eSTS Product Family Installation Manual

Abstract

The LAVA eSTS Product Family permit the charging of select Samsung tablets while simultaneously interacting with USB accessories. The eSTS extended features include battery modulation, screen brightness management, and improved network operation.

This document describes the eSTS Product setup and software installation procedure for the tablet.

Contents

Introduction

Using a LAVA eSTS Product requires the following installation steps:

- ❑ Obtain a copy of the "LAVA eSTS Software Release.RAR" from LAVA Sales or Support
- ❑ Copy the LTM.INI file, required by your tablet, to the tablet "Download" folder
- ❑ Install the LAVA Tablet Manager applications on the tablet
- ❑ Install the LAVA Battery Information application on the tablet
- ❑ Enable a WiFi connection
- ❑ Enable the LTM application as a Device Administrator and activate the KNOX license
- ❑ Disable the WiFi connection (optional)
- ❑ Turn off the "auto screen brightness" on the Tablet
- ❑ Verify the time zone and time on the Tablet
- ❑ Connect the eSTS Product to the Tablet with the supplied LAVA cable
- ❑ Apply power to the eSTS Product

There are no jumpers to be set on an eSTS product required by the standard installation.

Do not plug in USB accessories during the initial setup. Always test a system in incremental steps and in the prescribed order.

This document describes each of the above steps in further detail.

Note: *The LAVA Tablet Manager **must** be installed on the tablet; else the eSTS Product restarts the tablet power and USB connection every few minutes.*

LAVA eSTS Software Release Package

The "LAVA eSTS Software Release" package is provided by LAVA Sales or Support for eSTS customers. The file is named "LAVA eSTS Software Release.rar". The package content can be extracted on a PC or Tablet with one of many decompression tools that are freely available.

Item	File Name	Description
	LAVA eSTS Software Release - Files	
1	README.TXT	The README file is a summary of the release packages along with any last minute information.
2	LTM.APK	The "LAVA Tablet Manager" application which **must** be installed on the tablet to permit an eSTS to function. This application has no GUI component.
3	board-type=1\LTM.INI board-type=2\LTM.INI board-type=3\LTM.INI	The LTM.INI is the configuration file for the "LAVA Tablet Manager" application. The "board-type" parameter in the file must be matched to the Tablet. Three versions are present with the "board-type" already set.
4	LBI.APK	The "LAVA Battery Information" application is a free utility used to verify the battery charge status. Installation of this application is recommended for initial verification of an eSTS Product. The LBI application can be removed once the device is operational.
5	eSTS Installation Manual.PDF	This is the document currently being read.
6	LAVA Battery Information Manual.PDF	The manual for the LAVA Battery Information application.

The LAVA Tablet Manager (LTM) is only available as part of the release package. The LTM application is not on GooglePlay due to the special installation steps required.

The LAVA Battery Information (LBI) application is available on Google Play, and as part of the release package for installation convenience.

The eSTS applications are "sideloaded" onto the Tablet, rather than going through Google Play. To "sideload" an eSTS application, copy the APK file to a Tablet folder such as the Download folder. Using the "My Files", locate and select the APK to begin the installation. You may have to permit installation from "Unknown sources" depending on your specific Tablet settings.

An alternative to copying the APKs to a Tablet folder is to place the files on a memory stick and use an OTG adapter such as the LAVA TL002 to make the files accessible by the Tablet.

Note: The LTM.INI files in this package are intended for eSTS Products which support Ethernet. To use these LTM.INI files with the eSTS-3U, eSTS-1U-OEM, or eSTS-BM-OEM, please modify the LTM.INI so the command "permit-ethernet=0" is used. Tablets do not ship with a suitable editor for the INI file to be modified, as a standard feature. The file format is UTF-8 (simple ASCII). Any simple text editor can be used to view and change an LTM.INI file.

Product Setup

Installation of LAVA Software

Software Installation Steps		
Step	Action	Comments
1	Copy the required LTM.INI file to the Device Storage "root" folder of the Tablet. The "root" refers to the folder that contains sub-folders such as Download, Playlists, Music, and so on.	The LTM.INI file is the configuration file for the LAVA Tablet Manager application. The "board-type" parameter **MUST** be set correctly for the Tablet being used. There are three sample copies of the file in the release package, each with a different setting for "board-type".
2	Install LTM.APK.	This application is "sideloaded" onto the Tablet. The LTM application appears in the Application manager as "LAVA Tablet Manager VII". This application has no GUI component.
3	Install LBI.APK	This application is "sideloaded" onto the tablet. The LBI application appears in the tablet Application manager as "Battery Information".
4	Enable WiFi on the tablet.	The next step requires a valid Internet connection over WiFi.
5	Activate the "LAVA Tablet Manager VII" as a Device Administrator.	Locate the "Device administrators" menu. On newer Tablets, the required menu is under the "Lock screen and security" + "Other security settings". On older Tablets, the required menu is under "General" + "Security". Enable "LAVA Tablet Manager VII" in the Device Administrator menu, and then select ACTIVATE. After selecting activate, the next menu presented is for accepting a Samsung KNOX license. If you previously installed a Mobile Device Management application, the KNOX license screen may not be presented, as it has already been agreed to. After the KNOX license activation, an Android Toast message reports success or failure. If the request fails, disable the application in "Device administrators" and try again in a few minutes. Ensure you have a connection to the Internet over WiFi.
6	Disable WiFi (optional)	After completing the Samsung KNOX authentication, the WiFi connection can be turned off. There is no need to authenticate the LTM application again, even if installing an LTM update.
7	Disable Auto Screen Brightness.	The Auto Screen Brightness must be disabled in the tablet to permit LTM to manage the screen brightness.
8	Verify the tablet time zone, date, and time are correct.	Several LTM features require that the correct time is set on the tablet.
End of the eSTS Software Installation		

Within Step 1 Comments:

File	Tablets
board-type=1\LTM.INI	Tab S2 9.7" and Tab E 8.0"
board-type=2\LTM.INI	Tab E 9.6", Tab A 9.7", and Tab A 8.0"
board-type=3\LTM.INI	Tab A 10.1"
Do not keep the "board-type=**n**" folder name, only copy the INI file to the Tablet "root" folder.	

Once the eSTS Product is working, you may customize the settings in INI file for your project. The "eSTS Product Family - Reference Manual" contains a detailed description of the INI file. The file format is UTF-8 (simple ASCII). Any simple text editor can be used to view and change an LTM.INI file. The tablets do not ship with a suitable editor for the INI file as a standard feature

Preparation of the eSTS Product

No jumpers need be set on an eSTS Product as part of the standard installation.

Connect the eSTS Product to the Tablet

Connect the LAVA provided cable to the eSTS "To Tablet" port. This cable has a Micro USB-B connector at each end. Either end of the cable can be used. Then connect the other end of the cable to the Tablet.

Always verify the connector orientation to prevent damaging the receptacle.

Do not extend the LAVA provided cable.

Powering up the eSTS Product (5V Power Input)

The eSTS-E, eSTS-2UE, eSTS-3U, eSTS-1U-OEM, and eSTS-BM-OEM have a "5V Power Input".

Connect a USB Supply to the "5V Power Input". Always verify the connector orientation to prevent damaging the receptacle. Ensure the supply is rated for at least 2 amperes. Do not extend the original power supply cable until the system is debugged.

The voltage reaching the eSTS Product should be at least 5 volts. The preferred range is 5.1 to 5.25 volts. The input voltage must never exceed 5.25 volts. Exceeding 5.25 volts can result in **immediate** damage to the eSTS and possibly other components in the system. Application of the wrong input voltage does violate LAVA's Manufacturer Warranty.

Powering up a PoE capable eSTS (eSTS-PE or eSTS-P2UE)

The eSTS-PE and eSTS normally derive power from the network cable. Attach a network cable between the eSTS RJ45 port and a PoE enabled Network Switch or Poe Injector.

If you do not have a PoE-enabled Network Switch or PoE Injector, a USB Power Supply can be connected to the "Aux. 5V Input" of the eSTS Product. Always verify the connector orientation to prevent damaging the receptacle. Ensure the supply is rated for at least 2 amperes. Do not extend the original power supply cable until the system is debugged.

The voltage reaching the eSTS Product should be at least 5 volts. The preferred range is 5.1 to 5.25 volts. The input voltage must never exceed 5.25 volts. Exceeding 5.25 volts can result in **immediate** damage to the eSTS and possibly other components in the system. Application of the wrong input voltage does violate LAVA's Manufacturer Warranty.

Warning: *When supplying power using the "Aux. 5 Volt" input on the eSTS-PE*
or eSTS-P2UE, you must not use PoE supplied power.

Power Up Behavior

With power applied to the eSTS Product, the green "Charge State" LED will flash on and off for the first 2 to 3 seconds and then the yellow "eSTS Mode" LED goes active.

The yellow "eSTS Mode" LED must be active shortly after power up. If this LED is not active, verify the connection between the eSTS and tablet.

The Android Notification line at the top of the screen has an "LTM" displayed once the LTM application is active. With the LTM active, the extended features of the eSTS are enabled. The LTM application can only run when the "eSTS Mode" LED is active.

When using an Ethernet-based eSTS, the Network Link and USB Activity LEDs pulse to confirm an active network connection. In the event, the network connection fails to work, verify the Ethernet interface is enabled in the tablet setup.

Additional Comments

With LTM running, the battery level is maintained between the upper and lower thresholds defined in the LTM.INI file. The LAVA Battery Information (LBI) application can be used to monitor the battery charge status. When the charging state is active, the battery charging current can be viewed with LBI to ensure the tablet is charging. The LBI application is used to log the battery charging status to a file, which allows the behavior over several hours to be monitored.

The tablet charging icon cannot be relied upon to indicate if the battery is charging - only by checking the battery charge current, or observing the charge level for a period of time, is a valid check. The tablet draws less current from the external power supply during SimulCharge mode by design. If the tablet is not charging, verify the voltage reaching the eSTS is at least 5 volts. In some cases reducing the tablet screen brightness, by 10 to 20 percent, allows the battery to charge.

The LTM.ini can be replaced at any point to alter the configuration. Changing the "user-debug=0" and "Ethernet-debug=0" settings can enable several useful debug messages. The "eSTS Product Family - Reference Manual" contains a detailed description of the INI file.

Removing power to an eSTS shuts down the LTM application, and all USB accessories are disconnected.

Note: *When using "board-type=2" or "board-type=3", removing power from an eSTS Product does not result in a shutdown of the eSTS board if Battery Modulation is in the discharge state. The eSTS continues to function in this state until the lower charging threshold is reached as defined by "btty-lower-threshold".*

Technical Support

LAVA Technical support is open from 9:00 am to 5:00 pm Monday through Friday (Eastern Time).

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History

Document Revision	Date	Change
A01	March 23, 2017	Initial release.
A02	September 6, 2017	Added comments on the effect of a Mobile Device Management application during the installation of LTM. Removed the "eSTS Product Family - Reference Manual.PDF" from the list of files in the release package. This file is available on the LAVA web-site.
A03	September 27, 2017	Added comment that Tab A 8.0" uses board-type=2.