number

A sub-channel or program number assigned to the content embedded in the digital video stream.

MPI

Multiple Protocol Interface. An EXT MPI CONTROL port or, for some STB models, an MPI card slot provides external control options for solution providers.

MTI

Multiple Television Interface. SONIFI Solutions, Inc. proprietary protocol used for STB configuration/control via an MTI (typically labeled "DATA") port.

Pass-through Mode

The STB's factory default mode of operation. STBs can be configured for stand-alone use or as Master STBs for cloning purposes, and/or STBs may be controlled externally in this mode.

Physical Channel Number

The major channel number assigned to represent a specific 6 MHz RF band as

specified by either the broadcast or CATV channel plan. See CEA (formerly EIA) or NCTA specifications for further information.

Pro:Centric Application

LG content delivery and communication interface, powered by Pro:Centric server, that provides interactive entertainment, weather, amenities, etc. information for end users. Two application options are available: Pro:Centric Java application or Pro:Centric Direct HTML application.

Pro:Centric Admin Client

Web editor/content wizard provided for service provider and customer configuration of Pro:Centric application and management elements. The proper Admin Client must be used in accordance with licensed (Java or HTML) application.

Pro:Idiom

Zenith proprietary security software that unlocks access to premium content to help assure rapid, broad deployment of HDTV and other high-value digital content.

PTC

Protocol Translation Controller. The commercial controller (microprocessor) of the commercial STB.

Target STB

An STB to which a Master STB Setup will be transferred.

STB Setup Menus

Available via Installer Remote "MENU" key in Pass-through Mode only. Menus provide access to setup and functional features of the STB.

USB Memory Device

A USB flash drive or USB storage device, etc. that can be used for STB configuration purposes (typically cloning or FTG Mode via CPU configuration) or for updating STB software.

Virtual Channel Number

An alias (virtual) channel number provided in the data stream, by the broadcaster, of a digital broadcast channel to be displayed by consumer STBs in place of the physical channel number. The major number is the same as the original analog channel number and the minor number is the nth program available in that digital video stream.

Document Revision History / Open Source Software Notice

Document Revision History

Date	Description
February 2017	Revision A: New document
May 2017	Revision B: Installer Menu updates
August 2017	Revision C: STB setup and Pro:Centric Direct updates
July 2018	Revision D: Installer Menu and CCT updates
February 2021	Revision E: Installer Menu updates

Product documentation is available online at: www.lg.com/us/business.

Open Source Software Notice

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