

Nokia 3100

User Guide Draft

What information is needed?	Numbers	Where is the number?
My number		Wireless service provider
Voice mail number		Wireless service provider
Wireless provider's number		Wireless service provider
Wireless provider's customer care		Wireless service provider
Model number	3100b	Label on back of phone (under battery)
Phone type number	RH-50	Label on back of phone (under battery)
International Mobile Equipment Identity (IMEI)		Label on back of phone (under battery). See "Find information about your phone" on page 6.

The wireless phone described in this guide is approved for use in 850, 1800 and 1900 GSM networks.

LEGAL INFORMATION

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US Patent No 5818437 and other pending patents.

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Includes RSA BSAFE cryptographic or security protocol software from RSA Security.



Java is a trademark of Sun Microsystems, Inc.

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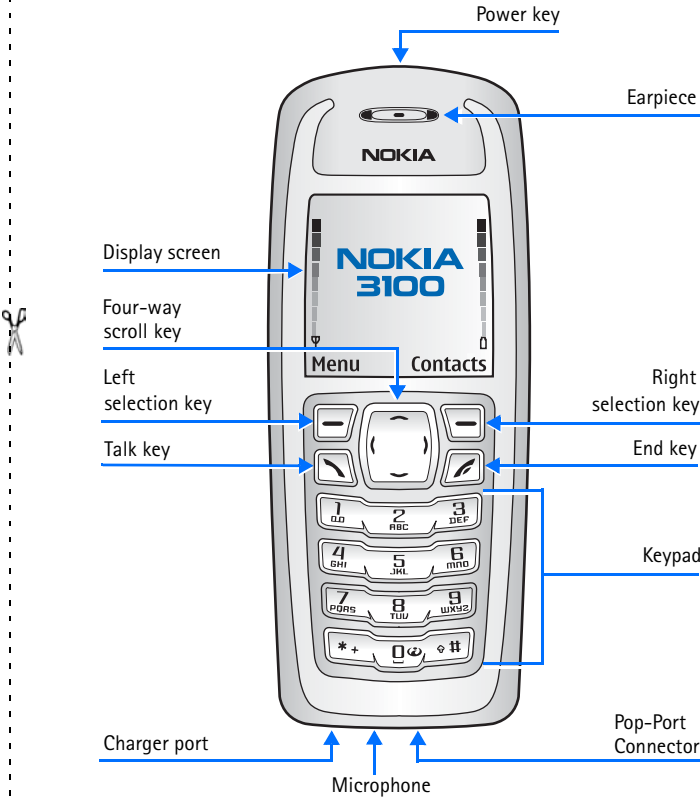
Your phone may cause TV or radio interference (for example, when using a telephone in close proximity to receiving equipment). The FCC or Industry Canada can require you to stop using your telephone if such interference cannot be eliminated. If you require assistance, contact your local service facility. This device complies with part 15 of the FCC rules. Operation is subject to the condition that this device does not cause harmful interference.

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Nokia 3100 phone at a glance



Quick guide–Draft

Press	Press a key briefly and release it.
Press and hold	Press a key, hold it for two to three seconds, and release it.
Make a call	Enter a phone number and press the Talk key.
Answer a call	Press the Talk key.
Answer call during call	Select Answer call .
End a call	Press the End key.
Decline a call	Press the End key.
Mute a call	Select Options > Mute during a call.
Redial	Press the Talk key twice.
Adjust call volume	Press the Scroll left or Scroll right key during a call.
Use the in-call menu	Select Options during a call.
Save a name and number	Enter a number, select Options , select Save , enter a name, and select OK .
Use 1-touch dialing	Press and hold a key (2–8). You must assign a key to a number in Contacts .
Look up a name	Press the Scroll left or Scroll right key.
Check voice mail	Press and hold the 1 key (contact your service provider for details).
Write and send text messages	Select Menu > Messages > Text messages > Create message . Enter the message and select Options > Send . Enter the number and select OK .
Write and send multimedia messages	Select Menu > Messages > Multimedia msgs.> Create message . Enter the message, select Options and select either Send to number , Send to e-mail , or Send to many .
Read new message	If 1 message received appears on the display, select Show .



1 For your safety

Read these simple guidelines. Not following them may be dangerous or illegal.
Read the complete user guide for further information.



SWITCH ON SAFELY

Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.



ROAD SAFETY COMES FIRST

Obey all local laws. Always keep your hands free to operate the vehicle while driving. Your first consideration while driving should be road safety.



INTERFERENCE

All wireless phones may be susceptible to interference, which could affect performance.



SWITCH OFF IN HOSPITALS

Follow any restrictions. Switch the phone off near medical equipment.



SWITCH OFF IN AIRCRAFT

Follow any restrictions. Wireless devices can cause interference in aircraft.



SWITCH OFF WHEN REFUELING

Don't use the phone at a refueling point. Don't use near fuel or chemicals.



SWITCH OFF NEAR BLASTING

Follow any restrictions. Don't use the phone where blasting is in progress.



USE SENSIBLY

Use only in the normal position as explained in the product documentation. Don't touch the antenna unnecessarily.



QUALIFIED SERVICE

Only qualified personnel may install or repair this product.



ENHANCEMENTS AND BATTERIES

Use only approved enhancements and batteries. Do not connect incompatible products.

For your safety

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WATER-RESISTANCE

Your phone is not water-resistant. Keep it dry.



BACKUP COPIES

Remember to make back-up copies or keep a written record of all important information stored in your phone



CONNECTING TO OTHER DEVICES

When connecting to any other device, read its user guide for detailed safety instructions. Do not connect incompatible products.



EMERGENCY CALLS

Ensure the phone is switched on and in service. Press **End** as many times as needed to clear the display and return to the main screen. Enter the emergency number, then press **Send**. Give your location. Do not end the call until given permission to do so.

2 Welcome

Congratulations on your purchase of the Nokia 3100 mobile phone. Your phone provides many functions which are practical for daily use, such as a stopwatch, alarm clock, calculator, calendar, and more. Your phone can also connect to a PC, laptop, or other device using the data cable. To personalize your phone, you can set your favorite ringing tones, create a Go to Menu, and select an Xpress-on™ color cover. For more information on connectivity, refer to the "Nokia PC Suite user guide." The "Nokia PC Suite user guide," Nokia PC Suite, and all related software can be downloaded from the U.S. Mobile Phone products section of www.nokia.com.

Look for updates

From time to time, Nokia updates this guide to reflect changes. The latest version may be available at www.nokia.com.

Also, an interactive tutorial may be available at www.nokiahowto.com.

Access alternate formats

This user guide is available in alternate formats, contact Nokia at www.nokiaaccessibility.com or call 1-888-665-4228 for more information.

Extended user guide

An extended user guide is available at www.nokia.com.

• ABOUT YOUR PHONE

The wireless device described in this guide is approved for use on the GSM 850, 1800, and 1900 networks. Contact your service provider for more information about networks.

When using the features in this device, obey all laws and respect privacy and legitimate rights of others.



Warning: To use any features in this device, other than the alarm clock, the phone must be switched on. Do not switch the device on when wireless phone use may cause interference or danger.

• NETWORK SERVICES

To use the phone you must have service from a wireless service provider. Many of the features in this device depend on features in the wireless network to function. These Network Services may not be available on all networks or you may have to make specific arrangements with your service provider before you can utilize Network Services. Your service provider may need to give you additional

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instructions for their use and explain what charges will apply. Some networks may have limitations that affect how you can use Network Services. For instance, some networks may not support all language-dependent characters and services.

Your service provider may have requested that certain features be disabled or not activated in your device. If so, they will not appear on your device menu. Contact your service provider for more information.

- **REGISTER YOUR PHONE**

Make sure to register your phone at www.warranty.nokiausa.com or 1-888-NOKIA-2U (1-888-665-4228) so that we can serve your needs better if you should need to call the center or have your phone repaired.

- **SHARED MEMORY**

The following features in this phone may share memory: contacts, text and multimedia messages, images and ringing tones in gallery, calendar, to-do notes, and Java™ games and applications. Using any such features may reduce the memory available for any features sharing memory. This is especially true with heavy use of any of the features (although some of the features may have a certain amount of memory specially allotted to them in addition to the amount of memory shared with other features). For example, saving many images, bookmarks, Java apps, or other features sharing memory may take all of the shared memory and your phone may display a message that the memory is full. In this case, delete some of the information or entries stored in the shared memory features before continuing.

- **COPYRIGHT PROTECTION**

Copyright protections may prevent some images, ringing tones, and other content from being copied, modified, transferred or forwarded.

- **CONTACT NOKIA**

If you ever need to call Nokia Customer Care or your service provider, you will need to provide specific information about your phone.

Find information about your phone

This information is provided on the phone label. The label is on the back of the phone (under the battery). See "Remove the back cover and battery" on page 9 for instructions on how to access the phone label. The label shows the following:

- Phone type
- Phone model
- International Mobile Equipment Identity (IMEI)
- FCC ID number

Have the phone or enhancement available

Whether you are calling about your phone or an enhancement, have the equipment with you when you call. If a Nokia representative asks a specific question about the enhancement, you will have it available for quick reference.

Nokia Customer Care Center, USA	Customer Care Centre, Canada
Nokia Mobile Phones 7725 Woodland Center Boulevard, Suite #150 Tampa, Florida 33614 Tel: 1-888-NOKIA-2U (1-888-665-4228) Fax: 1-813-249-9619 For TTY users: 1-800-24-NOKIA (1-800-246-6542)	Nokia Products Ltd. 601 Westney Rd. South Ajax, Ontario L1S 4N7 Tel: 1-905-427-1373 1-888-22-NOKIA (1-888-226-6542) Fax: 1-905-427-1070 Web site: www.nokia.ca

Contact your service provider

In many cases, the service provider will make available descriptions of its services and instructions for using features, such as:

- Voice mail and voice privacy
- Call waiting, call forwarding, and caller ID
- Messaging
- News and information services
- Selected Internet services

Service providers may differ in their support of features. Before you sign up with a service provider, make sure that the service provider supports the features that you need.

3 Overview of functions

Certain features use shared memory. See "Shared memory" on page 6 for more information.

- Multimedia Messaging Service (MMS), see "Multimedia messages" on page 27 and "Options" on page 24.
- Speaker phone function, see "Speaker phone" on page 19
- Polyphonic MIDI ringing tones enable richer ringing tones with a wide variety of sounds.
- General Packet Radio Service (GPRS) is used for sending and receiving data over the mobile network. Your phone supports up to three simultaneous GPRS connections. See "GPRS, HSCSD, and CSD" on page 53.
- MIDP Java applications specially designed for mobile phones. See "Applications" on page 47.
- Nokia OTA settings service. Several services need proper settings in your phone. You may receive the settings directly as an Over The Air (OTA) message and you only need to save the settings. Contact your nearest authorized Nokia dealer for more information.
- The built-in browser can interpret both WAP-based and XHTML-based content. See "Services" on page 52.
- Special user interface features allow you to choose two types of menu interface, List and Grid. See "Menu view" on page 41.

4 SIM card and battery

Before you begin, you need to prepare your phone by installing the SIM card and charging the battery. This chapter covers these topics, as well as instructions on how to attach the optional headset.

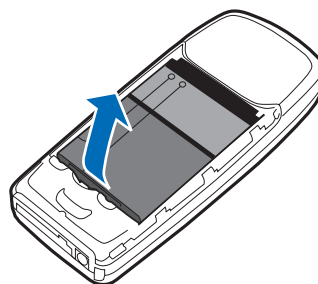
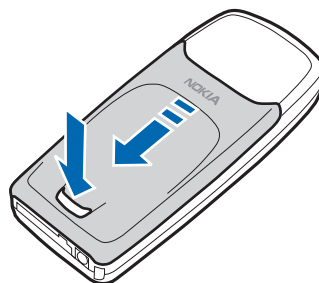
• SIM CARD INSTALLATION



Warning: Keep all SIM cards out of the reach of small children. For availability and information on using SIM card services, contact your SIM card vendor. This may be the service provider, network operator, or other vendor.

Remove the back cover and battery

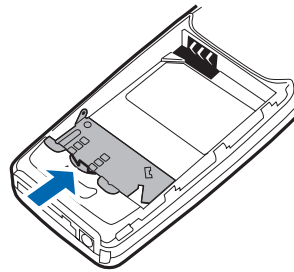
- 1 With the back of the phone facing you, push the back cover release button.
- 2 Slide and lift the bottom of the back cover to remove.
- 3 After you have removed the back cover, insert your finger into the finger grip and lift the battery from its compartment.



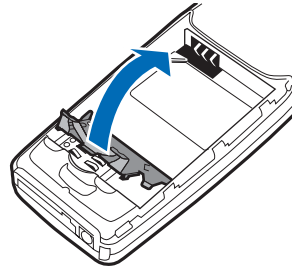
Install the SIM card

The SIM card and its contacts can easily be damaged by scratches or bending, so be careful when handling, inserting, or removing the card.

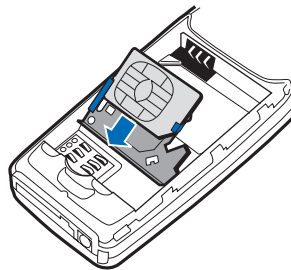
- 1 Use a fingernail as a lever to unlatch the metal SIM card holder.



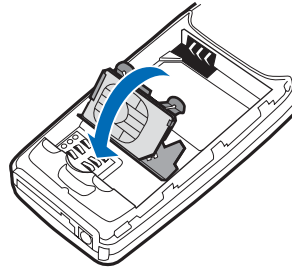
- 2 Swing the SIM card holder open.



- 3 Insert the SIM card into the holder as shown, beveled corner first, with the gold colored contacts on the SIM card face up (away from the phone).



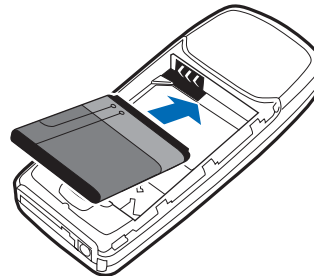
- 4 Swing the SIM card holder closed. The gold colored contacts on the SIM card will meet the gold colored contacts on the inside of the phone. Gently press the SIM card holder into the phone until it clicks into place.



Install the battery

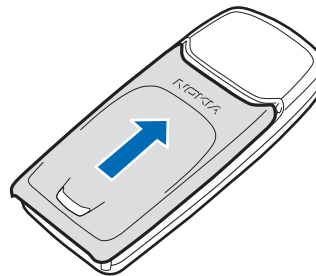
The SIM card must be installed *before* installing the battery.

- 1 Position the battery so the gold colored contacts match up with those on the phone. The battery label should be facing *toward* the phone.
- 2 Insert the battery, contact end first into the battery slot.
- 3 Snap the other end of the battery into place.



Replace the back cover

- 1 Place the back cover just below its locked position on the back of the phone.
- 2 Slide the back cover toward the top of the phone to lock the cover into place.



Note: Always store and use the phone with the covers attached.

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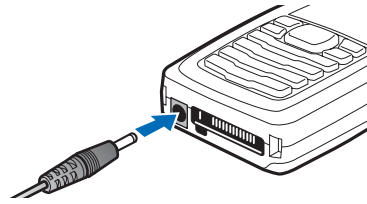
• CHARGE THE BATTERY

- 1 Connect the charger to a standard wall outlet.
- 2 Insert the charger plug into the round jack in the of the phone.

The battery power indicator (or battery bar) appears on the screen and starts scrolling. If the phone is on, **Charging** appears briefly on the screen. When the battery bar stops scrolling, the battery charge is complete. **Battery full** appears also, if the phone is on.

- 3 Disconnect the charger from the phone.

You can use the phone while the charger is connected.

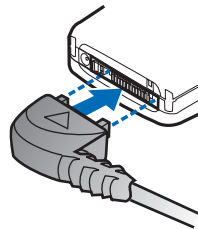


• SET UP YOUR HEADSET

Your phone may come with a headset you can use while talking on your phone. The headset provides convenient handsfree use of the phone. The HS-5 headset is compatible with your phone.

Connect the headset

- 1 Insert the headset plug into the headset jack in the phone.
- 2 Put the round ear bud into one ear.



Use the headset



With the headset (HS-5) connected, you can make and answer calls as usual, using the keypad to press the **Talk** key and the **End** key or to enter numbers to call.

The microphone for the headset hangs at the side of your head. Although the microphone may seem far from your mouth, you can speak at a normal volume. Refer to the packaging materials of your headset for further information regarding its operation.

5 About your phone

• IN-PHONE HELP

Many features have brief descriptions (help text) which can be viewed on the display. To view the help text, scroll to a feature and wait for about 15 seconds. Select **More** to view all of the description (if necessary) or select **Back** to exit. See "Help text" on page 40 for more information.

• ABOUT THE ANTENNA



Note: Your phone has a built-in antenna. As with any other radio transmitting device, do *not* touch the antenna unnecessarily when the phone is switched on.

Contact with the antenna affects call quality and may cause the phone to operate at a higher power level than otherwise needed.

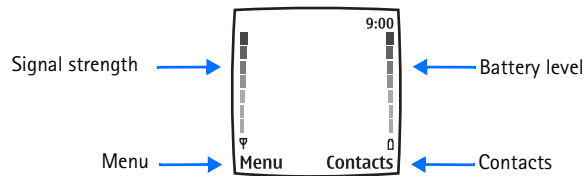


Not touching the antenna during a call optimizes the antenna performance and the talk time of your phone. Hold the phone as you would any other telephone, with the antenna area pointed up and over your shoulder.

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- **START SCREEN**

When you turn on your phone, the first screen that appears is the start screen. The start screen is "home base" and indicates that the phone is in the standby mode.



Signal strength—A higher bar indicates a stronger network signal.

Battery level—A higher bar indicates more power in the battery.

Menu—The **Left selection** key in the standby mode accesses the menu functions.

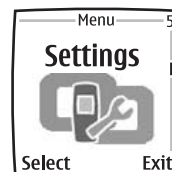
Contacts—The **Right selection** key in the standby mode accesses either the **Contacts** menu, the **Go to** menu, or a service provider's home page.

After you set functions for the **Right selection** key, the word **Contacts** changes to **Go to** in the start screen. To set the functions, see "Personal shortcuts" on page 37. To activate a function in the **Go to** menu, select **Go to** in the start screen, scroll to the desired function, and select **Select**.

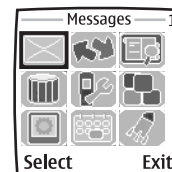
- **SPECIAL USER INTERFACE FEATURES**

You can choose from two types of menu interface: **List** and **Grid**. See "Menu view" on page 41 for more information.

In the **List** interface, full color images introduce every menu. Use the **Scroll up** and **Scroll down** keys to navigate through the menus.



In the **Grid** interface, multiple menu icons appear on a single display. Use all four scroll keys to navigate through the icons.



Animated screen savers

Your phone has preinstalled animated, color screen savers that can be accessed from the **Gallery**. See "Screen saver" on page 37 for more information. Press any key to deactivate the screen saver.

Wallpaper

You can set the phone to display a background picture (wallpaper) when it is in the standby mode.

• CHANGE THE XPRESS-ON™ COVERS



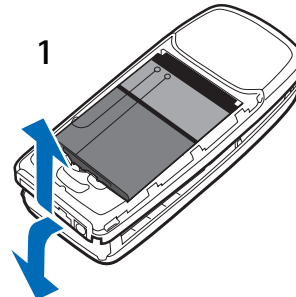
Warning: Before changing covers, ensure the phone is powered off and disconnected from the charger or any other device. Always store and use the phone with the covers attached.

Remove the back cover

This procedure is discussed in the section "Remove the back cover and battery" on page 9. You do not need to remove the battery when changing your phone's covers.

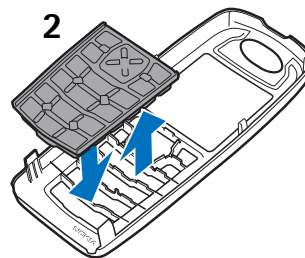
Remove the front cover

- 1 Pull the front cover latch on the bottom of the phone while gently pulling the top of the front cover away from the rest of the phone.



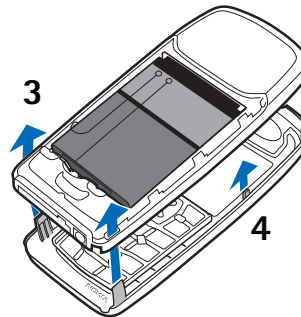
Install the key mat and new front cover

- 2 Remove the key mat from the old front cover and place it into the new front cover as shown.

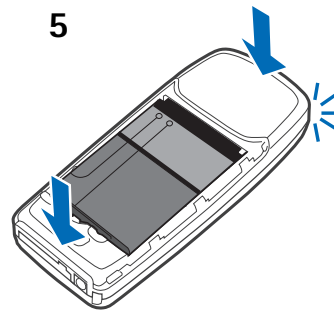


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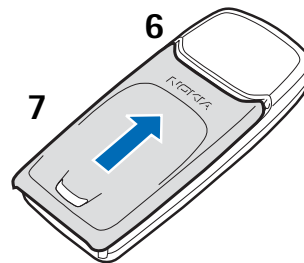
- 3 Insert the latches from the bottom of the new front cover into the matching holes at the bottom of the phone.
- 4 Gently push the latches from the middle of the front cover into the matching holes in the middle of the phone.



- 5 Gently push the cover latch on the top of the front cover through the locking hole in the top of the phone and snap the cover into place.



- 6 Match the top of the back cover to the locking catch in the top of the phone.
- 7 Position the back cover over the locking catches on both sides of the phone and press down to lock the cover into place.



6 Basic operations

• SWITCH THE PHONE ON OR OFF



Warning: Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

- 1 To turn your phone on or off, press and hold the power key on top of the phone for at least three seconds.

If the phone displays **Insert SIM card**, even though the SIM card is properly inserted, or **SIM card not supported**, contact your service provider.

- 2 If the phone asks for a PIN code, enter the PIN code (displayed as ****) and select **OK**.
- 3 See the information about PIN codes on page 22, if applicable.
- 4 If the phone asks for a security code, enter the security code and select **OK**.
See "Security" on page 42 for more information.

If the language that appears in your display is not correct, see "Set the display language" on page 40 for information on changing the display language.



• SET THE TIME

- 1 Select **Menu > Settings > Time and date settings > Clock > Set the time**.
- 2 Enter the time (in *hh:mm* format), select **OK**, then select **am** or **pm**.

• MAKE AND ANSWER CALLS

Use the keypad

Enter the phone number (including the area code) and press the **Talk** key.

- To delete a character to the left of the cursor, select **Clear**.
- To end the call or to cancel the call attempt, press the **End** key.

Use contacts

- 1 Select **Contacts > Find** and scroll to the entry you want to view.
- 2 Press the **Talk** key to make the call or select **Details** to view the entry details.

To search the list of entries quickly, enter the first letter of the name for which you are searching.

Redial the last number

Press the **Talk** key twice.

Answer or reject a call

- Press the **Talk** key to answer the call.
- Press the **End** key to reject the call. If **Forward if busy** is activated to your voice mailbox, the call is diverted to your voice mail. If not, the call is rejected.

If you select **Silence**, the ringing tone is muted. You can then either answer or reject the incoming call.



Note: If the HDB-4 or HS-5 headset is connected, you can answer or end a call by pressing the key on the headset.

Answer a call with the keypad locked

To answer a call with the Keyguard on, simply press the **Talk** key. During the call, all features function as normal. When you end or reject the call, the keypad automatically relocks. See "Lock the keypad (Keyguard)" on page 22 for more information.



Note: When the Keyguard is on, calls still may be possible to the official emergency number programmed into your phone. Enter the emergency number and press the **Send** key.

• ADJUST THE EARPIECE VOLUME

- To increase the volume of a call, press the **Scroll right** key.
- To decrease the volume of a call, press the **Scroll left** key.
- When adjusting the volume, a bar chart appears in the display indicating the volume level.



Note: You can only adjust the earpiece volume during an active call.

• SPEAKER PHONE

You can use your phone as a speaker phone during a call. Do not hold the phone to your ear when you are using it as a speaker phone.

- To activate the speaker phone during a call, select **Loudspeaker**.
- To deactivate the speaker phone during a call, select **Handset**.
- The speaker phone is deactivated automatically when a call (or a call attempt) ends or when certain enhancements are connected.



Note: When you select the **New call** option from the in-call menu, the speaker phone does not automatically deactivate.

7 Text entry

You can use two methods for entering text and numbers.

- **Standard mode** is the only way to enter names into **Contacts** and to rename caller groups.
- **Predictive text input** is a quick and easy method for writing messages.

Press the **Pound** key to switch predictive text on or off and to use predictive text in various modes.

• STANDARD MODE

- Press a key once to insert the first letter on the key, twice for the second letter, etc. If you pause briefly, the last letter in the display is accepted and your phone awaits the next entry.
- Select **Clear** to backspace the cursor and delete a character.
- Select and hold **Clear** to backspace continuously and delete characters.
- Press the **0** key to enter a space and accept a completed word.
- Press the **1** key to enter a period.
- Press the **Star** key to display special characters. See "Enter punctuation and special characters" on page 21.

To switch to **123** mode from **Abc** mode, press and hold the **Pound** key at any message entry screen until the icon in the upper left corner of the display switches from **Abc** to **123** (or vice versa).

• PREDICTIVE TEXT

Predictive text input allows you to write messages quickly using your keypad and the built-in phone dictionary. It is much faster than using the standard mode "multi-tap" method. You can use predictive text to write a message and create a calendar note.

Activate predictive text

- 1 At any text entry screen, select and hold **Options**.

OR

At a text entry screen, select **Options > Predictive text**.

- 2 Select the language of your choice.

Enter text

- For each letter of the word that you want to spell, press the corresponding key on your keypad only *once*, even if the letter you want is not the first letter on the key. The phone "guesses" the word you are trying to spell.

- If a displayed word is not correct, press the **Star** key to see other matches. To move forward through a list of matches, keep pressing the **Star** key. To return to the previous word in the list of matches, select **Previous**.
- Press the **0** key to accept the word, enter a space, and begin writing the next word.
- If **?** appears after a word, select **Spell** to add the word to the dictionary. See "Add new words to the dictionary" on page 21.
- Press the **1** key to insert a period into your message.
- Press and hold the **Star** key to display special characters. See "Enter punctuation and special characters" on page 21.

Compound words

Enter the first part of the word and confirm it by pressing the **Scroll right** key. Enter the last part of the word and confirm it by pressing the **0** key.

Add new words to the dictionary

If you encounter a word that predictive text does not recognize, a question mark (?) follows the word and **Spell** appears in the lower left of the display.

Select **Spell**, enter your new word using the keypad, and select **Save**. The word is added to the dictionary and to the message that you are writing.

Keep these factors in mind when adding words:

- New words that you accept by selecting **Save**, the **0** key, or deleting the space between two words are saved to the dictionary.
- Depending on the language and the length of the words, you may be able to add hundreds of words to the dictionary.
- When the dictionary is full, the most recent addition replaces the first.

• ENTER PUNCTUATION AND SPECIAL CHARACTERS

While at any text entry screen, press the **Star** key to display special characters (press and hold the **Star** key if predictive text is on).

Navigate through the list of special characters by using the four-way scroll key like a joystick. Once a character is highlighted, select **Insert** to insert the character into your message.

8 Phone security

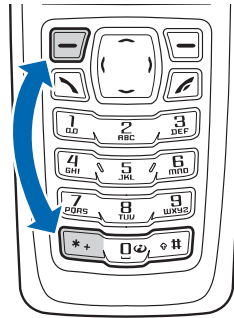
• LOCK THE KEYPAD (KEYGUARD)

Keyguard disables your keypad to prevent accidental key presses (for example, when your phone is in your pocket or purse).

- To lock the keys, select **Menu** and press the **Star** key.
- To unlock the keys, select **Unlock** and press the **Star** key.

When the Keyguard is enabled, the keypad and display cannot light if you press a key. Press the power button briefly to activate the keypad and display lights.

Note: When the Keyguard is on, calls still may be possible to the official emergency number programmed into your phone. Enter the emergency number and press the **Send** key.



Automatic Keyguard

You can have your phone automatically lock the keys after a time you specify. See "Set automatic Keyguard" on page 40 for more information.

• ACCESS CODES

- **Security code**—This code, supplied with the phone, protects your phone against unauthorized use. The preset code is 12345. See "Security" on page 42 for more information.
- **PIN code**—This code, supplied with the SIM card, protects the card against unauthorized use. Set on the **PIN code request** in the **Security settings** menu (see "Security" on page 42 for more information), so that the code is requested each time the phone is switched on. If you enter an incorrect PIN code three times in succession, the SIM card is blocked. You must enter the PUK code to unblock the SIM card and set a new PIN code.
- **PIN2 code**—This code is supplied with some SIM cards and is required to access certain services, such as charging unit counters. If you enter an incorrect PIN2 code three times in succession, **PIN2 code blocked** appears in the display and you will be asked for the PUK2 code.

You can change the security code, PIN code and PIN2 code in **Access codes** in

the **Security** settings menu. See "Security" on page 42 for more information. Keep the new codes secret and in a safe place, separate from your phone.

- **PUK and PUK2 codes**—These codes may be supplied with the SIM card. For more information, contact your service provider.
- **Call restriction password (4 digits)**—The restriction password is needed when using the **Call restrictions**. See "Security" on page 42 for more information. You can obtain the password from your service provider.

9 Messages



You can read, write, send and save text, multimedia, and e-mail messages. Before sending a message, you need to save your message center number. See "Message settings" on page 31 for more information.

• TEXT MESSAGES

Your phone is able to send and receive multi-part messages made of several ordinary text messages (Network Service) that can contain pictures.

Write and send

- 1 Select **Menu** > **Messages** > **Text messages** > **Create message**.
- 2 Compose a message (using the keypad) and select **Options** > **Send**.
- 3 Enter the recipient's phone number or select **Find** to retrieve a number from **Contacts**, and select **OK**.



Note: When sending messages, your device may display the words **Message Sent**. This is an indication that the message has been sent by your device to the message center number programmed into your device. This is not an indication that the message has been received at the intended destination. For more details about messaging services, check with your service provider.

Options

You have various options of sending a message, other than the **Send** option discussed in "Write and send". To access one of these options, select **Options** > **Sending options** and one of the following:

Send to many—Send the message to several recipients.

Send to list—Send the message to a predefined distribution list. See "Distribution lists" on page 26 for more information.

Sending profile—Use a predefined message profile to send the message. See "Message settings" on page 31 for more information.

E-mail

Before you can send any e-mails via SMS, you need to save the settings for e-mail sending. See "Message settings" on page 31 for more information. To check e-mail service availability and to subscribe to the service, contact your service provider. To save an e-mail address in **Contacts**, see "Save numbers, text items, and images per contact" on page 35.

- 1 Select **Menu > Messages > Text messages > Create SMS e-mail**.
- 2 Enter the e-mail address or select **Find** to retrieve an e-mail address from **Contacts** and select **OK**.
- 3 Enter a subject for the e-mail and select **OK**.
- 4 Compose your e-mail (using the keypad) and select **Options > Send e-mail**.



Note: When sending e-mails via the SMS network service, your phone may display the words, **Message sent**. This is an indication that the e-mail has been sent by your phone to the e-mail server. This is not an indication that the e-mail has been received at the intended destination. For more details about e-mail services, contact your service provider.

Read and reply

When you receive a text message or e-mail, ***n* message(s) received** appears in the display, where ***n*** is the number of new messages. Received messages are automatically stored in shared memory. The blinking indicates that the message memory is full. Before you can receive new messages, delete old messages.

- 1 Select **Show** to view the message now or **Exit** to view it later.
If more than one message is received, select the message you want to read. An unread text message is indicated by in front of it.
- 2 While reading or viewing the message, select **Options**.
You can select an option to delete, forward, or edit the message as a text message or an e-mail, move and rename the message you are reading. With **Copy to calendar**, you can copy the text from the beginning of the message to your phone calendar as a reminder note. Select **Message details** to view the sender's name and phone number, the message center used, and reception date and time. Select **Use detail** to extract phone numbers, e-mail addresses, and website addresses from the current message. When reading a picture message, select **Save picture** to save the picture in the **Templates** folder.
- 3 Select **Reply** to reply to a message.
- 4 Select **Empty screen**, **Original text**, or select a standard answer to be included in the reply.
- 5 Confirm or edit the e-mail address and subject, if applicable.
- 6 Compose your reply, then select **Options > Send > OK**.

DRAFT

Inbox and sent items folders

The phone saves the incoming text messages in the **Inbox** folder and the sent messages in the **Sent items** folder. The text messages you want to send later, can be saved in the **Archive**, **My folders**, or **Templates** folder.

Templates

Pictures and prewritten templates are stored in the **Templates** folder. Preloaded templates can be edited and customized. To access the template list:

Select **Menu > Messages > Text messages > Templates**.

Archive folder and my folders

You can organize your messages in the **Archive** folder or in new added folders.

SAVE MESSAGES

You can save messages to an existing folder or to a folder that you created.

- 1 Select **Menu > Messages > Text messages > Create message**.
- 2 Write your message and select **Options > Save message**.
- 3 Select either **Archive**, **Templates**, or the name of a folder which you created.

ADD OR DELETE

You can add or delete a folder.

- 1 Select **Menu > Messages > Text messages > My folders**.
- 2 Select **Options**, then select either **Add folder** or **Delete folder**.

Distribution lists

If you need to send messages frequently to a fixed group of recipients, you can define a distribution list for that purpose.

CREATE

Make sure that the contacts you want to add to the distribution lists are saved in both the phone and SIM card memory.

- 1 Select **Menu > Messages > Text messages > Distribution lists > Add**.
- 2 Enter the name for the list and select **OK > Options > View list > Add**.
- 3 Select the contact you want to add to the distribution list.
- 4 To add more contacts to the list, select **Options > Add contact**.

VIEW

- 1 Select Menu > Messages > Text messages > Distribution lists.
- 2 Scroll to a list and select Options > View list.

UNDELIVERED OPTIONS

If a message cannot be sent to certain recipients in the distribution list, select **Undelivered** > **Options** and select one of the following options:

Resend to list—Resend the message to the recipients on the **Undelivered** list.

View list—View the list of recipients to whom the latest message sending failed.

Delete list—Delete the **Undelivered** list.

View message—View the failed message.

Save your message center number

Messages sent by your phone are routed through your service provider's message center. Normally, this number is saved to your phone by your service provider. To save the number manually, do the following:

- 1 Select Menu > Messages > Message settings > Text messages > Sending profile > Default profile > Message center number.
- 2 If the correct number displays, select OK or if the incorrect number displays, enter the number given by your service provider and select OK.

• MULTIMEDIA MESSAGES

This is a Network Service. A multimedia message can contain text, picture and sound. The phone supports multimedia messages of size up to 45 KB.



Note: Only devices that offer compatible multimedia message or e-mail features can receive and display multimedia messages. Multimedia message objects may contain viruses or otherwise be harmful to your device or PC. Do not open any attachment if you are not sure of the trustworthiness of the sender.

Multimedia messaging supports the following formats:

- Picture: JPEG, GIF, PNG, OTA-BMP, and WBMP
- Sound: SP-MIDI and monophonic ringing tones

You are not able to receive any multimedia messages if you have a call in progress, a game or a Java application running, or an active service connection. Because delivery of multimedia messages can fail for a variety of reasons, do not rely solely upon them for essential communications.

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Write and send

For availability and subscription to the Multimedia Messaging Service (MMS), contact your service provider.

- 1 Select **Messages > Multimedia msgs. > Create message**.
- 2 Enter the text of your message and select **Options**.
- 3 To insert a picture or a sound clip, select **Insert image** or **Insert sound clip**, respectively.
- 4 Open the desired folder, scroll to the picture or sound clip, and select **Options > Insert**.
- 5 To insert a name from **Contacts**, select **Options > More options > Insert contact**.
- 6 Scroll to the desired name and select **Options > Insert contact**.
- 7 To insert a number, select **Options > More options > Insert number**.
- 8 Enter the number or search for it in **Contacts**, then select **OK**.
- 9 To view the message before sending it, select **Options > Preview**.
- 10 To send the message, select **Options**, then select **Send to number**, **Send to e-mail**, or **Send to many**.



Note: If you have attached a picture to the message, you cannot send the message by using e-mail.

- 11 Enter the recipient's number or e-mail address or search for it in **Contacts**, then select **OK**.



Note: It takes more time to send a multimedia message than to send a text message. While the multimedia message is being sent, the animated indicator  is displayed and you can use other functions on the phone. If there is an interruption while the message is being sent, the phone tries to resend it a few times. If this fails, the message will remain in the **Outbox** folder and you can try to resend it later.

Read and reply

When a multimedia message is being received,  appears (blinking). Once the message has been fully downloaded,  **Multimedia message received** appears.

- 1 To view the message immediately, select **Show**; to view the message later, select **Exit**.

- 2 While viewing the message, select **Options** and select one of the following:
- Zoom**—Enlarge the picture.
 - Set contrast**—
 - Details**—View details of the file, such as the name, time, and date the file was created.
 - Save image**—Save any picture that is attached to your picture gallery.
 - Save tone**—Save a ringing tone, if included, to the gallery.
 - Delete message**—Delete a saved message.
 - Reply**—Reply to the sender of the message. Select **Options** and then **Send**. The sender's phone number or e-mail is used as the default.
 - Reply to all**—Reply to both the sender and to all of the recipients of the message.
 - Use detail**—Extract phone numbers, e-mail addresses, and website addresses from the current message.
 - Forward to number**—Forward the message to another number.
 - Forward to e-mail**—Forward the message to an e-mail address.
 - Forward to many**—Forward the message to several recipients.
 - Message details**—View the message's sender, recipient(s), subject, size, and type.
 - Edit**—Edit the message. You can only edit messages that you have written.
 - Play**—Listen to a sound clip in the message, if one is included.
-  **Note:** If  blinks and **Multimedia memory full, view waiting msg.** appears in the display, the memory for multimedia messages is full. You need to delete some of your old messages. See "Delete messages" on page 30 for more information.

Folders

The phone saves the received multimedia messages in the **Inbox** folder. Multimedia messages to be sent are moved to the **Outbox** folder. The multimedia messages you want to send later can be saved in the **Saved items** folder. The sent multimedia messages are saved in the **Sent items** folder, if the setting **Save sent messages** is set to **Yes**.

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Delete messages

SINGLE MESSAGE

To delete a single message, you need to open it first.

- 1 Select **Menu > Messages** and select either **Text messages** or **Multimedia msgs.**, then select the folder containing the message you want to delete.
- 2 Select the message you want to delete, then select **Options > Delete > OK**.

ALL MESSAGES IN A FOLDER

- 1 Select **Menu > Messages >** and select either **Text messages** or **Multimedia msgs.**, then select **Delete messages**.
- 2 Select the folder containing the messages you want to delete, then select **OK**.



Warning: If you select **All messages**, it deletes any messages which have been read in *all* of the folders.

• VOICE MESSAGES

If you subscribe to voice mail, your service provider will furnish you with a voice mailbox number. You need to save this number to your phone to use voice mail. When you receive a voice message, your phone lets you know by beeping, displaying a message, or both. If you receive more than one message, your phone shows the number of messages received.

Save your voice mailbox number

Your service provider may have already saved your voice mailbox number to your phone. If so, the number will appear in step 2. Select **OK** to leave the number unchanged.

- 1 Select **Menu > Messages > Voice messages > Voice mailbox number**.
- 2 If the box is empty, enter the voice mailbox area code and number, and select **OK**.

Call and set up your voice mail

- 1 Once you have saved the voice mailbox number, press and hold the **1** key.
- 2 When you connect to voice mail and the prerecorded greeting begins, follow the service's automated instructions to set up your voice mail.

Listen to your voice messages

Once you have set up voice mail, you can dial the number in one of four ways:

- Dial the number, by using the keypad.
- Press and hold the 1 key.
- Select **Listen** if there is a notification message in the display.
- Select **Menu > Messages > Voice messages > Listen to voice messages**. After a brief pause, your phone dials the voice mail number.

Once you connect and the prerecorded greeting begins, follow the automated instructions to listen to your voice messages.

• INFO MESSAGE SERVICE

With the info message network service, you can receive short text messages from your service provider on various topics, such as weather and traffic conditions. Contact your service provider for more information.

• MESSAGE SETTINGS

Text, picture, and e-mail

- 1 Select **Menu > Messages > Message Settings > Text messages > Sending profile**.
- 2 If more than one message profile set is supported by your SIM card, select the set you want to change, and select one of the following:
 - Default recipient number**—For text messages, the default number used to send messages.
 - Delivery reports**—Request the network to send delivery reports on your messages.
 - Use GPRS**—Set GPRS as the preferred method of sending text messages.
 - Reply via same center**—Allow the recipient of your message to send you a reply message using your message center (network service).
 - Rename sending profile**—Change the name of the selected sending profile; the sending profile sets display only if your SIM card supports more than one set.
- 3 Follow the prompts to change the selected setting.

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Overwrite text, picture, and e-mail

When the message memory is full, your phone cannot send or receive any new messages. However, you can set your phone to automatically replace old messages in the **Inbox** and **Sent items** folders when new ones arrive.

- 1 Select **Menu > Messages > Message settings > Text messages**.
- 2 Select **Overwriting in sent items** or **Overwriting in inbox**.
- 3 Select **Allowed** to replace the old messages with new ones in the **Sent items** or **Inbox** folder, respectively.

Define multimedia message settings

- 1 Select **Menu > Messages > Message settings > Multimedia msgs.**, then select one of the following:
 - Save sent messages**—Save sent multimedia messages to the **Sent items** folder.
 - Delivery reports**—Request the network to send delivery reports on your messages.
 - Allow multimedia reception**—Choose **Yes**, **No**, or **In home network** for your multimedia service. **In home network** cannot receive multimedia messages outside the home network. **Yes** is usually the default setting.
 - Incoming multimedia messages**—Select **Retrieve** to receive multimedia messages or **Reject** if you do not want to receive multimedia messages.
 - Connection settings**—Define connection parameters for multimedia data transfer.
 - Allow advertisements**—Enable or disable reception of automatic multimedia advertisements. This setting is not shown if **Allow multimedia reception** is set to **No**.
- 2 Follow the prompts to change the selected setting.

Font size

Select **Menu > Messages > Message settings > Other settings > Font size**, then select **Small font** or **Large font**.

• SERVICE COMMANDS

Use the **Service commands** editor to enter and send service requests (also known as USSD commands) to your service provider. Contact your service provider for information about specific service commands.

- 1 Select **Menu > Messages > Service commands**.
- 2 Enter a service request, such as, an activation command for a specific network service and select **Send**.

10 Call log



Your phone registers the phone numbers of missed, received and dialed calls and the approximate length and cost of your calls. When the number of calls exceed the maximum, the most recent call replaces the oldest. For **Call log** to work properly:

- Your service provider must support caller ID and it must be enabled.
- Your calls cannot be blocked.
- Your phone must be on and within the service area.

• RECENT CALL LISTS

To find information about missed calls, received calls, or dialed numbers, select **Menu > Call log**, then select either **Missed calls**, **Received calls** or **Dialed numbers** and select **Options**. You can then view the time of the call, edit, view, call, or send a text message to the registered phone number, add it to the memory, or delete it from the list.

• CALL COUNTERS AND TIMERS



Note: The actual invoice for calls and services from your service provider may vary, depending upon network features, rounding-off for billing, taxes, etc.

To find information on calls' durations, costs, etc., select **Menu > Call log**, then select one of the following:

Call timers to show the approximate duration of your calls.

Call costs (network service) to show the cost of your last call or all calls in terms of units specified within the **Show costs in** function.

GPRS data counter to check the amounts of sent and received data and to clear the counters. The counters unit is a byte.

GPRS connection timer to check the duration of the GPRS connections and to clear the timers.

11 Contacts



You can save up to 300 names, with multiple numbers and text notes for each name. The amount of numbers and text entries that you can save may vary, depending on their length, the total number of entries in **Contacts**, and the amount of shared memory available.

• CONTACTS MENU

Select **Menu > Contacts**, then select one of the following:

Find—Find a name or select from a list.

Add contact—Add a name to **Contacts**.

Delete—Delete a name and its associated numbers.

Copy—Copy entries from phone memory to SIM and vice versa.

Settings—Set memory in use (phone or SIM), change **Contacts** view, and check the memory status of your phone and SIM card.

1-touch dialing—Display the list of 1-touch dialing numbers saved to memory.

Service numbers—Display a list of numbers related to your service provider.

Own numbers—View the numbers (line 1, line 2, data) in use by your SIM card.

Caller groups—View and edit the properties (such as the ringing tone) for any of the caller groups.

• TYPES OF INFORMATION

Each contact entry can contain one or more of the following types of information:



General phone number



Mobile phone number



Home phone number



Work phone number



Fax number



E-mail address



Web address



Street address



Note

- **SAVE NUMBERS, TEXT ITEMS, AND IMAGES PER CONTACT**

You can save different types of phone numbers and short text items per name in **Contacts**. The first number saved is automatically set as the default number. It is indicated with a frame around the number type indicator. When you select a name from **Contacts**, this number is used to make a call. To save multiple names, text items and images per contact, do the following:



Note: Make sure that the memory in use is either **Phone** or **Phone and SIM**. **SIM card** memory can have only one name and number per entry.

- 1 Scroll to the name to which you want to add a new number or text item and select **Details**.
- 2 Select **Options** and select either **Add number**, **Add detail** or **Add image**.
If the name is stored in the SIM card's memory, the name is moved to **Contacts**.
- 3 Select number type **General**, **Mobile**, **Home**, **Office** or **Fax** and enter the number, and select **OK**.
OR
Select text type **E-mail address**, **Web address**, **Street address** or **Note**, enter the text item, and select **OK**.
OR
Select **Open > Images** in **Gallery**, scroll to the desired image (graphic), then select **Options > Save to contacts**.

12 Profiles



Profiles define how your phone reacts when you receive a call or a message, how your keypad sounds when you press a key, and more. Ringing options, keypad tones, and other settings for each of the six available profiles can be left at their default setting or customized to suit your needs. Select and customize the most suitable profile for your situation, such as when you are in a meeting or outdoors. The profiles available are **Normal**, **Silent**, **Quiet**, **Loud**, **My profile 1**, and **My profile 2**.



Note: You can rename **My profile 1** and **My profile 2** to a name of your choice. Select **Menu > Profiles**, then select either **My profile 1** or **My profile 2**. Select **Customize > Profile**, then enter a profile name and select **OK**.

- **SELECT**

- 1 Select **Menu > Profiles**.
- 2 Select a profile from the list.

- **CUSTOMIZE**

You can customize any of the profiles a variety of ways.

- 1 Select **Menu > Profiles**.
- 2 Select the profile you want to customize, select **Customize**, then select the customizing option you want.

- **SET A TIMED PROFILE**

Timed profiles can be used to prevent missed calls and can be set up to 24 hours in advance.

- 1 Select **Menu > Profiles**.
- 2 Select a profile, then select **Timed**.
- 3 Enter the time for the profile to expire and select **OK**.

13 Settings



Use this menu to set or change your personal shortcuts, time and date settings, call settings, phone settings, display settings, tone settings, enhancement settings, security settings, and to restore factory settings.

- **OVER THE AIR (OTA) SERVICE**

To use browsers, MMS, GPRS, and other wireless services, you must have the proper settings on your phone. If you receive the settings directly as an OTA message, then you need only save the settings on your phone. For more information about the availability of the settings, contact your service provider or nearest authorized Nokia dealer.

- **PERSONAL SHORTCUTS**

You can set your most frequently used functions to be quickly accessed through the **Personal shortcuts** feature. You can change the function of the **Right selection** key so that these frequently used functions can be quickly accessed from the start screen. This list of functions is called the **Go to** menu. See "Go to menu" on page 56 for more information. At the start screen, **Go to** is not automatically the option for the **Right selection** key on your phone unless you have already set it to display. To select an operator-specific name for the **Right selection** key to be displayed in the start screen, do the following:

Select **Menu > Settings > Personal shortcuts > Right selection key** and select either an operator-specific name, **Go to**, or **Contacts**.

- **SCREEN SAVER**

The screen saver is activated when no function of the phone is used after a preset period of time. Press any key to deactivate the screen saver.

Select

- 1 Select **Menu > Settings > Screen saver > Select s. saver**.
- 2 Scroll to a folder that contains images and select **Open**.
- 3 Scroll to the image of your choice and select **Options > Set as s. saver**.

Set timeout

You can set your phone to display a screen saver after a preset time or after a custom time (up to 10 minutes) of your choosing.

- 1 Select Menu > Settings > Screen saver > Timeout.
- 2 Select 10 seconds, 30 seconds, or Other.

• TIME AND DATE

Select Menu > Settings > Time and date settings and select one of the following options:

Clock—Show or hide the clock in standby mode, set the time, and select the time format.

Date—Show the date in standby mode and set the date, the date format, and the date separator.

Auto-update of date & time—Set the phone to update the time and date according to the current time zone.

• CALL

Call forwarding

Call forwarding tells your network to redirect incoming calls to another number. It is a network-dependent feature and may not work the same in all networks. Contact your service provider for availability.

ACTIVATE

- 1 Select Menu > Settings > Call settings > Call forwarding, then select the call forwarding option you want.
- 2 Select **Activate**, then select the destination where you want your calls to be forwarded.
- 3 Enter the number to which your calls, data, or other information will be forwarded and select **OK**.

CANCEL

Select Menu > Settings > Call settings > Call forwarding > Cancel all call forwarding.



Note: If you cancel all call forwarding, this may affect your ability to receive voice mail messages. Contact your service provider for specific details.

Anykey answer

Anykey answer allows you to answer an incoming call by briefly pressing any key except the power key, the **Left selection** key, the **Right selection** key, and the **End** key.

Select **Menu > Settings > Call settings > Anykey answer**, then select **On** or **Off**.

Automatic redial

Occasionally, your network may experience heavy traffic, resulting in a "fast" busy signal when you dial. With automatic redial activated, your phone redials the number up to 10 times, and notifies you once the network is available.

Select **Menu > Settings > Call settings > Automatic redial**, then select **On** or **Off**.

1-touch dialing

You can turn the 1-touch dialing feature on and off.

Select **Menu > Settings > Call settings > 1-touch dialing**, then select **On** or **Off**.

Call waiting

If supported by your service provider, call waiting notifies you of an incoming call even while you are in a call. You can then accept, reject, or ignore the incoming call.

ACTIVATE

Select **Menu > Settings > Call settings > Call waiting**, select **Activate** or **Cancel**.

USE

- 1 During a call, press the **Talk** key to answer the waiting call.
- 2 Press the **End** key to end the active call.

Summary after call

Select **Menu > Settings > Call settings > Summary after call**, then select **On** or **Off**.

Send my caller identity

You can prevent your number from being displayed on the receiving party's caller ID. This feature is network-dependent and works on a call-by-call basis. Contact your service provider for more information.

Select **Menu > Settings > Call settings > Send my caller identity**, then select **Set by network**, **Yes**, or **No**.

Line for outgoing calls

Line for outgoing calls is a network-dependent service that allows you to select the phone line 1 or 2 for making calls. Contact your service provider for more information.

- **PHONE**

Set the display language

- 1 Select Menu > Settings > Phone settings > Phone language.
- 2 Select the language of your choice.

Set automatic Keyguard

- 1 Select Menu > Settings > Phone settings > Automatic keyguard.
- 2 Select On or Off, enter the delay time (in mm:ss format) and select OK.

Cell info display



Note: Cell info display is network-dependent and may not work the same in all networks. Contact your service provider for availability.

Select Menu > Settings > Phone settings > Cell info display, select On or Off.

Write a welcome note

Predictive text input is unavailable for entering welcome note text.

- 1 Select Menu > Settings > Phone settings > Welcome note.
- 2 Enter a note and select Options > Save.

Set up network selection

Select Menu > Settings > Phone settings > Network selection, then select Automatic or Manual.

Confirm SIM service actions

Select Menu > Settings > Phone settings > Confirm SIM service actions, then select Yes or No.

Help text

Your phone displays brief descriptions for most menu items. The default setting for Help text is On.

Select Menu > Settings > Phone settings > Help text activation, select On or Off.

Activate or deactivate start-up tone

Select Menu > Settings > Phone settings > Start-up tone, then select On or Off.

• DISPLAY

Wallpaper

You can set your phone to display a background picture (wallpaper) on the start screen. Some pictures are preserved in the Gallery menu.

SELECT

- 1 Select Menu > Settings > Display settings > Wallpaper > Select image.
- 2 Scroll to a folder that contains images and select Open.
- 3 Scroll to the image you want and select Options > Set as wallpaper.
- 4 If Replace current wallpaper? appears in the display, select OK.

ACTIVATE OR DEACTIVATE

Select Menu > Settings > Display settings > Wallpaper, select On or Off.

Menu view

Select Menu > Settings > Display settings > Menu view, then select List or Grid.

Color scheme

Select Menu > Settings > Display settings > Color Schemes, then select the color scheme you want.

Operator logo



Note: This feature is network-dependent. Contact your service provider for more information.

Select Menu > Settings > Display settings > Operator logo, then select On or Off.

Change display brightness

- 1 Select Menu > Settings > Display settings > Display brightness.
- 2 Use the scroll keys to adjust the contrast level to your preference, then select OK.

• TONE

You can adjust the ringing volume, keypad tones, and more for the active profile. See "Customize" on page 36.

- **ENHANCEMENT**

The **Enhancement settings** menu appears only if the phone is or has been connected to some Nokia audio enhancements, for example, to a headset.

- 1 Select **Menu > Settings > Enhancement settings**.
- 2 Select either **Headset**, **Handsfree**, **Loopset**, or **TTY** and follow the prompts.

- **SECURITY**



Note: Calls may be possible to the official emergency number programmed into your phone even when security features that restrict calls are in use.

Select **Menu > Settings > Security settings** and select one of the following options:

PIN code request—Set the phone to ask for your PIN code every time the phone is switched on (if this function is supported by your SIM card).

Call restrictions—Restrict incoming calls to and outgoing calls from your phone.

Fixed dialing—Restrict your outgoing calls to selected phone numbers (if this function is supported by your SIM card).

Closed user group—Specify a group of people whom you can call and who can call you.

Security level—Set the security code (the preset security code is 12345) for your phone.

Access codes—Change the security code, PIN code, PIN2 code or restriction password.

- **RESTORE FACTORY SETTINGS**

You can reset some of the menu settings to their original values.

- 1 Select **Menu > Settings > Restore factory settings**.
- 2 Enter the security code (the default is 12345) and select **OK**.



Note: Data that you have entered or downloaded is not deleted. For example, names and numbers in **Contacts** are not affected.

14 Alarm clock



You can set the phone to sound an alert at a desired time.

Select a tone

Select **Menu** > **Alarm clock** > **Alarm tone**, then select the following option:

Standard—Select the default alarm tone.

Ring tone—Select an alarm tone from the ringing tone list.

Open Gallery—Select a sound clip from a Gallery folder to use as an alarm. Open a folder that contains tones, scroll to the tone you want, and select **Options** > **Select**.

Set alarm

- 1 Select **Menu** > **Alarm clock** > **Alarm time**.
- 2 Enter the time for the alarm in *hh:mm* format, select **OK**, then select **am** or **pm**.

Turn off alarm

Select **Menu** > **Alarm clock** > **Alarm time** > **Off**.

When the alarm sounds

Your phone beeps or plays the tone you have selected, vibrates, and the display lights up. **Stop** and **Snooze** appear in the display.

WITH THE PHONE ON

Select **Stop** to shut the alarm off.

OR

Select **Snooze**. The alarm stops for 10 minutes and **Snoozing** appears in the display.



Note: If you do not press a key, the alarms stops (snoozes) for 10 minutes, and then sounds again.

WITH THE PHONE OFF

Select **Stop** and select **Yes** to turn on the phone or select **No** to keep it turned off.



Warning: Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

15 Gallery



You can save pictures and ringing tones to folders in the gallery, or create folders of your own and save them there. You can download images and tones using MMS, web sites, or Nokia PC Suite.

- **FOLDERS**

Select **Menu > Gallery** and select one of the following options:

View folders—Display the folders in the gallery menu.

Delete folder—Delete a folder you have created.

Rename folder—Rename a folder you have created.

Add folder—Create a new folder.

Gallery downloads—Download more images and tones. Select **Image downloads** or **Tone downloads**, then select a site. Selecting **More bookmarks** displays the list of bookmarks in the **Services** menu.

Folder items

- 1 Select **Menu > Gallery > View folders** and scroll to a folder.
- 2 Select **Open**, select an image or recording tone, then select **Options** and the option you want.

16 Calendar



The calendar keeps track of reminders, calls you need to make, and birthdays. It can even sound an alarm for any of these events.

Open the calendar

Select **Menu** > **Calendar**.

Four-way scrolling

You can move the cursor in some calendar views by using the four-way scroll key like a joystick.

Monthly view

Monthly view provides an overview of the selected month and weeks. It also allows you to jump to a specific date. Any days or dates that appear in bold font contain calendar notes such as a meeting or reminder.

Go to a date

Select **Menu** > **Calendar** > **Select Options** > **Go to date**, enter the date, and select **OK**.

Note a specific date

- 1 Go to the date for which you want to set a reminder.
- 2 Select **Options** > **Make a note**, then select either **Reminder**, **Call**, or **Birthday**.
- 3 Enter the information requested by the prompts, then select **Options** > **Save**.

Calendar notes (the day view)

- 1 Select **Menu** > **Calendar** and go to the date containing the note you want.
- 2 Select **Options** > **View day**, scroll to the note, and select **Options** > **View**.

17 Games



Challenge yourself or a friend to one of the fun games in your phone!

Select **Menu** > **Games** and select one of the following submenus:



Note: The following menu items may vary. Contact your service provider for more information.

Select game—Select a game or enter a game option list.

Game downloads—Connect to game downloads on the Internet, by using your browser.

Memory—Check the available memory for games and game related applications.

Settings—Turn game sounds, lights, and shakes on or off.

- **GAME DOWNLOADS MENU**

Select **Menu** > **Games** > **Game downloads** and select the option you want.



Note: If the connection fails, you may enter the **Services** menu and activate another set of service settings.

- **LAUNCH A GAME**

Select **Menu** > **Games** > **Select game**, scroll to a game, and press the **Talk** key.



Note: If a game uses the whole display area, options, such as, **Options** or **Back** will not appear in the display. Press the **Left selection** key or the **Right selection** key to show the options, **Select** or **Exit**.

18 Applications



Your phone software includes a Java application specially designed for this Nokia phone. Also, you can manage and download new applications that may be offered by your service provider.

- **OPTIONS**

Open—Open the selected application or application set.

Delete—Delete the application or application set from your phone. If you delete a preinstalled application or application set, you may download it again from the Nokia Software Market, www.softwamarket.nokia.com/wap.

Web access—Choose an option for restricting network access.

Update version—Check if a new version of the application is available to download.

Details—Shows additional information about the application.

- **LAUNCH**

- 1 Select Menu > Applications > Select application.

- 2 Scroll to the application you want and press the Talk key.

An application may require a few seconds to load. When you open an application, wait for the launch screen to disappear. At that point, the application is ready.

- **DOWNLOADS**

Your phone supports J2ME™ Java applications. Make sure that the application is compatible with your phone before downloading it. You can download new Java applications in different ways.

Application downloads

- 1 Select Menu > Applications > App. downloads.

- 2 If applicable, select **More bookmarks** and select the bookmark that contains the application you want to download.

If the connection fails, you may enter the **Services** menu and activate another set of service settings.

Download links

Select **Menu > Services > Download links** and select the application you want.



Note: When you download games or applications, games may be saved in the **Applications** menu and applications may be saved in the **Games** menu.

PC Suite

Use the Java application installer from PC Suite to download the applications in your phone.



Note: Only install sources that offer adequate protection against harmful software.

View memory status for applications

You can view the size of memory available for game and application installations.

Select **Menu > Applications > Memory**.

19 Extras



Extras include a calculator with currency exchange rate converter, countdown timer, stopwatch, and a voice recorder.

• CALCULATOR

Basic calculations

The calculator in your phone adds, subtracts, multiplies, divides, counts the square and the square root, and converts currency values. Calculator has a limited accuracy and rounding errors may occur, especially in long division.

- 1 Select **Menu** > **Extras** > **Calculator** and enter the first number in the calculation.



Note: Press the **Pound** key to insert a decimal point and press the **Star** key to cycle through the add (+), subtract (-), multiply (*), and divide (/) characters. Pause briefly to select the displayed character. To perform a square or square root calculation, select **Options**, then select either **Square** or **Square root**.

- 2 Enter the second number in your calculation, then select **Options** > **Equals**.

Currency conversion

You can convert foreign currency to domestic or vice versa from the start screen.

- 1 At the start screen, enter a currency amount to convert, then select **Options**, and select either **To home** or **To foreign**.
- 2 Enter the exchange rate, if you have not done so already, and select **OK**.

Edit the exchange rate

- 1 Select **Menu** > **Extras** > **Calculator** > **Options** > **Exchange rate**, then select either **Foreign units in home units** or **Home units in foreign units**.
- 2 Enter the exchange rate and select **OK**.

• COUNTDOWN TIMER

You can set the alarm to ring after a period of lapsed time.



Note: The countdown timer only works when the phone is on. Once you turn off your phone, the timer is no longer active.

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Set the timer

Select **Menu** > **Extras** > **Countdown timer**, enter the time in *hh:mm* format, select **OK**, enter a note and select **OK**.

Change the time

- 1 Select **Menu** > **Extras** > **Countdown timer** > **Change time**.
- 2 Enter the new time in *hh:mm* format, select **OK**, leave the note as it was, or enter a new note and select **OK**.

Timer alarm

WHEN THE ALARM SOUNDS

When the time runs out, your phone sounds an alarm, displays the timer note, and flashes its lights. Press any key during the alarm to stop the timer. After 30 seconds, the timer alert stops automatically.

STOP THE TIMER BEFORE THE ALARM SOUNDS

Select **Menu** > **Extras** > **Countdown timer** > **Stop timer**.

• STOPWATCH

Your phone has a stopwatch that can be used to track time at sporting events or other occasions. While the stopwatch is running, if you press the **End** key and return to the start screen, the clock continues to run in the background and the  icon appears in the upper left corner of the screen. Using the stopwatch consumes the battery and the operating time of the phone will be reduced. Be careful not to let it run in the background when performing other operations with your phone.

Measure time

Select **Menu** > **Extras** > **Stopwatch**, select either **Split timing** or **Lap timing**, then select **Start**.

- To record a split time, select **Split**.
- To record a lap time, select **Lap**.
- To finish timing, select **Stop**.

You can scroll through the recorded times shown below the overall time. When the timing is stopped, you can select **Options** for **Start** (split times only), **Save**, or **Reset**. If you select **Start**, timing continues from the previously timed event. If you select **Reset**, the split or lap times are reset.

Options

Continue—Shows up when the stopwatch is working in the background.

Show last time—Allows you to view the last measured time.

View times—Allows you to browse the saved times.

Delete times—Allows you to delete any saved times. You can delete the saved times one by one or all at once.

• VOICE RECORDER

You can record pieces of speech, sound or an active call for a minute. For example, this is useful when recording a name and phone number for writing them down later.

Recording

1 Select **Menu > Extras > Voice recorder**.

2 Select **Record** to start the recording.

OR

Select **Options > Record** to start the recording during a call.



Note: All parties to the recording call will hear a faint beeping sound approximately every five seconds. When recording a call, hold the phone in the normal position near to your ear.

3 Select **Stop** to end the recording.

4 Select **Replay last** to listen to the latest recording.

5 Select **Send** to send the recording as a multimedia message

List of recordings

1 Select **Menu > Extras > Voice recorder > Recordings list > Recordings > Open > Options**.

2 Select the option you want.

20 Services



Your phone has a built-in browser you can use to connect to selected services on the mobile Internet. Many wireless mobile Internet access features are network-dependent, and some features may not be available. Contact your service provider for more information.

- **SERVICE PROVIDER**

Because mobile Internet content is designed to be viewed from your phone, your service provider is now your wireless mobile Internet service provider as well.



Note: It is likely that your service provider has created a home page and set up your WAP browser to go to this page when you log on to the mobile Internet. Once at your service provider's home page, you may find links to a number of other sites.

- **SET UP SERVICE**

Save the service settings

When you receive the service settings as an OTA message, **Service settings received** displays. To save the settings, select **Options > Save**. If no settings are saved in **Active service settings**, the settings are saved under the first free connection set and also activated. If there are settings saved in **Active service settings**, the message, **Activate saved service settings?** will display. To activate the saved settings, select **Yes**, or to save them only, select **No**.

To view the received settings first, select **Options > View** and then save the settings. To discard the settings select **Options > Discard**.

Set up service settings manually

- 1 Select **Menu > Services > Settings > Connection settings > Active service settings**, select the set where you want to save the service settings, and select **Activate**.
- 2 Select **Edit active service settings**, then select the settings and enter the setting information that you have received from your service provider.

- **CONNECT TO THE SERVICE**

Your service provider may have programmed the **Right selection** key to connect you directly to a web site, for example, the provider's customer site. You can also program the **Right selection** key to connect you directly to a web site of your choice. See "Personal shortcuts" on page 37.

There are several ways to connect to a service:

- To open the service's start page, select **Menu > Services > Home**.
OR

At the start screen, press and hold the **0** key (global Internet icon).

- To select a bookmark, select **Services > Bookmarks** and select a bookmark from the list. If the bookmark does not work with the current active service settings, activate another set of service settings and try again.
- To enter the address of the service, select **Services > Go to address**. Enter the address of the service and select **OK**.



Note: If you see **Check service settings**, the phone may not be set up for browsing. Contact your service provider to make sure that your phone is configured properly.

• SET UP FOR BROWSING

It should not be necessary to manually configure the browser on your phone. Normally this is done by your service provider once you have subscribed to the feature. Contact your service provider if you have problems using the browser.

Phone keys

Since your phone screen is much smaller than a computer screen, mobile Internet content is displayed differently than you may be accustomed to seeing.

- To browse the WAP site, press the four-way scroll key to allow for both vertical and horizontal browsing.
- To select a highlighted item, press the **Talk** key.
- To enter letters and numbers, press a key from **0–9**.
- To enter special characters, press the **Star** key.

• GPRS, HSCSD, AND CSD

With your phone you can use General Packet Radio Service (GPRS), High-Speed Circuit Switched Data (HSCSD), and Circuit Switched Data (CSD). GPRS is a technology used to send and receive data using short bursts or packets over the wireless network. With GPRS, you can stay connected to the mobile Internet and allow for faster downloads without completing a dial-up connection. Applications using GPRS include the browser, text messaging, and dial-up connections for making digital data calls.

• BOOKMARKS

You can save page addresses as bookmarks in the phone.

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This feature is network-dependent. Contact your service provider for more information.

Enter manually

- 1 Select **Menu** > **Services** > **Bookmarks** > **Options** > **New bookmark**.
- 2 Enter an address for the bookmark, select **OK**, then enter a title for the bookmark, and select **OK**.

Set while online

While you are connected to the site that you want to bookmark, select **Options** > **Add bookmark**, enter a title for the bookmark and select **OK**.

Receive

When you receive a bookmark as an OTA message, select **Save** to save it to the bookmark list or select **Options** and **View** or **Discard**.

• SERVICE INBOX

The phone is able to receive service messages sent by your service provider (Network Service).

Select **Menu** > **Services** > **Settings** > **Service inbox settings** > **Service messages** > **On**.

- To view a received service message, select **View**.
- To move the message in the **Service inbox**, select **Exit**.

You can access the **Service inbox** later either by selecting **Menu** > **Services** > **Settings** > **Service inbox** or while browsing, by selecting **Options** > **Service inbox**.

• CLEAR THE CACHE MEMORY

The information or services you access with the WAP browser are temporarily saved in the cache memory of the phone. A cache is a buffer memory, which is used to store data temporarily. If you try to access or have accessed confidential information requiring passwords (for example, your bank account), clear the cache after each use.

To clear the cache from the menu, select **Services** > **Clear the cache**.

To clear the cache while browsing, select **Options** > **Other options** > **Clear the cache**.

- **AUTHORITY CERTIFICATES**

To use some WAP services, such as banking services, you need an authority certificate. Using the certificate can help you to improve the security of connections between your phone and a WAP server.

You can download the certificate from a WAP page if the WAP service supports the use of authority certificates. After the download, you can view the certificate, then save or delete it. If you save the certificate, it is added to the list of certificates in the phone.

Your phone alerts you if the identity of the WAP server or WAP gateway cannot be verified or is not authentic.

To view the list of authority certificates, select **Menu > Services > Settings > Security settings > Authority certificates**.

- **DISCONNECT FROM THE MOBILE INTERNET**

To close your connection, press the **End** key twice.

21 Go to menu



Your most frequently used functions can be quickly accessed from the Go to menu.

- **CHOOSE FUNCTIONS**

- 1 Select **Menu** > **Settings** > **Personal shortcuts** > Select **Go to** options.
- 2 Scroll to the function you want and select **Mark** to add it to the shortcut list or select **Unmark** to remove it from the list.



Note: The **Contacts** function cannot be unmarked from the list.

- 3 Repeat the previous step to select as many functions as you want.
- 4 Select **Done** > **Yes**.

- **ORGANIZE FUNCTIONS**

- 1 Select **Menu** > **Settings** > **Personal shortcuts** > **Organize Go to** options.
- 2 Select the function you want to rearrange, then select **Move**.
- 3 Select either **Move up**, **Move down**, **Move to top**, or **Move to bottom**.
- 4 Select **Done** > **Yes**.

22 Instant messaging

You can now take text messaging to the next level by experiencing instant messaging in a wireless environment. You can engage in instant messaging with friends and family, regardless of the mobile system or platform (like the Internet) they are using. Before you can start using instant messaging, you must first subscribe to the text messaging service. You must also obtain a user name and password before you can use instant messaging. See "User name and password" on page 57 for more information.



Note: If instant messaging is not available from your wireless service provider, the IM screen may not appear. Contact your service provider for more information.

- **NETWORK SELECTION**

With IM, you have the choice of selecting the instant messaging service (IM provider or network) you want to use. Since each instant messaging service has its own display text and icons associated with it, the display text and icons on your phone may appear differently than what is displayed in this user guide update. If you have any questions about the differences in the various networks' display text and icons, contact your service provider for more information.

- **USER NAME AND PASSWORD**

Before you can begin to use instant messaging, you must obtain a user name and password. You can do this by registering over the Internet (via your computer) with the IM service provider you have selected to use. During the registration process, you will have the opportunity to create the user name and password of your choice. For more information about signing up for instant messaging services, contact your wireless service provider.

- **LOG INTO SERVICE**

The first time you use instant messaging, you will need to enter your user name and password and select the network you want to use, in order to log into the service. After the first login, you will not have to select the network again, unless you want to change it. Every time you log in, you will receive screen prompts for your user name and password. You do not have to manually enter your user name (the user name you entered previously appears on the User ID: screen); however, you must manually enter your password every time you log in. To log in for the first time, do the following:

- 1 Select Menu > IM > Login, then select the network to which you want to connect.

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- 2 Enter your user name, select **Options > OK**, enter your password and select **Options > OK**.

The IM online menu displays.

Set your availability

You can determine if other users can tell whether you are available or not.

From the IM online menu, select **IM Availability**, then select either **Available**, **Do not disturb** or **Appear offline**.

Instant messages

You can send instant messages to anyone if you have the person's user name. You can also add that person to **IM Contacts** during an instant messaging session.

WRITE AND SEND

- 1 From the IM online menu, select **IM contacts > Write to other**.
- 2 Enter the user name of the person to whom you want to send an instant message, then select **Options > OK**.
- 3 Select **Options > Write** and enter a message.



Note: Predictive text input is automatically enabled for writing messages. See "Predictive text" on page 20 for more information.

- 4 Select **Options > Send**.

RECEIVE AND REPLY

When you receive an instant message, a screen appears, showing you have a new instant message with the name of the sender.

Select **Options > Write**, enter a message, then select **Options > Send**.

Chat sessions

If you want to chat with a person, you must first add that person to **IM Contacts**. See "Add a new contact" on page 59 for instructions.

IM CONTACTS VIEW

- 1 From the IM online menu, select **IM contacts**, then select the contact with whom you want to chat, and select **Chat**.
- 2 Select **Options > Write** and enter a message.
- 3 Select **Options > Send**.

After your contact replies, repeat steps 2-3 to continue your chat session.

QUIT

Select **Back**, then select the chat session and select **End conversation**.

IM contacts

You can add the names of your friends and family with whom you will be interacting frequently via instant messaging to **IM contacts**.

ADD A NEW CONTACT

- 1 From the IM online menu, select **IM contacts > Add contact**
- 2 Enter the contact's user name, select **Options > OK**, enter the contact's nickname, and select **Options > OK**.

REMOVE A CONTACT

From the IM online menu, select **IM contacts** and select the contact you want to remove, then select **Remove contract > OK**.

Private groups

You can create your own private chat groups. The participants must be entered into **IM contacts**. See "IM contacts" on page 59 for more information.

CREATE PRIVATE CHAT GROUP

- 1 From the IM online menu, select **Group convers.**, enter the group name (up to ten characters) and select **Options > OK**.
- 2 After your screen name appears, select **Options > OK**.

ADD MEMBERS

- 1 Select **Options > Group members**.
- 2 Select **Send** and select the contact whom you want to invite to the group chat.
- 3 Enter the invitation text and select **Options > Send**.
- 4 To add other members to the group, repeat steps 2–4.

REMOVE MEMBERS

- 1 From the group list, select the member you want to remove.
- 2 Select **Options > Remove member**.

- **LOG OFF SERVICE**

From the IM online menu, you can exit the IM application but still stay connected to the IM service. This enables you to receive instant messages and chat invitations from your contacts, when using your phone for other purposes, for example, if you are playing a game. If you are connected to your IM service, but you have not used your IM application for some time, you may be automatically disconnected from the IM service. The next time you open the IM application, you will receive a message, **Not connected** and you will be taken to the offline menu where you have to log in again.

To disconnect from the IM service, you must log out from the online menu. You will then be taken to the offline menu, where you can log in again or exit the IM application.

Exit instant messaging

Select **Back** until the IM online menu appears, then select **Exit**. If you open IM again, you do not need to log in again.

Log out of instant messaging

From the IM online menu, select **Logout > OK**.

23 PC connectivity

• NOKIA PC SUITE

You can make a serial connection between your phone and a PC using the DKU-5 data cable, which is available for purchase as an enhancement. Once you establish this connection, you can access phone information from your PC.

For more information, see the U.S. Mobile Phone products section of www.nokia.com.

Nokia PC Suite 5 is a collection of powerful tools that you can use to manage phone features and data. PC Suite consists of the following components:

- **Nokia Application Installer** to install Java applications from the PC to the phone.
- **Nokia Image Converter** to make images usable for multimedia messages or wallpapers and to transfer them to your phone.
- **Nokia Sound Converter** to edit polyphonic ringing tones to be compatible with your phone and to transfer them to your phone.
- **Nokia Content Copier** to copy data or back-up data from your phone to PC or to another Nokia phone.
- **Nokia PC WAP Manager** to edit and send your bookmarks or update the connection sets to your phone.
- **Nokia Phone Editor** to send text messages and edit **Contacts** and message settings of your phone.
- **Nokia PC Sync** to synchronize **Contacts** and calendar between your phone and PC.
- **Nokia Connection Manager** to select the connection type between the PC and the phone.
- **Nokia PC Browser** to copy images and tones from your phone to your PC and vice versa.

Refer to the "Nokia PC Suite user guide" for installation and setup instructions. PC Suite software and documentation can be downloaded from the U.S. Mobile Phone products section of www.nokia.com.

24 Enhancements

If you want to enhance phone functionality, a range of enhancements is available for you. You can select any of these items to help accommodate your specific communication needs. For availability of these and other enhancements, contact your dealer.



- **MISCELLANEOUS**

- Fun Camera (PT-3)
- Blue Active Covers (CC-72D)
- Orange Active Covers (CC-69D)

- **POWER**

- 850-mAh Li-Ion Battery (BL-5C)
- Rapid Travel Charger (ACP-12U)

- **AUDIO**

- Headset (HS-5)
- Boom Headset (HDB-4)
- Retractable Headset (HS-10)
- FM Radio Headset (HS-2R)
- Loopset (LPS-4)
- Phone Adapter (HDA-10)

- **DATA**

- Data Adapter Cable (DKU-5)
- Desktop Stand (DCV-14)

- **CAR**

- Mobile Holder (MBC-15S)
- Headrest Handsfree (BHF-1)
- Car Installation Kit (CARK-143)
- Mobile Charger (LCH-12)

25 Reference information

• BATTERY INFORMATION

Charging and discharging

Your device is powered by a rechargeable battery. The full performance of a new battery is achieved only after two or three complete charge and discharge cycles. The battery can be charged and discharged hundreds of times but it will eventually wear out. When the talk and standby times are noticeably shorter than normal, buy a new battery. Use only Nokia approved batteries, and recharge your battery only with Nokia approved chargers designated for this device.

Unplug the charger from the electrical plug and the device when not in use. Do not leave the battery connected to a charger. Overcharging may shorten its lifetime. If left unused, a fully charged battery will lose its charge over time. Temperature extremes can affect the ability of your battery to charge.

Use the battery only for its intended purpose. Never use any charger or battery that is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object such as a coin, clip, or pen causes direct connection of the positive (+) and negative (-) terminals of the battery. (These look like metal strips on the battery.) This might happen, for example, when you carry a spare battery in your pocket or purse. Short-circuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 59°F and 77°F (15°C and 25°C). A device with a hot or cold battery may not work temporarily, even when the battery is fully charged. Battery performance is particularly limited in temperatures well below freezing.

Do not dispose of batteries in a fire! Dispose of batteries according to local regulations. Please recycle when possible. Do not dispose as household waste.

Charging times

The charging times listed below are approximate.

Battery option	ACP-12 Charger
BL-5C Li-Ion Battery 850 mAh	___ hours

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Standby and talk times

The times shown in the following table are estimates only and represent a range for either standby or talk times (not a combination of both).

Battery option	Talk time	Standby time
BL-5C Li-Ion Battery 850 mAh	up to __ hours	up to __ days

• ENHANCEMENTS

A few practical rules about accessories and enhancements:

- Keep all accessories and enhancements out of the reach of small children.
- When you disconnect the power cord of any accessory or enhancement, grasp and pull the plug, not the cord.
- Check regularly that enhancements installed in a vehicle are mounted and are operating properly.
- Installation of any complex car enhancements must be made by qualified personnel only.

• ENHANCEMENTS, BATTERIES, AND CHARGERS

Check the model number of any charger before use with this device. This device is intended for use when supplied with power from the Rapid Travel Charger (ACP-12U).



Warning: Use only batteries, chargers and enhancements approved by the phone manufacturer for use with this particular phone model. The use of any other types may invalidate any approval or warranty applying to the phone, and may be dangerous.

For availability of approved enhancements, please check with your dealer. When you disconnect the power cord of any enhancement, grasp and pull the plug, not the cord.

Your device and its enhancements may contain small parts. Keep them out of reach of small children.

• CARE AND MAINTENANCE

Your device is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you protect your warranty coverage and enjoy your device for many years.

- Keep the device dry. Precipitation, humidity, and all types of liquids or moisture

can contain minerals that will corrode electronic circuits. If your device does get wet, remove the battery and allow the device to dry completely before replacing it.

- Do not use or store the device in dusty, dirty areas. Its moving parts and electronic components can be damaged.
- Do not store the device in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the device in cold areas. When the device returns to its normal temperature, moisture can form inside the device and damage electronic circuit boards.
- Do not attempt to open the device other than as instructed in this guide.
- Do not drop, knock, or shake the device. Rough handling can break internal circuit boards and fine mechanics.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the device.
- Do not paint the device. Paint can clog the moving parts and prevent proper operation.
- Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the device and may violate regulations governing radio devices.

All of the above suggestions apply equally to your device, battery, charger, or any enhancement. If any device is not working properly, take it to the nearest authorized service facility for service.

• **ADDITIONAL SAFETY INFORMATION**

Operating environment

Remember to follow any special regulations in force in any area and always switch off your device when its use is prohibited or when it may cause interference or danger. Use the device only in its normal operating positions. To maintain compliance with radio frequency exposure guidelines only use enhancements approved by Nokia for use with this device. When the device is on and being worn on the body, always use an approved carrying case.

Medical devices

Operation of any radio transmitting equipment, including wireless phones, may interfere with the functionality of inadequately protected medical devices. Consult a physician or the manufacturer of the medical device to determine if they are adequately shielded from external RF energy or if you have any questions. Switch off your phone in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

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PACEMAKERS

Pacemaker manufacturers recommend that a minimum separation of 6 in (15.3 cm) be maintained between a wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research. To minimize the potential for interference, persons with pacemakers should:

- Always keep the device more than 6 in (15.3 cm) from their pacemaker when the device is switched on.
- Not carry the device in a breast pocket.
- Hold the device to the ear opposite the pacemaker.

If you have any reason to suspect that interference is taking place, switch off your device immediately.

HEARING AID

Some digital wireless devices may interfere with some hearing aids. If interference occurs, consult your service provider.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles such as electronic fuel injection systems, electronic antiskid (antilock) braking systems, electronic speed control systems, air bag systems. For more information, check with the manufacturer or its representative of your vehicle or any equipment that has been added.

Only qualified personnel should service the device, or install the device in a vehicle. Faulty installation or service may be dangerous and may invalidate any warranty that may apply to the device. Check regularly that all wireless device equipment in your vehicle is mounted and operating properly. Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the device, its parts, or enhancements. For vehicles equipped with an air bag, remember that an air bags inflate with great force. Do not place objects, including installed or portable wireless equipment in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

Potentially explosive environments

Switch off your device when in any area with a potentially explosive atmosphere and obey all signs and instructions. Potentially explosive atmospheres include areas where you would normally be advised to turn off your vehicle engine. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Switch off the device at refuelling points such as near gas pumps at service

stations. Observe restrictions on the use of radio equipment in fuel depots, storage, and distribution areas, chemical plants or where blasting operations are in progress. Areas with a potentially explosive atmosphere are often but not always clearly marked. They include below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), and areas where the air contains chemicals or particles such as grain, dust or metal powders.

FCC regulations prohibit using your wireless device while in the air. The use of wireless telephones in an aircraft may be dangerous to the operation of the aircraft, disrupt the wireless telephone network, and may be illegal.

Failure to observe these instructions may lead to suspension or denial of telephone services to the offender, legal action, or both.

• EMERGENCY CALLS



Warning: Wireless phones, including this phone, operate using radio signals, wireless networks, landline networks, and user-programmed functions. Because of this, connections in all conditions cannot be guaranteed. You should never rely solely on any wireless phone for essential communications like medical emergencies.

To make an emergency call:

- 1 If the phone is not on, switch it on. Check for adequate signal strength. Some networks may require that a valid SIM card is properly inserted in the phone.
- 2 Press **End** key as many times as needed to clear the display and ready the phone for calls.
- 3 Enter the official emergency number for your present location. Emergency numbers vary by location.
- 4 Press the **Send** key.

If certain features are in use, you may first need to turn those features off before you can make an emergency call. Consult this guide or your service provider. When making an emergency call, give all the necessary information as accurately as possible. Your wireless phone may be the only means of communication at the scene of an accident. Do not end the call until given permission to do so.

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CERTIFICATION INFORMATION (SAR)

THIS MODEL PHONE MEETS THE GOVERNMENT'S REQUIREMENTS FOR EXPOSURE TO RADIO WAVES.

Your wireless phone is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for wireless mobile phones employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg.* Tests for SAR are conducted using standard operating positions accepted by the FCC with the phone transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone while operating can be well below the maximum value. This is because the phone is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before a phone model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure. The tests are performed in positions and locations (for example, at the ear and worn on the body) as required by the FCC for each model.

The highest SAR value for this model phone as reported to the FCC when tested for use at the ear is 0.98 W/kg, and when worn on the body, as described in this user guide, is 0.71 W/kg. (Body-worn measurements differ among phone models, depending upon available enhancements and FCC requirements).

While there may be differences between the SAR levels of various phones and at various positions, they all meet the government requirement. The FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this model phone is on file with the FCC and can be found under the Display Grant section of <http://www.fcc.gov/oet/fccid> after searching on FCC ID PPIRH-50.

For body worn operation, this phone has been tested and meets the FCC RF exposure guidelines for use with a carry case, belt clip, or holder that contains no metal and that positions the handset a minimum of 7/8 inch (2.2 cm) from the

body. Use of other carry cases, belt clips, or holders may not ensure compliance with FCC RF exposure guidelines. If you do not use a body-worn accessory and are not holding the phone at the ear, position the handset a minimum of 7/8 inch (2.2 cm) from your body when the phone is switched on.

*In the United States and Canada, the SAR limit for mobile phones used by the public is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The standard incorporates a substantial margin of safety to give additional protection for the public and to account for any variations in measurements. SAR values may vary depending on national reporting requirements and the network band. For SAR information in other regions please look under product information at www.nokia.com.

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26 Technical information

Feature	Specification
Dimensions	Width 1.68 in (42.8 mm) Height 4.00 in (108 mm) Depth 0.76 in (19.6 mm)
Weight	3.5 oz (85 gm) with BL-5C Li-Ion Battery
Wireless networks	GSM 850, 1800, and 1900 networks
Size (volume)	4.21 cu in (69 cu cm)
Frequency range (Tx)	GSM 850: 824–849 MHz GSM 1800: 1710–1785 MHz GSM 1900: 1850–1910 MHz
Frequency range (Rx)	GSM 850: 869–894 MHz GSM 1800: 1805–1880 MHz GSM 1900: 1930–1990 MHz
Tx output power	2W (GSM 850 max) 1W (GSM 1800/GSM 1900 max)
Battery voltage	3.7 Vdc
Number of channels	GSM 850: 124 GSM 1800: 374 GSM 1900: 299

27 Nokia One-Year Limited Warranty

Nokia Inc. ("Nokia") warrants that this cellular phone ("Product") is free from defects in material and workmanship that result in Product failure during normal usage, according to the following terms and conditions:

- 1 The limited warranty for the Product extends for ONE (1) year beginning on the date of the purchase of the Product. This one year period is extended by each whole day that the Product is out of your possession for repair under this warranty.
- 2 The limited warranty extends only to the original purchaser ("Consumer") of the Product and is not assignable or transferable to any subsequent purchaser/end-user.
- 3 The limited warranty extends only to Consumers who purchase the Product in the United States of America.
- 4 During the limited warranty period, Nokia will repair, or replace, at Nokia's sole option, any defective parts, or any parts that will not properly operate for their intended use with new or refurbished replacement items if such repair or replacement is needed because of product malfunction or failure during normal usage. No charge will be made to the Consumer for any such parts. Nokia will also pay for the labor charges incurred by Nokia in repairing or replacing the defective parts. The limited warranty does not cover defects in appearance, cosmetic, decorative or structural items, including framing, and any non-operative parts. Nokia's limit of liability under the limited warranty shall be the actual cash value of the Product at the time the Consumer returns the Product for repair, determined by the price paid by the Consumer for the Product less a reasonable amount for usage. Nokia shall not be liable for any other losses or damages. These remedies are the Consumer's exclusive remedies for breach of warranty.
- 5 Upon request from Nokia, the Consumer must prove the date of the original purchase of the Product by a dated bill of sale or dated itemized receipt.
- 6 The Consumer shall bear the cost of shipping the Product to Nokia in Melbourne, Florida. Nokia shall bear the cost of shipping the Product back to the Consumer after the completion of service under this limited warranty.
- 7 The Consumer shall have no coverage or benefits under this limited warranty

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if any of the following conditions are applicable:

- a) The Product has been subjected to abnormal use, abnormal conditions, improper storage, exposure to moisture or dampness, unauthorized modifications, unauthorized connections, unauthorized repair, misuse, neglect, abuse, accident, alteration, improper installation, or other acts which are not the fault of Nokia, including damage caused by shipping.
 - b) The Product has been damaged from external causes such as collision with an object, or from fire, flooding, sand, dirt, windstorm, lightning, earthquake or damage from exposure to weather conditions, an Act of God, or battery leakage, theft, blown fuse, or improper use of any electrical source, damage caused by computer or internet viruses, bugs, worms, Trojan Horses, cancelbots or damage caused by the connection to other products not recommended for interconnection by Nokia.
 - c) Nokia was not advised in writing by the Consumer of the alleged defect or malfunction of the Product within fourteen (14) days after the expiration of the applicable limited warranty period.
 - d) The Product serial number plate or the enhancement data code has been removed, defaced or altered.
 - e) The defect or damage was caused by the defective function of the cellular system or by inadequate signal reception by the external antenna, or viruses or other software problems introduced into the Product.
- 8 Nokia does not warrant uninterrupted or error-free operation of the Product. If a problem develops during the limited warranty period, the Consumer shall take the following step-by-step procedure:
- a) The Consumer shall return the Product to the place of purchase for repair or replacement processing.
 - b) If "a" is not convenient because of distance (more than 50 miles) or for other good cause, the Consumer shall ship the Product prepaid and insured to:
Nokia Inc., Attn: Repair Department
795 West Nasa Blvd.
Melbourne, FL 32901
 - c) The Consumer shall include a return address, daytime phone number and/or fax number, complete description of the problem, proof of purchase and service agreement (if applicable). Expenses related to removing the Product from an installation are not covered under this limited warranty.
 - d) The Consumer will be billed for any parts or labor charges not covered by this limited warranty. The Consumer will be responsible for any expenses related to reinstallation of the Product.

- e) Nokia will repair the Product under the limited warranty within 30 days after receipt of the Product. If Nokia cannot perform repairs covered under this limited warranty within 30 days, or after a reasonable number of attempts to repair the same defect, Nokia at its option, will provide a replacement Product or refund the purchase price of the Product less a reasonable amount for usage. In some states the Consumer may have the right to a loaner if the repair of the Product takes more than ten (10) days. Please contact the Customer Service Center at Nokia at the telephone number listed at the end of this warranty if you need a loaner and the repair of the Product has taken or is estimated to take more than ten (10) days.
 - f) If the Product is returned during the limited warranty period, but the problem with the Product is not covered under the terms and conditions of this limited warranty, the Consumer will be notified and given an estimate of the charges the Consumer must pay to have the Product repaired, with all shipping charges billed to the Consumer. If the estimate is refused, the Product will be returned freight collect. If the Product is returned after the expiration of the limited warranty period, Nokia's normal service policies shall apply and the Consumer will be responsible for all shipping charges.
- 9 You (the Consumer) understand that the product may consist of refurbished equipment that contains used components, some of which have been reprocessed. The used components comply with Product performance and reliability specifications.
- 10 ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR USE, SHALL BE LIMITED TO THE DURATION OF THE FOREGOING LIMITED WRITTEN WARRANTY. OTHERWISE, THE FOREGOING LIMITED WARRANTY IS THE CONSUMER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. NOKIA SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOSS OF ANTICIPATED BENEFITS OR PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF DATA, PUNITIVE DAMAGES, LOSS OF USE OF THE PRODUCT OR ANY ASSOCIATED EQUIPMENT, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT OR FACILITIES, DOWNTIME, THE CLAIMS OF ANY THIRD PARTIES, INCLUDING CUSTOMERS, AND INJURY TO PROPERTY, RESULTING FROM THE PURCHASE OR USE OF THE PRODUCT OR ARISING FROM BREACH OF THE WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL OR EQUITABLE THEORY, EVEN IF NOKIA KNEW OF THE LIKELIHOOD OF SUCH DAMAGES. NOKIA SHALL NOT BE LIABLE FOR DELAY IN RENDERING SERVICE UNDER THE

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LIMITED WARRANTY, OR LOSS OF USE DURING THE PERIOD THAT THE PRODUCT IS BEING REPAIRED.

- 11 Some states do not allow limitation of how long an implied warranty lasts, so the one year warranty limitation may not apply to you (the Consumer). Some states do not allow the exclusion or limitation of incidental and consequential damages, so certain of the above limitations or exclusions may not apply to you (the Consumer). This limited warranty gives the Consumer specific legal rights and the Consumer may also have other rights which vary from state to state.
- 12 Nokia neither assumes nor authorizes any authorized service center or any other person or entity to assume for it any other obligation or liability beyond that which is expressly provided for in this limited warranty including the provider or seller of any extended warranty or service agreement.
- 13 This is the entire warranty between Nokia and the Consumer, and supersedes all prior and contemporaneous agreements or understandings, oral or written, relating to the Product, and no representation, promise or condition not contained herein shall modify these terms.
- 14 This limited warranty allocates the risk of failure of the Product between the Consumer and Nokia. The allocation is recognized by the Consumer and is reflected in the purchase price.
- 15 Any action or lawsuit for breach of warranty must be commenced within eighteen (18) months following purchase of the Product.
- 16 Questions concerning this limited warranty may be directed to:
Nokia Inc.
Attn: Customer Service
7725 Woodland Center Blvd., Ste. 150
Tampa, FL 33614
Telephone: 1-888-NOKIA-2U (1-888-665-4228)
Facsimile: (813) 287-6612
TTY/TDD Users Only: 1-800-24-NOKIA (1-800-246-6542)
- 17 The limited warranty period for Nokia supplied attachments and enhancements is specifically defined within their own warranty cards and packaging.

Manufactured or sold under one or more of the following US Patents.
Asterisk (*) indicates design patents pending.

4558302	4868846	4945633	4969192	5001372	5101175
5151946	5173927	5212834	5230091	5241583	5311151
5317283	5331638	5335362	5353328	5371481	5378935
5384782	5396657	5400949	5416435	5442521	5446364
5479476	5526366	5553125	5557639	5565821	5570369
5581244	5600708	5625274	5677620	5692032	5729541
5760568	5794142	5802465	5809413	5827082	5839101
5844884	5845219	5870683	5884103	5889770	5907823
5912570	5914690	5914796	5917868	5920826	5956332
5956625	5956633	5966378	5977887	5987137	5991857
6006114	6011853	6014551	6014573	6026161	6035189
6038238	6043760	6047196	6049796	6050415	6055439
6060193	6069923	6072787	6081732	6084920	6084962
6094587	6097964	6105784	6112099	6115617	6119180
6121846	6128509	6138091	6140966	6144243	6144676
6148209	6151485	6151507	6163609	6164547	6167248
6185295	6188909	6249584	6259312	6266330	6272361
6282436	6292668	6295286	6311054	6314166	6324389
6324412	6347218	6363259	6370362	6370389	6377820
6381468	6392660	6400958	6453179	6463278	6470470
6487397	6522670	6198928	4969192	5266782	5390223
5444816	5487084	5640395	5664053	5699482	5701392
5722074	5754976	5805301	5835889	5857151	5859843
5862178	5898925	5930233	5946651	*5960354	5960389
5963901	6005857	6011971	6031827	6118775	6128322
6137789	6167248	6170073	6178535	6195338	6199035
6240076	6266321	6285888	6356759	6377803	6430163
6438370	6456237				

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NOTES

Appendix A

Message from the CTIA-Draft

(Cellular Telecommunications & Internet Association)

to all users of mobile phones.

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Phone: (202) 785-0081

Safety is the most important call you will ever make.

A Guide to Safe and Responsible Wireless Phone Use

Tens of millions of people in the U.S. today take advantage of the unique combination of convenience, safety and value delivered by the wireless telephone. Quite simply, the wireless phone gives people the powerful ability to communicate by voice--almost anywhere, anytime--with the boss, with a client, with the kids, with emergency personnel or even with the police. Each year, Americans make billions of calls from their wireless phones, and the numbers are rapidly growing.

But an important responsibility accompanies those benefits, one that every wireless phone user must uphold. When driving a car, driving is your first responsibility. A wireless phone can be an invaluable tool, but good judgment must be exercised at all times while driving a motor vehicle--whether on the phone or not.

The basic lessons are ones we all learned as teenagers. Driving requires alertness, caution and courtesy. It requires a heavy dose of basic common sense---keep your head up, keep your eyes on the road, check your mirrors frequently and watch out for other drivers. It requires obeying all traffic signs and signals and staying within the speed limit. It means using seatbelts and requiring other passengers to do the same.

But with wireless phone use, driving safely means a little more. This brochure is a call to wireless phone users everywhere to make safety their first priority when behind the wheel of a car. Wireless telecommunications is keeping us in touch, simplifying our lives, protecting us in emergencies and providing opportunities to help others in need. When it comes to the use of wireless phones, *safety is your most important call.*

Wireless Phone "Safety Tips"

Below are safety tips to follow while driving and using a wireless phone which should be easy to remember.

- 1 Get to know your wireless phone and its features such as speed dial and redial. Carefully read your instruction manual and learn to take advantage of valuable features most phones offer, including automatic redial and memory. Also, work to memorize the phone keypad so you can use the speed dial function without taking your attention off the road.
- 2 When available, use a hands free device. A number of hands free wireless phone accessories are readily available today. Whether you choose an installed mounted device for your wireless phone or a speaker phone accessory, take advantage of these devices if available to you.
- 3 Position your wireless phone within easy reach. Make sure you place your wireless phone within easy reach and where you can grab it without removing your eyes from the road. If you get an incoming call at an inconvenient time, if possible, let your voice mail answer it for you.
- 4 Suspend conversations during hazardous driving conditions or situations. Let the person you are speaking with know you are driving; if necessary, suspend the call in heavy traffic or hazardous weather conditions. Rain, sleet, snow and ice can be hazardous, but so is heavy traffic. As a driver, your first responsibility is to pay attention to the road.

- 5 Do not take notes or look up phone numbers while driving. If you are reading an address book or business card, or writing a "to do" list while driving a car, you are not watching where you are going. It's common sense. Don't get caught in a dangerous situation because you are reading or writing and not paying attention to the road or nearby vehicles.
- 6 Dial sensibly and assess the traffic; if possible, place calls when you are not moving or before pulling into traffic. Try to plan your calls before you begin your trip or attempt to coincide your calls with times you may be stopped at a stop sign, red light or otherwise stationary. But if you need to dial while driving, follow this simple tip--dial only a few numbers, check the road and your mirrors, then continue.
- 7 Do not engage in stressful or emotional conversations that may be distracting. Stressful or emotional conversations and driving do not mix--they are distracting and even dangerous when you are behind the wheel of a car. Make people you are talking with aware you are driving and if necessary, suspend conversations which have the potential to divert your attention from the road.
- 8 Use your wireless phone to call for help. Your wireless phone is one of the greatest tools you can own to protect yourself and your family in dangerous situations--with your phone at your side, help is only three numbers away. Dial 9-1-1 or other local emergency number in the case of fire, traffic accident, road hazard or medical emergency. Remember, it is a free call on your wireless phone!
- 9 Use your wireless phone to help others in emergencies. Your wireless phone provides you a perfect opportunity to be a "Good Samaritan" in your community. If you see an auto accident, crime in progress or other serious emergency where lives are in danger, call 9-1-1 or other local emergency number, as you would want others to do for you.
- 10 Call roadside assistance or a special wireless non-emergency assistance number when necessary. Certain situations you encounter while driving may require attention, but are not urgent enough to merit a call for emergency services. But you still can use your wireless phone to lend a hand. If you see a broken-down vehicle posing no serious hazard, a broken traffic signal, a minor traffic accident where no one appears injured or a vehicle you know to be stolen, call roadside assistance or other special non-emergency wireless number.

Careless, distracted individuals and people driving irresponsibly represent a hazard to everyone on the road. Since 1984, the Cellular Telecommunications Industry Association and the wireless industry have conducted educational outreach to inform wireless phone users of their responsibilities as safe drivers and good citizens. As we approach a new century, more and more of us will take advantage of the benefits of wireless telephones. And, as we take to the roads, we all have a responsibility to drive safely.

The wireless industry reminds you to use your phone safely when driving.

For more information, please call 1-888-901-SAFE.

For updates: <http://www.wow-com.com/consumer/issues/driving/articles.cfm?ID=85>

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Phone: (202) 785-0081

Appendix B
Message from the FDA – Draft

(U.S. Food and Drug
Administration)
to all users of mobile phones.

July 18, 2001 For updates: <http://www.fda.gov/cdrh/phones>

Consumer Update on Wireless Phones

U.S. Food and Drug Administration

1. Do wireless phones pose a health hazard?

The available scientific evidence does not show that any health problems are associated with using wireless phones. There is no proof, however, that wireless phones are absolutely safe. Wireless phones emit low levels of radiofrequency energy (RF) in the microwave range while being used. They also emit very low levels of RF when in the stand-by mode. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low level RF that does not produce heating effects causes no known adverse health effects. Many studies of low level RF exposures have not found any biological effects. Some studies have suggested that some biological effects may occur, but such findings have not been confirmed by additional research. In some cases, other researchers have had difficulty in reproducing those studies, or in determining the reasons for inconsistent results.

2. What is FDA's role concerning the safety of wireless phones?

Under the law, FDA does not review the safety of radiation-emitting consumer products such as wireless phones before they can be sold, as it does with new drugs or medical devices. However, the agency has authority to take action if wireless phones are shown to emit radiofrequency energy (RF) at a level that is hazardous to the user. In such a case, FDA could require the manufacturers of wireless phones to notify users of the health hazard and to repair, replace or recall the phones so that the hazard no longer exists.

Although the existing scientific data do not justify FDA regulatory actions, FDA has urged the wireless phone industry to take a number of steps, including the following:

- Support needed research into possible biological effects of RF of the type emitted by wireless phones;
- Design wireless phones in a way that minimizes any RF exposure to the user that is not necessary for device function; and
- Cooperate in providing users of wireless phones with the best possible information on possible effects of wireless phone use on human health.

FDA belongs to an interagency working group of the federal agencies that have responsibility for different aspects of RF safety to ensure coordinated efforts at the federal level. The following agencies belong to this working group:

- National Institute for Occupational Safety and Health
- Environmental Protection Agency
- Federal Communications Commission
- Occupational Safety and Health Administration
- National Telecommunications and Information Administration

The National Institutes of Health participates in some interagency working group activities, as well.

FDA shares regulatory responsibilities for wireless phones with the Federal Communications Commission (FCC). All phones that are sold in the United States must comply with FCC safety guidelines that limit RF exposure. FCC relies on FDA and other health agencies for safety questions about wireless phones. FCC also regulates the base stations that the wireless phone networks rely upon. While these base stations operate at higher power than do the wireless phones themselves, the RF exposures that people get from these base stations are typically thousands of times lower than those they can get from wireless phones. Base stations are thus not the subject of the safety questions discussed in this document.

3. What kinds of phones are the subject of this update?

The term wireless phone refers here to hand-held wireless phones with built-in antennas, often called cell mobile or PCS phones. These types of wireless phones can expose the user to measurable radiofrequency energy (RF) because of the short distance between the phone and the user's head. These RF exposures are limited by Federal Communications Commission safety guidelines that were developed with the advice of FDA and other federal health and safety agencies. When the phone is located at greater distances from the user, the exposure to RF is drastically lower because a person's RF exposure decreases rapidly with increasing distance from the source. The so-called cordless phones, which have a base unit connected to the telephone wiring in a house, typically operate at far lower power levels, and thus produce RF exposures far below the FCC safety limits.

4. What are the results of the research done already?

The research done thus far has produced conflicting results, and many studies have suffered from flaws in their research methods. Animal experiments investigating the effects of radiofrequency energy (RF) exposures characteristic of wireless phones have yielded conflicting results that often cannot be repeated in other laboratories. A few animal studies, however, have suggested that low levels of RF could accelerate the development of cancer in laboratory animals. However, many of the studies that showed increased tumor development used animals that had been genetically engineered or treated with cancer-causing chemicals so as to be predisposed to develop cancer in the absence of RF exposure. Other studies exposed the animals to RF for up to 22 hours per day. These conditions are not similar to the conditions under which people use wireless phones, so we don't know with certainty what the results of such studies mean for human health.

Three large epidemiology studies have been published since December 2000. Between them, the studies investigated any possible association between the use of wireless phones and primary brain cancer, glioma, meningioma, or acoustic neuroma, tumors of the brain or salivary gland, leukemia, or other cancers. None of the studies demonstrated the existence of any harmful health effects from wireless phone RF exposures. However, none of the studies can answer questions about long-term exposures, since the average period of phone use in these studies was around three years.

5. What research is needed to decide whether RF exposure from wireless phones poses a health risk?

A combination of laboratory studies and epidemiological studies of people actually using wireless phones would provide some of the data that are needed. Lifetime animal exposure studies could be completed in a few years. However, very large numbers of animals would be needed to provide reliable proof of a cancer promoting effect if one exists. Epidemiological studies can provide data that is directly applicable to human populations, but 10 or more years follow-up may be needed to provide answers about some health effects, such as cancer. This is because the interval between the time of exposure to a cancer-causing agent and the time tumors develop - if they do - may be many, many years. The interpretation of epidemiological studies is hampered by difficulties in measuring actual RF exposure during day-to-day use of wireless phones. Many factors affect this measurement, such as the angle at which the phone is held, or which model of phone is used.

6. What is FDA doing to find out more about the possible health effects of wireless phone RF?

FDA is working with the U.S. National Toxicology Program and with groups of investigators around the world to ensure that high priority animal studies are conducted to address important questions about the effects of exposure to radiofrequency energy (RF).

FDA has been a leading participant in the World Health Organization International Electromagnetic Fields (EMF) Project since its inception in 1996. An influential result of this work has been the development of a detailed agenda of research needs that has driven the establishment of new research programs around the world. The Project has also helped develop a series of public information documents on EMF issues.

FDA and the Cellular Telecommunications & Internet Association (CTIA) have a formal Cooperative Research and Development Agreement (CRADA) to do research on wireless phone safety. FDA provides the scientific oversight, obtaining input from experts in government, industry, and academic organizations. CTIA-funded research is conducted through contracts to independent investigators. The initial research will include both laboratory studies and studies of wireless phone users. The CRADA will also include a broad assessment of additional research needs in the context of the latest research developments around the world.

7. How can I find out how much radiofrequency energy exposure I can get by using my wireless phone?

All phones sold in the United States must comply with Federal Communications Commission (FCC) guidelines that limit radiofrequency energy (RF) exposures. FCC established these guidelines in consultation with FDA and the other federal health and safety agencies. The FCC limit for RF exposure from wireless telephones is set at a Specific Absorption Rate (SAR) of 1.6 watts per kilogram (1.6 W/kg). The FCC limit is consistent with the safety standards developed by the Institute of Electrical and Electronic Engineering (IEEE) and the National Council on Radiation Protection and Measurement. The exposure limit takes into consideration the body's ability to remove heat from the tissues that absorb energy from the wireless phone and is set well below levels known to have effects.

Manufacturers of wireless phones must report the RF exposure level for each model of phone to the FCC. The FCC website (<http://www.fcc.gov/oet/rfsafety>) gives directions for locating the FCC identification number on your phone so you can find your phone's RF exposure level in the online listing.

8. What has FDA done to measure the radiofrequency energy coming from wireless phones?

The Institute of Electrical and Electronic Engineers (IEEE) is developing a technical standard for measuring the radiofrequency energy (RF) exposure from wireless phones and other wireless handsets with the participation and leadership of FDA scientists and engineers. The standard, Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques, sets forth the first consistent test methodology for measuring the rate at which RF is deposited in the heads of wireless phone users. The test method uses a tissue-simulating model of the human head. Standardized SAR test methodology is expected to greatly improve the consistency of measurements made at different laboratories on the same phone. SAR is the measurement of the amount of energy absorbed in tissue, either by the whole body or a small part of the body. It is measured in watts/kg (or milliwatts/g) of matter. This measurement is used to determine whether a wireless phone complies with safety guidelines.

9. What steps can I take to reduce my exposure to radiofrequency energy from my wireless phone?

If there is a risk from these products--and at this point we do not know that there is--it is probably very small. But if you are concerned about avoiding even potential risks, you can take a few simple steps to minimize your exposure to radiofrequency energy (RF). Since time is a key factor in how much exposure a person receives, reducing the amount of time spent using a wireless phone will reduce RF exposure.

If you must conduct extended conversations by wireless phone every day, you could place more distance between your body and the source of the RF, since the exposure level drops off dramatically with distance. For example, you could use a headset and carry the wireless phone away from your body or use a wireless phone connected to a remote antenna.

Again, the scientific data do not demonstrate that wireless phones are harmful. But if you are concerned about the RF exposure from these products, you can use measures like those described above to reduce your RF exposure from wireless phone use.

10. What about children using wireless phones?

The scientific evidence does not show a danger to users of wireless phones, including children and teenagers. If you want to take steps to lower exposure to radiofrequency energy (RF), the measures described above would apply to children and teenagers using wireless phones.

Reducing the time of wireless phone use and increasing the distance between the user and the RF source will reduce RF exposure. Some groups sponsored by other national governments have advised that children be discouraged from using wireless phones at all. For example, the government in the United Kingdom distributed leaflets containing such a recommendation in December 2000. They noted that no evidence exists that using a wireless phone causes brain tumors or other ill effects. Their recommendation to limit wireless phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.

11. What about wireless phone interference with medical equipment?

Radiofrequency energy (RF) from wireless phones can interact with some electronic devices. For this reason, FDA helped develop a detailed test method to measure electromagnetic interference (EMI) of implanted cardiac pacemakers and defibrillators from wireless telephones. This test method is now part of a standard sponsored by the Association for the Advancement of Medical Instrumentation (AAMI). The final draft, a joint effort by FDA, medical device manufacturers, and many other groups, was completed in late 2000. This standard will allow manufacturers to ensure that cardiac pacemakers and defibrillators are safe from wireless phone EMI. FDA has tested hearing aids for interference from handheld wireless phones and helped develop a voluntary standard sponsored by the Institute of Electrical and Electronic Engineers (IEEE). This standard specifies test methods and performance requirements for hearing aids and wireless phones so that no interference occurs when a person uses a compatible phone and a accompanied hearing aid at the same time. This standard was approved by the IEEE in 2000. FDA continues to monitor the use of wireless phones for possible interactions with other medical devices. Should harmful interference be found to occur, FDA will conduct testing to assess the interference and work to resolve the problem.

12. Where can I find additional information?

For additional information, please refer to the following resources:

- FDA web page on wireless phones
<http://www.fda.gov/cdrh/phones/index.html>
- Federal Communications Commission (FCC) RF Safety Program
<http://www.fcc.gov/oet/rfsafety>
- International Commission on Non-Ionizing Radiation Protection
<http://www.icnirp.de>
- World Health Organization (WHO) International EMF Project
<http://www.who.int/emf>
- National Radiological Protection Board (UK)
<http://www.nrp.org.uk/>

July 18, 2001 For updates: <http://www.fda.gov/cdrh/phones>

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fax 813-249-9619.
