EAN-OEM Recovery

PN: EAN-OEM-Recovery

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Alerts

The following notifications are used throughout the document to help identify important safety and setup information to the user:

> △ **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

ⓘ **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

📄 *Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.*

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1 Overview

This document describes how to recover the 1500-OEM, 3000-OEM and 4000-OEM. This process is useful when an OEM board is either not working as designed or is not communicating.

1.1 Additional Support Documentation

Additional Engineering Application Notes (EANs) can be found on the Documentation page of the SightLine Applications website.

The Panel Plus User Guide provides a complete overview of settings and dialog windows located in the Help menu of the Panel Plus application.

The Interface Command and Control (IDD) describes the native communications protocol used by the SightLine Applications product line. The IDD is also available as a PDF download on the Documentation page under Software Support Documentation.

1.2 SightLine Software Requirements

ⓘ **IMPORTANT:** The Panel Plus software version should match the firmware version running on the board. Firmware and Panel Plus software versions are available on the Software Download page.

1.3 Third Party Software - 1500-OEM / 3000-OEM Recovery

MiniTool Partition Wizard: Used for formatting the microSD card before updating the firmware.

Tera Term or PuTTY: The status of the upgrade can be monitored using a terminal emulator program connected to serial 0 @ 115200/8-N-1.

2 1500-OEM / 3000-OEM Recovery

This section covers how to recover the 1500-OEM and 3000-OEM board using a microSD card.

ⓘ **IMPORTANT:** A microSD card reader is needed for this procedure. If your PC does not have a built-in reader, use an external USB microSD card reader or similar.

Table 1: 1500-OEM / 3000-OEM Recovery Overview

1500-OEM / 3000-OEM MicroSD Update	
Setup	MicroSD card
Files on the system	Erased except for the license file
VideoTrack firmware	Is a part of update

2.1 MicroSD Card Types

The microSD cards listed in EAN-File-Recording Appendix B have been verified to work with the 1500-OEM and 3000-OEM processors.

📄 *SightLine recommends Class 10 microSD cards. Class 10 cards are rated for a minimum sequential write speed of 10 MBps or greater.*

ⓘ **IMPORTANT:** The microSD cards listed in Table 2 should <u>not</u> be used as bootable media for performing firmware upgrades on the 1500-OEM. They should be used for recording and mass storage purposes only.

Table 2: **Incompatible MicroSD Cards**

| Manufacturer	Model	Revision
Kingston	SDC10G2/32GB	N0591-002.A00LF
Kingston	SDC10G2/32GB	31629-001.A00LF
Kingston	SDCS/32GB	N0686-008.A00LF

2.2   Recovery Procedure

The recovery procedure consists of the following subsections:

- Prepare microSD Card for Loading Firmware
- Load Firmware Version to MicroSD Card
- Reflash Firmware to Hardware

2.2.1   Prepare MicroSD Card for Loading Firmware

1. Download and install the MiniTool Partition Wizard software.
2. Insert the microSD card into the card reader on the PC.
3. Open the MiniTool application. From the list of drives, highlight the microSD card by clicking on it.
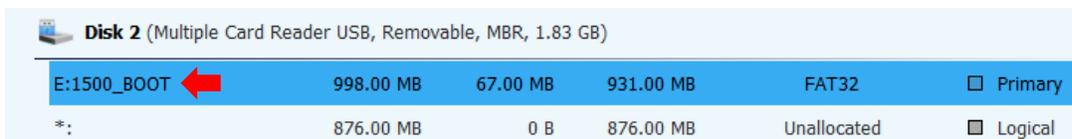
4. From the *Partition Management* list, click *Delete Partition*.

5. From the *Partition Management* list, click *Create Partition*.
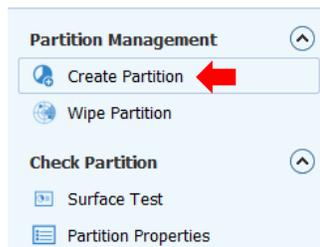

📄 *A specific partition size is required for the microSD recovery card. The partition size should be set to 1GB (or less). The file system type is required to be set to FAT, Primary, and Active on the recovery card.*

6. In the Create New Partition window, enter/change the following fields:

   - Optional - Partition Label: 1500_ vx. xx. xx or 3000_vx. xx. xx (x = firmware number)

   - Create As: Primary

   - File System: FAT

   - Partition Size: 1000 MB. The MiniTool software may default to 999 MB. This is acceptable.
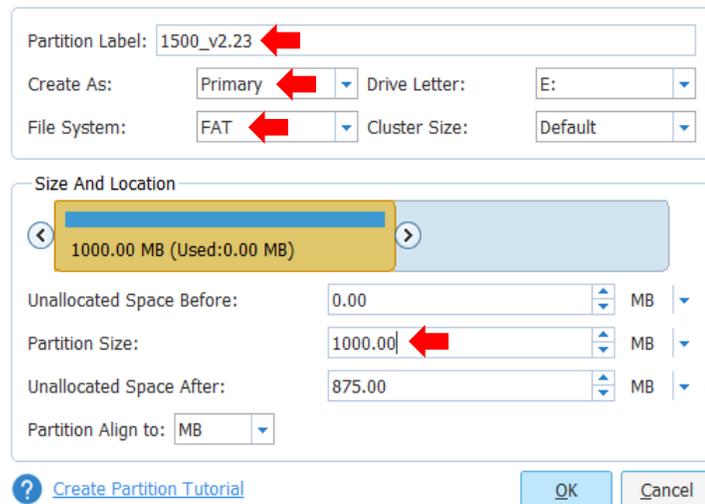
7. Click *Ok*. Right-click on the microSD Card in the list and select *Set Active* from the dropdown list to make the card active. The *Status* column displays *Active*.
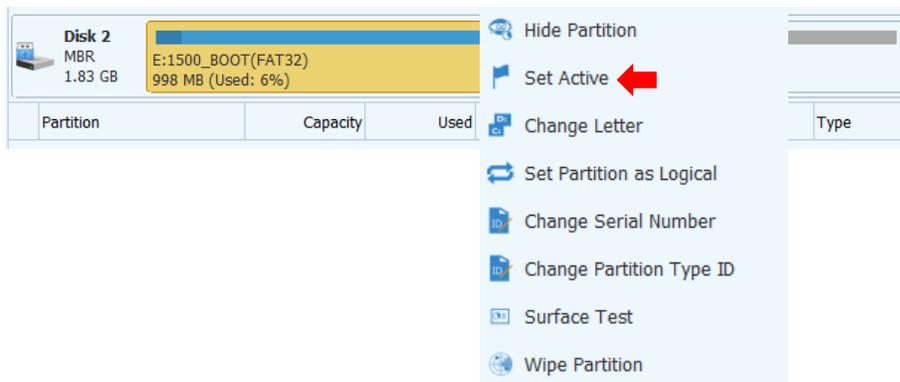
8. Click *Apply* from the top menu bar. The operations status screen shows the progress of creating and setting of the partition values.

9. When complete, a status message will be displayed. Click *OK* and close the application. This concludes the formatting process.

2.3 Load Firmware Version to MicroSD Card

1. Choose the appropriate board firmware for the update. Files are located on the PC in the *Upgrade Utility* folder.

2. Go to *C:\Program Files (x86)\SightLine Applications\SLA-xxxx Upgrade Utility m.nn.rrr\firmware*.

3. Copy <u>all the files</u> in the *Firmware* folder to the root directory of the newly formatted microSD card.
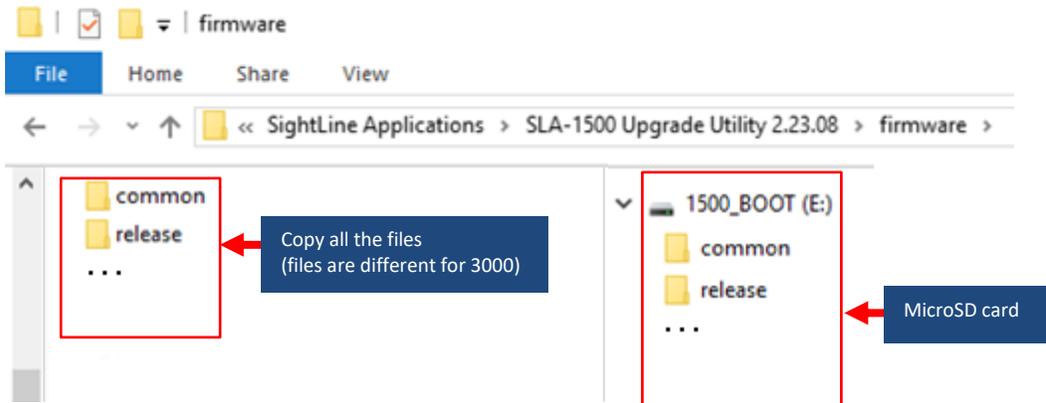
4. Once the files have been copied to the microSD card, remove it from card reader.

2.3.1 Reflash Firmware to Hardware

1. Make sure the OEM board is powered off. Insert the microSD card in the microSD slot on the appropriate board as shown in Figure 1.
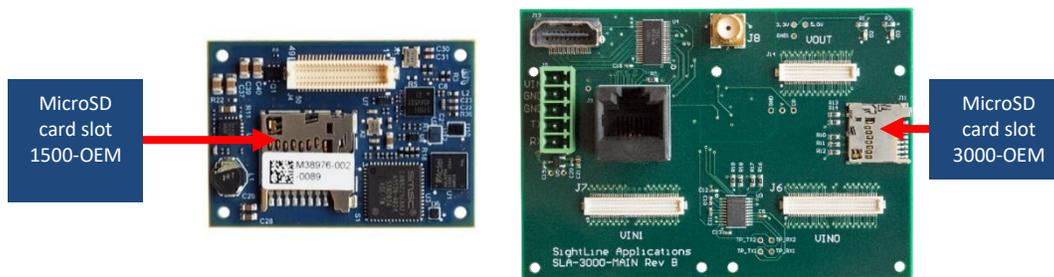

Figure 1: **1500 and 3000 Board MicroSD Card Slots**

2. Power up the board to start the update. This process takes approximately five minutes.

📖 *If an analog monitor is connected to the 1500-OEM, a successful/completed message is displayed when the firmware upload is complete. If a monitor is not connected, wait for the onboard LED on the 1500-SOM to flash once every second. This indicates the firmware upload is complete.*

ⓘ **IMPORTANT:** Since there is no indication when the update is complete for the 3000-OEM, wait at least 5 minutes.

📖 *Parameters will be reset to factory default during the upgrade process.*

3. Remove the microSD card and power cycle the board for the new firmware to take effect.

2.3.2   Recovery Verification

It can be helpful to use the Tera Term application to indicate when an SD card recovery is complete. Connect to the debug serial port on the OEM hardware and watch the console output while the filesystem is being flashed. The output will indicate when the process is finished with the following message: *Remove SD Card from Board and Cycle Power*.

📄 *See the [ICD-1500-OEM](#) and [ICD-3000-OEM](#) for debug serial port information.*

3   4000-OEM Recovery

This section covers how to recover the 4000-OEM board using the 4000-DEBUG board. It gives the operator access to a debug serial port at the RS-232 level and a USB programming/debugging port for board recovery. See the see the 4000-DEBUG board in the [ICD-4000-OEM](#) for connection and interface information.

3.1   Hardware Connections

4000-OEM recovery requires the 4000-DEBUG kit. Parts of this kit are shown in Table 3.

ⓘ **IMPORTANT:** All boards should be connected and secured with the included cables and hardware fasteners first before applying power.

Table 3: 4000-DEBUG Kit

Part Number	Qty	Description
4000-DEBUG	1	
SLA-CAB-0801	1	8-pin to 8P Molex 6-inch cable
SLA-CAB-0304	1	3-pin Molex to D-sub female
SLHW-0001	4	3mm spacers
SLHW-0016	1	Stainless Steel Socket Head Screw, M2 x 8mm
SLA-CAB-USB-mUSB	1	USB to Micro USB cable

If this is the first-time connecting USB to the debug board, Windows may install the device driver automatically. We recommended that the PC is connected with administrative permissions to the internet.

Serial port (J4) is intended for debugging purposes only and will not communicate with Panel Plus. The port is 115200 baud, no parity, 1 stop bit, 8-bit word. This connection may require a null modem adapter or null modem serial cable.

ⓘ **IMPORTANT:** The 4000-DEBUG board is powered by the 5V supplied by the SLA-CAB-USB-mUSB cable on J2.

ⓘ **IMPORTANT:** The 4000-DEBUG board is shipped with the S1 switch in the default position shown (up position) and is for SightLine use only. For the recovery process to work correctly the switch should be in the position as shown.
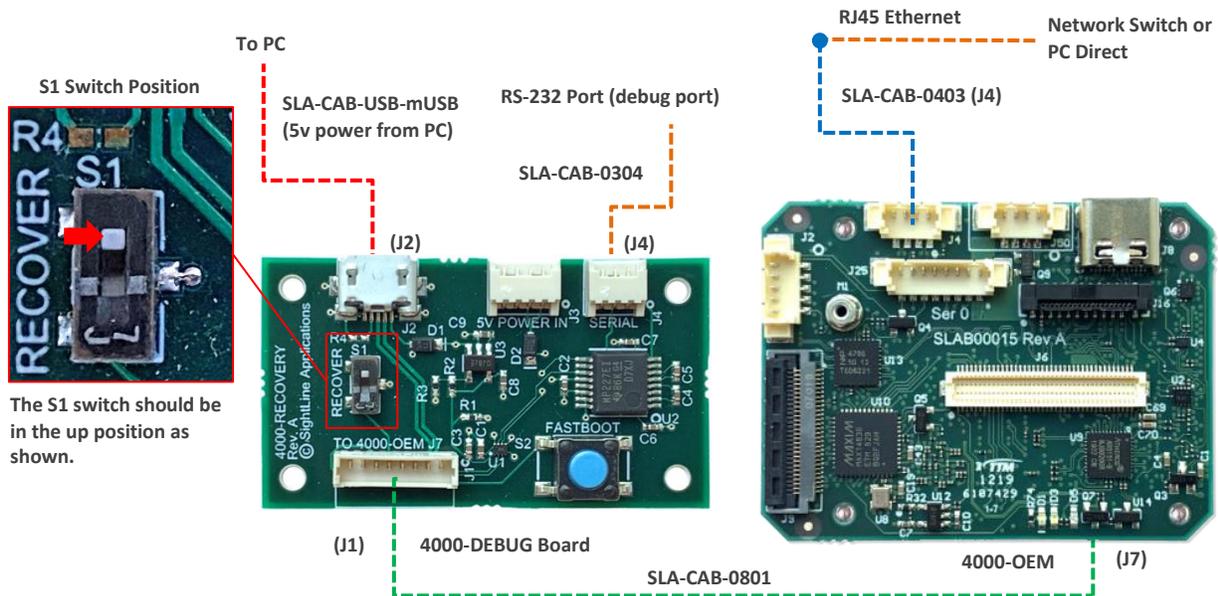
Figure 2: 4000-OEM Recovery Connection Diagram

4   Recovery Process

ⓘ **IMPORTANT:**

- During this process all files on the 4000-OEM will be deleted including the license file.

- If the 4000-OEM can boot up, save the license file using the 4000-OEM Upgrade Utility before starting this procedure. See the *Retrieving a License File* in the EAN-Firmware Upgrade Utility section.

The recovery procedure consists of the following subsections:

- Download and Extract Recovery Files
- Place Hardware in Fastboot Mode
- Reflash Firmware to Hardware
- Install VideoTrack Firmware / Reload License File

4.1.1   Download and Extract Recovery Files

1. Download the *Recover4000* zip file. This file is ~2.0 GB.
2. Extract files to a working directory on the PC.

4.1.2   Place Hardware in Fastboot Mode

1. Press and hold the *FASTBOOT* button on the 4000-DEBUG board and apply power to the 4000-OEM.
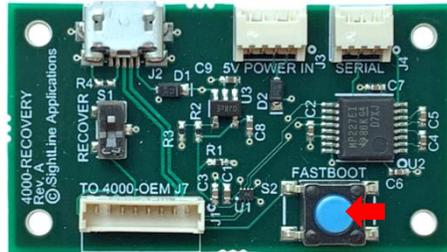

Figure 3: FASTBOOT Button 4000-DEBUG Board

2. Release the button after five seconds. The 4000-OEM should now be in fastboot mode.

3. Confirm that system is ready. With the debug serial port (J4) connected to a terminal program, verify that *fastboot: processing commands* is displayed in the window.
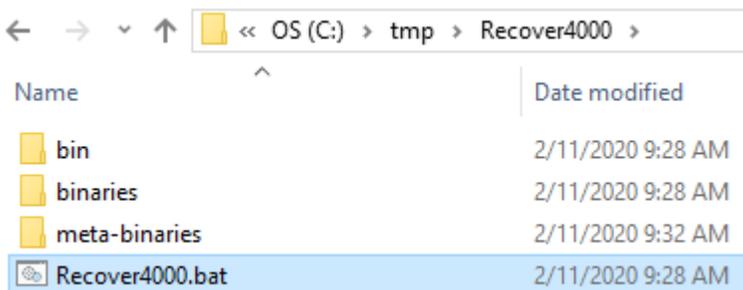

📄 *115200 baud, no parity, 1 stop bit, 8-bit word. This connection may require a NULL modem.*

📄 *If the fastboot: processing commands is not displayed, see the* [Troubleshooting section](#).

4.1.3   Reflash Firmware to Hardware

1. In Windows File Explorer (WIN+E), navigate to the *Recover4000.bat* directory location.

2. Double-click *Recover4000.bat*. When prompted, type *Y* to proceed. This will begin the process of transferring files to the 4000-SOM.

📄 *It is safe to click OK if the system prompts a security warning*.

3. When complete, click *Enter* to finish the process and close the dialog.

📄 *It is important to note at this point the 4000-OEM does not have the VideoTrack firmware installed.*

4.1.4 Install VideoTrack Firmware / Reload License File

Run the 4000 Upgrade Utility to install the VideoTrack firmware. See *Updating the Firmware* section in EAN-Firmware Upgrade Utility.

VideoTrack firmware installation notes:

- Once the VideoTrack firmware has been installed validate that the firmware upgrade was successful by searching for IP addresses. The new firmware version will be shown for the OEM board.
- If the original license file is available use the firmware upgrade utility to reload the license file. See the *Upload a New License File* section in EAN-Firmware Upgrade Utility.
- Use the firmware upgrade utility to restart the board after loading the license file and verify the app bits on the system.

4.2   4000-OEM Recovery Troubleshooting

If the 4000-OEM fails to boot, retry the recovery procedures from the beginning. Check that the USB cable, serial port, and Molex cable to the 4000-OEM are correctly seated in their connector. Check all board connectors for possible damage.

If the SOM was at any time removed from the 4000-OEM, remove the SOM from 4000-OEM and check all connectors between the SOM and 4000-OEM and make sure all pins are clean and free of debris.

4.3   USB Device Driver

If connecting the USB to the debug board for the first time, Windows should install the USB device driver automatically. Ensure sure the PC is connected to the internet with administrative permissions.

To verify that that the device driver is installed correctly complete the following steps:

1. Open the Run window in Windows (WIN+R) and enter *devmgmt.msc* to open the *Device Manager*. Verify the *Android Bootloader Interface* is listed under Android Phone.
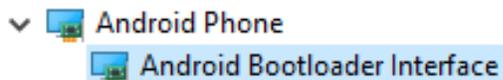
📄 *On some systems this may appear as Kedacom USB Device or some other USB device name. If the USB device cannot be located the following steps may still work.*

2. Open the *Run* window in Windows (*WIN+R*). E*nter *cmd* to open a command prompt window.

3. In command prompt window, change the directory path to the *Recover4000* directory location.

4. Enter *bin\fastboot.exe devices* and click *Enter*.

5. When complete *cb4dc875 fastboot* or similar text will be displayed. This verifies that the USB driver is installed correctly.
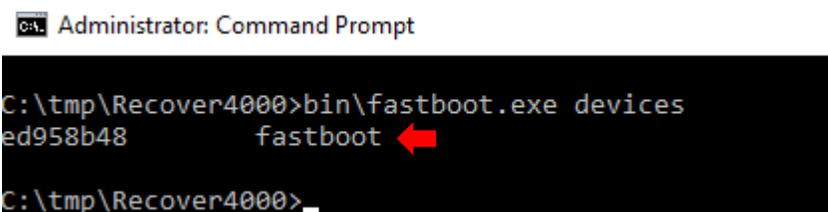
6. If the above steps do not work, unplug the USB cable and plug it back in and try running the steps again.

4.4   Questions and Additional Support

For questions and additional support, please contact [Technical Support](#). Additional support documentation and Engineering Application Notes (EANs) can be found on the Documentation page of the SightLine Applications [website](#).