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IN THE UNITED STATES DISTRICT COURT
THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

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|---|---|--------------------------------|
| PUBLIC.RESOURCE.ORG., a California non- |) | Case No. 3:13-CV-02789-WHO |
| profit organization, |) | |
| |) | |
| Plaintiff, |) | DECLARATION OF TIM BRAY |
| |) | |
| v. |) | |
| |) | |
| UNITED STATES INTERNAL REVENUE |) | |
| SERVICE, |) | |
| |) | |
| Defendant. |) | |

I, Tim Bray, declare as follows:

1. I have been a professional computer programmer since 1981. I have personal knowledge of the matters stated in this declaration and could competently testify to them if called as a witness.

2. From 1989 to 1996, I served as co-founder, CEO, and Senior Vice President of Open Text Corporation, which developed one of the first Internet search engines.

3. From 2004 to 2009, I was a Distinguished Engineer and Director of Web Technologies at Sun Microsystems. I have held a number of other engineering positions at corporations such as Google and the Digital Equipment Corporation and have been an active participant in the Internet standards process.

4. From 1996 to 2003 I was an Invited Expert to the World Wide Web Consortium, the standards-making body for the World Wide Web. Named by Sir Tim Berners-Lee, I served on the Technical Architecture Group, the group charged with stewardship of the World Wide Web architecture.

5. In 1998, I served as the co-editor of the technical specification for the Extensible Markup Language (XML) 1.0. The current version of this Internet standard can be found at <http://www.w3.org/TR/REC-xml/>.

6. In 1998 and 1999, I served as the co-editor of the technical specification for Namespaces in XML. The current version of this Internet standard can be found at <http://www.w3.org/TR/REC-xml-names/>

7. In 2014, I served as the editor of the JavaScript Object Notation (JSON) Data Interchange Format, which has been published by the Internet Engineering Task Force as Request for Comment 7159. This Internet standard may be found at <http://www.rfc-editor.org/rfc/rfc7159.txt>.

8. I have examined some of the documentation provided by the Internal Revenue Service on the Modernized e-file (MeF) Program. That documentation is available at <http://www.irs.gov/Tax-Professionals/e-File-Providers-&-Partners/Modernized-e-File-Program-Information>.

9. I do not consider myself an expert on the MeF program, but I believe I understand the basics of the system and have sufficient knowledge to comment on the following points.

10. The MeF submission format for IRS returns is based partly on the standards that I helped develop, including XML and XML namespaces. The format of a MeF submission is described in detail in the 2014 MeF Submission Composition Guide, which I have examined. It can be found at http://www.irs.gov/pub/irs-schema/MeF_Submission_Composition_Guide_v1-4.pdf. A MeF submission consists of a single XML file representing the return, such as an individual return, a corporate return, or a nonprofit return. The return may be accompanied by zero, one, or more PDF files which are attachments to the submission. The submission itself is transmitted to the IRS using a protocol known as SOAP, which is also based on XML.

11. A "schema" is a description of the structure of an XML document, such as an IRS MeF return. The schemas for the Form 990, which are found in the IRS publication "990/990-EZ/990-PF TY2014 v1.0 Schema, Business Rules and Release Memo," describe the structure of a Form 990 submission. These materials can be found at <http://www.irs.gov/Charities-&-Non-Profits/990-990-EZ-990-PF-TY2014-v1.0-Schema,-Business-Rules,-and-Release-Memo>.

12. It is my understanding that before the IRS can release a Form 990 to the public, certain materials that are not available for public inspection must be removed. Specifically, the IRS must remove the Schedule B, Schedule of Contributors. In this affidavit, I am providing my opinion as to the technical difficulty and feasibility of removing an XML element, such as the Schedule B, from an XML file, such as the Form 990.

13. It is my understanding that the IRS does not provide a sample instance of an XML file for the Form 990 or Form 990-PF. However, I was able to examine a sample instance of an XML file for a corporate return based on Form 1120. That file is contained in the IRS publication "2014 Valid XML Schemas and Business Rules for 1120, 1120S, 1120-F, and 7004 Modernized e-File (MeF)." That information can be found at <http://www.irs.gov/Tax-Professionals/e-File-Providers-&-Partners/2014-Valid-XML-Schemas-and-Business-Rules-for-1120-1120S-1120-F-and-7004-Modernized-e-File>.

14. The name of the file that I examined is Example_TransmissionWithConsolidatedReturn.xml. Based on my examination of the Composition Guide and the fact that the Schemas for Corporate Returns are constructed the same as the Schemas for Exempt Organization returns, I believe that the file I have examined uses the same structure as a Form 990 file in MEF format. A copy of the file I examined is available at https://bulk.resource.org/irs.gov/eo/doc/doc/Example_TransmissionWithConsolidatedReturn.xml.

15. In order to remove (redact) one element nested inside an XML file, I use a common programmers' tool called a "text editor." Any professional programmer has access to such software. In this case, I used a text editor called emacs. Other examples of text editors are "TextEdit" on an Apple computer, "Vim" on any Linux computer, and "Notepad" on any Windows computer.

16. I was able to open the file Example_TransmissionWithConsolidatedReturn.xml in the emacs text editor, remove the element named IRS1120ScheduleB, and save the file with a new name to avoid overwriting the original. That test took me 1 minute and 4 seconds to complete.

17. There are a variety of text editors which are either specialized for use with XML or for which there are available specialized "modes" for handling XML. Emacs has such a mode, and I used it to ensure that I had not damaged the logical structure of the file in removing the IRS1120ScheduleB element.

18. As a computer programmer, I could write a very simple program to remove any designated element from an XML file. A technology called "XSLT" is commonly used to construct such programs. The IRS provides XSLT-based programs to users of the MeF Program to transform MeF data into other formats, such as an HTML page for viewing in a standard web browser. The IRS makes these available at <http://www.irs.gov/Tax-Professionals/e-File-Providers-&Partners/Modernized-e-File-MeF-Stylesheets>. Using a very simple XSLT-based program, one could easily and systematically remove a specific schedule from a large number of XML files.

19. Instead of XSLT, there are a number of other techniques one could use to systematically remove a specific schedule (or a list of specific schedules) from a number of files. I would use a general-purpose programming language and write a simple program to perform this

1 task. It is my belief that it would take me less than half a day to write such a program. It is my
2 professional opinion that the use of such a program would be preferable to the manual technique I
3 used, as it would be less susceptible to human error.

4 20. It is my considered belief that removing a single element from an XML file, such
5 as removing the Schedule B from a Form 990, is a simple task that can be performed by most
6 computer programmers on a case-by-case basis with very moderate effort. It is also my belief that
7 writing a simple program to remove that element from a large number of files is also a very simple
8 task and could be based on the existing tools that the IRS has already developed.

9 I declare under penalty of perjury under the laws of the United States of America that the
10 foregoing is true and correct and that this declaration was executed this 27 day of September, 2014
11 at Vancouver, Canada.

12 /s/ Tim Bray

13 TIM BRAY
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