

# A Detailed Guide to Android 11

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**Abstract** - Android 11 is shaping the leading edge of mobile innovation with advanced machine-learning. Android 11 contains a various features such as Live option, foldables, 5G networks, smart reply in notifications, Dark Theme, Gesture Navigation, Setting panels, sharing shortcut, focus mode, family link, location restrictions, protection from device tracking, limiting application access to external storage, enterprise security, Device-specific security measures. Android 11 is better in performance as compared to android 10 and in some parts to IOS 14.

**Key Words:** Features; Android 11 vs Android 10; Android 11 vs IOS 14; Pros and Cons;

## 1. INTRODUCTION

Android is software platform and operating system for mobile devices, based on the Linux kernel, and developed by Google and later the Open Handset Alliance. Android 11 is built around three important themes. Android 11 is shaping the forefront of mobile innovation with advanced machine-learning and support for emerging devices like foldables and 5G enabled phones. Android 11 has a main focus on privacy and security, with many features that give users greater protection, transparency, and control. Finally, Android 11 expands users' digital wellbeing controls so individuals and families can find a better balance with technology. Android 11 was launched in September 8 2020 but not available on many mobiles.



## 2. ANDROID 11 FEATURES

### ● Native screen recording

Google has been playing around with native screen recording feature since the early builds of Android 10. In Android 11 new Screen Record icon is there in the Quick

Settings selections on top of the display. We expect this feature to make it to the final version this time around.

### ● Chat Bubbles in Android 11

Bubbles are basically like Facebook Messenger chat heads but for the other applications. The feature was actually launched with Android 10. Google is finally bringing it to the forefront. It works with applications like Telegram and WhatsApp just fine.

### ● Share menu pinning

The feature was introduced with Android 7 Nougat. However, the current Android sharing menu has been a mess. Android 11 will allow you to pin 4 apps you share to the most frequently, to the top of share menu.

### ● Mute notifications while video recording

Notifications can be irritating at many times, especially when you are trying to click cute pictures of your pet. With Android 11, Google is introducing a new camera Application Programming Interface called `setCameraAudioRestriction()`. It will enable developers to allow their applications to mute sounds, vibrations, or both while the camera app is open.

### ● Airplane mode no longer kills Bluetooth

Till Android 10, turning on Airplane mode would also kill the Bluetooth. However, it's changing with Android 11. Now in Android 11, Bluetooth stays on when Airplane mode is activated.

### ● Notification History

Early Android was not allowing you to review the notifications you have dismissed. However, that feature is changing with Android 11. The new Android 11 will effectively recreate all the notifications you dismissed in the Notification History feature.

### ● Revoking permissions for unused apps

There is a new feature within the "App Permissions" section of each applications. Enabling the option will automatically revoke all permissions for the applications if you haven't used it for "a few months."

- **Variable refresh rate**

High refresh rate displays have been trending now a days. And, Android 11 will let you set a preferred frame rate for each window of applications and games. On devices that support variable refresh rates, the system will use the application's preferred frame rate.

- **One-time permission**

Early Android 10 lets apps grab your location, microphone, or camera data only while the application is open. Now, with Android 11 you will be able to approve those permissions just a single time and the Operating System will revoke the permission later.

- **Resume on boot**

This new feature in Android 11 lets apps access Credential Encrypted (CE) storage after the OTA reboot without the user needing to first unlock the device. In layman terms, it means that the apps can resume normal functionality and receive messages properly.

- **Improved Project Mainline in Android 11**

Android 10 brought the ability to update parts of Android right from the Play Store. Now, the Android OS will allow even more parts of Android to get updates without needing to send out a full OTA.

- **Better curved display support**

You know how applications and things like keyboards spill over the edges on curved displays? It will change with the OS as it will let developers specify the interactive area of a screen.

- **New tech**

Android 11 will combined with the new technologies including foldable devices, 5G and in a better way. This feature also includes low-latency video decoding for game streaming services such as Google Stadia.

- **Scoped storage**

Scoped storage was also present in beta builds of Android 10. Basically, in the interest of better security, the system allows applications to only have access to certain parts of the filesystem. Google says it has acknowledged the issues and will give more time to developers to fully transition to the new OS.

- **Redesigned power button menu**

The power button menu in new Android 11 will mostly be occupied by the fast controls for connected smart home devices, including a live camera feed.

### 3. Android 11 vs IOS 14

- **Privacy:** Privacy is easily the most important condition of any digital device and both Apple and Google have further improved their privacy features in the latest iOS 14 and Android 11. The privacy measures are improved on iOS 14 is on a better margin as the iOS 14 is the first ever iOS that will give notifications to the users whenever an applications is using their camera and also give them better control over what applications track them. While with Android 11 they're offering One-time permission for applications to access location data or camera and microphone; this feature won't be always active. Android 11 now uses scoped storage that'll keep an application from using entire storage of device. Here I think both iOS 14 and Android are tied as both previously had those features.

- **Messaging:** iMessenger is a highly used app on iPhone for text messages and in iOS 14 they have improved it by a lot and the users will now be able to enjoy the popular features available on applications like WhatsApp and Telegram. iOS14 also uses memoji that can be used on Whatsapp and Telegram. In Android they've incorporated Chat bubbles like we saw on Facebook Messenger to make texting a lot easier and much faster. Android 11 is the better than ios14 in the messaging section as they are using the bubbles, although iOS might go ahead next time.

- **Quick Settings:** Android 11 has the biggest change in the Quick setting function. Now that Android have made changes in it, it looks quite impressive and has added a music player widget to it (thumbs up to that) while iOS 14 Quick settings function remains mostly unchanged by they've added a few new toggles. iOS 14 Quick settings menu still looks much better than the Android 11.

- **Camera:** No new changes for camera in either iOS 14 or Android 11.

- **Recent Apps:** The new iOS 14 uses the same setup as there was in previous few iOS versions while Android 11 definitely has the worst possible recent apps setting as it displayed just 1 app at a time with a slight hint of the other recent apps on the side. As someone who constantly switches between the apps, this set-up is a nightmare.

- **Widgets:** And here we have the one of the best feature of iOS 14, widgets have been around on Android for long but they don't do more than telling the weather but in iOS14 you get widgets for everything and you can also easily create custom widgets for any application. Even though Android was the first to launch these, iOS has clearly done it better than Android.

- **App clips/ instant apps:** This is one of the best feature to checkout any apps and I'm glad that it is now available on iOS devices App clips is quite similar to the Google Play Instant applications that was released in 2017. iOS14 app clips will enable apps to users to use an app without downloading the app, and these app clips will perform specific tasks like renting a car, booking tickets (by incorporating it into Yelp). These app clips can use no more than 10 MB of storage space in device. Android OS already has this feature in previous versions and it is a bit better than the one in the iOS14 as you can even play games with Google Play instant. Android applications are far much better than IOS app clips.
- **Battery life:** There is no improvements for battery in either iOS 14 and Android 11. If they had, they'd be the instant winner.

#### 4. ANDROID 11 PROS AND CONS

##### 4.1 PROS

- Improved security and app privacy options
- Messaging improvements
- Screen recording
- Convenient media and smart home control
- Many hardware choices
- 5G support

##### 4.2 CONS

- Most current Android phones won't get it
- Some complication and inconsistency remain, compared with iOS
- Less energy with desktop and wearable ecosystem than iOS

#### 5. ANDROID 11 VS ANDROID 10: WHAT HAS CHANGED?

Here are some changes in Android 11:

- **Conversations in the notification shade**

Android 11 is prioritizing seamless communication as there is now a dedicated section called *Conversations* at the top for messages from various installed chat applications. Your active message notifications will show up above all other notifications. This makes sense since every app wants a piece of the notification shade and things will be a little less mess up now. You can focus better on active conversations.

Besides, there are two more sections Alerting Notifications and Silent Notifications. You can now prioritize notifications from your favorite contacts or conversations to appear up top and bypass the DND restriction.

- **Chat Bubbles**

The Chat bubbles will let you keep several active conversations on your home screen. Chat bubbles should work like the FB messenger bubbles, but other messaging apps in the Google Play store will be able to efficiently implement them. To activate the bubbles, all you need to do is long-press on the message notification and select the option to open in a bubble.

- **Super Power Menu**

Android 11 has got the new super Power Menu, which lets you manage connected IoT appliances as well as bank/payment providers from a single screen. You will still have the Emergency button and boot options here.

- **Pin Apps in the Android Share menu**

Android 11 has an option to pin applications you frequently share with to the top of the list. The option was there in Android 10 Beta but was removed in the final version. I hope this time it's here to stay.

- **One Time Permissions**

You can now give applications permission for just one time. This way you can give apps not fully trust permission to use your camera, or your location just for once instead of lifetime access. And this is definitely a big step forward for better user privacy.

Further, it also presents a settings element known as Permissions reset, which will automatically clear all permissions from apps that you haven't used in a while. When this process is done, you'll be notified of course.

- **Native Screen Recording**

Custom skins from most of the Android manufacturers already have native screen recording feature, and the stock Android 11 will now have one as well.

The feature was a part of Android 10 beta but was later removed. On Android 11, screen recording can be accessed through quick settings.

- **Check what Codecs your Headphones support**

Unlike on Android 10, the Bluetooth Audio Codec selection in Android 11 developer options greys out codecs that are not supported. The Android 10 has the option as well, but unsupported codecs are not greyed out. You can also switch

between the supported codecs as headphones don't always use the best option by default.

- **Option to check the Display Refresh Rate**

With the high refresh rate screens increasingly becoming common, Google has added an option to show refresh rate under developer settings. This is great since you won't have to move through shady apps to check if your phone's screen is actually refreshing as advertised.

- **Media Controls Carousel**

Media Controls carousel in Quick Settings. Users would also be able to resume the playback after the session gets closed or canceled or even after a device reboot.

## 6. CONCLUSION

In over research we have discussed about the features, security and performance of Android version 11. We also compared Android 11 with Android 10 and IOS14. The performance comparison of Android 11 was much more better and secured than Android 10.

## 7. REFERENCES

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