U.S. International Trade Commission

Audit of ITCNet's Linux Software Management

OIG-AR-20-09

December 16, 2019

Office of Inspector General

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Commissioners

David S. Johanson, Chairman
Rhonda K. Schmidtlein
Jason E. Kearns
Randolph J. Stayin
Amy Karpel

UNITED STATES INTERNATIONAL TRADE COMMISSION

OFFICE OF INSPECTOR GENERAL

WASHINGTON, DC 20436

December 16, 2019 IG-RR-038

Chairman Johanson:

This memorandum transmits the final report for the Audit of ITCNet's Linux Operating System Software Management, OIG-AR-20-09. In finalizing this report, we analyzed management's comments to our draft report and have included those comments in their entirety as Appendix A.

We determined that the Commission was effectively managing its Linux operating system software ITCNet.

We are issuing one recommendation to the Commission to improve the management of Linux operating system software on ITCNet. In the next 30 days, please provide me with your management decisions describing the specific actions that you will take to implement our recommendation.

Thank you for the courtesies extended to my staff during this audit.

Philip M. Heneghan
Inspector General

U.S. International Trade Commission

Draft Audit Report

Table of Contents

Results of Audit.....1

Area for Improvement.....2

Area for Improvement: Implement a Technical Control to Monitor and Prevent Unauthorized Software.....2

Management Comments and Our Analysis.....2

Objective, Scope and Methodology.....3

Appendix A: Management Comments.....4

Results of Audit

The purpose of this audit was to answer the question:

- Does the Commission effectively manage all its Linux operating system software on the network?

Yes, the Commission effectively manages all its Linux operating system software on the network.

The Linux servers host some of the largest Commission systems that provide services to both internal and external users, including:

- Miscellaneous Tariff Bill Petition System (MTBPS)
- Electronic Document Information System (EDIS3)
- The Public Website

Effectively managing software on the network is a core foundational security control. This requires the Commission to be able to:

1. Maintain an inventory of approved software,
2. Identify unmanaged or unauthorized software, and
3. Manage software on the system through regular scanning and patching.

The Office of the Chief Information Officer managed the Commission's Linux software with an enterprise system management tool, Red Hat Satellite. The Office of the Chief Information Officer uses the tool to manage its inventory of approved software and deploy security updates and patches to Linux software applications approved to run on ITCNet.

The Office of the Chief Information Officer has a process in place for users to obtain approval for software that is not in the authorized inventory. This process requires a review by both the Network Services Division and Cyber Security Division to determine if the software can operate properly and securely on ITCNet. Once approved, the software is installed on the server and added to the approved software inventory maintained within the Red Hat Satellite tool.

We obtained the inventory of Linux based software from the Office of the Chief Information Officer. There were 847 software packages identified on the approved list. We used the Commission's scanning tool to examine all Linux based software running on ITCNet and did not identify any unauthorized software on the network.

The Office of the Chief Information Officer has automated tools that scan ITCNet to detect software vulnerabilities. The results of the Linux server scans are used by the Network Services Division to identify and deploy monthly patching and security updates to Linux software applications within the Red Hat Satellite tool.

While the Office of the Chief Information Officer had technical controls in place to maintain the inventory of software, security updates, and patching, they used a manual control to identify unauthorized software running in the Linux environment. A manual check was performed each month during the patching process to identify unauthorized and unmanaged software and take appropriate action.

While the Commission's Linux software inventory was being effectively managed, we identified one area for improvement, which we discuss below.

Area for Improvement

Area for Improvement:
Implement a Technical Control to Monitor and Prevent Unauthorized Software

Unauthorized Linux software on the network may compromise the confidentiality, integrity, or availability of the system, data, and network. The Commission can reduce the risks associated with manual controls by implementing a technical control to monitor and prevent unauthorized software on ITCNet. This would provide additional confidence in the security of the network.

Recommendation 1: Implement a technical control to automatically monitor and prevent unauthorized Linux software from running on ITCNet.

Management Comments and Our Analysis

On December 2, 2019, Chairman David S. Johanson provided management comments on the draft report. He agreed with the findings in the audit and that the Commission should implement a technical control to monitor and prevent unauthorized Linux software from running on ITCNet.

He also stated that the Commission will make management decisions to address the recommendation in the report.

Objective, Scope and Methodology

Objective:

Does the Commission effectively manage all its Linux operating system software on the network?

Scope:

This audit assessed all Linux operating system software on ITCNET. The audit used the software inventory collected from July 2019 through August 2019.

Methodology:

- Collected and analyzed Chief Information Officer data.
- Interviewed staff to gain an understanding of the Linux software environment and security practices.
- Assessed the Linux operating system software inventory from the Chief Information Officer.
- Assessed the whitelisting data from the Chief Information Officer.
- Assessed the whitelist process to the approved software process.
- Determined if all managed systems Linux operating system software have been approved.
- Determined if the Chief Information Officer is effectively managing its Linux operating system software on the network.

GAGAS Statement: We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS) during the period of June 2019 through December 2019. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix A: Management Comments

UNITED STATES INTERNATIONAL TRADE COMMISSION

WASHINGTON, DC 20436

CO83-RR-014

December 2, 2019

MEMORANDUM

TO: Philip M. Heneghan, Inspector General

FROM: David S. Johanson, Chairman DSJ 2 Dec. 2019

SUBJECT: Response to Draft Report – Audit of ITCNet's Linux Operating System Software Management

Thank you for the opportunity to review and provide comments to the draft report -- Audit of ITCNet's Linux Operating System Software Management.

We agree with your findings in this audit that the Commission effectively manages all its Linux operating system software on the network. The Commission also agrees that it should implement a technical control to monitor and prevent unauthorized Linux software from running on ITCNet. The Commission will develop a management decision to address the recommendation in the report.

"Thacher's Calculating Instrument" developed by Edwin Thacher in the late 1870s. It is a cylindrical, rotating slide rule able to quickly perform complex mathematical calculations involving roots and powers quickly. The instrument was used by architects, engineers, and actuaries as a measuring device.

To Promote and Preserve the Efficiency, Effectiveness, and Integrity of the U.S. International Trade Commission

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