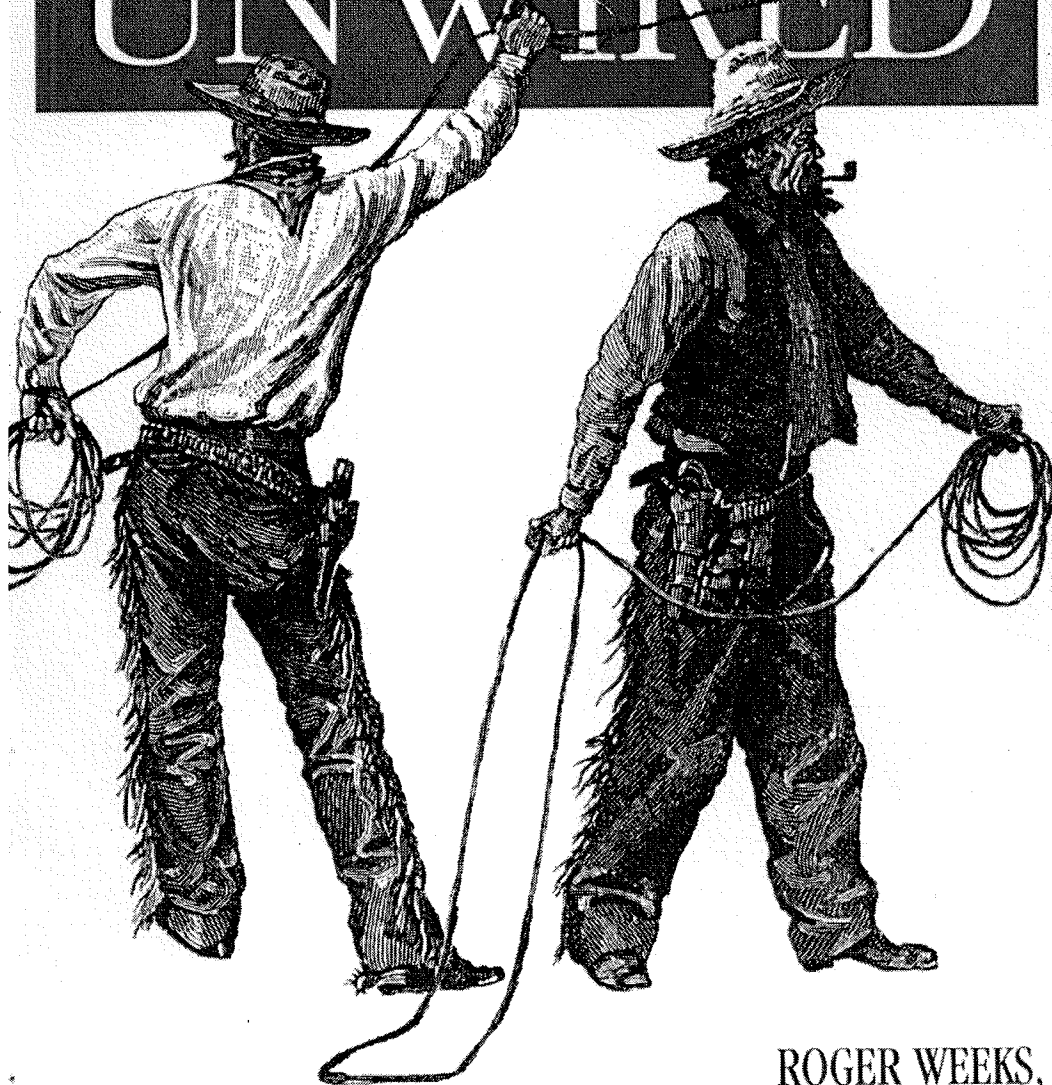


A COMPLETE GUIDE TO WIRELESS CONFIGURATION

LINUX UNWIRED



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EDD DUMBILL & BRIAN JEPSON

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Beijing · Cambridge · Farnham · Köln · Paris · Sebastopol · Taipei · Tokyo

Linux Unwired

by Roger Weeks, Edd Dumbill, and Brian Jepson

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timeslots your device supports for upstream data, as well as by the number of timeslots your cellular carrier makes available for this purpose.

EDGE is an improvement over GSM in that it increases the data rate per timeslot significantly. Instead of 9.6 kbps to 13.4 kbps, EDGE supports between 48 and 70 kbps per timeslot. However, to take advantage of EDGE speeds, you need a handset or PC Card that supports EDGE, such as the Nokia 6200 cell phone or the Sony Ericsson GC82 PC Card Modem. EDGE devices are backward-compatible with GSM and GPRS, so if you're in a location without EDGE coverage, you can still connect at the slower GPRS speeds.

GSM devices require the installation of a Subscriber Identity Module (SIM). You (or the salesperson) insert this card when you first get the phone. If you have more than one phone, you can swap SIMs and use the phone that is currently holding the SIM. However, most cellular providers lock the device to their network, so you can use the phone only with them. So, if you buy a phone from AT&T Wireless and insert the SIM you bought from T-Mobile, you'll receive an error message. However, there are many ways to remove this lock. Some carriers will do it for you if you contact their customer support and ask; this is usually done for customers who have been with the carrier for a while, have an account in good standing, and are planning to use the phone overseas (you can save money by buying a pay-as-you-go SIM from a local cellular provider and swapping SIMs while you are abroad). Figure 9-1 shows a Nokia 6200 that is being inserted with an AT&T Wireless SIM card (that's the battery next to it, which we had to remove to get at the SIM).

1xRTT and 1xEV-DO

1xRTT is an improvement to CDMAone, the first version of Code Division Multiple Access (CDMA), a digital cellular protocol that supported data rates up to 14.4 kbps. 1xRTT cranks it up to 144 kbps upstream and downstream. Instead of slicing up cellular channels by timeslots, CDMA uses spread-spectrum technology to support multiple users in each 1.25 MHz-wide CDMA channel within the 800 and 1900 MHz bands. Each user within a given CDMA channel is associated with a code, and their signals (tagged with the associated code) are spread across the channel. Although CDMA is not as widespread as GSM, there are still many users (188 million at the end of 2003). It's available in the U.S., parts of Asia, Latin America, and Europe.

1xEV-DO improves on 1xRTT by supporting burst speeds up to 2.4 Mbps while still keeping channels only 1.25 MHz wide. At the time of this writing, Verizon Wireless has begun 1xEV-DO trials in San Diego and Washington, D.C. (priced the same as its 1xRTT offering). Initial reports indicate that 300–500 kbps are the likely real-world speeds.

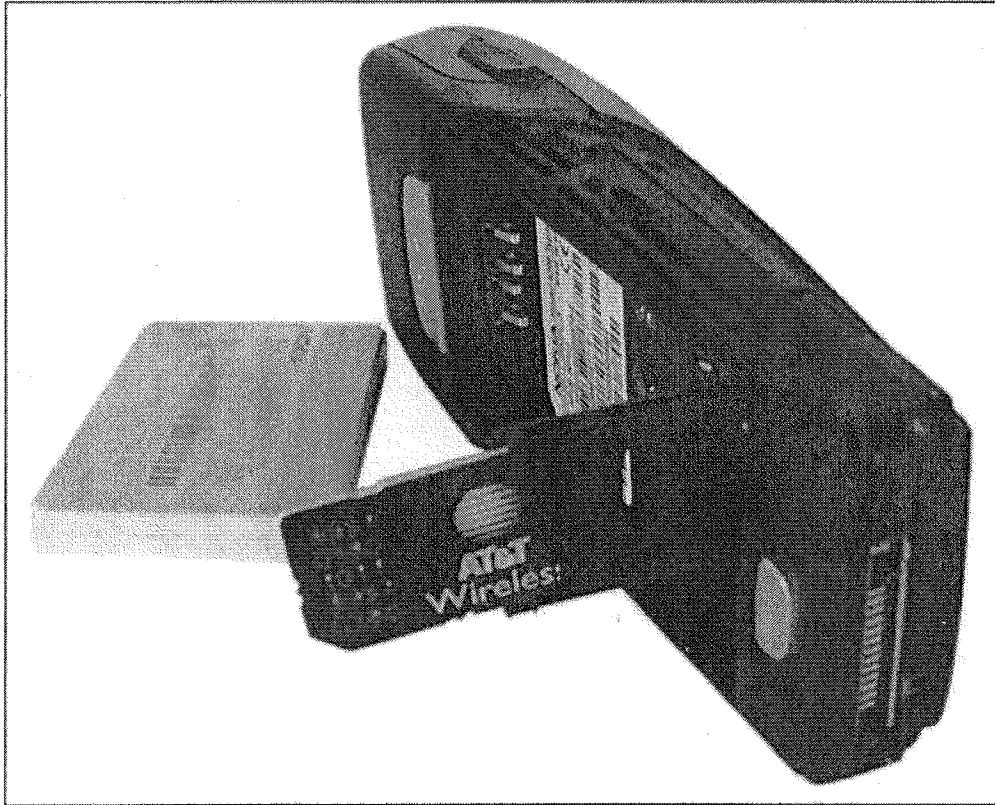


Figure 9-1. Inserting a SIM card into a Nokia 6200

CDMA phones do not use SIM cards. As a result, you can't move your account to a new phone as easily as you can with GSM phones. You must contact your cellular provider, deactivate the old phone, and activate the new one. (Your carrier may also allow you to do this through its customer support web site).

Some Cellular Carriers

There are major cellular carriers around the world; This section looks at some of the major U.S. providers. Of the ones described here, we have hands-on experience with Sprint, Verizon Wireless, AT&T Wireless, and T-Mobile.

To connect to the Internet using a GPRS carrier, you must specify an Access Point Name (APN), which is the name of a gateway on the carrier's network that gets you on the Internet. After that, dial *99#***1# to connect. APNs for networks not listed here can be found in a variety of places online, but your best bet is to contact your cellular provider. Opera Software maintains a list of user-submitted carriers and APNs at <http://www.opera.com/products/smartphone/docs/connect/>.

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