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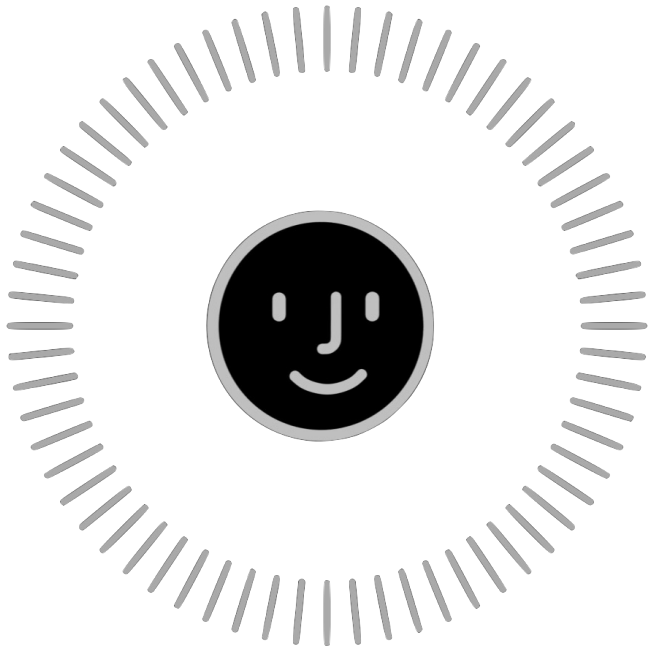
# Lets face it.

Is it really safe and secure to use face iD  
on your new Iphone?



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Apple's Face ID is a Facial-Recognition technology that uses biometrics used for identification and access controls. This Face ID feature has recently been launched on Apple iPhones since 2017 when the iPhone X was released and this technology has been featured on all iPhone models since. This Facial recognition feature has replaced Apple's touch ID finger print scanner as this upgrade uses your face instead of your finger for a more secure and accurate authentication check.

***"The technology that enables Face ID is some of the most advanced hardware and software that we've ever created".-Apple Inc***

Face ID uses a "True depth" camera system that consists of sensors, cameras and a dot projector that is built-in at the top of the iPhone display to read and create a detailed 3D map of your face. This technology is used so that everytime you hold up your iPhone to

your face, this "True depth" camera system conducts a secure authentication check that enables your device to recognise you and unlocks. Using the iPhone X's TrueDepth camera, the system measures the unique biological characteristics of your face and stores a 3D image for future recognition. 'Your photo is processed to extract your features into the device, and then this template is compared to deny or accept access at a later time,' Dr Zhang explains.

Next time you look straight at your iPhone, it will recognise you and open, regardless of whether you dyed your hair, shaved your beard or are wearing sunglasses. It's even designed to work in the dark. With a simple glance, Face ID securely unlocks your iPhone. You can use it to authorize purchases from the iTunes Store, App Store, and Apple Books, and payments with Apple Pay.

Privacy is incredibly important to Apple and Face ID has sparked a number of debates about security and privacy.

***Apple claims that the probability of someone else unlocking a phone with Face ID is 1 in 1,000,000 as opposed to Touch ID at 1 in 50,000.***

Face ID data such as digital scans and copies of your face are encrypted and protected by the Secure Enclave. This data will be refined and updated as you use Face ID to improve your experience, including when you successfully authenticate. Face ID will also update this data when it detects a close match but a passcode is subsequently entered to unlock the device.

Apple claims that "Face ID data doesn't leave your device and is never backed up to iCloud or anywhere else"

If you choose to use the Face ID feature on your iPhone, there is a feature that you can control how it's used or disable it at any time. For example, if you don't want to use Face ID to unlock your device,

open Settings > Face ID & Passcode > Use Face ID, and disable iPhone Unlock or iPad Unlock. To disable Face ID, open Settings > Face ID & Passcode, and tap Reset Face ID. Doing this will disable all Face ID data, including mathematical representations of your face, from your device. If you choose to erase or reset your device using Find My iPhone or erasing all content and settings, all Face ID data will be deleted.

Apple's Face ID has developed a brand new way of unlocking your iPhone, downloading apps and paying for your goods. This "True depth" camera technology has revolutionised the way we use phones. This feature is great to have and use and as Apple claims that there are less safety and privacy risks using this face ID technology there are always some concerns about private information being leaked. Overall it is a great feature to use on the new iPhones and it is completely up to the user to setup and use this feature on their new iPhone.



#### References:

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# How Face ID Works

**Image sensor**  
Manufacturers  
include AMS and  
ST Microelectronics

**Infrared Filter**  
Manufacturers  
include  
Viavi

**VCSEL (laser)**  
Manufacturers include  
Lumentum Holdings  
& II-VI Inc.

**Wafer Level Optic (lens)**  
Manufacturers include  
Heptagon (AMS AG)  
& Himax Tech. Inc.

**Infrared Camera**

**Flood Illuminator**

**Dot Projector**

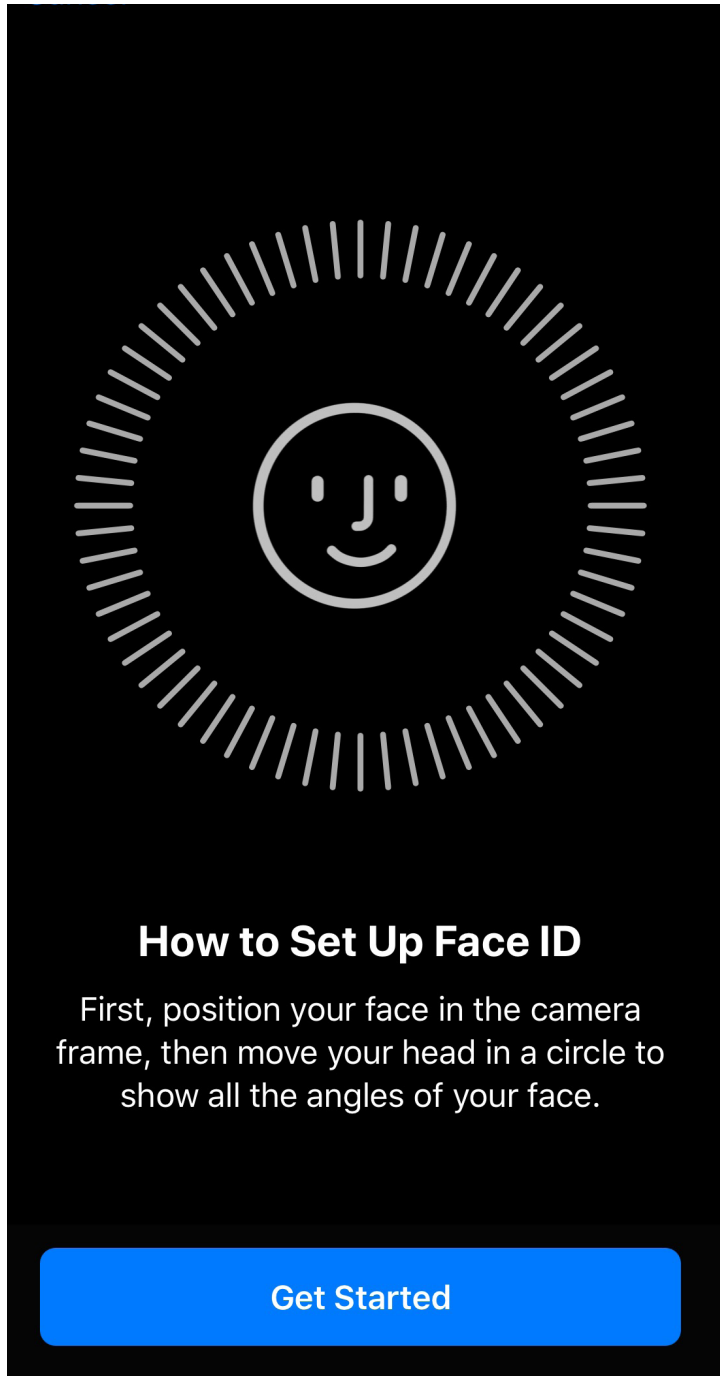
**❶ Flood illuminator**  
beams infrared light,  
which the camera  
uses to establish  
presence of a face

**❷ Dot projector**  
flashes 30K dots  
onto the face...

**❸ ...Which the**  
infrared camera  
reads



# How to setup Face ID



To set up Face ID:

1. Go to Settings > Face ID & Passcode. If asked, enter your passcode.
2. Tap Set Up Face ID.
3. Make sure that you're holding your device in portrait orientation, position your face in front of your device, and tap Get Started.
4. Position your face inside the frame and gently move your head to complete the circle. If you're unable to move your head, tap Accessibility Options.
5. When you finish the first Face ID scan, tap Continue.
6. Gently move your head to complete the circle for a second time.
7. Tap Done.

If you didn't set a passcode, you'll be asked to create one to use as an alternate way to verify your identity.

To choose features that you want to use Face ID with or reset Face ID, go to Settings > Face ID & Passcode.