CipherLab SOP

RS51 OS Image Upgrade SOP from Android 8 (Oreo) to Android 11

Version 1.00



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RELEASE NOTES

Version	Date	Notes
1.00	Jan. 12 th , 2022	Initial release

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PREREQUISITE

This chapter guides you all the things need to be done before upgrading the OS image of your RS51 mobile computer.

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1.2 USB Drivers		

1.1 PREREQUISITE FOR UPGRADING OS IMAGE

The following items are demanded for upgrading your RS51 mobile computer OS image from Android 8 (Oreo) to Android 11:

PC:

The operating system must be Windows 10.

Note:

The image download tool is incompatible with Windows 7 and Windows 8.

RS51 Snap-on Charging & Communication Cable

Use RS51 snap-on cable to connect the PC with your device.



Activation Key:

Please contact the sales representative and provide the representative with the **device Serial Number** and the **Software Part Number** of your RS51 mobile computer for acquiring the activation key.

i) Serial Number

To check the **Serial Number** of your device, please go to:









About phone

(



Regulatory Information Legal information

Model RS51_HS

Android version 8.1.0

Android security patch level May 5, 2021

Baseband version 1-00747-8953_GEN_PACK-1.260593.1



Wi-Fi MAC address Unavailable

Bluetooth address Unavailable

Serial number FM1193B000073

ii) Software Part Number

Please confirm the software part number of your RS51 mobile computer:

Model	Part Number
LTE GMS	A90W051GL0201
Wi-Fi Only GMS	A90W051GW0201
LTE RU	A90W051RL0201

RS51 OS Image Upgrade Package:

Once the information (device serial number, sofware part number, etc.) you provide is confirmed, you will get the upgrade pacakage & the activation key from CipherLab.

The upgrade package contains the following:

- i) Upgrade Tool (RS51_OS_update_v1.XX.exe)
- ii) RS51 Android 8 userdebug image (RS510_HS.userdebug.flatimage.7z)
- iii) **RS51 Android 11 userdebug image** (RS51R_HS.userdebug.flatimage.7z)
- iv) RS51 Android 11 user image

Important Notice:

After successfully upgrading the OS from Android 8 (Oreo) to Android 11, the RS51 mobile computer will reset to the factory default which means all the app data, the apps installed by yourself, and the MDM (Mobile Device Management) data will be erased. Thus, make sure to back up your important information stored on your device before proceeding OS upgrade.

THE SUPPORTED READER TYPE

The RS51 Android 11 OS only support the following reader types:

- SE 4750MR
- SE 4750SR

On your device, go to **App Drawer** and tap on the built-in application "**ReaderConfig**" to check which reader your device integrates.

- 1) On **ReaderConfig** main screen, tap on **More** button **i** on the action bar.
- 2) Tap to select "About".
- 3) Check your device reader type on the app information pop-up.

	Q Sear	rch apps		ReaderConfig	:	New		
HF RFID Co	Maps	Messages	U D Music	Default None	:	Import		
U	~					Scan Test	NeaderC	Config
Phone	Photos	Play Music	Play Store			Security	ReaderConfig Reader Service	1.3.18 1.3.51
	•	\$				Enable Reader 🗹	Reader Type Firmware	SE4750SR IMGKIT_8.04T0 4_27_ZAP3101
ReaderCon	Screenshot	Settings	Signature C			About		1 arl ab Co. Ltd
			E				http://www.cipher	lab.com
SIP controll	SoftwareTri	Videos	WMDSAgent					0
20								
WMDSInsta	YouTube							

1.2 USB DRIVERS

For successfully upgrading the OS image of your RS51 mobile computer, **USB Drivers** must be installed in your PC beforehand.

Depending on the operating system environment of your PC, the USB drivers may have been installed in your PC already.

1.2.1 QUALCOMM USB DRIVER

CHECK WHETHER QUALCOMM USB DRIVER IS INSTALLED ON YOUR PC

 Shut down the RS51 mobile computer, and then press Volume Up Key, Volume Down Key and Power botton at the same time. The device will vibrate once.



2) Connect the RS51 mobile computer with your PC with the supplied Snap-on cable.



Device Manager on your PC to check whether it shows "Qualcomm HS-USB QDLoader 9008" under "Ports".

Qualcomm USB driver is installed



Qualcomm USB driver is NOT installed

🛃 Device Manager	 _	×
File Action View Help		
> 🛄 Monitors		^
> 🖵 Network adapters		
✓ ▲ ² Other devices		
📓 Unknown device		
SMS/MMS		
> 🚍 Print queues		
> Processors		
> 🛐 Security devices		
Software components		
> Software devices		
> 🐗 Sound, video and game controllers		
> 🍇 Storage controllers		
> 🏣 System devices		
Universal Serial Bus controllers		
> 🏺 USB Connector Managers		
		~

Note: The item shown on "Device Manager" may slightly different based on the operating system environment of your PC.

HOW TO INSTALL QUALCOMM USB DRIVER

1) Power off your RS51 mobile computer, and press its **Volume Up Key**, **Volume Down Key**, and **Power Key** at the same time. Then connect the device with your PC by the sanp-on cable.



2) Access "**Device Manager**" on your PC, and find the unknown device which is with a yellow exclamation mark in front of the name.



3) On Device Manager, click to open the setting menu and select "Update driver".



4) Select "Search automatically for updated driver software" to complete the update.



5) Once the driver is successfully installed, you will find this RS51 mobile computer is shown up as "Qualcomm HS-USB QDLoader 9008" under "Ports" on Device Manager.

		\times
\leftarrow	Update Drivers - Qualcomm HS-USB QDLoader 9008 (COM6)	
	Windows has successfully updated your drivers	
	Windows has finished installing the drivers for this device:	
	Qualcomm HS-USB QDLoader 9008	
	_	
	Close	
	+	

📩 Device Manager	_	×
File Action View Help		
> 💻 Computer		^
> 🔜 Disk drives		
> 🔙 Display adapters		
> 📕 Firmware		
> 🛺 Human Interface Devices		
> 🔤 Keyboards		
> III Mice and other pointing devices		
> 🛄 Monitors		
> 🖵 Network adapters		
🗸 🛱 Ports (COM & LPT)		
Qualcomm HS-USB QDLoader 9008 (COM6)		
> 🖃 Print queues		
> 🔲 Processors		
> I Security devices		
Software components		~

1.2.2 ADB DRIVER

CHECK WHETHER ADB DRIVER IS INSTALLED ON YOUR PC

To check whether ADB driver is installed on the PC, please follow the steps:

1) Power on your RS51 mobile computer, and connect it with your PC by the snap-on cable.



- 2) Enable debugging mode on your RS51 mobile computer as the steps below.
 - **Step 1**:

Go to App Drawer (All Apps) | Settings 🔯 | System 🛈 | About phone 🛈



• Step 2:

Scroll to the bottom to find "**Build number**", and tap on Build number 7 times to enter Developer mode. During the process, you'll see a prompt with a countdown reading "<u>You</u> <u>are now X steps way from being a developer</u>."



Step 3:

When you see "<u>You are now a developer!</u>" showing up, you have succeeded in entering developer mode.



Step 4:

> Return to **System** (i) and you'll find that now "**Developer options**" { } is revealed. Tap to enter "Developer options" page, except of "Developer options" which has been on, swipe to find "USB debugging" which is under "Debugging" and switch it on.

Tap on "**OK**" on the confirmation window.



Device Manager on your PC to check whether ADB Driver has been installed in your PC.

ADB driver is installed



ADB driver is NOT installed

🛃 Device Manager	_	×
File Action View Help		
> 🖵 Network adapters		^
> 💵 Other devices		
> 🚍 Print queues		
> D Processors		
Security devices		
> I Software components		
> 📓 Software devices		
> 💐 Sound, video and game controllers		- 10
> 🍇 Storage controllers		
> 🏣 System devices		
> 🏺 Universal Serial Bus controllers		
 Universal Serial Bus devices 		
🖗 Android		
> 🏺 USB Connector Managers		~

Note:

The item shown on "Device Manager" may slightly different based on the operating system environment of your PC.

HOW TO INSTALL ADB DRIVER

 Continued from the steps above, find your RS51 device on Device Manager, and click to open its setting menu to select "Update driver".

ᡖ Device Manager		_	×
File Action View Help			
	× 🖲		
> 🖵 Network adapters			^
> 🛐 Other devices			
> 🚍 Print queues			
> 🔲 Processors			
> I Security devices			
> I Software components			
> 📓 Software devices			
> 💐 Sound, video and game control	lers		- 10
> 🍇 Storage contro 🛛 Update dr	ver		
> 🏣 System device: Disable de	vice		
> 🖣 Universal Seria	ovico		
V Universal Seria	evice		
Android Scan for h	ardware changes		
> USB Connecto			~
Properties			

2) Select the way you'd like to search for drivers:

	×
Update Drivers - Android	
How do you want to search for drivers?	
→ Search automatically for drivers Windows will search your computer for the best available driver and install it or your device.	n
→ Browse my computer for drivers Locate and install a driver manually.	
	Cancel

3) Confirm to install.



4) After successfully installing the driver, the RS51 mobile computer is shown up as **``Android Composite ADB Interface**" on **Device Manager**.

 Update Drivers - Android Composite ADB Interface Windows has successfully updated your drivers 	
Windows has successfully updated your drivers	
Windows has finished installing the drivers for this device:	
Android Composite ADB Interface	
Close	
🛃 Device Manager — 🗆 🗙	
File Action View Help	
V 🗄 DESKTOP-GFTT9UC	
V I Android Device	
Android Composite ADB Interface	
Audio inputs and outputs	
Biometric devices	
> 8 Bluetooth	
> 👰 Cameras	
> 💻 Computer 🗸 🗸	

1.2.3 DRIVER INSTALLATION FAILED

If driver installation is failed, the item shown on **Device Manager** is with a yellow exclamation mark in front of the name.



Please click to open the setting menu and select "**Uninstall device**" to remove it, and then reinstall the driver(s) as the steps of <u>Qualcomm USB Driver</u> and <u>ADB Driver</u> describes.



OS IMAGE UPGRADE

This chapter will walk you through the steps of upgrading the OS image.

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2.3 Upgrade Failed	.32

2.1 IMPORTANT NOTICE

Before proceeding OS upgrade, please check and confirm the followings:

- The main battery power of the RS51 mobile computer is more than **50%**.
- All the required drivers are installed in your PC.
- Back up the user data and the app data & settings of your RS51 mobile computer.
- If your RS51 mobile computer is with 2GB RAM/ 16GB ROM, make sure that its remaining RAM is more than 300MB after running all applications.
- The barcode reader integrated on your RS51 mobile computer is <u>NOT</u> **SM2**.

To check which barcode reader the device equips with, please:

- 1) Access **App Drawer | ReaderConfig** in your device to be upgraded.
- 2) Tap on **More** button information pop-up.

3) Check yo	our " Reader	Type".
-------------	---------------------	--------

	Q Sear	ch apps		ReaderConfig		New			
HF RFID Co	Maps	Messages	Music	Default None	:	Import			
L.	~					Scan Test		ReaderCo	onfig
Phone	Photos	Play Music	Play Store			Security	Reader Reader	Config Service	1.3.18 1.3.51
ø	۲	窣				Enable Reader 🗹	Firmwa	re	IMGKIT_8.04T0 4_27_ZAP3101
ReaderCon	Screenshot.	Settings	Signature C			About	Copyrig	ht © Ciphe	1 Lab Co. Ltd
			<u></u>				http://w	ww.cipherl	<u>ab.com</u>
SIP controll	SoftwareTri	Videos	WMDSAgent						0
20									
WMDSInsta	YouTube								

RS51 Android 11 OS doesn't support the reader type "**SM2**". Please never try to upgrade the device equiped with SM2.

	onfig	
ReaderConfig	1.3.18	
Reader Service	1.3.51	
Reader Type	SM2	
Firmware	1.02 / 215	
Copyright © Cipher http://www.cipherl	rLab Co. Ltd. <u>ab.com</u>	
	OF	(

Note:

All the user data and app data & settings in your RS51 will be cleared after OS upgrade. Be sure to have the aforesaid items backed up in order to restore the settings on your device.

2.2 UPGRADE OS IMAGE

Please follow the steps below to upgarde the OS image of your RS51 mobile computer from **Android 8 Oreo** to **Android 11**:

- 1) Uncompress all the zip files.
- 2) Make sure that the RS51 OS image upgrade tool is in the folder (and all its parent folders) is without any space in the folder name.



Note:

Executing OS upgrade fails if there's space in the pathname of the path to access the OS image file.

 Put the "Activation Key" acquired from CipherLab into the folder where the Image Download Tool is located.

📕 🛃 📮 RS51_0_to	_R_upgrade_tool			_		\times
File Home Share	View					~ ?
← → • ↑ 🖡 « _Cij	pherLab > RS51_O_to_R_upgrade_tool	~	ک ک	⁾ Search RS51_O_	to_R_upgr	ade_tool
Downloads	Name	Date mo	dified	Туре	Size	
👌 Music	RS51_HS.GMS.master.daily.20211005.flatimage	11/30/20	21 5:53 PM	File folder		
Pictures	📜 RS510_HS.userdebug.flatimage	12/6/202	1 11:22 AM	File folder		
📑 Videos	RS51R_HS.userdebug.image	11/30/20	21 5:54 PM	File folder		
📢 Windows (C:)	ActivationKey.txt	11/30/20	21 4:16 PM	Text Docume		1 KB
🔮 Network	RS51OSUpdateSetup_v1.7.0.exe	11/2/202	1 5:35 PM	Application	10,0	10 KB
5 items 1 item selected	8 bytes					

4) Power off your RS51 mobile computer, and then put it into "**Download Mode**" by pressing **Volume Up Key**, **Volume Down Key** and **Power button** at the same time.



Note: It allows to upgrade only one device at a time.

6) Double-click on "RS51OSUpdateSetup" to run the executable file.

📕 🔽 📕 =	Manage RS51_O_to_R_upgrade	_tool		_	
File Home Share	View Application Tools				~ ?
← → • ↑ 🖡 « _Ci	pherLab > RS51_O_to_R_upgrade_tool	~	ັ	Search RS51_O_	to_R_upgrade_tool
Downloads	Name	Date mo	dified	Туре	Size
👌 Music	📕 RS51_HS.GMS.master.daily.20211005.flatimage	11/30/20	21 5:53 PM	File folder	
Pictures	📕 RS510_HS.userdebug.flatimage	12/6/202	1 11:22 AM	File folder	
🚆 Videos	RS51R_HS.userdebug.image	11/30/20	21 5:54 PM	File folder	
🔩 Windows (C:)	ActivationKey.txt	11/30/20	21 4:16 PM	Text Docume	1 KB
Antwork .	RS51OSUpdateSetup_v1.7.0.exe	11/2/202	1 5:35 PM	Application	10,010 KB
5 items 1 item selected	9.77 MB				

- 7) Follow the on-screen instructions to start the OS image upgrade progress, and it will take about 30 minutes to complete.
- Step 1: Click "Next" to start.

🌐 RS51 OS Update Setup 1.7.0	Setup	—		×
	Welcome to RS51 OS 1.7.0 Setup Setup will guide you through the inst Update Setup 1.7.0. It is recommended that you close all before starting Setup. This will make relevant system files without having computer. Click Next to continue.	Updat allation of 1 other appli it possible to reboot	te Seto RS51 OS cations to update your	пр
	Ne	ext >	Cano	el

• **Step 2:** Agree on the License Agreement.

🕞 RS51 OS Update Setup 1.7.0 Setup 🦳 🗌	×
License Agreement Please review the license terms before installing RS51 OS Update Setup 1.7.0.	
Press Page Down to see the rest of the agreement.	
USER LICENSE AGREEMENT FOR CIPHERLAB SOFTWARE	^
IMPORTANT-This CipherLab User License Agreement is a legal agreement between you (either an individual or a single entity) and CipherLab Co. Ltd. for the CipherLab SOFTWARE identified above, which includes computer software and associated media and printed materials, and may include "online" or electronic documentation (SOFTWARE). By installing, copying, or otherwise using the SOFTWARE, you agree to be bound by the terms of this User License Agreement.	
SOFTWARE LICENSE	~
If you accept the terms of the agreement, click I Agree to continue. You must accept th agreement to install RS51 OS Update Setup 1.7.0.	e
Nullsoft Install System v3.08	ncel

• **Step 3:** The installation is performing. It will takes about 30 minutes.

٦	RS51 OS Update Setup 1.7.0 Setup	_		\times
Ir	nstalling Please wait while RS51 OS Update Setup 1.7.0 is being installed.			
	Please wait a moment for downloading OS Image completed.			^
	Image download in process. It will takes about 30 minutes to complete and the device will restart several times in the process. Do NOT disconnect the device from your computer during the process			
				~
Nul	lsoft Install System v3.08	:>	Car	ncel

 Step 4: During the installation, the device will reboot for several times. If the deivce prompts the home selection screen, do not make any selection and simply leave the device alone.



Note:

During the upgrade period, RS51 mobile computer screen gets into the splash screen. Please DO NOT disconnect the RS51 mobile computer from your PC or press any button on your RS51 mobile computer till the OS upgrade tool on-screen instruction shows that "<u>Completing Image</u> <u>Download</u>" and you click "<u>Finish</u>" button to exit. 8) Once it shows "Completing Image Download", the OS image upgrade is done. Click on "Finish" to close the window. The RS51 mobile computer will automatically reboot and "Welcome Wizard" shows up to run you through setting up your device.

) Setup — 🗆 🗙
Completing RS51 OS Update Setup 1.7.0 Setup RS51 OS Update Setup 1.7.0 has been installed on your computer. Click Finish to close Setup.
< Back Finish Cancel
Hithere ENGLISH (UNITED STATES) * START
C © Emergency call Vision settings

9) Now the OS image of RS51 mobile computer becomes Android 11. You can check it from **App Drawer (All Apps) | Settings** 2 | **About Phone** 1 **Android version**.

	Permissions, account activity, personal data	÷	About phone	۹	~	-	Android version Q
0	Location Off		Legal information				Android version
₿	Security Screen lock		SIM status (sim slot 1) Not available				Android security update September 5, 2021
2	Accounts Google		SIM status (sim slot 2) Not available				Google Play system update February 1, 2021
Ţ	Accessibility Screen readers, display, interaction controls		Model & hardware RS51_HS				Baseband version MPSS.TA.3.1.c1-00057-8953_GEN_PACK-2,
%	Digital Wellbeing & parental controls Screen time, app timers, bedtime schedules		IMEI (sim slot 1) 351541105015513				Kernel version
G	Google Services & preferences		IMEI (sim slot 2) 351541105015521				4.9.227-pert #1 Tue Oct 5 08:05:31 CST 2021
6	System Languages, gestures, time, backup		Android version				Build number RS51_HS.GMS.master.daily.20211005
	About phone RS51_HS		IP address fe80::e7f5:2b9:880d:a856 172 16 1 161				

2.3 UPGRADE FAILED

🗑 RS51 OS Update Setup 1.7.0 Setup	_		\times
Installation Aborted Setup was not completed successfully.			
Upgrade FAIL, Please contact CipherLab support for help.			^
Please press cancel to exit			
			~
Nullsoft Install System v3.08	t >	Car	ncel

If it is failed to upgrade the OS image, please:

- 1) Check whether the required <u>USB drivers</u> are properly installed.
- 2) Contact with support@cipherlab.com.tw for help, and provide us your log.

The upgrade log will be saved in the same folder where the Image Upgrade Tool is located. The log will be saved as a .txt file with the file name format as below:

RS51_download_message_YYYYMMDDHHMMSS

📕 🛃 🖡 = RS51_0_tc	p_R_upgrade_tool				_		×
File Home Share View						~ ?	
\leftarrow \rightarrow \checkmark \uparrow \blacksquare « _CipherLab » RS51_O_to_R_upgrade_tool		~	U	Q	Search RS51_O_	to_R_up	grade_tool
Downloads	Name	Date modified		Туре	Size		
👌 Music	B767B12AK8073000007	K8073000007 12/6/2021 11:35 AM MS.master.daily.20211005.flatimage 12/6/2021 11:40 AM .userdebug.flatimage 12/6/2021 11:40 AM userdebug.image 12/6/2021 11:40 AM			File folder		
E Pictures	RS51_HS.GMS.master.daily.20211005.flatimage				File folder		
RS51_HS	RS51O_HS.userdebug.flatimage				File folder		
🚆 Videos	RS51R_HS.userdebug.image				File folder		
📢 Windows (C:)	ActivationKey.txt	11/30/2021 4:16 PM			Text Docume		1 KB
🔮 Network	RS51_download_message_20211206114046.txt	12/6/2021 11:40 AM			Text Docume		2 KB
	RS51OSUpdateSetup_v1.7.0.exe	11/2/2021 5:35 PM			Application	10),010 KB
~							
7 items 1 item selected 1.51 KB							