



ScreenSTOP User Guide



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ScreenSTOP Installation Guide

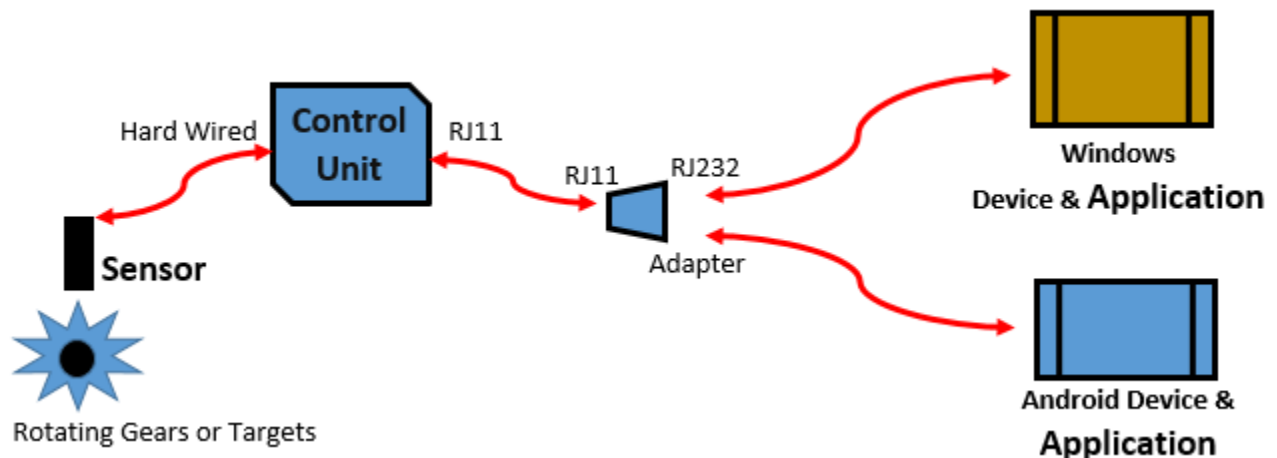
May 2019

ScreenSTOP

ScreenSTOP prevents an operator of an industrial transport vehicle (i.e.; lift truck) from being distracted while driving, by the computer device/screen typically mounted on the dashboard of the vehicle to supply the operator with information to perform the duties of their job.

The ScreenSTOP system consists of three components:

1. The **sensor** that reads the motion of the vehicle from a rotational part of the vehicle
2. The Programmable Logic Control or **Control Unit**, that responds to the signals from the sensor and provides a signal to the computer device being read by the driver
3. The **application** installed on the computer device that will establish a mask over the screen on the device when the truck or industrial transport vehicle goes into motion



A sensor in our ScreenSTOP system records the movement of the vehicle and applies that information to our software which is running constantly on the computer device in the industrial vehicle. The signal of vehicle motion causes the existing screen on the computer device to be covered or 'masked' with an opaque screen.

ScreenSTOP will mask the existing screen on the device when the vehicle goes into motion, (forward or backward) thereby reducing the probability of the operator being distracted as they proceed. When the vehicle stops, the original or underlying screen returns. A short amount of time to return to the original screen means that there is no loss in productivity waiting for the screen to come back on.

The ScreenSTOP works on the computer devices with both a Windows/Microsoft and an Android/Google operating system.

Background

To prevent distracted operation of the vehicles, it is desired to enforce limits when the operator can interact with the display on the tablet or computer typically permitting interaction only when the vehicle is stopped or rolling at a slow velocity speed.

A number of solutions exist in the marketplace that leverage one of two technologies: accelerometers and GPS receivers. Both approaches have limitations in practice. In the case of accelerometer based solutions, the vibrations of the vehicle prevent reliable detection of motion. On the other hand, the GPS receiver based solutions perform poorly indoors.

Windows Application Installation

Acquiring the Windows Application File

1. Send an email to GroupMobile support to receive steps on how to get the Windows MSI Installation file
2. After you've received the Windows MSI Installation file, store it into a USB drive

Windows Installation

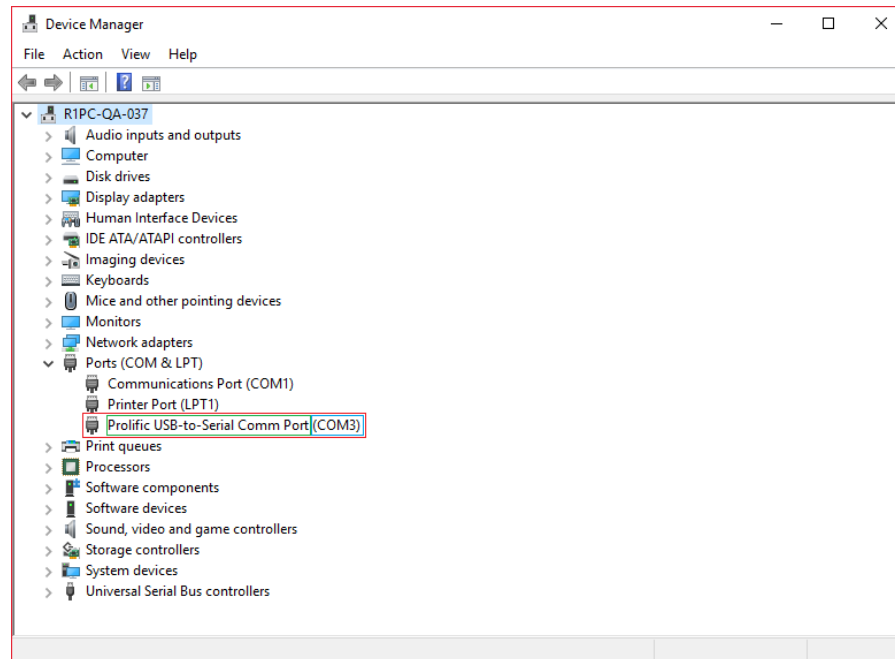
1. Run the provided ScreenSTOP.exe installation file
2. When asked if you want to allow this app to make changes to your device, click on "Yes" (contact your administrator if an administrative account is required to click "Yes")
3. When the installer loads, click on "Install"
4. After it finishes, click on "Finish"

Setting the Windows Parameters

There are parameters which are required to be entered into the application to ensure accuracy with the lift truck and the computer device.

1. Open up Notepad with administrative rights by clicking on the start menu (the bottom left windows icon).
2. After the start menu opens, type in "notepad"
3. The search will yield a "Notepad" app as a result. Right click on it then click "Run as Administrator" (Contact your Administrator if elevated privileges are required to continue)
4. After Notepad has been opened, click on File -> Open
5. Navigate to C:\Program Files\Route1\ScreenSTOP\
6. Find the ScreenSTOP.properties file and double click it (If it is not visible, you must find the drop down menu on the bottom right which says "Text Documents (*.txt)." Click on it and choose "All Files (*.*)"")

7. Adjust Sensor.Port to the correct COM port being used. Set to COM1 if the CONTROL UNIT is directly connected to the device (**this is almost always the case**). If a COM-to-USB adapter is used to connect the CONTROL UNIT to the device, Sensor.Port will need to be changed to the correct COM port (noted by the “Prolific” entry in Device Manager)
 - Click on the Windows Start Button (bottom left)
 - Search for Device Manager and open it
 - Look for “Ports (COM & LPT) and expand it
 - Find the COM entry with “Prolific” in its name to see the COM number it has been assigned (i.e., **Prolific USB-to-Serial Comm Port (COM3)**)



8. Adjust the Sensor.Mode by setting it to either Character (1) or Frequency (2); Frequency is the default
9. Adjust the Sensor.WheelDiameterInches by putting in a number in inches
10. Adjust the Sensor.PPR (number of gear-teeth or targets in one rotation of the lift truck wheel)
11. Adjust the Sensor.ThresholdMPH to enable a speed in MPH that the mask is to engage and then disengage while in the forward direction

NOTE: Step 12 is with regards to “Mask-on-Disconnect” functionality, where if the cable is unplugged, the screen will mask. Before enabling this (by using the instructions from Step #12), refer to the **note** under “Attaching a Windows Device.”

12. Adjust the following three properties to enable “Mask-on-Disconnect” functionality:
 - **Sensor.UnpluggedCommand** – Takes a value of **F** or **X**. **F** represents “Mask” and **X** represents “Do not mask”
 - **Sensor.ReadTimeoutMillis** – Takes a value of **X** (e.g: 1000) in milliseconds. Example: 1000 milliseconds after the cable has been pulled from the Windows device, perform Sensor.UnpluggedCommand

- **Sensor.ReadTimeoutIsError** – Enables “Mask-on-Disconnect” functionality. Takes a value of 1 (ON) or 0 (OFF)

Below is an example scenario using the properties and values below:

Scenario:

When the CONTROL UNIT cable is pulled from the Windows device, mask the screen after 3000 milliseconds.

Properties & Values:

Sensor.UnpluggedCommand=F
Sensor.ReadTimeoutMillis=3000
Sensor.ReadTimeoutIsError=1

NOTE: The ScreenSTOP application is setup to immediately mask the screen with any reverse speed or movement.

13. Save the file
14. The application must be re-launched to apply the changes. This can be done by following the steps below:
 - a. Right click on the taskbar and click on “Task Manager”
 - b. Click on “More details” on the bottom right. If it says “Fewer details,” skip to step (c)
 - c. Navigate to the “Details” tab
 - d. Find “sstop.exe”
 - e. Right click on “sstop.exe” and click “End Task”
15. After the ScreenSTOP task has been ended, it can be relaunched by clicking on the bottom left windows icon. Typing in “ScreenSTOP” will yield a search result for the ScreenSTOP app. Simply click on it and it will launch.

Attaching to a Windows Device

If the Windows device has a COM Port, simply plug the cable from the Control Unit directly into the device using the RJ11 to COM cable. If the device does not have a COM Port, an RJ11 to COM cable can be extended by using a COM to USB adapter. As mentioned earlier under the Parameters section for Windows, ensure that the correct Sensor.COM value is set.

NOTE: In the Properties section, if the “Mask-on-Disconnect” functionality was enabled, *the Windows Device at this point will mask when the cable to the device is unplugged*. To stop “Mask-on-Disconnect” functionality, perform the following:

1. Plug the cable from the Control Unit into the Windows device
2. Open up Notepad with administrative rights by clicking on the start menu (the bottom left windows icon).
3. After the start menu opens, type in “notepad”

4. The search will yield a “Notepad” app as a result. Right click on it then click “Run as Administrator” (Contact your Administrator if elevated privileges are required to continue)
5. After Notepad has been opened, click on File -> Open
6. Navigate to C:\Program Files\Route1\ScreenSTOP\
7. Find the ScreenSTOP.properties file and double click it (If it is not visible, you must find the drop down menu on the bottom right which says “Text Documents (*.txt).” Click on it and choose “All Files (*.*)”.
8. Edit the following properties as follows:

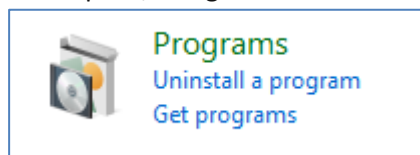
```
Sensor.ReadTimeoutIsError=0  
Sensor.UnpluggedCommand=X
```

9. Save the file
10. The application must be re-launched to apply the changes. This can be done by following the steps below:
 - a. Right click on the taskbar and click on “Task Manager”
 - b. Click on “More details” on the bottom right. If it says “Fewer details,” skip to step (c)
 - c. Navigate to the “Details” tab
 - d. Find “sstop.exe”
 - e. Right click on “sstop.exe” and click “End Task”
11. After the ScreenSTOP task has been ended, it can be relaunched by clicking on the bottom left windows icon. Typing in “ScreenSTOP” will yield a search result for the ScreenSTOP app. Simply click on it and it will launch.

Removing ScreenSTOP from Windows

Uninstalling the Windows Application

1. Click on the Windows Icon located at the bottom left of the screen
2. Type in “Control Panel”
3. When the search has yielded “Control Panel,” click on it
4. When the Control Panel window opens, navigate to “Uninstall a program” under “Programs”



5. Once “Programs and Features” is open, in the list of programs find “ScreenSTOP version 1.0”
6. Click on it
7. Click on “Uninstall” (at the top near “Organize”)
8. If a User Account Control window pops-up asking for the app to make changes to your device, click on “Yes”
9. When asked to completely remove ScreenSTOP and all of its components, click on “Yes”

10. After the uninstall finishes, a window will appear which says the ScreenSTOP application was successfully removed from your computer.
11. Click on “OK”

Deleting the files

1. Locate the ScreenSTOP installation file that was used previously and right click on it
2. Click on “Delete”
3. When asked if you are sure you want to delete the file, click on “Yes”
4. Click on the Windows Icon located at the bottom left of the screen
5. Type in “This PC”
6. When the search has yielded “This PC,” click on it
7. Navigate to “C:\Program Files\”
8. Find the “Route1” folder
9. Right click on it
10. Click on “Delete”
11. When asked if you are sure want to delete the file, click on “Yes”
12. Click again on the Windows Icon located at the bottom left of the screen
13. Type in “Recycle Bin”
14. Click on it
15. When the Recycle Bin window opens, right click on any white space that you can find
16. Click on “Empty Recycle Bin”

Android Application Installation

Acquiring the Android Application File

1. Send an email to GroupMobile support to receive steps on how to get the APK file
2. After you’ve received the APK file, store it into a USB drive

Android Installation

1. Plug the USB Drive into your Android Device (by using a USB Drive to USB-C converter, or USB-Micro depending on what port your Android Device has; USB-C is Oval Shaped while USB-Micro has a trapezoid shape)
2. In the Android Device, navigate to the “My Files” application
3. Wait for the “USB Storage” device to appear on the left hand side (it will usually appear below “Internal Storage” and “SD Card”)
4. Tap on “USB Storage” and find the .apk file that was moved to the USB Drive
5. Begin the installation by tapping on the provided apk file
6. If asked about unknown sources, tap “Settings,” otherwise skip to step 12
7. This will open “Lock Screen and Security” in the settings app
8. Find the entry on the right that is labeled “Unknown sources”

9. There will be a white switch to the right of the “Unknown sources” text
10. Tap it to make an “Unknown Sources” dialog popup
11. Tap “Ok”
12. Click “Install”
13. A “Send app for scanning?” dialog pop may pop up. Tap on “Don’t Send,” otherwise skip to step 14
14. After the app is installed, click “Done”

Setting the Android Parameters

NOTE: In order to set the parameters in an Android system, you will be required to manipulate the parameters file in an Android ‘text editor’ application. There is no native application that comes with the Android stock set of applications on most devices. It is necessary to download a text editor application before proceeding.

1. Before modifying the parameters, the parameters file (screenStop.properties) must be created by launching the app. After its first launch, it will create the properties file and store it in the device’s internal storage under “/Downloads/data/ScreenSTOP/”
2. If “Allow ScreenSTOP to access photos, media, and files on your device?” appears, tap “Allow”
3. If “APPS THAT CAN APPEAR ON TOP” appears, for ScreenSTOP, enable the “Allow Permission” switch by tapping on the switch (the switch will then become blue and shift to the right)
4. Click on the Back Button of your device to return to the home screen
5. At this point, ScreenSTOP will be running (indicated by the Route1 shield icon on the top). This means that the ScreenSTOP properties file will have been created. If the Route1 shield icon is not appearing on the top, find the app and launch it (the app is called “ScreenSTOP”)
6. Navigate to a text editor such as “Text Editor”
7. On the top left, click the 3 lines
8. Tap on “Open file...”
9. The screenStop.properties file may appear before you. If you do not see it, navigate to /Downloads/data/ScreenSTOP/ (in the internal storage directory)
10. Tap on “screenStop.properties” to open the file
11. Adjust the Sensor.Mode by setting it to either Character (1) or Frequency (2); Frequency is the default
12. If Sensor.Mode is set to Frequency (2), adjust the Sensor.WheelDiameterInches, Sensor.PPR (number of nodes) and Sensor.ThresholdMPH as needed
13. Tap on “Save & Close” to finish editing

Attaching to an Android Device

From the Control Unit, the RJ11 to COM cable must be connected to a COM to USB adapter. This adapter can then be connected to a USB-to-USB C dongle (or USB-to-USB micro dongle depending on which port the Android device has). Alternatively, if charging is required alongside usage of the Application, a USB-C (or USB micro) Multi-Port adapter can be used (**Figure 12**).

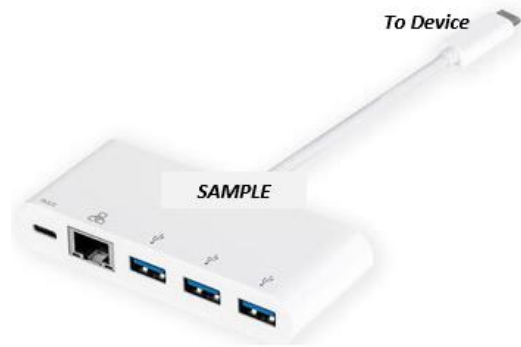


Figure 12

As in **Figure 12**, the RJ11 to COM cable from the Control Unit would be plugged into a COM-to-USB adapter. The COM-to-USB adapter would then plug into the USB port of the Multi-Port adapter. A USB-C charging cable would then go into the USB-C slot of the Multi-Port adapter (the same would apply with a USB Micro scenario). The main USB-C cable from the Multi-Port adapter would then plug into the device.

Once the USB-C is plugged into the device, a USB Permission pop-up will appear. Check “Use ScreenSTOP Application for USB by default” and click “Ok.” ScreenSTOP will now start to function.

NOTE: The Android Device at this point will mask when the cable to the device is unplugged. If the cable has been unplugged, and in order to have ScreenSTOP work properly again:

1. Plug-in the main cable back into the device
2. Re-Start the device by holding down the power button and choosing ‘Restart’.

Uninstalling the Android Application

Acquiring the Android Application File

1. Send an email to GroupMobile support to receive steps on how to get the APK file
2. After you’ve received the APK file, store it into a USB drive

Adjusting the Control Unit

The Control Units ship with the Frequency mode enabled. Below are steps to enable and adjust the two different modes for the Control Unit.

Enabling Frequency Mode in the Control Unit

1. Observe the Control Unit LCD screen to see if it says “Frequency”
2. If it says “Frequency,” continue to the next section, “Adjusting the Control Unit in Frequency Mode”
3. If it says “Character,” on the LCD screen, tap “Setup” on the bottom left
4. Tap the “Character” button under “Com Mode”
5. Frequency Mode is now enabled; tap “Main” on the bottom right to exit the Setup Screen

Adjusting the Control Unit in Frequency Mode

There are no adjustments required when the Control Unit is in Frequency mode.

Enabling Character Mode in the Control Unit

The Character Mode can be used for testing purposes.

1. Observe the Control Unit LCD screen to see if it says “Character”
2. If it says “Character,” continue to the next section, “Adjusting the Control Unit in Character Mode”
3. If it says “Frequency,” on the LCD screen, tap “Setup” on the bottom left
4. Tap the “Frequency” button under “Com Mode”
5. Character Mode is now enabled; tap “Main” on the bottom right to exit the Setup Screen

Adjusting the Control Unit in Character Mode

1. Tap the “Setup” button on the bottom left
2. Numerous variables can be modified on the Setup screen
 - **Wheel Dia** – Diameter of the Wheel in inches
 - **Encoder** – Number of nodes that come into contact with the sensor in 1 revolution
 - **Display as** – Changes the metric that is used when displaying speed
 - **Disable Speed** – Used when “Blank Mode” is set to “Slow FWD.” Threshold for the Control Unit to go from “Slow” to “Fast.”
 - **Blank Mode** – Can be set to “Stationary” or “Slow FWD.” When set to “Stationary,” the Control Unit only considers sends “Fast” or “Stopped.” In “Slow FWD,” the Control Unit interprets values between 0 and “Disable Speed” as “Slow”
3. After the adjustments have been made, simply tap the “Main” button on the bottom right to save any changes

The Properties File

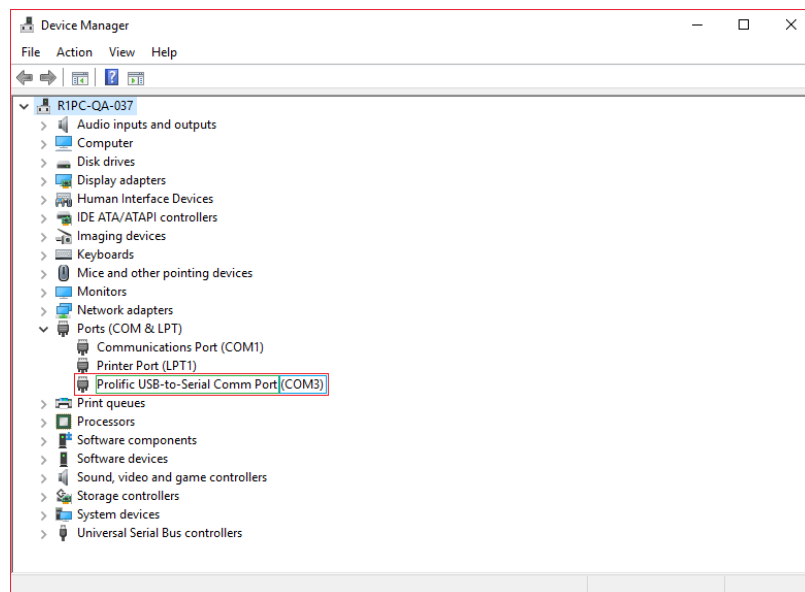
Windows

The windows version of ScreenSTOP contains a properties file under the default install directory. Several values can be modified here (admin privileges required). Some values despite being defined are commented (as noted by the “#”). To have the values take effect, ensure that the semi-colon is removed.

Properties

Sensor.Port – The COM port used when sending data from the PLC to the Getac Windows device. COM1 is the most likely used port on a Windows Device.

To determine which communications port is being used, Open the Device Manager (this program can be searched through searching “Device Manager” then looking for the Ports (COM & LPT) entry. If you’re using a COM to USB device, it will show up in the device list with the name “Prolific USB-to-Serial Comm Port.” The COM number will display next to the device name in brackets (i.e., (COM4)). **If the embedded COM port on the back of the devices is being used, set Sensor.Port to COM1.**



Sensor.Mode – Defines what method is used to trigger screen masking. Value can either be 1 or 2. Defaults to 2.

- Mode 1 – Character Method
- Mode 2 – Frequency Method

Sensor.PPR – Used in Mode 2. Pulses per rotation. Used when calculating wheelCircumferenceMiles.

Sensor.WheelDiameterInches – Used in Mode 2. The diameter of the wheel in inches.

Sensor.ThresholdMPH – Used in Mode 2. Miles Per Hour threshold. Determines when to mask (if over the threshold) and not mask (when under the threshold) the screen. The threshold does not apply when going in reverse.

Sensor.ReadTimeoutMillis – Determines after how many milliseconds would UnpluggedCommand execute after the cable is unplugged. See UnpluggedCommand for additional details.

Sensor.ReadTimeoutIsError – Controls whether to mask the screen or not when the cable is pulled from the Windows device. Defaults to 0. Set to 1 to enabled, otherwise keep it at 0 (to keep it disabled).

Sensor.UnpluggedCommand – A command which executes after X seconds (which is specified in ReadTimeoutMillis). Defaults to X. Set to F to have it blank, otherwise keep it at X.

Sensor.EnableLogging – Off by default. Allows for logging. Set to 1 to enable, otherwise set to 0.

Logger.Path – Defines the absolute path to where the log file is saved. Defaults to the default install directory.

TransparentAreas.Rect0/1/2/3/4 – A rectangle which can have its x position, y position, width and height defined. After defining a rectangle, it will be used to cut out part of the masked screen to reveal what is behind. Five of these rectangles can be defined.

VideoMode.Windowed – Changes the masking method. Set to 1 for windowed or set to 0 for full screen. Default is full screen.

VideoMode.OpenGL – Changes the graphics API used for screen masking. Set to 1 for OpenGL or set to 0 for DirectX. Default is DirectX.

Android

After launching the application at least once, a ScreenSTOP.properties file will be created and placed under Downloads. Several values can be modified here. Some values despite being defined are commented (as noted by the “#”). To have the values take effect, ensure that the semi-colon is removed.

Properties

Sensor.Mode – Defines what method is used to trigger screen masking. Value can either be 1 or 2. Defaults to 2.

- Mode 1 – Character Method
- Mode 2 – Frequency Method

Sensor.PPR – Used in Mode 2. Pulses per rotation. The number of nodes that the PLC sensor would hit in 1 revolution would be defined here.

Sensor.WheelDiameterInches – Used in Mode 2. The diameter of the wheel in inches.

Sensor.ThresholdMPH – Used in Mode 2. Miles Per Hour threshold. Determines when to mask (if over the threshold) and not mask (when under the threshold) the screen. The threshold does not apply when going in reverse.

Logger.Level - Controls whether to log at a certain level or not. Defaulted to no logging. Logging can be set to a level of info, error or debug.

TransparentAreas.Rect0/1/2/3/4 – A rectangle which can have its x position, y position, width and height defined. After defining a rectangle, it will be used to cut out part of the masked screen to reveal what is behind. Five of these rectangles can be defined.

Troubleshooting

The Screen is *not masking* after pulling the cable.

On Windows, double check the ScreenSTOP parameters file named ScreenSTOP.properties located at “C:\Program Files\Route1\ScreenSTOP\”. On Windows, Sensor.ReadTimeoutMillis needs to have a value in milliseconds, ReadTimeoutIsError needs to be set to 1, and Sensor.UnpluggedCommand needs to be set to F.

On Android, the properties file for Android is located under “/Downloads/data/ScreenSTOP/” in the Internal Storage directory. Please note that there is no native application that comes with the Android stock set of applications on most devices. It is necessary to download a text editor application to be able to manipulate the properties file.

The Screen is *masked* when the cable is pulled.

On Windows, double check the ScreenSTOP parameters file named ScreenSTOP.properties located at “C:\Program Files\Route1\ScreenSTOP\”. On Windows, Sensor.ReadTimeoutMillis needs to have a value in milliseconds, ReadTimeoutIsError needs to be set to 1, and Sensor.UnpluggedCommand needs to be set to F.

On Android, the properties file for Android is located under “/Downloads/data/ScreenSTOP/” in the Internal Storage directory. Please note that there is no native application that comes with the Android stock set of applications on most devices. It is necessary to download a text editor application to be able to manipulate the properties file.

None of the changes made to the properties file have taken effect on Windows.

On Android, changes made take effect immediately. However, on Windows, if the application is already running (which by design, is supposed to launch if a ScreenSTOP process is not detected), the ScreenSTOP task will need to be ended then started again. Follow the instructions below to relaunch ScreenSTOP:

- a. Right click on the taskbar and click on “Task Manager”
- b. Click on “More details” on the bottom right. If it says “Fewer details,” skip to step (c)
- c. Navigate to the “Details” tab
- d. Find “sstop.exe”
- e. Right click on “sstop.exe” and click “End Task”

During the Android installation, I forgot to enable “Apps that can appear on top”.

Follow the steps below:

- a. Open the Settings app
- b. Go to “Apps”
- c. Click on the “ScreenSTOP” app from the list of apps
- d. Click on Permissions and check if they are all enabled
- e. Go back to the ScreenSTOP app info page and check if the “Apps that can appear on top” is “On”

FAQs

Which versions of Windows are supported?

Windows 10 64-bit. Build numbers include 1607, 1609, 1703, 1709 and 1809. 1803 is **not** supported.

Which versions of Android are supported?

Android 7.x, 8.x and 9.x

How many transparent rectangles are supported?

On both platforms (Windows and Android), 5.

How do I open a “properties” file on Android?

We’ve found that an app called “Text Editor” works best, in case your android device’s stock text editing app does not support Properties files. But in most cases, properties files are supported.

Route1 Support

For assistance with installation, the below contact information can be used to communicate with our Group Mobile support team.

Network Operations Support

support@route1.com

1-866-371-1781 (Available from 12 am on Monday to 11 pm on Friday, and 8 am to 8 pm on each of Saturday and Sunday. All times are Eastern)

Office Locations

Arizona

5590 W. Chandler Boulevard, Suite 3
Chandler, Arizona. 85226

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1200 W. Mississippi Ave.
Denver, CO 80223

Florida

951 Broken Sound Parkway, Suite 108
Boca Raton, Florida. 33487

Tennessee

6031 Century Oak Drive
Chattanooga, Tennessee. 37416

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