















Audit Report



OIG-25-007

CYBERSECURITY/INFORMATION TECHNOLOGY

Audit of the Department of the Treasury's Cybersecurity Information Sharing

November 14, 2024

Office of Inspector General Department of the Treasury



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Abbreviations

AIS Automated Indicator Sharing

CY Calendar year

CIGFO Council of Inspectors General on Financial Oversight
CISA Cybersecurity Information Sharing Act of 2015
CTIIN-FIN Cyber Threat Intelligence & Indicators Notice
CONOPS Threat Indicator Sharing Concept of Operations

DHS Department of Homeland Security

FS-ISAC Financial Services – Information Sharing and Analysis Center

HSIN Homeland Security Information Network

IC IG Inspector General of the Intelligence Community

IG Inspector General

MISP Malware Information Sharing Platform

OCCIP Office of Cybersecurity and Critical Infrastructure Protection

ODNI Office of the Director of National Intelligence

OIG Office of Inspector General

PII Personally identifiable information

PTR Office of Privacy, Transparency, and Records

TLP Traffic Light Protocol

Treasury Department of the Treasury

TSSSOC Treasury Shared Services Security Operations Center

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November 14, 2024

Tony Arcadi Deputy Assistant Secretary, Information Systems and Chief Information Officer

This report presents the results of our audit of the Department of the Treasury's (Treasury) activities to carry out the cybersecurity information sharing provisions of Title I, the *Cybersecurity Information Sharing Act* (CISA) of the *Cybersecurity Act of 2015.*Section 107 of CISA, "Oversight of Government Activities," requires Inspectors General of "appropriate Federal entities," in consultation with the Inspector General of the Intelligence Community (IC IG)³ and the Council of Inspectors General on Financial Oversight (CIGFO), to jointly report to Congress on the actions taken by the respective agencies over the recent 2-year period to carry out the provisions of CISA. This report represents our fourth biennial report to support the joint report.

Our audit objective was to assess Treasury's activities during calendar years (CYs) 2021 and 2022 to carry out the provisions of

Pub. L. 114-113, Division N Cybersecurity Information Sharing Act, pages 696-716 (December 18, 2015.)

The "appropriate Federal entities" are comprised of the Office of the Director of National Intelligence and the departments of Commerce, Defense, Energy, Homeland Security, Justice, and the Treasury.

³ Authorized by the *2010 Intelligence Authorization Act* (P.L. 111-259; October 7, 2010), the IC IG was established to conduct audits, investigations, inspections, and reviews of programs and activities within the responsibility and authority of the Director of National Intelligence.

⁴ Authorized by the *Dodd-Frank Wall Street Reform and Consumer Protection Act* (P.L. 111-203; July 21, 2010), CIGFO was established to provide oversight of the Financial Stability Oversight Council (FSOC); provide a forum for the discussion of ongoing work of each IG who is a CIGFO member; and submit annual reports to Congress and FSOC highlighting the concerns and recommendations.

Survey Results-Department of the Treasury's Activities to Implement the Cybersecurity Act of 2015 (OIG-CA-17-020; June 15, 2017), Audit of the Department of the Treasury's Cybersecurity.

Information Sharing (OIG-20-019; December 10, 2019) and Audit of the Department of the Treasury's Cybersecurity Information Sharing (OIG-22-013; November 23, 2021.

CISA to share cyber threat indicators and defensive measures. A cyber threat indicator is information used to describe or identify security vulnerabilities, tools, and procedures that may be used by attackers to compromise information systems. A defensive measure is an action, device, procedure, technique, or other measure that detects, prevents, or mitigates a known or suspected cybersecurity threat or security vulnerability. We assessed the following as required by Section 107 of CISA:

- a) the sufficiency of policies, procedures, and guidelines related to the sharing of cyber threat indicators within the Federal Government, including those related to the removal of PII [personally identifiable information]⁷ that is not directly related to a cybersecurity threat;
- b) whether cyber threat indicators and defensive measures have been properly classified, as well as an accounting of the security clearances authorized for the purpose of sharing cyber threat indicators or defensive measures with the private sector;
- c) a review of the actions taken by the Federal Government based on cyber threat indicators and defensive measures shared with the Federal Government including (1) the appropriateness of subsequent uses and disseminations of cyber threat indicators and defensive measures, and (2) the timeliness and adequacy;

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Pub. L. 114-113, Division N (December 18, 2015), SEC. 102. Definitions, (6) Cyber Threat Indicator and (7) Defensive Measure.

⁷ PII is information that can be used to trace or distinguish an individual's identity either alone or when combined with other personal or identifying information to include, among other things, an individual's name, biometric records, social security number, date and place of birth, and mother's maiden name.

- d) the specific aspects of cyber threat indicators or defensive measures shared with the Federal Government;⁸ and
- e) barriers affecting the sharing of cyber threat indicators or defensive measures.⁹

The scope of our audit comprised Treasury's cybersecurity information sharing policies and procedures as well as activities for sharing cyber threat indicators and defensive measures during CYs 2021 and 2022. As part of our audit, we reviewed applicable provisions of CISA; Treasury's policies and procedures for sharing cyber threat indicators and defensive measures contained in the Treasury Shared Services Security Operations Center's (TSSSOC) Threat Indicator Sharing Concept of Operations (CONOPS) (March 20, 2017 and February 15, 2023) document; the Office of Cybersecurity and Critical Infrastructure Protection (OCCIP) OCCIP Original Production and Information Dissemination Procedures (October 1, 2020 and January 7, 2022); and the draft *Unclassified* Threats Exchange SOP. We also applied the common question set provided by the IC IG to make the assessments required by Section 107 of CISA, and reviewed and evaluated the responses provided by TSSSOC, OCCIP, and the Office of Privacy, Transparency, and Records (PTR). There was a single incident involving highly sensitive information in which TSSSOC shared cyber threat indicator data in CY 2021. We also reviewed 77 products, to include all 20 Cyber Threat Intelligence & Indicators Notices (CTIIN-FINs), 39 Indicator Notices, 7 Cybersecurity Alerts, and 11 Circulars containing cyber threat indicators and defensive

These specific aspects of cyber threat indicators or defensive measures include: (a) the number of cyber threat indicators or defensive measures shared using the capability implemented by the Department of Homeland Security Automated Indicator Sharing (AIS); (b) instances in which any federal or non-federal entity shared information that was not directly related to a cybersecurity threat and contained PII; (c) the effect of sharing cyber threat indicators or defensive measures with the Federal Government on privacy and civil liberties of specific individuals, including the number of notices that were issued with respect to a failure to remove information not directly related to a cybersecurity threat that contained PII; and (d) the adequacy of steps taken by the Federal Government to reduce any adverse effect from activities carried out under this title on the privacy and civil liberties of U.S. persons.

CISA Section 107 requires the following assessment applicable to the Department of Justice only: "According to the Attorney General, the number of times information shared under CISA was used by a Federal entity to prosecute an offense."

measures, that OCCIP shared externally during CYs 2021 and 2022. We conducted this audit remotely between December 2022 and October 2023. Appendix 1 contains a more detailed description of our objective, scope, and methodology. Appendix 2 contains the common question set provided by the IC IG.

Results in Brief

We concluded that Treasury's activities to share cyber threat indicators and defensive measures during CYs 2021 and 2022 were adequate and aligned with CISA's provisions. Specifically, TSSSOC and OCCIP (1) designed and implemented sufficient policy, procedures, and practices to ensure the sharing of cyber threat indicators and defensive measures, including the removal of PII not directly related to a cybersecurity threat; (2) did not share classified cyber threat indicators and defensive measures with the private sector that required authorization and accounting of the security clearances; (3) took appropriate, adequate, and timely 10 actions to disseminate cyber threat indicators shared with the Federal Government; (4) shared specific aspects of cyber threat indicators that have been shared with the Federal Government; and (5) had no barriers that adversely affected the sharing of cyber threat indicators and defensive measures although there were reported difficulties in receiving cyber threat information.

As part of our reporting process, we provided Treasury management an opportunity to comment on a draft of this report. In a memorandum, management shared they were pleased the report states that Treasury cyber threat sharing and defensive measures for CY's 2021 and 2022 were deemed adequate and aligned with CISA. Furthermore, officials from the OCCIP and the Office of the Chief Information Officer concurred with the conclusions of the report. Appendix 3 contains the management response in its entirety.

¹⁰ Timely is defined by CISA as "shared in an automated manner, in real-time or as quickly as operationally practical."

Background

Section 107 of CISA, "Oversight of Government Activities," requires the Inspectors General of "appropriate Federal entities," in consultation with the IC IG and CIGFO, to jointly report to Congress on the actions taken by the respective agencies over the recent 2-year period to carry out the provisions of CISA.

CISA did not specifically direct Treasury, among other appropriate Federal entities, to carry out cybersecurity information sharing requirements. However, CISA did direct the Office of the Director of National Intelligence (ODNI), the Department of Homeland Security (DHS), the Department of Defense, and the Attorney General to consult with the appropriate Federal entities on the following:

- the development and issuance of procedures to facilitate and promote the timely sharing of cyber threat indicators and defensive measures by the Federal Government (CISA, Section 103);
- the development and issuance of procedures for periodic sharing of cybersecurity best practices, based on ongoing analysis of cyber threat indicators, defensive measures, and cybersecurity threats (CISA, Section 103);
- the development and issuance of procedures relating to the receipt of cyber threat indicators and defensive measures by the Federal Government (CISA, Section 105);
- the development and issuance of guidelines relating to privacy and civil liberties which govern the receipt, retention, use, and dissemination of cyber threat indicators by a Federal entity obtained in connection with cyber information sharing activities (CISA, Section 105);
- a periodic review of the privacy and civil liberties guidelines developed per CISA 105(b)(2)(B), not to be conducted less frequently than once every 2 years (CISA, Section 105); and
- the development and certification of a capability and process within DHS for non-Federal entities to provide cyber threat

indicators and defensive measures to the Federal Government, and for the appropriate Federal entities to receive such cyber threat indicators and defensive measures (CISA, Section 105).

Treasury's Departmental Offices carry out CISA provisions via (1) TSSSOC under the Office of the Chief Information Officer, (2) OCCIP, and (3) PTR. TSSSOC is a Treasury-wide incident response and security operations team focused on the detection and mitigation of advanced threats targeted against the Department, its users, and information technology systems. TSSSOC acts as the centralized coordination point for Treasury bureau cyber incidents and is the liaison with the DHS United States Computer Emergency Readiness Team¹¹ and other Federal agency incident response teams.

OCCIP coordinates Treasury's efforts to enhance the security and resilience of the Financial Services Sector critical infrastructure and reduce operational risk. OCCIP works closely with financial sector companies, industry groups, and government partners to share information about cybersecurity and physical threats and vulnerabilities; encourage the use of baseline protections and best practices; and respond to and recover from significant incidents.

PTR provides Treasury library services and manages the Orders and Directives program, general administration for privacy, transparency, records, and related procurements. PTR serves both the Federal Government community and the public by determining and setting the standards for protecting, facilitating access, preserving, retaining, and disclosing Treasury information, including PII.

Audit Results

Treasury carried out the cyber information sharing provisions of CISA during CYs 2021 and 2022. Specifically, TSSSOC and OCCIP (1) designed and implemented sufficient policy, procedures, and practices to ensure the sharing of cyber threat indicators and

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The United States Computer Emergency Readiness Team is an organization within the DHS Cybersecurity and Infrastructure Security Agency and is responsible for analyzing and reducing cyber threats and vulnerabilities, disseminating cyber threat warning information, and coordinating incident response activities.

defensive measures, including the removal of PII not directly related to a cybersecurity threat; (2) did not share classified cyber threat indicators and defensive measures with the private sector that required authorization and accounting of the security clearances; (3) took appropriate, adequate, and timely actions to disseminate cyber threat indicators shared with the Federal Government; (4) shared specific aspects of cyber threat indicators that have been shared with the Federal Government; and (5) had no barriers that adversely affected the sharing of cyber threat indicators and defensive measures although there were reported difficulties in receiving cyber threat information.

The following summarizes our assessment as required by Section 107 of CISA:

a) An assessment of the sufficiency of policies, procedures, and guidelines related to the sharing of cyber threat indicators within the Federal Government, including those related to the removal of PII that is not directly related to a cybersecurity threat.

CISA Section 103 required that ODNI, DHS, Department of Defense, and the Attorney General jointly develop and issue procedures for the sharing of cyber threat indicators and defensive measures by the Federal Government, in consultation with the appropriate Federal entities. However, CISA did not require that the entities follow these procedures, which were documented within the DHS joint procedures documents discussed below, for sharing cyber threat indicators and defensive measures both within and outside the Federal Government. Both TSSSOC and OCCIP opted to develop and implement their own standard policies and procedures in alignment with DHS's policies and procedures for sharing cyber threat indicators and defensive measures.

We determined that TSSSOC designed the CONOPS document sufficiently to ensure the sharing of cyber threat information as the procedures contained therein aligned with DHS's four policies and procedures documents (hereinafter referred to as the DHS joint procedures): (1) Sharing of Cyber Threat Indicators and Defensive Measures by the Federal Government under the Cybersecurity Information Sharing Act of 2015 (February 16, 2016); (2) Final

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Developed by DHS in conjunction with the Departments of Justice, Defense, Commerce, Energy, and the Treasury, and the ODNI as a result of the enactment of CISA.

Procedures Related to the Receipt of Cyber Threat Indicators and Defensive Measures by the Federal Government (June 15, 2016, updated October 2021); (3) Guidance to Assist Nonfederal Entities to Share Cyber Threat Indicators and Defensive Measures with Federal Entities under the Cybersecurity Information Sharing Act of 2015 (June 2016, updated October 2020); and (4) Privacy and Civil Liberties Final Guidelines: Cybersecurity Information Sharing Act of 2015 (June 15, 2018, updated January 2021 and November 2022). We found no discrepancies between the procedures in the CONOPS document and the DHS joint procedures. The CONOPS also included guidance for removing PII. For the single TSSSOC incident of cyber threat indicator sharing in 2021, an agency official confirmed that no PII was involved and only technical data was shared.

We concluded that TSSSOC followed its CONOPS document for sharing cyber threat indicators and defensive measures and removed any PII not directly related to a cybersecurity threat during CYs 2021 and 2022.

We noted that PTR personnel were involved with a joint review of the *Privacy and Civil Liberties Final Guidelines: Cybersecurity Information Sharing Act of 2015* during CY 2022, as required by Section 105(b)(2)(B). PTR reviewed and reported to DHS that they had no comments for the November 2022 version of the Privacy and Civil Liberties Final Guidelines.

We determined that OCCIP designed the OCCIP Original Production and Information Dissemination Procedures and the draft Unclassified Threats Exchange SOP sufficiently to ensure the sharing of cyber threat information as the procedures contained therein aligned with DHS joint procedures. The OCCIP Original Production and Information Dissemination Procedures describes how OCCIP shares cyber threat indicators and defensive measures. The draft Unclassified Threats Exchange SOP describes OCCIP's process for conducting unclassified threats exchange briefings, which are held monthly to share topical cyber threat indicators and defensive measures. While neither of their policies state how instances of PII are handled, OCCIP explained that they operate

under Treasury's policies for handling PII,¹³ and that Federal law requires federal agencies to restrict disclosure of personally identifiable information that otherwise would be made available to the public, pursuant to the Freedom of Information Act, 5 U.S.C. § 552. Furthermore, we reviewed all 77 products shared by OCCIP during CYs 2021 and 2022 and confirmed that they did not contain any PII.

We concluded that OCCIP followed both *OCCIP Original Production* and Information Dissemination Procedures and draft Unclassified Threats Exchange SOP for sharing cyber threat indicators and defensive measures and removed any PII not directly related to a cybersecurity threat during CYs 2021 and 2022.

b) An assessment of whether cyber threat indicators and defensive measures have been properly classified and an accounting of the security clearances authorized for the purpose of sharing cyber threat indicators and defensive measures with the private sector.

CISA Section 103 required the development and issuance of procedures for the timely sharing of unclassified, including controlled unclassified, cyber threat indicators and defensive measures by the Federal Government with relevant Federal agencies, non-federal entities, or the public, if appropriate, in consultation with the appropriate Federal entities. The procedures were to ensure that the Federal Government has and maintains the capability to share cyber threat indicators and defensive measures in real-time consistent with the protection of classified information.

For CYs 2021 and 2022, TSSSOC shared only one cyber threat indicator with federal and private partners, related to a single incident and requiring special handling to protect sensitive information. TSSSOC's partners then utilized the shared cyber threat indicator to publish two online articles.

TSSSOC does not share classified information with federal and non-federal agencies. Therefore, they do not authorize security clearances for the purpose of sharing cyber threat indicators. However, TSSSOC reported that they maintain an adequate

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¹³ Treasury Directive 25-08 Safeguarding Against and Responding to the Breach of Personally Identifiable Information (December 22, 2009).

number of cleared staff for reviewing any classified information that is received.

For CYs 2021 and 2022, OCCIP shared 77 products in the form of Circulars, CTIIN-FINs, Indicator Notices, and Cybersecurity Alerts. These products were designated using the Traffic Light Protocol (TLP). 14 70 of these items were designated TLP:AMBER, which stipulates that the receiving entity cannot share the information with anyone outside of their organization; 3 items were designated TLP:GREEN which stipulates that recipients may share the information with peers and partner organizations within their sector or community, but not via publicly accessible channels; and 4 items were designated TLP:CLEAR; 15 which stipulates that the information is free to share.

OCCIP does not share classified information with federal and non-federal agencies. OCCIP shared unclassified cyber threat indicators and defensive measure with the private sector via unclassified briefings, an email distribution list for Financial and Banking Information Infrastructure Committee members, and through a point of contact for the Financial Services – Information Sharing and Analysis Center (FS-ISAC)¹⁶ portal.

Additionally, OCCIP only nominates individuals for security clearances, it does not authorize clearances. During CYs 2021 and 2022, OCCIP sent forward 302 security clearances that were maintained by DHS for financial services personnel.

c) A review of the actions taken by the Federal Government to share cyber threat indicators and defensive measures, to include a

¹⁵ In November of 2022, the Cybersecurity and Infrastructure Security Agency adopted the TLP 2.0 which changed the name of the lowest TLP designation from TLP:WHITE to TLP:CLEAR.

TLP was developed by the Cybersecurity and Infrastructure Security Agency to facilitate greater sharing of information. TLP is a set of designations used to ensure that sensitive information is shared with the appropriate audience. It employs four colors to indicate expected sharing boundaries to be applied by the recipient(s).

FS-ISAC is a member-driven not-for-profit organization that features a real-time information-sharing network which amplifies the intelligence, knowledge, and information practices of its members for the financial sector's collective security and defenses.

determination on the timeliness, adequacy, and appropriateness of the sharing.

TSSSOC has used but not disseminated cyber threat indicators and defensive measures from other federal entities as they do not share indicators already disseminated by outside sources. TSSSOC would only share if a new indicator was discovered.

TSSSOC reported that they receive cyber threat information from numerous paid and open sources, and that this information is fed into the Malware Information Sharing Platform (MISP).¹⁷ MISP then automatically aggregates all cyber threat information and tags it so that it can be easily searched and read. It is then converted to a format readable by a Security Information and Event Management tool,¹⁸ which is used to search historical and current data from treasury networks to look for any indicators of compromise. Any credible indicators of compromise are added to a Treasury-wide block list.

TSSSOC shared only one cyber threat indicator, in 2021. The incident was unusual as it was highly sensitive, so sharing did not take place through the standard means. The indicators of compromise were shared directly with involved commercial partners, the FBI, the Cybersecurity and Infrastructure Security Agency, and other government entities. TSSSOC was commended by the U.S. Cyber Command¹⁹ for the expedited sharing of sample indicators of compromise which significantly shortened the response time and allowed the forward deploy team of software engineers to take action and find similar samples. The audit team reviewed TSSSOC's sharing and determined that it followed its CONOPS document, and the cyber threat information was shared within a reasonable timeframe, in an adequate manner, and with the appropriate entities.

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Malware Information Sharing Platform (MISP) is an open source threat intelligence and sharing platform.

¹⁸ A Security Information and Event Management software tool centrally collects, stores, and analyzes logs from various sources. It monitors for security threats in real time for quick attack detection, containment, and response.

The U.S. Cyber Command is a unified combatant command for the cyberspace domain comprised of military, intelligence, and information technology capabilities. Its mission is to direct, synchronize, and coordinate cyberspace planning and operations to defend and advance national interests in collaboration with domestic and international partners.

OCCIP disseminated but did not utilize cyber threat indicators and defensive measures from other federal agencies. They also reported that they do not mitigate potential threats, but rather share cyber threat information. OCCIP shares cyber threat indicators and defensive measures via unclassified briefings, emails, and posting to Financial and Banking Information Infrastructure Committee members, DHS Homeland Security Information Network (HSIN),²⁰ and FS-ISAC portals.

OCCIP shared 11 Circulars, 20 CTIIN-FINs, 7 Cybersecurity Alerts, and 39 Indicator Notices during CYs 2021 and 2022. The audit team reviewed these documents and determined that OCCIP followed its procedural documents, and shared the information within a reasonable timeframe, in an adequate manner, and with the appropriate entities.

- d) An assessment of the cyber threat indicators and defensive measures shared with the appropriate Federal entities to include:
 - The number of cyber threat indicators and defensive measures shared using the capability and process developed in accordance with 105(c).

Section 105(c) of CISA directed DHS to develop and implement a capability and process that accepts cyber threat indicators and defensive measures from non-Federal entities, in real time, and share them with other Federal entities.

The DHS Automated Indicator Sharing (AIS) initiative is the Federal Government's primary mechanism for exchanging unclassified cyber threat indicators and defensive measures with Federal and non-Federal entities, enabling the automated exchange of machine-readable information sharing, as required by CISA, Section 105(c).

While CISA 105(c) requires DHS to provide the AIS capability and process, neither TSSSOC nor OCCIP are required to use AIS.

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²⁰ HSIN is DHS's official system for trusted sharing of Sensitive But Unclassified information between Federal, State and local, Territorial, and Tribal governments, and international and private sector partners.

TSSSOC reported that they discontinued use of AIS 1.0 in 2020 after experiencing difficulties with the high volume of unactionable cyber threat indicators. TSSSOC also reported that AIS 2.0, released in March 2022, has not resolved this issue, and therefore they still do not use AIS.

OCCIP reported that they did not have access to either AIS 1.0 or 2.0 during CYs 2021 and 2022.

2. Instances of sharing PII not directly related to a cybersecurity threat.

CISA Section 103 required that the joint procedures include a requirement that a Federal entity, prior to sharing a cyber threat indicator, assess whether it contains any PII that is not directly related to a cybersecurity threat, and implement and utilize a technical capability to remove any such PII. DHS's joint procedures contain these provisions for sharing cyber threat indicators and defensive measures, including the removal of PII that does not relate to a cybersecurity threat.

TSSSOC requires the removal of PII not directly related to cybersecurity in the CONOPS document. While neither the OCCIP Original Production and Information Dissemination Procedures or draft Unclassified Threats Exchange SOP state how instances of PII are handled, OCCIP has procedures in place to ensure the removal of PII that does not relate to a cybersecurity threat.

TSSSOC and OCCIP reported that no Federal or non-Federal entity shared information with them that contained PII that was not directly related to a cybersecurity threat.

The audit team reviewed all products that were shared by TSSSOC and OCCIP, and confirmed there was no PII contained within, unrelated to a cybersecurity threat.

3. According to the Attorney General, the number of times information shared under CISA was used by a Federal entity to prosecute an offense. (DOJ only)

This question is applicable to DOJ only.

4. A quantitative and qualitative assessment of the effect of sharing cyber threat indicators or defensive measures on privacy and civil liberties.

CISA Section 105 required the Attorney General and DHS in coordination with heads of the appropriate Federal entities to jointly develop and issue guidelines relating to privacy and civil liberties which govern the receipt, retention, use, and dissemination of cyber threat indicators by a Federal entity obtained in connection with cyber information sharing activities. Per the guidelines issued by DHS and the Attorney General, *Privacy and Civil Liberties Final Guidelines:*Cybersecurity Information Sharing Act of 2015 (June 15, 2018, updated January 2021 and November 2022), Federal entities that participate in cybersecurity information sharing activities are: (1) required to limit the receipt, retention, use, and dissemination of cyber threat indicators containing PII; and (2) comply with all other applicable U.S. laws, orders, directives, and policies.

PTR reported that there were no privacy and civil liberties of any individuals affected due to sharing cyber threat indicators or defensive measures during CYs 2021 and 2022 by TSSSOC or OCCIP.

PTR also reported that there were no notices received regarding the failure to remove information that was not directly related to a cybersecurity threat during CYs 2021 and 2022 by either TSSSOC or OCCIP.

5. The adequacy of steps taken to reduce adverse effect on the privacy and civil liberties.

TSSSOC and OCCIP reported there were no adverse effects on the privacy and civil liberties of U.S. persons due to the activities carried out under Section 107 of CISA during CYs 2021 and 2022. PTR confirmed that there were no adverse effects. As such, we did not assess whether adequate steps were taken to mitigate adverse effects.

e) An assessment of the sharing of cyber threat indicators and defensive measures within the Federal Government to identify barriers to sharing information.

Section 107 of CISA requires Inspectors General (IG) of the appropriate Federal entities to make an assessment of the sharing of cyber threat indicators or defensive measures among Federal entities to identify inappropriate barriers²¹ to sharing information. We identified several potential barriers, but found that they did not significantly or adversely affect Treasury's ability to share cyber threat indicators and defensive measures among Federal entities.

TSSSOC has experienced difficulties with using specific tools for sharing cyber threat information. TSSSOC reported that the Intelligence Community Analysis and Signature Tool lacked merit, as participation from reliable sources was low; thus TSSSOC discontinued its use. TSSSOC also reported that AIS 1.0 & 2.0 have not addressed enough technical issues to resolve the high numbers of unactionable cyber threat indicators, and they discontinued use of AIS in 2020.

TSSSOC has experienced difficulties due to the classification of information, with reported delays in applying cyber threat indicators from classified sources due to over-classification and/or the lack of detailed portion markings.

OCCIP has experienced difficulties due to some reluctance from the private sector to share information. OCCIP has reported that financial partners were concerned over the potential misuse of sensitive information. In response, OCCIP has altered its production practices with the goal of improving engagement with the private sector.

TSSSOC has experienced difficulties with the quality and quantity of information received. TSSSOC reported that cyber threat indicator sourcing is inherently problematic as there are fewer [quality] controls on the input or upload side, leading to bad/unactionable indicators. To address this, TSSSOC tries to

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²¹ CISA does not define "inappropriate barriers" related to the sharing of cyber threat indicators and defensive measures.

ingest indicators only from reliable higher quality sources that have the best coverage of the event.

Conclusion

Overall, we concluded that Treasury carried out the cyber information sharing provisions of CISA during CYs 2021 and 2022. Specifically, we determined that TSSSOC and OCCIP complied with Treasury policies and procedures, which aligned with the DHS joint procedures, when sharing the one novel instance, 11 Circulars, 20 CTIIN-FINs, 7 Cybersecurity Alerts, and 39 Indicator Notices.

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I would like to extend my appreciation to the officials and personnel within the Office of Chief Information Officer, TSSSOC, OCCIP, and PTR for the cooperation and courtesies extended to my staff during the audit. If you have any questions, please contact me at (202) 321-1480 or Irma Wahlstrom, Information Technology Audit Manager, at (202) 487-0942. Major contributors to this report are listed in appendix 4.

/s/

Larissa Klimpel Director, Cyber/Information Technology Audit

Appendix 1: Objectives, Scope, and Methodology

Our objective was to assess the Department of the Treasury's (Treasury) activities during calendar years (CYs) 2021-2022 to carry out the provisions of the *Cybersecurity Information Sharing Act of 2015* (CISA), under Title I of the *Cybersecurity Act of 2015*, to share cyber threat indicators and defensive measures. We assessed the following as required by Section 107 of CISA:

- a) the sufficiency of policies and procedures related to sharing cyber threat indicators within the Federal Government;
- b) whether cyber threat indicators and defensive measures have been properly classified, as well as an accounting of the security clearances authorized for the purpose of sharing cyber threat indicators or defensive measures with the private sector;
- the appropriateness, adequacy, and timeliness of the actions taken to use and disseminate cyber threat indicators or defensive measures shared with the Federal Government;
- d) the specific aspects of cyber threat indicators or defensive measures that have been shared with the Federal Government;
 and
- e) barriers affecting the sharing of cyber threat indicators or defensive measures.

The scope of our audit comprised Treasury's cybersecurity information sharing policies and procedures issued by Treasury Shared Services Security Operations Center (TSSSOC) and the Office of Cybersecurity and Critical Infrastructure Protection (OCCIP). The scope of our audit also included TSSSOC's and OCCIP's activities for sharing cyber threat indicators and defensive measures contained in TSSSOC's single sharing incident and OCCIP's 77 products, comprised of 20 Cyber Threat Intelligence & Indicator Notices (CTIIN-FINs), 39 Indicator Notices, 7 Cybersecurity Alerts, and 11 Circulars during CYs 2021 and 2022.

To accomplish these objectives, we performed the following activities during audit fieldwork conducted from December 2022 through October 2023:

- reviewed the provisions of CISA applicable to Federal agencies to include Sections 103, 105, and 107;
- reviewed the Department of Homeland Security's (DHS) four policy and procedure documents: (1) Sharing of Cyber Threat Indicators and Defensive Measures by the Federal Government under the Cybersecurity Information Sharing Act of 2015 (February 16, 2016); (2) Final Procedures Related to the Receipt of Cyber Threat Indicators and Defensive Measures by the Federal Government (June 15, 2016, updated October 2021); (3) Guidance to Assist Nonfederal Entities to Share Cyber Threat Indicators and Defensive Measures with Federal Entities under the Cybersecurity Information Sharing Act of 2015 (June 2016, updated October 2020); and (4) Privacy and Civil Liberties Final Guidelines: Cybersecurity Information Sharing Act of 2015 (June 15, 2018, updated January 2021 and November 2022);
- reviewed TSSSOC's Threat Indicator Sharing Concept of Operations (March 20, 2017 and February 15, 2023) policy, procedures, guidelines, and practices for sharing cyber threat indicators and defensive measures within the Federal Government and with Non-Federal Government entities;
- reviewed OCCIP's OCCIP Original Production and Information Dissemination Procedures (October 1, 2020 and January 7, 2022) policy, and draft Unclassified Threats Exchange SOP, procedures, guidelines, and practices for sharing cyber threat indicators and defensive measures with Non-Federal Government entities in the financial services sector and within the Federal Government;
- applied the common question set created by the Intelligence Community Inspectors General for the purpose of the Section 107 joint report (see Appendix 2);
- evaluated the responses to the common question set applicable to TSSSOC, OCCIP, and the Office of Privacy, Transparency, and Records (PTR);
- conducted interviews with (1) TSSSOC officials and staff responsible for monitoring and sharing of cyber threat indicators and defensive measures with Federal and Non-Federal entities, and (2) OCCIP officials and staff responsible for monitoring

- intelligence and sharing cyber threat indicators and defensive measures with the financial services sector;
- performed walkthroughs of TSSSOC's and OCCIP's processes for sharing and receiving cyber threat indicators and defensive measures with Federal and Non-Federal Government entities;
- examined TSSSOC's single incident of sharing with Federal and private partners during CYs 2021 and 2022;
- reviewed the products centered around cyber threat indicators and defensive measures that were shared by OCCIP during CYs 2021 and 2022;
- reviewed the Government Accountability Office's Standards for Internal Control in the Federal Government (September 2014) to identify the components and principles of internal control that are significant within the context of the audit objectives. We determined that the control environment, control activities, information and communication, and monitoring components were significant to our audit objectives. Specifically we assessed policies, procedures, and guidance against the following principles in which management should: (1) design control activities to achieve objectives and respond to risks; (2) implement control activities through policies; (3) use quality information to achieve the entity's objectives; (4) internally communicate the necessary quality information to achieve the entity's objectives; (5) externally communicate the necessary quality information to achieve the entity's objectives; (6) establish and operate monitoring activities to monitor the internal control system and evaluate the results; and (7) remediate identified internal control deficiencies on a timely basis.
- reviewed the Government Accountability Office's Assessing Data Reliability guidance which states that a data reliability determination does not involve attesting to the overall reliability of the data or database. For this audit, the audit team determined the reliability of the specific data needed to support our assessment of Treasury's sharing of cyber threats and defensive measures and our conclusions in the context of the audit objectives. Specifically, we (1) compared TSSSOC's Threat Indicator Sharing Concept of Operations (March 20, 2017 and February 15, 2023), OCCIP's OCCIP Original

Production and Information Dissemination Procedures (October 1, 2020 and January 7, 2022) and draft Unclassified Threats Exchange SOP policies, procedures, guidelines and practices to DHS's four policy and procedure documents to determine whether they were sufficiently designed and implemented for the sharing of cyber threat indicators and defensive measures; (2) conducted walkthroughs of TSSSOC and OCCIP's processes for receiving and sharing cyber threat indicators and defensive measures to validate processes against policies and procedures; (3) validated data contained in all the products and reports (i.e., Circulars, CTIIN-FINs, Indicator Notices, and Cybersecurity Alerts) shared by TSSSOC and OCCIP to validate timeliness within Treasury; and (4) interviewed and obtained information from officials knowledgeable about processes and data for receiving and sharing cyber threat indicators and defensive measures. We determined that the data was sufficiently reliable for the purposes of answering our audit objectives.

We conducted this performance audit in accordance with generally accepted government auditing standards. 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 2: Common Question Set

The common question set, described below, was developed by the Inspector General of the Intelligence Community (IC IG) for conducting assessments required under Section 107 of the Cybersecurity Information Sharing Act (CISA) of the Cybersecurity Act of 2015²² related to executive branch agencies' cybersecurity information sharing activities in calendar years (CYs) 2021 and 2022. Responses to the common question set are provided to the IC IG separately from this report.

Section 107(b) Joint Project Steps

Background:

CISA Section 107(b) requires the Inspectors General (IG) of the appropriate Federal entities (Commerce, Department of Defense (DoD), Energy, Department of Homeland Security (DHS), Justice, Treasury, and Office of the Director of National Intelligence (ODNI)), in consultation with the IC IG and Council of IGs on Financial Oversight, to jointly submit to Congress an interagency report on their actions over the most recent 2-year period to carry out this title. According to CISA Section 107(b), the contents of the joint report shall include:

- A. An assessment of the sufficiency of policies and procedures related to sharing cyber threat indicators within the Federal Government, including the removal of personally identifiable information (PII). Section 107(b)(2)(A) (Steps 1-8)
- B. An assessment of whether cyber threat indicators and defensive measures have been properly classified and an accounting of the security clearances authorized for the purpose of sharing cyber threat indicators and defensive measures with the private sector. Section 107(b)(2)(B) (Steps 9-13)
- C. A review of the actions taken by the Federal Government to share cyber threat indicators and defensive measures, to include a determination on the timeliness, adequacy, and

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²² Pub. L. 114-113, Division N (December 18, 2015.)

- appropriateness of the sharing. Section 107(b)(2)(C) (Steps 14-17)
- D. An assessment of the cyber threat indicators and defensive measures shared with the appropriate Federal entities to include:
 - The number of cyber threat indicators and defensive measures shared using the capability and process developed in accordance with 105(c). Section 107(b)(2)(D)(i) (Steps 18-21)
 - II. Instances of sharing PII not directly related to a cybersecurity threat. Section 107(b)(2)(D)(ii) (Step 22)
 - III. According to the Attorney General, the number of times information shared under CISA was used by a Federal entity to prosecute an offense. Section 107(b)(2)(D)(iii) (DOJ only)
 - IV. A quantitative and qualitative assessment of the effect of sharing cyber threat indicators or defensive measures on privacy and civil liberties. Section 107(b)(2)(D)(iv) (Steps 23-24)
 - V. The adequacy of steps taken to reduce adverse effect on the privacy and civil liberties. Section 107(b)(2)(D)(v) (Step 25)
- E. An assessment of the sharing of the cyber threat indicators and defensive measures within the Federal Government to identify barriers to sharing information. Section 107(b)(2)(E) (Step 26)

Definitions:

Question 14a – Appropriately – used and disseminated the information to individuals/entities with appropriate security clearances [Section 103(b)(1)(A)], only used and disseminated information related to a cybersecurity threat without disclosing personal information of a specific individual or identifying a specific individual, and protected the information from unauthorized use. [See Section 105(a)(4)(B)]

Question 15a – *Timely* – agency shared in an automated manner, in real-time or as quickly as operationally practical with appropriate Federal entities. [Section 105(a)(3)(A)]

Question 15a – Adequate Manner – agency shared only relevant and useful information related to a cybersecurity threat and protected the information from unauthorized access. [See Section 103(b)(1)(D)]

Question 15a – *Appropriate entities* – agency used the appropriate sharing capability to ensure receipt by entities with the need for the cyber threat information and with the proper clearances based on the classification of the information.

** Additional guidance for responding to question 15a can be obtained from procedure document, Sharing of Cyber Threat Indicators and Defensive Measures by the Federal Government under CISA.

Question 17a – *Timely* – other Federal entities shared in an automated manner, in real-time or shared quickly so that the data received was still relevant and useful. [Section 105(a)(3)(A)]

Question 17a – *Adequate* – other Federal entities shared relevant and useful information related to a cybersecurity threat and protected the information from unauthorized access. [See Section 103(b)(1)(D)]

Question 17a – *Appropriate Manner* – other Federal entities shared using the appropriate sharing capability to ensure receipt by entities with the need for the cyber threat information and with the proper clearances based on the classification of the information.

** Additional guidance for responding to question 17a can be obtained from procedure document, Final Procedures Related to the Receipt of Cyber Threat Indicators and Defensive Measures by the Federal Government.

Question 25a – *Adequate steps* – the steps taken reduced/mitigated the adverse effects on the privacy and civil liberties of U.S. persons. Also see procedure document, Privacy and Civil Liberties Final Guidelines: CISA.

Procedure Documents:

- Final Procedures Related to the Receipt of Cyber Threat Indicators and Defensive Measures by the Federal Government (June 2016, updated October 2021) provides a process for receiving, handling, and disseminating information shared with and from DHS, including the use of the Automated Indicator Sharing (AIS) capability.
- 2. Privacy and Civil Liberties Final Guidelines: Cybersecurity Information Sharing Act of 2015 (June 2018, updated January 2021) addresses limiting the impact on privacy and civil liberties in the receipt, retention, use, and dissemination of cyber threat information.
- 3. Guidance to Assist Non-Federal Entities to Share Cyber Threat Indicators and Defensive Measures with Federal Entities under the Cybersecurity Information Sharing Act of 2015 (June 2016, updated October 2020) assists non-Federal entities with sharing cyber threat indicators and defensive measures with Federal entities and describes the protections non-Federal entities receive under the statute.
- 4. Sharing of Cyber Threat Indicators and Defensive Measures by the Federal Government under the Cybersecurity Information Sharing Act of 2015 (February 2016) facilitates and promotes the timely sharing of classified and unclassified cyber threat indicators and defensive measures. The procedures include details on existing government programs that facilitate the sharing of information on cybersecurity threats and the periodic publication of cybersecurity best practices.

Project Steps:

- 1. What is the agency's process in practice for sharing cyber threat indicators within the Federal Government? Define "sharing" for the purposes of your agency.
- 2. What are the agency's policies, procedures, and guidelines for sharing cyber threat indicators within the Federal Government?

- 3. Do the policies, procedures, and guidelines include guidance for removing information not directly related to a cybersecurity threat that is personal information of a specific individual or information that identifies a specific individual?
- 4. If the four procedure documents created as a result of CISA²³ were not the agency's response for question 2, is the agency aware of the documents?
- 5. Does the process for sharing cyber threat indicators within the Federal Government determined from question 1 align with the policies, procedures, and guidelines from question 2?
- 6. Are the agency's policies, procedures, and guidelines (if different from the four CISA procedure documents) sufficient and complying with the guidance in CISA Section 103(a) & (b) and 105(a), (b), & (d)?
- 7. If there are differences in the policies, procedures, and guidelines implemented among the agencies, does it impact the sharing of cyber threat information? (OIGs can first determine whether not using the four procedure documents impacts the sharing - IC IG will coordinate additional follow-up, if necessary)
- 8. Does the agency believe the policies, procedures, and guidelines are sufficient or are there any gaps that need to be addressed?
- 9. Has the agency shared cyber threat indicators and defensive measures with the private sector?
- 10. If yes for question 9, are any of the shared cyber threat indicators and defensive measures classified?
- 11. If yes for question 10, what was the process used by the agency to classify the shared cyber threat indicators and defensive measures?

²³ The four documents are detailed on page 24.

- a. Review a sample of the shared cyber threat indicators and defensive measures and determine whether the cyber threat information was properly classified.
- b. Did the agency's process result in the proper classification?
- 12. Has the agency authorized security clearances for sharing cyber threat indicators and defensive measures with the private sector?
 - a. If yes, how did the agency account for the number of security clearances and how many security clearances were active in CYs 2021 and 2022?
- 13. Are the number of active security clearances sufficient or are there barriers to obtaining adequate number of cleared personnel to receive cyber threat information?
- 14. Has the agency used and disseminated cyber threat indicators and defensive measures shared by other Federal agencies?
 - a. If yes, determine whether the agency used and disseminated the shared cyber threat information appropriately? Provide results.
 - b. If yes, did the agency use the shared cyber threat information to mitigate potential threats? Please explain.
- 15. Has the agency shared cyber threat indicators and defensive measures with other Federal agencies?
 - a. If yes, determine whether the agency shared the cyber threat information in a timely and adequate manner with appropriate entities or, if appropriate, made publicly available. Provide results.
- 16. With which Federal agencies and what capabilities or tools were used to share the cyber threat information?
- 17. Have other Federal entities shared cyber threat indicators and defensive measures with the agency?

- a. If yes, determine if cyber threat information was shared and/or received in a timely, adequate, and appropriate manner. Provide results.
- 18. (For DHS only) How many cyber threat indicators and defensive measures did entities share with the Department of Homeland Security through the AIS capability in CYs 2021 & 2022? Provide results.
- 19. (For DHS only) How many of those cyber threat indicators and defensive measures reported for question 18 did Department of Homeland Security share with other Federal entities CYs 2021 & 2022? Provide results.
- 20. (Agencies other than DHS) How many cyber threat indicators and defensive measures did Department of Homeland Security relay to the agency via AIS CYs 2021 & 2022?
- 21. If there are differences in the numbers reported by DHS and the agencies, what is the cause? (IC IG will coordinate follow-up)
- 22. Did any Federal or non-Federal entity share information with the agency that was not directly related to a cybersecurity threat that contained personally identifiable information (PII)?
 - a. If yes, provide a description of the violation.
- 23. Was the privacy and civil liberties of any individuals affected due to the agency sharing cyber threat indicators and defensive measures?
 - a. If yes, how many individuals were affected? Provide a description of the effect for each individual and instance.
- 24. Did the agency receive any notices regarding a failure to remove information that was not directly related to a cybersecurity threat?

- a. If yes, how many notices were received and did any of those notices relate to personally identifiable information for any individuals?
- 25. Was there any adverse effect on the privacy and civil liberties of U.S. persons due to the activities carried out under this title by the agency?
 - a. If yes, did the agency take adequate steps to reduce adverse effects? Provide results.
- 26. Are there any barriers that affected the sharing of cyber threat indicators and defensive measures among Federal entities? Provide a description of the barriers and the impact the barriers have on the sharing of cyber threat indicators and defensive measures. Examples of barriers could include:
 - a. Any difficulties with using a specific capability or tool to share and/or receive cyber threat information?
 - b. Any difficulties due to classification of information?
 - c. Any difficulties due to a reluctance to sharing information?
 - d. Any difficulties due to the number of cyber threat indicators and defensive measures received? Too many to ingest and review?
 - e. Any issues with the quality of the information received?
 - f. Has the agency performed any steps to mitigate the barriers identified?
- 27. Any cybersecurity best practices identified by the agency through ongoing analyses of cyber threat indicators, defensive measures, and information related to cybersecurity threats? Did the agency share or receive any cybersecurity best practices? [Section 103(a)(5)]
- 28. What capabilities/tools does the agency use to share and/or receive cyber threat indicators and defensive

- measures? Are the capabilities/tools providing the agency with the necessary cyber threat information?
- 29. Does the agency receive unclassified cyber threat information from ICOAST²⁴? If not, why? (resources, system incompatibility, lack of information)
- 30. (For DHS only) Has DHS and the heads of the appropriate Federal entities, in consultation with the appropriate private entities, jointly reviewed the guidelines issued? [Section 105(b)(2)(B)]

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Intelligence Community Analysis and Signature Tool (ICOAST) is a tool, managed by the Intelligence Community Security Coordination Center, deployed to increase the sharing of high-quality cyber threat information at the top-secret security level.

Appendix 3: Management Response



DEPARTMENT OF THE TREASURY WASHINGTON, D.C.

October 23, 2024

MEMORANDUM FOR LARISSA KLIMPEL, DIRECTOR, INFORMATION TECHNOLOGY AUDIT

FROM: Tony Arcadi, Deputy Assistant Secretary for Information Systems and Chief

Information Officer Antony P. Arcadi Digitally signed by Antony P. Arcadi Date: 2024.10.28 16:52:13 -04'00'

CC: Aditi Hardikar, Assistant Secretary for Management

SUBJECT: Management Response to Draft Audit Report Audit of the Department of the Treasury's Cybersecurity Information Sharing

Thank you for the opportunity to comment on the draft report *Audit of the Department of the Treasury's Cybersecurity Information Sharing*. We are pleased that the report states that Treasury cyber threat sharing and defensive measures in the calendar year 2021 and 2022 were deemed adequate and aligned with the Cybersecurity Information Sharing Act (CISA).

We have carefully reviewed the draft report and agree with the discussion about potential barriers to sharing information. Though none of the barriers mentioned had a significant or adverse impact on the Treasury's ability to share cyber threat indicators and defensive measures, the agency remains committed to complying with Treasury policies and procedures.

The Office of Cybersecurity and Critical Infrastructure Protection and the Office of Chief Information Officer concur with the conclusions of this report. We thank the Office of Inspector General for their thorough analysis and professionalism throughout this audit.

Appendix 4: Major Contributors to This Report

Irma Wahlstrom, Audit Manager Brittany Lawrence, IT Specialist/Auditor Adam Leesman, IT Specialist/Auditor Angel Cruz, IT Specialist/Auditor Christine Vaing, IT Specialist/Auditor Jung Hyub Lee, IT Specialist/Auditor Clare Granville, Referencer

Appendix 5: Report Distribution

Department of the Treasury

Deputy Secretary

Assistant Secretary for Management

Deputy Assistant Secretary, Information Systems and Chief Information Officer

Director, Treasury Shared Services Security Operations Center

Director, Office of Privacy, Transparency, and Records

Director, Office of Cybersecurity and Critical Infrastructure Protection

Office of the Deputy Chief Financial Officer, Risk and Control Group

Office of Strategic Planning and Performance Improvement

Office of Management and Budget

Office of the Inspector General Budget Examiner

Inspector General of the Intelligence Community

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