Camera and Video

To open the Camera application, tap 2 = 3 = 3 = 2 tab > 2 = 3

Getting to know the viewfinder



- 1 Flash Choose from Off 🛞, On 💈, Auto 🌮
- 2 Swap camera Switch between the rear-facing camera lens and the front-facing camera lens.
- 3 Shot mode Choose from Auto or Panorama.
- 4 Settings Tap this icon to open the settings menu.
- Gallery Tap to view the last photo you captured. This enables you to access your gallery and view saved photos while in camera mode.
- 6 Record Allows you to start recording.
- O Capture Allows you to take a photo.

NOTE: Please ensure the camera lens is clean before taking pictures.

Camera and Video

Using the advanced settings

In the viewfinder, tap to open the advanced options. You can change the camera settings by scrolling through the list. After selecting the option, tap 5.

| | Combines abotes taken at multiple superurse into and entimel abote to get a better abote in trials. |
|--------------|--|
| HDR ON | Combines photos taken at multiple exposures into one optimal photo to get a better photo in tricky lighting situations. |
| WEM | Selects photo resolution. If you choose high resolution, file size will increase, which means you will be able to store fewer photos in the memory. |
| e **) | To take a photo, say one of the following words: Cheese, Smile, Whiskey, Kimchi or LG. |
| Coff | Sets a delay after the capture button is pressed. This is ideal if you want to be in the photo. |
| | It is easily used to take better pictures to keeping horizontal and verticals. |
| ? | Opens the help guide to know how a function operates. |

TIP!

 The setting menu is superimposed over the viewfinder, so when you change photo color or quality elements, you will see a preview of the changed image behind the Settings menu.

Taking a quick photo

- 1 Open the Camera application and point the lens toward the subject your want to photograph.
- 2 Focus boxes will appear in the center of the viewfinder screen. You can also tap anywhere on the screen to focus on that spot.
- 3 When the focus box turns blue, the camera has focused on your subject.
- 4 Tap 😐 to capture the photo.

Once you've taken a photo

Tap the image thumbnail at the bottom of the Camera screen to view the last photo you took.

| | Tap to edit the photo. |
|---|---|
| O | Tap to take another photo immediately. |
| Ś | Tap to send your photo to others or share it via social network services. |
| Ĵ | Tap to delete the photo. |
| : | Tap to access SmartShare, Set image as, Move, Copy, Copy to Clip Tray, Slideshow, Rotate left, Rotate right, Crop, Add location, Rename, Print, or Details. |
| * | Tap to add the photo to Favourites. |

TIP! If you have an SNS account set up on your phone, you can share your photo with your SNS community.

NOTE: Additional charges may apply when MMS messages are downloaded while roaming.

Tap : to open all advanced options.

SmartShare - Tap to share your photo using the SmartShare function.

Set image as - Tap to use the photo as a Contact photo, Home screen wallpaper, Lock screen wallpaper, Wallpaper.

Move - Tap to move the photo to another place.

Copy - Tap to copy the selected photo and save it to another album.

Copy to Clip Tray - Tap to copy the photo and store in the Clip Tray.

Slideshow – Automatically shows you the images in the current folder one after the other.

Rotate left/right - To rotate left or right.

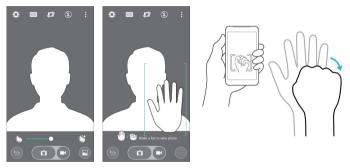
Crop - Crop your photo. Move your finger across the screen to select the area to be cropped.

Camera and Video

Add location – To add the location information. Rename – Tap to edit the name of the selected photo. Details – Find out more information about the file.

Gesture shot

Take a picture with hand gesture. To take photo, raise your hand until front camera detects it and a box appears on the screen.



Using Panorama mode

Allows you to take a picture a long way over a wide area of land.

- 1 Open the **Camera** application.
- 2 MODE > Panorama.
- 3 Tap 🗖 to start.
- 4 Pan your phone slowly to one direction.
- 5 Fit focus area to blue guideline to take photo.
- 6 Tap stop button when finished.

Recording a quick video

- 1 Open the Camera application.
- 2 Holding the phone, point the lens towards the subject you wish to capture in your video.
- 3 Tap once to start recording.
- 4 A red light will appear at the top left corner of the viewfinder with a timer showing the length of the video.
- 5 Tap on the screen to stop recording.

TIP!

Image - Tap to capture an image during recording a video.

- Tap to pause recording a video.

After recording a video

In the viewfinder, tap the video thumbnail at the top of the screen to view the last video you took.

| 0 | Tap to record another video immediately. |
|---|---|
| Ş | Tap to send your video to others or share it via social network services. |
| Ĵ | Tap to delete the video. |
| : | Tap to access SmartShare, Move, Copy, Trim, Rename, Details. |

NOTE: Additional charges may apply when MMS messages are downloaded while roaming.

Camera and Video

From your Gallery

Tap 🌄 Gallery.

- · To view more photos, scroll left or right.
- To zoom in or out, double-tap the screen or place two fingers and spread them apart (move your fingers closer together to zoom out).
- Tap on video play icon 💽 to play the video.

Function

Guest Mode

To protect your privacy or limit some applications to your children, you can use the Guest mode. When you lend your phone to others, you can limit the applications to be displayed. In advance, set the Guest mode and customize the options.

NOTE: To use the Guest mode, the pattern lock should be set in advance.

- 1 Tap \bigcirc > \bigcirc > Apps tab > Settings > General tab > Guest mode.
- 2 Tap the Guest Mode switch mode.

Knock Code

You can unlock the screen when screen is off by taping the correct area and sequence.

To activate Knock Code feature

- 1 Tap 🗁 > :::: > Apps tab > Settings > Display tab > Lock screen > Select screen lock > Knock Code.
- 2 This opens a screen that will guide you through how to select the unlock sequence. You have to create a Backup PIN as a safety measure in case you forget your unlock sequence.

KnockON

You can turn on/off the screen by just double-tap.

Double-tap the center screen quickly to unlock the screen. To lock the screen, double-tap the status bar in any screen (except on the camera viewfinder) or empty area on the Home screen.

NOTE: When turning the screen on, make sure you do not cover the proximity sensor. Doing so will turn the screen off immediately after turning it on in order to prevent abnormal turning on in your pocket or bag.

Function

QuickMemo+

The QuickMemo+ allows you to create memos and capture screen shots.Capture screens, draw on them and share them with family and friends with QuickMemo+.



1 (While screen is switched off) Press and hold the Volume Up key.

0R

Touch and slide the status bar downward and tap $\hfill \ensuremath{\mathbb{R}}$

2 Select the desired menu option from **Pen type**, **Colour**, **Eraser** and create a memo.

| * * | T 💋 | • 🗄 | |
|-----|-----|-----|--|
| | | | |
| | | | |

3 Tap in the Edit menu to save the memo with the current screen. To exit QuickMemo+ at any time, tap .

NOTE: Please use a fingertip while using the QuickMemo+. Do not use your fingernail.

Using the QuickMemo+ options

You can easily use the editing tools when using the QuickMemo+.

| H | Tap to keep the current QuickMemo+ as a text overlay on the screen and continue to use the phone. |
|---------|---|
| * * | Undo or Redo. |
| Т | Tap to insert text. |
| | Selects the pen type and the colour. |
| | Erases the memo that you created. |
| | Saves the memo with the current screen in the Gallery or QuickMemo+. |
| : | Options: Tap to choose Insert, Move, Delete, Export, Share, or Paper style for the memo. |

Viewing the saved QuickMemo+

Tap QuickMemo+/Gallery and select the QuickMemo+ album.

Function

QSlide

From any screen, bring up a notepad, calendar, and more as a window inside your screen.



| 0 | K 7 K 9 | Tap to exit the QSlide and return to full window. |
|---|------------|--|
| 0 | - | Tap to adjust transparency. |
| 8 | \times | Tap to end the QSlide. |
| 4 | | Tap to adjust the size. |

- 1 Touch and slide the status bar downwards > tap QSlide apps or while using applications that support QSlide, tap 🐹. The function will be continuously displayed as a small window on your screen.
- 2 You can make a call, browse the Web, or choose other phone options. You can also use and tap the screen under the small windows when the transparency bar is not full

NOTE: The QSlide can support up to two windows at the same time.

QuickRemote

QuickRemote turns your phone into a Universal Remote for your home TV, Set top box, audio system, DVD/Bluray players, air conditioner and projector.



- 2 Select the type and brand of device, then follow the on-screen instructions to configure the device(s).

3 Touch and slide the status bar downwards and use QuickRemote functions.

NOTE: The QuickRemote operates the same way as an ordinary remote control infrared (IR) signals. Be careful not to cover the infrared sensor at the top of the phone when you use the QuickRemote function. This function may not be supported depending on the model, the manufacturer or service company.

Function

Smart Keyboard

Smart Keyboard recognizes your keyboard input habit and provide your own keyboard quickly inputting without errors.



| = № ∰ "∭ ≜ 20:33 |
|---------------------------|
| 🗏 🖴 🥕 丁 🖍 📚 🗄 🗄 |
| Football is my fav |
| |
| |
| |
| |
| ⊠ B I U = Ξ Ξ ■ |
| favorite fav favor |
| 1 2 3 4 5 6 7 8 9 0 |
| qwertyu i op |
| a s d f g h j k l |
| 🕹 z x c v b n m 💌 |
| ©1# 🗱 🛄 😳 📜 |
| |

Live Zooming

Live Zooming allows you to zoom in or zoom out on a portion of a video that is being played to make the desired section appear larger or smaller.

When viewing a video, use your index finger and thumb in a pinching or spreading motion to zoom in or out.

NOTE:

- While a video is playing, slide left side on the screen up or down to adjust the screen brightness.
- While a video is playing, slide right side of the screen up or down to adjust the screen volume.
- While playing a video, slide the screen left or right to rewind or fast-forward.
- Do not press too hard; the touch screen is sensitive enough to pick up a light, but firm tap.





Multimedia

Gallery

Open the Gallery application to view albums of your pictures and videos.

1 Tap \bigcirc > \bigcirc > Apps tab > Gallery.

You can manage and share all your image and video files with Gallery.

NOTE:

- Some file formats are not supported, depending on the software installed on the device.
- Some files may not play properly, depending on how they are encoded.

Viewing pictures

Launching Gallery displays your available folders. When another application, such as E-mail, saves a picture, the download folder is automatically created to contain the picture. Likewise, capturing a screenshot automatically creates the Screenshots folder. Select a folder to open it.

Pictures are displayed by creation date in a folder. Select a picture to view it full screen. Scroll left or right to view the next or previous image.

Zooming in and out

Use one of the following methods to zoom in on an image:

- · Double-tap anywhere to zoom in.
- · Spread two fingers apart on any place to zoom in. Pinch to zoom out, or double-tap to return.

Playing videos

Video files show the **O** icon in the preview. Select a video to watch it and tap **O**. The Videos application will launch.

- 1 Touch III > Apps tab > Gallery.
- 2 Select the video you want to play.



| 0 🔟 / 📘 | Touch to pause/resume video playback. |
|---------|--|
| ❷ ▶ | Touch to go 10 seconds forward. |
| ❸ << | Touch to go 10 seconds backward. |
| 4 | Touch to manage the video volume. |
| 6 🔁 / 🔒 | Touch to lock/unlock a video screen. |
| 6 🖽 | Touch to use QSlide. |
| 0 | Tap to share your video via the SmartShare function. |
| 8 | Tap to access Screen ratio, Subtitles, Share, Trim, Settings or Details. |

To change the volume while watching a video, press the up and down volume keys on the back of the phone. Touch and hold a video in the list. The **Share**, **Delete**, **Rename** and **Details** options will be displayed.

Editing photos

When viewing an photo, tap 🔀.

Multimedia

Deleting photos/videos

Use one of the following methods:

- In a folder, tap 1 and select photos/videos by ticking, and then tap on Delete.
- When viewing a photo, tap $\widehat{}$.

Setting as wallpaper

When viewing a photo, tap :> Set image as to set the image as wallpaper or assign to a contact.

NOTE:

- Some file formats are not supported, depending on the device software.
- If the file size exceeds the available memory, an error can occur when you open files.

Music

Playing a song

- 1 Tap \frown > \odot > Apps tab > Music.
- 2 Tap Songs.
- 3 Select the song you want to play.



| 0 | | Tap to pause/ resume playback. |
|---|-------------|---|
| 2 | × | Tap to skip to the next track in the album, playlist, or shuffle. Touch and hold to fast forward. |
| 3 | K | Tap to restart the current track or skip to the previous track in the album, playlist, or shuffle. Touch and hold to rewind. |
| 4 | 1 30 | Tap to display the Volume slider bar, then adjust the playback volume on the slider bar. |
| 6 | -55 | Tap to set audio effects. |
| 6 | \times | Tap to play the current playlist in shuffle mode (tracks are played in random order). |
| 0 | 4 | Tap to toggle through the repeat modes to repeat all songs, repeat current song, or repeat off. |
| 8 | G | Tap to share your music via the SmartShare funtion. |
| 9 | * | Tap to add the song to your favourites. |

Multimedia

| 10 | Ì. | Tap to open the current playlist. |
|----|----|---|
| 1 | : | Tap to access Search, Add to playlist, Delete, Share, Set as ringtone, Music video, Details, Settings or Help |

To change the volume while listening to music, press the up and down volume keys on the left-hand side of the phone.

Touch and hold any song in the list. The Play, Add to playlist, Delete, Share, Set as ringtone, Details and Search options will be displayed.

Add music files to your phone

Start by transferring music files to your phone:

- Transfer music using Media device (MTP).
- Download from the wireless Web.
- Synchronize your phone to a computer.
- · Receive files via Bluetooth.

Transfer music using Media device (MTP)

- 1 Connect the phone to your PC using the USB cable.
- 2 Select the Media device (MTP) option. Your phone will appear as another hard drive on your computer. Click on the drive to view it. Copy the files from your PC to the drive folder.

NOTE:

- Some file formats are not supported, depending on the device software.
- If the file size exceeds the available memory, an error can occur when you open files.
- Music file copyrights may be protected by international treaties and national copyright laws. Therefore, it may be necessary to obtain permission or a licence to reproduce or copy music. In some countries, national laws prohibit private copying of copyrighted material. Before downloading or copying the file, check the national laws of the relevant country concerning the use of such material.

FM radio

Your phone has a built-in FM radio so you can tune in to your favorite stations and listen on the go. Tap $\boxed{\bigcirc}$ > **Apps** tap > **FM radio**.

NOTE: You need to use your headphones to listen to the radio. Insert it into the headphone jack.

Utilities

Setting your alarm

- 1 Tap \bigcirc > \bigcirc > Apps tab > Clock > +.
- 2 After you set the alarm, your phone lets you know how much time is left before the alarm will go off.
- 3 Set Repeat, Snooze duration, Vibration, Alarm sound, Alarm volume, Auto app starter, Puzzle lock and Memo.
- 4 Tap Save.

NOTE: To change alarm settings in the alarm list screen, tap : and select **Settings**.

Using your calculator

- 1 Tap \frown > \bigcirc > Apps tab > Calculator.
- 2 Tap the number keys to enter numbers.
- 3 For simple calculations, tap the function you want to perform (+, -, x or ÷) followed by =.
- 4 For more complex calculations, touch (1) and select the Scientific calculator, then choose sin, cos, tan, log etc.
- 5 To check the history, touch : and select the Calculation history.

Adding an event to your calendar

- 1 Tap \frown > \bigcirc > Apps tab > Calendar.
- 2 On the screen, you can find the different view types for the Calendar (Day, Week, Month, Year, Agenda).
- 3 Tap on the date for which you wish to add an event and tap \pm .
- 4 Tap Event name and enter the event name.
- 5 Tap Location and enter the location. Check the date and enter the time you wish your event to start and finish.
- 6 If you wish to repeat the alarm, set REPEAT and set REMINDERS, if necessary.
- 7 Tap Save to save the event in the calendar.

Voice Recorder

Use the voice recorder to record voice memos or other audio files.

Recording a sound or voice

- 1 Tap \frown > \bigcirc > Apps tab > Voice Recorder.
- 2 Tap to begin recording.
- 3 Tap to end the recording.
- 4 Tap 🕑 to listen to the recording.

NOTE: Tap ≡ to access your album. You can listen to the saved recording. The available recording time may differ from actual recording time.

Tasks

This task can be synchronized with MS Exchange account. You can create task, revise it and delete it in MS outlook or MS Office Outlook Web Access.

To Synchronize MS Exchange

- 1 From the Home Screen, Tap \bigcirc > \bigcirc > Apps tab > Settings.
- 2 Tap General tab > Accounts & sync > Add account.
- 3 Tap Microsoft Exchange to create E-mail address and Password.
- 4 Make sure if you checkmark Sync task.

NOTE: MS Exchange may not be supported depending on email server.

ThinkFree Viewer

ThinkFree Viewer is a professional mobile office solution that lets users conveniently view various types of office documents, including Word, Excel and PowerPoint files, anywhere or anytime, using their mobile devices. Tap $\boxed{ \ } >$ Apps tab > ThinkFree Viewer.

Viewing files

Mobile users can now easily view a wide variety of file types, including Microsoft Office documents and Adobe

Utilities

PDF, right on their mobile devices. When viewing documents using ThinkFree Viewer, the objects and layout remain the similar in the original documents.

Google+

Use this application to stay connected with people via Google's social network service.

• Tap 🗁 > 🗰 > Apps tab > tap Google folder > Google+.

NOTE: This application may not be available depending on the region or service provider.

Voice Search

Use this application to search webpages using voice.

- 1 Tap \frown > \bigcirc > Apps tab > tap Google folder > Voice Search.
- 2 Say a keyword or phrase when **Speak now** appears on the screen. Select one of the suggested keywords that appear.

NOTE: This application may not be available depending on the region or service provider.

Downloads

Use this application to see what files have been downloaded through the applications.

• Tap \frown > \bigcirc > Apps tab > Downloads.

NOTE: This application may not be available depending on the region or service provider.

LG SmartWorld

LG SmartWorld offers an assortment of exciting content - fonts, themes, games, applications.

How to Get to LG SmartWorld from Your Phone

- 1 Tap \bigcirc > \bigcirc > Apps tab > tap the \bigcirc icon to access LG SmartWorld.
- 2 Tap Sign in and enter ID/PW for LG SmartWorld. If you have not signed up yet, tap Register to receive your LG SmartWorld membership.
- 3 Download the content you want.
- · When you use Cellular network, data fee could be charged by data plan that you signed-up with carrier.
- · LG SmartWorld may not be available from all carriers or in all countries.

NOTE: What if there is no log icon?

- 1 Using a mobile Web browser, access LG SmartWorld (www.lgworld.com) and select your country.
- 2 Download the LG SmartWorld App.
- 3 Run and install the downloaded file.
- 4 Access LG SmartWorld by tapping the 🧐 icon.

Special benefit only in LG SmartWorld

- 1 Decorate your own style on your Smartphone, Use Home Theme & Keyboard Theme & Font that provided on LG SmartWorld. (However this service is available to specific device. please check in LG SmartWorld website whether it is feasible or not whether it is feasible or not)
- 2 Enjoy LG SmartWorld's special service by joining promotion that consistently provided.

The Web

Internet

Use this application to browse the Internet. Browser gives you a fast, full-color world of games, music, news, sports, entertainment and much more, right on your mobile phone wherever you are and whatever you enjoy.

NOTE: Additional charges apply when connecting to these services and downloading content. Check data charges with your network provider.

1 Tap $\boxed{\frown} > \bigcirc > Apps$ tab > Internet.

Using the Web toolbar

Tap slide it upwards with your finger to open.

| \bigcirc | Tap to go back one page. |
|------------|---|
| ⇒ | Tap to go forward one page, to the page you connected to after the current one. This is the opposite of what happens when you tap (), which takes you to the previous page. |
| | Tap to go to the Home page. |
| Ð | Tap to add a new window. |
| Ҟ | Tap to access bookmarks. |

Viewing webpages

Tap the address field, enter the web address and tap $\ensuremath{\textbf{Go}}$.

Opening a page

To go to new page, tap $\boxed{1}$ > + .

To go to another webpage, tap 2, scroll up or down, and tap the page to select it.

NOTE: This feature may not be available depending on the region or service provider.

Bookmarks

To bookmark the current webpage, tap [] > Add to bookmarks > OK. To open a bookmarked webpage, tap [] and select one.

History

Tap 📃 > History to open a webpage from the list of recently-visited webpages. To clear the history, tap 🗟

Chrome

Use Chrome to search for information and browse webpages.

1 Tap \frown > \bigcirc > Apps tab > Chrome.

NOTE: This application may not be available, depending on your region and service provider.

Viewing webpages

Tap the Address field, and then enter a web address or search criteria.

Opening a page

To go to a new page, tab $\boxed{10}$ > \pm New tab.

To go to another webpage, tap 🔟, scroll up or down and tap the page to select it.

Syncing with other devices

Sync open tabs and bookmarks to use with Chrome on another device when you are logged in with the same Google account.

To view open tabs on other devices, tap (1) >**Other devices**.

Select a webpage to open.

To add bookmarks, tap ☆.

Settings

This section provides an overview of items you can change using your phone's System settings menus.

To access the Settings menu:

Tap \frown > tap and hold \frown > System settings.

- 0r -

 $\mathsf{Tap} \fbox{}{} > \textcircled{}{} > \textcircled{}{} > \mathsf{Apps} \mathsf{ tab} > \mathsf{Settings}.$

Networks

< Wi-Fi >

Wi-Fi – Turns on Wi-Fi to connect to available Wi-Fi networks.

TIP! How to obtain the MAC address

To set up a connection in some wireless networks with MAC filters, you may need to enter the MAC address of your phone in the router.

You can find the MAC address in the following user interface: tap \bigcirc :::> Apps tab > Settings > Networks tab > Wi-Fi > :> Advanced Wi-Fi > MAC address.

< Bluetooth >

Turn the Bluetooth wireless feature on or off to use Bluetooth.

< Mobile data >

Displays the data usage and set mobile data usage limit.

< Call >

Configure phone call settings such as call forwarding and other special features offered by your carrier.

Voicemail – Allows you to select your carrier's voicemail service.

Fixed dialing numbers – Turn on and compile a list of numbers that can be called from your phone. You'll need your PIN2, which is available from your operator. Only numbers within the fixed dial list can be called from your phone.

Incoming voice call pop-up - Display incoming call popup when using camera and videos.

Call reject – Allows you to set the call reject function. Choose from Call reject mode or Reject calls from. Decline with message – When you want to reject a call, you can send a quick message using this function. This is useful if you need to reject a call during a meeting.

Privacy keeper – Hides the caller name and number for an incoming call.

Call forwarding – Choose whether to divert all calls when the line is busy, when there is no answer or when you have no signal.

Auto answer – Set the time before a connected hands-free device automatically answers an incoming call. Choose from Disable, 1 second, 3 seconds, and 5 seconds.

Connection vibration - Vibrates your phone when the other party answers the call.

Save unknown numbers - Add unknown numbers to contacts after a call.

Power key ends call - Allows you to select your end call.

Call barring – Lock incoming, outgoing or international calls.

Call duration - View the duration of calls including Last call, Outgoing calls, Incoming calls and All calls.

Additional call settings - Allows you to change the following settings:

Caller ID: Choose whether to display your number in an outgoing call.

Call waiting: If call waiting is activated, the handset will notify you of an incoming call while you are on a call (depending on your network provider).

< Share & connect >

NFC – Your phone is an NFC-enabled mobile phone. NFC (Near Field Communication) is a wireless connectivity technology that enables two-way communication between electronic devices. It operates over a distance of a few centimeters. You can share your content with an NFC tag or another NFC support device by simply tapping it with your device. If you tap an NFC tag with your device, it will display the tag content on your device.

To switch NFC on or off: From the Home screen, touch and slide the notification panel down with your finger, then select the NFC icon to turn it on.

NOTE: When airplane mode is activated, the NFC application can be used.

Using NFC: To use NFC, make sure your device is switched on, and activate NFC if disabled.

Android Beam – When this feature is turned on, you can beam app content to another NFC-capable device by holding the devices close together.

Just bring the device together(typically back to back) and then tap your screen. The app determines what gets beamed.

SmartShare Beam - Enable to receive files from LG phones.

Media server - Share the phone display and sound on TV.

LG PC Suite - Check this to use LG PC Suite with your Wi-Fi connection. Please note that Wi-Fi network should be connected to LG PC Suite via a Wi-Fi connection.

Settings

< Tethering & networks >

USB tethering – Connect the USB cable to share the internet connection with the computer. Wi-Fi hotspot – You can also use your phone to provide a mobile broadband connection. Create a hotspot and share your connection. Please read "Sharing your phone's data connection" for more information. Bluetooth tethering – Allows you to set your phone whether you are sharing the Internet connection or not. Help – Tap to view help information on the Wi-Fi hotspot and Bluetooth tethering functions. Airplane mode – After switching to Airplane mode, all wireless connections are disabled.

NOTE: You must set a lock screen PIN or password before you can use credential storage.

Mobile networks – Set options for data roaming, network mode & operators, access point names (APNs) etc. VPN – Displays the list of Virtual Private Networks (VPNs) that you've previously configured. Allows you to add different types of VPNs.

Sound

Sound profile - Choose Sound, Vibrate only or Silent.

Volumes - Adjust the phone's volume settings to suit your needs and your environment.

Quiet mode - Set up your Quiet mode.

Sound profile - Choose the sound, either Silent or Vibrate only.

Set time – Choose the Set time, either Always on or schedule. If you tap schedule, you can set the days and times to automatically turn Quiet mode on.

Block notification LED - Checkmark to turn LED notification off.

Block alarms - Checkmark to allow the screen not to turn on and no alarms sound.

Block incoming calls - Checkmark to allow or block incoming calls from certain contacts.

Incoming call settings

Auto reply to blocked calls - Set how to you want to automaticlly reply to silenced calls.

Allow repeated calls - Checkmark to allow a call that is repeated within 3 minutes.

Allowed contact lists - Designate which contacts calls will be allowed.

 $\ensuremath{\text{Help}}-\ensuremath{\text{Tap}}$ to view help information on quiet mode.

Ringtone – Set the ringtone for calls. You can also add a ringtone by tapping 🕂 at the top right corner of the screen.

Notification sound – Allows you to set the sound for notifications. You can also add a sound by tapping + at the top right corner of the screen.

Ringtone with vibration – Checkmark to set the phone to vibrate in addition to the ringtone when you receive calls.

Vibration type – Allows you to choose the type of vibration.

Vibrate on tap – Checkmark to vibrate when tapping the Home touch buttons and during other UI interactions. Sound effect – Tap to set the dial pad touch tones, touch sounds, and screen lock sound.

Dial pad touch tones - Checkmark to play tones while using dial pad.

Touch sounds - Checkmark to play sound when making screen selection.

Screen lock sound - Checkmark to play sound when locking and unlocking the screen.

Message/call voice notifications - To read out the incoming call and the message event automatically.

Display

< Home screen >

Set the Select Home, Theme, Wallpaper, Screen swipe effect, Allow Home screen looping, Home backup & restore, Help.

< Lock screen >

Select screen lock – Set a screen lock type to secure your phone. Opens a set of screens that guide you through drawing a screen unlock pattern. Set None, Swipe, Face Unlock, Knock Code, Pattern, PIN or Password.

If you have enabled a Pattern lock type when you turn on your phone or wake up the screen, you will be asked to draw your unlock pattern to unlock the screen.

Screen swipe effect – Sets the screen swipe effect options. Choose from Light particle, Vector circle, Mosaic, Soda.

NOTE: Screen swipe effect becomes Pattern effect if the screen lock is set to Pattern.

Wallpaper - Sets your Lock screen wallpaper. Select it from Gallery or Wallpaper gallery.

Widgets - This menu allows you to show widgets on the Lock screen.

Missed calls & new messages - Checkmark to show notifications of missed calls and new messages on Lock screen.

Shortcuts – Allows you to change the shortcuts on the Swipe Lock screen.

Settings

 $\label{eq:contact_info for lost phone-Select} whether to display the owner information on the lock screen and customize the owner information.$

Lock timer – Sets the amount of time before the screen automatically locks after the screen has timed-out.

Power button instantly locks – Checkmark to instantly lock the screen when the Power/Lock Key is pressed. This setting overrides the Security lock timer setting.

< Home touch buttons >

Set the Home Touch Keys displayed at the bottom of all of the screens. Set which ones are displayed, their position on the bar, and what they look like. Select the keys and order, the theme, and the background.

< F0NT >

Font type – Sets the type of font used for the phone and menus.

Font size – Sets the size of the font displayed in the phone and menus.

< OTHER SCREEN SETTINGS >

Brightness – Adjusts the brightness of the screen. For best battery performance, use the dimmest comfortable brightness.

Notification LED – Tap the switch to toggle it On or Off. On will activate the LED light for the notifications you select, in the color you set for each one.

Auto-rotate screen – Checkmark to set the phone to automatically rotate the screen based on the phone orientation (portrait or landscape).

Screen timeout - Sets the amount of time before the screen times out.

Smart screen – Checkmark to keep the screen from timing-out when the device detects your eyes looking at the screen.

< ADVANCED SETTINGS >

Screen-off effect - Sets the screen-off effect. Choose from Retro TV, Black hole, and Fade out.

Daydream – Tap the Daydream switch to toggle it On or Off. On allows the set screensaver to be displayed when the phone is sleeping while docked and/or charging. Choose from **Clock** and **Google Photos**.

General

< Language & input >

Use the Language & input settings to select the language for the text on your phone and to configure the on-screen keyboard, including words you've added to its dictionary.

< Location >

Turn on location service, your phone determines your approximate location using GPS, Wi-Fi and mobile

networks.

Mode – Set the location mode from High accuracy (GPS and networks), Battery saving (Networks only) and Device sensors only (GPS only).

< Accounts & sync >

Permits applications to synchronize data in the background, whether or not you are actively working in them. Deselecting this setting can save battery power and lower (but not eliminate) data usage.

< Cloud >

Add a cloud account to quickly and easily use cloud service on LG apps.

< Accessibility >

Use the Accessibility settings to configure accessibility plug-ins you have installed on your phone.

< One-handed operation >

Dial keypad – Checkmark to enable you move the dial keypad to the right or left side of the device. Simply tap the arrow to move it to one side or the other.

LG keyboard – Checkmark to enable you move the keyboard to the right or left side of the device. Simply tap the arrow to move it to one side or the other.

Lock screen – Checkmark to enable you move the PIN Lock screen keypad to the right or left side of the device. Simply tap the arrow to move it to one side or the other.

 $\label{eq:Help-Displays} Help- \mbox{Displays information regarding one-handed operation}.$

< Shortcut key >

Get quick access to apps by pressing and holding the volume keys when screen is off or locked.

< Security >

Encrypt phone – Allows you to encrypt data on the phone for security. You will be required to enter a PIN or password to decrypt your phone each time you power it on.

Encrypt SD card storage - Allows you to encrypt SD card data on the phone for security.

Set up SIM card lock - Set up SIM card lock or change the SIM card PIN.

Password typing visible – Show the last character of the hidden password as you type.

Phone administrators - View or deactivate phone administrators.

Unknown sources - Default setting to install non-Play store applications.

Verify apps - Disallow or warn before installation of apps that may cause harm.

Notification access - Checkmark to enable the Lock screen to read your notifications.

Storage type - Software only.

Trusted credentials - Display trusted CA certificates.

Settings

Install from storage – Choose to install encrypted certificates. **Clear credentials** – Remove all certificates.

< Guest mode >

To protect your privacy or limit some applications to your children, you can use the Guest mode. When you lend your phone to others, you can limit the applications to be displayed. In advance, set the Guest mode and customize the options.

< Gestures >

Silence incoming calls – Checkmark to enable you to flip the phone to silence incoming calls. Snooze or stop alarm – Checkmark to enable you to simply flip the device to snooze or stop the alarm. Pause video – Checkmark to enable you to simply flip the device to pause the currently playing video. Help – Opens a help guide on how to use the Gestures features of your device. Motion sensor calibration – Allows you to improve the accuracy of the tilt and speed of the sensor.

< QuickCircle case >

Keep in mind that turning on these quickcircle case settings may result in irregular device behavior.

< Date & time >

Use Date & time settings to set how dates will be displayed. You can also use these settings to set your own time and time zone rather than obtaining the current time from the mobile network.

< Storage >

 $\label{eq:internal storage} \text{INTERNAL STORAGE} - \text{View the internal storage usage}.$

SD CARD - Check total available SD card space. Touch Unmount SD card for safe removal. Erase SD card if you want to delete all data from the SD card.

< Battery >

BATTERY INFORMATION

The Battery charge information is displayed on a battery graphic along with the percentage of the remaining charge and its status.

Touch the Battery charge icon to display the Battery use screen to see battery usage level and battery use details. It displays which components and applications are using the most battery power. Tap one of the entries to see more detailed information.

Battery percentage on status bar - Checkmark to display the battery level percentage on the Status Bar next to the battery icon.

BATTERY SAVER

Tap the Battery saver switch to toggle it On or Off. Tap Battery saver to access the following settings: **Turn Battery saver On** – Sets the battery charge percent level that will automatically turn on Battery saver. Choose from Immediately, 10% battery, 20% battery, 30% battery, and 50% battery. **Help** – Tap to view help information on the battery saver tips.

< Smart cleaning >

Display the space in use and free in your phone. Tap (:) at the top right corner of the screen to set notification interval and idle time period.

< Apps >

View and manage your applications.

< Default message app >

Set Messaging or Hangouts as default app.

< Backup & reset >

Change the settings for managing your settings and data.

Back up my data - Set to backup your settings and application data to the Google server.

Backup account - Set to backup your account.

Automatic restore – Set to restore your settings and application data when the applications are reinstalled on your device.

LG Backup service – Backs up all information on the device and restores it in the event of data loss or replacement.

Factory data reset – Reset your settings to the factory default values and delete all your data. If you reset the phone this way, you are prompted to re-enter the same information as when you first started Android.

< Printing >

Allows you to print the content of certain screens (such as web pages displayed in Chrome) to a printer connected to the same Wi-Fi network as your Android device.

< About phone >

View legal information and check your phone status and software version.

PC software (LG PC Suite)

"LG PC Suite" PC software is a program that helps you connect your device to a PC via a USB cable and Wi-Fi. Once connected, you can use the functions of your device from your PC.

With your "LG PC Suite" PC Software, You Can ...

- · Manage and play your media contents (music, movie, picture) on your PC.
- · Send multimedia contents to your device.
- · Synchronizes data (schedules, contacts, bookmarks) in your device and PC.
- · Backup the applications in your device.
- · Update the softwares in your device.
- · Backup and restore the device data.
- · Play multimedia contents of your PC from your device.
- · Backup and create and edit the memos in your device

NOTE: You can use the Help menu from the application to find out how to use your "LG PC Suite" PC software.

Installing "LG PC Suite" PC Software

"LG PC Suite" PC software can be downloaded from the webpage of LG.

- 1 Go to www.lg.com and select a country of your choice.
- 2 Go to Support > MOBILE SUPPORT > LG Mobile Phones > Select the Model or

Go to Support > Mobile > Select the Model.

3 Click PC SYNC from MANUALS & DOWNLOAD and click DOWNLOAD to download "LG PC Suite" PC software.

System Requirements for "LG PC Suite" PC software

- OS: Windows XP (Service pack 3) 32bit, Windows Vista, Windows 7, Windows 8
- CPU: 1 GHz or higher processors
- · Memory: 512 MB or higher RAMs
- · Graphic card: 1024 x 768 resolution, 32 bit color or higher
- HDD: 500 MB or more free hard disk space (More free hard disk space may be needed depending on the volume of data stored.)
- · Required software: LG integrated drivers, Windows Media Player 10 or later

NOTE: LG Integrated USB Driver

LG integrated USB driver is required to connect an LG device and PC and is installed automatically when you install "LG PC Suite" PC software application.

Synchronizing your Device to a PC

Data from your device and PC can be synchronized easily with "LG PC Suite" PC software for your convenience. Contacts, schedules and bookmarks can be synchronized.

The procedure is as follows:

- 1 Connect your device to PC. (Use a USB cable or Wi-Fi connection.)
- 2 The Select USB connection method will appear, then select Media device (MTP).
- 3 After connection, run the program and select the device section from the category on the left side of the screen.
- 4 Click Personal information to select.
- 5 Select the checkbox of contents to synchronize and click the Sync button.

NOTE: To synchronize your phone with your PC, you need to install LG PC Suite onto your PC. Please refer to previous pages to install LG PC Suite.

Moving contacts from your Old Device to your New Device

- 1 Import your contacts as a CSV file from your old device to your PC using a PC sync program.
- 2 Install "LG PC Suite" on the PC first. Run the program and connect your Android mobile phone to the PC using a USB cable.
- 3 On the top menu, select Phone > Import/Export contacts > Export to your phone.
- 4 A popup window to select the file type and a file to export will appear.
- 5 On the popup, click the Select a file and Windows Explorer will appear.
- 6 Select the contacts file to export in Windows Explorer and click the **Open**.
- 7 Click OK.
- 8 A Field mapping popup to link the contacts in your device and new contacts data will appear.
- 9 If there is a conflict between the data in your PC contacts and device contacts, make the necessary selections or modifications in LG PC Suite.
- 10 Click OK.

Phone software update

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 \rightarrow 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 data cable during the upgrade may seriously damage your mobile phone.

NOTE: 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 using a USB data cable. This feature will only be available if and when LG makes a newer firmware version available for your device.

You should first check the software version on your mobile phone: Settings > General tab > About phone > Update Center > Software Update > Check now for update.

NOTE: 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 licence—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.

NOTE: This feature depends on your network service provider, region and country.

About this user guide

About this user guide

- Before using your device, please carefully read this manual. This will ensure that you use your phone safely
 and correctly.
- Some of the images and screenshots provided in this guide may appear differently on your phone.
- Your content may differ from the final product, or from software supplied by service providers or carriers, This
 content may be subject to change without prior notice. For the latest version of this manual, please visit the LG
 website at www.lg.com.
- Your phone's applications and their functions may vary by country, region, or hardware specifications. LG
 cannot be held liable for any performance issues resulting from the use of applications developed by providers
 other than LG.
- LG cannot be held liable for performance or incompatibility issues resulting from registry settings being edited
 or operating system software being modified. Any attempt to customize your operating system may cause the
 device or its applications to not work as they should.
- 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 and entirely responsible for the illegal use of media.
- Additional charges may be applied for data services, such as messaging, uploading and downloading, autosyncing, or using location services. To avoid additional charges, select a data plan that is suitable for your needs. Contact your service provider to obtain additional details.

Trademarks

- · LG and the LG logo are registered trademarks of LG Electronics.
- · All other trademarks and copyrights are the property of their respective owners.

Notice: Open Source Software

To obtain the corresponding source code under GPL, LGPL, MPL and other open source licences, please visit http://opensource.lge.com/

All referred licence terms, disclaimers and notices are available for download with the source code.

Accessories

These accessories are available for use with the your phone. (Items described below may be optional.)

Travel adaptor



Stereo headset



Quick Start Guide



Data cable



Battery



NOTE:

- Always use genuine LG accessories.
- Failure to do this may void your warranty.
- Accessories may vary in different regions.

Troubleshooting

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 that the SIM card is correctly inserted. | | | | |
| No 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. | | | | |
| Dropped network | Operator applied new services. | Check whether the SIM card is more than 6~12 months old. If so, change your SIM card at your network provider's nearest branch. Contact your service provider. | | | | |
| Codes do not match | To change a security code, you will need to confirm the new code by re-entering it. | If you forget the code, contact your service provider. | | | | |
| | The two codes you have entered do not match. | | | | | |
| No applications can be set | Not supported by service provider or registration required. | Contact your service provider. | | | | |

Troubleshooting

| Message | Possible causes | Possible corrective measures | | | | | |
|------------------------|---|--|--|--|--|--|--|
| | Dialling error | New network not authorized. | | | | | |
| Calls not available | New SIM card inserted. | Check for new restrictions. | | | | | |
| | Pre-paid charge limit reached. | Contact service provider or reset limit with PIN2. | | | | | |
| Phone cannot | On/Off key pressed too briefly. | Press the On/Off key for at least two seconds. | | | | | |
| on | Battery is not charged. | Charge battery. Check the charging indicator on the display. | | | | | |
| | Battery is not charged. | Charge battery. | | | | | |
| | Outside temperature is too hot or cold. | Make sure phone is charging at a normal temperature. | | | | | |
| Charging error | Contact problem | Check the charger and its connection to the phone. | | | | | |
| | No voltage | Plug the charger into a different socket. | | | | | |
| | Charger defective | Replace the charger. | | | | | |
| | Wrong charger | Use only original LG accessories. | | | | | |

| Message | Possible causes | Possible corrective measures |
|---|---|---|
| Number not allowed | The Fixed dialling number function is on. | Check the Settings menu and turn the function off. |
| Impossible to receive / send SMS & photos | Memory full | Delete some messages from your phone. |
| 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 you are not in vibration or silent mode. |
| Hangs up or freezes | Intermittent software problem | Try to perform a software update via the website. |

FAQ

| Category Sub-Category | Question | Answer | | | | | | |
|---|--|--|--|--|--|--|--|--|
| BT Bluetooth Devices | What are the functions available via Bluetooth | You can connect a Bluetooth audio device such as a Stereo/Mono headset or Car Kit. Also, when the FTP server is connected to a compatible device, you can share content stored on the storage media. | | | | | | |
| Data Contacts Backup | How can I backup Contacts? | The Contacts data can be synchronized between your phone and Gmail™. | | | | | | |
| Data Synchronization | Is it possible to set up one-way sync with Gmail? | Only two-way synchronization is available. | | | | | | |
| Data Synchronization | ls it possible to synchronize all email folders? | The Inbox is automatically synchronized. You can view other folders by tapping (i) and select Folders to choose a folder. | | | | | | |
| Google™ Service Gmail Log-In | Do I have to log into Gmail whenever I want to access Gmail? | Once you have logged into Gmail, no need to log into Gmail again. | | | | | | |
| Google™ Service Google Account | Is it possible to filter emails? | No, email filtering is not supported via the phone. | | | | | | |
| Phone Function E-mail | What happens when I execute another application while writing an email? | Your email will automatically be saved as a draft. | | | | | | |

| Category Sub-Category | Question | Answer | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Phone Function Ringtone | Is there a file size limitation for when I want to use MP3 file as ring tone? | There is no file size limitation. | | | | | | |
| Phone Function Message Time | My phone does not display the time of receipt for messages older than 24 hrs. How can I change this? | You will only be able to see the times for messages received the same day. | | | | | | |
| Phone Function Navigation | Is it possible to install another navigation application on my phone? | Any application that is available at Play Store™ and is compatible with the hardware can be installed and used. | | | | | | |
| Phone Function Synchronisation | Is it possible to synchronize my contacts from all my email accounts? | Only Gmail and MS Exchange server (company email server) contacts can be synchronized. | | | | | | |
| Phone Function Wait and Pause | Is it possible to save a contact with Wait and Pause in the numbers? | If you transferred a contact with the W & P functions saved into the number, you will not be able to use those features. You will need to re-save each number. How to save with Wait and Pause: 1. From the Home screen, tap the Phone icon . 2. Dial the number, then tap . 3. Tap Add 2-sec pause or Add wait . | | | | | | |
| Phone Function Security | What are the phone's security functions? | You are able to set the phone to require that an Unlock Pattern be entered before the phone can be accessed or used. | | | | | | |

FAQ

| Category Sub-Category | Question | Answer | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Phone Function Unlock Pattern | How do I create the Unlock Pattern? | From the Home screen, tap and hold the Recent Key Recent Key Signal and the second s | | | | | | |

| Category Sub-Category | Question | Answer | | | | | | |
|--|--|---|--|--|--|--|--|--|
| Phone Function Unlock Pattern | What should I do if I forget the unlock pattern and I didn't create my Google account on the phone? | If you have forgotten your pattern: If you logged into your Google account on the phone but failed to enter the correct pattern 5 times, tap the forgot pattern button. You are then required to log in with your Google account to unlock your phone. If you have not created a Google account on the phone or you have forgotten it, you will have to perform a hard reset. Caution: If you perform a factory reset, all user applications and user data will be deleted. Please remember to backup any important data before performing a factory reset. | | | | | | |
| Phone Function Memory | Will I know when my memory is full? | Yes, you will receive a notification. | | | | | | |
| Phone Function Language Support | ls it possible to change my phone's language? | The phone has multilingual capabilities. To change the language: 1. From the Home screen, tap and hold the Recent Key and tap System settings. 2. Tap General tab > Language & input > Language. 3. Tap the desired language. | | | | | | |
| Phone Function VPN | How do I set up a VPN? | VPN access configuration is different for each company. To configure VPN access from your phone, you must obtain the details from your company's network administrator. | | | | | | |

FAQ

| Category Sub-Category | Question | Answer | | | | | |
|---|---|---|--|--|--|--|--|
| Phone Function Screen time out | My screen turns off after only 15 seconds. How can I change the amount of time for the backlight to turn off? | From the Home screen, tap and hold the Recent Key . Tap System settings > Display tab. Tap Screen timeout. Tap the preferred screen backlight timeout time. | | | | | |
| Phone Function Wi-Fi & mobile network | When Wi-Fi and mobile network are both available, which service will my phone use? | When using data, your phone may default to the Wi-Fi connection (if Wi-Fi connectivity on your phone is set to On). However, there will be no notification when your phone switches from one to the other. To know which data connection is being used, view the mobile network or Wi-Fi icon at the top of your screen. | | | | | |
| Phone Function Home screen | Is it possible to remove an application from the Home screen? | dusthin icon annears at the ton right hand | | | | | |
| Phone Function Application | I downloaded an application and it causes a lot of errors. How do I remove it? | From the Home screen, tap and hold the Recent Key . Tap System settings > General tab > Apps > DOWNLOADED. Tap the application, then tap Uninstall. | | | | | |
| Phone Function Charger | Is it possible to charge my phone using a USB data cable without installing the necessary USB driver? | Yes, the phone will be charged by the USB cable regardless of whether the necessary drivers are installed or not. | | | | | |
| Phone Function Alarm | Can I use music files for my alarm? | Yes. In the Alarm clock setting, select the song as the Alarm sound. | | | | | |

| Category Sub-Category | Question | Answer | | | | | |
|---|--|--|--|--|--|--|--|
| Phone Function Alarm | Will my alarm be audible if the phone is turned off? | No, this is not supported. | | | | | |
| Phone Function Alarm | If my ringer volume is set to Off or Vibrate, will I hear my alarm? | Your alarm is programmed to be audible even in these scenarios. | | | | | |
| Recovery Solution Hard Reset (Factory Reset) | How can I perform a factory reset if I can't access the phone's setting menu? | If your phone does not restore to its original condition, use a hard reset (factory reset) to initialize it. | | | | | |

| ••••• | ••••• | • • • • • | • • • • • | • • • • • • | • • • • • | • • • • • | •••• | | •••• | • • • • • | • • • • • | • • • • • | • • • • • | • • • • • | • • • • | •••• |
|-------|-------|-----------|-----------|-------------|-----------|-----------|------|-----------|------|-----------|-----------|-----------|-----------|-----------|---------|------|
| ••••• | ••••• | | •••• | ••••• | •••• | | •••• | | •••• | • • • • • | • • • • • | • • • • • | | | •••• | •••• |
| ••••• | ••••• | | •••• | | •••• | | •••• | | •••• | | | | | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | | •••• | | •••• | • • • • • | • • • • • | • • • • • | | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | •••• | ••••• | •••• | | •••• | | •••• | | • • • • • | • • • • • | | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | • • • • • | •••• | | •••• | • • • • • | • • • • • | • • • • • | • • • • • | • • • • • | •••• | •••• |
| ••••• | | | ••••• | | | | | | | | | | | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | • • • • • | •••• | • • • • • | •••• | • • • • • | • • • • • | • • • • • | • • • • • | • • • • • | •••• | •••• |
| ••••• | ••••• | ••••• | ••••• | ••••• | •••• | | •••• | | •••• | | | | | | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | ••••• | •••• | | •••• | | •••• | • • • • • | • • • • • | • • • • • | | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | ••••• | •••• | | •••• | | •••• | | • • • • • | • • • • • | | • • • • • | •••• | •••• |
| ••••• | ••••• | | ••••• | • • • • • • | •••• | | •••• | | •••• | | | | | | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | | •••• | | •••• | | | | | | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | | •••• | | •••• | | | • • • • • | | • • • • • | •••• | •••• |
| ••••• | | | | | | | | | | | | | | | •••• | •••• |
| | ••••• | | | | | | | | | | | | | | •••• | •••• |
| ••••• | | | | | | | | | | | | | | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | • • • • • | •••• | | •••• | • • • • • | • • • • • | • • • • • | • • • • • | •••• | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | • • • • • • | •••• | • • • • • | •••• | | •••• | • • • • • | • • • • • | • • • • • | • • • • • | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | ••••• | •••• | | •••• | | •••• | | | | | | •••• | •••• |
| ••••• | ••••• | •••• | •••• | ••••• | •••• | • • • • • | •••• | | •••• | • • • • • | • • • • • | • • • • • | • • • • • | • • • • • | •••• | •••• |
| ••••• | ••••• | | •••• | ••••• | •••• | | •••• | | •••• | • • • • • | • • • • • | • • • • • | • • • • • | • • • • • | •••• | •••• |
| ••••• | ••••• | •••• | ••••• | ••••• | •••• | | •••• | | •••• | | • • • • • | • • • • • | | • • • • • | •••• | •••• |
| | | | | | | | | | | | | | | | | |



