

S E C O N D EDITION

Android™ Tips and Tricks



COVERS

Android 5
(Lollipop) and
Android 6
(Marshmallow)
devices

QUE®

Guy Hart-Davis

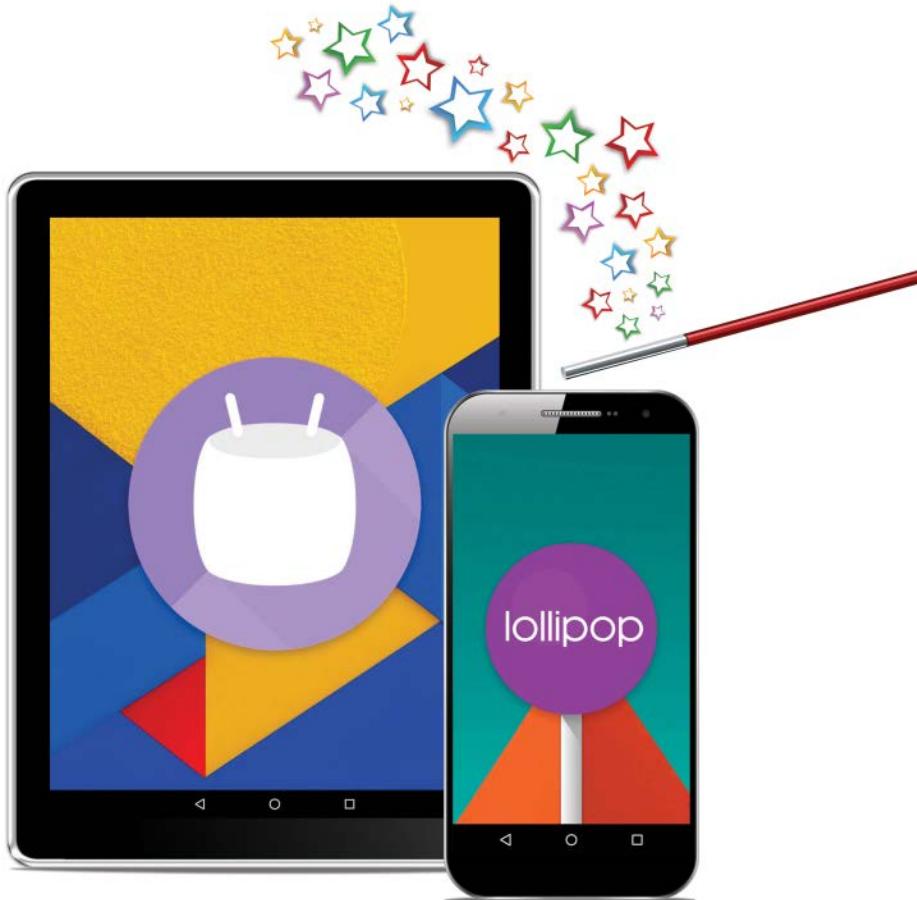
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Android™ Tips and Tricks

Second Edition



Guy Hart-Davis

QUE®

800 East 96th Street
Indianapolis, Indiana 46240 USA



ANDROID TIPS AND TRICKS

SECOND EDITION

GUY HART-DAVIS

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ABOUT THE AUTHOR

Guy Hart-Davis is the author of *Windows 10 Tips and Tricks* and the coauthor of *My Samsung Galaxy Note 5*, both from Que.

DEDICATION

I dedicate this book to my son, Edward, who doggedly tests Android[†] hardware and software to destruction so that I don't have to.

[†] and other!

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Introduction

This short introduction is intended to make sure you know the essentials for navigating your Android device.

If you're already familiar with Android, feel free to skip the Introduction and dive straight into Chapter 1, "Getting Up to Speed with Android"—or into whichever chapter will be most helpful to you.

GRASPING THE ESSENTIALS OF ANDROID NAVIGATION

Google has made Android as easy to navigate as possible using straightforward taps and gestures on the touch screen.

This section covers navigating the lock screen, the Home screen, and the Apps screen; opening the Notifications panel and the Quick Settings panel; and opening the Settings app.





NOTE This book focuses on Android version 5, which is known as Lollipop, and Android version 6, which is known as Marshmallow. Earlier versions of Android, such as KitKat (version 4.4) and Jelly Bean (versions 4.1–4.3), have different features and respond in different ways.

NAVIGATING THE LOCK, HOME, AND APPS SCREENS

As you work with your device, you will likely use three screens the most. These are the lock screen, which protects your security; the Home screen, which is your home base in Android; and the Apps screen, from which you launch the apps you want to use.

UNLOCKING THE LOCK SCREEN

When you start your Android device, it normally displays the lock screen. This security screen has two purposes: to prevent Android from responding to accidental touches on the screen and (optionally) to make the user authenticate himself by using the unlock method that the owner has set.

You can apply different unlock methods to the lock screen. The default unlock move is a simple swipe that provides no security at all, but you can apply strong security by requiring a PIN or passcode. The left screen in Figure I.1 shows the lock screen with security in place. The right screen in Figure I.1 shows the screen for entering a password to unlock the device.

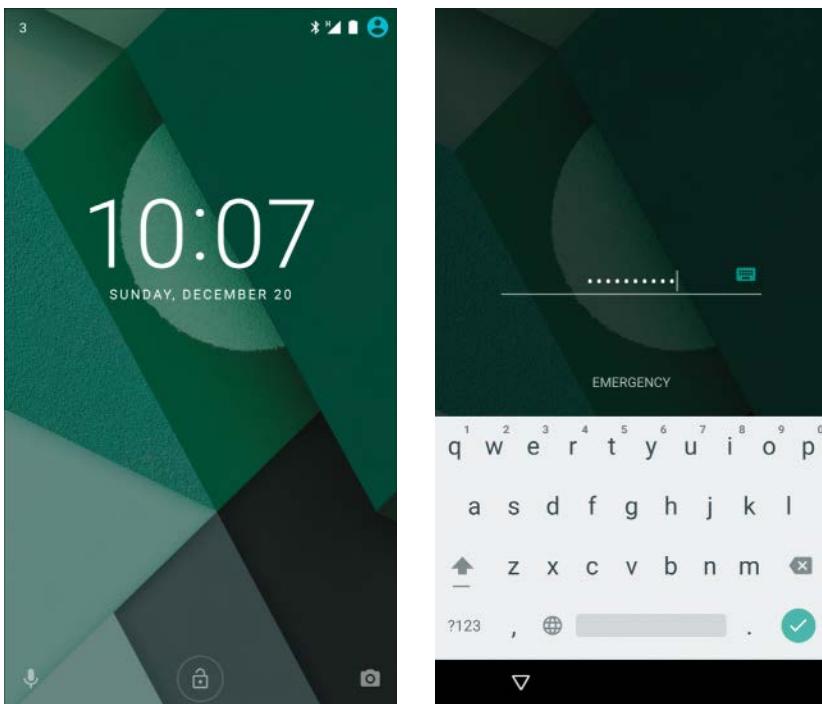


CAUTION You can turn off the lock screen by tapping the None button on the Choose Screen Lock screen in the Settings app. This move is seldom wise except for devices you are using for demonstration purposes.

GETTING AROUND THE HOME SCREEN AND USING THE BUTTONS

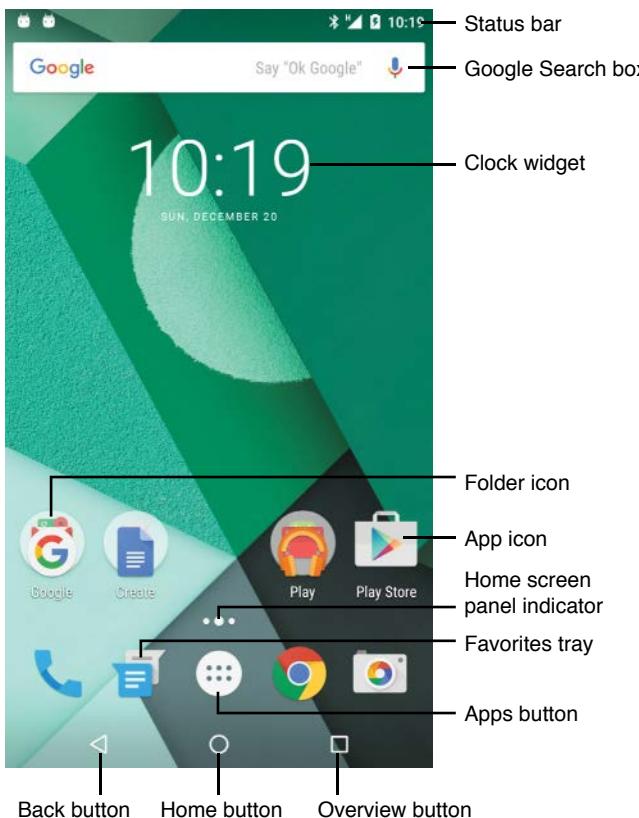
After you've unlocked your device, the Home screen appears. The Home screen is your base for taking actions in Android and typically contains several types of items. Figure I.2 shows a Home screen with its essential parts labeled:

- **Status bar.** The status bar appears at the top of the Home screen and most other screens.
- **Google Search box.** This box enables you to search quickly straight from the Home screen. You can tap the microphone icon and speak your search terms.

**FIGURE I.1**

Swipe the lock icon at the bottom of the lock screen (left) to start unlocking your device. On the screen that appears, perform your unlocking move, such as entering your password on the password screen (right).

- **Clock widget.** A *widget* is a small, single-purpose app, such as the Clock widget shown here. You can put any of various widgets on the Home screen to display the information you find useful or entertaining.
- **App icon.** You can place icons for apps on the Home screen so that you can access them quickly.
- **Folder icon.** You can put your Home screen icons into folders to keep them organized.
- **Home screen panel indicator.** The Home screen consists of a series of panels that you can scroll among by swiping or dragging left or right. The larger dot shows the current panel in the series of panels.
- **Apps button.** Tap this button to display the Apps screen (discussed in the next section).
- **Favorites tray.** This tray contains a handful of icons for apps that you want to have available on every Home screen panel.

**FIGURE I.2**

The Home screen consists of a series of horizontal panels that give you access to many different Android features.

- **Back button.** Tap this button to return to the previous screen or to cancel out of a dialog box.
- **Home button.** Tap this button to display the Home screen. Android displays whichever Home screen panel you used last. Tap the Home button again to display your main Home screen panel.



TIP Swipe up across the Home button to access the Google Now information feature. In Marshmallow, you can tap and hold the Home button to bring up the Now on Tap feature.

- **Overview button.** Tap this button to display the Overview screen. You can then tap the app or window you want to display.

USING THE APPS SCREEN

From the Home screen, tap the Apps button to display the Apps screen. This screen contains a list of apps. (See the left screen in Figure I.3.) If all the apps don't fit on the screen at once, swipe up to display further apps.

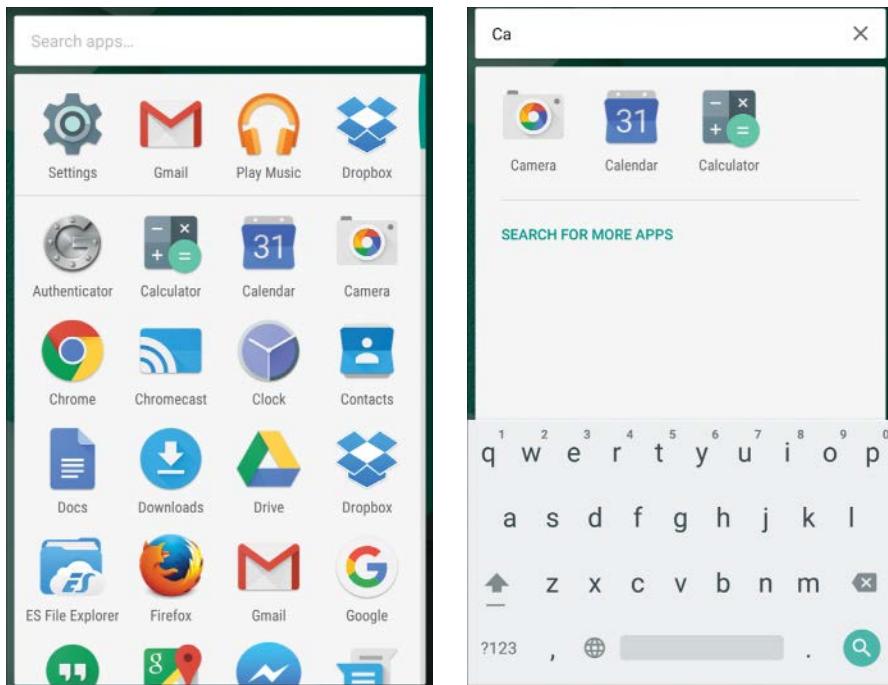


FIGURE I.3

On the Apps screen (left), drag or swipe up to find the app you want, and then tap its icon. You can locate an app by tapping the Search Apps box and typing the beginning of the app's name (right).

The Apps screen is easy to use:

- The top row shows apps you have recently used.
- The following rows show the full list of apps in alphabetical order.
- You can tap the Search Apps box at the top and start typing the name of the app you want. (See the right screen in Figure I.3.)

When you find the app you want to use, tap its icon. That app's screen then appears.

OPENING THE NOTIFICATIONS PANEL

The Notifications panel contains notifications raised by apps to alert you to events. For example, when you receive a message in Gmail, the Gmail app raises a notification in the Notifications panel. Similarly, when Android detects that a software update has become available, it displays a notification to let you know about the update.

To open the Notifications panel (shown in Figure I.4), drag or swipe down from the top of the screen with one finger. You can then view your notifications, deal with any that need your attention, and close the Notifications panel again by dragging or swiping upward.

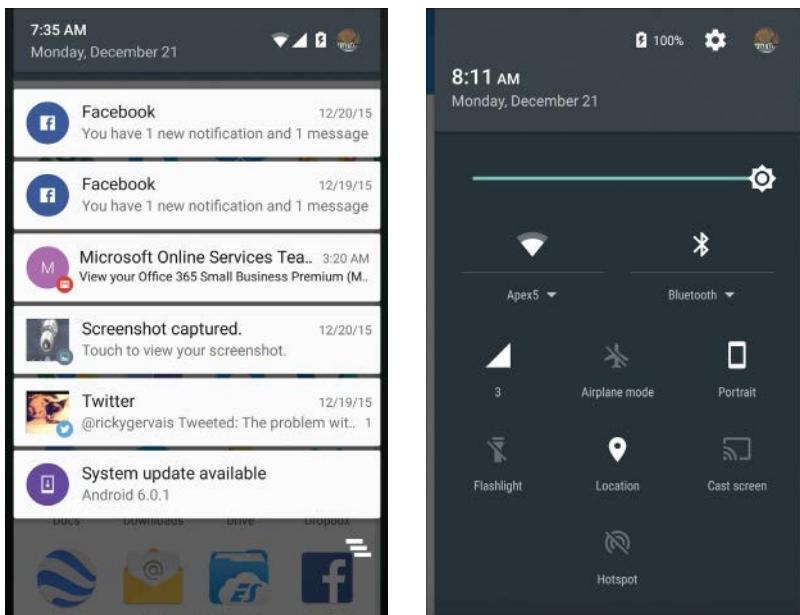


FIGURE I.4

Drag or swipe down from the top of the screen to open the Notifications panel (left). The Quick Settings panel (right) gives you instant access to essential settings.

OPENING THE QUICK SETTINGS PANEL

The Quick Settings panel is a screen that gives you swift access to frequently used settings. You can open the Quick Settings panel in one of two ways:

- Pull down from the top of the screen with two fingers.
- Open the Notifications panel and then tap the bar at the top.

The right screen in Figure I.4 shows the Quick Settings panel on a phone. To close the Quick Settings panel, drag or swipe up.

**TIP**

Tap at the top of the Quick Settings panel to switch to the Notifications panel.

OPENING THE SETTINGS APP

Android has a vast number of settings that you can customize to configure your device the way you want it. You configure most of the settings through the Settings app. You can open the Settings app in three easy ways, as explained next. From here on, this book tells you to “Open the Settings app” rather than telling you which way to open it.

The quickest way to open the Settings app is to use the Quick Settings panel:

1. Open the Quick Settings panel by pulling down from the top of the screen with two fingers.
2. Tap the Settings icon (the gear icon) to open the Settings app.

Alternatively, you can open the Settings app from the Notifications panel:

1. Pull down from the top of the screen with one finger to open the Notifications panel.
2. Tap the bar at the top to display the Quick Settings panel.
3. Tap the Settings icon (the gear icon) to open the Settings app.

Or you can simply open the Settings app from the Apps screen like any other app:

1. Tap the Home button to display the Home screen.
2. Tap the Apps icon to display the Apps screen.
3. Tap the Settings icon to open the Settings app.

**NOTE**

Some Android skins make major changes to the Settings app, so if your device uses a skin, you may need to find your own way to the settings. See Chapter 14, “Using Samsung TouchWiz,” for coverage of the changes in the Samsung TouchWiz skin.

USING THE NAVIGATION PANEL, MENUS, CONTROLS, AND DIALOG BOXES

To enable you to give commands easily and clearly, Android uses a large menu called the navigation panel; smaller menus; controls such as switches, check boxes, and radio buttons; and dialog boxes.

USING THE NAVIGATION PANEL

In Lollipop and Marshmallow, many apps use the navigation panel, a wide menu-like panel on the left side of the screen, to enable you to navigate the app and give commands.

To display the navigation panel, you either tap the Navigation Panel button (see the left screen in Figure I.5, which shows the Play Store app) or swipe right from the left edge of the screen. Tapping the Navigation Panel button is usually easier because some apps have laterally scrolling sections that accept the swipe gesture, which means you need to avoid such sections when you're swiping to open the navigation panel.

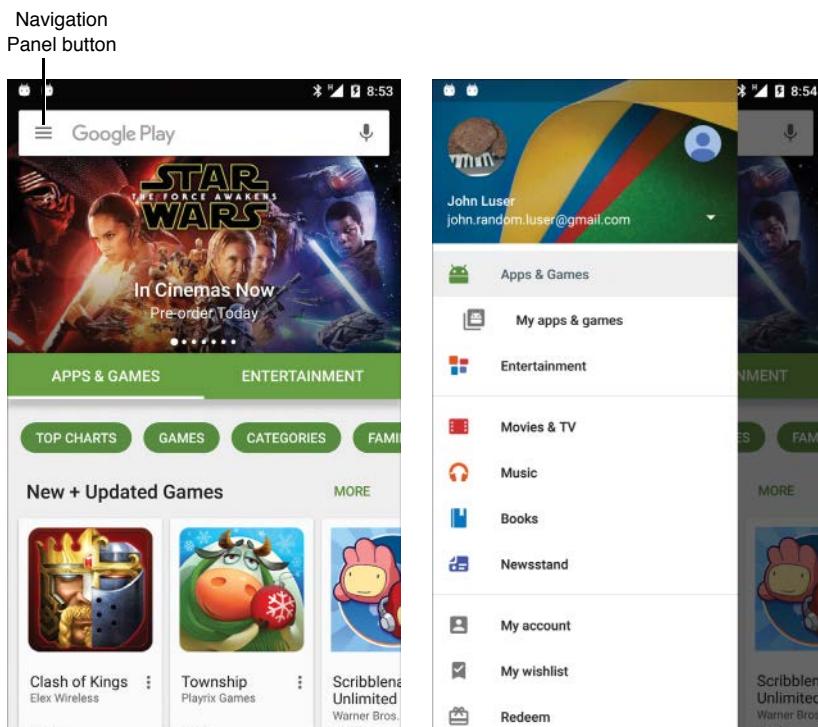


FIGURE I.5

Tap the Navigation Panel button (left) to display the navigation panel (right).

After the navigation panel is open, you can tap one of the buttons or other controls on it to take an action. (See the right screen in Figure I.5.) For example, you can tap the My Account button on the navigation panel in the Play Store app to display the My Account screen, on which you can configure settings.

If you decide not to take an action on the navigation panel, you can close it either by swiping the navigation panel to the left or by tapping in the app to the right of the navigation panel.

USING THE MENUS

Many apps include a Menu button that you can tap to display a menu of commands. For example, in Google's browser app, Chrome, you tap the Menu button (an icon with a vertical line of three dots) to display the menu (see Figure I.6), and then tap the command you want to use.

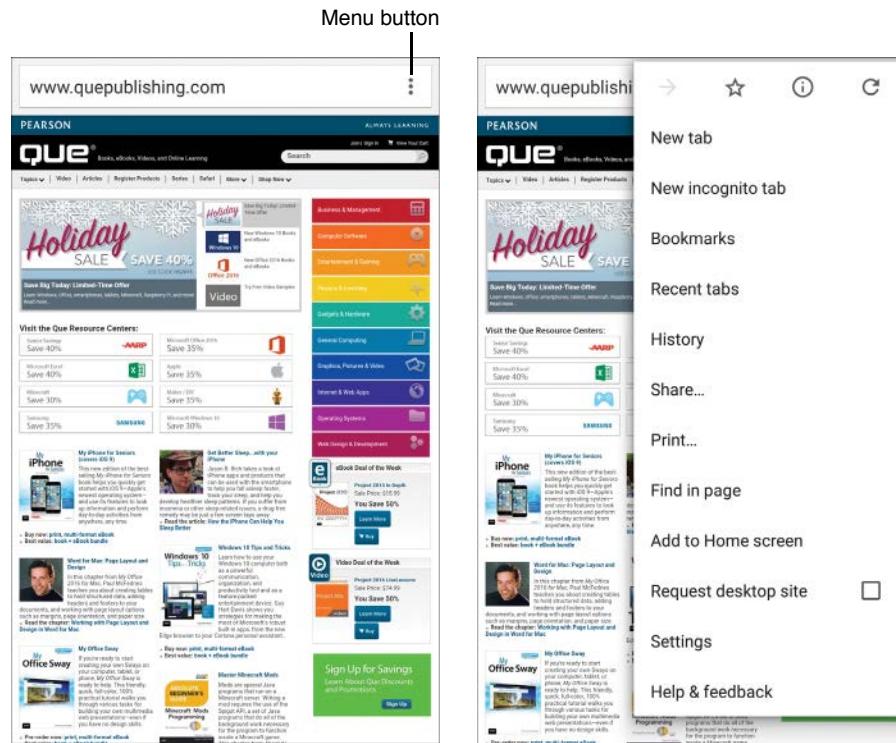


FIGURE I.6

Tap the Menu button (the three-dot icon, left) to open the menu (right), and then tap the command you need.

WORKING WITH SWITCHES, CHECK BOXES, AND RADIO BUTTONS

Android uses switches and check boxes to enable you to turn individual options on and off.

For example, in the left screen in Figure I.7, the Adaptive Brightness switch is set to Off and the Press Power Button Twice for Camera switch is set to On. In the right screen in Figure I.7, the Show Addresses and Credit Cards from Google Payments box is checked, indicating that this feature is enabled.

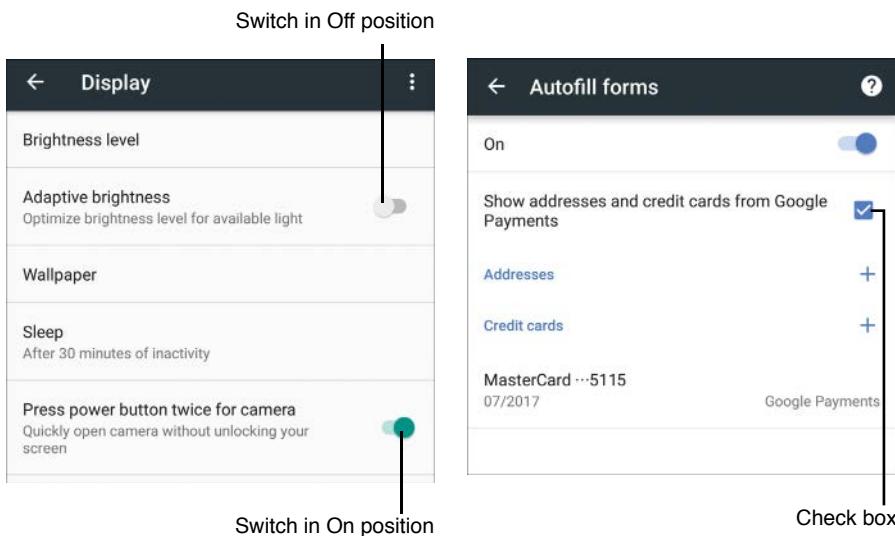


FIGURE I.7

Set a switch to On to enable a feature or to Off to disable it (left). Check a check box (right) to enable a feature.



NOTE This book uses the term *check* to mean tapping a box to put a check mark in it and the term *uncheck* to mean tapping a box to remove the check mark from it. If the box is already checked or unchecked (as appropriate), you don't need to change the setting.

Android uses groups of radio buttons, also called *option buttons*, to enable you to make a choice among two or more mutually exclusive options. For example, in the Prefetch Page Resources dialog box shown on the left in Figure I.8, the Only on Wi-Fi radio button is selected, showing the blue circle. Tapping the Always radio

button or the Never radio button deselects the radio button you tap and deselects the Only on Wi-Fi radio button; only one radio button in the group can be selected at any time.

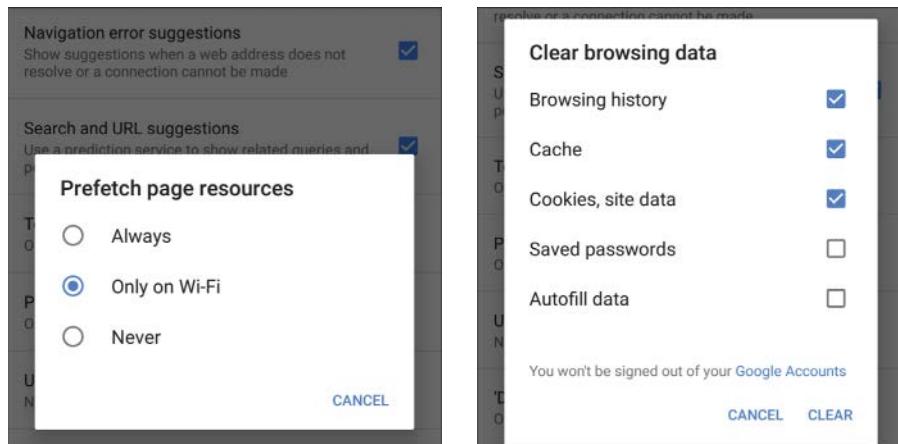


FIGURE I.8

Tap a radio button to select that option, deselecting whichever other option in the group is currently selected (left). Many dialog boxes contain command buttons, such as the Clear button and Cancel button shown in the Clear Browsing Data dialog box (right).

MAKING CHOICES IN DIALOG BOXES

When you need to make a decision, Android displays a dialog box to present the choices clearly. You can't take other actions until you have dismissed the dialog box.

If a dialog box contains only radio buttons, tapping a radio button closes the dialog box.

Otherwise, you normally tap a command button, such as the OK button or the Cancel button, to dismiss the dialog box. For example, in the Clear Browsing Data dialog box (see the right screen in Figure I.8), you tap the five check boxes to specify which of your browsing data you want to clear. The dialog box remains open until you tap the Clear button (to clear the selected items) or tap the Cancel button to close the dialog box without taking action.

Some dialog boxes appear only to confirm an action you have taken and so contain only an OK button.

USING THE TOUCHSCREEN

Android uses seven main gestures on the touchscreen:

- **Tap.** Tap the screen and then lift your finger.
- **Tap and hold.** Tap the screen and keep your finger on it, usually until a menu appears or another change occurs. This action is also called *long-press*.
- **Double-tap.** Tap the screen twice in rapid succession.
- **Drag.** Tap an item on the screen, keep your finger on the screen, and then drag the item to its destination. In many cases, you need to tap and hold for a moment before the item becomes free for dragging.
- **Swipe.** Move your finger left, right, up, or down across the screen.
- **Pinch in.** Place your finger and thumb (or two fingers, if you prefer) apart on the screen and then pinch them together. This action is often used for zooming out (for example, on a map or a photo).
- **Pinch out.** Place your finger and thumb (or two fingers) together on the screen and then spread them apart. This action is often used for zooming in.

PREVENTING THE SCREEN FROM ROTATING

Most Android devices include sensors (such as accelerometers) that detect the device's orientation. Android can automatically rotate the display to match the way the screen is pointing.

This automatic rotation is often handy, but you may want to turn it off at times, such as when you are holding your device nearly flat rather than upright. To turn off automatic rotation, open the Quick Settings panel by pulling down with two fingers from the top of the screen, and then tap the Auto-Rotate icon. When you tap it, the Auto-Rotate icon changes to the Portrait icon or the Landscape icon, depending on the device and its current orientation.

IN THIS CHAPTER

- Setting up your home screens
- Using a different launcher
- Securing your device with locking, location settings, and encryption

3

CUSTOMIZING YOUR DEVICE

In this chapter, you'll learn to customize your Android device. You'll start with the Home screens because setting these up the way you prefer can make a huge difference in how you use your phone or tablet.

Android gives you access to a wide range of settings, enabling you to configure your device to work the way you prefer. You can access most of these settings through the Settings app.

SETTING UP YOUR HOME SCREENS

Your Home screens are your base camp for getting things done in Android, so you will want to make them as useful as possible. This means adding the icons and widgets you use the most and arranging them into your preferred order. You may also want to add Home screens (or remove existing ones) and change the wallpaper.

**TIP**

This section explains how to customize the Home screens using stock Android. If your device has a skin, you may need to use different techniques. If you have a Samsung device, see Chapter 14, “Using Samsung TouchWiz,” for instructions on customizing the Home screens on the Samsung TouchWiz skin.

The way you customize Home screens depends on the version of Android and the launcher it is running.

**NOTE**

This chapter focuses on Marshmallow (Android 6) and Lollipop (Android 5) with Google Now Launcher. This is the default launcher for these versions of Android. However, if you have an older device that you have upgraded to Lollipop, you may need to install the Google Now Launcher and set it to be the default launcher. See the section “Using a Different Launcher,” later in this chapter, for instructions on changing launchers.

ADDING AND REMOVING HOME SCREENS

To give yourself space for your icons and widgets, you can create extra Home screens. If you no longer need a Home screen, you can remove it.

**NOTE**

Some versions of Android with certain launchers provide a set number of Home screens and don’t let you add or delete Home screens. If your version of Android restricts you in this way, consider installing a third-party launcher to enable yourself to add and delete Home screens.

Google Now Launcher makes it easy to add Home screens. Follow these steps:

1. Swipe left one or more times to display the last Home screen (the one on the right).
2. Tap and hold an icon to make it mobile, and then drag it to the right edge of the screen. Android automatically creates another Home screen.
3. Release the icon.

**TIP**

You can create further Home screens in the same way. Before you do, you must put at least one more icon on the new Home screen you’ve just created so that there will be at least one icon left on that Home screen when you drag an icon to create another Home screen.

To remove a Home screen with Google Now Launcher, you remove all the icons from it. Android then gets rid of the surplus Home screen automatically.

ADDING APPS TO YOUR HOME SCREENS

You can run any app from the Apps screen, but you'll probably want to put the apps you use most on your first Home screen for quick access.

Here's how to add an app's icon to a Home screen:

1. On the Home screen, tap the Apps icon to display the Apps screen.
2. Tap and hold the icon for the app you want to add to the Home screen. Thumbnails of the Home screens appear.
3. Drag the icon to the destination Home screen, position it where you want it, and then drop it.



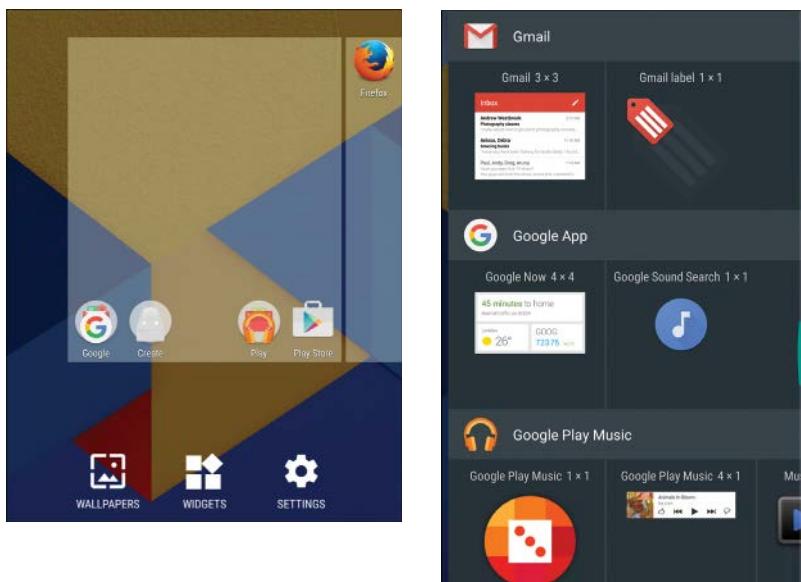
NOTE If you need to move the app's icon again on the Home screen, tap the icon and hold down until it becomes mobile, drag it to the new location, and then drop it.

ADDING WIDGETS TO YOUR HOME SCREENS

You can also add widgets, tiny apps that display specific information, to your Home screens. Android comes with an extensive selection of widgets built in. If you need widgets beyond these, you can find many more on the Play Store and other online sites.

Here's how to add a widget to a Home screen with Google Now Launcher:

1. Tap and hold open space on the Home screen to display the customization controls. (See the left screen in Figure 3.1.)
2. Tap the Widgets button to display the Widgets screen. (See the right screen in Figure 3.1.)
3. Swipe up until you find the widget you want to add. You may also need to swipe left to see all the widgets available for a particular app.

**FIGURE 3.1**

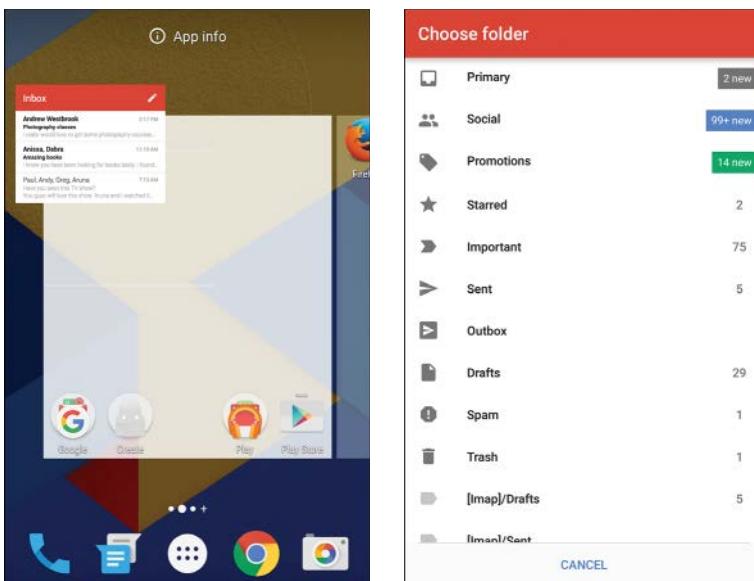
Tap and hold open space on the Home screen to display the customization controls (left), and then tap the Widgets button to display the Widgets screen (right).

4. Tap and hold the widget to pick it up. The Home screens then appear as thumbnails. (See the left screen in Figure 3.2.)



NOTE Each widget has its size to the right of its name, such as 1x1 for the Contacts widget for Google Contacts, 3x3 for the Gmail widget, and 4x1 for the Drive widget. You can use these sizes to judge where the widgets will fit on your Home screens.

5. Drag the widget to where you want it to appear, and then drop it.
6. If the widget displays any configuration options, choose suitable settings. For example, when you add the Gmail widget to a Home screen, you get to choose which folder to display in the widget. (See the right screen in Figure 3.2.)

**FIGURE 3.2**

When the Home screen thumbnails appear (left), drag the widget to the appropriate Home screen. For some widgets, you then must choose the content to display, such as choosing the folder for the Gmail widget (right).

ADDING WEB ADDRESSES TO YOUR HOME SCREENS

If you need to be able to quickly access particular websites, you can add their addresses to your Home screens. Follow these steps:

1. Open the Chrome browser and go to the web page or website.
2. Tap the Menu button to open the menu.
3. Tap the Add to Home Screen button to display the Add to Home Screen dialog box.
4. Either accept the default name for the icon or type a descriptive name that will enable you to identify it. Often, you'll need to shorten the name to make it useful.
5. Tap the Add button. Android adds the icon to your Home screen. You can then tap and hold it and move it to another location if you want.

ORGANIZING HOME SCREEN ITEMS INTO FOLDERS

Your device's Home screens provide enough space for an almost infinite number of icons, but you'll probably need to keep them organized in a human-friendly way.

To organize your icons, you can create folders either on the Home screens themselves or in the Favorites tray.

Here's how to create a folder:

1. Navigate to the Home screen that contains the icons. You can drag icons from one screen to another, but it's easier to start with them on the same screen.
2. Tap and hold an icon until it becomes mobile.
3. Drag the icon on top of another icon you want to put in the same folder. Android puts the two icons in a folder and assigns it the default name *Unnamed Folder*.



NOTE

When you drag one icon on top of another icon, a highlighted circle appears behind the second icon to show that the icon is in the right place. If you miss the target icon, it moves out of the way on the assumption that you are rearranging the icons rather than creating a folder.

4. Tap the folder to open it.
5. Tap the folder's default name (*Unnamed Folder*) and then type the name you want to give it.
6. Tap the check-mark button on the keyboard or tap outside the folder's name to apply the name.



TIP

To take an icon out of a folder, tap the folder to open it. Tap and hold the icon until it becomes mobile, and then drag it out of the folder to where you want it on the Home screen. To delete a folder, remove all its icons; when only one icon is left, the folder disappears, and that icon moves to the Home screen.

ADDING DROPBOX FOLDERS TO YOUR HOME SCREENS

If you've installed the Dropbox app on your device, you may want to give yourself an easy way to access key folders. To do so, add one or more instances of the Dropbox widget to your Home screen using the technique explained earlier in this

chapter. When you add the widget, Android prompts you to choose the folder that the widget will open. Tap the appropriate folder, and then tap the Create Shortcut button. Android gives the widget the name of the folder.

REPOSITIONING ITEMS ON YOUR HOME SCREENS

To reposition an item on a Home screen, tap and hold it until it becomes mobile, and then drag it to where you want to place it.

REMOVING ITEMS FROM YOUR HOME SCREENS

To remove an item from a Home screen, tap and hold the item's icon until the Remove button appears at the top of the screen. Drag the icon to the Remove button and drop it there.



NOTE

If the app you tap, hold, and drag on the Home screen is an app you've installed, the Uninstall button appears to the right of the Remove button. You can uninstall the app by dragging it to the Uninstall button and then tapping the OK button in the confirmation dialog box that opens.

REARRANGING YOUR HOME SCREENS

To rearrange your Home screens with Google Now Launcher, open the Home screens for customization, and then tap and hold the thumbnail for the Home screen you want to move. When it becomes mobile, drag it to its destination and drop it there.

SETTING THE WALLPAPER

To change the overall look of your Home screens, you can change the wallpaper. Android comes with a set of colorful wallpapers, and you can download other wallpapers to add variety. You can also use a photo of your own.



NOTE

Each Home screen uses the same wallpaper on stock Android. Some skins enable you to use different wallpapers on different Home screens.

**TIP**

The live wallpapers include motion, which can make the Home screens look more entertaining when you're not working in an app. However, because they take up more processing power, you should avoid them if you want maximum performance or maximum runtime on the battery.

Follow these steps to set the wallpaper with Google Now Launcher:

1. Tap and hold open space to open the Home screen for customization.
2. Tap the Wallpapers button to display the Wallpapers screen.
3. Tap the My Photos button if you want to use one of your own images for the wallpaper; when you find the image, tap it to preview it. Otherwise, scroll the list of wallpapers and tap the one you want to preview.
4. When you've selected the wallpaper you want, tap the Set Wallpaper button to apply it.

**TIP**

You can find vast numbers of wallpapers on both the Play Store and on the Web. For best results, make sure you get wallpapers of the right resolution for your device—for example, 1080x1920 for a device such as the Nexus 5X. If you're not sure of your device's resolution, look it up online.

**CAUTION**

Before downloading a wallpapers app from the Play Store, read user reviews to determine its quality. If you decide to install it, carefully review the permissions it requires. If it requires permissions it shouldn't need, such as accessing your contacts, cancel the installation.

USING A DIFFERENT LAUNCHER

A *launcher* is an app that enables you to launch other apps. The launcher controls the way your device's Home screen and other main screens appear, including any live widgets you place on them.

Android includes a default launcher that runs by default and which you summon each time you press the Home button. But you can install different launchers to change the way Android looks and acts on your device.

CHOOSING A LAUNCHER

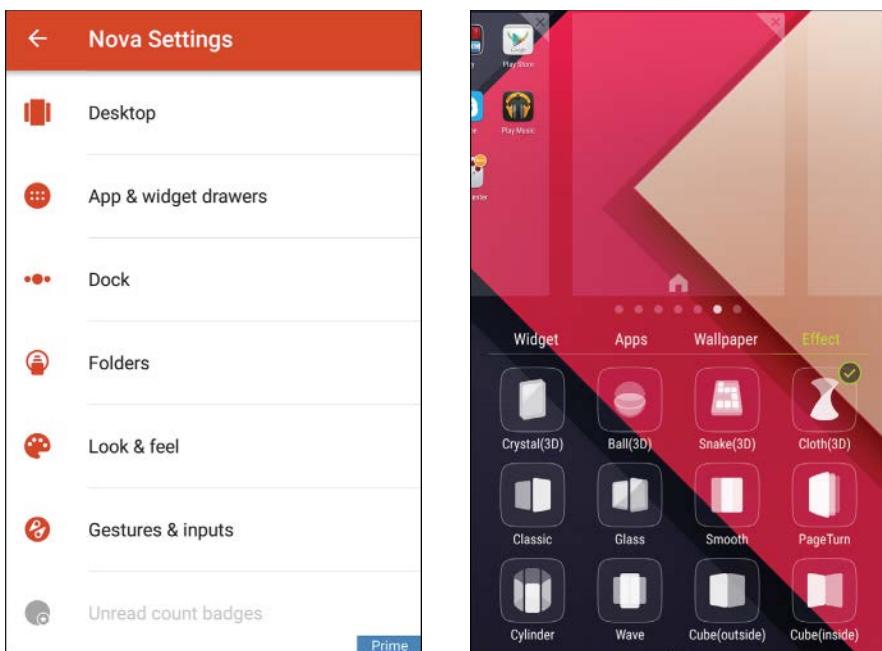
If you want to change your launcher, you have plenty of choices because developers have built many different launchers. You can find various launchers by opening the Play Store app, tapping the Apps button, and then searching for *launcher*.

Here are three of the top launchers at this writing:

- **Google Now Launcher.** Google Now Launcher is a launcher developed by Google that enables you to upgrade the launcher functionality on devices running new versions of Android. Stock versions of both Marshmallow and Lollipop come with Google Now Launcher as the standard launcher, but you also can try running it on skinned versions of Android. Google Now Launcher is free.
- **Nova Launcher.** Nova Launcher is a slick launcher that makes substantial changes to the Android user interface. The basic version of Nova Launcher is free and provides a slew of customization features, but the Prime version (which costs \$4.99) has even more, including the use of gestures on the Home screens. With Nova Launcher, you can even put small horizontal widgets in the app drawer if you find that helpful. The left screen in Figure 3.3 shows the main Nova Settings screen for Nova Launcher, which gives you an idea of what you can customize: the desktop, the app and widget drawers, the dock, the folders, the look and feel of the launcher, the gestures and inputs, and the unread count badges (a Prime feature).
- **Go Launcher.** Go Launcher offers a range of customizations, including themes that dramatically change the look of Android. Some themes are free; others you must pay for. Go Launcher includes shortcuts to many recommended apps, some of which are free. The right screen in Figure 3.3 shows the Effect panel for customizing Go Launcher. You'll probably want to start with the free version of Go Launcher; if you like it, consider upgrading to Go Launcher Prime, which costs \$5.99 and offers features such as removing ads, using a side dock to switch among running tasks, and a security lock that enables you to lock specific apps and settings.

! CAUTION

A launcher typically needs many permissions to run successfully. For safety, it is best to avoid launchers from sources other than the Play Store unless you are certain of their provenance, integrity, and coding.

**FIGURE 3.3**

From the Nova Settings screen (left), you can configure many areas of Nova Launcher. Go Launcher (right) also offers many settings, but its interface is completely different.

INSTALLING A LAUNCHER

To install a launcher, you download it from the Play Store like any other app. When the download completes, open the launcher by tapping the Open button on the app's screen in the Play Store app or by tapping the launcher's icon on the Apps screen.

Some launchers walk you through a setup routine on first run. For example, Nova Launcher prompts you to import items from your existing launcher, saving you the trouble of rebuilding your existing Home screens for the new launcher. If the launcher cannot import widgets, you will need to add them manually.

After you finish any setup routine, the launcher displays your Home screen in all its transformed glory (or otherwise), and you can start exploring the launcher.

SWITCHING AMONG LAUNCHERS

After installing multiple launchers, you can switch among them as needed by following these steps:

1. Open the Settings app and navigate to the Device section (shown on the left in Figure 3.4).
2. Tap the Home button in the Device section to display the Home screen. (See the right screen in Figure 3.4.)

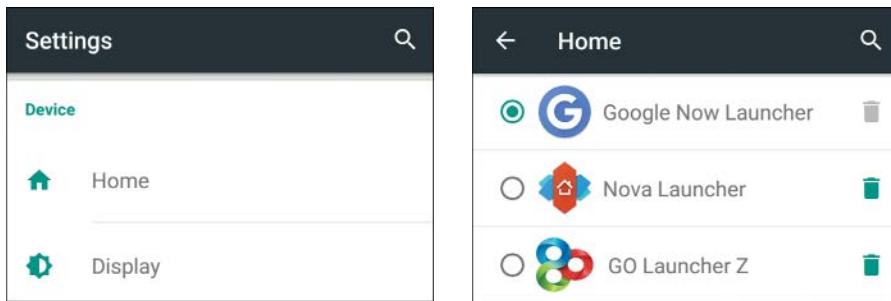


FIGURE 3.4

Use the Home screen in the Settings app to choose your default launcher. You can also delete any launcher you no longer want.



NOTE

The Home button appears in the Device section of the Settings screen only when multiple launchers are installed on your device. If your device has only Google Now Launcher, the Home button doesn't appear because you don't need it.

3. Tap the launcher you want to make the new default, selecting its radio button.
4. Tap the Home button. The Home screen appears, showing any customizations that the launcher makes automatically.

You can then use the launcher's controls to make further customizations. For example, to delete a launcher on Nova Launcher, tap the Delete button (the trash can) on the right of its button on the Home screen in the Settings app.

MAKING NO LAUNCHER THE DEFAULT

When you're experimenting with launchers, you may want to try making no launcher the default so that you can easily switch among the launchers. By removing your default launcher, you can make Android display the Select a Home App dialog box each time you tap the Home button, allowing you to choose the launcher you want to use next.

Here's how to remove your default launcher:

1. Open the Settings app.
2. Tap the Apps button in the Device section to display the Apps screen.
3. On Lollipop, swipe left twice to display the All screen. (If the launcher is one you've downloaded, you can use the Downloaded screen instead.)
4. Scroll down and find the launcher that's currently running. This example uses Nova Launcher.
5. Tap the launcher to display its App Info screen.
6. On Marshmallow, tap the Open by Default button to display the Open by Default screen (shown on the left in Figure 3.5).

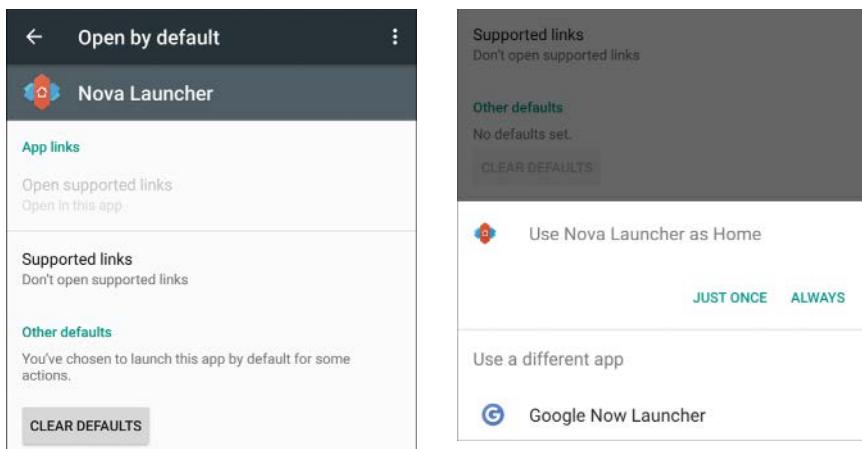


FIGURE 3.5

Tap the Clear Defaults button on the Open by Default screen in Marshmallow (left) or the App Info screen in Lollipop to clear your default launcher. When you tap the Home button, you can then choose which launcher to use (right).

7. Tap the Clear Defaults button. There's normally no response to this move except for a quick blink of the button, but if you see a confirmation dialog box, tap the OK button or its functional equivalent to confirm you want to clear the default launcher.

8. Tap the Home button. Because you've cleared the defaults, an untitled dialog box opens prompting you to choose a launcher. The right screen in Figure 3.5 is an example of this dialog box. The launcher you've just cleared—in this case, Nova Launcher—appears at the top, with a Just Once button and an Always button below it. The lower section of the dialog box shows the Use a Different App list, which contains your other launchers.
9. Tap the button for the launcher you want to use. In this example, you'd tap Google Now Launcher to switch to the Google Now Launcher. Because you're not tapping an Always button, this is only a temporary switch, so each time you tap the Home button, the dialog box appears again.

When you decide which launcher you want to use, tap the Home button to display the dialog box for choosing the launcher. If the launcher you want appears at the top of the dialog box, tap the Always button to make the launcher the default option. If not, tap the launcher in the Use a Different App list; then tap the Home button again to display the dialog box again, this time with the launcher you just tapped at the top. Now tap the Always button to set the default.



NOTE The rest of this book assumes that you are using Google Now Launcher because this is the default launcher for stock Marshmallow and Lollipop.

To set your default launcher on Samsung TouchWiz, open the Settings app, tap Applications to display the Applications screen, and then tap Default Applications to display the Default Applications screen. In the Set Defaults section, tap the Home button to display the settings screen called Home, tap the radio button for the launcher you want to use, and then press the Home button.

CONFIGURING INPUT OPTIONS

Android supports different input options to enable you to get text into your device using your preferred language and a keyboard that suits your needs. You can also input text using your voice with the Google Voice Typing feature.

To set up your input options, you work on the Language & Input screen in the Settings app. (See the left screen in Figure 3.6.) To display this screen, open the Settings app and tap the Language & Input button in the Personal section.

First, make sure the Language button at the top shows the language you want to use, such as English (United States). If not, tap this button to display the Language screen and then tap the correct language. You can tap the Search icon and search for the language if necessary.

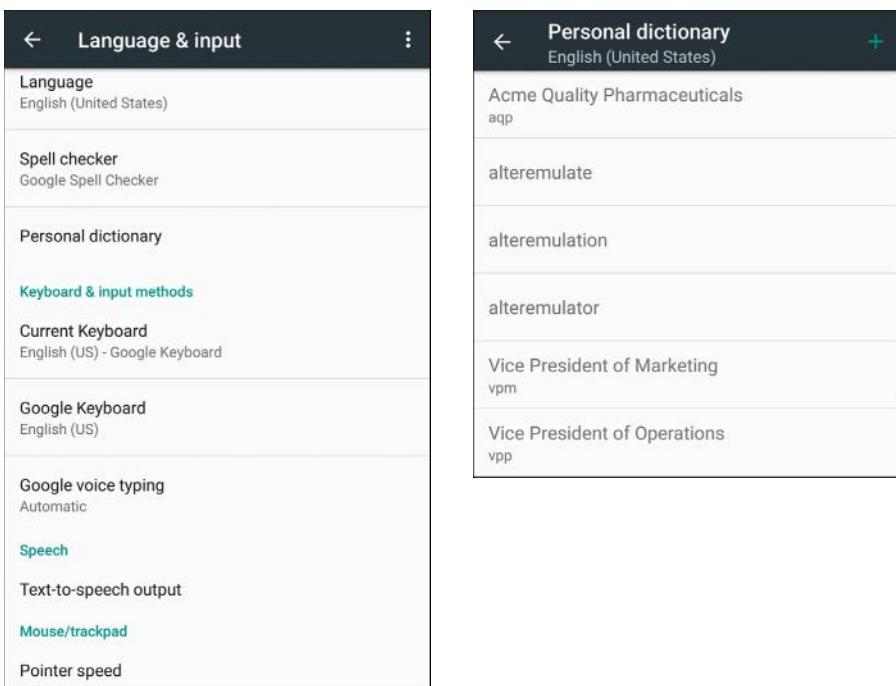


FIGURE 3.6

Use the *Language & Input* screen (left) to set your input language and configure input options. On the *Personal Dictionary* screen, you can set up text shortcuts or add words you don't want the spell checker to query.

Next, tap the Spell Checker button to display the Spell Checker screen. Here, you can set the switch at the top to On or Off to enable or disable spell checking. If you set the switch to On, you can also take three other actions:

- **Change the language.** Tap the Language button to set the language for spell checking. The default setting, Use System Language, works well in many cases.
- **Choose which spell checker to use.** If multiple radio buttons appear, tap the spell checker you want to use. If the only radio button is Google Spell Checker, the choice is made for you.
- **Configure the spell checker.** If the spell checker you use has a Settings button (the gear icon), tap this icon to display the Settings screen for the spell checker. You can then enable or disable any options as needed. For example, on the Google Spell Checker Settings screen, you can set the Look Up Contact Names switch to On if you want the spell checker to be able to look up names in your contact list to get them right.

Also at the top of the Language & Input screen, you can tap the Personal Dictionary button to display the Personal Dictionary screen. (See the right screen in Figure 3.6.) Here, you can tap the Add (+) button in the upper-right corner to add a text shortcut or a custom spelling to your personal dictionary. Alternatively, tap an existing entry to edit its contents or to delete it.

**TIP**

The Personal Dictionary has two features. First, you can create shortcuts to enable you to enter text quickly and accurately; for example, you might create a shortcut of **vpm** to enter **Vice President of Marketing** quickly. Second, you can add a word to stop the spell checker from querying it.

Next, in the Keyboard & Input Methods section, set up the keyboards and other input methods you want to use on your device. Here's what you can do:

- **Change the current keyboard.** Tap the Current Keyboard button to display the Change Keyboard dialog box, and then tap the radio button for the keyboard you want to use. If the keyboard you want doesn't appear, tap the Choose Keyboards button to display the Language & Input screen, and then set the switch to On for each keyboard you want to have available. Chapter 1, "Getting Up to Speed with Android," discusses some alternative keyboards you may want to try on your device.

**NOTE**

The Google Keyboard is normally the default keyboard, so its switch will be set to On unless you select a different keyboard. Google Voice Typing enables you to enter text by tapping the microphone button on the right side of the suggestion strip above the keyboard and then speaking into your device's microphone (or an attached microphone). Make sure the Google Voice Typing switch is set to On if you want to be able to use this feature.

- **Configure a keyboard.** Tap the keyboard's button to display its Settings screen, and then choose the settings you want. For example, the left screen in Figure 3.7 shows the Google Keyboard Settings screen, where you can set your input language (such as U.S. English), set preferences (such as auto-capitalization and vibration), configure text correction (see the right screen in Figure 3.7), and choose other options. Chapter 1 explains your choices on the Google Keyboard Settings screen.

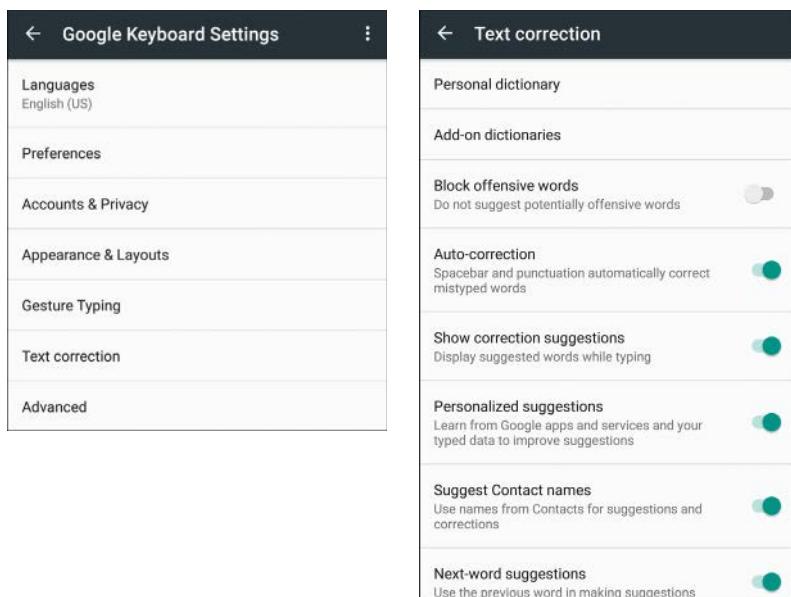


FIGURE 3.7

Choose options for a keyboard on its Settings screen, such as the Google Keyboard Settings screen (left), and the screens to which it gives access, such as the Text Correction screen (right).

CHANGING KEYBOARDS QUICKLY

You can change keyboards quickly from within an app that accepts text input. With the keyboard displayed, tap and hold the key to the left of the spacebar to display the Change Keyboard dialog box, and then tap the radio button for the keyboard you want. If the keyboard doesn't appear in the Change Keyboard dialog box, tap the Choose Keyboards button to go to the Language & Input screen, where you can add it.

CONFIGURING THE LOCK SCREEN

The lock screen is the screen that appears when you start your device or when you wake your device after sleep. You can choose different lock strengths or even turn off locking altogether; you can also configure the Smart Lock feature to allow you to easily unlock your device. You can display your owner information (or other information) on the lock screen to help someone who finds your device return it to you.

TAKING ACTIONS FROM THE LOCK SCREEN

By default, the lock screen in stock Android allows you to unlock your device, make an emergency call (swipe up and then tap the Emergency button), or open the Camera app (swipe the Camera icon up or to the left). However, because many manufacturers customize the lock screen, you may find that your device's lock screen offers more functionality, such as widgets for keeping on top of your communications.

On stock Marshmallow with some Nexus models, you can also press the Power button twice to open the Camera app quickly without unlocking your device. If this setting doesn't work, choose Settings, Display and then set the Press Power Button Twice for Camera switch to On. If this setting doesn't appear, your device doesn't support it.

CHOOSING THE BEST LOCKING METHOD

To keep your data safe, lock your device. Android offers four ways to unlock the screen, but only two are worth using if your device contains any personal or sensitive information, as almost all devices do. These are the four unlock methods:

- **Swipe.** You tap the lock icon on the lock screen and swipe your finger across the screen to unlock your device. Swipe provides no security at all, but it does prevent your device from becoming unlocked by accident in your pocket or bag.
- **Pattern.** You draw a pattern on a nine-dot grid on the screen to unlock your device. A pattern is useful only for light security. You can draw a complex pattern to make this harder for a determined attacker to break, but the result may be more difficult for you to use than a PIN or password.
- **PIN.** You type in a numeric personal identification number (PIN) and tap the Enter button to unlock your device. PIN is a good choice for medium security. The PIN must be at least four digits long (giving 10,000 possible combinations), but it is sensible to use eight digits (10,000,000 combinations) or more.



NOTE

If you enter the wrong PIN or password five times in succession, Android makes you wait 30 seconds before trying again. This delay is to make it awkward for someone to guess your PIN or password—for example, by entering the names of your family, friends, or pets. It also helps delay an attacker breaking your PIN by “brute force,” simply entering every possible PIN value in turn until stumbling on the correct one.

■ **Password.** You type in a password using any characters—letters, numbers, or symbols—but containing at least one letter. Password is the only choice for serious security on your device. Android requires the password to be at least four characters long, but you should consider eight characters a minimum to secure your device effectively. The longer the password, the harder it is for an attacker to break by brute force.

! CAUTION

Even a strong password may not protect your device against professional intrusion. Some law-enforcement agencies have automated tools for brute-force attacks on iOS devices (the iPhone, iPad, and iPod touch). These tools cut the device's power after a failed PIN attempt to avoid triggering the delay mechanism. It is likely that agencies have similar tools for cracking Android devices.

SETTING UP LOCKING ON YOUR DEVICE

Here's how to set up locking on your device:

1. Open the Settings app.
2. Tap the Security button in the Personal section to display the Security screen.

! NOTE

The screen locking settings may be in a different location on your device, such as a screen called Lock Screen or Security & Screen Lock.

3. Tap the Screen Lock button in the Screen Security section to display the Choose Screen Lock screen. If you have already applied a lock, you will need to use the unlocking method to proceed. For example, type your PIN and tap the Next button or the right-arrow button.
4. Tap the unlock method you want to use, and then follow through any screens that appear. For example, if you tap the Password button, you must type a password and then confirm it.

! NOTE

On Marshmallow, when you tap the Pattern button, the PIN button, or the Password button on the Choose Screen Lock screen, the Secure Start-Up screen appears, offering to apply further protection by requiring your

password before the device starts. Tap the Require Password to Start Device radio button if you want to implement this security mechanism, which is a good idea. Otherwise, tap the No Thanks radio button. Either way, tap the Continue button to proceed.

5. Back on the Security screen, tap the Automatically Lock button to display the Automatically Lock dialog box, and then tap the button for the delay between the device going to sleep and the screen locking. The best choice is Immediately, but you may want to have a short delay, such as 5 Seconds or 15 Seconds, if you find yourself needing to wake your device soon after you put it to sleep.
6. Also on the Security screen, set the Power Button Instantly Locks switch to On so that you can lock your device quickly by pressing the Power button.

Locking is now set up. To try it, press the Power button once to lock your device, press the Power button again to wake it, and then use the unlock method to unlock the device.

SETTING UP SMART LOCK

Android's Smart Lock feature allows you to set up other ways of unlocking your device than your pattern, PIN, password, or fingerprint. As of this writing, Smart Lock offers five smart ways to keep your device unlocked or unlock it automatically:

- **Trusted Devices.** You can specify one or more trusted devices whose presence allows your device to remain unlocked. Trusted devices use either NFC or Bluetooth. For example, if you wear a Bluetooth-capable watch, you can use that as a trusted device.
- **Trusted Places.** You can specify one or more trusted places—map locations—in which your device remains unlocked. For example, you can set up your home as a trusted place.
- **Trusted Face.** You can set up your device to unlock when its screenside camera detects you gazing lovingly at it.
- **Trusted Voice.** You can set up your device to unlock when it hears a voice that matches the voice model you set up.
- **On-Body Detection.** You can set up your device to remain unlocked while it detects you are holding it or carrying it.

UNDERSTANDING THE PITFALLS OF SMART LOCK

If you use your Android device extensively but want to keep your data safe, you'll need to unlock your device many times per day. Unlocking is vital for security, but it reduces your productivity by increasing the time it takes to start interacting with your phone or tablet.

Smart Lock is a great idea for helping overcome users' understandable reluctance to keep typing in a PIN or a complex passcode each time their device has locked. As explained in the main text, Smart Lock offers three smart tests for keeping your device unlocked (Trusted Devices, Trusted Places, and On-Body Detection) and two smart means of unlocking your device quickly and almost effortlessly (Trusted Face and Trusted Voice).

Unfortunately, all these five Smart Lock approaches have security problems—especially the three stay-unlocked methods.

A malefactor can defeat the Trusted Devices feature by removing a trusted device along with your Android device. To defeat the On-Body Detection feature, an attacker need only remove your Android device from your hand or take your purse (with your phone in it) from your shoulder.

Trusted Places is even worse. If you make home a trusted place, any of your family can use your Android device the moment you turn your back. If you make work a trusted place, any colleague can filch your device and start using it.

The two smart-unlock methods, Trusted Face and Trusted Voice, are better—but even so, you may not want to use them. With Trusted Face, someone who looks like you to the camera and its algorithms may be able to unlock your device. (A picture of you shouldn't work because Trusted Face includes a "liveness check" that makes sure the face's eyes blink.) Similarly, Trusted Voice is open to attacks using either similar voices or recordings of your voice.

Setting up Smart Lock is straightforward. Choose Settings, Security, Smart Lock to display the Smart Lock screen. (See the left screen in Figure 3.8.) You'll need to enter your password, PIN, or pattern to prove you're you.

Next, tap the button for the Smart Lock method you want to set up, and follow the prompts on the screens that appear. Here are brief notes on the Smart Lock methods:

- **Trusted Devices.** On the Trusted Devices screen (see the right screen in Figure 3.8), tap the Add Trusted Device button. On the Choose Device Type screen, tap the Bluetooth button or the NFC button, as appropriate.

For Bluetooth, you then select the device on the Choose Device screen. For NFC, you bring the NFC tag or device to within striking distance of the NFC chip in your Android device. Usually, you'll hear a bleep when the NFC chips connect.

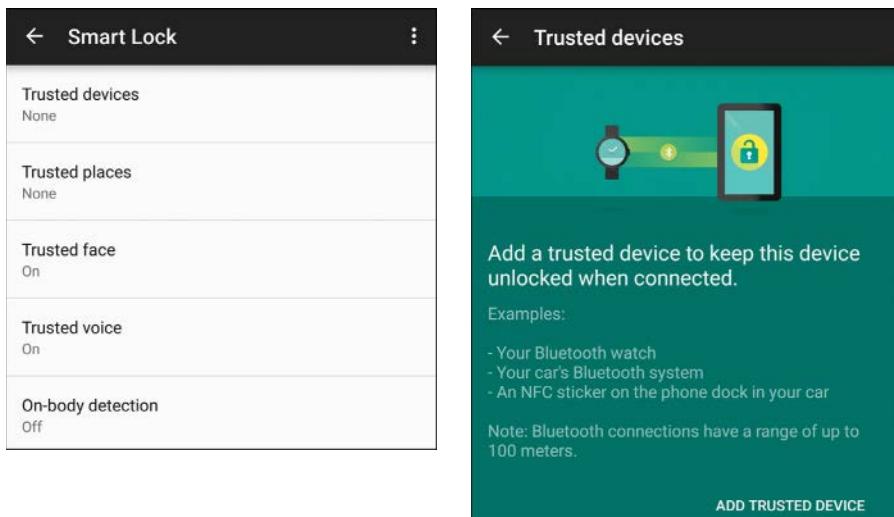


FIGURE 3.8

On the Smart Lock screen (left), tap the Smart Lock method you want to set up. Then use the screen that appears, such as the Trusted Devices screen (right), to configure the Smart Lock method.

- **Trusted Places.** On the Trusted Places screen, tap the place if it already appears. Otherwise, tap the Add Trusted Place button and then use the Pick a Place screen to select the place; Android suggests your current location, but you can move the location as needed.
- **Trusted Face.** On the Add a Trusted Face screen (in Marshmallow) or the About Trusted Face screen (in Lollipop), read the warnings and then tap the Set Up button. On the next screen, which is called Add a Trusted Face in both Marshmallow and Lollipop, tap the Next button, and then position your face in the dotted frame onscreen and wait while Android recognizes it.



TIP

After setting up Trusted Face, tap the Improve Face Matching button on the Trusted Face screen and go through the procedure a few more times to teach Android how your face looks from different angles, with or without glasses or makeup, or shaven and unshaven.

- **Trusted Voice.** On the Settings screen that appears, set the Always On switch (on Marshmallow) or the From Any Screen switch (on Lollipop) to On if it is set to Off. You can then set the Trusted Voice switch to On; you'll need to enter your pattern, password, or PIN, too.
- **On-Body Detection.** On the On-Body Detection screen, set the switch to On, and then tap the Continue button in the Keep in Mind dialog box that opens and warns you that someone else might be able to grab your device from you without causing automatic locking to take place.

**TIP**

After setting up your Smart Lock method or methods, test them to make sure they work as you expect them to.

PUTTING A MESSAGE OR OWNER INFORMATION ON THE LOCK SCREEN

You can display a message or your owner information on the lock screen. This works a little differently in Marshmallow than in Lollipop:

- **Marshmallow.** Choose Settings, Security, Lock Screen Message to open the Lock Screen Message dialog box. Type the message you want to display, tapping the Enter key as needed to create new lines, and then tap the Save button.
- **Lollipop.** Choose Settings, Security, Owner Info to display the Owner Info screen. Check the Show Owner Info on Lock Screen box, and then type the text you want to display.

**CAUTION**

Any information you display on the lock screen is accessible to anybody who can pick up your device and press the Power button. So you'll need to balance your desire for instant access to information against your need to keep that information private.

UNLOCKING YOUR DEVICE WITH YOUR FINGERPRINT

If your device has a fingerprint scanner, you can set up one or more of your fingers as an easy way of unlocking your device.

On those Google Nexus models that have fingerprint scanners, such as the Nexus 6P and the Nexus 5X, the fingerprint-unlock feature is called Nexus Imprint. To set it up, choose Settings, Security, Nexus Imprint; enter your PIN, pattern, or password to authenticate yourself; and then tap the Add Fingerprint button on the Nexus Imprint screen to start the process of adding a fingerprint. When you reach the Fingerprint Added screen, you can tap the Add Another button to add another finger.

The Nexus Imprint assigns the first fingerprint the default name Finger 1. When you finish adding fingerprints and return to the Nexus Imprint screen, you can tap a Finger button to open a dialog box that enables you to either add a more useful name (such as Right Index Finger) or delete the fingerprint.

**TIP**

Normally, it's a good idea to add multiple fingerprints so that you can unlock your device using either hand. If the fingerprint scanner is on the front of the device, you may want to add your thumbs as well.

Other manufacturers give different names to the fingerprint-unlocking feature on their devices and put them in different areas of the Settings app, so you may need to search for them. For example, on Samsung devices that have fingerprint readers, such as the Galaxy Note 5, choose Settings, Lock Screen and Security, Fingerprints to display the Fingerprints screen, and then tap the Add Fingerprint button.

CONFIGURING LOCK-SCREEN NOTIFICATIONS

Android enables you to choose whether to display notifications on the lock screen. Displaying notifications on the lock screen can be a time-saver, but it also risks exposing notifications to people you'd rather didn't see them. So Android gives you another choice: You can display notifications but hide any content that might be sensitive.

To configure lock-screen notifications, choose Settings, Sound & Notification. On the Sound & Notification screen, tap the When Device Is Locked button, and then tap the appropriate option in the pop-up menu: Show All Notification Content, Hide Sensitive Notification Content, or Don't Show Notifications at All.

**NOTE**

On a tablet running Marshmallow, the Hide Sensitive Notification Content option might not be available.

CHOOSING LOCATION SETTINGS TO PROTECT YOUR PRIVACY

Carrying a cell phone is like carrying a beacon that constantly tracks your location, and even a Wi-Fi-only tablet keeps track of your whereabouts so that it can provide map information and other location-dependent data. Besides, electronics devices are exposed to snooping, so it's essential to choose privacy settings that suit your needs.

Here's how to choose location settings:

1. Open the Settings app.
2. In the Personal section, tap the Location button to display the Location screen. (See the left screen in Figure 3.9.)
3. Set the Location switch to the On position to use location tracking.
4. Tap the Mode button to display the Location Mode screen. (See the right screen in Figure 3.9.)

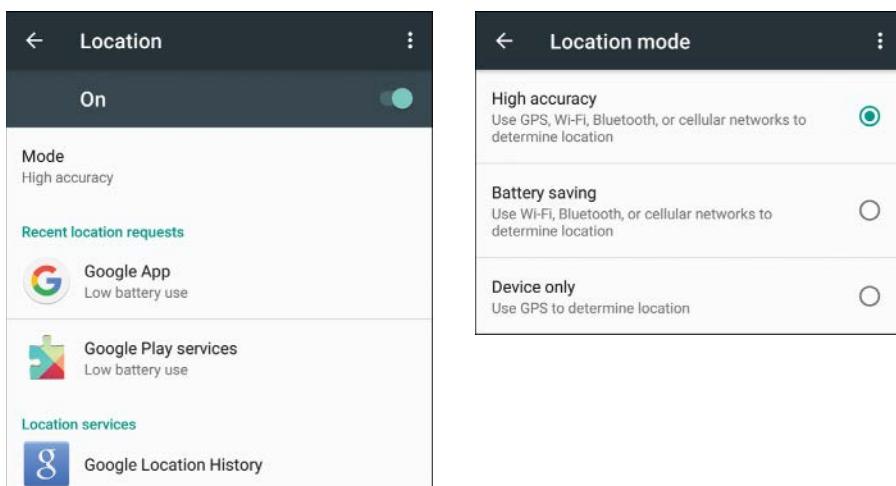
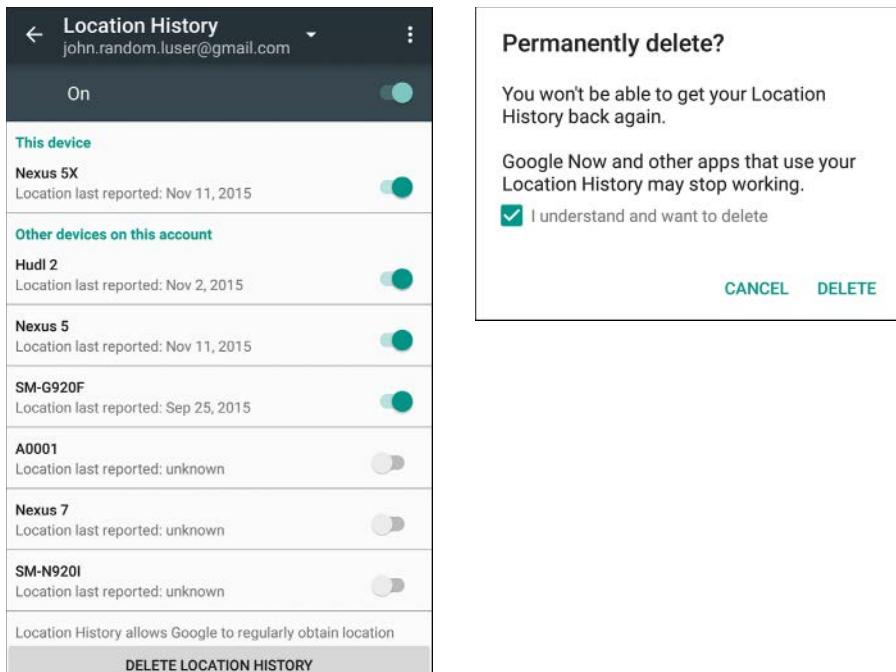


FIGURE 3.9

On the Location screen (left), you can turn location tracking On or Off, choose which mode to use, and configure Location Services. On the Location Mode screen, choose how you want Android to track your device's location.

5. Tap the button for the location mode you want to use: High Accuracy, Battery Saving, or Device Only.
6. Tap the arrow button or the Back button below the screen to return to the Location screen.

7. Review the apps and services in the Recent Location Requests list to make sure that all are apps you want to use location services.
8. In the Location Services list, tap Google Location History to display the Location History screen. (See the left screen in Figure 3.10.)

**FIGURE 3.10**

From the Location History screen (left), you can pause location history tracking or turn it off for a device. To delete your location history, tap the Delete Location History button and then tap the Delete button in the Permanently Delete dialog box (right).

**TIP**

If you have set up multiple Google accounts on your device, make sure the Location History screen is showing the account you want to configure. You can switch accounts by using the pop-up menu at the top of the screen.

9. If you want to pause location history, set the switch at the top of the Location History screen to Off, and then tap the OK button in the Pause Location History dialog box that opens.
10. Look at the devices shown on the Location History screen. You can set the switch for a device to Off to turn off location history for that device.

11. If you want to delete all the location history entries for this Google account, tap the Delete Location History button at the bottom of the Location History screen. In the Permanently Delete? dialog box that appears (see the right screen in Figure 3.10), check the I Understand and Want to Delete box, and then tap the Delete button.

! CAUTION

Deleting your location history entries may stop apps that use your location history from working. Google Now is the app most likely to be affected, but other apps also can be affected.

ENCRYPTING YOUR DEVICE

To protect your device against unauthorized access if you lose it, you can encrypt its contents. Encryption deliberately scrambles the content using an encryption key, leaving the content unreadable without the key to decrypt it.

MOST MARSHMALLOW DEVICES HAVE MANDATORY ENCRYPTION

If your device came with Marshmallow installed, chances are that it is already encrypted. In Marshmallow, Google made encryption mandatory for all new Android devices that meet certain technical and performance criteria, so unless your device doesn't meet them, it should be encrypted. But if you have upgraded your device from Lollipop to Marshmallow, you should check that encryption has been applied. And if your device is still running Lollipop, you should apply encryption if you haven't already done so.

To check whether your device is encrypted, choose Settings, Security and then look at the Encryption section of the Security screen. If the Encrypt Phone button or Encrypt Tablet button has an Encrypted readout, you're all set. If not, you can encrypt your device as explained in this section.

NOTE

Encryption can take an hour or more, depending on the amount of data your device contains and its processor speed; and if encryption fails to complete, your data may get corrupted. So Android ensures enough power is available by making the encryption controls unavailable unless the device's battery is fully charged *and* the device is connected to a power supply.

For the encryption to work, you must set a lock screen PIN or password to prevent others from unlocking your device. If you've already set a PIN or password, you're good to go; if not, go back to the section "Setting Up Locking on Your Device," earlier in this chapter, and set one or the other.

UNDERSTANDING THE DISADVANTAGES OF ENCRYPTION

Encryption has three disadvantages you should understand before you encrypt your device.

First, your device must decrypt data to present it to you, so it may run more slowly. Depending on the device's hardware, the difference may not be noticeable, but it may be enough to be annoying. This is why Google included performance criteria rather than making encryption mandatory for *all* Marshmallow devices.

Second, on Lollipop, you must enter your PIN or password to decrypt the storage each time you restart the device. On Marshmallow, you can choose whether to require the PIN or password at startup. (This feature is called Secure Start-Up.) This is easy enough, but it makes an extra step between booting your device and getting to use it.

Third, the only way to remove encryption is by restoring your device to factory settings. Doing this removes all your data and apps from the device, so you have to set it up again from scratch.

For a device that has multiple user accounts set up, there's a fourth disadvantage: Even if you encrypt the device from your owner account, the other accounts remain unencrypted and aren't required to set a PIN or passcode. This raises the possibility that an attacker can use the other accounts to attack your data.

! CAUTION

Android's encryption is strong enough to prevent civilian attackers from unencrypting it. However, you should assume that law-enforcement agencies and government security agencies have tools powerful enough to crack the encryption without breaking a serious sweat.

ENCRYPTING THE DATA ON YOUR DEVICE

Here's how to encrypt your device:

1. Fully charge the battery, and leave the device connected to power.
2. Open the Settings app.

3. Tap the Security button in the Personal section to display the Security screen.

**NOTE**

Depending on your device, the encryption settings may be in a different location. If you can't find them, search for "encrypt."

4. Tap the Encrypt Phone button or the Encrypt Tablet button (whichever one appears). The Encrypt Phone screen or the Encrypt Tablet screen appears. (Some devices have the Encrypt Device button and Encrypt Device screen instead.)
5. Read the information and then tap the Encrypt Phone button or the Encrypt Tablet button. The Confirm Your PIN screen or Confirm Your Password screen appears.

**NOTE**

If your device doesn't have a PIN or password set, the No Lock Screen PIN or Password dialog box opens, telling you that you need to set a PIN or password. Turn back to the section "Setting Up Locking on Your Device," earlier in this chapter, and return when you have set a PIN or password.

6. Type your PIN or password.
7. Tap the Continue button. The Encrypt screen appears, warning you that encryption is irreversible and that your device will restart several times during the encryption process.
8. Tap the Encrypt Phone button or the Encrypt Tablet button. Android starts the encryption process. You'll see the Encrypting screen with a progress readout as it works.
9. When the Type Password to Decrypt Storage prompt appears, type your PIN or password and tap the Done button on the keyboard. Android then decrypts your data, the lock screen appears, and you can type your PIN or password (again) to unlock the device as usual.

**NOTE**

If you have a PIN rather than a password, don't worry that the Type Password to Decrypt Storage prompt asks for a password. Type in your PIN, and all will be well.

**TIP**

If encryption fails on a tablet that has multiple user accounts set up, try updating to the latest version of Android before encrypting the tablet.

DECRYPTING THE DATA ON YOUR DEVICE

The only way to decrypt the data on your device is to perform a factory data reset. This move wipes all your apps and data off your device and restores it to its original settings.

**CAUTION**

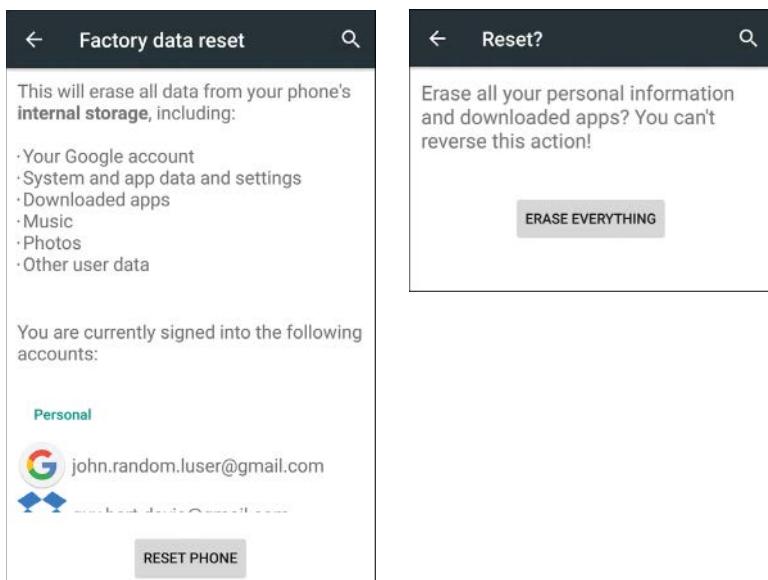
Back up your device's data to your computer or to an online account—or, better, to both—before performing a factory data reset.

**TIP**

You may want to perform a factory data reset before selling your phone or tablet or giving it to someone else.

Here's how to perform a factory data reset:

1. Open the Settings app.
2. Tap the Backup & Reset button in the Personal section to display the Backup & Reset screen.
3. Tap the Factory Data Reset button. The Factory Data Reset screen appears. (See the left screen in Figure 3.11.)
4. The Confirm Your PIN screen or Confirm Your Password screen appears.
5. Type your PIN or password.
6. Tap the Continue button. The Reset screen appears, displaying a final, excited warning. (See the right screen in Figure 3.11.)
7. Tap the Erase Everything button. The Power Off dialog box opens for a few seconds. The device then shuts down and restarts. The Erasing screen appears while Android erases the data.

**FIGURE 3.11**

On the Factory Data Reset screen (left), tap the Reset Phone button or Reset Tablet button. On the Reset screen (right), tap the Erase Everything button.

Android then resets the operating system to factory defaults and displays the Welcome screen. You can then set up your device again as you did when you first got it.



TIP The quickest and easiest way to get your device up and running again is to restore data from your Google account to it. Tap the Yes button on the Got Google screen, and then type your email address and password on the Sign In screen. When the Google Services screen appears, check the box called “Back Up Your Data to a Google Account. Restore Previous Backups to This Device.”

PERFORMING A HARD RESET

In addition to the factory data reset explained in the previous section, there's another type of reset called a *hard reset*. A hard reset is a move you typically perform when your device won't start correctly; for example, it crashes while loading Android.

FIND SPECIFIC INSTRUCTIONS FOR YOUR DEVICE BEFORE PERFORMING A HARD RESET

Exactly how you perform a hard reset depends on the device you’re using and the version of Android it’s running. This section gives you the general steps needed, but before performing them, you should search online to find the different key presses or commands your device and version of Android need. Search for the device’s name and *hard reset*.

Here’s an example of how to perform a hard reset. These instructions are specifically for the Nexus 5X running stock Marshmallow.

1. Power down your phone or tablet. Press and hold the Power button until the Power dialog box opens, and then tap the Power Off button in the dialog box that opens.



NOTE If the Power dialog box doesn’t appear because your device is frozen, keep holding down the Power button until the device turns off.

2. Hold down the Volume Up button, the Volume Down button, and the Power button for several seconds. Your device turns on and displays a picture of an Android lying on its back with its cover open for maintenance. Release the buttons.



TIP Different devices use different combinations of hardware buttons to perform a hard reset. If the combination given here doesn’t work for your device, search online for the device’s name and *recovery buttons*.

3. Press the Volume Up button or the Volume Down button one or more times until the Recovery Mode button appears at the top of the screen.
4. Press the Power button to give the Recovery Mode command. Your device restarts and displays another screen showing an Android lying on its back, cover open for maintenance, a red triangle with an exclamation point, and the message “No Command.”
5. Press and hold the Power button and then press the Volume Up button. The Android Recovery screen appears.

6. Press the Volume Up button or the Volume Down button to select the Wipe Data/Factory Reset command on the menu.
7. Press the Power button to give the command. A confirmation screen appears because this is a drastic move.
8. Press the Volume Up button or the Volume Down button to select the Yes – Erase All User Data command.
9. Press the Power button to give the command. Android erases the data, restarts, and displays the Welcome screen. You can then set up the device from scratch.

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