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Livescan Essentials Cleanliness Check

Cleanliness Check

The surface (platen) of a fingerprint scanner requires regular cleaning. As fingerprints are collected from subjects, the platen becomes dirty from oil, sweat, dirt, etc. When it becomes too dirty, the Livescan Essentials (LSE) software will report an error to the Enrollment Software to alert the user to clean the platen.

This document describes the process used by the LSE software to conduct regular cleanliness checks and provide best practices for software integrators. At the end of the document is a list of procedures that instructs end-users on how to properly clean the platen, with or without a silicone pad.

How the Cleanliness Check Works

LSE includes a configuration file called “LScanEssentials.ini” and in this file is a setting:

CleanlinessThreshold= xx

The default for this setting is 15 and valid values range from 15 to 200.

If the CleanlinessThreshold setting equals 15, the platen is considered “dirty” if 0.15% of the pixels are dirty.

If the CleanlinessThreshold setting equals 200, the platen is considered “dirty” if 2.0% of the pixels are dirty.

When the cleanliness check is executed, LSE takes an image of the empty platen and it determines if the level of dirt exceeds a threshold as described above.

It does this by comparing the gray-scale values of various pixels, which can range from 0 (black) to 256 (white). If two pixels are compared and the difference in gray-scale values is at least 50, the pixel is considered dirty.

Once all pixels have been evaluated, the total percentage of dirty pixels is calculated and the LSE software will report one of two messages depending on the ini setting and the results from the calculation. These are:

Dirty platen = ‘WRN_OPTICS_SURFACE_DIRTY’
Clean platen = ‘STATUS_OK’

When LSE reports a “Dirty Platen”, it is recommended to bring this error to the GUI in the software and force the user to take action (i.e. clean the platen) before the next step is allowed.

In the event that the software is somewhat dirty, but does not exceed the threshold value, LSE will automatically note where the dirty pixels are located and it will clean the noise from the image before sending it to the PC. In this way, the scanners can produce high quality images, even when the platen is somewhat dirty.

Timing of the Cleanliness Checks

The cleanliness check takes about 20 seconds to execute, so it is not run before each scan.

A cleanliness check runs automatically when the device is initialized. Initialization occurs when you power the device on and off and the software acknowledges the scanner or through an API call:

‘LSCAN_Main_Initialize()’

In this way, a cleanliness check occurs before the device is typically used for the first time in a day.

After this initial check, a cleanliness check runs 2.5 minutes after the scanner was last used. If it continues to be idol, the next check is performed 5 minutes later, then 10 minutes, etc. up to 60 minutes or until the clock is reset (by performing a new scan or by reinitializing the scanner).

a. Check 1 = 2.5 minutes
b. Check 2 = 5 minutes
c. Check 3 = 10 minutes
d. Check 4 = 20 minutes
e. Check 5 = 40 minutes
f. Check 6 = 60 minutes
g. Check 7 = 60 minutes
h. Check 8 to infinity = 60 minutes

A good practice for a software developer is to initiate a cleanliness check through the API when another activity is occurring that doesn't use the scanner, such as a mug shot.

The API call to initiate a Cleanliness Check is:

'LSCAN_Main_CheckCleanliness()'

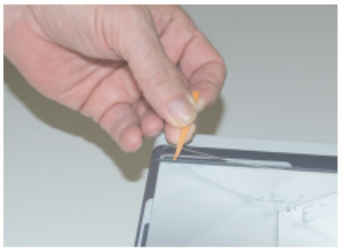
Once a dirty platen error is reported, the software should force a new cleanliness check after the user accepts the message on the screen (and physically cleans the platen). This can be done using the above function before the user is allowed to use the scanner to take prints.

Replacing the Silicone Membrane and Cleaning the Platen

Note: If a silicone pad is NOT present on the platen, just follow step C to clean the glass platen.

A. To remove and replace a silicone membrane, get the following materials:
   1. An Alcohol Prep Pad package.
   2. The microfiber cloth.
   3. The new silicone membrane.

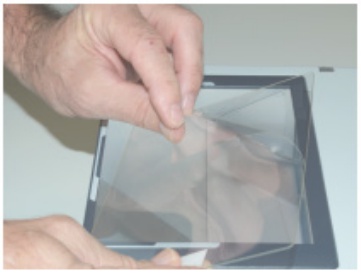
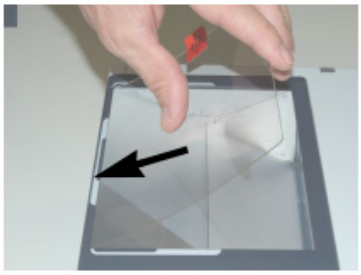
B. Use the following procedure to remove the old silicone membrane:
   1. Use the edge of a finger nail or an object made of wood to lift a corner of the old silicone membrane.
   2. Remove and discard the old membrane.
   3. Clean the platen.



C. Use the Alcohol Prep Pad and the microfiber cloth that Crossmatch® provides to clean the glass platen.
   1. Open the Alcohol Prep Pad packet and remove the contents. (Note: Do not use the Alcohol Prep Pad to clean a silicone membrane.)
   2. Clean the platen with the Prep Pad. A haze can appear on the platen after the alcohol dries.
   3. Use the microfiber cloth to remove the haze from the platen. (Note: Make sure the platen is clean. If necessary, repeat Step 3.)



D. Install a new silicone membrane after the platen has fully dried.
   1. Hold the new silicone membrane by the edges. Each surface of the membrane is protected by a Mylar sheet.
   2. Remove one Mylar sheet. Use the tab. Put the exposed surface of the membrane on the platen. **Do not touch the surface of the membrane.**
   3. Make sure the bottom edge of the membrane touches the edge of the finger guide as shown in the illustration.

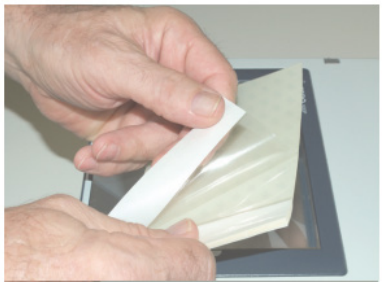



   4. Start with the bottom edge and lower the membrane on the platen. Apply pressure from side to side with the microfiber cloth to remove air bubbles under the membrane.
   5. After the membrane is installed, remove the other Mylar sheet. Use the tab.


Cleaning the Silicone Membrane

Use the adhesive cleaner sheets that Crossmatch provides to clean the silicone membrane. Do not use the Alcohol Prep Pad or microfiber cloth to clean the membrane.

A. Remove a new cleaner sheet from the pad of cleaner sheets.
B. Press the cleaner sheet to the surface of the silicone membrane. Use the tip of a finger to make sure the sheet touches the entire surface of the membrane.
C. Lift the cleaner sheet from the membrane.
D. Inspect the membrane.
E. Repeat steps B to D until the membrane surface is clean. The action is the same as the action to lift lint from fabric.
F. You can return the cleaner sheet to the pad for future use. When the sheet does not clean the membrane, use a new sheet.



About Crossmatch

Crossmatch helps organizations solve their identity management challenges through biometrics. Our enrollment and authentication solutions are trusted to create, validate and manage identities for a wide range of government, law enforcement, financial institution, retail and commercial applications. Our solutions are designed using proven biometric technologies, flexible enrollment and strong multi-factor authentication software, and deep industry expertise. We offer an experienced professional services capability to assess, design, implement and optimize our identity management solutions for a customer's individual challenges. Our products and solutions are utilized by over 200 million people in more than 80 countries.

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