Erik Andersen - 10/29/2010
Software Freedom Conservancy, Inc., et al. vs. Best Buy Co., Inc., et al.

Page 76

```
 1       BY MS. ROBERG-PEREZ:
 2          Q.    Mr. Andersen, directing your attention
 3       to the link "BusyBox-0.60.3.tar.bz2," do you see
 4       that there was a last-modified date, April 27th,
 5       2002?
 6          A.    Yes, I see that.
 7          Q.    Do you have an understanding of what
 8       the last-modified date means?
 9          A.    Yes.
10          Q.    What does that date mean?
11          A.    That's the date on which that file
12       was -- was -- was last changed or modified, and --
13       and, presumably, it corresponds to the last time
14       anything in that file was changed.
15          Q.    And do you recognize -- let me back up
16       a bit.
17                At one point in time, you were a
18       BusyBox maintainer, correct?
19          A.    That is correct.
20          Q.    And were you a maintainer on
21       April 27th, 2002?
22          A.    Yes, I was.
23          Q.    And were you responsible for releasing
24       BusyBox Version 0.60.3?
25          A.    I was responsible for releasing
```

Erik Andersen - 10/29/2010
Software Freedom Conservancy, Inc., et al. vs. Best Buy Co., Inc., et al.

Page 77

```
 1       BusyBox 0.60.3.
 2          Q.    Were you responsible for releasing
 3       documentation in connection with that code as
 4       well?
 5          A.    I created documentation with -- at
 6       that time, yes.
 7          Q.    And do you know if documents that we
 8       downloaded from this page would be true and
 9       accurate copies of the indicated source code?
10          A.    I presume that they are.
11          Q.    Do you have any reason to believe that
12       those copies would not be accurate?
13          A.    I believe I -- the dot sign file is --
14       contains cryptographic signature intended to
15       confirm that nobody's changed or modified it.
16          Q.    Okay.
17                Do you have any reason to believe that
18       the documentation in connection with the code that
19       is downloadable from these links would not be true
20       and accurate copies of the documentation?
21          A.    I have no reason to know one way or
22       the other whether the -- that that's true or
23       accurate or not.
24          Q.    I -- I would have to check it and see
25       if it had changed, or something, but I presume
```

Page 89

```
 1   construction which involves the principal
 2   individual responsible for primary development as
 3   well as the individual responsible for -- for
 4   receiving and integrating updates to a open source
 5   project.
 6        Q.   What does "Primary development" mean?
 7        A.   It means that one finds a particular
 8   project fascinating and enjoys spending their --
 9   their free time, and whatnot, working on the
10   development and improvement of the project.
11        Q.   You also mentioned receiving and
12   integrating updates to the open-source project.
13             Who -- who would those updates be
14   received from -- I -- I apologize, you also
15   testified about receiving and integrating updates
16   to open source -- to an open-source project.
17             Where do those updates come from?
18        A.   What I believe I stated was that is
19   part of the role of a project maintainer.
20             And as a project maintainer, when you
21   make the project available on the Internet, it
22   sometimes happens that other people will find the
23   project similarly interesting or useful for
24   whatever their own individual needs might be.
25             As such, people may then choose to
```

Page 88

```
 1   be reasonably be rendered.
 2        Q.   Okay.
 3             Who is Dave Cinege, if you know?
 4        A.   He was a software developer who was
 5   working on a project called the "Linux Router
 6   Project."
 7        Q.   Does Mr. Cinege have any connection
 8   with BusyBox?
 9        A.   He had also just made use of the
10   BusyBox project at that time on initial releases
11   of the Linux Router Project, and he had made some
12   modifications to BusyBox.
13        Q.   Okay.
14             Directing your attention to the first
15   e-mail in this e-mail string, about a third of the
16   way down the page, September 20th, 1999, appears
17   to be from you to Bruce and Dave.
18             Do you see that?
19        A.   Yes, I see that.
20        Q.   And do you see that you've written:
21   "Hi, Bruce and Dave, I was wondering if you might
22   be interested in letting me maintain BusyBox?"
23        A.   Yes, I see that.
24        Q.   What does "Maintaining BusyBox" mean?
25        A.   It is, essentially, a social
```

Page 91

1   August date on which I was hired by Lineo, and the

2   September 20 date on which I wrote this e-mail.

3   So, sometime in that time.

4   Now, because my attention was now

5   turned to the question of -- of improving the

6   state of embedded Linux, I apparently became aware

7   of BusyBox and began working on it in that time

8   frame.

9   Q.   So, before you began working for

10   Lineo, is it your testimony that you were not

11   aware of a BusyBox?

12   A.   I might have been aware of it, because

13   I was a Debian developer and I had some

14   familiarity with -- with Debian and the Debian

15   boot floppies, which integrated BusyBox.

16   So, I may have been aware of it, but I

17   had not prior to the August-to-September-of-1999

18   time frame developed an interest in enhancing and

19   improving BusyBox.

20   Q.   Sometime after September 20th, 1999,

21   did you become BusyBox maintainer?

22   A.   Yes, I did.

23   Q.   Do you recall the date?

24   A.   I do not.

25   I know that I exchanged a series of

Page 90

1   integrate the project -- the software into their

2   own projects. At times they may discover that

3   they need to make changes to the project in order

4   to better suit their needs.

5   And by virtue of the GPL, it is then

6   helpful for them to submit their changes to the

7   project maintainer, who can then review the

8   changes and determine whether those changes are

9   changes that would be generally useful or are more

10   of an individual nature, or were very poorly done

11   and either need to be reworked or not integrated

12   into the -- the mainline project.

13   Q.   Were you aware of BusyBox before

14   September 20th of 1999?

15   A.   Well, obviously, I -- I must have

16   been, because if I was prepared to write this

17   e-mail stating that I was -- was -- that I had

18   been making some fixes on that date, then

19   presumably prior to that date I had been making

20   those fixes, so I must have become aware prior to

21   that date.

22   Q.   Do you remember when you became aware

23   of BusyBox?

24   A.   I would have to presume that it was

25   sometime after August. I believe it was the

Page 234

1   this version of BusyBox versus the last version
2   that Mr. Perens released?
3   A.   I would anticipate that it would
4   contain the patches and changes that I had been
5   able to take from the various sources that were
6   existent at that time. That would include patches
7   that came from the Linux router project. That
8   would incorporate patches that came from the Linux
9   boot floppies. It would incorporate some patches
10   that I had probably found that somebody or other
11   had decided to make some changes.
12   So, it would have incorporated those
13   changes, and I would anticipate it probably, you
14   know, had the -- the first glimmerings of -- of
15   changes that I myself was introducing.
16   Q.   Do you know if others contributed to
17   that version of the code?
18   A.   I'd have to go back and double-check.
19   I'm certain that the -- the logs that I have back
20   then probably would enumerate them, but I -- I
21   don't recall specifically.
22   Q.   When you refer to the logs you had
23   back then, what are you referring to?
24   A.   At the time I was using a revision
25   control system in order to archive changes to the

Page 92

1   e-mails with Bruce where he was certain that he
2   was going to get right on it, and he did not, and
3   eventually decided to cede that position to me.
4   Q.   And do you recall when you stopped
5   maintaining BusyBox?
6   A.   I do not recall the time frame
7   exactly.
8   I know that eventually my other
9   things, my other work, was such that I was not
10   able to give it sufficient time and attention.
11   And just as Bruce was not able to give
12   it sufficient time and attention and passed the
13   project on, there came a point when my interests
14   and my time were such that I passed the project
15   on.
16   But I don't recall the exact date.
17   I'm sure that I would have to look that up.
18   Q.   And do you recall who you passed the
19   project to?
20   A.   It was a developer named Rob Landley,
21   and he -- I believe he was in Austin, Texas at the
22   time.
23   Q.   Okay.
24   A.   That's my recollection.
25   Q.   Okay.

Erik Andersen - 10/29/2010
Software Freedom Conservancy, Inc., et al. vs. Best Buy Co., Inc., et al.

Page 236

1   A.   I would hope so.

2   Q.   Do you know if those Subversion

3   files -- and I apologize, I don't know if the

4   correct term is files or logs because I'm not

5   familiar with the software, but if that -- those

6   Subversion files or logs have been turned over to

7   your counsel?

8   A.   I would assume that they were, and

9   that they are publicly accessible on BusyBox.net,

10 and any interested parties are welcome to peruse

11 them at will.

12   They go back, presumably, to the

13 beginning of my efforts at changing the software,

14 and they, over time, developed greater utility as

15 I began to use the revision control system more

16 effectively and made better commentary on the

17 changes that were made.

18   Q.   Let me show you a document to see

19 if -- if this is what we've been talking about or

20 not.

21   MS. MARVIN: I'm handing the court

22 reporter a document to be marked Exhibit 31.

23   (Exhibit Andersen 31, a change log,

24 was marked for identification at this time.)

25   A.   Okay.

Erik Andersen - 10/29/2010
Software Freedom Conservancy, Inc., et al. vs. Best Buy Co., Inc., et al.

Page 235

1   software. That was a -- a revision control system

2   called, "CVS," Charlie, Victor, Sam, or I don't

3   know, whatever you use for the letter "S."

4   But that, I think it -- I believe it

5   stands for concurrent versioning system, but -- or

6   something to that effect.

7   It is a software utility that is

8   intended to track and archive changes to -- to

9   things such as software.

10   Q.   Do you still have that software or

11 files that you generated with that software?

12   A.   The -- well, the -- the software

13 itself that was then stored was, obviously,

14 released as BusyBox 0.28.

15   And then in subsequent releases,

16 the -- the software archive that occurred at that

17 time, the archive itself was some years later

18 converted to a different revision control system

19 called "Subversion," and Subversion maintains all

20 of the archives and logs of the changes that were

21 made to the software going back to the earliest

22 commits.

23   Q.   So, if we are to look at the

24 Subversion files, we would see all of your earlier

25 logs from CVS.

Page 237

```
 1      Q.    Okay.
 2            Is this a Subversion log of the type
 3  we've been discussing?
 4      A.    No, it is not.
 5      Q.    Okay.
 6      A.    This is a separate document that I
 7  included in the source code releases, which I
 8  believe I titled, "Change log," where I distilled
 9  down some of the more relevant and interesting
10  changes into a -- a -- I guess a text document to
11  make it easier for people to ascertain what the
12  more interesting and substantive changes that --
13  that went into particular releases.
14      Q.    So, just so I make sure I understand
15  correctly, is this a version -- a Subversion log
16  then more detailed than the change log?
17      A.    A Subversion -- the Subversion logs,
18  or change logs, have a full history of every
19  software edit that was made to the software.
20            If someone sent me a patch, and one --
21  and that patch was deemed acceptable and included
22  into the software, into BusyBox, there would have
23  been a change that would have occurred in the CVS,
24  and, later, Subversion revision control system,
25  that indicated that particular change.  And, in
```

Page 238

```
 1  fact, it would be the process of incorporating
 2  that change into the software.
 3            It is then annotated with whatever
 4  comments may have been made at that time.
 5      Q.    Okay.
 6      A.    A typical example, a patch would be
 7  received.  It would be from Bill at, you know,
 8  some e-mail address with a brief description of
 9  what the intended effect of the patch was,
10  perhaps, say, fix a crash in this utility.
11            We would then type a command, such as,
12  "CVS commit," and then the software file.  It
13  would then incorporate that change into the
14  software, and we would annotate that change saying
15  this change was made.
16      Q.    So, the Subversion -- sorry.
17            (Cell phone rings.)
18            THE WITNESS:  Okay.
19      Q.    So, the Subversion log would contain
20  the names of those who sent in patches?
21      A.    It often would, yes.
22      Q.    You say, "Often would."
23            But it would -- would it not always
24  contain that?
25      A.    Sometimes.  It might have been myself
```

Page 240

```
 1        Q.   Okay.
 2             MS. MARVIN:  Just before I proceed,
 3    Counsel, if the CVS and/or Subversion logs
 4    have not been produced, we would ask that
 5    they be produced, or that you direct us to
 6    the location of them, if they're on the
 7    BusyBox website.
 8             MR. RAVICHER:  Yeah, they're on the
 9    BusyBox website, and I'll send you the link.
10             MS. MARVIN:  Great.  Thank you very
11    much.  I appreciate it.
12             MR. RAVICHER:  Just off the record
13    real quickly.
14             (Discussion off the record.)
15             MS. MARVIN:  So, let me ask a few
16    clarifying questions just for the record,
17    too.
18    BY MS. MARVIN:
19        Q.   So, Mr. Andersen, do I understand
20    correctly that the CVS and Subversion logs are --
21    are generated automatically by the software when
22    the change is made?
23        A.   Yes.
24             There are two aspects to it.  When the
25    software maintainer, such as myself, would commit
```

Page 239

```
 1    who committed that change, and, so, it might not
 2    have included some -- the name or e-mail address
 3    of some other person.
 4             Other times, as -- as the project
 5    developed, I gave commit access to other
 6    individuals, and, so, rather than them
 7    specifically annotating that -- that they were the
 8    person, the logs themselves have that user name
 9    incorporated within them, but it may not have been
10    explicitly annotated as such by the -- by the
11    committer.
12        Q.   Do the logs also annotate -- I'm
13    sorry, did the logs also contain new code that was
14    written and added to BusyBox?
15        A.   Well, any time new code was added to
16    BusyBox, no matter what its origin, it would have
17    been committed into the revision control system.
18    That is the mechanism by which it became a part of
19    BusyBox.
20        Q.   Okay.
21             And it would -- it would, therefore,
22    be contained on the log -- the Subversion log as
23    well?
24        A.   Yes, any change that was made, it
25    would be within that.
```

Page 242

```
 1    reviewing the editorial comments, some of the
 2    changes, and then distilling out some of the more
 3    interesting or pertinent ones that people might be
 4    concerned with while deliberately omitting more
 5    obscure, less noteworthy changes.
 6         Q.   And do you release the change log with
 7    the soft -- the code release?
 8         A.   Yes, the change log was always
 9    incorporated, yeah, within the software as a file
10    within the -- the .tar.gz, or later, .tar.bz2
11    file.
12              MS. MARVIN:  I'm handing the court
13    reporter a document to be marked Exhibit 32.
14              (Exhibit Andersen 32, a message posted
15         by Erik Andersen on March 3, 2006, was
16         marked for identification at this time.)
17         A.   Okay.
18         Q.   I will represent to you that we
19    printed this off the message board archives on the
20    busy body -- I'm sorry, the BusyBox, not the busy
21    body -- the BusyBox website that your counsel has
22    directed -- that directed us to for the archive
23    messages.
24              Does this appear to be a message
25    posted by yourself on March 3rd of 2006?
```

Page 241

```
 1    a change by editing one line in a file, for
 2    example, I might then commit that change.
 3              I am also given an opportunity to
 4    annotate that change, and I can then add whatever
 5    explanatory comments I might choose, such as, this
 6    change came from so and so, or this -- I -- I saw
 7    this crashed when I did this, and, so, I'm adding
 8    this change in order to fix it, that type of
 9    editorial content as well.
10              So, it can change the -- it contains
11    both the software modification and, potentially,
12    some degree of editorial comment upon the change
13    that was made.
14         Q.   Okay.
15              And to distinguish it from the change
16    log that we were looking at as Exhibit 31, do I
17    understand correctly that the change log is not --
18    well, let me rephrase that.
19              Is the change log in Exhibit 31, for
20    example, automatically generated in any way, or is
21    all of the content in it written by the -- by
22    yourself or the current maintainer of it?
23         A.   Yes, the change log itself would be
24    written explicitly by myself or the maintainer as
25    a commentary on the changes, sometimes by
```

1 And, note, when it's -- we see the
2 word, "SVN" together, that is referring to the
3 Subversion revision control system.
4 Q. Thank you, that -- that clarifies this
5 for us.
6 A. And, so, when I speak here, I am more
7 specifically stating that not that it would be
8 impossible to determine all changes, because
9 typically they would have been annotated at the
10 time of check in, but they were not explicitly
11 annotated as such in the header of, in this case,
12 the utility.C file.
13 So, if Bob sent me a one-line change
14 saying, there is a crash here. We must change 0
15 to null, I might have created a Subversion check
16 in that said, Bob sent this, noted that -- that
17 there is a crash, we need to change this one line.
18 So, it might be possible to find and
19 recover the fact that Bob has now made a -- a
20 change, or suggested a change, but it has not been
21 explicitly annotated in the header of the file
22 that Bob now has some -- some nominal level of
23 authorship now in the -- in this file.
24 Q. At some point in time, did it become
25 your practice to annotate in the header of the

1 A. It appears to be just that.
2 Q. Okay.
3 I'd like to direct your attention to
4 the second paragraph from the bottom of the page
5 that begins, "I personally wrote."
6 The second sentence of that paragraph
7 reads: "Later, as others began contributing to
8 utility.c, attribution for all such changes were
9 not very carefully tracked." Newer -- period.
10 "Newer stuff, of course, has been properly marked
11 an SVN as to who wrote or contributed it."
12 We were just talking about the CVS and
13 Subversion logs. And here you say that
14 attribution for all such changes was not carefully
15 tracked, and I believe you testified that sometime
16 things came in, or people changed things -- and if
17 I'm misquoting your testimony, please, correct
18 me -- that were not marked in the code.
19 Is this -- does this -- does this
20 line, "That attribution for all such changes was
21 not very carefully tracked," does that go to what
22 you were speaking of earlier with respect to the
23 CVS Subversion logs?
24 A. To a certain extent, yes, it does
25 refer to that.

Page 249

1   I'm just going to backtrack a little
2 bit.
3   What were -- I think other defense
4 counsel asked before generally what the rule of a
5 maintainer is.
6   But my question to you is: What were
7 your specific roles and responsibilities as the
8 maintainer of BusyBox?
9   A. I -- obviously, this is a social
10 construct and a -- a self-imposed job description,
11 and one which I took upon myself and accepted.
12   I would write software. I would
13 accept patches from contributors. I would vet
14 those patches for whether they were well written,
15 whether they were pertinent to the project at
16 large, whether they were properly licensed for
17 inclusion in the project.
18   I would also collaborate with the
19 other developers in order to ensure smooth
20 functioning of the project. I would mediate
21 conflict amongst different developers with
22 differing opinions as to what should and should
23 not occur, and, thereby, I -- I exercised
24 editorial control of the content.
25   Further, I provided additional

Page 245

1 file who contributed that -- that file?
2   A. It is -- it was typically the case
3 that when you had an -- an entire file
4 contributed, that we would then annotate at the
5 top of the file the name of the individual
6 responsible for that file.
7   It was, however, not the practice to
8 then modify and add additional header attributions
9 to other individuals for that file unless the
10 change constituted a -- a substantial rework of
11 the file such that the majority of the authorship
12 now resided with some other individual.
13   Q. And that was your practice -- was that
14 your practice the -- throughout the time that you
15 were maintainer at BusyBox?
16   A. Yes, that was the practice.
17   Q. Okay.
18   And when you refer, in the next
19 paragraph: "So while in theory, it may be
20 possible, after an extensive search through all my
21 ancient e-mail, to determine the exact set of
22 authors and patch submitters for each line of code
23 presently in LIBBB, and contact each one of them
24 and get a written GPL" -- that's an arrow -- "LGPL
25 transition approval, in practice, this is simply

Erik Andersen - 10/29/2010
Software Freedom Conservancy, Inc., et al. vs. Best Buy Co., Inc., et al.

Page 275

1   the intent of a stable release, is to make a

2   release that -- that maintains substantially

3   the -- the main core feature set while improving

4   the functionality of that feature set for problems

5   that have been discovered since previous release.

6   So, I would anticipate that there were

7   problems that were found in those previous 0.60

8   releases, and the efforts were made to ameliorate

9   those problems.

10   I don't recall if any effort or any

11   substantive changes other than that snuck in or

12   not. I have to --

13   Q.   And by "Substantive changes," you

14   mean -- do you mean new code being added to it?

15   A.   New code, new functionality, new

16   capabilities that were not included, and those

17   sort of things do occasionally creep in. I

18   couldn't say whether they did or did not occur

19   without a -- a careful review of -- of the source

20   code.

21   MS. MARVIN: I ask the court reporter

22   to mark this document as Exhibit 36.

23   (Exhibit Andersen 36, the change log

24   file from the BusyBox 0.60.3 release, was

25   marked for identification at this time.)

Erik Andersen - 10/29/2010
Software Freedom Conservancy, Inc., et al. vs. Best Buy Co., Inc., et al.

Page 274

1   April 27, 2002.

2   Q.   And Exhibit 34 is a post by you on the

3   BusyBox message board of April 27, 2002?

4   A.   That's what it appears to be, yes.

5   Q.   Do you know what changed between -- in

6   the code between Version 0.60.1 and 0.60.3?

7   A.   I would imagine that if I was to refer

8   to the -- to the change log, I might be able to

9   provide a summary of some of the more interesting

10   and salient points.

11   I would anticipate a perusal of the

12   Subversion logs would, of course, provide a

13   comprehensive list of every change, but off the

14   top of my head, I can't recall any particular

15   change that it -- I'm afraid the time has been too

16   long for me to enumerate those.

17   Q.   Do you see the -- on Exhibit 34, the

18   second sentence, says: "This is primarily a bug

19   fix release for the stable series"?

20   Do you see that?

21   A.   Yes, I see that it says that.

22   Q.   Does that reflect -- I'm sorry, does

23   that refresh your recollection as to what the

24   changes were in this version?

25   A.   Well, I'm sure that the changes, as

Page 276

1   A.   Okay.   I briefly reviewed this.

2   Q.   I will represent to you that we

3   printed this out of the 0.60.3 version of the

4   BusyBox code.

5   Does this appear to be the change log?

6   A.   This does appear to be the change log

7   file from the 0.60.3 release.

8   Q.   And from this change log, are you able

9   to tell if any new code was added to .0.60.3 from

10 .0.60.1?

11   A.   Having reviewed this, it is

12 immediately apparent that both myself and others

13 added substantive new changes and new code.

14   When I mentioned, as the first item,

15 for example, a new time applet, that is a --

16   MS. MARVIN: A-P-P-L-E-T.

17   A.   -- that is a -- you know, right from

18 the first line, we already see brand new code

19 being added.

20   When we see additional changes, such

21 as adding, you know, con equals no error support,

22 2DE -- 2DD, that that's a clear -- another case of

23 brand new, spiffy functionality that is being

24 added.

25   As I review this, I see a number of