

NFC Guide: All You Need to Know About Near Field Communication



Have you ever wondered what makes services like Apple Pay work? Square's NFC Guide explains everything you need to know about Near Field Communication.

BY SQUARE JAN 12, 2022 — 6 MIN READ

[MANAGING YOUR FINANCES](#)

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Table of contents

5 Frequently Asked Questions About NFC

Intro to NFC

From email to personal banking to

How does NFC work?

Is NFC secure?

EMV and NFC: What's the difference?

Why should I accept NFC?

How do you pay with NFC?

How do you accept NFC?

health apps, we're increasingly using our mobile devices to help us manage our day-to-day lives. So it's no surprise that NFC [mobile payments](#)—paying for stuff via your smartphone—are picking up steam. Soon, more and more of your customers will want to pay with their devices.

So to prep you for the sea change, here's a guide to NFC and how to accept it at your business.

5 Frequently Asked Questions About NFC

What is NFC?

NFC (near field communication) is the technology that allows two devices—like your phone and a payments terminal—to talk to each other when they're close together.

NFC is the technology that enables [contactless payments](#).

What are some

examples of NFC mobile payments?

The buzziest are Apple Pay, Android Pay, and Samsung Pay.

How do I accept NFC?

You'll need to get a new NFC-enabled payments reader that can accept contactless payments. The [Square contactless and chip reader](#) accepts both NFC and EMV payments.

Are NFC point-of-sale systems expensive?

Not necessarily. Some can be hundreds of dollars, but Square's NFC-enabled reader is just \$49.

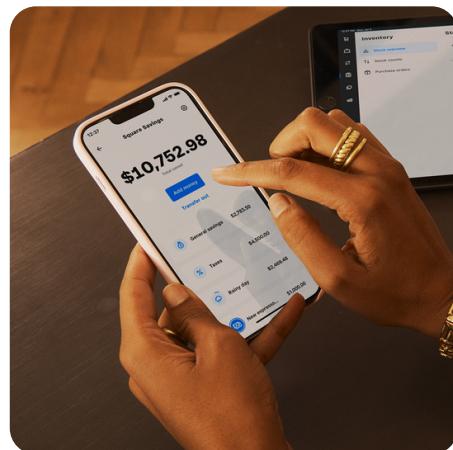
Is NFC secure?

NFC mobile payments are dynamically encrypted, making them one of the most secure ways to pay.

How does NFC work?

NFC (near field communication) is what enables two devices to communicate wirelessly when they're close together.

NFC is actually a subset of something called RFID (radio-frequency identification), a technology that allows us to identify things through radio waves. RFID is nothing new — it's been used for decades for things like scanning items in grocery stores and luggage on baggage claims, and tagging cattle.



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NFC, which was introduced in the early 2000s, uses a specific RFID frequency (13.56MHz, to be exact) for close-range communications. To date, one of the more common uses for NFC is identification cards to gain access to places like office buildings and private garages. But increasingly, NFC is being used to power something called "contactless" payments.

If you've stood in line at large retailers like Whole Foods, Walgreens, or Office Depot recently, you've probably already seen a contactless payment in action. A [contactless payment](#) is a transaction that requires no physical contact between a device (aka a smartphone) and a payments terminal. Meaning, people can just hold up their mobile devices to pay.

In an NFC payment, you tap or

hover your device to pay.

NFC is the technology that's at play here — it's the way the mobile device and the NFC-enabled [point-of-sale system](#) talk back and forth to each other to [process a payment](#). The devices do have to be close, though (that's where the "near" part of near field communication comes in). For a contactless payment to go off seamlessly, you usually have to hold your phone two inches or less from the reader.

When a contactless payment is initiated (by a customer holding or tapping a mobile device to the payments terminal), the NFC technology goes to work. Using that specific frequency we talked about, the NFC-enabled reader and the smartphone pass encrypted information back and forth to each other to complete the payment. This all takes just seconds.

Speed, in fact, is one of the coolest parts of NFC payments. They take a fraction of the time of magstripe and chip card transactions, and they are leagues faster than cash.



Is NFC secure?

The idea of paying through a mobile device can make some people uneasy, especially because we're so accustomed to keeping our wallets close to the vest (so to speak). But NFC payments are extremely secure — way more secure, in fact, than magnetic-stripe cards.

As opposed to the data on a magnetic-stripe card (which is static — it's all right there on the back of your card), the data involved in an NFC transaction is encrypted and dynamic, meaning it's constantly changing.

As an example, let's take Apple Pay, which uses a technology called [tokenization](#) to safeguard bank details. Here's how it works:

- After you take a picture of your credit card and load it into your iPhone (read our detailed guide about [how to set up Apple Pay](#)), Apple sends the details to your card's issuing bank or network.
- The banks and networks then replace your bank details with a series of randomly generated numbers (the token).
- That random number is sent back to Apple, which then programs it into your phone. This means that the account details on your phone can't be cloned into anything valuable to fraudsters.
NFC payments are encrypted and secure.

What's more, Apple Pay is protected by Touch ID or Face ID, Apple's fingerprint/facial recognition technology. To initiate an Apple Pay transaction, you have to unlock your phone via your fingerprint or face. So even if your device is stolen, no one would be able to get at your data. (This is the reason why Apple Pay only works on the most recent iPhone models, which come equipped with Touch ID.)

A variety of different NFC-enabled payments are coming to market. For

iPhone users, there's Apple Pay.
Android users have Google Pay and
Samsung Pay as options. Some chip

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How do you pay with NFC?

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What's the difference?

You may hear [EMV](#) and NFC lumped together in discussions. That's because they both represent the next wave of more secure, authenticated payments (since they're both encrypted to protect against counterfeiting). However, [EMV](#) and NFC are different technologies.



payments like Apple Pay. EMV® — developed and managed by American Express, Discover, JCB, Mastercard, UnionPay, and Visa — is associated with [chip card payments](#).

A quick refresher on what's happening here: The United States has moved toward chip cards (instead of magnetic-stripe cards) as the standard. These new chip cards are a lot more secure than the magnetic-stripe cards we currently carry, and have been proven to cut down on counterfeiting. Countries that have already made the switch to EMV (the U.S. is late to the party here) have seen a dramatic reduction in certain types of credit card fraud.

As a business, you'll want to set yourself up to accept EMV soon. That means you'll need a new [point of sale terminal](#), because chip cards are dipped instead of swiped. You can get a payment terminal that accepts both EMV and NFC transactions to make sure you can accept all the latest, most secure forms of payment from your customers.

Both EMV and NFC are
'authenticated' payments.

Why should I accept NFC?

NFC-enabled payments are the future for three key reasons: they're secure, fast, and convenient. Let's dive a little deeper.

More secure

Mobile wallets like Apple Pay tokenize your bank details, meaning they scramble them up into something that's unintelligible (and thus unusable) for fraudsters. What's more, these tokens change every time an NFC transaction goes down, so the data is near impossible to isolate and extract.

NFC payments like Apple Pay are also locked down by the fingerprint and facial recognition technology built into the iPhone (you initiate an Apple Pay payment with Touch ID or Face ID). Fraudsters may be

tricky, but they can't replicate your fingerprint or face.

Faster

We mentioned that everyone's getting EMV chip cards. Which is a good thing, because they're a lot more secure than magnetic-stripe cards. But what many people don't realize about chip cards is that EMV transactions are actually pretty slow to process. They're a lot slower than magstripe transactions, in fact.

What's happening during an EMV transaction is that the chip in the card is talking with the processor to make sure everything checks out — which is a good thing. But the lag time is pretty noticeable, especially if you have a line waiting.

NFC is the fastest way to pay—transactions take just seconds.

NFC transactions are much faster than EMV transactions — they take just seconds. And as people start to realize what it's like to pay with chip cards (aka how slow it is), they'll likely turn to [mobile payments](#), especially as they're just as secure

as EMV. We've seen this pattern in other countries that have adopted EMV as the standard; the adoption rate for NFC-enabled contactless payments increased after chip cards were standardized.

The speed of NFC transactions is a huge plus for businesses. After all, fast transactions mean more sales.

More convenient

We're getting used to doing everything on our phones. It's to the point where some people feel naked without them. The fact that more and more people now have their phones at the ready makes NFC-enabled contactless payments the most convenient way to pay. No more fishing for wallets or fumbling with cash.

How do you pay with NFC?

As a business owner, it's worth familiarizing yourself with how to pay with NFC as a customer.

For one, it's always a good idea to be up to speed on where the payments industry is headed. And second, it'll help you troubleshoot any issues your customers might have when they go to pay with their device.



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Getting yourself set up to pay via your phone is relatively easy. Most mobile wallets use your phone's camera to read the numbers on your credit card (which, as we mentioned above, become encrypted). If you're an iPhone user and want to use Apple Pay, you can also sync up your iTunes billing info. Check out our [step-by-step guide](#)

on how to pay with Apple Pay.

How do you accept NFC?

To accept NFC mobile payments at your business, you'll need to get set up with an NFC-enabled reader. But this doesn't have to cost you an arm and a leg. The Square contactless and chip reader accepts both EMV and NFC payments, and is just \$49.

With [tap to pay on iPhone](#) and Square Point of Sale or Square for Retail, you can accept all types of in-person, contactless payments right on your iPhone. When customers are ready to pay, they can use a physical credit or debit card enabled for contactless payments; or they can use a digital wallet app such as Apple Pay and tap directly on their iPhones to complete the transaction.



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