

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

SOFTWARE FREEDOM CONSERVANCY, INC.,
and ERIK ANDERSEN,
Plaintiffs,
-against-
PHOEBE MICRO, INC.,
Defendant.

ECF CASE

Civil Action No. 09-CV-10155 (SAS)

I, Bradley M. Kuhn, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I am the President and Executive Director of Plaintiff Software Freedom Conservancy, Inc. (“Conservancy”), a 501(c)(3) not-for-profit organization incorporated in New York. Conservancy’s purpose is to provide fiscal sponsorship and various other non-profit organizational services to volunteer-based, community-oriented Open Source and Free Software projects.

2. Exhibit B includes a copy of my résumé. I hold a summa cum laude Bachelor’s degree in Computer Science and a Master’s degree in Computer Science. My Master’s thesis covered topics related to programming language implementations and compilation. I have extensive industry experience as a software developer and computer systems administrator. Since 2001, I have been employed at various not-for-profit charities related to Open Source and Free Software. My work at these charities has focused extensively around the technical details of proper compliance with the terms and requirements of the GNU General Public License (“GPL”) and related copyright licenses. This often includes working directly with companies who had violated the GPL and seek to properly comply with the license.

3. Conservancy serves as a fiscal sponsor and non-profit home for the BusyBox project, that was maintained for many years by Mr. Erik Andersen (“Andersen”). BusyBox is formally part of Conservancy and BusyBox operates under the auspices of Conservancy as a non-profit Open Source and Free Software development project.

4. I have reviewed in detail the original public software releases by Phoebe Micro, Inc. (“Phoebe”) that led to our filing of this litigation. I have also monitored Phoebe’s software and hardware releases during the litigation.

5. Software is digital information stored on a computer’s storage device, such as a hard disk or flash drive. Companies and non-profit organizations typically provide software in a variety of different ways to the general public. Computers often come with software already installed. In addition, consumers can download and install new software to receive updates.

6. A programmer creates software in a form called “source code”. Source code is written in a textual format that humans (trained in computer science) can read and comprehend.

7. Before a computer can execute source code, it is translated into binary, which consists of a series of 1’s and 0’s sequenced such that they cause the computer to perform useful operations. A programmer directs a helper program called a “compiler” to translate and modify the programmer’s source code into binary. A binary is often called an “executable”.

8. The binary program must be installed onto the computer. The process of installation varies depending on the details of the type of computer involved.

9. An “operating system” is the base software that every computer needs. The operating system components are usually organized into a “filesystem”, which is a hierarchical organization of files on the computer’s storage device.

10. Software on an embedded computer (such as the wireless routers and Internet cameras in this case) is commonly referred to as “firmware”. A firmware comprises the entire set of programs for the computer, including the operating system and any applications, usually organized inside a larger, single file. Manufacturers routinely make firmwares for products available online for users to upgrade their embedded computers at home.

11. BusyBox is a program that functions well as a core component of the operating system for firmwares in embedded computers. BusyBox has been developed on an ongoing basis by many authors, who all license their copyrights under a license called the GNU General Public License, version 2 (“GPLv2”), which is a copyright license. A copy of the

GPLv2 is included in Exhibit C.

12. GPLv2 §3 describes the requirements regarding distribution of binary versions of software licensed under GPLv2. All three possible options require that the distributor make arrangements for the recipient of binaries to receive the source code for the software. GPLv2 further requires that the distributor inform those who receive copies that they have unlimited permission to copy, modify and/or redistribute the software.

13. On various dates, I examined Phoebe's website and found many different firmwares for various products. As discussed specifically in ¶ 14 through ¶ 33 (inclusive), I found that many of these firmwares contained copies of BusyBox and that Phoebe failed to satisfy the requirements of GPLv2. Exhibit A contains a summary of the Phoebe products, the version of BusyBox found in the products' firmware, and the dates when I verified Phoebe's failure to meet the requirements of GPLv2.

14. On 31 August 2009, I downloaded Phoebe's AICAP650W firmware by visiting the Airlink101 Support webpage at <http://www.airlink101.com/support/index.php?cmd=files&id=81>,
From that webpage, I downloaded the firmware file located at http://www.airlink101.com/support/index.php?cmd=files&_a=download&id=214,
which was a zip file identified as "AICAP650W FW 1.0.5".

That zip file contained another file called

`Firmware1.0.5_20070622/FW_AICAP650_1.0.5-35_20070622.bin`.

Byte location 0 of that file was a gzip-compressed sequence. When that sequence was uncompressed, byte location 2183168 of that sequence showed another gzip sequence, which was a gzip-compressed ramdisk (a virtual filesystem). Inside that ramdisk, was the binary of BusyBox, which included the specific version number 1.00-pre1.

15. On 31 August 2009, I examined the website of Phoebe's Airlink101 site. I found nowhere on their website the source code, nor an offer therefor, for the BusyBox binary found in the AICAP650W product and/or its firmware file. There was also no notice that

some contents of the AICAP650W firmware were licensed under the GPLv2 or that I had any right to myself make unlimited copies, modifications and redistributions of those contents for no fee.

16. On 26 January 2011, I downloaded Phoebe's Airlink101 ANAS350 firmware by visiting the Airlink101 Support webpage at <http://www.airlink101.com/download/anas350.php>. From that webpage, I downloaded the firmware file http://www.airlink101.com/support/index.php?cmd=files&_a=download&id=327, which was a zip file labeled "ANAS350 Firmware v. 400a7 (.bin)". The zip file contained a file called ANAS350_400a7_BIN.BIN. Byte location 1059729 of that file was a LZMA-compressed sequence. When that sequence was uncompressed, it was an ext2 filesystem. Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.00-rc2.

17. On 26 January 2011, I downloaded Phoebe's AR360W3G firmware by visiting the Airlink101 Support webpage at <http://www.airlink101.com/download/ar360w3g.php>. From that webpage, I downloaded the firmware file located at http://www.airlink101.com/support/index.php?cmd=files&_a=download&id=278, which was a zip file identified as "AR360W3G Firmware Upgrade R7.00b5". The zip file, contained a file called 20080212_AR360W3G_R700b5.EXE. Byte location 1694121 of that file was a gzip-compressed sequence. When that sequence was uncompressed, it was an ext2 filesystem. Inside that filesystem, there was a binary version of BusyBox, which included the specific version number 1.00-rc2.

18. On 26 January 2011, at both <http://www.airlink101.com/download/ar360w3g.php>, and <http://www.airlink101.com/download/anas350.php>, there were links labeled "GPL Code". However, upon following those links, there was no source code available, nor an offer therefor, for the BusyBox binaries found in the ANAS350 and/or the AR360W products and/or their firmwares. There was also no notice that I had any right to myself make unlimited copies, modifications and redistributions of some contents of the ANAS350 and/or

the AR360W firmwares for no fee.

19. On 9 August 2011, I downloaded Phoebe's AICAP650W firmware from the Airlink101 website. Specifically, I downloaded

http://airlink101.com/LegacyFW/AICAP650W/FW_AICAP650_1.0.5-35_20070622.bin.

Using the same method described in ¶ 14, I confirmed again the presence of a binary of BusyBox, which included the specific version number 1.00-pre1.

20. On 9 August 2011, I downloaded Phoebe's AICAP650 firmware from the Airlink101 website. Specifically, I downloaded the firmware file from:

http://airlink101.com/LegacyFW/AICAP650/FW_AICAP650_1.0.5-35_20070622.bin.

Using the same method described in ¶ 14, I confirmed again the presence of a binary of BusyBox, which included the specific version number 1.00-pre1.

21. On 9 August 2011, I downloaded Phoebe's AICN500 firmware by visiting the Airlink101 website. Specifically, I downloaded the firmware file:

http://airlink101.com/LegacyFW/AICN500/AICN500_FW_100_B25.zip. The zip file contained a file called `FW_AICN500_1.0.0-25_20090303.pck`. Byte location 681088 of that file was a gzip-compressed sequence. This sequence was a gzip-compressed minix filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.01.

22. On 9 August 2011, I downloaded Phoebe's AICN500W firmware by visiting the Airlink101 website. Specifically, I downloaded the firmware file:

http://airlink101.com/LegacyFW/AICN500W/AICN500W_FW_100_B30.zip. The zip file contains a file called `AICN500W_FW_100_B30/FW_AICN500W_1.0.0-30_20090305.pck`. Byte location 681088 of that file was a gzip-compressed sequence. That sequence was a gzip-compressed minix filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.01.

23. On 9 August 2011, I downloaded Phoebe's AICN747W firmware by visiting the Airlink101 website. Specifically, I downloaded the firmware file:

http://airlink101.com/LegacyFW/AICN747W/FW_AICN747W_1_1_0-28_20100609_r531.rar.

The rar archive file contains a file called FW_AICN747W_1_1_0-28_20100609_r531.pck. Byte location 681088 of that file was a gzip-compressed sequence. That sequence was a gzip-compressed minix filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.01.

24. On 9 August 2011, I downloaded a copy of Phoebe's AICN777W firmware by visiting the Airlink101 website. Specifically, I downloaded the firmware file:

http://airlink101.com/LegacyFW/AICN777W/FW_AICN777W_1_1_0-28_20100610_r532.rar.

The rar archive file contained a file called FW_AICN777W_1_1_0-28_20100610_r532.pck. Byte location 798096 of that file was a gzip-compressed sequence. That sequence was a gzip-compressed minix filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.01.

25. On 9 August 2011, I downloaded a copy of the firmware for Phoebe's ANAS350 firmware by visiting the Airlink101 website. Specifically, I downloaded

http://airlink101.com/LegacyFW/ANAS350/ANAS350_400a7.zip.

The zip file contained a file called ANAS350_400a7.EXE. Byte location 2038245 of that file was an LZMA-compressed sequence. That sequence was a ext2 filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.00-rc2.

26. On 9 August 2011, I downloaded Phoebe's AP671W firmware by visiting the Airlink101 website. Specifically, I downloaded

http://airlink101.com/LegacyFW/AP671W/EW7529APN_Phoebe_1_06_upg.bin.

At byte location 1241310 of that file, there was an LZMA-compressed sequence. That sequence was a binary of BusyBox, which included the specific version number 1.11.1.

27. On 9 August 2011, I downloaded a copy of the firmware for Phoebe's AR360W3G firmware by visiting the Airlink101 website. Specifically, I downloaded

http://airlink101.com/LegacyFW/AR360W3G/20080212_AR360W3G_R700b5.zip.

A file comparison showed that this file, 20080212_AR360W3G_R700b5.zip, was the same file analyzed in ¶ 17, and thus it contained a binary of BusyBox, which included the specific version number 1.00-rc2.

28. On 9 August 2011, I downloaded a Phoebe's AR525W firmware by visiting the Airlink101 website. Specifically, I downloaded:

http://airlink101.com/LegacyFW/AR525W/AirLink_MIMO_20060710-v1.0.54.rar. The rar archive contained a file called

[AirLink_MIMO_20060710-v1.0.54/AirLink_MIMO_20060710-v1.0.54_crc_hdr.img](http://airlink101.com/LegacyFW/AR525W/AirLink_MIMO_20060710-v1.0.54/AirLink_MIMO_20060710-v1.0.54_crc_hdr.img).

Byte location 726280 of that file was a squashfs filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.00.

29. On 9 August 2011, I downloaded a copy of the firmware for Phoebe's AR570W firmware by visiting the Airlink101 website. Specifically, I downloaded:

http://airlink101.com/LegacyFW/AR570W/BR6225N_Phoebe_1.31_upg.bin. At byte location 1299331 of that file, there was an LZMA-compressed sequence. That sequence was a binary of BusyBox, which included the specific version number 1.15.2.

30. On 9 August 2011, I downloaded Phoebe's AR660W3G firmware by visiting the Airlink101 website. Specifically, I downloaded:

http://airlink101.com/LegacyFW/AR660W3G/3G6400N_Phoebe_2_09.bin. Byte location 1284697 of that file was an LZMA-compressed sequence. That sequence was a binary of BusyBox, which included the specific version number 1.11.1.

31. On 9 August 2011, I downloaded Phoebe's AR675W firmware by visiting the Airlink101 website. Specifically, I downloaded

http://airlink101.com/LegacyFW/AR675W/BR6428N_Phoebe_v1_19_upg.bin.

At byte location 608290 of that file, there was a squashfs filesystem (a virtual filesystem). Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.00-pre8.

32. On 9 August 2011, I downloaded a copy of the firmware for Phoebe Micro's AR680W

firmware by visiting the Airlink101 file archive site. Specifically, I downloaded

http://airlink101.com/LegacyFW/AR680W/ar680w_v1_01_849a.bin.

At byte location 852096 of that file, there was a squashfs filesystem (a virtual filesystem).

Inside that filesystem, there was a binary of BusyBox, which included the specific version number 1.00.

33. On 9 August 2011, I examined the website of Phoebe's Airlink101 site. I found nowhere on their website the source code, nor an offer therefor, for the BusyBox binaries found in the AICAP650W, AICAP650, AICN500, AICN500W, AICN747W, AICN777W, ANAS350, AP671W, AR360W3G, AR525W, AR570W, AR660W3G, AR675W, and/or AR680W products and/or their respective firmwares. There was also no notice that some contents of these firmwares were licensed under the GPLv2 or that I had any right to myself make unlimited copies, modifications and redistributions of those contents for no fee.

34. BusyBox is currently maintained using the version control software program Git, and was previously maintained in a version control software called SVN. Using basic commands in Git and/or SVN, one can parse the commit logs to identify which lines of source code Andersen revised and/or added in each released version of BusyBox.

35. I have examined the SVN and Git logs of the BusyBox project, and I have arrived at various conclusions about Andersen's contributions. Specifically, I analyzed these logs in an automated way to compare how many of Andersen's lines of textual contribution in the versions of BusyBox registered with the copyright office appear in specific versions of BusyBox that Phoebe distributed (in binary form) in their products.

36. The most scientifically sound way to compare source code to binaries is to identify the source code that produced the binary, and compare the two sets of source code to each other.

37. For each BusyBox binary distributed by Phoebe, I have above determined the specific version number of BusyBox, and those findings are in Exhibit A. The version numbers, along with other identifying strings found in each binary, show the binaries distributed by Phoebe

are derived from the source code releases of BusyBox, with the respective version numbers, on BusyBox's website.

38. The following table matches up (a) Andersen's lines of textual contribution (lines he added and/or revised) to specific versions of BusyBox, to (b) the versions of BusyBox that appear in Phoebe's products. Specifically, the columns represent released BusyBox versions found, in binary form, in Phoebe's products. The rows represent Andersen's lines of source code added and/or revised for that row's BusyBox version. Each cell, thus, represents the number of lines of source code added and/or revised by Andersen for that row's version that appear identically in the complete work of source code for that column's BusyBox version (which was, in turn, distributed in binary form by Phoebe).

		Versions of BusyBox in Phoebe's Products						
		1.00-pre1	1.00-pre8	1.00-rc2	1.00	1.01	1.11.1	1.15.2
		(AICAP650W, AICAP650)	(AR675W)	(ANAS350, AR360W3G)	(AR525W, AR680W)	(AICN500, AICN500W, AICN747W, AICN777W)	(AR660W3G, AP671W)	(AR570W)
Andersen's	0.60.3	221	213	208	203	195	89	29
Additions	1.00-pre1	2,125	1,928	1,730	1,696	1,520	865	690
and/or	1.00-pre2	N/A	322	300	297	284	80	71
Modifications	1.00-pre3	N/A	261	258	258	218	151	91
First	1.00-pre4	N/A	667	658	660	262	419	104
Published	1.00-pre6	N/A	462	449	435	282	137	47
in	1.00-pre8	N/A	172	184	189	127	129	67
These	1.00-pre9	N/A	N/A	1,597	1,536	1,218	623	565
BusyBox	1.00-rc1	N/A	N/A	342	307	254	146	66
Versions	1.00	N/A	N/A	N/A	583	186	261	117
TOTAL		2,346	4,025	5,726	6,164	4,546	2,900	1,847

39. For example, as shown in Exhibit A and explained in ¶ 17, ¶ 19, and ¶ 20, Phoebe's AICAP650W and AICAP650 products contained a binary of BusyBox, version 1.00-pre1. The first box (row: 0.60.3, column: 1.00-pre1) in ¶ 38's table shows that the complete work of source code for BusyBox 1.00-pre1 contained 221 lines of source code that were identical to

lines of source code added and/or revised by Andersen in 0.60.3. Meanwhile, the box below that box (row: 1.00-pre1, column: 1.00-pre1) shows the complete work of BusyBox 1.00-pre1 itself contained 2,125 lines of added and/or revised source code from Andersen. Finally, in that column, the table shows that a total of 2,346 lines of source code added and/or revised by Andersen appeared in the whole work of source code of BusyBox 1.00-pre1, which Phoebe distributed in binary form in its AICAP650W and AICAP650 products.


40. Thus, in my opinion, the versions of BusyBox found in Phoebe's products containing such significant amounts of contributions Andersen made are derived from the versions of BusyBox he published. For example, the version of BusyBox found in the AICAP650W and AICAP650 products was derived from both the contributions Andersen made to version 0.60.3 and the contributions he made to version 1.00-pre1.

41. Note that the table in ¶ 38 only covers lines of textual additions and/or revisions that Andersen registered with the copyright office. In my analysis of the SVN and Git logs, I observed that Andersen also made many lines of textual revisions and/or additions to all these versions of BusyBox that were not registered with the copyright office.

42. The BusyBox revision history shows that Andersen incorporated and/or arranged contributions from others for all versions of BusyBox between the dates of 7 September 2001 through 22 March 2006 even if he did not specifically modify those contributions at the time he incorporated and/or arranged them into BusyBox.

I declare under penalty of perjury under the laws of the United States of America that all statements and affirmations made herein of my own knowledge are true and correct, and all statements made on information and belief are believed to be true and correct.

Executed on 19 August 2012

By:  _____