CISA | CYBERSECURITY AND INFRASTRUCTURE SECURITY AGENCY

CYBERSECURITY THREATS AND RESOURCES: RANSOMWARE RISKS

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DEFEND TODAY ➡ SECURE TOMORROW

A secure and resilient critical infrastructure for the American People

August 4, 2021
R8 All State Call

Agenda

- Current Threats and RaaS Trends
- Definition of a Cyber Threat Actor
- Cyber and Ransomware Terms
- Anatomy of a Cyber Attack
- Notable Recent Cyber Attacks
- Common Themes – Take Away Items
- CISA Ransomware Resources / Guides
- CISA Cybersecurity Service Offerings Overview
- Q&A

Current Cybersecurity Threats

~~Hackers~~ Threat actors are sophisticated and well funded..

RANSOMWARE ATTACK
You only have 3 days to submit the payment, or your files will be
Time Left
02:23:59:06

Threat = **Capability + Intent + Motivation**

Cyber & Ransomware Terms

The New Face of Organized Crime

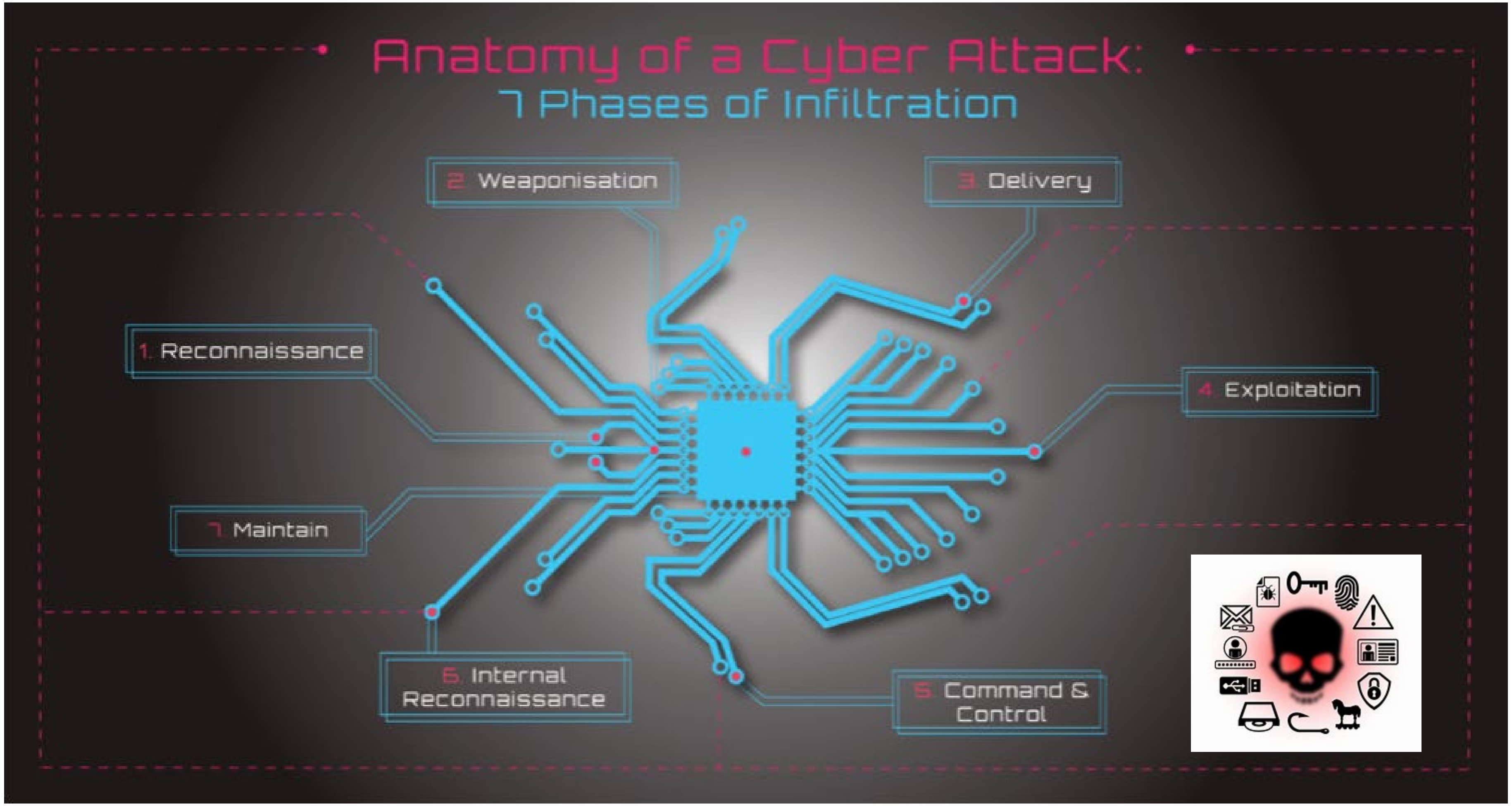
Hackers are no longer lone wolves. They're now banding together to run fewer—yet much larger—attacks, similar to the traditional crime rings of the 20th century.

80%

of cyber-attacks are driven by **organized crime rings,** in which data, tools, and expertise are widely shared.[1]

Anatomy of a Cyber Attack

7 Phases of a Cyber Criminal's Methodology.



Recent Significant RaaS Attacks

- **Kaseya:** 2 July 21, Cybercriminal group REvil (Raas) targeted a flaw in Kaseya's code on their Virtual Server Agent (VSA) which is among the World's most popular remote monitoring and management (RMM) for managed service providers world-wide. More than 60 Kaseya customers and 1,500 downstream businesses were impacted by a poisoned VSA update which the threat actor used to infect downstream organizations. The Russian-based Advanced Persistent Actor demanded $70 million in Bitcoin for a universal decryptor. (Sodinokibi)

- **JBS S.A. Meat Processing:** 1 June 21, REvil (RaaS) conducted a ransomware attack against business networks of meat processor JBS who supplies one-fifth of meat globally, receiving a ransom demand of $11 million dollars. The attack shut down global business networks which directly impacted their meat production operations. Due to 2nd & 3rd order impacts of business automation within their networks meat tagging and shift scheduling were interrupted which in-turn impacted supply chains and their ability to fully operate their meat production lines.
  Result: $11 million Ransom, Disruption in the global meat production supply chain

- **Colonial Pipeline:** 7 May 21, Cybercriminals known a DarkSide (RaaS) conducted a ransomware attack against the largest refined products pipeline in the United Sates, with a capacity to transport 2.5 million barrels a day from the Gulf coast to markets in the southern and eastern US. Colonial proactively shut down its OT pipeline systems to contain and mitigate the ransomware spread. Due to business automation integration the ransomware event on their business IT Systems directly impacted their tracking and billing automation within their pipeline distribution network. Disrupting the fuel supply chain network across multiple States and vendors for several days resulting in the most significant pipeline outage in due to a cyber event in history.
  Result: More than $4.3 million in Ransom and millions more in lost revenue

Common Themes

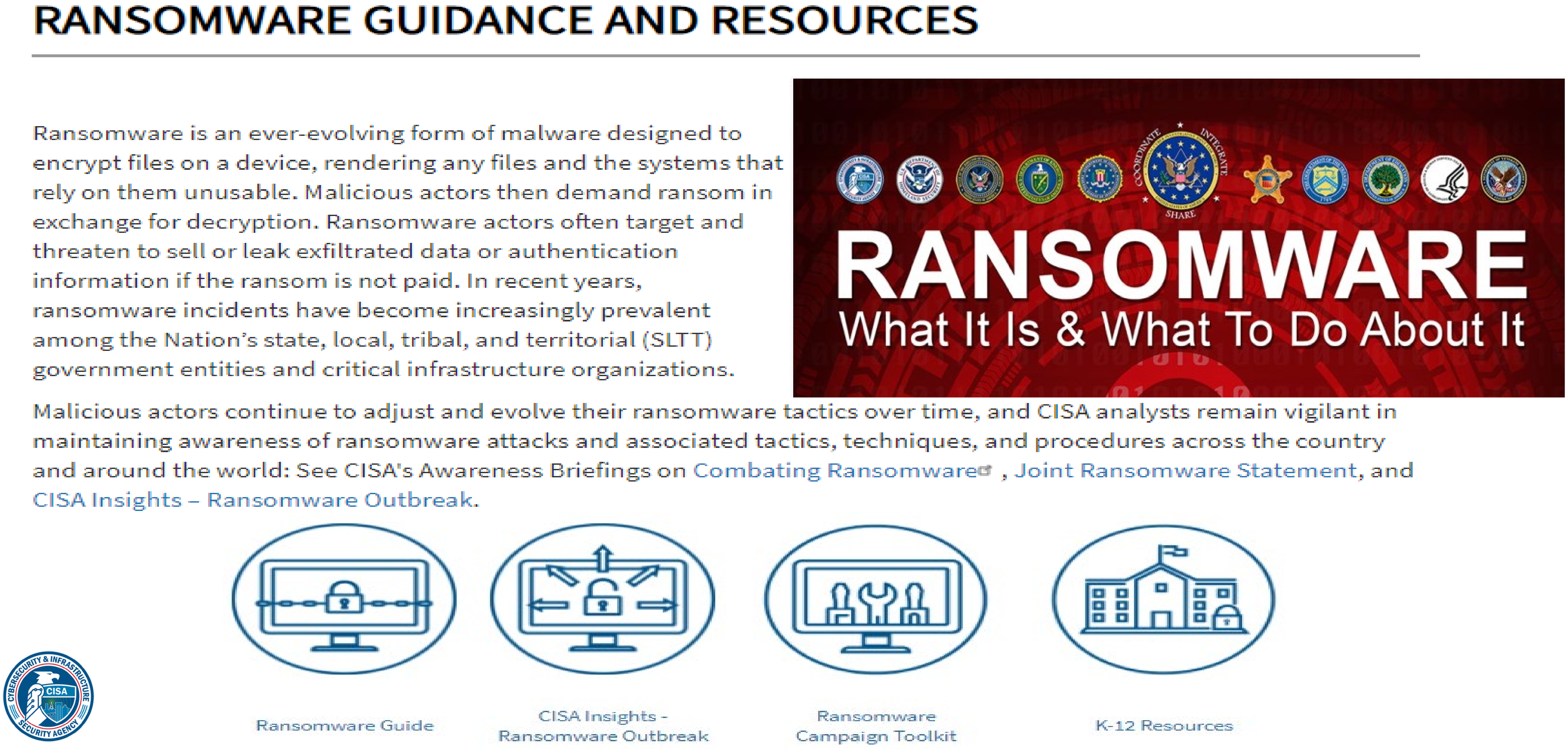
- **Large Scale Ransomware Attacks Likely to Continue:** Adversaries have developed effective business models and through their expansion into a Ransomware as a Service (RaaS) it is highly likely we will continue to see these significant and large scale attacks on US business to include critical infrastructure in the near term.

- **Common Attack Tactics –** Regardless of the RaaS gang we typically see them use similar attack paths: Phishing Email to gain credentials and install malicious script files, Leverage vulnerabilities in Remote Desktop, Server Message Block, and VPN related security flaws. This includes other software vulnerabilities where the most current patches have not been applied as well a Remote Code execution vulnerabilities allowing an attacker to inject arbitrary code and execute on the impacted system.

- **Command & Control (C2):** Attackers typically employ a technique called a C2 Beacon – This means they install a program that creates a hidden backdoor that communicates out to third party servers they control in order issue follow on commands and execution instructions which blend in with normal activity. (C2 domain leverages cloud infrastructure based in the US to avoid US authority investigating US based infrastructure.

- **Biggest Take Away**: These incidents underscore the threat that ransomware poses to organizations regardless of size or sector. All organizations should take immediate action to review and strengthen their Cybersecurity posture before they become a victim. Once encrypted, it becomes very difficult to recover data and any backups that were not stored in an off-line solution. Cyber Incident responders will have limited tools to assist with any decryption efforts and without detailed security logs to conduct forensic analysis recovery could be a lengthy and challenging process.

Ransomware | CISA www.cisa.gov/ransomware



RANSOMWARE GUIDANCE AND RESOURCES

Ransomware is an ever-evolving form of malware designed to encrypt files on a device, rendering any files and the systems that rely on them unusable. Malicious actors then demand ransom in exchange for decryption. Ransomware actors often target and threaten to sell or leak exfiltrated data or authentication information if the ransom is not paid. In recent years, ransomware incidents have become increasingly prevalent among the Nation's state, local, tribal, and territorial (SLTT) government entities and critical infrastructure organizations.

Malicious actors continue to adjust and evolve their ransomware tactics over time, and CISA analysts remain vigilant in maintaining awareness of ransomware attacks and associated tactics, techniques, and procedures across the country and around the world: See CISA's Awareness Briefings on Combating Ransomware , Joint Ransomware Statement, and CISA Insights – Ransomware Outbreak.

Ransomware Guide

CISA Insights - Ransomware Outbreak

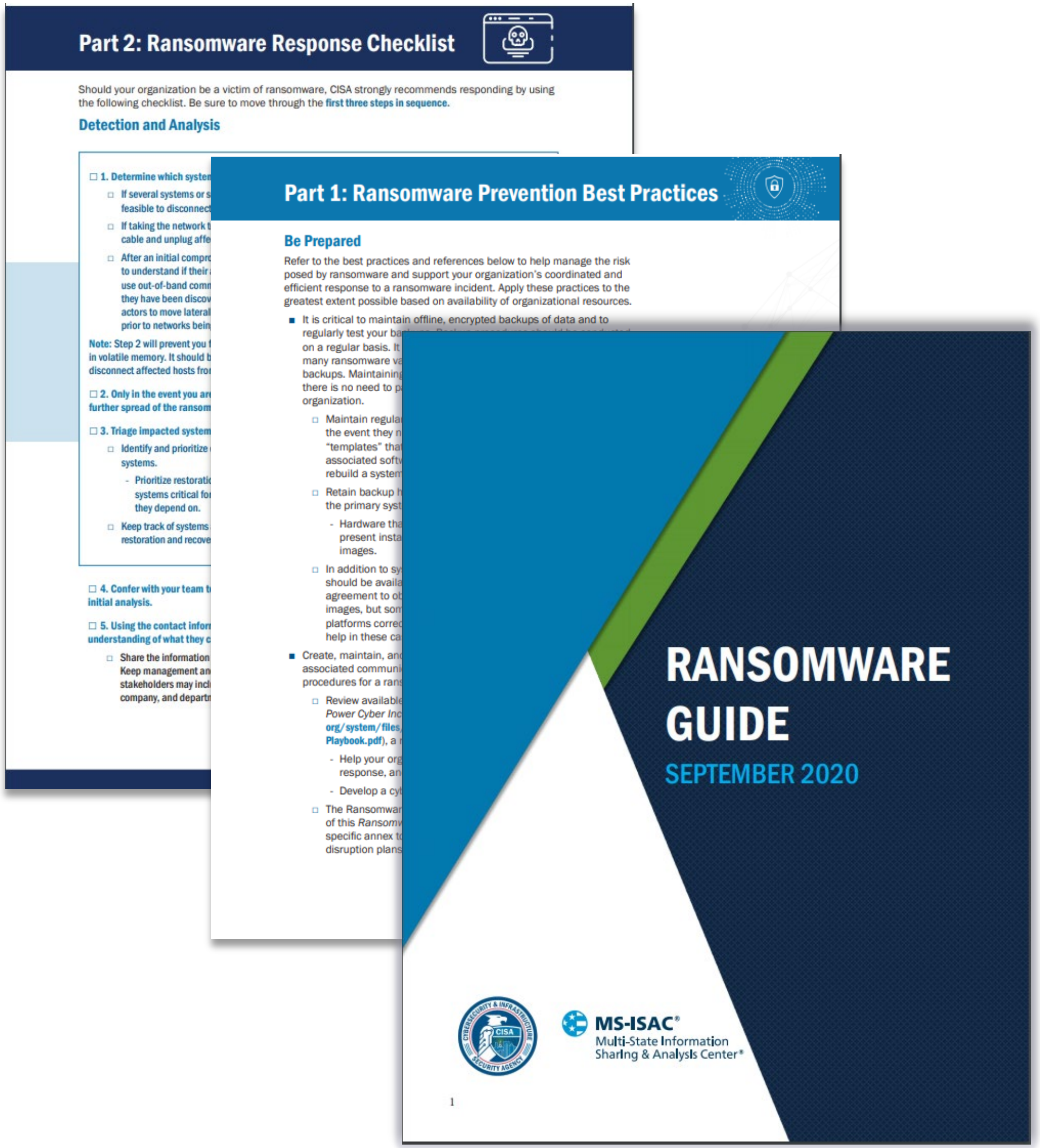
Ransomware Campaign Toolkit

K-12 Resources

Ransomware Guide

Joint CISA and MS-ISAC Ransomware Guide

This Ransomware Guide includes recommendations, best practices, recommended incident response policies and procedures, cyber hygiene services, and several checklists that organizations can use to help protect against or response to ransomware attacks.



Part 2: Ransomware Response Checklist

Should your organization be a victim of ransomware, CISA strongly recommends responding by using the following checklist. Be sure to move through the **first three steps in sequence.**

Detection and Analysis

□ 1. Determine which systen

- □ If several systems or s
  feasible to disconnect
- □ If taking the network t
  cable and unplug affe
- □ After an initial compro
  to understand if their
  use out-of-band comn
  they have been discov
  actors to move laterall
  prior to networks bein

Note: Step 2 will prevent you f
in volatile memory. It should b
disconnect affected hosts fror

□ 2. Only in the event you are
further spread of the ransom

□ 3. Triage impacted system

- □ Identify and prioritize
  systems.
  - Prioritize restoratio
    systems critical for
    they depend on.
- □ Keep track of systems
  restoration and recove

□ 4. Confer with your team t
initial analysis.

□ 5. Using the contact inforr
understanding of what they c

- □ Share the information
  Keep management an
  stakeholders may incl
  company, and departr

Part 1: Ransomware Prevention Best Practices

Be Prepared

Refer to the best practices and references below to help manage the risk posed by ransomware and support your organization's coordinated and efficient response to a ransomware incident. Apply these practices to the greatest extent possible based on availability of organizational resources.

- It is critical to maintain offline, encrypted backups of data and to
  regularly test your ba
  on a regular basis. It
  many ransomware va
  backups. Maintaining
  there is no need to p
  organization.
  - □ Maintain regula
    the event they n
    "templates" tha
    associated softw
    rebuild a system
  - □ Retain backup h
    the primary syst
    - Hardware tha
      present insta
      images.
  - □ In addition to sy
    should be availa
    agreement to ot
    images, but som
    platforms corre
    help in these ca
- Create, maintain, and
  associated communi
  procedures for a rans
  - □ Review available
    Power Cyber Inc
    org/system/files
    Playbook.pdf), a
    - Help your org
      response, an
    - Develop a cy
  - □ The Ransomwar
    of this *Ransomw*
    specific annex t
    disruption plans

RANSOMWARE GUIDE

SEPTEMBER 2020

MS-ISAC®
Multi-State Information
Sharing & Analysis Center®

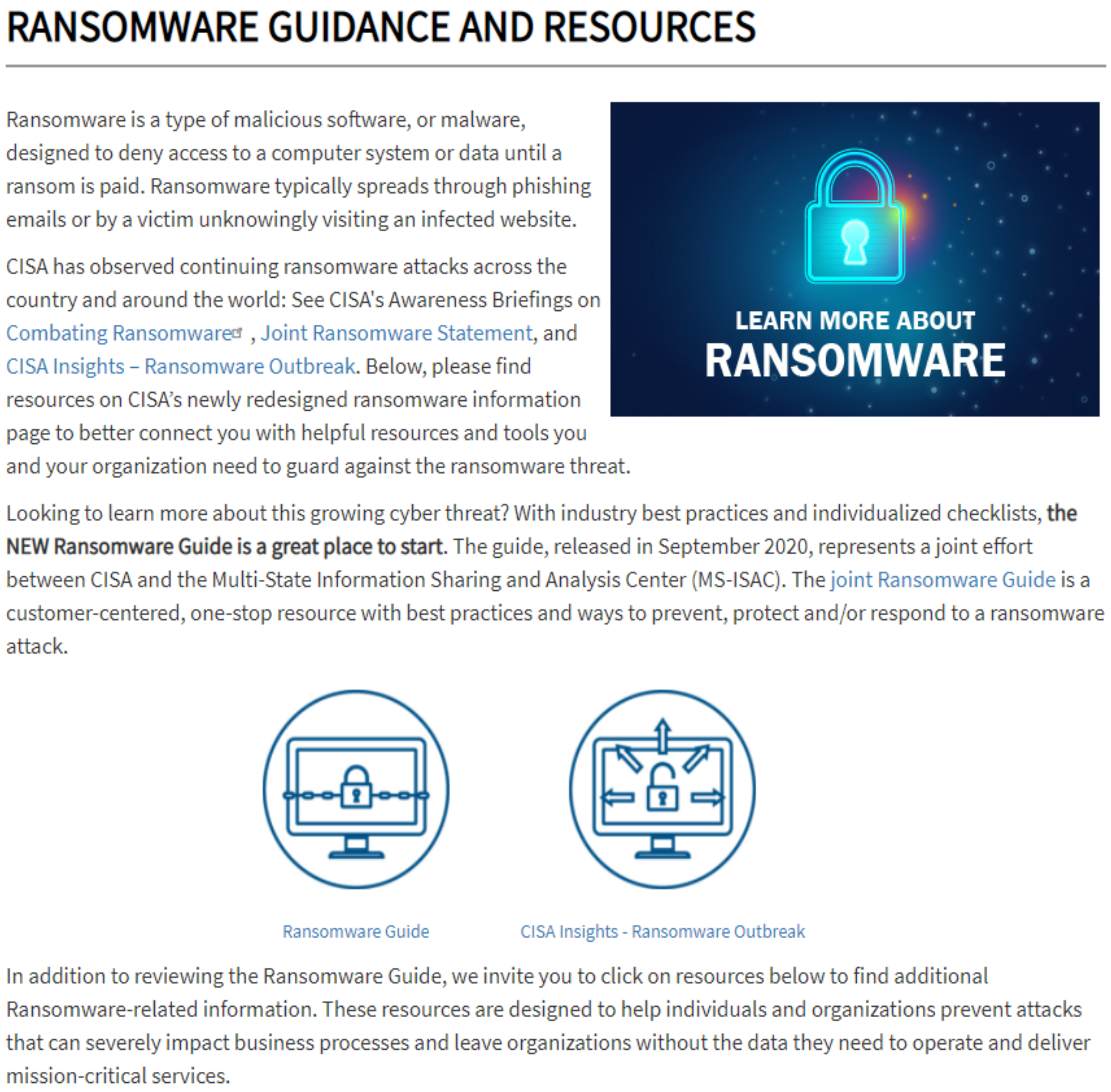
1

CISA Ransomware Resources

Ransomware Campaign Toolkit | CISA

CISA.gov/ransomware

- **Ransomware Guide (CISA & MS-ISAC)**
- **CISA INSIGHTS: Ransomware Outbreak**
- **Activity Alerts and Analysis Reports**
  - US-CERT activity alerts on ransomware threats
  - Joint statements on ransomware with our partners
- **Guides and CISA Cyber Services**
  - Cyber Assessments (CRR, EDM, CIS)
  - Cyber Hygiene Vulnerability Scanning Services
  - TTX Exercises & Workshops
- **Factsheets and Infographics**
  - Protect Your Center From Ransomware poster
  - Ransomware: What It Is and What To Do About It
- **Training and Webinars**
  - Trends and Predictions in Ransomware (Cyber Summit 2020)
  - CDM Training
  - Incident Response Training Series
  - Combating Ransomware Webinar



RANSOMWARE GUIDANCE AND RESOURCES

Ransomware is a type of malicious software, or malware, designed to deny access to a computer system or data until a ransom is paid. Ransomware typically spreads through phishing emails or by a victim unknowingly visiting an infected website.

CISA has observed continuing ransomware attacks across the country and around the world: See CISA's Awareness Briefings on Combating Ransomware , Joint Ransomware Statement, and CISA Insights – Ransomware Outbreak. Below, please find resources on CISA's newly redesigned ransomware information page to better connect you with helpful resources and tools you and your organization need to guard against the ransomware threat.

Looking to learn more about this growing cyber threat? With industry best practices and individualized checklists, **the NEW Ransomware Guide is a great place to start**. The guide, released in September 2020, represents a joint effort between CISA and the Multi-State Information Sharing and Analysis Center (MS-ISAC). The joint Ransomware Guide is a customer-centered, one-stop resource with best practices and ways to prevent, protect and/or respond to a ransomware attack.

Ransomware Guide

CISA Insights - Ransomware Outbreak

In addition to reviewing the Ransomware Guide, we invite you to click on resources below to find additional Ransomware-related information. These resources are designed to help individuals and organizations prevent attacks that can severely impact business processes and leave organizations without the data they need to operate and deliver mission-critical services.

CISA Cybersecurity No Cost Offerings

Cyber Resource Hub | CISA

Denver Federal Center Based
CISA Cybersecurity Advisor Facilitated

- **Preparedness Activities**
  - Information/Threat Indicator Sharing
  - Cybersecurity Training and Awareness
  - Cyber Exercises and "Playbooks"
  - National Cyber Awareness System (US-CERT)
  - Vulnerability Notes Database (MITRE CVE)
  - Ransomware Guide / Playbook
  - **Cybersecurity Service Offerings**
    - Cyber Resilience Reviews (**CRR**)
    - External Dependency Management (**EDM**)
    - Cyber Infrastructure Surveys (**C-IST**)
    - Cyber Security Evaluation Tool (**CSET**)

Delivered by CISA
HQ Vulnerability Mgt Team

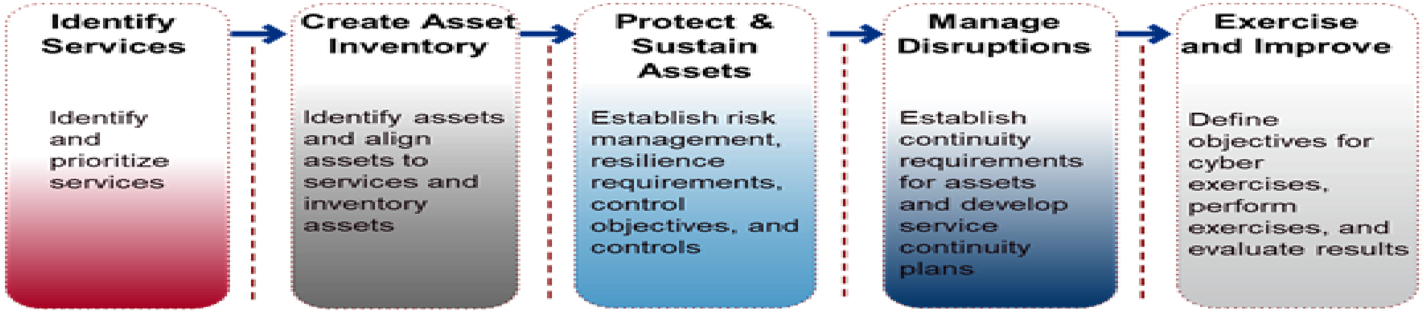
- Phishing Campaign Assessment (**PCA**)
- Cyber Hygiene Scanning (**CyHy**)
- Web Application Scanning (**WAS**)
- Remote Penetration Testing (**RPT**)
- Risk & Vulnerability Assessment (**RVA**)
- Red Team Assessment (**RTA**)
- Validated Architecture Design (**VADR**)
- Critical Product Evaluation (**CPE**)
- CISA Qualification Initiative (**CQI**)

CISA HQ Response Assistance

- Remote / On-Site Assistance
- Malware Analysis
- Hunt and Incident Response Teams
- Incident Coordination

Denver Based Protective Security Advisors

- Physical Security Assessments
- Incident liaisons between government and private sector for CI protection



Identify Services: Identify and prioritize services

Create Asset Inventory: Identify assets and align assets to services and inventory assets

Protect & Sustain Assets: Establish risk management, resilience requirements, control objectives, and controls

Manage Disruptions: Establish continuity requirements for assets and develop service continuity plans

Exercise and Improve: Define objectives for cyber exercises, perform exercises, and evaluate results

Process Management and Improvement

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Q & A

- Are these attackers targeting specific sectors or casting a wide net?
- Are all of the Cyber attacks that we hear about Criminal in Nature?
- Is the intent of these threat actors to disrupt critical infrastructure or cause physical harm to the US public?
- Are only large corporations at risk of these attacks?
- Why are we now hearing about these attacks on a daily basis has ransomware increased significantly in recent months?
- If organizations have a suspected incident what are the immediate actions? (Disconnect, Contain, & Report)
- If organizations experience a cyber incident who should they contact first?

CISA REGION VIII

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