ENGLISH

USER GUIDE

LM-X420EM

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MFLXXXXXXXX (1.0)

www.lg.com

About this user guide

Thank you for choosing this LG product. Please carefully read this user guide before using the device for the first time to ensure safe and proper use.

- Always use genuine LG accessories. The supplied items are designed only for this device and may not be compatible with other devices.
- Descriptions are based on the device default settings.
- Default apps on the device are subject to updates, and support for these apps may be withdrawn without prior notice. If you have any questions about an app provided with the device, please contact an LG Service Center. For user-installed apps, please contact the relevant service provider.
- Modifying the device's operating system or installing software from unofficial sources may damage the device and lead to data corruption or data loss. Such actions will violate your LG license agreement and void your warranty.
- Some content and illustrations may differ from your device, depending on the area, service provider, software version, or OS version, and are subject to change without prior notice.
- Software, audio, wallpaper, images, and other media supplied with your device are licensed for limited use. If you extract and use these materials for commercial or other purposes, you may be infringing copyright laws. As a user, you are fully responsible for the illegal use of media.
- Additional charges may incur for data services, such as messaging, uploading,downloading, auto-syncing and location services. To avoid additional charges, select a data plan suitable to your needs. Contact your service provider to obtain additional details.

Instructional notices

WARNING: Situations that could cause injury to the user and third parties.

CAUTION: Situations that may cause minor injury or damage to the device.

NOTE: Notices or additional information.

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LIMITED WARRANTY - USA

01

Custom-designed Features

Camera features

Flash Jump-Cut

You can create a GIF by taking photos at three second intervals.

1 Tap > , then tap **MODE** > **Flash Jump-Cut** .

2 Tap to set the number of cuts you want to take.

3 Tap to take photos.

Gallery features

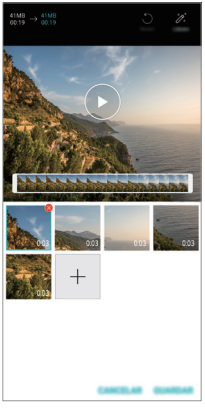
Creating a movie

You can create a new movie by putting images and videos together.

1 Tap > , select an album, then tap > **Create movie**.

2 Select images or videos for your movie and tap **NEXT**.

3 Edit the selected images and videos and then tap **SAVE**.



Deleting files

You can select images or videos to delete from your video by tapping ⊗ at the top right corner of its thumbnail.

Adding files

You can select images or videos to add after tapping + at the bottom of the screen. You can also select the images or videos you have already previously added.

- Touch and hold a file, and then tap another file for multiple selection.

Rearranging files

To rearrange the images and videos, touch and hold the file you want to move, then dragging it to the desired location.

Adding file effects

Tap ✨ to add a theme or background music, or change the font.

Resetting the movie edits

You can reset the edits made to the movie (e.g. play time) by tapping ↺.

Previewing a file

Check your new video before saving it by tapping ▶. After the playback time elapses, the next file is played automatically.

- A maximum of 50 images and videos can be used to create a video.
- The playback time for an image is 3 seconds by default and it cannot be changed. Videos can be trimmed down to a minimum of 1 second.
- This feature may not support some image or video formats.

Making a GIF

You can easily make a GIF file using recorded video.

1 At the desired starting point while watching a video, tap GIF.

2 Select the length of the GIF you want to create.
   - GIF is generated for the time selected from the current time.
   - For videos less than 5 seconds, GIF images are automatically generated for the remaining time.

⚠ • You may use this feature solely for creative purposes. The use of this feature involving infringement of any other person's rights, such as copyright or defamatory or offensive statements, may be subject to civil, criminal, or administrative liabilities and/or penalties under applicable laws. You shall not copy, reproduce, distribute, or otherwise make illegal use of any copyrighted materials without permission of the rightful owner or copyright holder. To the fullest extent permitted by applicable law, LG Electronics disclaims all expressed and implied warranties as well as liabilities associated thereto.

Google Assistant

You can manage tasks, plan your day, get answers, and much more.

- To use this feature, first connect to the network and sign in to your Google account.

Launching Google Assistant

1 Press and hold ◯ from the Home screen to launch **Google Assistant**.

2 Tap **GET STARTED**.

3 Follow the on-screen instructions to configure the voice settings.
   - The device saves your voice data for recognition.

Launching Google Assistant with your voice

1 Say **"Ok Google"** when the screen is turned off or locked.

2 Say a command or question when ***Hi, how can I help?**** appears on the screen.

Launching Google Assistant from the Home screen

1 Touch and hold ◯ from the Home screen.

2 Say a command or question when ***Hi, how can I help?**** appears on the screen.

- Voice recognition accuracy may decrease if you speak with an unclear voice or in a noisy place. When you use the voice recognition feature, increase its accuracy by speaking with a clear voice in a quiet place.

* The ***Hi, how can I help?*** message may change depending on the software version.

Multi-tasking feature

Multi-Window

You can use two apps at the same time by separating the screen into multiple windows.

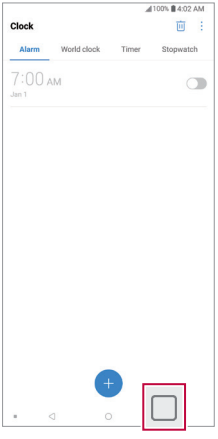
1 Tap ▢ from the Home touch buttons.
- Recently-used apps appear.

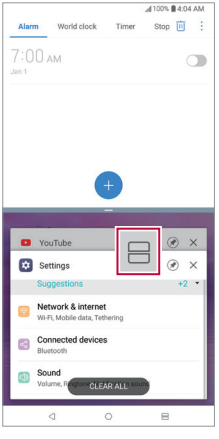
2 Tap ⊟ at the top of the desired app to use the Multi-Window feature.
- The selected app appears at the top half of the screen.

You can also access this feature by doing the following:

1 Touch and hold ▢ while using an app.
- Recently-used apps appear on the split screen.

2 Tap ⊟ at the top of the desired app to use the Multi-Window feature.
- The selected app appears at the bottom of the screen.





- To deactivate the Multi-Window feature, touch and hold on the Home touch button.
- To adjust the size of the split screen, drag — at the center of the screen.
- The Multi-Window feature is not supported by some LG apps and apps downloaded from the Play Store.

Overview screen

The Overview screen provides a preview of your recently-used apps.

To view the list of recently-used apps, tap on the Home touch buttons.

- Touch and hold an app and drag it to the top of the screen to start the app with the Multi-Window feature. You can also tap at the top of each app preview.

02

Basic Functions

Product components and accessories

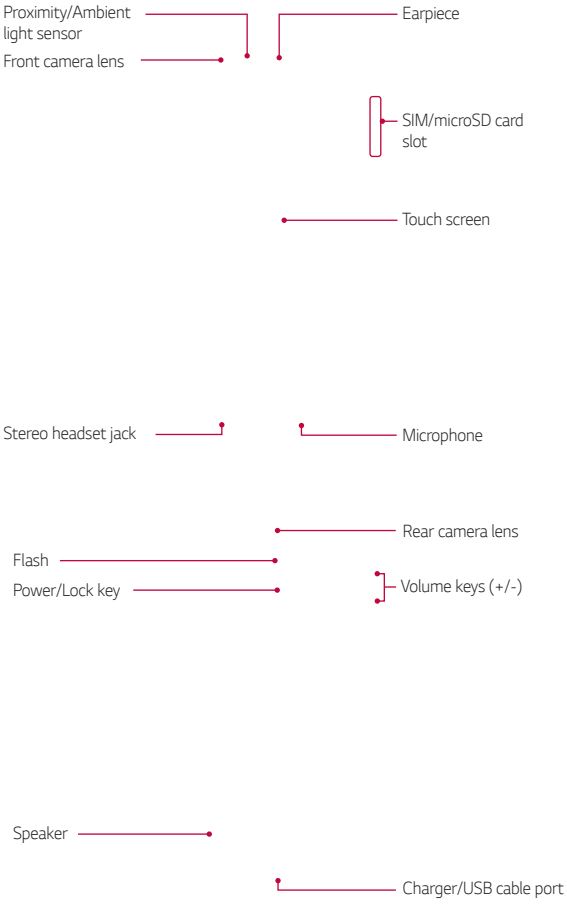
The following items are included with your device.

- Device
- USB cable
- Charger
- Quick Start Guide
- Ejection pin

- The items supplied with the device and any available accessories may vary depending on the area and service provider.
- Always use genuine LG Electronics accessories. Using accessories made by other manufacturers may affect your device's call performance or cause malfunctions. This may not be covered by LG's repair service.
- Some of the device parts are made of tempered glass. If you drop your device on a hard surface or subject it to severe impact, the tempered glass may be damaged. If this happens, stop using your device immediately and contact an LG Customer Service Center.

- If any of these basic items are missing, contact the dealer from which you purchased your device.
- To purchase additional basic items, contact an LG Customer Service Center.
- To purchase optional items, contact an LG Customer Service Center for available dealers.
- Some items in the product box are subject to change without notice.
- The appearance and specifications of your device are subject to change without notice.
- Device specifications may vary depending on the area or service provider.
- Be sure to use authentic accessories provided by LG Electronics. Using third-party accessories may damage the device or cause malfunctions.
- Remove the protective film from the Fingerprint sensor before using the fingerprint recognition feature.

Parts overview



Do NOT attempt to remove the back cover.

This device has a non-removable battery. Do not attempt to remove the back cover. Doing so may severely damage the battery and device, which could cause overheating, fire, and injury.

- Press and hold the volume down (-) key and Power/Lock key at the same time for a second to take a screenshot.

- Proximity/Ambient light sensor
  - Proximity sensor: During a call, the proximity sensor turns off the screen and disables touch functionality when the device is in close proximity to the human body. It turns the screen back on and enables touch functionality when the device is outside a specific range.
  - Ambient light sensor: The ambient light sensor analyzes the ambient light intensity when the auto-brightness control mode is turned on.
- Laser detection auto-focus
  - Detect the distance from the camera to your subject for automatic focusing.
  - Quickly focus on closer or farther objects when you use the rear camera to take photos.
- Volume keys
  - Adjust the volume for ringtones, calls or notifications.
  - While using the Camera, gently press a Volume key to take a photo. To take continuous photos, press and hold the Volume key.
  - Press the Volume Down (-) key twice to launch the Camera app when the screen is locked or turned off. Press the Volume Up (+) key twice to launch Capture+.
- Power/Lock key
  - Briefly press the key when you want to turn the screen on or off.
  - Press and hold the key when you want to select a power control option.

- Some functions may be restricted for access, depending on the device specifications.
- Do not put heavy objects on the device or sit on it. Doing so may damage the touch screen.
- Screen-protective film or accessories may interfere with the proximity sensor.
- If your device is wet or is being used in a humid place, the touch screen or buttons may not function properly.
- The rear of the device includes a built-in NFC antenna. Be cautious when handling the device to avoid damaging or covering the NFC antenna.

Hold the device correctly as shown below. If you cover the microphone hole with a hand, finger, or protective case while using the device, you may sound unclear during a call.

Turning the power on or off

Turning the power on

When the power is turned off, press and hold the **Power/Lock key**.

- When the device is turned on for the first time, initial configuration takes place. The first booting time for the smart phone may be longer than usual.

Turning the power off

Press and hold the **Power/Lock key**, then select **Power off**.

Power control options

Press and hold the **Power/Lock key**, then select an option.

- **Power off**: Turn the device off.
- **Power off and restart**: Restart the device.
- **Turn on Airplane mode**: Block telecommunication-related functions, including making phone calls, messaging and browsing the Internet. Other functions remain available.

Inserting the memory card

The device supports up to a 2 TB microSD card. (Not included)

Depending on the memory card manufacturer and type, some memory cards may not be compatible with your device.

- It is recommended to use an exFAT file system when using an external memory card of more than 32GB.
- Some memory cards may not be fully compatible with the device. If you use an incompatible card, it may damage the device or the memory card, or corrupt the data stored in it.

1 Insert the ejection pin into the hole on the card tray.

2 Pull out the card tray.

3 Put the memory card on the card tray with the gold-colored contacts facing downwards.

- The memory card is an optional item and is sold separately.
- Frequent writing and erasing of data may shorten the memory card lifespan.

4 Insert the card tray back into the slot.

Removing the memory card

Unmount the memory card before removing it for safety.

1 Tap ◯ > **Tools** > **Settings** > **Storage** > ⏏.

2 Insert the ejection pin into the hole on the card tray.

3 Pull out the card tray and remove the memory card.

⚠ • Do not remove the memory card while the device is transferring or accessing information. This may cause data to be lost or corrupted, or may damage the memory card or the device. LG is not responsible for losses that result from the abuse or improper use of memory cards, including the loss of data.

Charging the battery

Before using the device, fully charge the battery. Connect one end of the charging cable to the charger, insert the other end of the cable into the cable port, and then plug the charger into a power socket.

- When connecting a USB cable, make sure that the icon on the cable faces up. Connecting the cable in the wrong way may damage the device.
- Make sure to use an LG-approved charger and charging cable. Charging the battery with a third-party charger may cause the battery to explode or may damage the device.
- Using the device when it is charging may cause electric shock. To use the device, stop charging it.

The charger connector is located at the bottom of the device. Insert the charger and plug it into a power outlet.

Optimizing battery life

Extend your battery's power by turning off features that you do not need to run constantly in the background. You can monitor how applications and system resources consume battery power.

Extending your device battery life

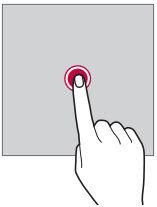
- Turn off radio communications when you are not using. If you are not using Wi-Fi, **Bluetooth®** or GPS, turn them off.
- Reduce screen brightness and set a shorter screen timeout.
- Turn off automatic syncing for Gmail, Calendar, Contacts and other applications.
- Some applications you download may consume battery power.
- Check the battery usage details and close any downloaded apps that are draining the battery.

Touch screen

You can familiarize yourself with how to control your device by using touch screen gestures.

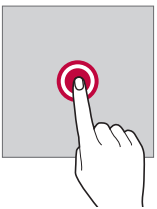
Tapping

Lightly tap with your fingertip to select or run an app or option.



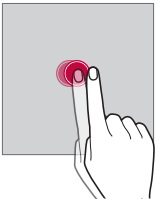
Touching and holding

Touch and hold for several seconds to display a menu with available options.



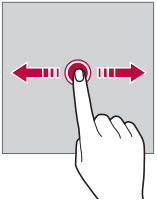
Double-tapping

Tap the screen twice quickly to zoom in or out on a specific app.



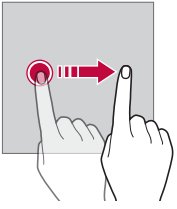
Dragging

Touch and hold an item, such as an app or widget, then move your finger to a desired location in a controlled motion. You can use this gesture to move an item.



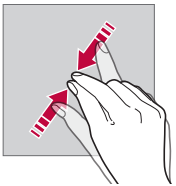
Swiping

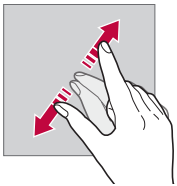
Touch the screen with your finger and move it quickly without pausing. You can use this gesture to scroll through a list, a web page, photos, screens, and more.



Pinching and spreading

Pinch two fingers to zoom out such as on a photo or map. To zoom in, spread your fingers apart.





- Do not expose the touch screen to excessive physical shock. You might damage the touch sensor.

- A touch screen failure may occur if you use the device near a magnetic, metallic or conductive material.
- If you use the device under bright lights, such as direct sunlight, the screen may not be visible, depending on your position. Use the device in a shady location or a location with an ambient light that is not too bright and bright enough to read books.
- Do not press the screen with excessive force.
- Gently tap with your fingertip on the option you want.
- The touch control may not work properly if you tap while wearing a glove or by using the tip of your fingernail.
- Touch control may not work properly if the screen is moist or wet.
- The touch screen may not function properly if a screen-protective film or accessory purchased from a third party store is attached to the device.
- Displaying a static image for extended periods of time may result in after-images or screen burn-in. Turn off the screen or avoid displaying the same image for a long time when you do not use the device.

Home screen

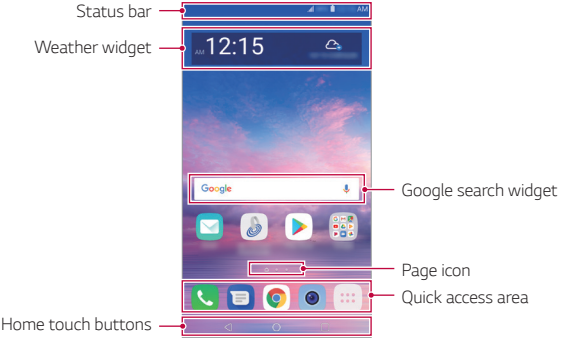
Home screen overview

The Home screen is the starting point for accessing various functions and apps on your device. Tap ◯ on any screen to directly go to the Home screen.

You can manage all apps and widgets on the Home screen. Swipe the screen left or right to view all installed apps at a glance.

Home screen layout

You can view all apps and organize widgets and folders on the Home screen.



- The Home screen may differ depending on the manufacturer policy, user settings, software version or service provider.

- **Status bar**: View status icons, the time and the battery level.
- **Weather widget**: View the weather information or time for a specific area.

- **Google search widget**: Perform a Google search by inputting spoken or written keywords.
- **Page icon**: Display the total number of Home screen canvases. You can tap the desired page icon to go to the page. The icon reflecting the current canvas will be highlighted.
- **Quick access area**: Fix main apps at the bottom of the screen so that they can be accessed from any Home screen canvas.
- **Home touch buttons**
  - ◁ : Return to the previous screen. Close the keypad or pop-up windows.
  - ◯ : Tap to go to the Home screen. To launch Google Assistant, touch and hold.
  - □ : Tap to view a list of recently used apps or run an app from the list. To delete all the recently used apps, tap **CLEAR ALL**. To use two apps at the same time with the Multi-Window feature, touch and hold the button while using an app.

Editing the Home touch buttons

You can rearrange the Home touch buttons or add frequently used functions to the Home touch buttons area.

Tap ◯ > **Tools** > **Settings** > **Display** > **Home touch buttons** > **Button combination** and customize the settings.

- Several functions, including **QSlide**, **Notification** and **Capture+**, are provided. A maximum of two additional items can be added.

Changing the color of the Home touch buttons bar

You can change the background color of the Home touch buttons.

1 Tap ◯ > **Tools** > **Settings** > **Display** > **Home touch buttons**.

2 Under **Color**, tap the desired color.

Lock/hide icon

The icon to lock or hide the Home touch buttons appears at the bottom left of the screen.

If you want to lock the Home touch buttons while shown, tap on the left of the Home touch buttons.

To hide the Home touch buttons again, double-tap .

To deactivate the Lock/hide buttons feature, tap ◯ > **Tools** > **Settings** > **Display** > **Home touch buttons** > **Show lock/hide icon**, then tap .

- Some features may not be supported while the Home touch buttons are hidden.

Hiding the Home touch buttons

You can hide the Home touch buttons to view in a larger screen while using an app.

1 Tap ◯ > **Tools** > **Settings** > **Display** > **Home touch buttons** > **Hide Home touch buttons**.

2 Select apps to hide the Home touch buttons whiling using the app, and tap .

- The Home touch buttons disappear 3 seconds after the last touch.
- To view the Home touch buttons again, drag the bottom of the screen upwards.

Status icons

When there is a notification for an unread message, calendar event or alarm, the status bar displays the corresponding notification icon. Check your device's status by viewing notification icons displayed on the status bar.

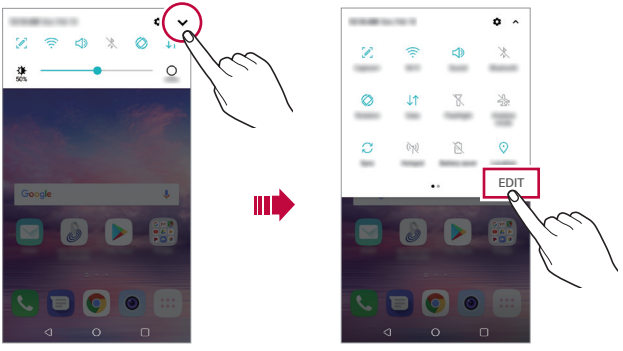
	No signal
	Data is being transmitted over the network
	Alarm is set
	Vibrate mode is on
	Bluetooth is on
	Connected to a computer via USB
	Battery level
	Airplane mode is on
	Missed calls
	Wi-Fi is connected
	Mute mode is on
	GPS is on
	Hotspot is on
	No SIM card
	The NFC read/write P2P mode is on

- Some of these icons may appear differently or may not appear at all, depending on the device's status. Refer to the icons according to the actual environment and area in which you are using the device and your service provider.
- Displayed icons may vary, depending on the area or service provider.

Notifications panel

You can open the notifications panel by dragging the status bar downward on the main screen.

- To open the quick access icons list, drag the notifications panel downwards or tap ⌄.
- To rearrange, add, or remove icons, tap **EDIT**.
- If you touch and hold the icon, the settings screen for the corresponding function appears.



- You can use the notifications panel even on the lock screen. Drag the notifications panel while the screen is locked to quickly access the desired features.

Switching the screen orientation

You can set the screen orientation to automatically switch according to the device's physical orientation.

On the notification panel, tap **Rotation** from the quick access icon list.

You can also tap ◯ > **Tools** > **Settings** > **Display** and activate **Auto-rotate screen**.

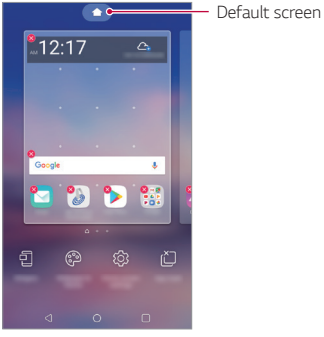
Editing the Home screen

On the Home screen, touch and hold on an empty space, then select the desired action from below.

- To rearrange the Home screen canvases, touch and hold on a canvas, then drag it to a desired location.
- To add a widget to the Home screen, touch and hold on a blank area of the Home screen, then select **Widgets**.
- To change a wallpaper or theme, touch and hold on a blank area of the Home screen, then select **Wallpaper & theme**.

  You can also tap ◯ > **Tools** > **Settings** > **Display** > **Wallpaper & theme**, then select a wallpaper or theme to apply to the device.

- To configure the Home screen settings, touch and hold on a blank area of the Home screen, then select **Home screen settings**. See *Home screen settings* for details.
- To view or reinstall the uninstalled apps, touch and hold on a blank area of the Home screen, then select **App trash**. See *App trash* for details.
- To change the default screen, touch and hold on a blank area of the Home screen, move to desired screen, tap , then tap the screen once more.

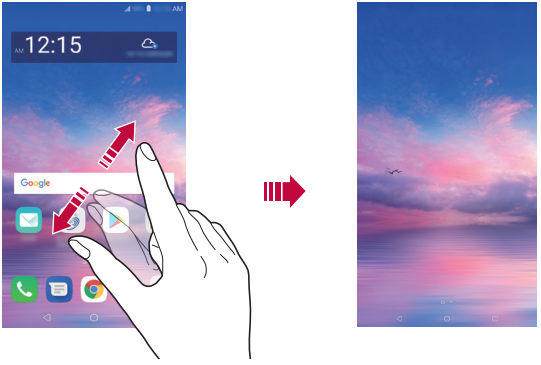


Viewing the background theme

You can view only the background image by hiding the apps and widgets on the Home screen.

Spread two fingers apart on the Home screen.

- To return to the original screen, which displays apps and widgets, pinch your fingers on the Home screen or tap ◁.



Moving apps on the Home screen

On the Home screen, touch and hold an app, then drag it to a desired location.

- To keep frequently used apps at the bottom of the Home screen, touch and hold an app, then drag it to the quick access area at the bottom.
- To remove an icon from the quick access area, drag the icon to the Home screen.

Using folders from the Home screen

Creating folders

On the Home screen, touch and hold an app, then drag it over another app.

- A new folder is created and the apps are added to the folder.

Editing folders

On the Home screen, tap a folder and do one of the following actions.

- To edit the folder name and color, tap the folder name.
- To add apps, touch and hold an app, then drag it over the folder and release it.
- To remove an app from the folder, touch and hold the app and drag it to outside the folder. If there is only one app remaining in the folder, the folder is removed automatically.
- You can also add or remove apps after tapping + in the folder.

- The folder color cannot be changed for downloaded themes.

Home screen settings

You can customize the Home screen settings.

1 Tap ◯ > **Tools** > **Settings** > **Display** > **Home screen**.

2 Customize the following settings:

- **Select Home**: Select a Home screen mode.
- **Wallpaper**: Change the Home screen background wallpaper.
- **Screen swipe effect**: Select an effect to apply when the Home screen canvas switches.
- **Icon shape**: Choose a desired shape for icons.
- **Grid**: Change the app arrangement mode for the Home screen.
- **Loop Home screen**: Enable to allow continuous Home screen

scrolling (loop back to the first screen after the last screen).

- **Search**: Search by swiping down on the Home screen.

Screen lock

Screen lock overview

Your device's screen turns off and locks itself if you press the Power/Lock key. This also happens after the device is left idle for a specified period of time.

If you press the Power/Lock key when a screen lock is not set, the Home screen appears immediately.

To ensure security and prevent unwanted access to your device, set a screen lock.

- A screen lock prevents unnecessary touch input on the device screen and reduces battery consumption. We recommend that you activate the screen lock while not using the device.

Setting a screen lock

There are several screen lock options available.

1 Tap ◯ > **Tools** > **Settings** > **Lock screen & security** > **Select screen lock** and then select the method you prefer.

2 Customize the following settings:

- **None**: Deactivate the screen lock function.
- **Swipe**: Swipe on the screen to unlock the screen.
- **Pattern**: Draw a pattern to unlock the screen.
- **PIN**: Enter a numeric password to unlock the screen.
- **Password**: Enter an alphanumeric password to unlock the screen.

Secure start-up settings

For additional security for your device, you can enable the Secure start-up option when setting a screen lock.

- You cannot use all functions, except for emergency calls, until you unlock the device.
- If you forget your decryption password, you cannot restore encrypted data and personal information.

Precautions for the secure start-up feature

- If you forget your decryption password, you cannot restore encrypted data and personal information.
- Be sure to keep your screen lock passwords separately.
- If you enter the screen lock passwords incorrectly more than the specified times, the device automatically resets itself and the encrypted data and your personal information are deleted automatically and they cannot be restored.
- Be cautious not to enter incorrect screen lock passwords more than the specified times.
- When you turn on the device right after the device reboots, encryption also starts. If you stop the encryption arbitrarily, the data may be damaged. Be sure to wait until the reboot is completed.

KnockON

You can turn the screen on or off by double-tapping the screen.

- This option is available only on the Home screen provided by LG. It may not function properly on a custom launcher or on the Home screen installed by the user.
- When tapping the screen, use your fingertip. Do not use a fingernail.
- To use the KnockON feature, make sure that the proximity/light sensor is not blocked by a sticker or any other foreign substance.

Turning the screen on

Double-tap the middle of the screen.

- Tapping the top or bottom of the screen may decrease the recognition rate.

Turning the screen off

Double-tap on an empty space on the screen.

You can also double-tap an empty space on the status bar.

Memory card encryption

You can encrypt and protect data saved on the memory card. The encrypted data in the memory card cannot be accessed from another device.

1 Tap ◯ > **Tools** > **Settings** > **Lock screen & security** > **Encryption & credentials** > **Encrypt SD card**.

2 Read the on-screen overview of memory card encryption and then tap **CONTINUE** to continue.

3 Select an option and tap **ENCRYPT NOW**.

- **New data encryption**: Encrypt only data that is saved on the memory card after encryption.
- **Full encryption**: Encrypt all the data currently saved on the memory card.
- **Exclude media files**: Encrypt all files, except for media files such as music, photos and videos.

- To encrypt the memory card, make sure that a screen lock is set using a PIN or password.
- Once memory card encryption starts, some functions are not available.
- If the device is turned off while encryption is underway, the encryption process will fail, and some data may be damaged. Therefore, be sure to check that the battery level is sufficient before starting encryption.
- Encrypted files are accessible only from the device where the files were encrypted.
- The encrypted memory card cannot be used on another device. To use the encrypted memory card on another mobile device, format the card.
- You can activate memory card encryption even when no memory card is installed into the device. Any memory card that is installed after encryption will automatically be encrypted.

Taking screenshots

You can take screenshots of the current screen you are viewing.

Via a shortcut

Press and hold the Power/Lock key and the Volume Down (-) key at the same time for at least two seconds.

- Screenshots can be viewed from the **Screenshots** album in **Gallery**.

Via Capture+

On the screen where you want to take a screenshot, drag the status bar downwards, then tap .

- When the screen is turned off or locked, you can access **Capture+** by pressing the Volume Up (+) key twice. To use this feature, tap ◯ > **Tools** > **Settings** > **Extensions** and turn on **Shortcut keys**.
- See *Writing notes on a screenshot* for details.

Entering text

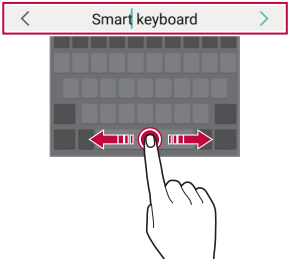
Using the Smart keyboard

You can use the Smart keyboard to enter and edit text.

With the Smart keyboard, you can view text as you type without bothering to alternate between the screen and a conventional keyboard. This allows you to easily find and correct errors when typing.

Moving the cursor

With the Smart keyboard, you can move the cursor to the exact position you want. When typing text, touch and hold on the space bar and then drag left or right.



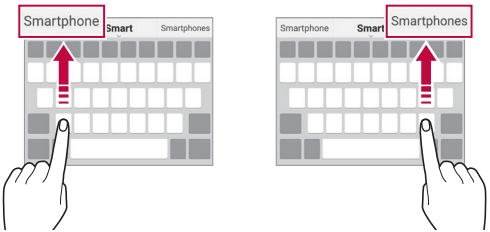
- This option is available only on the QWERTY keyboard.

Suggesting words

Smart keyboard automatically analyzes your usage patterns to suggest frequently used words as you type. The longer you use your device, the more precise the suggestions are.

Enter text, then tap a suggested word.

- The selected word is automatically entered. You do not need to manually type every letter of the word.

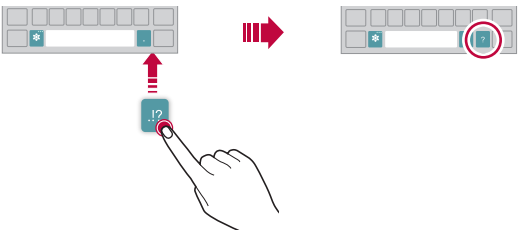


Changing the QWERTY keyboard layout

You can add, delete or rearrange keys on the bottom row of the keyboard.

1 Tap ◯ > **Tools** > **Settings** > **System** > **Language & input** > **On-screen keyboard** > **LG Keyboard** > **Keyboard height and layout** > **QWERTY keyboard layout**.
You can also tap ⚙ on the keyboard and tap **Keyboard height and layout** > **QWERTY keyboard layout**.

2 Tap a key on the bottom row, then drag it to a desired position.



- This option is available on the QWERTY, QWERTZ and AZERTY keyboards.
- This function may not be supported for some languages.

Customizing the keyboard height

You can customize the keyboard height to maximize hand comfort when typing.

1 Tap ◯ > **Tools** > **Settings** > **System** > **Language & input** > **On-screen keyboard** > **LG Keyboard** > **Keyboard height and layout** > **Keyboard height**.
You can also tap ⚙ on the keyboard and tap **Keyboard height and layout** > **Keyboard height**.

2 Adjust the keyboard height.

Selecting a landscape keyboard mode

You can select a landscape keyboard mode from several choices.

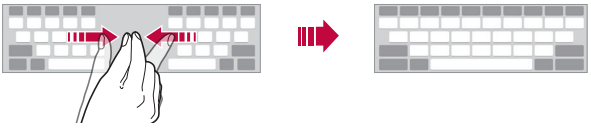
1 Tap ◯ > **Tools** > **Settings** > **System** > **Language & input** > **On-screen keyboard** > **LG Keyboard** > **Keyboard height and layout** > **Keyboard type in landscape**.
You can also tap ⚙ on the keyboard and tap **Keyboard height and layout** > **Keyboard type in landscape**.

2 Select a keyboard mode.

Splitting the keyboard

You can split the keyboard in half and place each piece on either side of the screen when the screen is in landscape mode.

To split the keyboard, turn the device horizontally and spread it apart on both sides with holding the keyboard with two fingers. To attach the keyboard, close it with pressing with two fingers.



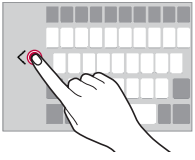
One-handed operation mode

You can move the keyboard to one side of the screen so that you can use the keyboard with one hand.

1 Tap ◯ > **Tools** > **Settings** > **System** > **Language & input** > **On-screen keyboard** > **LG Keyboard** > **Keyboard height and layout** > **One-handed operation**.

You can also tap ⚙ on the keyboard and tap **Keyboard height and layout** > **One-handed operation**.

2 Press the arrow displayed next to the keyboard to move the keyboard in the desired direction.



Adding languages to the keyboard

You can make additional languages available for keyboard input.

1 Tap ◯ > **Tools** > **Settings** > **System** > **Language & input** > **On-screen keyboard** > **LG Keyboard** > **Select languages**.
You can also tap ⚙ on the keyboard and tap **Select languages**.

2 Select the languages you want to use on the keyboard.

Copy and Paste

You can cut or copy text from an app, and then paste the text into the same app. Or, you can run other apps and paste the text into them.

1 Touch and hold around the text you want to copy or cut.

2 Drag ◢ / ◣ to specify the area to copy or cut.

3 Select either **CUT** or **COPY**.
- Cut or copied text is automatically added to the clipboard.

4 Touch and hold the text input window, then select **PASTE**.

- If there is no item that has been copied or cut, the **PASTE** option will not appear.

Entering text by using voice

On the keyboard, touch and hold ⚙ and then select 🎤.

- To maximize the voice command recognition, speak clearly.
- To enter text with your voice, make sure that your device is connected to a network.
- To select the language for voice recognition, tap ⚙ > **Languages** on the voice recognition screen.
- This function may not be supported, or the supported languages may differ depending on the service area.

Clip Tray

If you copy or cut an image or text, it is automatically saved to the clip tray and can be pasted to any space at any time.

1 On the keyboard, touch and hold ⚙ and select 📋.
You can also touch and hold the text input window, then select **CLIP TRAY**.

2 Select and paste an item from the clip tray.
- A maximum of 20 items can be saved to the clip tray.
- Tap 📌 to lock saved items in order not to delete them, even when the maximum quantity is exceeded. A maximum of ten items can be locked. To delete locked items, unlock them first.
- Tap 🗑 to delete the items saved to the clip tray.

- The clip tray may not be supported by some downloaded apps.

Do not disturb

You can limit or mute notifications to avoid disturbances for a specific period of time.

Tap ◯ > **Tools** > **Settings** > **Sound** > **Do not disturb**.

- **Mode** and select the mode you want:
  - **Priority only**: Receive sound or vibrate notifications for the selected apps. Even when Priority only is turned on, alarms still sound.
  - **Total silence**: Disable both the sound and vibration.
- **Select priorities**: Receive alarms and the notifications for the selected apps.
  - **App notifications**: Select apps to receive the notifications.
  - **Calls from**: Set up a range of notifications when receiving a call.
  - **Repeated calls**: Second call from same caller within 15 min is not silenced.
  - **Messages from**: Set up a range of notifications when receiving a message.
- **Use Do not disturb**: Turn on the Do not disturb feature.
- **SCHEDULE**: Set the schedule for which you want to turn on the Do not disturb feature.
- **Help**: View the help for **Do not disturb**.

03

Useful Apps

Installing and uninstalling apps

Installing apps

Access an app store to search and download apps.

- You can use SmartWorld, Play Store or the app store provided by your service provider.

- Some app stores may require you to create an account and sign in.
- Some apps may charge fees.
- If you use mobile data, you may be charged for data usage, depending on your pricing plan.
- SmartWorld may not be supported depending on the area or service provider.

Uninstalling apps

Uninstall apps that you no longer use from your device.

Uninstalling with the touch and hold gesture

On the Home screen, touch and hold the app to uninstall, then drag it over **Remove** at the top of the screen.

- Uninstalled apps can be reinstalled within 24 hours of uninstallation. See *App trash* for details.

Uninstalling by using the settings menu

Tap ◯ > **Tools** > **Settings** > **Apps & notifications** > **App info**, select an app, then tap **Uninstall**.

Uninstalling apps from the app store

To uninstall an app, access the app store from which you download the app and uninstall it.

- Some apps cannot be uninstalled by users.

Installing and uninstalling apps during the setup

When you turn on the device for the first time, you can download recommended apps.

You can skip to the next step without installation.

App trash

You can view the uninstalled apps on the Home screen. You can also reinstall apps within 24 hours of uninstallation.

1 Touch and hold an empty area of the Home screen, then tap **App trash**.

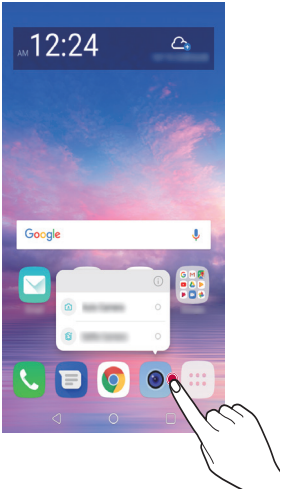
2 Choose the desired option.

- **Restore**: Reinstall the selected app.
- : Remove the uninstalled apps permanently from the device.

- Uninstalled apps are automatically removed from the device 24 hours after they were uninstalled. If you want to reinstall the uninstalled apps, you must download them again from the app store.
- This feature is activated on the default Home screen only. If you uninstall apps while using the EasyHome screen or other launcher, they are immediately and permanently removed from the device.

App Shortcuts

On the Home screen, touch and hold an app icon such as Phone, Messages, Camera, Gallery and Settings to display a quick access menu. Use apps more easily through App Shortcuts.



- This feature is available only on some apps.

Phone

Voice call

Make a phone call by using one of the available methods, such as manually entering a phone number and making a call from the contact list or the list of recent calls.

Making a call from the keypad

1 Tap ◯ > > **Dial**.

2 Make a call by using a method of your choice:

- Enter a phone number and tap .
- Touch and hold a speed dial number.
- Search for a contact by tapping the initial letter of a contact name in the contact list, and then tap .

- To enter "+" when making an international call, touch and hold number 0.
- See *Adding contacts* for details on how to add phone numbers to the speed dial list.

Making a call from the contact list

1 Tap ◯ > > **Contacts**.

2 From the contact list, select a contact and tap .

Answering a call

To answer a call, drag on the incoming call screen.

- When the stereo headset is connected, you can make calls by using the call/end button on the headset.
- To answer a call using a shortcut key, tap > **Tools** > **Settings** > **Network & internet** > **Call** > **Answer and end calls** > **Press the Volume Up key to**, and select **Answer call**.
- To end a call without turning off the screen, tap > **Tools** > **Settings** > **Network & internet** > **Call** > **Answer and end calls**, and activate **End call with the Power key.**

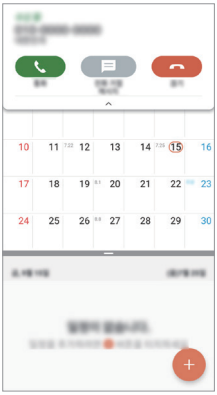
Rejecting a call

To reject an incoming call, drag across the incoming call screen.

- To send a rejection message, drag the rejection message option across the screen.
- To add or edit a rejection message, tap > **Tools** > **Settings** > **Network & internet** > **Call** > **Call blocking & Decline with message** > **Decline with message**.
- When a call is coming in, press the Volume Up (+), Volume Down (-) or Power/Lock key to mute ringtone or vibration, or to hold the call.

Checking an incoming call while using an app

When a call comes in while using an app, a pop-up notification can be displayed at the top of the screen. You can receive the call, reject the call, or send message from the pop-up screen.



- Tap ◯ > **Tools** > **Settings** > **Network & internet** > **Call** > **Additional settings** > **Incoming voice call pop-up**.

Viewing missed calls

If there is a missed call, the status bar at the top of the screen displays .

To view missed call details, drag the status bar downwards. You can also tap ◯ > > **Call logs**.

Functions accessible during a call

During a call, you can access a variety of functions by tapping the on-screen buttons:

- **Contacts (This function may vary depending on the service provider)**: Allows access to your contacts list.
- **Hold (This function may vary depending on the service provider)**: Place the current call on hold.
- **Add call (This function may vary depending on the service provider)**: Allows you to add another caller to initiate a conference call.
- **Dialpad**: Display or hide the dial pad.
- **Speaker**: Turn on the speakerphone function.
- **Mute**: Block your voice so that the other party cannot hear your voice.
- **Bluetooth**: Switch the call to a Bluetooth device that is paired and connected.
- : End a call.
- : Access additional call options.

- Available setting items may vary depending on the area or service provider.

Making a three-way calling

You can make a call to another contact during a call.

1 During a call, tap **Add call** or > **Add call (Depending on the service provider)**.

2 Enter a phone number and tap .
   - The two calls are displayed on the screen at the same time, and the first call is put on hold.

3 To start a conference call, tap **Merge** or **Merge calls**.

- You may be charged a fee for each call. Consult with your service provider for more information.

Viewing call records

To view recent call records, tap ◯ > > **Call logs**. Then, you can use the following functions:

- To view detailed call records, select a contact. To make a call to the selected contact, tap .
- To delete call records, tap ⋮ > **Delete**.

- The displayed call duration may differ from the call charge. Consult with your service provider for more information.

Configuring call options

You can configure various call options.

1 Tap ◯ > > **Dial** or **Call logs**.

2 Tap ⋮ > **Call settings** and then configure the options to suit your preferences.

Messages

Sending a message

You can create and send messages to your contacts using the Messages app.

- Sending messages abroad may incur additional charges. Consult with your service provider for more information.

1 Tap ◯ > .

2 Tap .

3 Specify a recipient and create a message.
   - To attach files, tap .
   - To access optional menu items, tap ⋮.

4 Tap SMS or MMS to send the message.

Reading a message

You can view exchanged messages organized by contact.

1 Tap ◯ > .

2 Select a contact from the message list.

Configuring messaging settings

You can change messaging settings to suit your preferences.

1 Tap ◯ > .

2 Tap ⋮ > **Settings** from the message list.

Camera

Starting the camera

You can take a photo or record a video to cherish all of your memorable moments.

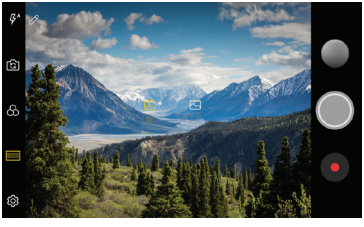
Tap ◯ > .

- Before taking a photo or recording a video, wipe the camera lens with a soft cloth.
- Be careful not to stain the camera lens with your fingers or other foreign substance.
- Images included in this user guide may be different from the actual device.
- Photos and videos can be viewed or edited in Gallery. See *Gallery overview* for details.

Changing the camera mode

You can select a camera mode that suits your environment to take a photo or record a video easily and conveniently.

Tap ◯ > > **MODE**, then select the desired mode.



Auto mode

You can take photos or record videos by selecting a variety of camera modes and options.

1 Tap ◯ > , then tap **MODE** > **Auto** (A).

2 To take a photo, tap ◎. To record a video, tap ●.

Taking a photo

1 Select a camera mode and tap the subject to focus the camera on.

2 Tap ◎ to take a photo.

- You can also press the Volume Down (-) or Volume Up (+) key to take a photo.

- When the screen is turned off or locked, start the camera by pressing the Volume Down (-) key twice. To enable this feature, tap ◯ > **Tools** > **Settings** > **Extensions** and turn on **Shortcut keys**.

Recording a video

1 Select a camera mode and tap the subject to focus the camera on.

2 Tap ●.

- To take a photo while recording a video, tap ⓒ.
- To pause the video recording, tap ⏸. To resume the video recording, tap ●.

3 Tap ■ to end the video recording.

Customizing the camera options

You can customize a variety of camera options to suit your preferences.

Tap ⚙ on the screen.

- Available options vary depending on the selected camera (front or rear camera) and the selected camera mode.

- ⓒ : Select values for aspect ratio and size for taking photos.
- ▭ : Select values for resolution and size for recording videos.
- ⏲ : Set the timer to automatically take photos or record videos after a specified period of time.

HDR	Obtain photos in vivid colors and get compensated effects even when they are taken against the light. These functions are provided by the High Dynamic Range (HDR) technology equipped in the camera.
Cheese shutter	Take photos with voice commands.
Scan QR code	Allow you to scan QR code on the camera preview screen.
Tag locations	Save the image with GPS location data.
Grid	Display guide grids so that you can take photos or record videos based on the horizontal and vertical reference lines.

Storage	Select if you want to store the pictures and videos in the Internal storage or SD card. (Available when the memory card is inserted.)
Help	Provide Help for each camera menu.

Additional options on the front camera

Selfie shot	Take a selfie by selecting its option between **Gesture shot** and **Auto shot**.
Gesture view	Allows you to view the photo immediately after taking a photo.
Save as flipped	Save as flipped images after taking selfies.

- When using the front camera, you can adjust the filter, lighting effect, and skin tone.

Burst shot

You can take continuous shots of photos to create moving pictures.

In the Auto mode, touch and hold ◎.

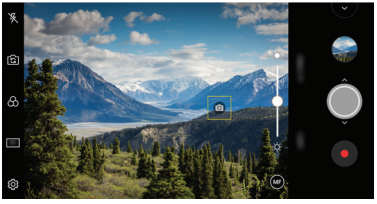
- Continuous shots are taken at a fast speed while ◎ is held down.

- You can take up to 30 photos with the rear camera and 20 photos with the front camera.
- This feature is available only in specific modes.

Other useful features in the Camera app

Auto-Exposure/Auto-Focus lock

You can fix the current exposure level and focus position by touching and holding the screen in the Auto mode. To turn off the feature, tap a blank area on the screen.

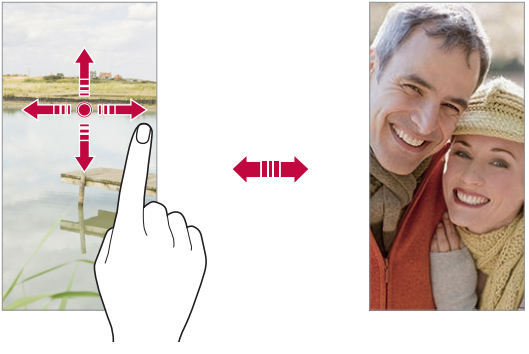


- This feature is available only in specific modes.

Switching between cameras

You can switch between the front and rear cameras to suit your environment.

On the camera screen, tap or swipe the screen in any direction to switch between the front and rear cameras.



- Use the front camera to take selfies. See *Selfie shot* for details.

Zoom in or out

You can use zoom in or out on the camera screen while taking a photo or recording a video.

- On the camera screen, pinch or spread two fingers to zoom in or out, then use the displayed +/- slide bar.
- You can also drag the ◎ button up, down, left or right (depending on the orientation of the phone). This feature is available only in Auto mode and Manual camera mode.

- The zoom feature is not available when using the front camera in selfie mode.

Selfie shot

You can use the front camera to view your face on the screen and take selfies.

Gesture shot

You can take selfies by using gestures.

Show your palm to the front camera and then clench your fist.

You can also clench your fist and then open it towards the front camera.

- In three seconds, a photo is taken.

- To use this feature, switch to the front camera mode, then tap ⚙ > **Selfie shot** > **Gesture shot**.
- Make sure that your palm and fist are within the reference line so that the camera can detect them.
- This feature may not be available while using some of the camera features.

Auto shot

You can use the face detection feature to take selfies easily and conveniently. You can set the device so that, when you look at the screen, the front camera detects your face and takes a selfie automatically.

- The white colored guide frame appears when the front camera detects your face. If the subject within the guide frame stops moving, the guide frame color turns yellow, then the camera takes a photo.

- Tap ⚙ > **Selfie shot** > **Auto shot** to enable the Auto shot feature.

Interval shot

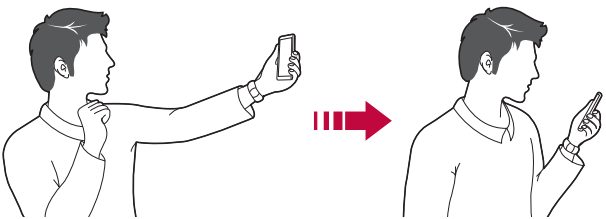
You can take selfies at an interval.

While using the front camera, you can show your palm to the camera, then clench your fist twice quickly.

- Four photos are taken at regular intervals after a timer delay of three seconds.

Gesture view

After taking a selfie with the front camera, you can preview the selfie immediately by placing the screen close to your face.



- Tap > **Gesture view** to enable the Gesture view feature.
- Only one preview is available each time a photo is taken.
- If you rotate the device while in preview screen, the screen switches to camera mode.

Save as flipped

Before taking a photo with the front camera, tap > **Save as flipped**. The image is flipped horizontally.

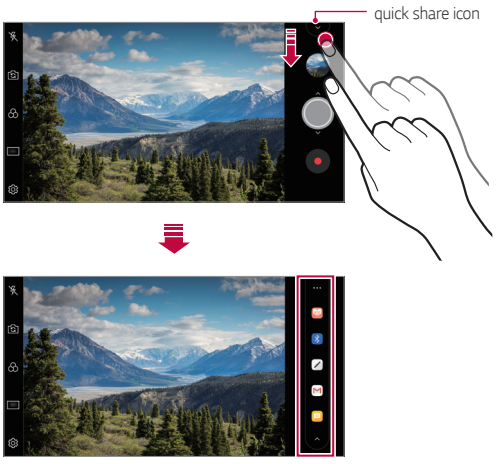
- When using the front camera, you can change the selfie shot settings in the camera options. See *Customizing the camera options* for details.

quick share

You can share a photo or video using a desired app immediately after taking it.

1 Tap ◯ > , then take a photo or record a video.

2 Tap the app icon that appears on the screen to share it using that app. You can also swipe the icon towards the opposite direction to see what other apps you can use to share your photos and videos.



- The app displayed by the quick share icon may vary, depending on the type and frequency of access to the apps installed on the device.
- This feature is available only in specific modes.

Gallery

Gallery overview

You can view and manage photos and videos saved on your device.

1 Tap ◯ > .

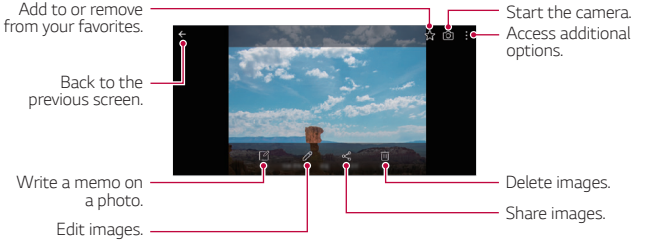
- Saved photos and videos are displayed by folder.

2 Tap a folder and select a file.

- View the selected file in full-screen mode.
- While viewing a photo, swipe left or right to view the previous or next photo.
- While viewing a video, swipe left or right to rewind or fast-forward the video.

- Some file formats may not be supported, depending on the installed software.
- Some files may not be opened due to encoding.
- Files that exceed the size limit may cause an error.

Viewing photos



- To display the menu items, gently tap the screen. To hide the menu items, tap the screen again.

Writing a memo on the photo

1 While viewing a photo, tap .

2 Write a memo on the photo and tap **SAVE**.

- The memo is applied to the photo.

- Some photos may not support the photo memo feature.

Editing photos

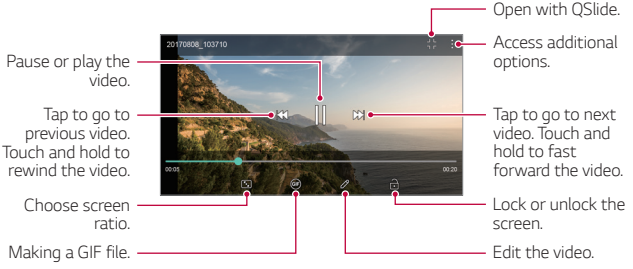
1 While viewing a photo, tap .

2 Use a variety of effects and tools to edit the photo.

3 Tap **SAVE** to save changes.

- The changes are overwritten to the original file.
- To save the edited photo as another file, tap > **Save copy**.

Playing a video

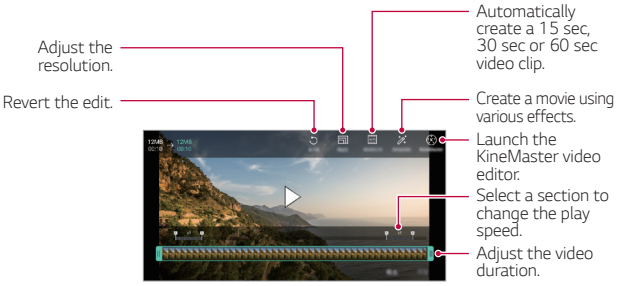


- To adjust the sound volume, drag the right side of the video screen up or down.
- To adjust the screen brightness, drag the left side of the video screen up or down.

Editing videos

1 While viewing a video, tap ✎.

2 Use a variety of effects and edit tools to edit the video.



3 Tap **SAVE** to save changes.

Creating a video

You can create a new video by putting images and videos together.

See *Creating a movie* for details.

Making a GIF

You can easily make a GIF file using recorded video.

See *Making a GIF* for details.

Deleting files

You can delete files by using one of the following options:

- Touch and hold a file from the file list, then tap **Delete**.
- Tap in an album, select files to delete, then tap **DELETE**.
- Deleted files are automatically moved to **Trash** and they can be restored to Gallery within 7 days.
- In Gallery, tap > **Trash**, then tap to permanently delete the files. In this case, the files cannot be restored.

Sharing files

You can share files by using one of the following options:

- While viewing a photo, tap to share the file by using a desired method.
- While viewing a video, tap > **Share** to share the file by using a desired method.
- Tap in an album to select files and share them using a desired method.

Chrome

Sign in to Chrome and import opened tabs, bookmarks and address bar data from a computer to your device.

Tap > .

Google apps

You can use Google apps by setting a Google account. The Google account registration window appears automatically when you use a Google app for the first time. If you do not have a Google account, create one from your device. For details on how to use an app, see the Help section in the app.

- Some apps may not work depending on the area or service provider.

Docs

Create documents or edit documents created online or from another device. Share and edit documents together with others.

Drive

Upload, save, open, share and organize files from your device. Files accessible from apps can be accessed from anywhere, including online and offline environments.

Duo

Make a video call with your family, friends and anyone else who uses the app.

Gmail

Register your Google email account to your device to check or send email.

Google

Use Google to search for web pages, images, news and more by entering or speaking keywords.

Maps

Find your location or the location of a place on the map. View geographical information.

Photos

View or share photos or albums saved on your device.

Play Movies & TV

Use your Google account to rent or purchase movies. Purchased contents can be played anywhere.

Play Music

Purchase music files from the Play Store. Play music files saved on your device.

Sheets

Create spreadsheets or edit spreadsheets created online or from another device. Share and edit spreadsheets together with others.

Slides

Create presentation material or edit presentation material created online or from another device. Share and edit presentation material together with others.

YouTube

Search and play videos. Upload videos on YouTube to share them with people around the world.

Contacts

Contacts overview

You can save and manage contacts.

Tap ◯ > **Productivity** > **Contacts**.

Adding contacts

Adding new contacts

1 On the contact list screen, tap +.

2 Enter contact details and tap **SAVE**.

Importing contacts

You can import contacts from another storage device.

1 On the contact list screen, tap ⋮ > **Manage contacts** > **Import**.

2 Select the source and target locations of the contact you want to import, and then tap **OK**.

3 Select the vCard file(s) and tap **IMPORT**.

Adding contacts to the speed dial list

1 On the contact list screen, tap ⋮ > **Speed dial**.

2 Tap **Add contact** from a speed dial number.

3 Select a contact.

• While adding a new contact, tap 1 2 3 to add a speed dial number.

Searching for contacts

You can search for contacts by using one of the following options:

- Tap from the top of the contacts list and then enter the contact information or phone number.
- Scroll the contact list up or down.
- From the index of the contact list screen, tap the initial letter of a contact.

- The search option is available in all tabs.

Contact list

Editing contacts

1 On the contact list screen, select a contact.

2 On the contact detail screen, tap and edit details.

3 Tap **SAVE** to save changes.

Deleting contacts

You can delete contacts by using one of the following options:

- On the contact list screen, touch and hold a contact you want to delete, tap **Delete contact**, then tap **DELETE** to confirm.
- Tap > **Delete** on the contact list screen, select contacts you want to delete, then tap **DELETE**.

Adding favorites

You can register frequently used contacts as favorites.

1 On the contact list screen, select a contact.

2 On the contact detail screen, tap .

Creating groups

1 On the **Groups** tab, tap .

2 Enter a new group name.

3 Tap **Add members**, select contacts, then tap **ADD**.

4 Tap **SAVE** to save the new group.

QuickMemo+

QuickMemo+ overview

You can make creative notes by using a variety of options on this advanced notepad feature, such as image management and screenshots, which are not supported by the conventional notepad.

Creating a note

1 Tap > **Tools** > **QuickMemo+**.

2 Tap to create a note.

- : Save a note.
- : Undo the previous edit.
- : Redo the recently deleted edits.
- : Enter a note by using the keypad.
- : Write notes by hand.
- : Erase handwritten notes.
- : Zoom in or out, rotate or erase the parts of a handwritten note.
- : Access additional.

3 Tap to save the note.

Writing notes on a photo

1 Tap ◯ > **Tools** > **QuickMemo+** > 📷.

2 Tap ◎ to take a photo, then tap **OK**.
- The photo is automatically attached into the notepad.

3 Tap T or ✎ to write notes on the photo.
- Write notes by hand on the photo.
- Enter text below the photo.

4 Tap ✓ to save the note.

Writing notes on a screenshot

1 While viewing the screen you want to capture, drag the status bar downwards and then tap ✂.
- The screenshot appears as the notepad background theme. Memo tools appear at the top of the screen.

2 Crop the image (if necessary) and take notes as desired.
- Write notes by hand on the photo.

3 Tap ✓ and save the notes to the location of your choice.
- Saved notes can be viewed in either **QuickMemo+** or **Gallery**.
- To save notes in the same location all the time, select the **Use as default app** checkbox before selecting an app.

- You can capture the entire screen by using the scroll capture feature.
- While using an app such as Messages and Chrome, drag the notifications panel downwards and then tap **Capture+** > **Extended** to capture the entire screen you are currently viewing as a single file.
- This feature is available only on some apps that support the scroll capture feature.

Managing folders

You can view notes grouped by the type of the notes.

1 Tap ◯ > **Tools** > **QuickMemo+**.

2 At the top of the screen, tap ☰ and select a menu item:

- **All memos**: View all notes saved in QuickMemo+.
- **My memos**: View notes created by QuickMemo+.
- **Photo memos**: View notes created by 📷.
- **Capture+**: View notes created by Capture+.
- **Trash**: View deleted notes.
- **New category**: Add categories.
- ⚙ : Rearrange, add or delete categories. To change the name of a category, tap the category.

- Some folders do not appear when launching QuickMemo+ for the first time. Disabled folders are enabled and appear when they contain at least one related note.

Clock

Alarm

You can set an alarm to trigger it at a specified time.

1 Tap ◯ > **Tools** > **Clock** > **Alarm**.

2 Tap + to add a new alarm.

3 Configure the alarm settings and tap **SAVE**.

- If you select a previously set alarm, you can edit the alarm.
- To delete an alarm, tap 🗑 at the top of the screen. You can also touch and hold the alarm.

World clock

You can view the current time in cities around the world.

1 Tap ◯ > **Tools** > **Clock** > **World clock**.

2 Tap + and add a city.

Timer

You can set the timer to trigger an alarm after a specified period of time.

1 Tap ◯ > **Tools** > **Clock** > **Timer**.

2 Set the time and tap **Start**.

- To suspend the timer, tap **Pause**. To resume the timer, tap **Resume**.

3 Tap **Stop** to stop the timer alarm.

Stopwatch

You can use the stopwatch to record a lap time.

1 Tap ◯ > **Tools** > **Clock** > **Stopwatch**.

2 Tap **Start** to initiate the stopwatch.

- To record a lap time, tap **Lap**.

3 Tap **Pause** to suspend the stopwatch.

- To resume the stopwatch, tap **Resume**.
- To clear all the records and restart the stopwatch, tap **Reset**.

Calendar

Calendar overview

You can use the calendar to manage events and tasks.

Adding events

1 Tap ◯ > **Productivity** > **Calendar**.

2 Select a date and then tap ⊕.

3 Enter event details and tap **SAVE**.

Syncing events

Tap ⋮ > **Calendars to sync** and select a calendar to sync.

- When your events are saved from the device to your Google account, they are automatically synced with the Google calendar, too. Then, you can sync other devices with the Google calendar in order to make those devices have the same events that your device has and to manage your events on those devices.

Tasks

You can register tasks to your device to easily manage schedules.

1 Tap ◯ > **Tools** > **Tasks**.

2 Tap ⊕ to add a task.

3 Enter task details and then tap **SAVE**.

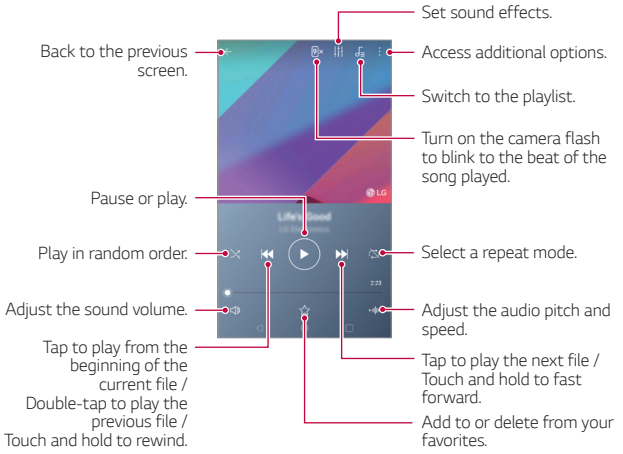
Music

You can play and manage songs or music albums.

1 Tap ◯ > **Media** > **Music**.

2 Select a category.

3 Select a music file.



- Some file formats may not be supported, depending on the installed software.
- Files that exceed the size limit may cause an error.
- Music files may be protected by international copyright owners or copyright laws. You may have to obtain legal permission before copying a music file. To download or copy a music file, first check the copyright law for the relevant country.

Calculator

You can use two types of calculators: the basic calculator and the scientific calculator.

1 Tap ◯ > **Tools** > **Calculator**.

2 Use the keypad to make a calculation.

- To use the scientific calculator, tap ⋮ > **Scientific calculator**.
- To restart a calculation, tap AC.

Email

Use the Email application to send and receive emails from your webmail or other accounts, using POP3 or IMAP, or access your Exchange account for your corporate email needs.

Set up Email account

Your phone supports several types of email accounts and allows you to have multiple email accounts set up at one time.

Before setting up an email account, make sure you have the username (user ID), password, server name, etc., so you can get set up successfully.

1 Tap ◯ > **Email**.

2 Follow the onscreen instructions to set up your email account.

- The email account is set up and you will begin receiving email.

FM Radio

You can listen to FM Radio.

Tap ◯ > **Media** > **FM Radio**.

- To use this app, first connect earphones to the device. The earphones function as the radio antenna.
- This function may not be supported depending on the area.

File Manager

You can view and manage files saved on your device or cloud.

1 Tap ◯ > **Productivity** > **File Manager**.

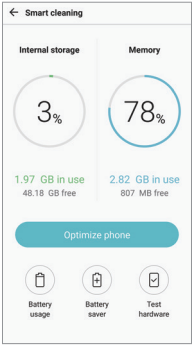
2 Tap ☰ and select the desired storage location.

Smart cleaning

You can delete temporary files or apps that are no longer used.

1 Tap ◯ > ⊞ > **Smart cleaning**.

2 On the Smart cleaning screen, you can access **Optimize phone**, **Battery usage**, **Battery saver**, and **Test hardware**.



Downloads

You can view, delete or share files downloaded via the Internet or apps.

Tap ◯ > **Tools** > **Downloads**.

04

Settings

Settings

You can customize the device settings in accordance with your preferences.

Tap ◯ > **Tools** > **Settings**.

• Tap 🔍 and enter a keyword in the search box to access a setting item.

Network & internet

Airplane mode

You can turn off the call and mobile data functions. When this mode is on, functions that do not involve data, such as games and music playback, remain available.

1 On the settings screen, tap **Network & internet** > **Airplane mode**.

2 Tap **TURN ON** in the confirmation screen.

Wi-Fi

You can connect to nearby devices over a Wi-Fi network.

Connecting to a Wi-Fi network

1 On the settings screen, tap **Network & internet** > **Wi-Fi**.

2 Tap ⬭ to activate it.
   • Available Wi-Fi networks appear automatically.

3 Select a network.
   • You may need to enter the network's Wi-Fi password.
   • The device skips this process for previously accessed Wi-Fi networks. If you do not want to automatically connect to a certain Wi-Fi network, tap the network and then tap **FORGET**.

Wi-Fi Direct

You can connect your device to other devices that support Wi-Fi Direct to share data directly with them. You do not need an access point. You can connect with more than two devices by using Wi-Fi Direct.

1 On the settings screen, tap **Network & internet** > **Wi-Fi** > ⋮ > **Advanced Wi-Fi** > **Wi-Fi Direct**.
   - Nearby devices that support Wi-Fi Direct automatically appear.

2 Select a device.
   - Connection occurs when the device accepts the connection request.

- The battery may drain faster when using Wi-Fi Direct.

Mobile data

You can turn mobile data on and off. You can also manage mobile data usage.

Turning on mobile data

1 On the settings screen, tap **Network & internet** > **Mobile data**.

2 Tap to activate it.

Customizing mobile data settings

1 On the settings screen, tap **Network & internet** > **Mobile data**.

2 Customize the following settings:

- **On**: Enable to use data connections on mobile networks.
- **Limit mobile data usage**: Set a limit for mobile data usage to block mobile data if the limit is reached.
- ⋮ : Customize the desired mobile data settings.

Call

You can customize call settings, such as voice call and international call options.

- Some features may not be supported depending on the area or service provider.

1 On the settings screen, tap **Network & internet** > **Call**.

2 Customize the desired settings.

Tethering

USB tethering

You can connect the device to another device via USB and share mobile data.

1 Connect your device and other devices via USB cable.

2 On the settings screen, tap **Network & internet** > **Tethering** > **USB tethering** and then tap to activate it.

- This option uses mobile data and may incur data usage fees, depending on your pricing plan. Consult with your service provider for more information.
- When connecting to a computer, download the USB driver from *www.lg.com* and install it on the computer.
- You cannot send or receive files between your device and a computer while USB tethering is turned on. Turn off USB tethering to send or receive files.
- Operating systems that support tethering are Window XP or higher, or Linux.

Wi-Fi hotspot

You can set the device as a wireless router so that other devices can connect to the Internet by using your device's mobile data.

1 On the settings screen, tap **Network & internet** > **Tethering** > **Wi-Fi hotspot** and then tap ◯ to activate it.

2 Tap **Set up Wi-Fi hotspot** and enter the Wi-Fi name (SSID) and password.

3 Turn on Wi-Fi on the other device, and select the name of the device network on the Wi-Fi list.

4 Enter the network password.

- This option uses mobile data and may incur data usage fees, depending on your pricing plan. Consult with your service provider for more information.
- More information is available at this web site: *http://www.android.com/tether#wifi*

Timeout

When the Wi-Fi hotspot has not been used for a specific period of time, it is automatically disconnected. You can set the time for automatic disconnection.

Bluetooth tethering

A Bluetooth-connected device can connect to the internet by using your device's mobile data.

1 On the settings screen, tap **Network & internet** > **Tethering** > **Bluetooth tethering** and then tap to activate it.

2 Turn on Bluetooth on both devices and pair them.

3 Connect to the mobile network on the paired device.

- This option uses mobile data and may incur data usage fees, depending on your pricing plan.
- More information is available at this web site: *http://www.android.com/tether#Bluetooth_tethering*

NFC

You can use the device as a transportation card or credit card. You can also share data with the other device.

1 On the settings screen, tap **Network** > **NFC**.

2 Tap to activate it.
- Touch your device with other device that supports NFC to allow sharing data.

- NFC antenna may be located differently depending on the device type. See *Parts overview* for details about the NFC antenna area.

Help

You can view help on using tethering and hotspots.

On the settings screen, tap **Network & internet** > **Tethering** > **Help**.

Wi-Fi Calling

Wi-Fi Calling can improve your coverage and allows you to make phone calls over a Wi-Fi network (when a Wi-Fi network is available).

On the settings screen, tap **Network & internet** > **Wi-Fi Calling**.

Mobile networks

You can customize the following mobile network settings.

1 On the settings screen, tap **Network & internet** > **Mobile networks**.

2 Customize the following settings:

- **VoLTE (This function may not be available depending on the service provider)**: You can enable HD Voice and advanced communication services where available.
- **Data roaming**: Turn data roaming on or off.
- **Network mode (This function may vary depending on the service provider)**: Select a network type.
- **Access Point Names**: View or change the access point for using mobile data services. To change the access point, select a choice from the access point list.

VPN

You can connect to a safe virtual network, such as an intranet. You can also manage connected virtual private networks.

Adding VPN

1 On the settings screen, tap **Network & internet** > **VPN**.

2 Tap + to add a new VPN.

- This feature is available only when the screen lock is activated. If the screen lock is deactivated, a notification screen appears. Tap **SETTINGS** from the notification screen to activate the screen lock. See *Setting a screen lock* for details.

3 Enter VPN details and tap **SAVE**.

Configuring VPN settings

1 Tap a VPN from the **VPNS** list.

2 Enter the VPN user account details and tap **CONNECT**.
   - To save the account details, select the **Save account information** checkbox.

Wireless Emergency Alerts

If emergency alerts are issued, those alerts will appear on this menu.

On the settings screen, tap **Network & internet** > **Wireless Emergency Alerts**.

Connected devices

Bluetooth

You can connect your device to nearby devices that support Bluetooth to exchange data with them. Connect your device to a Bluetooth headset and a keyboard. This makes it easier to control the device.

Pairing with another device

1 On the settings screen, tap **Connected devices** > **Bluetooth**.

2 Tap to activate it.
   - Available devices appear automatically.
   - To refresh the device list, tap .

- Only devices set as visible are displayed on the list.

3 Select a device from the list.

4 Follow the on-screen instructions to perform authentication.

- This step is skipped for previously accessed devices.

Sending data via Bluetooth

1 Select a file.
   • You can send multimedia files or contacts.
2 Tap > **Bluetooth**.
3 Select a target device for the file.
   • The file is sent as soon as the target device accepts it.

• File sharing processes may differ, depending on the file.

Sharing panel

You can share contents from Gallery, Music and File Manager with nearby devices. Also you can share content with specific people in apps that work with Google Direct Share.

1 On the settings screen, tap **Connected devices** > **Sharing panel**.
2 Tap **Direct share** to deactivate the option.

Printing

You can connect your device to a Bluetooth printer and print photos or documents saved on the device.

1 On the settings screen, tap **Connected devices** > **Printing**.

• If the desired printer is not in the list, install the printer driver from the app store.

2 Select a printer from the printer list screen.
3 Tap to activate it.
   • To add a printer, tap > **Add printer**.
   • To search for a printer name, tap > **Search**.
   • Tap > **Settings** from the printer list screen.

4 Select a file and tap ⋮ > **Print**.
- The document prints.

- If you do not have a Google account, tap **ADD ACCOUNT** to create an account.

Sound

You can customize sound, vibration and notification settings.

On the settings screen, tap **Sound** and customize the following settings:

- **Sound profile**: Change the sound mode to **Sound**, **Vibrate only**, or **Silent**.
- **Volume**: Adjust the sound volume for various items.
- **Ringtone**: Select a ringtone for incoming calls. Add or delete ringtones.
- **Ringtone ID**: Create a ringtone for an incoming call from a particular contact.
- **Ring with vibration**: Set the device to vibrate and play a ringtone simultaneously.
- **Flash alert for incoming call**: Set the device to flash alert for incoming calls.
- **Notification sound**: Select a notification ringtone. Set music saved on the device as a notification ringtone.
- **Do not disturb**: Set the time, range and app type to receive notification messages. Receive notification messages only on particular days of the week.
- **Sound quality and effects**: Set the sound quality and effects.
- **Vibration type**: You can select the type of vibration when receiving calls.
- **Vibrate on tap**: Set the device to vibrate when you tap certain items on the screen.

- **Dialing keypad sound**: Enable the keypad sound effect.
- **LG Keyboard sound**: Enable the LG keyboard sound effect.
- **Touch sound**: Enable the sound effect for tapping an item.
- **Screen lock sound**: Enable the sound effect to play when the screen is locked or unlocked.

Display

The Display category allows you to manage various display settings.

On the settings screen, tap **Display** and customize the following settings:

- **Home screen**: Customize settings for the Home screen. See *Home screen settings* for details.
- **Wallpaper & theme**: Select wallpaper or screen theme for your device.
- **Font**: Change the font size, boldness, or face.
- **Home touch buttons**: Rearrange Home touch buttons or change their background colors.
- **Display size**: Set the items on the screen to a size that is easy for you to see. Some items may change position.

- When you change the screen resolution, currently running apps are closed.

- **Comfort view**: Set the device to reduce amount of blue light on screen to reduce eye strain.
- **Brightness**: Use the slide bar to change the device's screen brightness. To automatically adjust screen brightness according to ambient light intensity, tap the **Auto** switch.
- **Auto-rotate screen**: Automatically rotate the screen according to the device's orientation.
- **Screen timeout**: Automatically turn off the screen when the device is left idle for a specified period of time.

- **Screen saver**: Display a screen saver when the device is connected to the holder or charger. Select a screen saver type to display.

Lock screen & security

You can customize lock screen and security settings. On the settings screen, tap **Lock screen & security.**

- **Google Play Protect**: Scan the device periodically for potentially harmful codes or apps.
- **Find My Device**: Remotely track the device location. You can also protect your data securely if you lost your device.
- **Security update**: Check for software update and configure automatic installation settings.
- **Select screen lock**: Select the desired screen lock method. See *Setting a screen lock* for details.
- **Customize Lock screen**: Change the information displayed on the locked screen.
- **Secure lock settings**: Change the secure lock settings.
- **Content lock**: Allows you to set a lock type (password or pattern) for your QuickMemo+ and Gallery files.
- **Location**: You can customize how your location information is used by particular apps.
- **Encryption & credentials**: Configure the settings for SD card encryption and credentials.
  - **Encrypt SD card**: Encrypt the memory card to prevent use on another device. See *Memory card encryption* for details.
  - **Secure start-up**: Protect your device with a lock when it powers on. See *Secure start-up settings* for details.
  - **Credential protection**: View the type of the storage where the security certificate will be saved.
  - **Trusted credentials**: View your system's root CA certificates and user-installed CA certificates.

- **User credentials**: View and change secure certificate information stored on your device.
- **Install from storage**: Install a secure certificate from a storage.
- **Clear credentials**: Delete user-installed secure certificates and related credentials.

- **Set up SIM card lock**: Lock or unlock the USIM card, or change the password (PIN).
- **Make passwords visible**: Enable this option to briefly show each character of the password as you type it so you can see what you've entered.
- **Phone administrators**: Allows privileges to restrict the control or use of the device to particular apps.
- **Trust agents**: View and use trust agents installed on the device.
- **Screen pin**: Fix the app screen so that only the currently active app can be used.
- **Usage access**: View details on usage of apps on the device.

Extensions

Smart cleaning

You can clean up temporary files or apps that are no longer used to free up storage space.

1 On the settings screen, tap **Extensions** > **Smart cleaning**.

2 Select a category, then select an item to delete.

3 Tap **DELETE** > **DELETE** to delete the selected item.

Gaming

You can configure settings for game tools, graphics and battery saving feature.

- **Game tools**: Tap to activate this feature. You can launch this feature by tapping the game tool icon at the bottom of the screen while playing games.
- **Game graphics**: Adjust the game graphics.

> • When you change the resolutions on some games, the screen display feature may not work properly.

- **Break time**: Reduce the screen brightness and performance whenever you leave the game running for more than 5 minutes.

Shortcut keys

You can use the shortcut keys to directly launch apps when the screen is turned off or locked.

On the settings screen, tap **Extensions** > **Shortcut keys**.

KnockON

Double-tap the screen to turn the screen on or off.

See *KnockON* for details.

Apps & notifications

You can check a list of installed apps, and configure the settings for notifications, app permissions, and more.

1 On the settings screen, tap **Apps & notifications**.

2 Customize the settings as desired.

Battery

You can view the current battery information or turn on power-saving mode.

1 On the settings screen, tap **Battery**.

2 Customize the following settings:

- **Battery usage**: View the battery usage details. To view more details, select a specific item.
- **Battery percentage on status bar**: Display the remaining battery level as a percentage on the status bar.
- **Battery saver**: Reduce battery consumption by cutting down some device settings, such as the display brightness, speed and vibration intensity.
- **Power saving exclusions**: Select apps to use without any functional limitation while in power saving or battery optimization mode.

Storage

You can view and manage internal storage on the device or storage space of the memory card.

1 On the settings screen, tap **Storage**.

2 Customize the following settings:

- **Internal storage**: View the total storage space and free space in the device's internal storage. View a list of apps in use and the storage capacity for each app.
- **SD card**: View the total storage space and free space in the memory card. This option appears only when a memory card is inserted. To unmount the memory card, tap ⏏.

Accounts

You can add or manage accounts, including a Google account. You can also sync particular apps or user information automatically.

1 On the settings screen, tap **Accounts**.

2 Customize the following settings:

- **Auto-sync accounts**: Sync all the registered accounts automatically.
- **ACCOUNTS**: View a list of registered accounts. To view or change details of an account, tap the account.
- **Add account**: Add accounts.

Accessibility

You can manage accessibility plug-ins installed on your device.

1 On the settings screen, tap **Accessibility**.

2 Customize the following settings:

- **Vision** > **TalkBack**: Set the device to notify screen status or actions via voice.
- **Vision** > **Voice notifications**: Set the device to read the caller information or message content via voice.
- **Vision** > **Font**: Change the font size, boldness, or face.
- **Vision** > **Display size**: Set the items on the screen to a size that is easy for you to see. Some items may change position.
- **Vision** > **Touch zoom**: Zoom in or out by tapping the screen three times.
- **Vision** > **Window zoom**: Zoom in or out within a window and invert the color.
- **Vision** > **Large mouse pointer**: Magnify the mouse pointer.
- **Vision** > **High contrast screen**: Turn the background color into black for a high contrast screen.
- **Vision** > **Screen color inversion**: Increase the display color contrast for people with low vision.

- **Vision** > **Screen color adjustment**: Adjust the display color.
- **Vision** > **Grayscale**: Switch the screen to grayscale mode.
- **Vision** > **End call with the Power key**: End a call by pressing the Power/Lock key.
- **Hearing** > **Captions**: Turn on the subtitle service when playing videos for the hearing impaired.
- **Hearing** > **Flash alerts**: Set the device to notify you with a blinking light for incoming calls, messages and alarms.
- **Hearing** > **RTT Call**: Turn on RTT(Real Time Text) feature and select the desired option.
- **Hearing** > **Mute all sounds**: Mute all sounds and lower volume on the receiver.
- **Hearing** > **Audio channel**: Select the audio type.
- **Hearing** > **Sound balance**: Adjust the audio output balance. Use the slide bar to change the balance.
- **Motor & cognition** > **Touch assistant**: Turn on the touch board to make buttons and gestures easier to use.
- **Motor & cognition** > **Touch input**: Set the desired delay time for touching and holding, or adjust the touch input to ignore repeated taps.
- **Motor & cognition** > **Physical keyboard**: Customize the keyboard settings.
- **Motor & cognition** > **Auto mouse click**: Automatically click where the pointer stops.
- **Motor & cognition** > **Touch and hold for calls**: Answer or decline calls by touching and holding the call button instead of dragging it.
- **Motor & cognition** > **Screen timeout**: Turn off the screen automatically when the device is left idle for a specified period of time.
- **Motor & cognition** > **Touch control areas**: Limit the touch area so that only a particular portion of the screen can be controlled by touch input.

- **Accessibility features shortcut**: Quickly access a frequently used function by tapping ◯ three times.
- **Auto-rotate screen**: Automatically change the screen orientation according to the physical position of the device.
- **Select to Speak**: Allows you to tap items to hear spoken feedback.
- **Switch Access**: Create key combinations to control your device.

Google

You can use Google settings to manage your Google apps and account settings.

On the settings screen, tap **Google**.

System

Update center

From time to time, updates may become available for your phone. You can download and apply updates through the Settings menu.

On the settings screen, tap **System** > **Update center**.

Language & input

You can customize language and keyboard settings for your device.

1 On the settings screen, tap **System** > **Language & input**.

2 Customize the following settings:

- **Language**: Select a language to apply for the device.
- **Current keyboard**: View the keyboard currently in use. Select a keyboard to use when entering text.
- **On-screen keyboard**: Change the LG keyboard settings or voice recognition feature of Google Voice.

- **Physical keyboard**: Select to use the physical keyboard, or check keyboard shortcut keys.
- **Autofill service**: Enable this option to enter your information saved in your account such as password, address, or credit card number with a single tap. You can also disable this option, use Google Autocomplete, or add a new service account.
- **Text-to-speech output**: Configure the settings for text-to-speech output.
- **Pointer speed**: Adjust the pointer speed of a mouse or trackpad.
- **Reverse mouse buttons**: Reverse the right mouse button to perform primary direct-manipulation actions.

Date & time

You can customize date and time settings for your device.

1 On the settings screen, tap **System** > **Date & time**.

2 Customize the desired settings.

Memory

You can view the average amount of memory usage over a certain period of time and the memory occupied by an app.

1 On the settings screen, tap **System** > **Memory**.

2 Tap ▾ to set a time slot to retrieve data.

Backup

You can back up data saved on your device to another device or account.

1 On the settings screen, tap **System** > **Backup**.

2 Customize the following settings:
   - **Google backup**: Change Google drive backup settings. You can also check the backup account currently used, or add a new backup account.

Restart & reset

You can reset the device including network and app settings.

1 On the settings screen, tap **System** > **Restart & reset**.

2 Customize the following settings:

- **Auto-restart**: Automatically restart the phone once a week. The phone will restart within one hour of the set time.

- Any unsaved data and notifications, including badges, will be cleared after a restart. Make sure you save what you are doing.

- **Network settings reset**: Reset Wi-Fi, Bluetooth and other network settings.
- **Reset app preferences**: Reset the settings for an app. The data saved in the app will not be deleted.
- **Factory data reset**: Reset all settings for the device and delete data.

- Resetting your device deletes all data on it. Enter your device name, Google account and other initial information again.

About phone

You can view information about your device, such as the name, status, software details and legal information.

On the settings screen, tap **System** > **About phone** and view information.

Regulatory & safety

You can view regulatory marks and related information on your device.

On the settings screen, tap ***Setting*** > ***General*** > ***Regulatory and safety***

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Appendix

LG Language Settings

Select a language to use on your device.

- Tap ◯ > **Tools** > **Settings** > **System** > **Language & input** > **Language** > **ADD LANGUAGE**, and select a language.
  - Touch and hold ☰ and drag it to the top of the language list to set it as a default language.

Phone software update

LG Mobile phone software update from the Internet

For more information about using this function, please visit *http://www.lg.com/common/index.jsp*, select your country and language.

This feature allows you to conveniently update the firmware on your phone to a newer version from the Internet without needing to visit a service center. This feature will only be available if and when LG makes a newer firmware version available for your device.

Because the mobile phone firmware update requires the user's full attention for the duration of the update process, please make sure you check all instructions and notes that appear at each step before proceeding. Please note that removing the USB cable during the upgrade may seriously damage your mobile phone.

- LG reserves the right to make firmware updates available only for selected models at its own discretion and does not guarantee the availability of the newer version of the firmware for all handset models.

LG Mobile Phone software update via Over-the-Air (OTA)

This feature allows you to conveniently update your phone's software to a newer version via OTA, without connecting a USB cable. This feature will only be available if and when LG makes a newer firmware version available for your device.

To perform the phone software update, tap ◯ > **Tools** > **Settings** > **System** > **Update center** > **Software Update**.

- Your personal data from internal phone storage—including information about your Google account and any other accounts, your system/application data and settings, any downloaded applications and your DRM license—might be lost in the process of updating your phone's software. Therefore, LG recommends that you backup your personal data before updating your phone's software. LG does not take responsibility for any loss of personal data.
- This feature depends on the area or service provider.

Anti-Theft Guide

You can set up your device to prevent other people from using it if it's been reset to factory settings without your permission. For example, if your device is lost, stolen, or wiped, only someone with your Google account or screen lock information can use the device.

All you need to make sure your device is protected is:

- Set a screen lock: If your device is lost or stolen but you have a screen lock set, the device can't be erased using the Settings menu unless your screen is unlocked.
- Add your Google account on your device: If your device is wiped but you have your Google account on it, the device can't finish the setup process until your Google account information is entered again.

After your device is protected, you'll need to either unlock your screen or enter your Google account password if you need to do a factory reset. This ensures that you or someone you trust is doing the reset.

- Do not forget the Google account and password you had added to your device prior to performing a factory reset. If you can't provide the account information during the setup process, you won't be able to use the device at all after performing the factory reset.

Open Source Software Notice Information

To obtain the source code under GPL, LGPL, MPL, and other open source licenses, that is contained in this product, please visit *http://opensource.lge.com*.

In addition to the source code, all referred license terms, warranty disclaimers and copyright notices are available for download.

LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping, and handling) upon email request to *opensource@lge.com*.

This offer is valid for a period of three years after our last shipment of this product. This offer is valid to anyone in receipt of this information.

Regulatory information (FCC ID number, etc.)

For regulatory details, go to *Setting* > ***General*** > *Regulatory and safety*

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- Wi-Fi® and the Wi-Fi logo are registered trademarks of the Wi-Fi Alliance.
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FAQ

This chapter lists some problems you might encounter when using your phone. Some problems require you to call your service provider, but most are easy to fix yourself.

Message	Possible causes	Possible corrective measures
SIM card error	There is no SIM card in the phone or it is inserted incorrectly.	Make sure the SIM card is correctly inserted.
No network connection/ Dropped network	Signal is weak or you are outside the carrier network.	Move toward a window or into an open area. Check the network operator coverage map.
No applications can be set	Not supported by service provider or registration required.	Contact your service provider.
Downloaded application causes a lot of errors.	Remove the application.	1. Tap ◯ > **Tools** > **Settings**. 2. Tap **Apps & notifications** > **App info**. 3. Tap the app > **Uninstall**.
Calls not available	Dialing error	New network not authorized.
	New SIM card inserted.	Check for new restrictions.
Device cannot be turned on	Battery is not charged.	Charge battery. Check the charging indicator on the display.

Message	Possible causes	Possible corrective measures
Charging error	Battery is not charged.	Charge the battery.
	Outside temperature is too hot or cold.	Make sure to charge the device in a moderate temperature environment.
	Contact problem	Check the charger and its connection to the device.
	No voltage	Plug the charger into a different outlet.
	Charger defective	Replace the charger.
	Wrong charger	Use only original LG accessories.
Number not allowed.	The Fixed dialing number function is on.	Check the Settings menu and turn the function off.
Files do not open	Unsupported file format	Check the supported file formats.
The screen does not turn on when I receive a call.	Proximity sensor problem	If you use a protection tape or case, make sure it has not covered the area around the proximity sensor. Make sure that the area around the proximity sensor is clean.
No sound	Vibration mode	Check the settings status in the sound menu to make sure the device is not in vibration or no interruptions mode.

Message	Possible causes	Possible corrective measures
Hangs up or freezes	Intermittent software/ hardware problem	**Restarting the device** If your device freezes or hangs, you may need to close apps or turn off the device and turn it on again.
		Performing a boot-up Press and hold the Power/Lock key and the Volume Down (-) key for about 10 seconds to restart your device.
		Resetting the device If the methods above do not solve your problem, perform a factory data reset. On the settings screen, tap **System** > **Restart & reset** > **Factory data reset**. *Reset all settings for the device and delete data. Before performing the factory data reset, remember to make backup copies of all important data stored in the device. *If you registered a Google account to the device, you must sign in to the same Google account after resetting the device.

06

For Your Safety

Important Information

This user guide contains important information on the use and operation of this device. Please read all the information carefully for optimal performance and to prevent any damage to or misuse of the device. Any changes or modifications not expressly approved in this user guide could void your warranty for this equipment. Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Before You Start

Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

FCC RF Exposure Information

WARNING! Read this information before operating the device.

In August 1996, the Federal Communications Commission (FCC) of the United States, with its action in Report and Order FCC 96-326, adopted an updated safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this device complies with the FCC guidelines and these international standards.

Body-worn Operation

This device was tested for typical use with the back of the device kept 0.39 inches (1.0 cm) from the body. To comply with FCC RF exposure requirements, a minimum separation distance of 0.39 inches (1.0 cm) must be maintained between the user's body and the back of the device. Any belt-clips, holsters, and similar accessories containing metallic components may not be used. Avoid the use of accessories that cannot maintain 0.39 inches (1.0 cm) distance between the user's body and the back of the device and have not been tested for compliance with FCC RF exposure limits.

Consumer Information about Radio Frequency Emissions

Your wireless device, which contains a radio transmitter and receiver, emits radio frequency energy during use. The following consumer information addresses commonly asked questions about the health effects of wireless devices.

Are wireless devices safe?

Scientific research on the subject of wireless devices and radio frequency ("RF") energy has been conducted worldwide for many years, and continues. In the United States, the Food and Drug Administration ("FDA") and the Federal Communications Commission ("FCC") set policies and procedures for wireless devices. The FDA issued a website publication on health issues related to cell phone usage where it states, "The scientific community at large... believes that the weight of scientific evidence does not show an association between exposure to radiofrequency (RF) from cell phones and adverse health outcomes. Still the scientific community does recommend conducting additional research to address gaps in knowledge." That research is being conducted around the world and FDA continues to monitor developments in this field. You can access the joint FDA/FCC website at *http://www.fda.gov* (under "c"in the subject index, select **Cell Phones > Research**). You can also contact the FDA toll-free at (888) 463-6332 or (888) INFO-FDA. In June 2000, the FDA entered into a cooperative research and development agreement through which additional scientific research is being conducted. The FCC issued its own website publication stating that "there is no scientific evidence that proves that wireless device usage can lead to cancer or a variety of other problems, including headaches, dizziness or memory loss." This publication is available at *http://www.fcc.gov/cgb/cellular.html* or through the FCC at (888) 225-5322 or (888) CALL-FCC.

What does "SAR" mean?

In 1996, the FCC, working with the FDA, the U.S. Environmental Protection Agency, and other agencies, established RF exposure safety guidelines for wireless devices in the United States. Before a wireless device model is available for sale to the public, it must be tested by the manufacturer and certified to the FCC that it does not exceed limits established by the FCC. One of these limits is expressed as a Specific Absorption Rate, or "SAR." SAR is a measure of the rate of absorption of RF energy in the body. Tests for SAR are conducted with the device transmitting at its highest power level in all tested frequency bands. Since 1996, the FCC has required that the SAR of handheld wireless devices not exceed 1.6 watts per kilogram, averaged over one gram of tissue.

Although the SAR is determined at the highest power level, the actual SAR value of a wireless device while operating can be less than the reported SAR value. This is because the SAR value may vary from call to call, depending on factors such as proximity to a cell site, the proximity of the device to the body while in use, and the use of hands-free devices. For more information about SARs, visit the FCC website at *https://www.fcc.gov/consumers/guides/specific-absorption-rate-sar-cell-phones-what-it-means-you*. You may also wish to contact the manufacturer of your device.

Can I minimize my RF exposure?

If you are concerned about RF, there are several simple steps you can take to minimize your RF exposure. You can, of course, reduce your talk time. You can place more distance between your body and the source of the RF, as the exposure level drops off dramatically with distance. The FDA/FCC website states that "hands-free kits can be used with wireless devices for convenience and comfort. These systems reduce the absorption of RF energy in the head because the device, which is the source of the RF emissions, will not be placed against the head. On the other hand, if the device is mounted against the waist or other part of the body during use, then that part of the body will absorb more RF energy. Wireless devices marketed in the U.S. are required to meet safety requirements regardless of whether they are used against the head or against the body. Either configuration should result in compliance with the safety limit." Also, if you use your wireless device while in a car, you can use a device with an antenna on the outside of the vehicle. You should also read and follow your wireless device manufacturer's instructions for the safe operation of your device.

Do wireless devices pose any special risks to children?

The FDA/FCC website states that "the scientific evidence does not show a danger to users of wireless communication devices, including children." The FDA/FCC website further states that "some groups sponsored by other national governments have advised that children be discouraged from using wireless devices at all." For example, the Stewart Report from the United Kingdom ["UK"] made such a recommendation in December 2000. In this report a group of independent experts noted that no evidence exists that using a cell phone causes brain tumors or other ill effects. [The UK's] recommendation to limit cell phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists. A copy of the UK's leaflet is available at *http://www.dh.gov.uk* (search "mobile"), or you can write to: NRPB, Chilton, Didcot, Oxon OX11 ORQ, United Kingdom. Copies of the UK's annual reports on mobile phones and RF are available online at *http://www.hpa.org.uk/radiation/* (search "mobile"). Parents who wish to reduce their children's RF exposure may choose to restrict their children's wireless device use.

Where can I get further information about RF emissions?

For further information, see the following additional resources (websites current as of April 2005):

U.S. Food and Drug Administration

FDA Consumer magazine November-December 2000
Telephone: (888) INFO-FDA
http://www.fda.gov (Under "c" in the subject index, select **Cell Phones** > **Research**.)

U.S. Federal Communications Commission

445 12th Street, S.W. Washington, D.C.20554
Telephone: (888) 225-5322
http://www.fcc.gov/oet/rfsafety

Royal Society of Canada Expert Panels on Potential Health Risks of Radio Frequency Fields from Wireless Telecommunication Devices

283 Sparks Street Ottawa, Ontario K1R 7X9 Canada
Telephone: (613) 991-6990
http://www.rsc.ca/index.php?page=Expert_Panels_RF&Lang_id=120

World Health Organization

Avenue Appia 20 1211 Geneva 27 Switzerland
Telephone: 011 41 22 791 21 11
http://www.who.int/mediacentre/factsheets/fs193/en/

International Commission on Non-Ionizing Radiation Protection

c/o Bundesamt fur Strahlenschutz Ingolstaedter Landstr. 1 85764 Oberschleissheim Germany
Telephone: 011 49 1888 333 2156
http://www.icnirp.de

American National Standards Institute

1819 L Street, N.W., 6th Floor Washington, D.C. 20036
Telephone: (202) 293-8020
http://www.ansi.org

National Council on Radiation Protection and Measurements

7910 Woodmont Avenue, Suite 800 Bethesda, MD 20814-3095
Telephone: (301) 657-2652
http://www.ncrponline.org

Engineering in Medicine and Biology Society, Committee on Man and Radiation (COMAR) of the Institute of Electrical and Electronics Engineers

http://ewh.ieee.org/soc/embs/comar/

Consumer Information on SAR

(Specific Absorption Rate)

This model device meets the government's requirements for exposure to radio waves. Your wireless device 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 1.6 W/kg. Tests for SAR are conducted using standard operating positions specified by the FCC with the device transmitting at its highest certified power level in all tested frequency bands. Although SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. Because the device is designed to operate at multiple power levels 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 device 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 (e.g., at the ear and worn on the body) as required by the FCC for each model.

The FCC has granted an Equipment Authorization for this model device with all reported SAR levels evaluated as in compliance with the FCC RF emission guidelines. SAR information on this model device 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 *ZNFX420EM*

* In the United States and Canada, the SAR limit for mobile phones used by the public is 1.6 watts/kg (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.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against the RF signals from your wireless device.

Pacemakers

The Health Industry Manufacturers Association recommends that a minimum separation of six (6) inches be maintained between a handheld wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research.

Persons with pacemakers:

- Should ALWAYS keep the device more than six (6) inches from their pacemaker when the device is turned ON;
- Should not carry the device in a breast pocket;
- Should use the ear opposite the pacemaker to minimize the potential for interference;
- Should turn the device OFF immediately if there is any reason to suspect that interference is taking place.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from external RF energy. Your physician may be able to assist you in obtaining this information.

Health Care Facilities

Turn your device OFF in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may use equipment that could be sensitive to external RF energy.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles. 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

Turn your device OFF in any facility where posted notices so require.

Aircraft

FCC regulations prohibit using your device while in the air. Switch OFF your device before boarding an aircraft.

Blasting Areas

To avoid interfering with blasting operations, turn your device OFF when in a "blasting area" or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

Potentially Explosive Atmosphere

Turn your device OFF 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.

Areas with a potentially explosive atmosphere are often, but not always marked clearly. Potential areas may include: fueling areas (such as gasoline stations); below deck on boats; fuel or chemical transfer or 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 would normally be advised to turn off your vehicle engine.

For Vehicles Equipped with an Air Bag

An air bag inflates with great force. DO NOT place objects, including either 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.

Part 15.19 Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Part 15.21 Statement

Changes or modifications that are not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

Part 15.105 Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety Information

Please read and observe the following information for safe and proper use of your device and to prevent damage.

⚠ **Caution:** Violation of the instructions may cause minor or serious damage to the product.

- Do not disassemble, open, crush, bend or deform, puncture or shred the device.
- Do not modify or re-manufacture the device, attempt to insert foreign objects into the battery, immerse or expose to water or other liquids, or expose to fire, explosion or other hazard.
- Only use the battery for the device for which it is specified.
- Only use the device with an LG charging system that has been qualified with the device, per CTIA Certification Requirements for Battery System Compliance to IEEE1725. Use of an unqualified battery or charger may present a risk of fire, explosion, leakage, or other hazard.
- Avoid dropping the device. If the device is dropped, especially on a hard surface, and you suspect damage, take it to a service center for inspection.
- To dispose of the battery properly, call (800) 822-8837 or visit *www.call2recycle.org*.
- Always unplug the charger from the wall socket after the device is fully charged to save unnecessary power consumption.

Charger and Adapter Safety

- The charger and adapter are intended for indoor use only.
- Insert the battery charger vertically into the wall power socket.
- Only use the LG-approved battery charger. Otherwise, you may cause serious damage to your device.
- Use the correct adapter for your device when using the battery charger abroad.

Battery Information and Care

- Always unplug the charger from the wall socket after the device is fully charged to save unnecessary power consumption of the charger.
- Please read the manual of the specified charger for information about its charging method.
- Do not damage the power cord by bending, twisting, or heating. Do not use the plug if it is loose as it may cause electric shock or fire.
- Do not place any heavy items on the power cord. Do not allow the power cord to be crimped as it may cause electric shock or fire.
- Unplug the power cord prior to cleaning your device, and clean the power plug pin when it's dirty. When using the power plug, ensure that it's firmly connected. If not, it may cause excessive heat or fire. If you put your device in a pocket or bag without covering the receptacle of the device (power plug pin), metallic articles (such as a coin, paperclip or pen) may short-circuit the device. Always cover the receptacle when not in use.
- Recharge the device after long periods of non-use to maximize battery life. Battery life will vary due to usage pattern and environmental conditions.
- Improper handling of the charging port, as well as the use of an incompatible charger, may cause damage or defect to your device.
- The charging temperature range is between 0 °C/32 °F and 40 °C/104 °F. Do not charge the battery out of the recommended temperature range. Charging out of the recommended range might cause heat to be generated or serious damage to the battery. It might also cause the deterioration of the battery's characteristics and cycle life.
- Do not use or leave the device in direct sunlight or in a car heated by sunshine. The device may generate excessive heat, smoke, or flame. It also might cause deterioration of device's characteristics or cycle life.
- If the skin or clothes are smeared with liquid from the battery, wash with fresh water. It may cause skin inflammation.
- Please take your device to an authorized service center immediately if this occurs.
- Do not handle the device with wet hands while it is being charged. It may cause an electric shock or seriously damage your device.
- Do not charge while the device or charging cable is wet or contains moisture. This can cause fire, electric shock, injury or damage to the device.

- Do not place or answer calls while charging the device as it may short-circuit the device and/or cause electric shock or fire.
- Talking on your device for a long period of time may reduce call quality due to heat generated during use.

WARNING! Notice for Battery Replacement

- Do not remove the back cover.
- Your device has an internal battery. For your safety, do not remove the battery incorporated in the product. If you need to replace the battery, take it to the nearest authorized LG Electronics service point or dealer for assistance.
- The Li-Ion Battery is a hazardous component which can cause injury.
- Battery replacement by non-qualified professional can cause damage to your device.

Explosion, Shock, and Fire Hazards

- Do not put your device in a place subject to excessive dust and keep the minimum required distance between the power cord and heat sources.
- Unplug the power cord prior to cleaning your device, and clean the power plug pin when it's dirty.
- When using the power plug, ensure that it's firmly connected. If not, it may cause excessive heat or fire.
- If you put your device in a pocket or bag without covering the receptacle of the device (power plug pin), metallic articles (such as a coin, paperclip or pen) may short-circuit the device and may cause an explosion. Always cover the receptacle when not in use.
- Do not charge while the device or charging cable is wet or contains moisture. This can cause fire, electric shock, injury or damage to the device.

General Notice

- Do not place items containing magnetic components, such as a credit card, phone card, bank book, or subway ticket, near your device. The magnetism of the device may damage the data stored in the magnetic strip.
- Talking on your device for a long period of time may reduce call quality due to heat generated during use.

- When the device is not used for a long period time, store it in a safe place with the power cord unplugged.
- Using the device in proximity to receiving equipment (i.e., TV or radio) may cause interference to the device.
- Do not immerse your device in water, liquid, or expose to high humidity. Immediately, take it to an LG Authorized Service Center.
- Do not paint your device.
- The data saved in your device might be deleted due to careless use, repair of the device, or upgrade of the software. Please backup your important phone numbers. (Ringtones, text messages, voice messages, pictures, and videos could also be deleted.) The manufacturer is not liable for damage due to the loss of data.
- When you use the device in public places, set the ringtone to vibration so you don't disturb others.
- Do not turn your device on or off when putting it to your ear.
- Use accessories, such as earphones and headsets, with caution. Ensure that cables are tucked away safely.
- Please ensure that the product does not get in contact with liquid. Do not use or recharge the product if it is wet. Once the product becomes wet, the liquid damage indicator changes color. Please note that this will limit you from receiving any free-of-charge repair services provided under warranty.

FDA Consumer Update

The U.S. Food and Drug Administration's Center for Devices and Radiological Health Consumer Update on Mobile Phones:

1. Do wireless devices pose a health hazard?

The available scientific evidence does not show that any health problems are associated with using wireless devices. There is no proof, however, that wireless devices are absolutely safe. Wireless devices emit low levels of Radio Frequency (RF) energy in the microwave range while being used. They also emit very low levels of RF when in standby 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 the FDA's role concerning the safety of wireless devices?

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

Although the existing scientific data do not justify FDA regulatory actions, the FDA has urged the wireless device 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 devices;
- Design wireless devices 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 devices with the best possible information on possible effects of wireless device use on human health.

The 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
- Occupational Safety and Health Administration
- National Telecommunications and Information Administration

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

The FDA shares regulatory responsibilities for wireless devices with the Federal Communications Commission (FCC). All devices that are sold in the United States

must comply with FCC safety guidelines that limit RF exposure. The FCC relies on the FDA and other health agencies for safety questions about wireless devices.

The FCC also regulates the base stations that the wireless device networks rely upon. While these base stations operate at higher power than do the wireless devices themselves, the RF exposures that people get from these base stations are typically thousands of times lower than those they can get from wireless devices. Base stations are thus not the subject of the safety questions discussed in this document.

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

The term "wireless device"refers here to handheld wireless devices with built-in antennas, often called "cell," "mobile," or "PCS" devices. These types of wireless devices can expose the user to measurable Radio Frequency (RF) energy because of the short distance between the device and the user's head.

These RF exposures are limited by FCC safety guidelines that were developed with the advice of the FDA and other federal health and safety agencies. When the device 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 devices," 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 Radio Frequency (RF) energy exposures characteristic of wireless devices 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 devices, so we do not 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 devices 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 device RF exposures. However, none of the studies can answer questions about long-term exposures, since the average period of device use in these studies was around three years.

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

A combination of laboratory studies and epidemiological studies of people actually using wireless devices 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 ten 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 devices. Many factors affect this measurement, such as the angle at which the device is held, or which model of device is used.

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

The 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 Radio Frequency (RF) energy.

The FDA has been a leading participant in the World Health Organization International Electro Magnetic 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.

The FDA and the Cellular Telecommunications & Internet Association (CTIA) have a formal Cooperative Research And Development Agreement (CRADA) to do research on wireless device safety. The FDA provides the scientific oversight,

obtaining input from experts in government, industry, and academic organizations. CTIA-funded research is conducted through contracts with independent investigators. The initial research will include both laboratory studies and studies of wireless device 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 Radio Frequency energy exposure I can get by using my wireless device?

All devices sold in the United States must comply with Federal Communications Commission (FCC) guidelines that limit Radio Frequency (RF) energy exposures. The FCC established these guidelines in consultation with the FDA and the other federal health and safety agencies. The FCC limit for RF exposure from wireless devices 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 device and is set well below levels known to have effects. Manufacturers of wireless devices must report the RF exposure level for each model of device to the FCC. The FCC website (*http://www.fcc.gov/oet/rfsafety*) gives directions for locating the FCC identification number on your device so you can find your device's RF exposure level in the online listing.

8. What has the FDA done to measure the Radio Frequency energy coming from wireless devices?

The Institute of Electrical and Electronic Engineers (IEEE) is developing a technical standard for measuring the Radio Frequency (RF) energy exposure from wireless devices 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 device 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 device.

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 device complies with safety guidelines.

9. What steps can I take to reduce my exposure to Radio Frequency energy from my wireless device?

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 Radio Frequency (RF) energy. Since time is a key factor in how much exposure a person receives, reducing the amount of time spent using a wireless device will reduce RF exposure. If you must conduct extended conversations by wireless device 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 device away from your body or use a wireless device connected to a remote antenna. Again, the scientific data does not demonstrate that wireless devices 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 device use.

10. What about children using wireless devices?

The scientific evidence does not show a danger to users of wireless devices, including children and teenagers. If you want to take steps to lower exposure to Radio Frequency (RF) energy, the measures described above would apply to children and teenagers using wireless devices. Reducing the time of wireless device 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 devices 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 device causes brain tumors or other ill effects. Their recommendation to limit wireless device use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.

11. What about wireless device interference with medical equipment?

Radio Frequency (RF) energy from wireless devices can interact with some electronic devices. For this reason, the FDA helped develop a detailed test method to measure Electro Magnetic 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 the 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 device EMI.

The FDA has tested hearing aids for interference from handheld wireless devices 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 devices so that no interference occurs when a person uses a "compatible" device and a "compatible" hearing aid at the same time. This standard was approved by the IEEE in 2000.

The FDA continues to monitor the use of wireless devices for possible interactions with other medical devices. Should harmful interference be found to occur, the 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 devices
http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/default.htm

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.hpa.org.uk/radiation/

Driving

Check the laws and regulations on the use of wireless devices in the areas where you drive and always obey them. Also, if using your device while driving, please observe the following:

- Give full attention to driving -- driving safely is your first responsibility;
- Use hands-free operation, if available;
- Pull off the road and park before making or answering a call if driving conditions or the law require it.

10 Driver Safety Tips

Your wireless device gives you the powerful ability to communicate by voice almost anywhere, anytime. An important responsibility accompanies the benefits of wireless devices, one that every user must uphold. When operating a car, driving is your first responsibility. When using your wireless device behind the wheel of a car, practice good common sense and remember the following tips:

1. Get to know your wireless device and its features, such as speed dial and redial. Carefully read your instruction manual and learn to take advantage of valuable features most devices offer, including automatic redial and memory. Also, work to memorize the device 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 device accessories are readily available today. Whether you choose an installed mounted device for your wireless device or a speaker phone accessory, take advantage of these devices if available to you.
3. Make sure you place your wireless device within easy reach and where you can reach it without removing your eyes from the road. If you get an incoming call at an inconvenient time, if possible, let your voicemail 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. Don't 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 is common sense. Do not 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 device to call for help. Your wireless device is one of the greatest tools you can own to protect yourself and your family in dangerous situations -- with your device at your side, help is only three numbers away. Dial 911 or another local emergency number in the case of fire, traffic accident, road hazard, or medical emergency. Remember, it's a free call on your wireless device!
9. Use your wireless device to help others in emergencies. Your wireless device 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 911 or another 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 can still use your wireless device 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.

The above tips are meant as general guidelines. Before deciding to use your mobile device while operating a vehicle, it is recommended that you consult your applicable jurisdiction's local laws or other regulations regarding such use. Such laws or other regulations may prohibit or otherwise restrict the manner in which a driver may use his or her device while operating a vehicle.