

Press Options and select an option to move the function in the list.

2. When you have made all the changes, press Done. To save the changes, press Yes or to discard the changes, press No.

Time and date settings

Clock

Press Menu, and select *Settings*, *Time and date settings* and *Clock*.

Select *Show clock* (or *Hide clock*) to show (or hide) the time on the top right of the display in standby mode. Select *Set the time* to adjust the clock to the correct time, and *Time format* to select 12-hour or 24-hour time format.

Date

Press Menu, and select *Settings*, *Time and date settings* and *Date*.

Select *Show date* (or *Hide date*) and the date is shown (or hidden) on the display when the phone is in standby mode. Select *Set the date* to adjust the date. You can also select the date format.

If the battery is flat or removed from the phone for a long time, you may need to set the date and time again.

Auto update of date and time

Press Menu, and select *Settings*, *Time and date settings* and *Auto-update of date & time* (network service). To set the phone to automatically update the time and date according to the current time zone, select *On*. To set the phone to ask for a confirmation before the update, select *Confirm first*.

Note that the automatic update of the date and time will affect other time related features (for example alarm clock). These features will always follow the updated time. Updating may cause some alarms that you have set to expire.

Call settings

Call divert

Press Menu, and select *Settings*, *Call settings* and *Call divert* (network service). With call divert, you can direct your incoming calls to another number, for example, to your voice mailbox number. For details, contact your service provider. Divert options not supported by your SIM card or your network operator may not be shown.

Select the divert option you want, for example, select *Divert if busy* to divert the voice calls when your number is busy or when you reject an incoming call.

To set the divert setting to on, select *Activate* and then select the timeout after which the call is diverted, if this is available for the divert option. To set the divert setting to off, select *Cancel*, or select *Check status* to check whether call divert is activated or not. *Check status* is only available for certain options. Several divert options may be active at the same time.

To see the divert indicators in standby mode, see "Standby mode" on page 3.

Anykey answer

Press Menu, and select *Settings*, *Call settings* and then *Anykey answer*. Select *On* and you can answer an incoming call by briefly pressing any key, except *0*, selection keys *←* and *→*, and *Ⓜ*.

Flip call handling setting

Opening or closing the flip cover may or may not affect voice call handling. You can set this by yourself.

1. Press Menu, and select *Settings*, *Call settings*, *Flip call handling setting*.
2. Three options are listed:
 - *Answer & end calls* (default setting):
 - Opening the flip cover answers a voice call.

- Closing the flip cover ends a voice call.
- *None*: Opening or closing the flip cover does not affect the status of the voice call.
- *Answer calls only*:
 - Opening the flip cover answers a voice call.
 - Closing the flip cover does not end a voice call.

Automatic redial

Press Menu, and select *Settings*, *Call settings* and *Automatic redial*. Select *On*, and your phone will make a maximum of ten attempts to connect the call after an unsuccessful call attempt (Depending on the network environment).

Speed dialling

Press Menu, and select *Settings*, *Call settings* and *Speed dialling*. Select *On* and the names and phone numbers assigned to the speed dialling keys, from *1* *abc* to *9* *wxyz*, can be dialled by pressing and holding the corresponding number key.

Call waiting

Press Menu, and select *Settings*, *Call settings* and *Call waiting*. Select *Activate* and the network will notify you of an incoming call while you have a call in progress

(network service). See "Handle a waiting call" on page 11.

Summary after call

Press Menu, and select *Settings*, *Call settings*, and *Summary after call*. Select *On*. After each call, the phone briefly displays the approximate duration and cost of the call (network service).

Send my caller identity

Press Menu, and select *Settings*, *Call settings* and *Send my caller identity*. Select *Yes* and your phone number will be displayed to the person you are calling (network service). Select *Set by network* and the setting agreed upon with your service provider is used.

Line for outgoing calls

Line for outgoing calls is a network service to select the phone line 1 or 2, that is, the subscriber number, for making calls.

Press Menu, and select *Settings*, *Call settings* and *Line for outgoing calls*. If you select *Line 2* and have not subscribed to this network service, you will not be able to make calls. However, calls on both lines can be answered regardless of the selected line.

If supported by your SIM card, you can prevent the line selection by selecting the option *Lock*.

For more information on availability, contact your network operator or service provider.



Tip: In standby mode, you can switch from one line to the other by pressing and holding Φ #.

Phone settings

Language

Press Menu, and select *Settings*, *Phone settings* and *Language*. Select the language for the display texts. If *Automatic* is selected, the phone selects the language according to the information on the SIM card.

Memory info

Press Menu, and select *Settings*, *Phone settings* and *Memory status*. Scroll to view the free memory, the total used memory and the used memory for each function.

You may also find the memory information in the menu of some of those functions, for example in gallery.

Automatic keyguard



Note: When Keyguard is on, calls may be possible to the emergency number programmed into your phone (e.g. 112, or other official emergency number). Key in the emergency number and press \hookrightarrow .

English

The number is displayed only after you have keyed in its last digit.

You can set the keypad of your phone to lock automatically after a period of time. When the phone is in standby mode with no function in use, and the set time is reached, the keypad locks automatically to prevent accidental phone calls.

Press Menu, and select *Settings*, *Phone settings* and *Automatic keyguard*.

- To activate the automatic keyguard, select *On*. The phone prompts *Set delay:*. Input the time and press OK. You can set the time from 10 seconds up to 60 minutes.
- To deactivate the automatic keyguard, select *Off*.


Refer also to "Keypad lock (Keyguard)" on page 9.

Recognition timeout

You can set how fast the phone recognise the strokes you write on the touch-board.

1. Press Menu, and select *Settings*, *Phone settings* and *Recognition timeout*.
2. A list of three options is displayed:
 - *Fast*: The recognition time is 0.2 second.

- *Medium*: The recognition time is 0.5 second. This is the default setting.
- *Slow*: The recognition time is 0.8 second.

3. Press  if necessary to highlight the option you want, and press Select.

Cell info display (network service)

Press Menu, and select *Settings*, *Phone settings* and *Cell info display*. Select *On* to set the phone to indicate when it is used in a cellular network based on Micro Cellular Network (MCN) technology.

If the *GPRS connection* is set to *Always online*, the cell identity may not be received. In that case, set the *GPRS connection* to *When needed* to enable it, see "GPRS connection", 73.

Welcome note

Press Menu, and select *Settings*, *Phone settings* and *Welcome note*. Enter the note you would like to be shown briefly when the phone is switched on. To save the note, press Options, and select *Save*.

Network selection

Press Menu, and select *Settings*, *Phone settings* and *Network selection*. Select *Automatic* and the phone automatically selects one of

the cellular networks available in your area.

If you select *Manual*, you can select a network that has a roaming agreement with your home network operator. If *No access* is displayed, you must select another network. The phone stays in manual mode until the automatic mode is selected or another SIM card is inserted into the phone.

Confirm SIM service actions

See "SIM services (Menu 14)" on page 82.

Help text activation

To set the phone to show or not to show the help texts, press Menu, and select *Settings*, *Phone settings* and *Help text activation*.

Start-up tone

To set the phone to play or not to play a start-up tone when the phone is switched on, press Menu, and select *Start-up tone*, *Phone settings* and *Start-up tone*.

Display settings

Wallpaper

You can set your phone to display a background image, known as wallpaper, when the phone is in standby mode. Some images are pre-saved in the *Gallery* menu. You may also be able to receive images via multimedia messages,

download them from WAP pages or transfer them with PC Suite from your compatible PC and then save them in *Gallery*. Your phone offers support to JPEG, GIF, BMP and PNG formats.

Select a wallpaper

1. Press Menu, and select *Settings*, *Display settings* and *Wallpaper*.
2. Select *Change image* and the folder list in the *Gallery* menu will be shown.
3. Open the image folder and scroll to the desired image.
4. To set the image as wallpaper, press Options and select *Set as wallpaper*.

To activate or deactivate the wallpaper

Press Menu, and select *Settings*, *Display settings* and *Wallpaper*. To activate/deactivate the wallpaper, select *On/Off*, respectively.

Colour schemes

You can change the colour in some display components, for example, indicators and signal bars.

Press Menu, and select *Settings*, *Display settings* and *Colour schemes*. Select the desired colour scheme.

Operator logo

To set your phone to display or hide the operator logo, press Menu, and select *Settings*, *Display settings* and

Operator logo. If you have not saved any operator logo, this menu is dimmed.

Note that the operator logo is not displayed when the phone activates the screen saver.

For more information on availability of an operator logo via test messages, MMS or WAP, contact your network operator or service provider. See also "PC Suite" on page 83.

Screen saver

The digital clock screen saver is used for power saving in standby mode. It is activated when no function of the phone has been used for a certain time. Press any key to deactivate the screen saver. The screen saver is also deactivated when the phone is out of the network coverage area.

Press Menu, and select *Settings*, *Display settings* and *Screen saver timeout*. Select the timeout after which the digital clock display will be activated. The length of the timeout can vary from 5 seconds to 60 minutes.

Note that the screen saver overrides all the graphics and texts on the display in standby mode.

Display brightness

You can change the display brightness level used on the phone display.

Press Menu, and select *Settings*, *Display settings* and *Display brightness*. Scroll with ◀ and ▶ to decrease and increase the brightness level, and press OK to accept it.

Tone settings

Press Menu, and select *Settings* and then *Tone settings*. You can find the same settings in the *Profiles* menu, see "Profiles (Menu 4)" on page 48. Note that the settings you make, will change the settings in the active profile.

Select *Incoming call alert* to choose how the phone notifies you of an incoming voice call. The options are *Ring*, *Ascending*, *Ring once*, *Beep once* and *Off*.

Select *Ring tone* for incoming voice calls. To select ringing tones that have been saved in the *Gallery*, select *Open gallery* from the ringing tone list.

Select *Ring volume* and *Vibrating alert* for incoming voice calls and messages. The vibrating alert does not work when the phone is connected to a charger.



Tip: If you receive a ringing tone via infrared connection or by downloading, you can save the ringing tone in the *Gallery*.

Select *Message alert tone* to set the alert tone for the incoming messages, *Keypad tones*, or

Warning tones to set the phone to sound tones for example, when the battery is running out of power.

Select *Alert for* to set the phone to ring only upon calls from phone numbers that belong to a selected caller group. Scroll to the caller group you want or *All calls* and press Mark.

Enhancement settings

The enhancement settings menu is shown only if the phone is or has been connected to a compatible enhancement.

Press Menu, and select *Settings* and *Accessory settings*. You can select *Headset*, *Handsfree*, or *Loopset*, if a corresponding compatible enhancement is or has been connected to the phone.

- Select *Default profile* to select the profile that you want to be automatically activated when you connect to the selected enhancement. You can select another profile while the enhancement is connected.
- Select *Automatic answer* to set the phone to answer an incoming call automatically after five seconds. If the *Incoming call alert* is set to *Beep once* or *Off*, automatic answer will not be in use.
- Select *Lights* to set the lights permanently *On*. Select

Automatic to set the lights on for 15 seconds after a keypress. The *Lights* option is available only when *Handsfree* is selected.

Security settings



Note: When security features that restrict calls are in use (call barring, closed user group and fixed dialling), calls may be possible to certain emergency numbers in some networks (e.g. 112, or other official emergency numbers).

Press Menu, and select *Settings* and *Security settings*. Select

- *PIN code request* to set the phone to ask for your PIN code every time the phone is switched on. Some SIM cards do not allow the PIN code request to be turned off.
- *Call barring service* (network service) to restrict incoming calls to and outgoing calls from your phone. A barring password is required.
- *Fixed dialling* to restrict your outgoing calls and text messages to selected phone numbers if this function is supported by your SIM card. The PIN2 code is required.

When the fixed dialling is on, GPRS connections are not possible except while sending text messages over a GPRS

connection (network service). In this case, the recipient's phone number and the message centre number have to be included on the fixed dialling list.

- **Closed user group.** Closed user group is a network service that specifies the group of people whom you can call and who can call you. For more information contact your network operator or service provider.
- **Security level.**
 - If you select **Phone**, then the phone asks for the Security code when a new SIM card is used.
 - If you select **Memory**, then the phone asks for the Security code when memory in use is going to be changed from SIM card to others, (see "Phone book settings" on page 43), or entries in the memory in use will be copied to another memory ("Copy in phone book" on page 45).
- **Access codes** to change the security code, PIN code, PIN2 code or barring password. Codes can only include numbers from 0 to 9.

Restore factory settings

To reset some of the menu settings to their original values, press Menu, and select **Settings** and **Restore**

factory settings. Key in the security code and press OK.

■ Gallery (Menu 6)



Note: Your phone must be switched on to use this function. Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

In Gallery you can manage images, photos and tones saved in your phone.

The gallery uses shared memory, see "Shared memory" on page 0.

1. Press **Menu** and select **Gallery**. The list of options is shown.
2. Select **View folders** to open the list of folders.

Other available options are:

- **Add folder** to add a new folder. Key in a name for the folder and press **OK**.
- **Delete folder** to select the folder you want to delete. You cannot delete the original folders on the phone.
- **Rename folder** to select the folder you want to rename. You cannot rename the original folders on the phone.
- **Gallery downloads** to download more images and tones. Select **Image**

downloads or *Tone downloads*, respectively. The list of available browser bookmarks is shown. Select *More bookmarks* to access the list of bookmarks in the *Services* menu, see "Bookmarks" on page 78.

Select the appropriate bookmark to connect to the desired page. If the connection fails, you may not be able to access the page from the service whose connection settings are currently active. In this case, enter the *Services* menu and activate another set of service settings, see "Making a connection to a service" on page 75. Try again to connect to the page.

For the availability of different services, pricing and tariffs, contact your network operator and/or service provider. Download content only from the sources you trust.

3. Open the folder you want and the list of files in the folder is shown. *Photos*, *Graphics* and *Tones* are the original folders in the phone.

Press *Options* and some of the following options are available:

- *Open* to open the selected file.
 - *Delete* to delete the selected file.
 - *Send* to send the selected file via MMS to compatible devices.
 - *Move* to move a file to another folder.
 - *Rename* to give a new name to the file.
 - *Set as wallpaper* to set the selected image file as wallpaper.
 - *Set as ring tone* to set the selected sound file as the ringing tone.
 - *Details* to see the details of the file, for example the size of the file.
 - *Sort* to sort the files and folders by date, type, name or size.
 - *Delete all* to delete all the files in the selected folder.
 - *Edit image* to insert text, a frame or clip-art to the selected picture.
4. Open the file you want. Press *Options* and some of the following options may be available:
 - *Play (Pause)* to listen to or to view a sound or image file

that is contained in the message.

- *Zoom* to increase the size of the image that is contained in the message.
- *Mute audio* (*Unmute audio*) to mute (unmute) the sound file.
- *Set contrast* to adjust the contrast level of the image.
- *Set as wallpaper* to set the selected image file as wallpaper.
- *Set as ring tone* to set the selected sound file as the ringing tone.
- *Edit image* to insert text, a frame or clip-art to the selected picture.
- *Details* to see the details of the file, for example the size of the file.
- *Delete* to delete the selected file.
- *Send* to send the selected file via MMS.
- *Rename* to give a new name to the file.
- *View in sequence* to view the files in the folder sequentially.

Note that copyright protections may prevent some images, ringing tones and other content from being

copied, modified, transferred or forwarded.

■ **Organiser (Menu 7)**



Note: Your phone must be switched on to use the functions in the *Organiser* menu. Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

Alarm clock

The alarm clock uses the time format set for the clock. Even when the phone is switched off, the previously set alarm will still work providing that there is enough power in the battery.

Press Menu, and select *Alarm clock*.

- Select *Alarm time*, enter the alarm time and press OK.
To change the alarm time, select *On*.
- Select *Alarm tone* and select the default alarm tone.

When the alarm time expires

The phone will sound an alert tone, and flash *Alarm!* and the current time on the display.

Press Stop to stop the alarm. If you let the phone continue to sound the alarm for a minute or press Snooze,

the alarm stops for about ten minutes and then resumes.

If the alarm time is reached while the phone is switched off, the phone switches itself on and starts sounding the alarm tone. If you press Stop, the phone asks whether you want to activate the phone for calls, *Switch the phone on?*. Press No to switch off the phone or Yes to make and receive calls.



Note: Do not press Yes when wireless phone use is prohibited or when it may cause interference or danger.

Calendar

The calendar helps you to keep track of reminders, calls that you need to make, meetings, and birthdays.

The calendar uses shared memory. Refer to "Shared memory" on page 0.

Press Menu, and select *Organiser* and *Calendar*.



Tip: To quickly open the *Calendar* menu, press ► in standby mode.

Scroll to the day you want. The current day is indicated by a frame around the day. If there are any notes set for the day, the day is in bold type. To view the day notes, press Options and select *Day notes*.

To view a single note, scroll to the note you want to view, press Options and select *View*. The note view allows you to view the details of the selected note. You can scroll through the note.

The other options for the calendar views may include:




- Options for making a note, or for sending a note via IR, or as a note directly to another compatible device's calendar or as a text message.
- Options for deleting, editing, moving and repeating a note and for copying a note to another day.
- Settings* to set the date, time, date or time format, or the first day of the week. In the *Auto-delete* option you can set the phone to delete old notes automatically after a specified time. However, the repeat notes, for example, birthday notes, will not be deleted.


Making a calendar note


Press Menu, and select *Organiser* and *Calendar*. Scroll to the date you want, press Options and select *Make a note*. Select one of the following note types:

- Meeting* - Enter the note (or press Options and search for the name in the phone book). Press Options and select *Save*. Enter



the location for the meeting and press Options and select *Save*. Enter the start time for the meeting and press OK, and then the end time and press OK. To set the alarm for the note, select *With tone* or *Silent* (no alarm tone) and then set the alarm time.

-  *Call* - Enter the phone number, press Options and select *Save*. Enter the name, press Options and select *Save*. (Instead of entering the phone number, press Options to search for the name and number in the phone book.) Then enter the time for the call and press OK. To set the alarm for the note, select *With tone* or *Silent* (no alarm tone) and then set the alarm time.
-  *Birthday* - Enter the person's name (or press Options and search for it in the phone book), press Options and select *Save*. Then enter the year of birth, and press OK. To set the alarm for the note, select *With tone* or *Silent* (no alarm tone) and then set the alarm time.
-  *Memo* - Enter the note, press Options and select *Save*. Enter the end day for the note and press OK. To set the alarm for the note, select *With tone* or *Silent* (no alarm tone) and then set the alarm time.

-  *Reminder* - Enter the subject for the reminder, press Options and select *Save*. To set the alarm for the note, select *Alarm on* and then set the alarm time.

When you have set the alarm, the indicator  is displayed when you view the notes.

When the phone sounds an alarm for a note

The phone beeps, and displays the note. With a call note  on the display, you can call the displayed number by pressing . To stop the alarm and view the note, press View. To stop the alarm without viewing the note, press Exit. Note the alarm you set here will not work when the phone is switched off.

To-do list

You can save a note for a task that you have to do, select a priority level for the note and mark it as done when you have completed it. You can sort the notes by priority or by date.

The to-do list uses shared memory. Refer to "Shared memory" on page 0.

Press Menu, select *Organiser*, then *To-do list*. The list of notes is shown. Press Options, or scroll to the desired note and press Options.

- To add a new task, select *Add*. Enter the subject for the note.

When you have keyed in the maximum number of characters for a task, no further characters are accepted. Press **Options** and select **Save**. Select the priority for the task, **High**, **Medium**, or **Low**. The phone automatically sets the deadline without an alarm for the task.

- You can also view and delete the selected task and delete all the tasks that you have marked as done. You can sort the tasks by priority or by deadline, send a task to another phone, save a task as a calendar note, or access the calendar.

While viewing a task, you can also, for example, select an option to edit the selected task, edit the deadline or priority for the task, or mark the task as done.

Notes



Note:

Your phone must be switched on to use this function. Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

You can use the **Notes** application for writing and sending notes via IR, SMS or MMS.



The Notes application uses shared memory, see “Shared memory”, 0.

1. To access **Notes**, press **Menu** and select **Notes**, or type any character when the messaging keyboard is open. The phone will ask you to set the date and time, if they have not already been set when you start to write a note.
2. Press **Options** and select **Make a note**.
3. Write with the stylus or key in the note, see “Handwriting input method”, 14 or “Keypad input methods”, 20, and select **Save**.

You can insert the current time and date to the note. If there is not enough space to insert them to the note, the phone will ask you to delete the appropriate number of characters from your note.

You can also send the note via IR, MMS, or as a text message (SMS). If the note is too long to be sent as a text message, the phone will ask you to delete the appropriate number of characters from your note.

The other options for notes include options for viewing, deleting, and editing a note. While editing a note, you can also exit the text editor without saving the changes.

■ Dictionary (Menu 8)



In *Dictionary*, you can look up a Chinese word for English translation, and look up an English word for Chinese translation.

Look up a word in the Dictionary

1. In standby mode, press Menu, scroll to *Dictionary* and press Select.
2. If necessary, change the input mode to Chinese if you want to look up a Chinese word and change the input mode to English if you want to look up an English word.
Refer to “Handwriting input method”, 14 for handwriting input method.
Refer to “Keypad input methods”, 20 for keypad input method. Note that the next Chinese character prediction is not available.
3. Input the Chinese or English word.
A list of words is shown after you input the first character or letter. If you input more characters and letters, the list of words changes accordingly.
4. If necessary, press ▼ and ▲ to move the highlight to the desired English or Chinese word.

Press Select. If you look up a Chinese word, the word and its English translation is shown. If you look up an English word, the word, its pronunciation, gender and Chinese translation is shown.

5. If you wish, you can press ► and ◀ to see the translation of other Chinese or English words on the list.

Look up the synonym or antonym of an English word

After you find the translation of an English word, you can also look up the synonym or antonym of the English word if you wish.

1. First find the English word in the *Dictionary*. Refer to “Look up a word in the Dictionary”, 62.
2. When the translation of the word is displayed, press Options.
3. If the synonym and/or antonym of the word exists, *Synonyms* and/or *Antonyms* is displayed in the option's list.

Press ▼ to highlight *Synonyms* or *Antonyms*, and press Select.

4. A list of synonyms or antonyms is displayed.

To see more about the words in the list, operate according to steps 4 and 5 in “Look up a word in the Dictionary”, 62.

■ Games (Menu 9)



Note: Your phone must be switched on to use this function. Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

Launching a game

1. Press Menu, and select *Games* and *Select game*.
2. Scroll to a game or a game set (the name depends on the game).
3. Press Options and select *Open* or press . If the selection is a single game it will be launched. Otherwise, a list of games in the selected game set is displayed. To launch a single game, scroll to the desired game and press Options and select *Open*, or press .

Note that running some games may consume the phone's battery faster (and you may need to connect the phone to the charger).

Other options available for a game or game set

Options for games, see "Other options available for an application or application set" on page 64.

Game services

Press Menu, and select *Games* and *Game downloads*. The list of

available WAP bookmarks is shown. Select *More bookmarks* to access the list of WAP bookmarks in the *Services* menu, see "Bookmarks" on page 78.

Note that your phone may have some pre-installed bookmarks for sites not affiliated to Nokia. Nokia does not warrant or endorse these sites. If you choose to access them, you should take the same precautions, for security or content, as you would with any Internet site. Select the appropriate bookmark to connect to the desired WAP page. If the connection fails, you may not be able to access the WAP page from the WAP service whose connection settings are currently active. In this case, enter the *Services* menu and activate another set of service settings, see "Making a connection to a service" on page 75. Try again to connect to the WAP page.

For the availability of different WAP services, pricing and tariffs, contact your network operator and/or the WAP service provider.

Note that when downloading a game, it may be saved in the *Applications* menu instead of the *Games* menu.

Note that after you have downloaded a game, the WAP connection is still on. You need to end the connection before

launching the game, otherwise you may be charged for the connection.

Memory status for games

To view the amount of memory available for game and application installations, press Menu, and select *Games* and *Memory*. See also "Memory status for applications" on page 66.

The games use shared memory. Refer to "Shared memory" on page 0.

Game settings

Press Menu, and select *Games* and *Settings* to set sounds, lights and shakes for the game. You can save your Club Nokia membership number, *Club Nokia ID*. For more information on Club Nokia and the game services, visit www.club.nokia.com. Availability may vary by country.

■ Applications (Menu 10)



Note: The phone must be switched on to use this function. Do not switch on the phone when the use of a wireless phone is prohibited or when it may cause interference or danger.

Note that after you have downloaded an application, the

WAP connection is still on. You need to end the connection before launching the application, otherwise you may be charged for the connection.

Launching an application

1. Press Menu, and select *Applications* and *Select application*.
2. Scroll to an application or an application set (the name depends on the application).
3. Press Options and select *Open* or press . If the selection is a single application it will be launched.

Otherwise, a list of applications in the selected application set is displayed. To launch a single application, scroll to the desired application and press Options and select *Open*, or press .

Note that running some applications may consume the phone's battery faster (and you may need to connect the phone to the charger).

Other options available for an application or application set

- *Delete* to delete the application or application set from the phone.

Note that if you delete a pre-installed application or an application set from your phone, you may be able to download it again to your phone from the Nokia Software Market, www.softwaremarket.nokia.com/wap. Note the availability may vary in different markets.

- [Web access](#) to restrict the application from accessing the network. Select [Ask first](#) and the phone asks for net access, [Allowed](#) to allow the net access, or [Not allowed](#) not to allow the net access.
- [Update version](#) to check if a new version of the application is available for download from the WAP services.
- [Web page](#) to provide further information or additional data for the application from an Internet page. This feature needs to be supported by the network. It is only shown if an Internet address has been provided with the application.
- [Details](#) to give additional information about the application.

Download an application

You can download new Java™ applications in different ways:

- Press Menu, and select [Applications](#) and [App.](#)

[downloads](#) and the list of available WAP bookmarks is shown. Select [More bookmarks](#) to access the list of WAP bookmarks in the [Services](#) menu, see "Bookmarks" on page 78.

Select the appropriate bookmark to connect to the desired WAP page. If the connection fails, you may not be able to access the WAP page from the WAP service whose connection settings are currently active. In this case, enter the [Services](#) menu and activate another set of service settings, see "Making a connection to a service" on page 75. Try again to connect to the WAP page.

For the availability of different WAP services, pricing and tariffs, contact your network operator and/or the WAP service provider.

- Press Menu, and select [Services](#) to find a WAP page to download an appropriate Java application. See "Browsing the pages of a service" on page 76.
- Use the game download functionality, see "Game services" on page 63.
- Use the Nokia Application installer from PC Suite to download the applications in your phone (network service).



Note that Nokia does not warrant for applications from non-Nokia sites. If you choose to download Java applications from them, you should take the same precautions, for security or content, as you would with any site.

Note that when downloading an application, it may be saved in *Games* menu instead of the *Applications* menu.

Memory status for applications

To view the amount of memory available for game and application installations, press Menu, and select *Applications* and *Memory*.

The applications use shared memory. Refer to "Shared memory" on page 0.

Extras (Menu 11)



Note: Your phone must be switched on to use the functions in *Extras* menu.


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

Calculator

The calculator in your phone adds, subtracts, multiplies, divides,

calculates the square and the square root and converts currency values.

This calculator has a limited accuracy and rounding errors may occur, especially in long divisions.

1. Press Menu, and select *Extras* and *Calculator*.
2. When '0' is displayed on the screen, enter the first number in the calculation, press $\frac{\square}{\square}$ for a decimal point.
3. Press Options and select *Add*, *Subtract*, *Multiply*, *Divide*, *Square*, *Square root* or *Change sign*.
-  **Tip:** Alternatively, press * once to add, twice to subtract, three times to multiply or four times to divide.
4. Enter the second number.
5. For a total, press Options and select *Equals*. Repeat steps 3 to 5 as many times as is necessary.
6. To start a new calculation, first press and hold Clear.

Performing a currency conversion

1. Press Menu, and select *Extras* and *Calculator*.
2. To save the exchange rate, press Options and select *Exchange rate*. Select either of the displayed options. Enter the exchange rate, press $\frac{\square}{\square}$ for a decimal point, and press OK.

The exchange rate remains in the memory until you replace it with another one.

3. To perform the currency conversion, enter the amount to be converted, press Options and select *In domestic* or *In foreign*.



Tip: You can also perform the currency conversion in standby mode. Key in the amount to be converted, press Options and select *In domestic* or *In foreign*.


Countdown timer

Press Menu, and select *Extras* and *Countdown timer*. Enter the time to be counted in hours and minutes and press OK. If you wish, enter your own note text which is displayed when the time expires, and press OK to start the countdown timer.

- To change the countdown time, select *Change time*, or to stop the timer, select *Stop timer*.

If the alarm time is reached when the phone is in standby mode, the phone sounds a tone and flashes the note text if it is set or else *Countdown time up*. Stop the alarm by pressing any key. If no key is pressed, the alarm automatically stops within 30 seconds. To stop the alarm and to delete the note text, press OK.

Stopwatch

You can measure time, take intermediate times or lap times using the stopwatch. During timing, the other functions of the phone can be used. To set the stopwatch timing in the background, press .

Using the stopwatch consumes the battery and the phone's operating time will be reduced. Be careful not to let it run in the background when performing other operations with your phone.

Time observation and time splitting

1. Press Menu, and select *Extras*, *Stopwatch* and *Split timing*. You can select *Continue* if you have set the timing in the background.
2. Press Start to start the time observation. Press Split every time you want to take an intermediate time. The intermediate times are listed below the running time on the display. Scroll to view the times.
3. Press Stop to stop the time observation.
4. Press Options and select *Start* to start the time observation again. The new time is added to the previous time. *Save* to save the time. Enter a name for the measured time and press OK. If no name is keyed

in, the total time is used as the title.

Reset to reset the time without saving it.

Lap times

Press Menu, and select *Extras*, *Stopwatch* and *Lap timing*. Press Start to start the time observation and Lap to take a lap time. Press Stop to stop the lap timing. Press Options and you can save or reset the lap times. Refer to "Time observation and time splitting" above.

Viewing and deleting times

Press Menu, and select *Extras*, and *Stopwatch*.

If the stopwatch is not reset, you can select *Show last* to view the most recent measured time. Select *View times* and a list of names or final times of the time sets is shown, select the time set you want to view.

To delete the saved times, select *Delete times*. Select *Delete all* and press OK, or select *One by one*, scroll to the times you want to delete, press Delete and press OK.

Wallet

In *Wallet* you can save personal information, for example, credit card numbers and make purchases with your phone where the functionality is supported (network service).

You can access wallet via the *Wallet* menu or via the WAP browser, see "Options while browsing" on page 76.

When you access wallet for the first time, you need to create your own wallet code. At *Create wallet code*: key in the code and press OK to confirm it and at *Verify wallet code*: key in the code again and press OK.

If you want to delete all the content of the wallet and the wallet code, key in *#7370925538# (*#res0wallet# in letters) in standby mode. You also need the phone's security code.

See also "Access codes" on page -1.

Saving and changing personal card information

To access the wallet, press Menu, select *Extras* and *Wallet*. If required, key in your wallet code and press OK, see "Wallet settings" on page 69. Select *Cards* to view the list of cards. The maximum number of cards is five. Scroll to the desired card.

- To save information on a card, press Options and select *View*. Select
 - *Card info* to enter, for example, card holder's name, card type, number and expiry information.
 - *User info* to save user name and password.

- *Shipping info* to save your contact information.
- *Billing info* to save the contact information in case the invoicing address differs from your own, for example, with company credit cards.
- *Receipt info* to save phone numbers and e-mail addresses where you want the service provider to send a receipt of your purchase.
- To make a copy of the card, press Options and select *Copy card*.
- To delete all the information on the card, press Options and select *Clear card*.
- To rename the card, press Options and select *Rename card*.

Personal notes

You can save up to 30 personal notes, for example, passwords, codes or notations.

Press Menu, select *Extras, Wallet* and *Personal notes*. Press Options and you can view, add, edit a selected note and sort notes either by name or date. *Send as text* copies the note as a text message. *Copy to calendar* copies the note to the calendar as a memo. *Use number* extracts numbers from a note.

Wallet settings

Press Menu, select *Extras, Wallet* and *Settings*. Select

- *Code request* to set the wallet code request to on or off. You need to key in the correct wallet code before you can set the code request to on or off. Note that if you set it to off the information in the wallet is accessible without the password
- *Change code* to change the wallet code.

Guidelines for paying for your purchases with wallet

1. Access the desired WAP site supporting this functionality to do your shopping, see "Making a connection to a service" on page 75, and choose the product you want to buy.
2. Read all the provided information carefully. Note that the information provided by the site may not fit into one page in your screen, you may need to scroll pages to completely read them.
3. To pay for the items you wish to purchase, press Options and select *Use wallet info*. See "Options while browsing" on page 76.
4. Select the card you want to pay with. Fill in the data form you receive from the service

provider by transferring the credit card details from the wallet. If you want to fill in all the fields automatically, select *Fill in all fields*. The option is shown only when the WAP service supports the Electronic Commerce Modeling Language standard. You can also fill the form by selecting information fields from the card one by one. The phone displays the filled form.

5. Approve the purchase, and the information is sent forward.
6. You may receive a sign-in document from the WAP service that you need to sign to make the purchase binding, see "Digital signature" on page 81.
7. To close the wallet, select *Close wallet*. See "Options while browsing" on page 76.

Synchronisation

You can save your compatible calendar and phone book data on a remote Internet server (network service) or on a compatible PC. If you have saved data on the remote Internet server, you can synchronise your phone by starting the synchronisation from your phone. You can also synchronise the data in your phone's phone book and calendar to correspond with the data of your compatible PC by

starting the synchronisation from your PC. The phone book in your SIM card will not be synchronised.

Note that answering an incoming call during synchronisation will end the synchronisation and you need to start it again.

Synchronising from your phone

Before synchronising from your phone, you may need to do the following:

- Subscribe to a synchronisation service. For more information on availability and the synchronisation service settings, contact your network operator or service provider.
- Retrieve the synchronisation settings from your network operator or service provider.

You may receive the synchronisation settings as a text message, see "Save the synchronisation settings received as a text message" on page 71 or you may have to enter the settings manually, see "Enter the synchronisation settings manually" on page 71.

To start the synchronisation from your phone:

1. Press Menu, and select *Services*, *Active service settings* and select the connection settings you need for synchronisation.

The synchronisation settings may differ from the service settings required for WAP browsing. After synchronising, change your *Active service settings* back to the previous ones if you want to use other WAP services later.

2. Mark the data to be synchronised. See *Data to be synchronised* in "Enter the synchronisation settings manually" on page 71.
3. Press Menu, and select *Extras*, *Synchronisation* and *Synchronise*.
4. The marked data of the active set will be synchronised after confirmation.

Note that synchronising for the first time or after an interrupted synchronisation may take up to 30 minutes, if the phone book or calendar are full.

Save the synchronisation settings received as a text message

You may be able to receive the synchronisation settings as a text message. When you receive it, *Synchronisation settings received* is displayed.

Press Options and select *Details* to view the received settings first, *Save* to save the synchronisation settings, or *Discard* to discard them.

Enter the synchronisation settings manually

Press Menu, select *Extras*, *Synchronisation* and *Settings*.

Select *Active Internet sync. settings*.

You need to activate the set where you want to save the synchronisation settings. A set is a collection of settings required to make a connection to a service.

Scroll to the set you wish to activate and press Activate.

Select *Edit active Internet sync. settings*. Select each setting one by one and enter all the required settings.

- *Settings' name*. Enter the name for the set and press OK.
- *Data to be synchronised*. Mark the data you want to synchronise, *Contacts* or/and *Calendar*, and press Done.
- *Database addresses*. Select *Contacts database* or/and *Calendar database* to be edited. Enter the name of the database and press OK.
- *User name*. Enter the user name and press OK.
- *Password*. Key in the password and press OK.
- *Synchronisation server*. Enter the name of the server and press OK.

Synchronising from your compatible PC

To synchronise the compatible phone book and calendar from your compatible PC, use either an IR connection or a data cable. You also need the PC Suite software of your phone installed on your PC. Start the synchronisation from your PC using PC suite. After synchronising, the synchronised data in the phone, which is supported by the phone, is the same as it's counterpart in the PC.

■ Connectivity (Menu 12)



Infrared

You can set up the phone to receive data through its infrared (IR) port. To use an IR connection, the device with which you want to establish a connection must be IrDA compliant. You can send or receive data such as business cards and calendar notes to or from a compatible phone or data device (for example, a computer) via the IR port of your phone.

Do not point the IR (infrared) beam at anyone's eye or allow it to interfere with other IR devices. This device is a Class 1 Laser product.



Note: Your phone must be switched on to use this function. Do not switch the



phone on when wireless phone use is prohibited or when it may cause interference or danger.

Send and receive data via IR

- Ensure that the IR ports of the sending and receiving devices are pointing at each other and that there are no obstructions between the devices. The preferable distance between the two devices in an infrared connection is one metre at most.
- To activate the IR port of your phone to receive data via IR, press Menu, and select *Connectivity* and *Infrared*.
- The user of the sending phone selects the desired IR function to start data transfer.

If data transfer is not started within two minutes after the activation of the IR port, the connection is cancelled and has to be started again.

IR connection indicator

- When  is shown continuously, the IR connection is activated and your phone is ready to send or receive data via its IR port.
- When  blinks, your phone is trying to connect to the other device or a connection has been lost.

GPRS

GPRS connection

You can set the phone to automatically register to a GPRS network when you switch the phone on (network service). Press Menu, and select *Connectivity*, *GPRS*, *GPRS connection* and *Always online*. When you start an application using GPRS, the connection between your phone and the network is established, and data transfer is possible. When you end the application, GPRS connection is ended but the registration to the GPRS network remains.

If you select *When needed*, the GPRS registration and connection are established when an application using GPRS needs it and closed when you end the application.

GPRS modem settings

You can connect the phone via an infrared or a data cable connection to a compatible PC and use the phone as a modem to enable GPRS connectivity from the PC (network service).


Press Menu, and select *Connectivity*, *GPRS* and *GPRS modem settings*. Select *Active access point* and activate the access point you want to use. Select *Edit active access point* to change the access point settings.

- Select *Alias for access point*. Enter the name you would like for the activated access point and press OK.
- Select *GPRS access point*. Enter the Access Point Name (APN) to establish a connection to a GPRS network and press OK. Contact your network operator or service provider for the access point name.

You can also set the GPRS dial-up service settings (Access Point Name) on your PC using the Nokia Modem Options software, see "PC Suite" on page 83. If you have set the settings both on your PC and on your phone, note that the PC's settings will be used.

Services (Menu 13)



 Note: Your phone must be switched on to use this function. Do not switch the phone on when wireless phone use is prohibited or when it may cause interference or danger.

You can access various services on the Internet. For example, these services may include weather reports, news or flight times and financial information.

Check the availability of these services, pricing and tariffs with your network operator and/or service providers whose service

you wish to use. Service provider will also give you instructions on how to use their services.

Note that your phone may have some pre-installed bookmarks for sites not affiliated to Nokia. Nokia does not warrant or endorse these sites. If you choose to access them, you should take the same precautions, for security or content, as you would with any Internet site.

With your phone's multi-mode browser you can view the services that use Wireless Mark-up Language (WML) or extensible HyperText Markup Language (xHTML) on their pages. Since the phone's display and the memory capacity are much smaller than in a computer, Internet content is displayed differently on the phone's display. Note that you may not be able to view all pages or all details on the Internet pages.

Basic steps for accessing and using services

1. Save the service settings that are required to access the service that you want to use. See page 74.
2. Make a connection to the given service. See page 75.
3. Start browsing the pages of the service. See page 76.

4. Once you are finished browsing, end the connection to the service. See page 77.

Setting up the phone for a service

You may receive the service settings as an OTA message from the network operator or service provider that offers the service that you want to use. You can also key in the settings manually or add and edit the settings with PC Suite.

For more information and for appropriate settings, contact your network operator or service provider that offers the service that you want to use. The settings may be available, for example, on their website. You can also visit Club Nokia's website (www.club.nokia.com).

Saving the service settings received as an OTA message

When you receive the service settings as an OTA message, *Service settings received* is displayed.

- To save the received settings, press **Options** and select **Save**.

If no settings are saved in *Active service settings*, the settings are saved under the first free connection set and are also activated.

If there are settings saved in *Active service settings*, *Activate saved service settings?* will be displayed. To activate the saved settings, press **Yes**, or to save them only, press **No**.

- To view the received settings first, press **Options** and select *View*. To save the settings, press **Save**.
- To discard the received settings, press **Options** and select *Discard*.

Keying in the service settings manually

1. Press **Menu**, and select *Services*, *Settings* and *Connection settings*.
2. Select *Active service settings*.
3. Scroll to the connection set you would like to activate and press **Activate**.

You need to activate the connection set where you want to save the service settings. A connection set is a collection of settings required to make a connection to a service.

4. Select *Edit active service settings*.

Select each of the settings one by one and key in all the required settings according to the information you have received from your network operator or service provider.

Note that all the bearer-related settings are in the *Bearer settings* menu.

Making a connection to a service

1. Firstly, make sure that the service settings of the service you want to use are activated. To activate the settings:
 - Press **Menu**, and select *Services*, *Settings* and *Connection settings*. Select *Active service settings* and scroll to the connection set you want to activate and press **Activate**.
2. Secondly, make a connection to the service. There are three ways to connect:
 - Open the startpage, for example, the homepage of the service provider:
Press **Menu**, and select *Services* and *Home*, or in standby mode press and hold **□** **Ⓜ**.
 - Select a bookmark of the service:
Press **Menu**, and select *Services*, *Bookmarks*, and select a bookmark.
If the bookmark does not work with the current active service settings, activate



another set of service settings and try again.

- Key in the address of the service:
Press **Menu**, and select **Services** and then **Go to address**. Key in the address of the service and press **OK**.



Note that it is not necessary to add the prefix **http://** in front of the address since it will be added automatically.

Browsing the pages of a service

After you have made a connection to the service, you can start browsing its pages. The function of the phone keys may vary in different services. Follow the text guides on the phone display. For more information, contact your service provider.

Note that if GPRS is selected as the data bearer, the indicator  is shown on the top left of the display during browsing. If you receive a call or a text message, or make a call during a GPRS connection, the indicator  will be shown on the top right of the display to indicate that the GPRS connection is suspended (on hold). After the call, for example, the phone tries to reconnect the GPRS connection.

Using the phone keys while browsing

- Use any of the scroll keys to browse through the page.
- To select a highlighted item, press .
- To enter letters and numbers, press the keys  - **wxyz** and to enter special characters, press the key ***** **+**.

Options while browsing

Press **Options** and the following options may be available. The service provider may also offer other options. Select

- **Home** to return to the homepage.
- **Bookmarks**. See "Bookmarks" on page 78.
- **View image** or **View images** to view images and animations from the page.
- **Call / Edit / Open row / Open / Open list** to call, to key in text or to select a highlighted item on the page.
- **Add bookmark** to save the page as a bookmark.
- **Go to address** to key in the address of the service you want to access.
- **Service inbox**. See "Service inbox" on page 79.
- **Use wallet info** to fetch information from wallet (or

wallet personal notes application) to the browser.

- *Close wallet* to close the wallet.
- *Appear. settings*. See "Appearance settings of the multi-mode browser" on page 77.
- *Cookie settings*. See "Cookies" on page 78.
- *Use detail* to extract numbers, e-mail addresses and website addresses from the current page.
- *Reload* to reload and update the current page.
- *Clear the cache*. See "The cache memory" on page 79.
- *Security info* to view security information about the current connection and the server.
- *Quit*. See "Disconnect from a service" on page 77.



Note: The information or services you have accessed are stored in the cache of your phone. A cache is a buffer memory, which is used to store data temporarily. If you have tried to access or have accessed confidential information requiring passwords (for example, your bank account), empty the cache of your phone after each use.



To empty the cache, see "The cache memory" on page 79.

Direct calling

The multi-mode browser supports functions that you can access while browsing. You can make a voice call, send DTMF tones while a voice call is in progress, and save a name and a phone number from a page in contacts.

Disconnect from a service

To quit browsing and to end the connection, press *Options* and select *Quit*. When *Quit browsing?* is shown, press *Yes*.

Alternatively, press . If *GSM data* is the selected data bearer, press  twice. The phone ends the connection to the service.

Appearance settings of the multi-mode browser

1. While browsing, press *Options* and select *Appear. settings*, or in standby mode, press *Menu*, and select *Services*, *Settings* and *Appearance settings*.
2. Select *Text wrapping*. Select *On* and the text continues on the next line if it cannot be shown on one line. If you select *Off*, the text is abbreviated if it is too long to be shown on one line. Select *Show images*. Select *No* and any pictures appearing on

the page are not shown. This can speed up the browsing of pages that contain a lot of pictures.

Cookies

A cookie is data that a site saves in your phone's browser cache memory. The data can be, for example, your user information or your browsing preferences. Cookies will be saved until you clear the cache memory, see "The cache memory" on page 79.

1. While browsing, press **Options** and select *Cookie settings*, or in standby mode, press **Menu**, and select *Services*, *Settings*, *Security settings* and *Cookies*.
2. Select *Allow* or *Reject* to allow or prevent the phone receiving cookies.

Bookmarks

You can save page addresses as bookmarks in the phone's memory.

1. While browsing, press **Options** and select *Bookmarks*, or in standby mode, press **Menu**, and select *Services* and *Bookmarks*.
2. Scroll to the bookmark you want to use and press **Options**.
3. Select *Go to* to make a connection to the page associated with the bookmark. You can also view the title and

the address of the selected bookmark, edit or delete the selected bookmark, or send it directly to another phone as a bookmark, or as an OTA message, or create a new bookmark.

Note that your phone may have some pre-installed bookmarks for sites not affiliated to Nokia. Nokia does not warrant or endorse these sites. If you choose to access them, you should take the same precautions, for security or content, as you would with any Internet site.

Receiving a bookmark

When you have received a bookmark (sent as a bookmark from a compatible device) *I bookmark received* is displayed. Press **View**, then press **Options** and select *View* to view the bookmark, *Save* to save the bookmark, or *Discard* to discard it.

Downloading

1. To download more tones, images, games or applications to your phone, press **Menu**, and select *Services* and *Download links*.
2. Select *Tone downloads*, *Image downloads*, *Game downloads* or *App. downloads* to download tones, images, games or applications, respectively.

Download content only from the sources you trust.

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

Service inbox

The phone is able to receive service messages (pushed messages) sent by your service provider (network service). Service messages are notifications of, for example, news headlines, and they may contain a text message or an address of a service.

To access the *Service inbox* in standby mode, when you have received a service message, press *Show*.

- If you press *Exit* the message is moved to the *Service inbox*. To access the *Service inbox* later, press *Menu*, and select *Services*, *Settings* and *Service inbox*.

To access the *Service inbox* while browsing, press *Options* and select *Service inbox*. Scroll to the message you want, press *Options*. Select *Retrieve* to activate the multi-mode browser and download the marked content, or *Details* to display detailed information on the service notification, or select *Delete* to delete it.

Service inbox settings

Press *Menu*, and select *Services*, *Settings* and *Service inbox settings*.

- Select *Service messages* and *On* (or *Off*) to set the phone to receive (or not to receive) service message.
- Select *Automatic connection*. If you have set the phone to receive service messages and select *Automatic connection on*, the phone will automatically activate the browser when the phone has received a service message.

If you select *Automatic connection off*, the phone will activate the browser only after you have selected *Retrieve* when the phone has received a service message.

The cache memory

The information or services you have accessed are stored in the cache of your phone. A cache is a buffer memory, which is used to store data temporarily. To empty the cache:

- while browsing, press *Options* and select *Clear the cache*, or
- in standby mode, press *Menu*, and select *Services*, and *Clear the cache*.

Browser security

Security features may be required for some services, such as banking services or shopping on a site. For such connections you need security certificates and possibly a security module which may be available on your SIM card. For more information, contact your service provider.

Security module

The security module can contain certificates as well as private and public keys. The security module may improve the security services for applications requiring browser connection, and allows you to use a digital signature. The certificates are saved in the security module by the service provider.

Press **Menu** and select **Services**, **Settings**, **Security settings** and **Security module settings**. Select

- **Security module details** to show the security module title, its status, manufacturer and serial number.
- **Module PIN request** to set the phone to ask for the module PIN when using services provided by security module. Key in the code and select **On**. To disable the module PIN request, select **Off**.
- **Change module PIN** to change the module PIN, if allowed by the security module. Enter the

current module PIN code, then enter the new code twice.


- **Change signing PIN**. Select the signing PIN you want to change. Enter the current PIN code, then enter the new code twice.

See also "General information" on page -1.

Certificates

There are three kinds of certificates: server certificates, authority certificates and user certificates.

- The phone uses a server certificate to improve security in connection between the phone and the gateway. The phone receives the server certificate from the service provider before the connection is established and its validity is checked using the authority certificates saved in the phone. Server certificates are not saved.

The security indicator  is displayed during a connection, if the data transmission between the phone and the gateway (identified by the **IP address** in the **Edit active service settings** - **Bearer settings**) is encrypted.

However, the security indicator does not indicate that the data transmission between the gateway and the content server (place where the requested

resource is saved) is secure. It is up to the service provider to secure the data transmission between the gateway and the content server.

- Authority certificates are used by some services, such as banking services, for checking the validity of other certificates. Authority certificates can either be saved in the security module by the service provider, or they can be downloaded from the network, if the service supports the use of authority certificates.
- User certificates are issued to users by a Certifying Authority. User certificates are required, for example, to make a digital signature and they associate the user with a specific private key in a security module.



Important: Note, however, that even if the use of certificates makes the risks involved in remote connections and software installation considerably smaller, they must be used correctly in order to benefit from increased security.

The existence of a certificate does not offer any protection by itself; the certificate manager must contain correct, authentic, or trusted certificates for

increased security to be available.


Important: Certificates have a restricted lifetime. If Expired certificate or Certificate not valid yet is shown even if the certificate should be valid, check that the current date and time in your phone are correct.

Important: Before changing these settings, you must make sure that you really trust the owner of the certificate and that the certificate really belongs to the listed owner.

Digital signature

You can make digital signatures with your phone (network service). The signature can be traced back to you via the private key on the security module and the user certificate that was used to perform the signature. Using the digital signature can be the same as signing your name to a paper bill, contract or other document.

To make a digital signature, select a link on a page, for example, the title of the book you want to buy and its price. The text to sign (possibly including amount, date, etc.) will be shown.

Check that the header text is *Read* and that the digital signature icon  is shown.



Note: If the digital signature icon does not appear, there is a security

breach, and you should not enter any personal data such as your signing PIN.

To sign the text, read all of the text first and then you can select [Sign](#).



Note: The text may not fit within a single screen.

Therefore, make sure to scroll through and read all of the text before signing.

Select the user certificate you want to use. Key in the signing PIN (see "General information" on page -1) and press [OK](#). The digital signature icon will disappear, and the service may display a confirmation of your purchase.

You can set the phone to show you the confirmation messages sent between your phone and the network when you are using the SIM services by selecting the option [Yes](#) in the menu [Confirm SIM service actions](#) in [Phone settings](#).

Note that accessing these services may involve sending a text message (SMS) or making a phone call for which you may be charged.

■ SIM services (Menu 14)



In addition to the functions available in the phone, your SIM card may provide additional services that you can access in Menu 15. Menu 15 is shown only if it is supported by your SIM card. The name and contents of the menu depend entirely on the service available.



Note: For availability, rates and information on using SIM services, contact your

SIM card vendor, e.g. network operator, service provider or other vendor.

7. PC connectivity

You can send and receive e-mails, and access the Internet when your phone is connected to a compatible PC via an IR connection or a data cable. You can use your phone with a variety of PC connectivity and data communications applications. With PC Suite you can, for example, send text and picture messages, synchronise contacts, calendar and to-do notes between your phone and the PC, and manage your WAP bookmarks and connection sets.

You may find more information and downloadable files on the Nokia website, www.nokia.com.

■ PC Suite

The PC Suite contains the following applications:

- **Nokia Application Installer** to install Java applications from a compatible PC to the phone.
- **Nokia Image Converter** to make images usable for multimedia messages, wallpaper or operator logos 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 information or back-up information from your phone to a compatible PC or to another compatible Nokia phone.
- **Nokia PC WAP Manager** to edit and send your WAP bookmarks or update the connection sets to your phone.
- **Nokia Phone Editor** to send text messages and edit the phone book and message settings of your phone.
- **Nokia Phone Browser** to view the contents of the Gallery folder of your phone on the PC.
- **Nokia PC Sync** to synchronise the compatible phone book, calendar and to-do notes between your phone and PC.
- **Nokia PC Graphics** to create and edit picture messages for previous compatible Nokia phone models, for example, the Nokia 8310 phone.
- **Nokia PC Composer** to create monophonic ringing tones for previous compatible Nokia phone models, for example, the Nokia 8310 phone.
- Nokia 6108 data modem drivers enable you to use your phone as a modem.

English

- **Nokia Modem Options** contains settings for HSCSD and GPRS connections.
- **Nokia Connection Manager** to select the connection type between the PC and the phone.

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

GPRS, HSCSD and CSD

With your phone you can use GPRS (General Packet Radio Service), HSCSD (High Speed Circuit Switched Data), and CSD (Circuit Switched Data, *GSM data*) data services.

For availability and subscription to data services, contact your network operator or service provider.

Note that the use of HSCSD service consumes the phone's battery faster than normal voice or data calls. You may need to connect the phone to a charger for the duration of data transfer.

See "GPRS modem settings" on page 73.

■ Use data communication applications

For information on using a data communication application, refer to the documentation provided with it.

1. If you use an IR connection:
 - Activate the IR connection in the phone, see "Infrared" on page 72. Make sure that the connection is active in your PC.

If you use the cable DKU-5:

- Connect the cable to the USB port on the back of your computer and to the connector on your phone.
2. Start using the data communications application on the computer.

Note that making or answering phone calls during a computer connection is not recommended as it might disrupt the operation.

For a better performance during data calls, place the phone on a stationary surface with the keypad facing downward. Do not move the phone or hold it in your hand during a data call.

8. Battery information

■ Charging and Discharging

Your phone is powered by a rechargeable battery.

Note that a new battery's full performance 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 operating time (talk-time and standby time) is noticeably shorter than normal, it is time to buy a new battery.

Use only batteries approved by the phone manufacturer and recharge your battery only with the chargers approved by the manufacturer. Unplug the charger when not in use. Do not leave the battery connected to a charger for longer than a week, since overcharging may shorten its lifetime. If left unused a fully charged battery will discharge itself over time.

Temperature extremes can affect the ability of your battery to charge; allow it to cool down or warm up first.

Use the battery only for its intended purpose.

Never use any charger or battery which is damaged or worn out.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) 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 15°C and 25°C (59°F and 77°F). A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Batteries' performance is particularly limited in temperatures well below freezing.

Do not dispose of batteries in a fire!

Dispose of batteries according to applicable local regulations (e.g. recycling). Do not dispose of as household waste.

English

9. Nokia Original Enhancements

A new extensive range of enhancements is available for your phone. Select the enhancements which accommodate your specific communication needs.

Some of the enhancements are described in detail below.

For availability of the enhancements, please check with your local dealer. A few practical rules for enhancements operation:

- Keep all accessories out of the reach of small children.
- When you disconnect the power cord of any enhancement, grasp and pull the plug, not the cord.
- Check regularly that any vehicle-installed accessories are mounted and are operating properly.
- Installation of any complex car accessories must be made by qualified personnel only.
- Use only batteries, chargers and accessories approved by the phone manufacturer. The use of any other types may invalidate any approval or warranty applying to the phone, and may be dangerous.



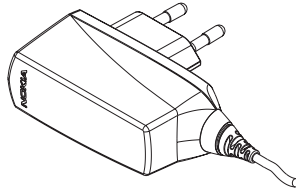
Battery

Type	Tech	Capacity	Talktime *	Standby *
BL-5C	Li-Ion	up to 850 mAh	3-7 hours	170-330 hours

* Variation in operation times may occur depending on SIM card, network and usage settings, usage style and environments. Use of the Loudspeaker feature will affect talktime and standby time.

■ Travel Charger (ACP-12)

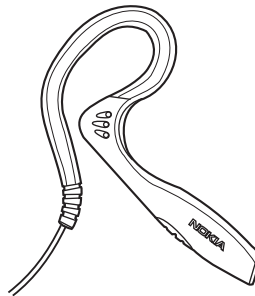
Small, lightweight travel charger with multi voltage (100 - 240V) switcher technology. Provides easy and convenient way to charge the phone.



Note: The plug types vary according to different markets.

■ Boom Headset (HDB-4)

This small and lightweight headset has a beautiful and distinctive Nokia design. Gives you excellent audio quality and you can answer or end calls by pressing the button on the microphone part of the headset.



■ Mobile Charger (LCH-9)

The multi-voltage Mobile Charger, LCH-9, ensures your phone is always ready for use whenever you travel. This small charger's functional design fits most car lighters and interiors.

A green light indicates that the Mobile Charger is ready for charging. Check the charging status on the phone display. The input voltage can be 12 or 24 V DC, negative grounding.

Avoid prolonged charging with the Mobile Charger when the car engine is not running; this may cause the battery of your car to drain. Note also that in some cars the cigarette lighter plug is not provided with electricity if the ignition is switched off. Verify that the green LED light is on.

10. Technical Information

Feature	Specification
Weight	8.1 ounces (98.4 grams) with BL-5C 850 mAh Li-polymer Battery
Networks	Wireless networks GSM 900,1800 and1900
Size (volume)	5.20 cubic inches (85 cc)
Frequency range (Tx)	GSM 900: 880 - 915 Mhz GSM 1800: 1710 - 1785 Mhz GSM1900: 1850 - 1910 Mhz
Frequency range (Rx)	GSM 900: 925 - 960 Mhz GSM1800: - 1805 - 1880 Mhz GSM1900: - 1930 - 1990 Mhz
Tx output power	EGSM 900: 2W (peak) GSM1800: 1W (peak) GSM1900: 1W(peak)
Battery voltage	3.7 v DC
Number of channels	EGSM 900: 174 GSM1800: 374 GSM1900: 299
Memory locations	up to 500 in phone memory

English

11. Patents

Manufactured or sold under one or more of the following US Patents:

4558302	5640395	5917868	6084962	6324412
4868846	5664053	5920826	6088746	D406261
4969192	5669069	5926138	6094587	D425480
5001372	5677620	5926769	6097964	D426830
5045973	5692032	5930233	6112099	D445415
5061928	5699406	5946651	6115617	RE32580
5101175	5699482	5953541	6118775	CN03109865.7
5212834	5701392	5956625	6122498	(a patent
5230091	5729534	5956633	6128322	application,
5233634	5729541	5960389	6128509	based on the
5241284	5734683	5963901	6138091	same technical
5241583	5754976	5966374	6144243	contents of
5303404	5760568	5966378	6144676	patent
5311179	5782646	5969192	6151485	application
5331638	5794142	5970059	6151507	CN03109865.7
5335362	5802465	5987137	6163609	will be made to
5353328	5805084	5991716	6164547	the US Patent
5384782	5805301	5991857	6167248	and Trademark
5390223	5818437	5999523	6170073	Office before
5396657	5827082	6005857	6185295	April 14 of
5400949	5835889	6011554	6188909	2004.)
5416435	5839101	6011853	6195338	
5442521	5844884	6014573	6199035	
5444816	5845219	6026161	6201876	
5446364	5857151	6028567	6219560	
5479476	5862178	6029128	6240076	
5487084	5870683	6038238	6240079	
5493255	5887266	6043760	6249584	
5519885	5889770	6047196	6266330	
5526366	5892475	6049796	6282373	
5553125	5898925	6055439	6289205	
5557639	5907823	6060193	6292668	
5581244	5914796	6069923	6295286	
5625274	5915440	6081534	6310609	

12. CARE AND MAINTENANCE

Your phone is a product of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfill any warranty obligations and to enjoy this product for many years.

- Keep the phone and all its parts and accessories out of the reach of small children.
- Keep the phone dry. Precipitation, humidity and all types of liquids or moisture can contain minerals that will corrode electronic circuits.
- Do not use or store the phone in dusty, dirty areas. Its moving parts can be damaged.
- Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the phone in cold areas. When it warms up (to its normal temperature), moisture can form inside, which may damage electronic circuit boards.
- Do not attempt to open the phone. Non-expert handling may damage it.
- Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the phone.
- Do not paint the phone. Paint can clog the moving parts and prevent proper operation.
- Use only the supplied or an approved replacement antenna. Unauthorised antennas, modifications or attachments could damage the phone and may violate regulations governing radio devices.

All of the above suggestions apply equally to your phone, battery, charger or any enhancement. If any of them are not working properly, take them to your nearest qualified service facility. The personnel there will assist you and, if necessary, arrange for service.

English

13. IMPORTANT SAFETY INFORMATION

■ Traffic safety

Don't use a hand-held telephone while driving a vehicle. Always secure the phone in its holder and don't place the phone on the passenger seat or where it can break loose in a collision or sudden stop. Remember road safety always comes first!

■ Operating environment

Remember to follow any special regulations in force in any area and always switch off your phone whenever it is forbidden to use it, or when it may cause interference or danger.

Use the phone only in its normal operating positions. When connecting the phone or accessory to another device, read its user's guide for safety instructions. Don't connect incompatible products. As with other mobile radio transmitting equipment, users are advised to operate this equipment only in the normal operating position (held to your ear with the antenna pointing over your shoulder).

■ Electronic devices

Most modern electronic equipment is shielded from radio frequency (RF) signals. However, certain electronic equipment may not be shielded against the RF signals emanating from your wireless phone.

Pacemakers

Pacemaker manufacturers recommend that a minimum separation of 6 inches (20 cm) be maintained between a hand-held wireless phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations of Wireless Technology Research.

PERSONS WITH A PACEMAKER:

- Should always keep the phone more than 6 inches (20 cm) from their pacemaker when the phone is switched on.
- Should not carry the phone in a breast pocket.

- Should use the ear opposite the pacemaker to minimize the potential for interference.
- Should switch off the phone immediately if there is any reason to suspect that interference is taking place.

Hearing aids

Some digital wireless phones may interfere with hearing aids. In the event of such interference, consult your wireless provider.

Other medical devices

Operation of any radio transmitting equipment, including cellular phones, may interfere with the functionality of inadequately protected medical devices. Consult a physician or the manufacturer of the medical device to determine if it is 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 RF energy.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles (for example, electronic fuel injection systems, electronic anti-skid (anti-lock) braking systems, electronic speed control systems, air bag systems). Check with the manufacturer or its representative regarding your vehicle.

You should also consult the manufacturer of any equipment that has been added to your vehicle.

Posted facilities

Switch your phone off in any facility where posted notices so require.

Potentially explosive atmospheres

Switch off your phone when in any area with a potentially explosive atmosphere and obey all signs and instructions. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Users are advised to switch off the phone when at a refuelling point (service station).

English

Users are reminded of the need to observe restrictions on the use of radio equipment in fuel depots (fuel 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/storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you normally be advised to turn off your vehicle engine.

■ Vehicles

Only qualified personnel should install or service the phone in a vehicle. Faulty installation or service may be dangerous and invalidate the warranty. Check regularly that all wireless phone equipment in your vehicle is mounted and operating properly. Don't store or carry or store flammable liquids, gases or explosive materials in the same compartment as the phone or its accessories. For vehicles equipped with an air bag, remember that an air bag inflates with great force. Don't place any objects, including both 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.

■ Aircraft

FCC regulations prohibit using your phone while in the air. Switch off your phone before boarding an aircraft. 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



Important: This phone, like any wireless phone, operates using radio signals, wireless, and landline networks as well as userprogrammed functions. Because of this, connections in all conditions cannot be guaranteed. Therefore you should never rely solely upon any wireless phone for essential communications (for example, medical



emergencies).

Emergency calls may not be possible on all wireless phone networks or when certain network services and/or phone features are in use. Check with local service providers.

MAKING AN EMERGENCY CALL



Note: Some networks may require that a valid SIM card be properly inserted in the phone. Official emergency numbers vary by location (for example, 911 or other official emergency number).

1. If the phone is not on, switch it on. Check for adequate signal strength.
2. Press  as many times as needed (for example, to exit a call, to exit a menu, etc.) to clear the display and ready the phone for calls.
3. Enter the emergency number for your present location (for example, 911 or other official emergency number). Emergency numbers vary by location.
4. Press .

If certain features are in use, you may first need to turn those features off before you can make an emergency call. Consult this user guide and your local cellular service provider. When making an emergency call, remember to provide all the necessary information as accurately as possible. Remember that your wireless phone may be the only means of communication at the scene of an accident - don't end the call until given permission to do so.

English

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 0.55 W/kg and when worn on the body, as described in this user guide, is 0.8 W/kg. (Body-worn measurements differ among phone models, depending upon available accessories 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 PPINPL-2.

For body worn operation, this phone has been tested and meets the FCC RF exposure guidelines for use with an accessory that contains no metal and that positions the handset a minimum of 5/8 inch (1.5 cm) from the body. Use of other accessories 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 5/8 inch (1.5 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. For body worn operation, this phone has been tested and meets the FCC RF exposure guidelines when used with the Nokia accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

English

APPENDIX

■ A message from the CTIA (Cellular Telecommunications and Internet Association)

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1250 Connecticut Avenue, NW Suite 800, Washington, DC 20036.
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>

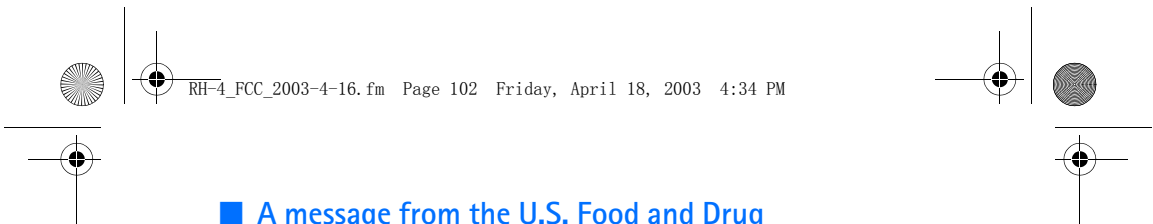
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Connecticut Avenue, NW Suite 800, Washington, DC 20036.

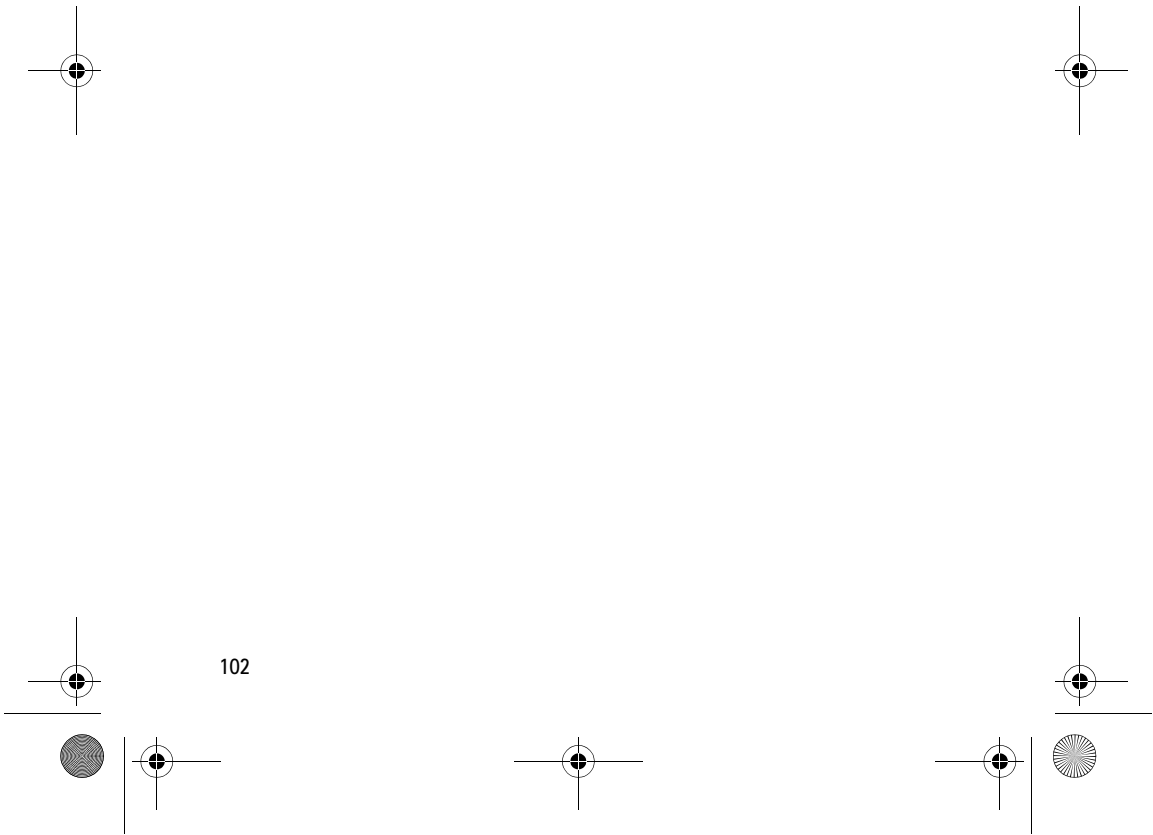
Phone: (202) 785-0081

English



■ A message from the U.S. Food and Drug Administration

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



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 pre-disposed 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?

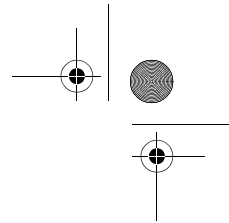
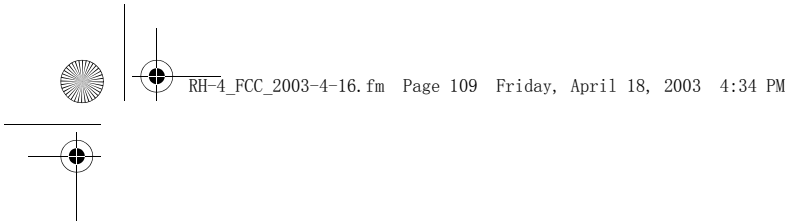
Radiofrequency energy (RF) from wireless phones can interact with some electronic devices. For this reason, FDA helped develop a detailed test method to measure electromagnetic interference (EMI) of implanted cardiac pacemakers and defibrillators from wireless telephones. This test method is now part 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.

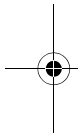
12. Where can I find additional information?

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.nrpb.org.uk/>



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



English

