

# **EXHIBIT D**

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ORACLE AMERICA, INC.

23 ORACLE AMERICA, INC.

Case No. CV 10-03561 WHA

24 Plaintiff,

**PLAINTIFF'S SUPPLEMENTAL  
RESPONSES TO DEFENDANT'S  
INTERROGATORIES, SET NO. 1  
(INTERROGATORY NOS. 1-10)**

25 v.

26 GOOGLE INC.

**MAY CONTAIN GOOGLE HIGHLY  
CONFIDENTIAL – ATTORNEYS'  
EYES ONLY INFORMATION**

27 Defendant.

1 PROPOUNDING PARTY: Defendant Google Inc.

2 RESPONDING PARTY: Plaintiff Oracle America, Inc.

3 SET NO.: One (Interrogatories 1-10)

4 Pursuant to Rules 26 and 33 of Federal Rules of Civil Procedure, Plaintiff Oracle  
5 America, Inc. (“Oracle”) hereby submits the following supplemental responses and objections to  
6 Defendant Google Inc.’s (“Google”) First Set of Interrogatories.

7 **INTERROGATORY NO. 1:**

8 State in detail Oracle’s factual bases for each allegation of damage or harm that Oracle  
9 claims to have suffered as a result of any act or omission of Google.

10 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 1:**

11 As Oracle’s damages and harm contentions are subject to ongoing discovery and expert  
12 analysis, Oracle objects to this interrogatory as premature. Oracle has not yet completed its  
13 investigation of the documents and facts relevant to the claims and defenses asserted in this  
14 action, and has not received all relevant documents and information from Google or third parties.  
15 Accordingly, Oracle’s responses are based on the information reasonably available at this time  
16 and Oracle will supplement this response as appropriate under the Federal Rules of Civil  
17 Procedure. Subject to these objections, Oracle responds as follows:

18 Oracle is entitled to all legal, statutory, and equitable remedies available. This potentially  
19 includes, for example, damages in the form of lost profits Oracle would have made without the  
20 infringement, the value of or a reasonable royalty for a license for the rights infringed, and  
21 disgorgement of profits made by Google that are attributable to the infringement. The relevant  
22 factual inquiries are with respect to past and future damages on a worldwide basis. In addition,  
23 because Google’s infringement has been willful and intentional, Oracle is entitled to recover  
24 treble damages, pursuant to 35 U.S.C. § 284. Oracle is also entitled to recover the costs of suit,  
25 prejudgment interest, and attorney’s fees under 35 U.S.C. § 285. Oracle also seeks injunctive  
26 relief.

27 The factual basis for recovery of the value of the infringed intellectual property includes  
28 evidence that a reasonable royalty a willing buyer would have been reasonably required to pay a

1 willing seller in a hypothetical negotiation for a license to the infringed property at the time of the  
2 infringement would have been substantial. These facts include, for example:

- 3 • A significant licensing history for Java and other patents and software showed that  
4 substantial royalties were necessary to protect Oracle's and Sun's business model and  
5 marketing program for Java, including the importance of preventing fragmentation of  
6 Java, and Google was aware of Java licensing practices and the importance of  
7 preventing fragmentation to Sun and Oracle;
- 8 • Oracle and/or Sun invested significant sums to obtain, develop and improve the  
9 intellectual property at issue as well as Java more generally;
- 10 • Java technologies, including notably the patents and copyrights in suit, had substantial  
11 value, as reflected, for example, by Oracle's proposal in March 2009 to buy Java and  
12 other software assets from Sun for more than \$2 billion and Oracle's eventual  
13 acquisition of Sun for \$7.4 billion;
- 14 • Protecting Java and related or ancillary products and services from fragmentation was  
15 extremely valuable to Sun and Oracle;
- 16 • Java and the patented technologies represented and represent significant advantages  
17 over alternative development platforms and technologies and therefore had  
18 tremendous value to Oracle and Sun, including in the mobile space;
- 19 • Google recognized the value of Java and the patented and copyrighted technologies at  
20 issue, both independently and as part of Android, and recognized the need for a license  
21 to use the Java technologies in any mobile platform;
- 22 • Launching Android was of significant strategic and financial value to Google,  
23 including by enabling Google to respond to the threat posed by other mobile platforms  
24 to Google's existing and anticipated revenues;
- 25 • Java and the infringed technologies were extremely important to Google in terms of  
26 meeting its strategic goals of quickly developing and launching a mobile platform and  
27 building a broad base of developers for that platform;

- Google expected that Android would be widely adopted, and used of the infringing technology to ensure widespread distribution of Google ad and application services;
- Google expected to earn and has earned large amounts as a consequence of using the infringed intellectual property in Android, including by planning to use using Android (and the infringed intellectual property) to promote sales and licensing of other Google products, such as search and advertising, and reap revenue from third-party development and other sources;
- Google avoided paying and expects to avoid paying substantial amounts to manufacturers and others as a consequence of using the infringed intellectual property in Android, such as any revenue sharing payments that would otherwise have been made by Google to handset manufacturers but for Android;
- Using the infringed intellectual property in Android provided strategic benefits to Google, including the benefit of obtaining control over Google's own destiny in mobile-based advertising and other applications and services and the reinforcement of Google's dominant position in online advertising across platforms and computing environments;
- Significant network effects resulted and were expected from the infringement for both Oracle and Google, including the adverse impact of Android (and the infringement) on the Java brand, the perceived and actual value of Java technology, and the Java ecosystem, and the positive impact of Android on reinforcement of the value of Google's existing position in search, advertising and other markets;
- Google would have earned significantly less in the absence of the infringement, including but not limited to the mobile space, as compared to the amounts that Google expected to earn and currently earns in connection with and as a result of the infringement;
- Google has obtained licenses for other intellectual property;
- Reasonable non-infringing alternatives were unavailable, not viable, and/or extremely costly to Google;

- Google avoided significant costs as a consequence of the infringement;
- The patented technologies and copyrighted materials were extremely important to Google as compared to any reasonable non-infringing alternatives;
- Oracle and Google were and could be expected to be competitors in the provision of platform software for mobile and other devices;
- Sun and Oracle extensively and repeatedly discussed financial and other terms of a license and terms for development of a compatible mobile platform or Android, including terms relating to the payment of royalties;
- Sun expected that it would earn substantial revenues in connection with a compatible mobile platform, particularly as compared to the incompatible Android platform;
- Sun expected that it would lose substantial revenues from the distribution of a mobile platform incorporating the infringed technologies, and these losses would be particularly high if the platform was incompatible with Java;
- Oracle and Sun made clear to Google that Android, even if compatible with Java, would put Java revenue at risk;
- Google knowingly infringed the Sun/Oracle IP, and therefore put its entire investment in Android and its reputation on the line;
- The value (both absolutely and as a portion or component of Android) of the intellectual property at issue was significant, and that property has a substantial remaining economic life;
- Oracle and Google both had strategies for realizing economic return, including licenses, relating to the infringement;
- Sun and Oracle expected substantial losses, and have in fact incurred losses, as a consequence of the infringement, and Google understood the likelihood of those expected and actual losses, including loss of Java licensing and ancillary revenue opportunities, price or royalty erosion, reduction in market opportunities in markets for Oracle's Java-related products, and other losses as a direct or indirect consequence of demand for and Google's distribution of Android; and

- 1           • There was significant actual and expected demand for mobile and other devices using  
2           Android.

3           A variety of documents showing the facts above have been produced in discovery or are publicly  
4           available.<sup>1</sup> Google's initial deposition testimony also supports a number of these facts.<sup>2</sup> Others  
5           will be the subject of testimony by Oracle witnesses disclosed in Oracle's initial disclosures, and  
6           still others may be the subject of third party testimony. Some of the evidence of these facts, as  
7           well as evidence of other relevant factors about which Oracle does not yet know, is uniquely  
8           within Google's and others' possession. Google has made public statements regarding some of  
9           these facts, including for example the success of distribution of Android, Google's expectation of  
10          revenue therefrom, and the profitability thereof.<sup>3</sup>

11           The factual basis for a claim for recovery of Google's profits attributable to the  
12          infringement also includes, for example: (1) the fact that Google has a business model for

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13  
14           <sup>1</sup> See, e.g., GOOGLE-01-00017250; GOOGLE-14-00001233; GOOGLE-01-00017299; GOOGLE-01-00017315;  
15           GOOGLE-01-00019529; GOOGLE-01-00019527; GOOGLE-01-00025576; GOOGLE-01-00023102; GOOGLE-01-  
16           00053552; OAGOOGLE0000357494; OAGOOGLE0000140115; OAGOOGLE0000139561; Java licenses produced  
17           at OAGOOGLE0000052860-OAGOOGLE0100062852; Sun-Microsoft agreements available at  
<http://www.sec.gov/Archives/edgar/data/709519/000119312504155723/0001193125-04-155723-index.htm>.

18           <sup>2</sup> See, e.g., April 5, 2011 Rule 30(b)(6) Deposition.

19           <sup>3</sup> For example:

- 20           • Google CEO Eric Schmidt was recently reported to note that "Google is positioning itself to earn \$10 billion  
21           or more per year in the mobile device business, thanks to its Android operating system," see *Wall Street  
Journal*, July 28, 2010 (available at <http://blogs.wsj.com/digits/2010/07/28/eric-schmidt-on-google%E2%80%99s-next-tricks/>);
- 22           • Google's Andy Rubin recently stated that activation of Android devices has reached 300,000 per day, see  
23           *Wall Street Journal*, December 9, 2010 (available at <http://blogs.wsj.com/digits/2010/12/09/google-more-than-300000-android-phones-activated-each-day/>);
- 24           • It was reported in December 2010 that "Google executives said the company was on track to generate \$1  
25           billion annually in mobile-related revenue," see *Wall Street Journal*, "Google to Release new 'Nexus'  
Phone," December 7, 2010 (available at <http://online.wsj.com/article/SB10001424052748704156304576003454213544140.html>);
- 26           • Google's CEO Eric Schmidt has been reported as stating that "Android-based phones already generate  
27           enough new advertising revenue to cover the cost of the software's development"; *Newsweek*, "Android  
Invasion," October 3, 2010 , at 3 (available at <http://www.newsweek.com/2010/10/03/how-android-is-transforming-mobile-computing.html>)
- 28           • Mr. Schmidt has also been reported as stating: "Trust me that revenue is large enough to pay for all of the  
Android activities and a whole bunch more." *International Business Times*, "Does Google Have an  
Android Revenue-Model?," August 10, 2010 (available at <http://www.fool.com/investing/general/2010/08/10/does-google-have-an-android-revenue-model.aspx>).

1 realizing substantial revenue from Android, including, at a minimum, revenue and gross profits  
2 from the sale or licensing of Android-compatible applications,<sup>4</sup> developer access to Google  
3 resources or accounts,<sup>5</sup> and Google mobile search, location services, advertising, and other  
4 services<sup>6</sup> (in addition to other Android-related revenue and profit streams obtained by third-party  
5 application developers, device manufacturers and others); (2) the fact that Google has realized  
6 substantial revenue as a result of the infringement; (3) the fact that Google has a strategic  
7 goal of ensuring that it is not dependent on third party (particularly competitor) platforms for  
8 success in the mobile environment, including losses or reductions in revenue Google did and does  
9 not incur because it was able to avoid certain challenges to its core businesses;<sup>7</sup> (4) the fact that  
10 Google has experienced significant benefits in its preexisting application and service businesses  
11 as a result of the success of Android and because of the infringement; and (5) the fact that Google  
12 avoided costs as a consequence of the infringement, including costs of developing or acquiring  
13 non-infringing alternatives (to the extent they existed or exist), either within or outside the Java  
14 context, that would have enabled Google to achieve its revenue and strategic objectives. Much of  
15 the evidence of these facts, as well as evidence of other relevant factors about which Oracle does  
16 not yet know, is uniquely within Google's possession.

17 In addition to the above, the factual basis for a claim for recovery of Oracle's lost profits  
18 (both with respect to diverted or lost revenues and profits and loss of ancillary, convoyed or other  
19 opportunities) includes, for example: (1) the fact that Sun and Oracle have had business plans for  
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21 <sup>4</sup> See, e.g., *Mobile Entertainment*, "Mobile Entertainment's Guide to Android," May 2010 (available at  
22 <http://www.androidtapp.com/android-growth-statistics-projections/>) (presenting projections and assumptions on  
growth and average pricing of, and revenue from, Android applications).

23 <sup>5</sup> See, e.g., *Pocketnow.com*, "How Does Google Make Money with Android?," October 3, 2010 (available at  
<http://pocketnow.com/android/how-does-google-make-money-with-android>).

24 <sup>6</sup> See, e.g., *Wall Street Journal*, "Google Executive Says Local Advertising Is Top Focus," December 7, 2010  
(available at <http://blogs.wsj.com/digits/2010/12/07/google-executive-says-local-advertising-is-top-focus/>)  
(statements regarding success and growth of Google's mobile advertising business).

25 <sup>7</sup> For example, as Google reported in a recent public filing, "More individuals are using devices other than personal  
computers to access the internet. If users of these devices do not widely adopt versions of our web search technology,  
products, or operating systems developed for these devices, our business could be adversely affected." Google Form  
10Q for the period ended September 30, 2010, p. 46 (available at  
[http://investor.google.com/documents/20100930\\_google\\_10Q.html](http://investor.google.com/documents/20100930_google_10Q.html)).

1 Java that are and have been premised in significant part on preventing or minimizing “forks” in  
2 Java and developing and maintaining a wide base of use by both programmers and end users; (2)  
3 the fact that Sun and Oracle have lost and will lose significant Java licensing opportunities,  
4 suffered and will suffer price and royalty erosion, experienced and will experience reduction in  
5 market opportunities in markets for Oracle’s Java-related products and services, and have  
6 suffered and will suffer other losses as a direct or indirect consequence of demand for and  
7 Google’s distribution of Android; (3) the fact that the infringement has had and will have  
8 significant adverse impact on the Java brand, on the perceived and actual value of the Java  
9 technology, and the Java development community; (4) the fact that Sun and Oracle have lost and  
10 will lose cross-sell and up-sell opportunities based on the ability to use either Java or a mobile  
11 platform to promote other Oracle products and services; (5) the fact that Sun and Oracle have  
12 incurred and will incur additional costs to undo the damage caused by the infringement; and (6)  
13 Sun and Oracle have suffered and will suffer harm to their reputation and goodwill, including loss  
14 in value to the reputation and brand value of Java. Google itself recognizes the value and  
15 importance of avoiding fragmentation of software platforms, including Android.<sup>8</sup> Oracle’s Java  
16 technology has generated significant revenue for Sun and Oracle, much of it related to high-  
17 margin licensing, application sales, and other revenue opportunities in the mobile environment  
18 and elsewhere that have been and continue to be diminished by Google’s infringement of  
19 Oracle’s Java patents and copyrights.

20 In addition to many of the items described above, the factual basis for Oracle’s claim of  
21 irreparable harm includes, for example:

22  
23  
24 <sup>8</sup> See, e.g., Ars Technica, “Google: carriers should give Android users freedom to unlock bootloader,” December 2010  
25 (available at <http://arstechnica.com/gadgets/news/2010/12/google-carriers-should-give-android-users-freedom-to-unlock-bootloader.ars>) (“Google has very effectively used its exclusive control over the Android Market and Google-branded applications as a means of forcing most of the carriers and handset makers to refrain from fragmenting the platform. . . .”); Newsweek, “Android Invasion,” October 3, 2010, at 4 (available at  
26 <http://www.newsweek.com/2010/10/03/how-android-is-transforming-mobile-computing.html>) (“Such fragmentation  
27 has been the Achilles’ heel of every open-source project. To counter it, Rubin and his team have created a  
compatibility test suite, a list of things a phone must have in order to carry the Android brand and to run applications  
like Google Maps.”).

- Oracle practices the copyrights and patents in suit in its own Java-related products and authorizes others to practice them through its Java licensing program.
- Google has violated Oracle's exclusive rights to practice and to authorize others to practice the copyrights and patents.
- Google's infringement depresses the market for Oracle's Java-related products and causes Oracle customers to question the value of their Java licenses, damaging the goodwill associated with Oracle's Java products and brand.
- Google's infringement has caused fragmentation, including through the fact that Android runs an unauthorized version of various Java libraries (Apache Harmony), thereby causing confusion among software developers. Particularly in light of Android's popularity, Oracle is irreparably harmed each time a programmer learns and practices Android over Java.
- Google's infringement impedes the growth of a Java applications market that would fuel demand for authorized Java and Java-related products, causing further loss of market share.

The foregoing answer supplements Oracle's initial disclosures pursuant to Fed. R. Civ. Proc. 26(a)(1) and its previous response to this interrogatory. The information provided in this supplemental response is subject to theories and additional factual support to be set forth in any expert reports. In light of the date specified by the Court for disclosure of affirmative expert reports on damages, Oracle notes that because significant evidence relating to Oracle's damages claims—including, for example, disgorgement of Google's profits from the infringement, Google's expectations as to the value of the infringed intellectual property, and the appropriate amount of damages corresponding to Google's willful infringement—is in Google's possession, timely production of information and documents relating to damages by Google will be necessary in order for Oracle's experts to be able to provide detailed quantifications of Oracle's damages in their initial reports.

1      **INTERROGATORY NO. 2:**

2                State in detail Oracle's factual bases for its claim of direct copyright infringement,  
3 specifically including a comparison of each element of Java software, including without  
4 limitation any class libraries, API packages, method names, class names, definitions,  
5 organizational elements, parameters, structural elements, and documentation, to the  
6 corresponding Android element, as Oracle did in Exhibit J to its Amended Complaint.

7      **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 2:**

8                Oracle owns many copyrights in the code, documentation, specifications, libraries, and  
9 other materials that comprise the Java platform. As new versions of the Java platform were  
10 developed and the materials revised, the copyrights were registered with the United States  
11 Copyright Office, including TX0004416302; TX0004326014; TX0004616088; TX0005271787;  
12 TX0005316757; TX0005316758; TX0005359984; TX0005359985; TX0005359986;  
13 TX0005359987; TX0005392885; TX0006066538; TX0006143306; and TX0006196514. Google  
14 has infringed Oracle's copyrights.

15                Android Application Programmer Interface (API) package specifications (whether or not  
16 from the Apache Harmony project) that correspond to Oracle's Java API specifications are  
17 unauthorized derivative work, and Google's unauthorized copying and distribution of them is  
18 copyright infringement. A comparison of Android's API package specifications (available at  
19 <http://developer.android.com/reference/packages.html>) with Oracle's copyrighted Java API  
20 package specifications (for example, available at  
21 <http://download.oracle.com/javase/1.5.0/docs/api/>,  
22 <http://download.oracle.com/javase/1.4.2/docs/api/>, and  
23 <http://download.oracle.com/javase/1.3/docs/api/>)<sup>9</sup> demonstrates that the following Android  
24 package specifications are derived from or substantially similar to Oracle's copyrighted Java API  
25 package specifications:

26 \_\_\_\_\_  
27               <sup>9</sup> Oracle's copyright infringement claim applies to all versions of Oracle's Java API specifications and  
28 reference implementations from which Android derives, which include J2SE 1.2, J2SE 1.3, J2SE 1.4, and J2SE 5.0.

1. java.awt.font
2. java.beans
3. java.io
4. java.lang
5. java.lang.annotation
6. java.lang.ref
7. java.lang.reflect
8. java.math
9. java.net
10. java.nio
11. java.nio.channels
12. java.nio.channels.spi
13. java.nio.charset
14. java.nio.charset.spi
15. java.security
16. java.security.acl
17. java.security.cert
18. java.security.interfaces
19. java.security.spec
20. java.sql
21. java.text
22. java.util
23. java.util.jar
24. java.util.logging
25. java.util.prefs
26. java.util.regex
27. java.util.zip
28. javax.crypto

1           29. javax.crypto.interfaces  
2           30. javax.crypto.spec  
3           31. javax.net  
4           32. javax.net.ssl  
5           33. javax.security.auth  
6           34. javax.security.auth.callback  
7           35. javax.security.auth.login  
8           36. javax.security.auth.x500  
9           37. javax.security.cert  
10          38. javax.sql  
11          39. javax.xml  
12          40. javax.xml.datatype  
13          41. javax.xml.namespace  
14          42. javax.xml.parsers  
15          43. javax.xml.transform  
16          44. javax.xml.transform.dom  
17          45. javax.xml.transform.sax  
18          46. javax.xml.transform.stream  
19          47. javax.xml.validation  
20          48. javax.xml.xpath

21         Some Android package API specifications are substantially similar to selected portions of  
22 some of the Oracle Java API package specifications (*e.g.*, java.awt.font, java.beans) while other  
23 Android package API specifications are substantially similar to complete portions of other Oracle  
24 Java API package specifications (*e.g.*, java.io, java.lang, java.net, java.nio, java.security, java.sql,  
25 java.text). Exhibits A-E are illustrative examples.<sup>10</sup>

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26           <sup>10</sup> The illustrative examples are taken from <http://download.oracle.com/javase/1.5.0/docs/api/> and  
27 <http://developer.android.com/reference/packages.html>.

1           The Android source and object code (whether or not from the Apache Harmony project)  
2 that purports to implement Oracle's Java API specifications is unauthorized derivative work, and  
3 Google's unauthorized copying and distribution of it is copyright infringement. *See, e.g.*, "What  
4 is Android?" (available at <http://developer.android.com/guide/basics/what-is-android.html>  
5 ("Android includes a set of core libraries that provides most of the functionality available in the  
6 core libraries of the Java programming language.")); Package Index (available at  
7 <http://developer.android.com/reference/packages.html>), including those API packages listed  
8 above, and subsidiary webpages; and source code and documentation files available in:<sup>11</sup>

9 For Android 2.2 ("Froyo"):

- 10         • dalvik\libcore\security\src\main\java\java\security;
- 11         • dalvik\libcore\security\src\main\java\javax\security\cert;
- 12         • dalvik\libcore\security\src\main\java\org\apache\harmony\security;
- 13         • dalvik\libcore\math\src\main\java\java\math;
- 14         • dalvik\libcore\math\src\main\java\org\apache\harmony\math;
- 15         • dalvik\libcore\luni\src\main\java\java;
- 16         • dalvik\libcore\luni\src\main\java\org\apache\harmony\luni;
- 17         • dalvik\libcore\luni-kernel\src\main\java\java\lang;
- 18         • dalvik\libcore\luni-kernel\src\main\java\org\apache\harmony\kernel;
- 19         • dalvik\libcore\luni-kernel\src\main\java\org\apache\harmony\lang;
- 20         • dalvik\libcore\nio\src\main\java\java.

21 For Android 2.3 ("Gingerbread"):

- 22         • libcore\luni\src\main\java\java\security;
- 23         • libcore\luni\src\main\java\javax\security\cert;

24         <sup>11</sup> Google continues to modify the source code available through <http://android.git.kernel.org>. Such changes  
25 are subject to the discovery Oracle has propounded on Google. In any event, the cited source code examples are  
26 taken from <http://android.git.kernel.org/>. The citations are shortened and mirror the file paths shown in  
27 <http://android.git.kernel.org/>. For example, "dalvik\vm\native\InternalNative.c" maps to "[platform/dalvik.git] / vm /  
native / InternalNative.c" (accessible at <http://android.git.kernel.org/?p=platform/dalvik.git;a=blob;f=vm/native/InternalNative.c>) before modification by  
Google.

- 1       • libcore\luni\src\main\java\org\apache\harmony\security;
- 2       • libcore\luni\src\main\java\java\math;
- 3       • libcore\luni\src\main\java\java;
- 4       • libcore\luni\src\main\java\org\apache\harmony\luni;
- 5       • libcore\luni\src\main\java\java\lang;
- 6       • libcore\luni\src\main\java\org\apache\harmony\kernel;
- 7       • libcore\luni\src\main\java\org\apache\harmony\lang;
- 8       • libcore\luni\src\main\java\java\nio.

9           Google has created and distributed infringing works written in native code, in addition to  
10 Java code, that derive from Oracle's copyrighted works. For example, Google makes and  
11 distributes dalvik\vm\native\java\_lang\_Class.c, which is based on Oracle's java.lang.Class  
12 specification. Other examples include:

- 13       • dalvik\vm\native\java\_lang\_Object.c
- 14       • dalvik\vm\native\java\_lang\_reflect\_AccessibleObject.c;
- 15       • dalvik\vm\native\java\_lang\_reflect\_Array.c;
- 16       • dalvik\vm\native\java\_lang\_reflect\_Constructor.c;
- 17       • dalvik\vm\native\java\_lang\_reflect\_Field.c;
- 18       • dalvik\vm\native\java\_lang\_reflect\_Method.c;
- 19       • dalvik\vm\native\java\_lang\_reflect\_Proxy.c;
- 20       • dalvik\vm\native\java\_lang\_Runtime.c;
- 21       • dalvik\vm\native\java\_lang\_String.c;
- 22       • dalvik\vm\native\java\_lang\_System.c;
- 23       • dalvik\vm\native\java\_lang\_Throwable.c;
- 24       • dalvik\vm\native\java\_lang\_VMClassLoader.c;
- 25       • dalvik\vm\native\java\_lang\_VMThread.c; and
- 26       • dalvik\vm\native\java\_security\_AccessController.c.

27           *See also, e.g., source code files in libcore\luni\src\main\native; libcore\luni-*  
28           *kernel\src\main\native.*

1           Google's Android videos directly reference inclusion of Java libraries in Android, e.g.:  
2           •        Google Presentation, entitled "Android: Securing a Mobile Platform from the  
3       Ground Up," presented by Rich Cannings (Google's Android Team) at the Usenix 18th Security  
4       Symposium (Aug. 12, 2010), available at <http://www.usenix.org/events/sec09/tech/>.  
5           •        Google I/O 2010 Video, entitled "A JIT Compiler for Android's Dalvik VM,"  
6       presented by Ben Cheng and Bill Buzbee (Google's Android Team), available at  
7       <http://developer.android.com/videos/index.html?v=Ls0tM-c4Vfo>.  
8           •        Google I/O 2008 Video, entitled "Dalvik Virtual Machine Internals," presented by  
9       Dan Bornstein (Google Android Project), available at  
10      <http://developer.android.com/videos/index.html?v=ptjedOZEXPM>.

11          Moreover, Google admits that Android incorporates a subset of Apache Harmony, which  
12       it asserts is "an implementation of Sun's Java." (*See, e.g.*, Google's Amended Counterclaims  
13      ¶¶ 6-7, 13.)

14          Google has distributed by way of Android and Android-related websites source and object  
15       code derived from or substantially similar to Oracle's source code or to decompiled Oracle object  
16       code, including:

- 17           •        /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Acl  
18                 EntryImpl.java
- 19           •        /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Acl  
20                 Impl.java
- 21           •        /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Gro  
22                 upImpl.java
- 23           •        /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Ow  
24                 nerImpl.java
- 25           •        /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Per  
26                 missionImpl.java
- 27           •        /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Pri  
28                 ncipalImpl.java

- 1       • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/cert/Po  
2       licyNodeImpl.java  
3       • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Acl  
4       Enumerator.java (which was obtained by decompiling Oracle's  
5       /sun/security/acl/AclEnumerator.class)  
6       • /dalvik/libcore/luni/src/main/java/java/util/TimSort.java contains a method,  
7       rangeCheck, copied from Oracle's java/util/Arrays.java  
8       • /dalvik/libcore/luni/src/main/java/java/util/ComparableTimSort.java contains a  
9       method, rangeCheck, copied from Oracle's java/util/Arrays.java  
10      • /dalvik/libcore/security/src/test/java/org/apache/harmony/security/tests/java/security/C  
11       odeSourceTest.java contains comments copied from Oracle's  
12       /java/security/CodeSource.java  
13       • /dalvik/libcore/security/src/test/java/tests/security/cert/CollectionCertStoreParameters  
14       Test.java contains comments copied from Oracle's  
15       /java/security/cert/CollectionCertStoreParameters.java
- 16       Additional supporting evidence of Google's copyright infringement can be found at, *e.g.*,  
17       GOOGLE-00296156-75; GOOGLE-00296453-60; GOOGLE-00296959-61; GOOGLE-  
18       00296500-03; GOOGLE-00296507; GOOGLE-00297265; GOOGLE-00297033-38, GOOGLE-  
19       00297252-57, GOOGLE-00297361-65 and similar questionnaires signed by other developers;  
20       GOOGLE-00296203-07; GOOGLE-00296498-99; GOOGLE-00296523-24; GOOGLE-  
21       00296525-26; GOOGLE-00297075-76; GOOGLE-00392221-24; GOOGLE-00392197;  
22       GOOGLE-00392204-12; GOOGLE-00392198-203; GOOGLE-00392213-16; GOOGLE-  
23       00392183-94; GOOGLE-00392181-82; GOOGLE-00392178-80; GOOGLE-02-00081462;  
24       GOOGLE-03-00075095; GOOGLE-01-00029843-45; GOOGLE-01-00026813; GOOGLE-02-  
25       00018744; GOOGLE-01-00025454; GOOGLE-01-00023889.

26       Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
27       and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
28

1 responses are based on the information reasonably available at this time and Oracle will  
2 supplement this response as appropriate under the Federal Rules of Civil Procedure.

3 **INTERROGATORY NO. 3:**

4 State in detail Oracle's factual bases for each element of indirect copyright infringement,  
5 specifically including an identification of any direct infringement and a description of the acts of  
6 the alleged indirect infringer that contribute to or are inducing that direct infringement.

7 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 3:**

8 The factual bases for Oracle's indirect copyright infringement claim include facts  
9 demonstrating Google's direct infringement (discussed in response to Interrogatory Nos. 2 and 6);  
10 facts demonstrating that Google's infringement was done with knowledge of Oracle's copyrights  
11 (discussed in response to Interrogatory No. 4); and facts demonstrating that users of the Android  
12 Platform must copy and use portions of the Java Platform to manufacture and distribute Android  
13 devices (discussed in response to Interrogatory No. 7). Google actively and explicitly encourages  
14 the widespread adoption and implementation of the Android Platform by device manufacturers,  
15 service providers, software companies, and application developers. *See, e.g.,*  
16 developer.android.com. Google distributes the Android Platform through the Open Handset  
17 Alliance and the Android Open Source Project with the express purpose of encouraging a broad  
18 deployment of handsets and services using the Android Platform. *See, e.g.,*  
19 openhandsetalliance.com.

20 Google intends for device manufacturers to use and copy the code from its repository  
21 without modification. Manufacturers must execute Google's Compatibility Test Suite (CTS) for  
22 Google to certify their devices as "Android Compatible." See GOOGLE-00296158. To ensure  
23 they pass the test, "[d]evice implementers are strongly encouraged to base their implementations  
24 on the 'upstream' source code available from the Android Open Source Project" *Id.* Moreover,  
25 "[t]o ensure compatibility with third-party applications, device implementers MUST NOT make  
26 any prohibited modifications . . . to these package namespaces: java.\*; javax.\*; sun.\*; android.\*;  
27 com.android. . . . Device implementers MAY modify the underlying implementation of the

1 APIs, but such modifications MUST NOT impact the stated behavior and Java-language  
2 signature of any publicly exposed APIs.” GOOGLE-00296163.

3 **BEGIN GOOGLE HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY**

4 Examples of Google’s contracts with handset manufacturers requiring that their products  
5 pass the CTS can be found at GOOGLE-00393175-86; GOOGLE-00393210-22; and GOOGLE-  
6 00393223-38.

7 **END GOOGLE HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY**

8 As Google intended, Android software and Android-based devices have in fact been  
9 distributed by manufacturers and resellers, and copied, distributed, and supported by service  
10 providers and application developers.

11 Additional supporting evidence of Google’s indirect copyright infringement can be found  
12 at, *e.g.*, GOOGLE-00296523-24; GOOGLE-00297404; GOOGLE-00297553-55; GOOGLE-  
13 00300616-85; GOOGLE-00296389-99; GOOGLE-00296482-83; GOOGLE-00296156-75; and  
14 GOOGLE-00392673-00393063.

15 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
16 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle’s  
17 responses are based on the information reasonably available at this time and Oracle will  
18 supplement this response as appropriate under the Federal Rules of Civil Procedure.

19 **INTERROGATORY NO. 4:**

20 State in detail Oracle’s factual bases for its claims that any copyright infringement by  
21 Google (or for which Oracle claims Google is liable) was willful.

22 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 4:**

23 Google has willfully infringed the copyrights in suit, which protect the Java Platform  
24 source code and documentation. Many factors reveal that Google had knowledge that its actions  
25 constituted copyright infringement or acted with reckless disregard for Oracle’s rights. These  
26 factors include:

- 27 • Google is a member of the Java Community Process (JCP) and has a seat on the  
28 Java SE/EE Executive Committee. *See* Java Community Process homepage, available at

1 http://www.jcp.org/en/participation/committee. Through its participation in the JCP, Google is  
2 well aware of the need to obtain a license from Oracle in order to make use of Oracle's Java  
3 Platform technologies. Google's admissions in its Amended Counterclaims prove this awareness.  
4 (See, e.g., Google's Amended Counterclaims ¶¶ 6-7, 13.)

5 • Former Oracle (Sun) employees having knowledge of the Java Platform have been  
6 or are now employed by Google. Their knowledge is attributable to Google. The nature and  
7 extent of such employees' involvement in the development of Android is the subject of current  
8 outstanding Oracle discovery requests.

9 • Andy Rubin, Google's VP of Mobile Platforms, previously worked at Danger,  
10 Inc., which he founded. He understood the need to obtain a license from Oracle (then Sun) to use  
11 Java Platform technologies in Danger's Hiptop operating system, and Danger did obtain a  
12 commercial license. When Rubin left Danger and founded Android, Inc., he approached Sun  
13 about obtaining a commercial license to Java Platform technologies on behalf of Android, Inc.  
14 Those discussions ended without Android having obtained a commercial license. Rubin's  
15 knowledge is attributable to Google.

16 • Google has consistently resisted taking a license from Sun for Sun's copyrighted  
17 Java Platform technologies.

18 • In copying Oracle's Java Platform technologies, Google deliberately disregarded a  
19 known risk that Oracle held copyrights covering Java Platform technologies.

20 • Google's Android source code and documentation directly reference and copy  
21 Java Platform technology specifications, documentation, and source code. See, e.g.,  
22 dalvik\libcore\security\src\main\java\java\security\CodeSource.java (Froyo version);  
23 dalvik\libcore\support\src\test\java\org\apache\harmony\security\tests\support\cert\PoicyNodeImp  
24 1.java (Froyo version). Google admits that Android incorporates a subset of Apache Harmony,  
25 which it asserts is "an implementation of Sun's Java." (See, e.g., Google's Amended  
26 Counterclaims ¶¶ 6-7, 13.)

27 • Google's website content directly references and demonstrates use of Java  
28 Platform technologies. See, e.g., "What is Android?", available at

1        <http://developer.android.com/guide/basics/what-is-android.html> (“Android includes a set of core  
2        libraries that provides most of the functionality available in the core libraries of the Java  
3        programming language.”); Package Index, available at  
4        <http://developer.android.com/reference/packages.html>, and subsidiary webpages.

5              •        Google’s Android videos directly reference and demonstrate use of Java Platform  
6        technologies. *See, e.g.*, Google I/O 2008 Video entitled “Dalvik Virtual Machine Internals,”  
7        presented by Dan Bornstein (Google), available at  
8        <http://developer.android.com/videos/index.html?v=ptjedOZEXPM>.

9              •        Oracle’s Java specifications bear copyright notices identifying them as being  
10       Oracle’s copyrighted works, as well as legends notifying the public that the technologies  
11       described may be protected by Oracle’s patents: “The release described in this manual may be  
12       protected by one or more U.S. patents, foreign patents, or pending applications.” *See, e.g.*, *Java*  
13       *Application Programming Interface, Vol. 1 Core Packages* (“© 1996 Sun Microsystems, Inc.”);  
14       *The Java Language Specification* (“© 1996 Sun Microsystems, Inc.”). Google and its employees  
15       were on notice of Oracle’s proprietary rights before and during the development of Android.

16           Additional supporting evidence of Google’s willful copyright infringement can be found  
17       at, *e.g.*, GOOGLE-00248372; GOOGLE-00296156-75; GOOGLE-00296959-61; GOOGLE-  
18       00296500-03; GOOGLE-00296507; GOOGLE-00297265; GOOGLE-00297033-38, GOOGLE-  
19       00297252-57, GOOGLE-00297361-65 and similar questionnaires signed by other developers;  
20       GOOGLE-00296203-07; GOOGLE-00296498-99; GOOGLE-00296523-24; GOOGLE-  
21       00296525-26; GOOGLE-00297075-76; GOOGLE-00392221-24; GOOGLE-00392204-12;  
22       GOOGLE-00392198-203; GOOGLE-00392213-16; GOOGLE-00392183-94; GOOGLE-  
23       00392181-82; GOOGLE-00392178-80; GOOGLE-02-00081462; GOOGLE-03-00075095;  
24       GOOGLE-01-00029843-45; GOOGLE-01-00026813; GOOGLE-02-00018744; GOOGLE-01-  
25       00025454; and GOOGLE-01-00023889.

26       **BEGIN GOOGLE HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY**

27       Evidence of Google’s knowledge that the Java APIs are copyrighted, and of Google’s  
28       decision to copy the Java platform technology anyway, despite its knowledge of the need for a

1 license to Sun's (now Oracle) intellectual property rights can be found at, e.g., A. Rubin Dep. Ex.  
2 7; GOOGLE-01-00011470; GOOGLE-01-00019527; and GOOGLE-01-00018470.

3 **END GOOGLE HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY**

4 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
5 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
6 responses are based on the information reasonably available at this time and Oracle will  
7 supplement this response as appropriate under the Federal Rules of Civil Procedure.

8 **INTERROGATORY NO. 5:**

9 Identify with specificity all Android computer program code (or other materials) that  
10 Oracle contends was directly copied from Oracle code (or other materials) and the Oracle code  
11 (or other materials) from which Oracle contends the Android code or other materials were copied.

12 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 5:**

13 Android Application Programmer Interface (API) package specifications (whether or not  
14 from the Apache Harmony project) that correspond to Oracle's Java API specifications are  
15 unauthorized derivative work, and Google's unauthorized copying and distribution of them is  
16 copyright infringement. A comparison of Android's API package specifications (available at  
17 <http://developer.android.com/reference/packages.html>) with Oracle's copyrighted Java API  
18 package specifications (for example, available at  
19 <http://download.oracle.com/javase/1.5.0/docs/api/>,  
20 <http://download.oracle.com/javase/1.4.2/docs/api/>, and  
21 <http://download.oracle.com/javase/1.3/docs/api/>) demonstrates that the following Android  
22 package specifications are derived from or substantially similar to Oracle's copyrighted Java API  
23 package specifications:

- 24 1. java.awt.font
- 25 2. java.beans
- 26 3. java.io
- 27 4. java.lang
- 28 5. java.lang.annotation

1       6.     java.lang.ref  
2       7.     java.lang.reflect  
3       8.     java.math  
4       9.     java.net  
5      10.    java.nio  
6      11.    java.nio.channels  
7      12.    java.nio.channels.spi  
8      13.    java.nio.charset  
9      14.    java.nio.charset.spi  
10     15.    java.security  
11     16.    java.security.acl  
12     17.    java.security.cert  
13     18.    java.security.interfaces  
14     19.    java.security.spec  
15     20.    java.sql  
16     21.    java.text  
17     22.    java.util  
18     23.    java.util.jar  
19     24.    java.util.logging  
20     25.    java.util.prefs  
21     26.    java.util.regex  
22     27.    java.util.zip  
23     28.    javax.crypto  
24     29.    javax.crypto.interfaces  
25     30.    javax.crypto.spec  
26     31.    javax.net  
27     32.    javax.net.ssl  
28     33.    javax.security.auth

- 34. javax.security.auth.callback
- 35. javax.security.auth.login
- 36. javax.security.auth.x500
- 37. javax.security.cert
- 38. javax.sql
- 39. javax.xml
- 40. javax.xml.datatype
- 41. javax.xml.namespace
- 42. javax.xml.parsers
- 43. javax.xml.transform
- 44. javax.xml.transform.dom
- 45. javax.xml.transform.sax
- 46. javax.xml.transform.stream
- 47. javax.xml.validation
- 48. javax.xml.xpath

Some Android package API specifications are substantially similar to selected portions of some of the Oracle Java API package specifications (*e.g.*, `java.awt.font`, `java.beans`) while other Android package API specifications are substantially similar to complete portions of other Oracle Java API package specifications (*e.g.*, `java.io`, `java.lang`, `java.net`, `java.nio`, `java.security`, `java.sql`, `java.text`).

The Android source and object code (whether or not from the Apache Harmony project) that purports to implement Oracle’s Java API specifications is unauthorized derivative work, and Google’s unauthorized copying and distribution of it is copyright infringement. *See, e.g.*, Package Index (available at <http://developer.android.com/reference/packages.html>), including those API packages listed above, and subsidiary webpages; and source code and documentation files available in.<sup>12</sup>

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<sup>12</sup> Google continues to modify the source code available through <http://android.git.kernel.org>. Such changes are subject to the discovery Oracle has propounded on Google. In any event, the cited source code examples are (Footnote continues on next page.)

- 1 For Android 2.2 (“Froyo”):
- 2 • dalvik\libcore\security\src\main\java\java\security;
- 3 • dalvik\libcore\security\src\main\java\javax\security\cert;
- 4 • dalvik\libcore\security\src\main\java\org\apache\harmony\security;
- 5 • dalvik\libcore\math\src\main\java\java\math;
- 6 • dalvik\libcore\math\src\main\java\org\apache\harmony\math;
- 7 • dalvik\libcore\luni\src\main\java\java;
- 8 • dalvik\libcore\luni\src\main\java\org\apache\harmony\luni;
- 9 • dalvik\libcore\luni-kernel\src\main\java\java\lang;
- 10 • dalvik\libcore\luni-kernel\src\main\java\org\apache\harmony\kernel;
- 11 • dalvik\libcore\luni-kernel\src\main\java\org\apache\harmony\lang;
- 12 • dalvik\libcore\nio\src\main\java\java.
- 13 For Android 2.3 (“Gingerbread”):
- 14 • libcore\luni\src\main\java\java\security;
- 15 • libcore\luni\src\main\java\javax\security\cert;
- 16 • libcore\luni\\src\main\java\org\apache\harmony\security;
- 17 • libcore\luni\src\main\java\java\math;
- 18 • libcore\luni\src\main\java\java;
- 19 • libcore\luni\src\main\java\org\apache\harmony\luni;
- 20 • libcore\luni\src\main\java\java\lang;
- 21 • libcore\luni\src\main\java\org\apache\harmony\kernel;
- 22 • libcore\luni\src\main\java\org\apache\harmony\lang;
- 23 • libcore\luni\src\main\java\java\nio.

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24 (Footnote continued from previous page.)

25 taken from <http://android.git.kernel.org/>. The citations are shortened and mirror the file paths shown in  
26 http://android.git.kernel.org/. For example, “dalvik\vm\native\InternalNative.c” maps to “[platform/dalvik.git] / vm /  
native / InternalNative.c” (accessible at  
27 http://android.git.kernel.org/?p=platform/dalvik.git;a=blob;f=vm/native/InternalNative.c) before modification by  
Google.

28

1       Google has created and distributed infringing works written in native code, in addition to  
2 Java code, that derive from Oracle's copyrighted works. For example, Google makes and  
3 distributes dalvik\vm\native\java\_lang\_Class.c, which is based on Oracle's java.lang.Class  
4 specification. Other examples include:

- 5           • dalvik\vm\native\java\_lang\_Object.c
- 6           • dalvik\vm\native\java\_lang\_reflect\_AccessibleObject.c;
- 7           • dalvik\vm\native\java\_lang\_reflect\_Array.c;
- 8           • dalvik\vm\native\java\_lang\_reflect\_Constructor.c;
- 9           • dalvik\vm\native\java\_lang\_reflect\_Field.c;
- 10          • dalvik\vm\native\java\_lang\_reflect\_Method.c;
- 11          • dalvik\vm\native\java\_lang\_reflect\_Proxy.c;
- 12          • dalvik\vm\native\java\_lang\_Runtime.c;
- 13          • dalvik\vm\native\java\_lang\_String.c;
- 14          • dalvik\vm\native\java\_lang\_System.c;
- 15          • dalvik\vm\native\java\_lang\_Throwable.c;
- 16          • dalvik\vm\native\java\_lang\_VMClassLoader.c;
- 17          • dalvik\vm\native\java\_lang\_VMThread.c; and
- 18          • dalvik\vm\native\java\_security\_AccessController.c.

19       *See also*, e.g., source code files in libcore\luni\src\main\native; libcore\luni-  
20 kernel\src\main\native.

21       Google has distributed by way of Android and Android-related websites source and object  
22 code derived from or substantially similar to Oracle's source code or to decompiled Oracle object  
23 code, including:

- 24           • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Acl  
25              EntryImpl.java (which is substantially similar to the result of decompiling Oracle's  
26              /sun/security/acl/AclEntryImpl.class)

- 1     • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Acl
- 2         Impl.java (which is substantially similar to the result of decompiling Oracle's
- 3             /sun/security/acl/AclImpl.class)
- 4     • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Gro
- 5         upImpl.java (which is substantially similar to the result of decompiling Oracle's
- 6             /sun/security/acl/GroupImpl.class)
- 7     • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Ow
- 8         nerImpl.java (which is substantially similar to the result of decompiling Oracle's
- 9             /sun/security/acl/OwnerImpl.class)
- 10    • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Per
- 11         missionImpl.java (which is substantially similar to the result of decompiling Oracle's
- 12             /sun/security/acl/PermissionImpl.class)
- 13    • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Pri
- 14         ncipalImpl.java (which is substantially similar to the result of decompiling Oracle's
- 15             /sun/security/acl/PrincipalImpl.class)
- 16    • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/cert/Po
- 17         licyNodeImpl.java (which is substantially similar to the result of decompiling Oracle's
- 18             /sun/security/acl/PolicyNodeImpl.class)
- 19    • /dalvik/libcore/support/src/test/java/org/apache/harmony/security/tests/support/acl/Acl
- 20         Enumerator.java (which was obtained by decompiling Oracle's
- 21             /sun/security/acl/AclEnumerator.class)
- 22    • /dalvik/libcore/luni/src/main/java/java/util/TimSort.java contains a method,
- 23         rangeCheck, copied from Oracle's java/util/Arrays.java
- 24    • /dalvik/libcore/luni/src/main/java/java/util/ComparableTimSort.java contains a
- 25         method, rangeCheck, copied from Oracle's java/util/Arrays.java
- 26    • /dalvik/libcore/security/src/test/java/org/apache/harmony/security/tests/java/security/C
- 27         odeSourceTest.java contains comments copied from Oracle's
- 28             /java/security/CodeSource.java

- 1       • /dalvik/libcore/security/src/test/java/tests/security/cert/CollectionCertStoreParameters  
2                  Test.java contains comments copied from Oracle's  
3                  /java/security/cert/CollectionCertStoreParameters.java

4                  Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
5          and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
6          responses are based on the information reasonably available at this time and Oracle will  
7          supplement this response as appropriate under the Federal Rules of Civil Procedure.

8       **INTERROGATORY NO. 6:**

9                  State in detail Oracle's factual bases for its contention that approximately one third of  
10         Android's Application Programmer Interface (API) packages (available at  
11                 <http://developer.android.com/reference/packages.html>) are derivative of Oracle America's  
12         copyrighted Java API packages (available at [http://download-](http://download-lnw.oracle.com/javase/1.5.0/docs/api/)  
13                 [lnw.oracle.com/javase/1.5.0/docs/api/](http://download-lnw.oracle.com/javase/1.4.2/docs/api/) and [http://download-](http://download-lnw.oracle.com/javase/1.4.2/docs/api/)  
14                 [lnw.oracle.com/javase/1.4.2/docs/api/](http://download-lnw.oracle.com/javase/1.4.2/docs/api/)) and corresponding documents.

15       **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 6:**

16                  Forty-eight of Google's Android API package specifications are derived from or  
17         substantially similar to Oracle's Java SE API package specifications, which is about one-third of  
18         the total number of Android API package specifications.<sup>13</sup> The list of packages includes:  
19                 java.awt.font, java.beans, java.io, java.lang, java.lang.annotation, java.lang.ref, java.lang.reflect,  
20                 java.math, java.net, java.nio, java.nio.channels, java.nio.channels.spi, java.nio.charset,  
21                 java.nio.charset.spi, java.security, java.security.acl, java.security.cert, java.security.interfaces,  
22                 java.security.spec, java.sql, java.text, java.util, java.util.jar, java.util.logging, java.util.prefs,  
23                 java.util.regex, java.util.zip, javax.crypto, javax.crypto.interfaces, javax.crypto.spec, javax.net,

24       <sup>13</sup> It appears that Google may have modified its list of Android API packages (available at  
25                 <http://developer.android.com/reference/packages.html>) after Oracle's initial response to this interrogatory. In  
26                 particular, Google added packages to its Android APIs, totaling 154 (as of April 14, 2011), instead of 146 around the  
27                 time Oracle amended its complaint. Still, approximately one-third of Android's API packages (available at  
               <http://developer.android.com/reference/packages.html>) are duplicative of Oracle's copyrighted Java API packages  
               (available at <http://download-lnw.oracle.com/javase/1.5.0/docs/api/> and [http://download-](http://download-lnw.oracle.com/javase/1.4.2/docs/api/)  
               [lnw.oracle.com/javase/1.4.2/docs/api/](http://download-lnw.oracle.com/javase/1.4.2/docs/api/)).

28

1 javax.net.ssl, javax.security.auth, javax.security.auth.callback, javax.security.auth.login,  
2 javax.security.auth.x500, javax.security.cert, javax.sql, javax.xml, javax.xml.datatype,  
3 javax.xml.namespace, javax.xml.parsers, javax.xml.transform, javax.xml.transform.dom,  
4 javax.xml.transform.sax, javax.xml.transform.stream, javax.xml.validation, and javax.xml.xpath.

5 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
6 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
7 responses are based on the information reasonably available at this time and Oracle will  
8 supplement this response as appropriate under the Federal Rules of Civil Procedure.

9 **INTERROGATORY NO. 7:**

10 State in detail Oracle's factual bases for the allegation that users must copy and use  
11 infringing Java class libraries, or works derived therefrom, to manufacture and use functioning  
12 Android devices.

13 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 7:**

14 Factual bases for the allegation that users must copy and use infringing Java class  
15 libraries, or works derived therefrom, to manufacture and use functioning Android devices  
16 include:

17 • Forty-eight of Google's Android API package specifications are derived from or  
18 substantially similar to Oracle's Java SE API package specifications, which is about one-third of  
19 the total number of Android API package specifications.<sup>14</sup> The list of packages includes:  
20 java.awt.font, java.beans, java.io, java.lang, java.lang.annotation, java.lang.ref, java.lang.reflect,  
21 java.math, java.net, java.nio, java.nio.channels, java.nio.channels.spi, java.nio.charset,  
22 java.nio.charset.spi, java.security, java.security.acl, java.security.cert, java.security.interfaces,  
23 java.security.spec, java.sql, java.text, java.util, java.util.jar, java.util.logging, java.util.prefs,

24 <sup>14</sup> It appears that Google may have modified its list of Android API packages (available at  
25 <http://developer.android.com/reference/packages.html>) after Oracle's initial response to this interrogatory. In  
26 particular, Google added packages to its Android APIs, totaling 154 (as of April 14, 2011), instead of 146 around the  
27 time Oracle amended its complaint. Still, approximately one-third of Android's API packages (available at  
<http://developer.android.com/reference/packages.html>) are duplicative of Oracle's copyrighted Java API packages  
(available at <http://download-llnw.oracle.com/javase/1.5.0/docs/api/> and <http://download-llnw.oracle.com/javase/1.4.2/docs/api/>).

1       java.util.regex, java.util.zip, javax.crypto, javax.crypto.interfaces, javax.crypto.spec, javax.net,  
2       javax.net.ssl, javax.security.auth, javax.security.auth.callback, javax.security.auth.login,  
3       javax.security.auth.x500, javax.security.cert, javax.sql, javax.xml, javax.xml.datatype,  
4       javax.xml.namespace, javax.xml.parsers, javax.xml.transform, javax.xml.transform.dom,  
5       javax.xml.transform.sax, javax.xml.transform.stream, javax.xml.validation, and javax.xml.xpath.

6             •       Manufacturers of handsets and other Android devices copy compiled versions of  
7       the Java class libraries onto each Android device prior to distribution.

8             •       Google's Android SDK download page directed developers to copy the Java class  
9       libraries from the Apache Harmony project website.

10            •       Google's Android source code and documentation demonstrate use of Java  
11       Platform technologies. *See, e.g.,* android.git.kernel.org; developer.android.com.

12            •       Manufacturers must execute Google's Android Compatibility Test Suite (CTS),  
13       which tests for the presence and correct functioning of Java class libraries, for Google to certify  
14       their devices as "Android Compatible."

15           Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
16       and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
17       responses are based on the information reasonably available at this time and Oracle will  
18       supplement this response as appropriate under the Federal Rules of Civil Procedure.

19       **INTERROGATORY NO. 8:**

20           Identify with specificity all portions of the Java documentation that were automatically  
21       generated using software and explain how each was generated.

22       **RESPONSE TO INTERROGATORY NO. 8:**

23           Generally, all Java API documentation is automatically generated using the Javadoc  
24       software tool. Javadoc is a documentation generator developed by Sun Microsystems. Javadoc is  
25       used to generate API documentation in HTML format from Java source code, based on  
26       standardized tags and comments written by source code programmers. A Javadoc comment is set  
27       off from source code by comment tags “/\*\*” and “\*”. For example, the first paragraph in such a  
28       comment may be a description of the method documented. Next, certain tags are used to signify

1 certain information (e.g., @param name description describes a method parameter, @return  
2 description describes a method return value, @throws describes an exception the method may  
3 throw).

4 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
5 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
6 responses are based on the information reasonably available at this time and Oracle will  
7 supplement this response as appropriate under the Federal Rules of Civil Procedure.

8 **INTERROGATORY NO. 9:**

9 State in detail the terms of a fair, reasonable and non-discriminatory license to Oracle's  
10 TCK consistent with Oracle's obligations under the Java Specification Participation Agreement,  
11 including the bases of any computation of any monetary elements of such a license and an  
12 explanation of why such a license is fair, reasonable and non-discriminatory.

13 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 9:**

14 The JSPA permits a Specification Lead to impose terms and conditions as part of a TCK  
15 license. Any interested party may license the Spec Lead's TCK under "non-discriminatory, fair  
16 and reasonable" terms and conditions and "such terms and conditions shall be determined by the  
17 Spec Lead in its reasonable discretion." (JSPA, § 5.F.I.) Oracle's TCK licenses comport with its  
18 obligations under the JSPA, and, with respect to the terms of its TCK licenses, Oracle directs  
19 Google to its TCK licenses produced in this action pursuant to Fed. R. Civ. P. 33(d).

20 As for the terms of any TCK license to Android, none has ever been requested, and Oracle  
21 accordingly has never considered what reasonable terms or royalty computation of one might be.  
22 Issuing a TCK license to Android makes no sense, given that Android does not implement the  
23 entire Java specification and is accordingly not compliant.

24 During the Parties' discovery conference on February 9, 2011, Google offered to revise  
25 this interrogatory such that it seeks an explanation of how Java prices are determined by Oracle,  
26 and Oracle agreed to answer the revised interrogatory. Oracle determines Java prices as follows:  
27 Ed Washington, Principal Product Manager, reviews and determines appropriate prices based on  
28 market information, which he receives from Oracle's salespeople, product managers, and also on

1 his own knowledge and experience. He aims to set competitive and profitable prices. Mr.  
2 Washington has reviewed and determined Java prices since 2002, and Mr. Washington has been  
3 in JavaSoft sales since 1997. Java prices generally decline reasonably as market conditions  
4 evolve. New products are priced to be competitive and in line with market expectations based on  
5 how older products are priced. The price models Mr. Washington proposes are reviewed and  
6 approved by Oracle's Vice President of Software Sales before implementation. Java prices were  
7 previously posted in Sun's internal web servers and are now posted on Oracle's internal web  
8 servers. Oracle has already produced these documents in part. *See* OAGOOGLE0100067049-  
9 100067059 and OAGOOGLE0100067060-100067206.

10 In addition to the general objections stated above, Oracle further objects to this  
11 interrogatory insofar as it seeks information protected from discovery by the attorney-client  
12 privilege or the attorney work-product doctrine. Oracle further objects to this request on the  
13 grounds that determinations of why or whether the terms of any license are fair, reasonable, and  
14 non-discriminatory are purely matters of legal opinion and are therefore not within the scope of  
15 inquiry permitted by Fed. R. Civ. P. 33(a)(2). Discovery is ongoing, and Oracle has not yet  
16 completed its investigation of the documents and facts relevant to the claims and defenses  
17 asserted in this action. Accordingly, Oracle's responses are based on the information reasonably  
18 available at this time and Oracle will supplement this response as appropriate under the Federal  
19 Rules of Civil Procedure.

20 **INTERROGATORY NO. 10:**

21 State in detail Oracle's factual bases for its allegation that the doctrine of assignor  
22 estoppel bars Google from challenging the validity of each of the patents-in-suit to which Oracle  
23 contends the doctrine applies.

24 **FIRST SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 10:**

25 Assignor estoppel bars Google from challenging the validity of any patent assigned by an  
26 inventor with whom Google is in privity. Google hired named inventors of Oracle's patents—  
27 including at least Frank Yellin, co-inventor of the '520 patent; Lars Bak and Robert Griesemer,  
28 co-inventors of the '205 patent; and James Gosling, the inventor of the '104 patent—to work on

1 Java, Web browser, and virtual machine technologies. Google is in the best position to know how  
2 it availed itself of the inventors' knowledge and assistance. As the inventors' employer, it is  
3 Google, not Oracle that possesses detailed information regarding the nature of the relationship  
4 with these and any of the other inventors of the patents-in-suit.

5 Discovery is ongoing, and Oracle has not yet completed its investigation of the documents  
6 and facts relevant to the claims and defenses asserted in this action. Accordingly, Oracle's  
7 responses are based on the information reasonably available at this time and Oracle will  
8 supplement this response as appropriate under the Federal Rules of Civil Procedure.

9 Dated: April 25, 2011

10 MICHAEL A. JACOBS  
11 MARC DAVID PETERS  
12 DANIEL P. MUINO  
13 MORRISON & FOERSTER LLP

14 By: /s/ Marc David Peters

15 *Attorneys for Plaintiff*  
16 ORACLE AMERICA, INC.  
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## **CERTIFICATE OF SERVICE**

I declare that I am employed with the law firm of Morrison & Foerster LLP, whose address is 755 Page Mill Road, Palo Alto, California 94304-1018. I am not a party to the within cause, and I am over the age of eighteen years.

I further declare that on April 25, 2011, I served a copy of:

**PLAINTIFF'S SUPPLEMENTAL RESPONSES TO  
DEFENDANT'S INTERROGATORY NOS. 1-10**

- BY ELECTRONIC SERVICE [Fed. Rule Civ. Proc. rule 5(b)]** by electronically mailing a true and correct copy through Morrison & Foerster LLP's electronic mail system to the e-mail address(es) set forth below, or as stated on the attached service list per agreement in accordance with Federal Rules of Civil Procedure rule 5(b).

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35          Fax: 310.586.7800

36

37          I declare under penalty of perjury under the laws of the United States that the foregoing is  
38          true and correct.

39

40          Executed at Palo Alto, California, this 25th day of April, 2011.

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