

## Symbols

---

@ symbol 25

## A

---

aapt 42

abortBroadcast 200

AbsoluteLayout class

    LayoutParams class 87

access permissions 134

AccountAuthenticator 428

AccountManager service 423

accounts, add and manage 422

action

    ACTION\_BATTERY\_CHANGED  
        constant 115

    ACTION\_BOOT\_COMPLETED  
        constant 115

    ACTION\_CALL constant 110

    ACTION\_PACKAGE\_ADDED constant 115

    ACTION\_PACKAGE\_REMOVED  
        constant 115

    ACTION\_TIME\_CHANGED constant 115

    ACTION\_TIME\_TICK constant 115

    ACTION\_TIMEZONE\_CHANGED  
        constant 115

    and intent filters 107

    built-in 109

action bar

    action items 570–574

        application icon 573–574

        creating programmatically 572

        creating with menu resources 571

        handling 572

        location 571

    showAsAction attribute 571

action views 574

    assigning 574

app name and title 564–565

background drawables 576

checking for presence of 563

customized 561

display options 563–570

    DISPLAY\_HOME\_AS\_UP 563

    DISPLAY\_SHOW\_CUSTOM 563

    DISPLAY\_SHOW\_HOME 563

    DISPLAY\_SHOW\_TITLE 563

    DISPLAY\_USE\_LOGO 563

    methods 563

    setting 564

drop-down list style 577

font type 576

foreground text color 576

getting ActionBar instance 562

handling at runtime 575

hide() method 575

introduction 561–562

multiple-choice indicator 576

navigation modes 565–566

    list navigation 569–570

    methods 566

    NAVIGATION\_MODE\_LIST 565

    NAVIGATION\_MODE\_STANDARD 565

    NAVIGATION\_MODE\_TABS 565

    tab navigation 566–569

overriding default overflow menu style 577

pop-up menu style 576

removing, showing, and hiding 575

show() method 575

single-choice indicator 576

styling 575–577

- action bar (*continued*)
  - tab listener methods 568
  - tab navigation methods 567
  - tab style 576
  - text size 576
  - text style 576
  - theme 575
- action view 574
  - assigning 574
- ACTION\_CALL 107
- ACTION\_DOWN 349
- ACTION\_DRAG\_ENDED 585
- ACTION\_DRAG\_ENTERED 585
- ACTION\_DRAG\_EXITED 585
- ACTION\_DRAG\_LOCATION 585
- ACTION\_DRAG\_STARTED 585
  - responding to 587–589
- ACTION\_DROP 585
  - responding to 587, 589–590
- ACTION\_EDIT 106
- ACTION\_MEDIA\_SCANNER\_SCAN\_FILE 275
- ACTION\_MOVE 349
- ACTION\_PICK 15
- ACTION\_UP 349
- ACTION\_VIEW 106
- ActionBar API 562–563
  - classes 562
- ActionBar.TabListener interface 568
- activities 65–66
  - creating 66–75
  - entire lifecycle phase 74
  - foreground phase 74
  - handling shutdowns 72
  - lifecycle 72
  - passing objects between 72
  - referencing resources 91–93
  - themes 97
  - visible phase 74
- Activity 24, 38, 57, 316, 345, 423
  - adding background fragment to 554
  - creating 68
  - displaying UI elements 18
  - extended by user classes 17
  - findViewById() method 94
  - including fragment in 552–553
  - initiates DayTime Server query 378
  - lifecycle compared to fragment lifecycle 546
  - navigation between 131, 319
  - RefreshJobs 337
  - ShowJob 341
- adapters 69
  - ArrayAdapter class 69
- AdapterView class 79
- adb 43, 72, 139, 611
  - arguments 361
  - interacting with Android SDK 612
  - kill-server 612
  - shell 361, 373
  - start-server 612
  - See also* DDMS
- addOnBackStackChangedListener() method 557
- addProximityAlert() method 294
- Address 306
- addresses, converting with Geocoder 305
- addTab() method 567
- addToDB() method 275
- ADT 34, 591
  - configuring 599
  - installing 597
  - plug-in for Eclipse 36
- Advanced Audio Coding (AAC) 261
- Advanced Video Coding (AVC H.264) 261
- aidl tool 121
- Ajax 441
- alarm 219–225, 481
  - compared to Services 499
  - example 220–222
  - receiver 220
  - setting 222
  - types 222
  - using notifications with 222–225
- AlarmManager 222, 499
  - alarm types 222
  - methods 219
  - retrieving 219
- AlertDialog 71, 304
  - setMessage() method 71
- Alpha, Red, Green, Blue (ARGB) 229
- Android
  - application
    - building in Eclipse 45–53
    - mapping flow 316–320
    - requires manifest file 320
  - Bluetooth capabilities 386–393
  - building application in Eclipse 45–53
  - building apps without the SDK 357–362
  - built-in actions 109
  - common sensors 394
  - components 17–24
    - Activity 17
    - BroadcastReceiver 19
    - ContentProvider 22
    - Service 18
  - contact model 406–411
  - core packages 35
  - Cursor object 146

- Android (*continued*)
  - designing application 312–316
    - See also* field service application
  - development requires Java skills 11
  - discourages direct file sharing 22
  - displaying progress 337
  - emulator 41, 53–58
    - setting up environment 54
    - splash screen 321
    - working with an SD card 142
  - environment, should vs. can 185
  - and Exchange account 408
  - and Google account 408
  - licensing 9
  - Linux
    - applications 356
    - kernel-based OS 4
  - logging mechanism 19
  - moving from Activity to Activity 131
  - only encrypted connections 387
  - optimizing web applications 442–449
  - packages, world x permission 135
  - philosophy 409
  - platform 4–9
  - runtime 363
  - same-but-different 7
  - SenseBot. *See* SenseBot
  - shell 26
  - stack 10–13
  - stock icon 319
  - taking a photo 539
  - two versions of platform 56
  - user applications written in Java 4
  - version 2.0 or later 385
  - vs. iPhone 9
  - vs. itself 8
  - web development 440–442
- Android 2.2 389
- Android 3.0 30–32
  - copy and paste 581
  - drag-and-drop 579
  - new features 31
  - targeting in manifest file 561
- Android Activity 473
- Android ARM. *See* ARM
- Android Asset Packaging Tool. *See* aapt
- Android Compatibility Package 557–558
- Android Debug Bridge. *See* adb
- Android Development Tools. *See* ADT
- Android development, Intent 13
- Android device
  - security 313
  - touch screen-capable 318
- Android Interface Definition Language 120–121
  - allowed types 121
  - directional tags 120
- Android Market 10
  - merit-based system 611
  - publishing to 607, 611
  - rules 607
- Android Native Developer Kit. *See* NDK
- Android NDK. *See* NDK
- Android Open Source Platform. *See* AOSP
- Android Project Wizard 45
- Android SDK 34
  - installing 594
- Android Service 499
- Android Virtual Device. *See* AVD
- android:actionBarTabStyle 576
- android:actionBarTabTextStyle 576
- android:actionDropDownStyle 577
- android:actionLayout 574
- android:actionViewClass 574
- android:dropDownListViewStyle 577
- android:height 231
- android:id attribute 48
- android:listChoiceIndicatorMultiple 576
- android:listChoiceIndicatorSingle 576
- android:popupMenuStyle 576
- android:radius 231
- android:selectableItemBackground 576
- android:textColor 576
- android:textSize 576
- android:theme 575
- android:title attribute 571
- android:typeface 576
- android:windowActionBar 575
- android.animation 31
- android.bluetooth package 387
- android.content.ContentResolver 273
- android.content.ContentValues 273
- android.drm 31
- android.intent.action.MAIN application entry
  - point 25
- android.intent.category.LAUNCHER 25
- Android.jar 47
- android.media.MediaRecorder 273
- android.net 161
- android.provider.Telephony.SMS\_RECEIVED 22
- android.R.id.home 573
- android.renderscript 31
- android.telephony 192, 201
- android.view package 76
- Android/Java, refers to Java 357
- Android/Linux
  - environments and tools 360
  - nontrivial activities 371

- Android/Linux (*continued*)
    - refers to Linux 357
    - startup code appearance 368
    - system libraries 363
  - AndroidManifest file 99
  - AndroidManifest.xml 21, 24, 45, 506, 561
    - @symbol 25
    - application descriptor file 15
    - AppWidget 495
    - deployment descriptors 24
  - animation 231–238
    - code to perform 237–238
    - creating programmatically 234–238
    - frame-by-frame 232–234
    - project, creating 235–236
  - AnimationDrawable.start() method 232
  - <animation-list> 233
  - animations 90, 98–99
    - duration attribute 98
    - interpolator attribute 98
    - startOffset attribute 98
  - AOSP 8
  - Apache 10
    - commons.io package 145
    - HttpClient 170
    - ResponseHandler 172
  - Apache Software License. *See* ASL
  - API
    - dummy request 431
    - linkedin-j 426
  - API key, LinkedIn APIs 411
  - .apk file 542
  - Apple 7
    - AppStore 9
  - Application class 71
  - application distribution, Android vs. iPhone 10
  - <application> element 99
  - application icon as action item 573–574
  - Application Layer 163
  - Application Not Responding event 82
  - applications
    - communicating between 120–129
    - distribution beyond Market 611
    - getting to Market 608
    - hybrid, building 458
    - made for mobile 448
      - link to full site 449
    - simplify, reduce, and eliminate 449
    - manifest 158
    - mapping to processes 26
    - name and icon, on action bar 564
    - preparing for distribution 601–604
    - RestaurantFinder 66–101
  - AppWidget
    - configuring 494
    - data elements 483
    - data handling 483–486
    - deployment patterns 476
    - metadata file 495
    - updating 498–505
  - AppWidgetHost 474
  - AppWidgetProvider 487–491
  - argc 367
  - argv 367
  - ARM 357
    - Android/Linux application on 368
    - processor family 368
  - arm-none-linux-gnueabi-gcc 358–359, 362
  - arm-none-linux-gnueabi-ld 358
  - arm-none-linux-gnueabi-objdump 358
  - <array> element 97
  - arrays 97
  - asInterface() method 121
  - ASL, friendlier toward commercial use 9
  - aspect ratio 247
  - assembly language 358
  - Atom Publishing Protocol. *See* AtomPub
  - AtomPub 180, 182
  - audio
    - capturing 272–276
    - encoding, setting 273
    - output file format 273
    - playing 263–264
    - source, setting 273
  - audio codecs 261
  - audio file, metadata 275
  - AudioPlayer 261
  - auth token 423
  - authenticating to LinkedIn 425
  - authentication 423
    - key. *See* Ki
    - lightweight service wrapper 431
  - AuthScope 176
  - AVD 287
    - management Eclipse 36
  - AVD Manager 54, 595
  - AwesomePlayer 262
- ## B
- 
- background fragment 553–555
    - adding to Activity 554
    - creating 554
    - vs. service 553
  - background services 116–120
  - BaseAdapter class 85

- BaseColumns 153
  - BasicNameValuePair 178
  - batch builds without using IDE 51
  - batch operations on contacts 417
  - beginRecording 281
  - Binary Runtime Environment for Wireless.
    - See* BREW
  - Bitmap 349, 533, 536
  - BlackBerry 7, 10
    - email capabilities 8
  - Bluetooth 10
    - capturing events 392
    - classes, Android 388
    - close-range wireless networking 161
    - peer 392
    - permissions 393
      - and SenseBot 386
  - Bluetooth Serial Port Profile 387
  - BluetoothAdapter 391
  - bonded 388
  - BounceActivity 235
  - bound services 120
  - boundary conditions 442
  - BREW 7
  - broadcast receivers 114–116
    - creating 115–116
  - BroadcastReceiver 203, 392, 474, 500
    - in every Android application 24
    - no UI 20
    - tags 25
  - browser control, add to UI layout 458
  - browser detection
    - examination of user agent string 446
    - media query 447
  - browsers
    - overriding behavior 459
    - storing data directly 449
    - WebView 461
  - BufferedOutputStream 351
  - BufferedReader 167
  - BufferedWriter 168
  - build script, need for 362
  - Builder pattern 71
  - building a native library 526
  - Bundle 20, 179, 329
- C**
- 
- C 356
    - application 356
    - application build script 362
    - times where better than Java 525
  - C99 251
  - CALL\_PHONE permission 100
  - CamcorderProfile 282
  - camDemo 271
  - camera 267–272
    - support for multiple 282
    - support, testing on emulator 272
  - Camera application 528
  - Camera class 267–272
    - get() method 282
  - CAMERA permission 267, 276
  - Canvas 349
  - CAPTCHA and GData ClientLogin 185
  - capturing media 266–282
    - capturing audio 272–276
    - recording video 276–282
  - carrier. *See* mobile operators
  - Cascading Style Sheets 97
  - CATEGORY\_LAUNCHER 14
  - CDMA 35, 189
    - primary rival to GSM 190
  - characters() method 334
  - CharSequence type
    - and AIDL 121
  - checkForZombies() method 490
  - Class class 104
  - ClassNameRS 256
  - client/server 164
  - ClientLogin 182, 185
  - ClipboardManager 581
  - ClipData 580–581
  - ClipData.Item 581
  - ClipDescription 580–581
  - codecs 261
  - CodeSourcery 357, 360
  - <color> element 96
  - color values, defining 229
  - com.google.android.maps 299
  - com.google.android.phone.Dialer 15
  - ComponentName 104
  - conditional global replacement 418
  - configuration activity 481
  - connecting to a remote device 390
  - connection, wireless internet 313
  - ConnectivityManager 165
    - mobile or WiFi 161
  - contacts
    - adding 418
    - conditional global replacement 418
    - identifiers 416
    - managing 413–420
    - modifying database 417
    - multiple insertions 420
    - single logical 410
    - table 414

- content
  - provider 24
  - selectively loading 446
  - staying up to date 152
- CONTENT\_URI 151, 153
- ContentObserver 152
- ContentProvider 22, 130, 200, 315, 483, 580
  - accessible by any application 152
  - additional properties 159
  - classes 151–159
  - creating 152, 159
  - extending 154
  - in every Android application 24
  - URI variations 151
- ContentResolver 23, 151
- ContentView 229
- Context class 19, 68, 135, 194, 324, 340
  - bindService() method 125, 127
  - stopService() method 128
- Context.getSystemService(Context.ALARM\_SERVICE) 219
- converttogle function 534
- convolution 536
- copy-and-paste API, classes used for drag-and-drop 581
- corners tag 231
- createPackageContext 135
- creation, widget instance 497
- CSS
  - multiple files per page 447
  - selectively choose file 446
- ctime 373
- Cursor 23, 131
  - data items changed 158

## D

---

- DAL 146
- Dalvik Debug Monitor Server. *See* DDMS
- Dalvik VM 11
  - relies on Linux kernel 12
  - result is innovation 12
- dashboard 475
- data
  - contacts, good citizen principles 411
  - raw contact, storing 410
  - sample, properly set up 602
  - storage requirements 315
  - structures 327
  - values 516
- Data Access Layer. *See* DAL
- Data Definition Language. *See* DDL
- data handling, AppWidget 483–486

- data table 414
- database
  - modifying contacts 417
  - not WORLD\_READABLE 150
  - open a connection 149
  - opening 453
  - persisting data to 145
  - server 23
- datagram 163
- Date & Time settings 512
- Daytime Client 377–380
  - single Activity 378
  - special permission 380
  - testing 380
- DayTime Server 373
  - application has two parts 371
  - listens on TCP port 370, 379
- DBHelper
  - inner classes 146
  - outer class 147
- DBOpenHelper 146, 149
- DDL 375
- DDMS 36, 600
  - perspective
    - dashboard-like view 39
    - LogCat view 40
- DDMS tool
  - requires decimal format 287
  - supports KML 289
  - two contexts 286
  - working with a GPX file 289
- Debug
  - Certificate 301
  - perspective 37, 59–60
- debugging 59
- Delicious 180
- depth buffer 245
  - depth test 246
  - flags to compare values 246
- DetailsWebFragment 548, 550
- developer API, LinkedIn 411
- device ID 194
- .dex files 12, 53
- DialogFragment 548
- digital signature 604–607
  - jarsigner 605
  - keystores 604
  - keytool 605
- <dimen> element 96
- dimensions 96
- directory change 361
- disassembling 358
- drag event 582, 585–586
  - actions 585

- drag event (*continued*)
  - listening for 587–588
  - listener vs. callback 587
  - which to respond to 587
- drag operation, starting 586–587
- drag shadow 583
- drag-and-drop 581–583
  - drag event. *See* drag event
  - drag operation, starting 586–587
  - drag-start operation, responding to 588–589
  - drop operation, handling 589–590
  - introduction 580
  - sequence diagram 582
  - shadow builder 583–584
  - use of copy-and-paste API 581
- drag-and-drop classes 580–581
- DragEvent 580–581
- DragShadowBuilder 580–583
- drag-start operation, responding to 588–589
- draw() method 228
- Drawable 228, 238
- drawables 47, 90, 321, 400
  - managing 515
- drawBitmap 349
- drawColor 349
- drawFrame 242
- drawing graphics 227–231
  - with XML 228–230
  - layout 229
  - shapes 230–231
- drawing in OpenGL ES 243–250
- drop operation, handling 589–590
- dropReceived() method 589
- dummy API request 431
- dynamic linking 362–370

## E

---

- Eclipse
  - DDMS
    - perspective 37
    - view 360
  - debugging Android application 59
  - default perspective 593
  - Emulator Control 286
  - installing 591
  - Java perspective 37
  - and NDK 542
  - Package Explorer 37
  - plug-in, File Explorer view 134
  - setting up development environment 13
  - workspace prompt 592
- Eclipse IDE 592–593
  - See also* ADT

- edge detection 525
  - routine 529
- edges, finding 541
- Editor 324
- EditText 28
- EditView 326
- Electronic Serial Number. *See* ESN
- ELF 368
- email addresses, conditional global
  - replacement 418
- empty processes 72
- emulator
  - switches 600
  - vs. simulator 54
- Emulator Control, testing connectivity 41
- endElement method 334
- endElement() method 334
- end-user license agreement. *See* EULA
- Enterprise Information Systems 7
- equator, base for latitude 287
- Error Console, WebKit 457
- ESN swap 191
- EULA 602
- events 89–90
  - broadcast receivers 114
  - broadcasting 114–115
  - Observable and Observer 89
- executable and linkable format. *See* ELF
- exit 367
- Extensible Markup Language resources 90

## F

---

- FAT 142
- field service application
  - assumptions 313
  - manifest file 320
  - resource files 319
  - source code 320–334
  - source files 318
  - steps 316
- FieldService Activity
  - goal 322
  - implementing 324
- File Allocation Table. *See* FAT
- File Explorer view, Eclipse 41
- file\_get\_contents 354
- FileInputStream 145, 331, 351
- FileOutputStream 138, 144, 351
- files
  - accessing 138
  - read and write 138
  - view resource files 93

- filesystem, based on Linux 137
- findViewById 30
  - method 28
- finish 337
- fixed-length record 406
- focus 88–89
  - DEFAULT\_FOCUS 88
- for additional locales 514
- formatNumber 198
- FountainRS 255
- fovy 249
- <fragment> 552
- fragment 88
  - adding 556
  - adding to back stack 556
  - Android Compatibility Package 557–558
  - back stack 556–557
    - adding to 556
    - methods 557
    - pop, simulating 555
  - background fragment 553–555
    - adding to Activity 554
    - creating 554
    - vs. service 553
  - creating 548–553
  - finding by resource ID 555
  - finding by tag 555
  - including in Activity 552–553
  - instantiating with arguments 549
  - introduction to 545
  - lifecycle 546
    - compared to Activity lifecycle 546
    - methods 546
  - removing 556
  - replacing 556
  - retaining when created 554
  - with no UI 553
- Fragment class 548
  - subclasses 548
- fragment layout
  - creating 548–553
  - defining 551–552
- fragment manager 555
  - back stack methods 557
- fragment subclass, creating 548–551
- fragment transaction 555–556
  - adding to back stack 556
- FragmentManager class 555
- FragmentManager class 555
  - FragmentManager.add(fragment, tagString) method 554
  - FragmentManager.beginTransaction() method 555
- FragmentTransaction class 555

- FragmentTransaction.addToBackStack() method 556
- FragmentTransaction.commit() method 556
- FragmentTransaction.executePendingTransactions() method 556
- fromBundle 329, 341

## G

---

- gcc 358, 364
- GData API
  - implementation of AtomPub 182
  - not true REST 182
- GData ClientLogin and CAPTCHA 185
- GenerateNotification() method 216
- geo
  - fix 288
  - query 317
- geo type 107, 110
- Geocoder 305–306
  - creating 306
  - map between point and place 286
- geocoding 305
- GeoPoint 286, 298
- getActionBar() method 575
- getArguments() method 550
- getBackStackEntryAt() method 557
- getBackStackEntryCount() method 557
- getCameraInfo() method 282
- getDisplayOptions() method 563
- getEmail() method 324
- getExtras() method 341
- getFragmentManager() method 555
- getHolder() method 242
- getJob() method 341
- getLayoutInflater() method 211
- getMeasuredWidth() method 87
- getNavigationItemCount() method 566
- getNavigationMode() method 566
- getNumberOfCameras() method 282
- getProvider() method 294
- getSelectedNavigationIndex() method 566
- getSelectedTab() method 567
- getSharedPreferences() method 131
- getSupportFragmentManager() method 558
- getSystemService() method 166, 194, 294
- getTelephonyOverview() method, reset screen details 195
- getView() method 85, 583
- GL\_DEPTH\_TEST 245
- GL\_PROJECTION 244
- GL\_Triangle\_Strip 243
- glClear 244

glDepthFunc 245  
 glDrawArrays 245  
 glEnable 245  
 glEnableClientState 245  
 global number 199  
 Global Positioning System. *See* GPS  
 global replacement, conditional 418  
 global start directive 369  
 Global System for Mobile. *See* GSM  
 GLU.gluLookAt 249  
 gluOrtho2D 245  
 gluPerspective 247  
 glVertexPointer 245  
 GNU General Public License. *See* GPL  
 Google  
     Android Market 10  
     Contacts 182  
     GData 180, 182  
     Maps 26  
     and Open Handset Alliance 3  
 Google APIs 56  
 Google Maps API  
     key, requesting 300  
     support through MapView 300  
 Google TV 32  
 GPL 9  
 GPS 6  
     data stamped on job 349  
     most common location provider 285  
     obtaining provider directly 295  
     services 474  
 GPS Exchange Format. *See* GPX  
 GPX  
     DDMS tool 289  
     storing points 288  
 graphics  
     drawing 227–231  
         with XML 228–230  
         XML shapes 230–231  
     OpenGL ES. *See* OpenGL ES  
 Graphics API 227–238  
 GSM 35, 189  
     Android standard 190  
 gsm command 196  
 GUIUPDATEIDENTIFIER 236

## H

---

Handango 10  
 handle 453  
 handleMessage() method 83  
 Handler 322, 332, 337  
     relationship diagram 173  
 Handler class 236

handlers 80, 82–83, 119  
 handling long-running requests 236  
 holographic theme 561  
     customizing 577  
 home activity 574  
     jumping to from app icon 573  
 Honeycomb. *See* Android 3.0  
 hotspot 478  
 HTML5 440  
 HTTP 161  
     authentication 177  
     creating helper 173  
     defines internet rules 164  
     GET 170, 176  
     headers 176  
     and java.net 170  
     parameters 176  
     POST 170, 176, 349  
     protocol stateless 169  
     working with 169–179  
 HttpClient 173  
 HttpEntity 173  
 HttpPost 178  
 HttpRequestHelper 170, 175, 181  
 HttpRequestInterceptor 177  
 HTTPS 180  
     creating helper 173  
 HttpURLConnection 170

## I

---

IBinder 423  
 IBinder interface 122  
     transact() method 122  
 ICANN 165  
 ICCID 190  
     identifies SIM card 190  
 identity matrix 245  
 ifconfig 168  
 ImageCaptureCallback 271  
 ImageView 233, 321  
 IMEI, identifies device 190  
 IMSI 194  
     subscriber and network identifier 190  
 inches 96  
 independent software vendor. *See* ISV  
 index.html file 460  
 InputStream 331  
 instance state 75  
 integer primitive, int 483  
 Intent 13, 80, 103, 180, 197, 317  
     action 103–104  
     ACTION\_DIAL constant 110

- Intent (*continued*)
    - ACTION\_VIEW constant 110
    - built-in actions 103–110
    - category 104
    - component 104
    - data 103–104
    - defined 14
    - defining 103–104
    - explicit 16
    - extras 104
    - getExtras() and putExtras() methods 81
    - handing intent requests 107–109
    - implicit 16
    - implicit versus explicit invocation 104
    - intent filter matching criteria 108
    - intent filters 107–114
    - late binding 103
    - linking between applications 105–107
    - making calls 196
    - MIME type 108
    - receiving 19
    - resolution 16
    - type 104
  - Intent filters
    - and category 108
    - and data 108
    - associating with broadcast receivers 115
    - defining in XML 110–112
  - Intent.FLAG\_ACTIVITY\_CLEAR\_TOP 573
  - IntentFilter 19, 25
    - defined 14
    - defines relationship 14
  - IntentFilter action 474
  - <intent-filter> element 100, 107, 112, 124
  - interface definition languages 120
  - interfaces
    - publishing 123
    - remote version 123–124
  - International Mobile Equipment Identity.
    - See* IMEI
  - International Mobile Subscriber Identity. *See* IMSI
  - International Telecommunication Union H.263
    - video standard (H.263) 261
  - Internet Layer 163
  - Internet Protocol. *See* IP
  - invalidate() method 236
  - IP 161
    - address 163
    - finding 168
    - network data 161
  - ipconfig 168
  - iPhone 7
    - vs. Android 9
  - ISO format 511
  - ISV 16
  - ItemizedOverlay 302
    - handles details 304
  - iTunes, as an example 164
- 
- J**
  - jar 53
  - jarsigner 605
  - Java 4, 357
    - array 455
    - connecting UI to a DayTime Server 378
    - locale-specific data classes 516
    - Runnable interface 338
  - Java byte codes, convert to dex file 52
  - Java development tools. *See* JDT
  - Java ME 7
  - Java Native Interface. *See* JNI
  - Java packages, included in Android SDK 35
  - Java Perspective 37
    - Eclipse default 593
  - Java Platform, Micro Edition. *See* Java ME
  - Java Runtime Environment. *See* JRE
  - java.net 161, 170
  - Javadocs
    - android.provider package 152
    - view 38
  - JavaScript
    - errors found at runtime 451
    - implementing handler 461
    - interface code 463
    - multiple handlers 464
    - overriding alert() method 470
    - security matters 465
  - JDK 591
  - JDT 591
    - Eclipse 38
  - JNI
    - building a library 530–537
    - functions 537
    - library 526
      - compiling 536
      - load at runtime 540
  - JobEntry 328
  - JobListHandler 332, 335
  - jobs
    - data managing 327–334
    - ManageJobs Activity 338
    - managing 334–351
    - with GPS data stamp 349
    - working with the ShowJob Activity 341
  - Joint Photographic Experts Group (JPEG) 261

- JPEG
    - captured signature 351
    - converting to 349
  - jQuery 441
  - JRE 591
- K**
- 
- KDE 440
  - Keyhole Markup Language. *See* KML
  - keystore, keys require an alias 605
  - keytool 605
  - Khronos 227
    - OpenGL ES 238
  - Ki, authenticates SIM card 190
  - KML 289
    - checks files for Placemark 291
    - drawbacks 291
    - international standard 292
  - kSOAP, documentation 186
- L**
- 
- LAI, region device is in 190
  - Language & Keyboard 511
  - languages, target 513
  - latitude, how expressed 287
  - launch screen 319
  - Layout 47
  - layout 473
    - managing 515
    - XML 425
  - LayoutInflater 211
  - layouts 68–72, 86–88
    - FrameLayout 87
    - layout resources 90
  - ld 364
  - LD\_LIBRARY\_PATH. 366
  - LEGO Mindstorms NXT. *See* robot
  - LEGO robot. *See* robot
  - libsqlite.so 373
  - License Verification Library. *See* LVL
  - lifecycle
    - activity lifecycle phases 74
    - bound services 128
    - started services 128
  - lightweight authentication service wrapper 431
  - LinearLayout 29
  - Link Layer 163
  - LinkedIn 406
    - contacts, expanded details 418
    - creating account 424–431
    - developer API key 411
    - logging in a two-stage process 426
    - synchronizing 432
    - transactions 437
  - linkedin-j
    - API 426
    - project 412
  - linker 363
    - arm-none-linux-gnueabi-ld 364
    - options 366
  - Linux 4
    - building applications 356
    - DayTime Server 370
    - finding IP address 168
    - kernel 10
  - Linux kernel
    - and Dalvik VM 12
    - why use 11
  - Linux security system prevents ad hoc file
    - access 22
  - list navigation on action bar 569–570
  - List type and AIDL 121
  - ListActivity class 79
  - listeners
    - OnClickListener 70
    - OnFocusChangeListener 89
  - ListFragment 548
  - ListView 78–82, 339
  - locale 511
  - localization
    - multiple locales 512
    - need for 510–517
    - obstacles 522
    - translation team 517
    - See also* localizing
  - localizing
    - applications 516
    - entire infrastructure 513
    - in Java code 520
    - strategies 512
  - Location 292, 298
  - location
    - simulating 286–292
    - specify coordinates 286
    - updates 296
  - Location Area Identity. *See* LAI
  - location-based service. *See* GPS
  - LocationListener 292, 296
    - onProviderDisabled 298
    - onProviderEnabled 298
    - receive updates 286
  - LocationManager 292
    - Criteria 295
    - find available providers 285

LocationManager (*continued*)  
 getProvider 295  
 GPS\_PROVIDER 294  
 NETWORK\_PROVIDER 294  
 LocationProvider 284, 292, 294  
 COARSE 295  
 FINE 295  
 permissions 295  
 LogCat 40, 51, 600  
 functionality 532  
 superfluous statements 601  
 values displayed 60  
 long click 581  
 longitude, how expressed 287  
 lookup key 416  
 loopback 163  
 don't connect to 168  
 Looper 82, 338  
 LVL 607

## M

---

Mac 7  
 finding IP address 168  
 main.xml 47–48  
 makeText() method 208  
 managedQuery() method 152  
 <manifest> element 100  
 manifest file 66, 99–101  
 targeting Android 3.0 561  
 Map type and AIDL 121  
 MapActivity 285, 293  
 extending 299  
 writing with MapView 301  
 MapController 294  
 get from MapView 302  
 mapping, applications to processes 26  
 Maps application 287, 317  
 maps, working with 298  
 MapView 285, 294  
 Google Maps API key 300  
 limited version of Google Maps API 299  
 and Overlay classes 299  
 set zoom level 302  
 updating 286  
 writing MapActivity 301  
 MapViewActivity 292  
 screen 299  
 MarginLayoutParams class 87  
 matrix mode 244  
 MD5 fingerprint 301  
 media recording 261  
 media, capturing 266–282  
 MediaController 266  
 MediaExtractor 261  
 MediaPlayer 263  
 example 263  
 MediaPlayer API 260  
 MediaPlayerService 262  
 MediaRecorder  
 capturing audio 272–276  
 capturing video 276–282  
 MediaRecorder.setAudioEncoder() method  
 273, 278  
 MediaRecorder.setAudioSource() method  
 273, 278  
 MediaRecorder.setOutputFormat() method  
 273, 278  
 MediaRecorder.setPreviewDisplay() method 278  
 MediaRecorder.setVideoEncoder() method 278  
 MediaRecorder.setVideoSource() method 278  
 MEID 191  
 Menu class, setIcon() method 71  
 MenuItem.setActionView() 574  
 menus vs. onscreen buttons 71  
 Message 173, 179, 236, 380  
 class 337  
 instances 337  
 object, do not reuse 338  
 MessageQueue class 82  
 metadata file, AppWidget 495  
 methods  
 activity lifecycle methods 73–75  
 nextFocusLeft() method 88  
 metrics, location-related 284  
 Microsoft Exchange 408  
 Microsoft, platforms compelling 8  
 millimeters 96  
 MIME\_TYPE 153  
 MIMETYPE\_TEXT\_PLAIN 589  
 minSdkVersion property 100  
 mkdir, command on adb shell 361  
 mksdcard tool 142  
 Mobile Equipment Identifier. *See* MEID  
 mobile in mind, designing 442  
 mobile operators  
 challenges 6  
 response to Android 5  
 mobile phone, basic states 195  
 Mobile Safari 7  
 iPhone 7  
 MotionEvent 349  
 Moving Picture Experts Group (MPEG) 261  
 Moving Picture Experts Group 4 (MPEG-4) 261  
 MP3 file, playing 263  
 mPictureCallbackRaw 271

mShutterCallback 271  
 multimedia  
   capturing media 266–282  
   capturing audio 272–276  
   recording video 276–282  
   introduction to 261–263  
   playing audio 263–264  
   playing video 264–266  
 multiple accounts 408  
   convenience and complications 408  
 Music Player 275  
 My Location 287  
 myLocalState 583  
 MyLocationOverlay 302  
 MySQL 315, 352

## N

---

NANP 199  
 National Data Buoy Center. *See* NDBC  
 Native Developer Kit. *See* NDK  
 native library, building 526  
 navigation, detecting events 467  
 NDBC 285  
   feeds 302  
 NDK 4, 357, 524  
   build subsystem 530  
   building an application 527  
   directory 542  
   installing 526  
   integrating into Eclipse 542  
   uses for 525  
 netstat 373  
 network protocols 162  
 NetworkInfo 166  
 networking, overview 162–165  
 newTab() 567  
 newTab() method 567  
 nextFocusDown() method 88  
 nextFocusRight() method 88  
 nextFocusUp() method 88  
 NexusOne device 389  
 Nintendo Wii 386  
 NOAA 285  
 NoActionBar themes 575  
 node 162  
 nop 368  
 North American Numbering Plan. *See* NANP  
 nostdlib 366  
 notification 212–216  
   custom view 216–219  
   PendingIntent 214  
   sending 214

  using with alarms 222–225  
   with button press 214–216  
   with LED 218  
   with sound 219  
 Notification class 212–214  
   fields 213  
 Notification.Builder 214  
 NotificationManager 213  
 notifications 116  
   debugging 601  
 NT Lan Manager. *See* NTLM  
 NTLM 177  
 number, global 199  
 NyARToolkit 272

## O

---

-o switch 359  
 objdump 358, 368  
 Observer design pattern 89  
 Ocean Matrix (OMX) 262  
 OCR 525  
 OGC 290  
 onActivityCreated() method 550, 588  
 onActivityResult() method 324–325, 341, 345  
 onBind() method 19, 119, 123  
 onCallStateChanged() method 195  
 onClick() method 327  
 onCreate() method 19, 69, 73–74, 128  
 onCreateOptionsMenu() method 71, 347, 572  
 onDestroy() method 74, 129  
 onDrag() method 587  
 onDragEvent() method 581, 587  
 OnDragListener 580–581, 587  
 onDragShadow() method 583  
 onDraw() method 228, 349  
 onDrawShadow() method 584  
 OnFocusChangeListener 199  
 onItemClick() method 81  
 onLocationChanged() method 297  
 OnLongClickListener 580–581  
 onMeasure() method 85  
 onMenuItemSelected() method 81  
 onNavigationItemSelected() method 570  
 OnNavigationListener 569  
 onOptionsItemSelected() method 347, 572–573  
 onPause() method 74  
 onPictureTaken() method 270–271  
 onPostCreate() method 74  
 onProvideShadowMetrics() method 583  
 onReceive() method 200  
 onRestart() method 74  
 onResume() method 74

onSaveInstanceState() method 75  
 onServiceConnected() method 125  
 onShutter() method 270  
 onStart() method 74, 112  
 onStop() method 74  
 onTabReselected() method 568  
 onTabSelected() method 568  
 onTabUnselected() method 568  
 onTouchEvent() method 255, 349  
 Open Geospatial Consortium. *See* OGC  
 Open GL and link command 365  
 Open GL ES  
   context, creating 239–243  
   introduction to 238–239  
   standards comparison 238  
 Open Handset Alliance and Google 3  
 open source, double-edged sword 8  
 OPEN, CLOSED 522  
 OpenCORE 260  
 open-ended records 407  
 openFileInput 138  
 openFileOutput 137, 331  
 OpenGL 238, 363  
 OpenGL ES 10, 238–250  
   3D shapes and surfaces 245–250  
   drawing a rectangle 243–245  
   perspective 247–249  
   primitives 243–244  
 OpenGL for Embedded Systems. *See* OpenGL ES  
 OpenGL libraries 525  
 OpenGLContext 239–243  
 openInputStream() method 23  
 openRawResource() method 139  
 Oracle, Java VM licensing 12  
 org.apache.httpclient 161  
 outbound calls, intercepting 200  
 output switch. *See* -o switch  
 OutputStream 349  
 OvalShape 228  
 overflow menu list 570  
 Overlay  
   classes display on MapView 299  
   draw on top of map 286  
   onTap 304  
   placing data on map with 302  
 OverlayItem 302

## P

---

Package Explorer, Eclipse 37  
 packet 163  
 PacketVideo, OpenCORE 10  
 padding tag 230

paired 388  
 Palm 10  
 PathShape 228  
 patterns, AppWidget deployment 476  
 PDU, SMS data packet 204  
 PendingIntent 202, 214, 294  
 permissions  
   access 134  
   phone-related 197  
   world x 135  
 perspective 247–249  
   aspect ratio 247  
 perspectives  
   DDMS 39  
   Debug 37, 59  
   Eclipse 36  
   Java 37–38  
 pESN 191  
 phone  
   home screen 473  
   number 194  
 Phone 7 7  
 PhoneGap 465  
 PhoneNumberUtils  
   formatNumber() helper method 198  
   parse and validate 198  
 PhoneStateListener 188, 192, 195  
 phone-top 472  
 PHP 315  
   for exchanging data 315  
   mobile integration code 354  
   server-side dispatcher system 353  
 PictureCallback 269, 271  
 PID 40  
 PIN value 390  
 pipe-delimited return string 478  
 pixels 96  
   density-independent pixels 96  
   scaled pixels 96  
 places, converting with Geocoder 305  
 plain old XML over HTTP. *See* POX  
 Point 238  
 POP3 email program 421  
 popBackStack() 557  
 port 370  
   identifying number 45  
   three ranges 165  
 Portable Operating System Interface for UNIX.  
   *See* POSIX  
 POSIX 166  
 POST data 351  
 postDelayed 322  
 Power Control widget 473, 475

POX 161  
 exposes chunks of XML 179  
 using a service 181

PreferenceFragment 548

preferences 131

preinit\_array 369

prime meridian base for longitude 287

printf 359

process ID. *See* PID

processes  
 how the system chooses which to kill 72  
 saving state before they're killed 74

produce information URL 317

progress, displaying 337

ProgressDialog 317, 332, 337, 346–347  
 show() method 81

projectname.apk 53

protocol data unit 204

protocol layers 163

Prototype 441

ps -a 26

Pseudo Electronic Serial Number. *See* pESN

publishing, Android Market 607, 611

---

**Q**

---

Qualcomm 7

queuing, local 346

---

**R**

---

R class 30, 95  
 inner classes 93

R.java 30, 46  
 file 318  
 updating 48

raw contact data, storing 410

read-only interface, AppWidget 473

receiver 474  
 tag 25

<receiver> element 112

RECORD\_AUDIO 276

RECORD\_VIDEO 276

RecordHit, inserts record into SQLite DB 373

records 407  
 fixed-length 406  
 open-ended 407  
 choosing 406

RectShape 228

referencing resources 91

RefreshJobs 335

RefreshRunner 236

regression testing 603

relational database, built-in 145

RelativeLayout class 94–95

remote device, connecting 390

RemoteViews, working with 491

removeAllTabs() method 567

removeOnBackStackChangeListener()  
 method 557

removeProximityAlert() method 294

removeTab() method 567

removeTabAt() method 567

RenderScript 250–258  
 application  
 building 252–258  
 file structure 252  
 source code 253  
 bytecode files 252  
 debugging, issues with 251  
 init() method 258  
 introduction to 250–252  
 pragmas 258  
 pros and cons of using 251–252  
 root() method 258  
 types of apps to use for 251

RenderScriptGL 255

Representational State Transfer. *See* REST

request, long-running, handling 236

requestLocationUpdates 298  
 use time parameter carefully 298

Research in Motion 7

Resources 140  
 raw resources 139  
 XML resources 140

resources 66, 90–99  
 raw 90  
 supported types 90  
 values 90–98  
 views and layouts as 93–95

ResponseHandler 173, 176

REST 161, 185  
 methods 182  
 uses URL-style approach 179

RestaurantFinder application 103–110  
 basic screens 67

return, replace with exit call 367

RFCOMM 387  
 cable replacement profile 387

RISC 358

robot  
 communicating with 402  
 controlling with phone orientation 400  
 driving 401

RoundRectShape 228

router 164

rows, inserting and deleting 456  
 rpath 366  
 RSSurfaceView 254  
 Runnable, Java interface 338

## S

---

Safari 7  
 Samsung 389  
 save 324  
 SAX  
   parser 331, 334  
   style of tree traversal 142  
   XML parser 332  
 scaling 445  
 screen, clearing before drawing 244  
 ScriptC\_fountain 256  
 SD card 130, 142–145  
   and the emulator 142  
   handles large files 142  
 sdcard path 143  
 SDK 4  
   upgrades 597  
 searching, Set Search Term button 466  
 Secure Digital. *See* SD card  
 secure shell 361  
 Secure Sockets Layer. *See* SSL  
 security risks 465–466  
 select() method 375  
 selectTab() method 567  
 sendBroadcast() method 114  
 sendDataMessage() method 201  
 sendEmptyMessage() method 83  
 sendMessage() method 83  
 sendMultipartTextMessage() method 201  
 sendOrderedBroadcast() method 114  
 sendStickyBroadcast() method 114  
 sendTextMessage() method 201  
 SenseBot 386  
   building the application 397  
   uses Bluetooth to drive robot 386  
 SensorEvent fields 395  
 SensorManager 393–397  
   classes 394  
 sensors  
   enabling and disabling 396  
   events 393  
 SEO 444  
 Serial Port Profile. *See* SPP  
 server 351–355  
   communicating with 166  
   relies on MySQL and PHP 352  
   role 168  
 ServerSocket 167  
 Service 18, 24, 422  
   stopSelf() method 128  
   tags 25  
 services 116  
   binding to 124–128  
   compared to alarms 499  
   lifecycle 128–129  
   long-running 119  
   starting 127  
   tag 25  
   vs. background fragment 553  
 setActionView() method 574  
 setAlarm() method 221  
 setArguments(Bundle) method 550  
 setBackgroundColor() method 77  
 setBackgroundDrawable() method 77  
 setBounds() method 228  
 setClickable() method 77  
 setContentView() method 28, 69, 92  
 setCustomView() method 567  
 setDisplayHomeAsUpEnabled() method 563, 573  
 setDisplayOptions() method 563  
 setDisplayShowCustomEnabled() method 563  
 setDisplayShowHomeEnabled() method 563  
 setDisplayShowTitleEnabled() method 563  
 setDisplayUseLogoEnabled() method 563  
 setEmail() method 324  
 setFocusable() method 77  
 setGravity() method 77, 209  
 setHeight() method 77  
 setIcon() method 567  
 setLayoutParams() method 77  
 setListAdapter() method 81  
 setListNavigationCallbacks() method 566, 569  
 setLoadWithOverviewMode() method 551  
 setMediaController() method 266  
 setMinimumHeight() method 77  
 setMinimumWidth() method 77  
 setNavigationMode() method 566, 569  
 setNotificationUri() method 158  
 setOnClickListener() method 77  
 setOnCompletionListener() method 264  
 setOnDragListener() method 588  
 setOnFocusChangeListener() method 77  
 setPadding() method 77  
 setResult() method 351  
 setSelectedNavigationItem() method 566  
 setShowAsAction() method 572  
 setTabListener() method 567  
 setText() method 77, 567  
 Settings button() method 317  
 setTypeFace() method 78  
 setUseWideViewPort() method 551

- setVideoFrameRate() method 278
- setVideoPath() 266
- setVideoPath() method 266
- setVideoSize() method 278
- setWidth() method 78
- SGL 10
- shadow builder 583–584
- Shape 228
- ShapeDrawable 228
- SharedPreferences 322, 324
  - access mode 133
  - Context 131
  - Editor 133
  - objects 134
  - storing with different modes 131
  - XML files permissions 134
- sharedUserId 139
- Short Message Service. *See* SMS
- showAsAction 571
- ShutterCallback 270
- signature
  - capturing with CloseJob Activity 345
  - electronic 313
  - JPEG image 318
- SIM cards
  - stored identifiers 190
  - used by GSM devices 190
- Simple API for XML 78
- Simple Object Access Protocol. *See* SOAP
- simulator vs. emulator 54
- single logical contact 410
- SiteMonitor
  - application architecture 480–483
  - basics 476–479
  - monitors website health 477
  - supports multiple conditions 478
- SiteMonitorModel class, two logical sections 483
- SiteMonitorService 498
- size tag 231
- smart shortcut 475
- smartphone, major players 7
- SMS 41–205
  - pdus 204
  - permissions 203
  - receiving messages 204
  - send message to emulator 22
  - sending messages 201–202
- SmsManager 201
- SmsMessage 201, 205
- SMTP rigorous procedures 164
- SOAP 161, 185, 315
  - imposes strict rules 179
  - kSOAP 186
  - proxy 186
- Sobel Edge Detection 525
  - convolution 536
  - highlighting image edges 529
- Socket 167, 380
- socket interface 387
- software development kit. *See* SDK
- software version 194
- sound, adding to a notification 219
- source-level debugging, Eclipse 36
- speech codecs 261
- Spinner class 68
- Splash Activity 319
- splash page, functionality 321
- splash screen 316, 320
- splashhandler 322
- SPP 387
- SQL 23
  - functionality 440
  - local database 450
- SQLite 10, 315, 363
  - built-in database system 145
  - database 373
  - insert, update, and delete data 149
  - insertion of data 371
  - and link command 365
  - query 150
  - supports WeatherReporter 130
- SQLite database 407
- SQLite3 145, 373
  - tool 150
- SQLiteDatabase 149, 155
- SQLiteOpenHelper 146
- SQLQueryBuilder 157
- src folder 46
- SSL 314
- stack 386
- stacks 72
- Stagefright
  - introduction to 260–263
  - overview 261–263
  - supported files, services, and features 261
- StagefrightPlayer 262
- standalone resources 93
- start routine 367
- startActivity() method 18, 106
- startActivityForResult() method 18, 324–325, 341
- startAnimation() method 98
- startDocument() method 334
- startDrag() method 582–583, 586
- startElement() method 334
- starting path 135
- startRecording() method 275
- startService() method 18, 127

state, persistent 75  
 –static command-line switch 359  
 –static flag, applications self-contained 363  
 static method 483  
 status code, should be internal 522  
 stopRecording() method 275  
 storing raw contact data 410  
 String 334, 483  
 <string> element 95  
 String type and AIDL 121  
 StringBuilder 334  
 strings  
   comparison 469  
   identifying and managing 513  
   in resources 518  
   pipe-delimited return 478  
 strings.xml file 47, 515  
 stroke tag 231  
 Structured Query Language. *See* SQL  
 Stub class 121  
 <style> element 97  
 style sheet 447  
 style.xml, theme styles 576  
 styles 95–96  
 stylus 318, 345  
 summary/detail view 548  
 SummaryListFragment 548–549  
 <supports-screens> element 101  
 surface object, and video recording 276  
 surface, managing 242  
 surfaceChanged() method 242  
 surfaceCreated() method 242  
 surfacedChanged() method 255  
 surfaceDestroyed() method 242  
 SurfaceHolder 242–243  
 SurfaceHolder.Callback 243  
 SurfaceView 242  
 sync 421  
   across multiple terminals 421  
   retrying 422  
 synchronization. *See* sync  
 synchronizing lifecycle 432  
 System.currentTimeMillis() method 222  
 SystemClock.elapsedRealtime() method 222

## T

---

tab navigation on action bar 566–569  
   listening for tab events 568–569  
   setting up 567  
 tablet  
   Android 3.0 and 30  
   Android, developing for 30

form factor 30  
   market share 31  
 takePicture() method 267, 271  
 targetSdkVersion property 100  
 TCP 371  
   reliable 164  
   sockets 373  
 TCP/IP 162  
 TDMA 190  
 tel type 110  
 telephony 189  
   alphabetic keypad 199  
   format number 198  
   outgoing call 200  
   permission 194  
 TelephonyManager 188, 192  
 telnet 44  
 testing, run under varied conditions 603  
 .text 368  
 TextView 378  
   methods 77  
   presents job details 341  
 theme style items, commonly used 576  
 Theme.Holo.NoActionBar 575  
 Theme.Holo.NoActionBar.Fullscreen 575  
 themes 97  
   and action bar 575  
 threads 82  
   HandlerThread class 82  
 TimerTask 234  
 timestamp, appending 144  
 titled 401  
 Toast 415  
   creating 208  
   custom view 210–212  
   displaying 208  
   introduction to 207–209  
   placing 209–212  
 toBundle 341  
 tool chain, cross compiling 357  
 tools, linker 357  
 toString method, displaying jobs 329  
 toXMLString 329, 331  
 transaction function, unpacking 454  
 translation team 517  
 Transport Layer 163  
 troubleshooting 436  
 try/catch blocks 51

## U

---

U.S. National Oceanic and Atmospheric  
 Administration. *See* NOAA  
 UDP, fire and forget 164

## UI

- changes 47
- distortion 516
- Unix, DayTime Server 370
- update, triggering 500
- updateDetails 551
- Uri class 103
  - custom URIs 110–114
  - parse() method 106
- UriMatcher 155
- URIs 13
  - Content 23
  - examples 14
  - syntax 151
- URL 13
  - product information 317
- Usage Stats 600
- user agent 446
- user friendly 473
- user ID 139
- user interfaces 65–101
- UsernamePasswordCredentials 176
- uses-feature 277
- uses-library 299
- uses-permission 25, 380
  - tag 25
- <uses-permission> element 100
- <uses-sdk> element 100

**V**

- 
- Values 47
  - values
    - externalizing 95
    - simple value 96
  - Vector 331
  - Verizon, Get It Now 7
  - versionCode 602
  - versionName 602
  - video
    - frame rate, setting 278
    - playing 264–266
    - recording 276–282
      - permissions 276
      - surface object required 276
    - size, setting 278
  - video application, debugging 282
  - video conferencing 282
  - video telephony 261
  - VideoView 264
  - View 349
    - drag-and-drop classes 580
    - focus methods 88

- invalidate() method 236
- methods 77
- subclasses 77
- widgets 400
- View.setOnDragListener() method 587
- ViewGroup class 77, 86
  - inner classes 86
- viewport
  - meta tag options 445
  - tag, adding 444
- views 65, 75–90
  - and events 89
  - assigning IDs to 94
  - common 76–78
  - composite views 93
  - custom 83–85
  - defining with XML 93
  - Devices 40
  - Eclipse 37
  - Emulator Control 41
  - File Explorer 41, 134
  - FILL\_PARENT constant 87
  - Javadoc 38
  - Layout 48
  - lifecycle 85
  - LogCat 40, 50, 60
  - Package Explorer 37, 46
  - Problems 38, 51
  - referencing 69
  - ViewGroup class 76–88
  - XML 48
- vnd.android.cursor.dir 153
- vnd.android.cursor.item 153
- voicemail type 110

**W**

- 
- WeatherReporter 150
  - WeatherReporter application 110–129
  - web camera, connecting to 268
  - web control, desired behavior 459
  - Web Inspector, WebKit 457
  - web services 179–186
  - Web Tools Platform 591
  - web view, ensuring proper fit 551
  - WebChromeClient class 470
  - WebKit 6, 10
    - and KDE 440
    - tools
      - Error Console 457
      - for testing 457
      - Web Inspector 457
  - WebView browser 461
  - WebViewClient 466

- WebViewFragment 548, 550
- widget instance, create 497
- widgets 48
  - zombie 490
- Wi-Fi 161
  - Bluetooth similar to 386
  - no emulation layer 161
- WiMAX 161
- Windows 7
  - finding IP address 168
  - NTLM 177
- Windows Mobile 10
- WinRAR 53
- WinZip 53
- Workbench 592
- Worldwide Interoperability for Microwave Access.
  - See* WiMAX
- WRITE\_EXTERNAL\_STORAGE 276
- WRITE\_EXTERNALSTORAGE permission 267
- WS-\* 186

**X**

---

## XML

- drawing graphics with 228–230
  - layout 229
  - shapes 230–231
  - type tag 229
- parsing 182
- resources 140
- Schema 185
- stream 354
- xmldrawable.xml 230
- XmlPullParser 142

**Z**

---

- zombie widgets 490