

SMS

Short Message Service

How it works

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SMS

SMS (Short Message Service), commonly referred to as "text messaging," is a service for sending short messages of up to 160 characters (224 characters if using a 5-bit mode) to mobile devices, including cellular phones, smartphones and PDAs.

SMS is similar to paging. However, SMS messages do not require the mobile phone to be active and within range and will be held for a number of days until the phone is active and within range. SMS messages are transmitted within the same cell or to anyone with roaming service capability. They can also be sent to digital phones in a number of other ways, including:

- From one digital phone to another
- From Web-based applications within a Web browser
- From instant messaging clients like ICQ
- From VoIP applications like Skype
- From some unified communications applications.

Users can send messages from a computer via an SMS gateway. SMS gateways are Web sites that allow users to send messages to people within the cell served by that gateway. They also serve as international gateways for users with roaming capability.

SMS History

SMS was created during the late 1980s to work with a digital technology called **GSM** (global system for mobile communications), which is the basis for most modern cell phones. The Norwegian engineers who invented it wanted a very simple messaging system that worked when users' mobile phones were turned off or out of signal range. Most sources agree that the first SMS message was sent in the UK in 1992.

As SMS was born in Europe, it's not surprising that it took a little longer to make its way to the United States. Even today, texting enjoys much greater popularity in Europe, though its stateside use is on the rise. A July 2005 study found that 37 percent of U.S. mobile phone owners had sent or received at least one text message in the previous month.

How SMS Works

Just when we're finally used to seeing everybody constantly talking on their cell phones, it suddenly seems like no one is talking at all. Instead, they're typing away on tiny numerical pads, using their cell phones to send quick messages. **SMS**, or text messaging, has replaced talking on the phone for a new "thumb generation" of texters.

In this article, we'll find out how text messaging works, explore its uses and learn why it sometimes takes a while for your text message to get to its recipient.

SMS stands for **short message service**. Simply put, it is a method of communication that sends text between cell phones, or from a PC or handheld to a cell phone. The "short" part refers to the maximum size of the text messages: 160 characters (letters, numbers or symbols in the Latin alphabet). For other alphabets, such as Chinese, the maximum SMS size is 70 characters.

Even if you are not talking on your cell phone, your phone is constantly sending and receiving information. It is talking to its cell phone tower over a pathway called a **control channel**. The reason for this chatter is so that the cell phone system knows which cell your phone is in, and so that your phone can change cells as you move around. Every so often, your phone and the tower will exchange a packet of data that lets both of them know that everything is OK.

Your phone also uses the control channel for call setup. When someone tries to call you, the tower sends your phone a message over the control channel that tells your phone to play its ringtone. The tower also gives your phone a pair of voice channel frequencies to use for the call.

The control channel also provides the pathway for SMS messages. When a friend sends you an SMS message, the message flows through the SMSC, then to the tower, and the tower sends the message to your phone as a little packet of data on the control channel. In the same way, when you send a message, your phone sends it to the tower on the control channel and it goes from the tower to the SMSC and from there to its destination.



The actual data format for the message includes things like the length of the message, a time stamp, the destination phone number, the format, etc.

Advantages of SMS

SMS has several advantages. It is more discreet than a phone conversation, making it the ideal form for communicating when you don't want to be overheard. It is often less time-consuming to send a text message than to make a phone call or send an e-mail. SMS doesn't require you to be at your computer like e-mail and **instant messaging** (IM) do -- although some phones are equipped for mobile e-mail and IM services. SMS is also a convenient way for deaf and hearing-impaired people to communicate.

SMS is a store-and-forward service, meaning that when you send a text message to a friend, the message does not go directly to your friend's cell phone. The advantage of this method is that your friend's cell phone doesn't have to be active or in range for you to send a message. The message is stored in the SMSC (for days if necessary) until your friend turns his cell phone on or moves into range, at which point the message is delivered. The message will remain stored on your friend's SIM card until he deletes it.

In addition to person-to-person messages, SMS can be used to send a message to a large number of people at a time, either from a list of contacts or to all the users within a particular area. This service is called **broadcasting** and is used by companies to contact groups of employees or by online services to distribute news and other information to subscribers.

In a 2004 University of Plymouth study on the psychology of SMS users, researchers found that mobile phone users were primarily either "texters" or "talkers" [ref]. Compared to the talkers, the texters sent nearly double the number of SMS messages and made less than half as many voice calls per month. The texters preferred SMS to voice calls for its convenience as well as for the ability to review a message before sending it.

Companies have come up with many uses for the service beyond just your typical person-to-person message. Because SMS doesn't overload the network as much as phone calls, it is frequently used by TV shows to let viewers vote on a poll topic or for a contestant. As a promotional tool, wireless carriers put up giant screens at concerts and other large-scale events to display text messages from people in the audience.

You can use text messaging subscription services to get medication reminders sent to your phone, along with weather alerts, news headlines or even novels broken into 160-character "chapters." Internet search engines such as Yahoo! and Google have short messaging services that enable users to get information such as driving directions, movie showtimes or local business listings just by texting a query to the search engine's phone number. Social networking services such as Dodgeball use SMS to alert people who live in big cities when their friends or crushes are nearby. The possibilities for integrating SMS into your lifestyle seem endless.



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SMS Criticism and Alternatives

Despite their popularity, short messaging services have received some criticism. Here are a few of the disadvantages of SMS:

- You have to pay for it. Most wireless plans charge for a certain number of text messages a month. Some only charge for user-originated messages, while others charge for incoming messages as well. If you exceed your message allowance, you may be charged 10 cents per message, and those little charges can add up.
- Speedy message delivery is not guaranteed. During periods of high traffic, it might be minutes or even hours before a message gets through.
- It's strictly for sending text messages. SMS does not support sending pictures, video or music files.

Alternatives to SMS

Alternative messaging services allow for more elaborate types of messages. With **EMS** (Enhanced Messaging Service), you can send formatted text, sound effects, small pictures and icons. **MMS** (Multimedia Messaging Service) allows you to send animations, audio and video files in addition to text. If your mobile phone is EMS- or MMS-enabled, you can use these standards just as you would SMS. However, the cost per message will be higher.

Another alternative to using SMS is using an instant messaging program, such as AOL IM, on your cell phone. This can be in the form of software that's pre-installed on your phone, or you can use **WAP** (Wireless Application Protocol) to access the Internet and sign into your IM account. WAP is a protocol that gives you small, simplified versions of web pages that are easily navigable on your mobile phone or PDA. You can use it to send instant messages or actual e-mails from your phone.

A common complaint about SMS is its inefficient delivery structure -- when the message center is backed up, messages take longer to reach their destination. To make message delivery faster, networks are using more new next-generation technologies such as **GPRS** (General Packet Radio Service).