Defending Against Ransomware

A Resource Guide from the PCI Security Standards Council

RANSOMWARE IS THE FASTEST GROWING MALWARE THREAT.

Ransomware is a type of malware that steals or prevents access to business computer files, systems, or networks and demands a ransom for their return. Ransomware attacks can cause costly disruptions to operations and the loss or exposure of critical information and data.[1]

1 Source: FBI

UNDERSTANDING THE RISK

Global ransomware costs are expected to reach **$20 billion** in 2021, according to the latest report from Cybersecurity Ventures.[2]

The average total cost of recovery from a ransomware attack has more than doubled, increasing from $761,106 in 2020 to **$1.85 million** in 2021.[3]

It takes on average **287 days** for a company to fully recover from a ransomware attack, according to more than 60 experts from industry, government, nonprofits, and academia known as the Ransomware Task Force.[4]

2: Source: Cybersecurity Ventures Report 3: Source: Sophos State of Ransomware Report 2021 4: Source: Ransomware Task Force

THE ATTACK

Phishing is the top "action variety" seen in breaches in the last year and **43%** of breaches involved phishing and/or pretexting.[5]

PHISHING EMAILS

Phishing emails are a common delivery vehicle for ransomware. These emails look legitimate, such as an invoice or electronic fax, but they include malicious links and/or attachments that can infect your computer and system.[5]

50% of internal application vulnerabilities are considered high or critical risk.[6]

WEBSITE AND SOFTWARE VULNERABILITIES

Criminals plant ransomware on websites and take advantage of software vulnerabilities to launch attacks on visitors using outdated software (browser, browser plugin).

5: Source: Report by the Deloitte Cyber Intelligence Centre 6: Source: Vulnerability Statistics Report 2021

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PROTECT YOUR BUSINESS

For dealing with the threat of ransomware attacks related to payment security, the PCI DSS can be helpful in defending against this threat. Best practices within the DSS include:

KEEP THEM OUT

Train your employees - PCI DSS 12.6

- Develop a plan that educates your employees on the best ways to avoid these types of attacks and how to handle an attack if one does occur.
- Most ransomware attacks start with a phishing email. Make sure your employees are aware of the risks and are trained on how to recognize phishing emails. Suspicious emails should be reported as phish, then deleted.
- Think before you click. Emails can look like they come from anyone in the company. If there are any questions, always contact that person to confirm before clicking on a link or opening a file.
- Contact the sender through their known contact information, not contact details in the suspicious email.

Test your systems - PCI DSS 11

- Have you tested your systems lately to see if it's easy for someone to break in? Criminals are persistent, you should be too.
- A vulnerability provides a "broken" door that criminals can just walk through. It's important that vulnerabilities are fixed and that you have other controls, such as those listed below in place to prevent a malicious individual from getting into your systems.

SLOW THEM DOWN

Maintain a secure network - PCI DSS 1 and 2

- What does someone have access to once they are 'in' your network? Configuring systems to isolate and secure sensitive data, such as cardholder data, can reduce the impact of ransomware events. Reducing access to only those people who 'need to know', and ensuring systems only use or provide the services that are required, can help minimize your risk.
- Have you changed the vendor default passwords or settings in your systems? Criminals will often use 'dictionaries' of known passwords to gain access.

Patch - PCI DSS 6

- Your vendors send you "patches" to fix problems in your payment systems or other systems.
- When is the last time you checked for new security patches from your payment system and software vendors?
- Patches close doors criminals use to get into your systems. Follow your vendors' instructions and install patches as soon as possible.

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DETECT & RESPOND

Monitor - PCI DSS 10 and 11.5

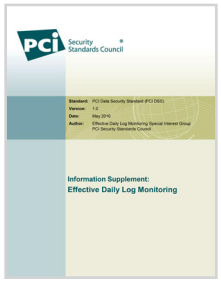
- Are you monitoring your systems for changes or suspicious activity? Are suspicious or unauthorized/unapproved changes investigated?
- Monitoring changes in your systems and critical system files helps you see when someone makes a change you did not authorize or approve. Investigating the changes as soon as they happen helps you find problems more quickly and improve your chances of shutting down an attack.
- A change management process will help you determine if changes are approved. If the change was not approved or is unknown, you should immediately investigate to determine if your system has been compromised.

Backup your systems and prepare - PCI DSS 12.10

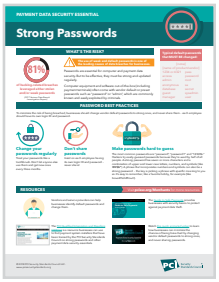
- Be careful that your backup does not overwrite previous good backups. This may help prevent backing up the data encrypted by ransomware and overwriting a good backup. Good practice, regardless of the backup method, is to take regular full disk backups and incremental backups (which only back up the data that is new since the last backup).
- Store backup data offsite and in a way that provides additional access controls where possible (storing your backups "in the cloud" is a common method for offline storage). This makes it easier to recover your most recent backup if your data files are held for ransom. Keeping backups on-site or on systems connected to your network makes them vulnerable to being attacked along with your production systems.
- Keep multiple generations of backup and have a retention period consistent with your organization's ability to detect ransomware and its ability to reconstruct using older records.
- Have you tested the integrity of your backups recently (both physical and virtual backup systems)? Have you tested the backup and recovery process recently? Making sure you can recover data from your backups is crucial in the event your systems are locked by ransomware.
- When using cloud backups, ensure your cloud service provider is being diligent and protecting against malware of all kinds. Cloud storage may also get locked by the attacker if connected to the backup systems doing persistent synchronization.
- You and your employees should know how to respond to an attack and what to do when it happens, including who to contact. This should include formal processes for identifying all sensitive data potentially exposed during the event, so that this can be considered compromised – regardless of any restoration or remediation processes.
- Make sure you have a plan in place and communicate it to your employees.
- Review this plan regularly and make an ongoing commitment to educating your staff.

PCI IN-DEPTH BACKGROUND MATERIALS

PCI Data Security Standard Version 3.2.1

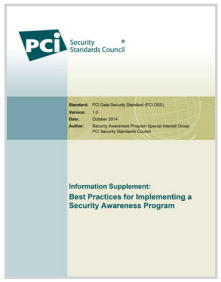


Information Supplement: Effective Daily Log Monitoring



Payment Data Security Essential: Strong Passwords

Payment Data Security Essential: Patching



Best Practices for Implementing a Security Awareness Program

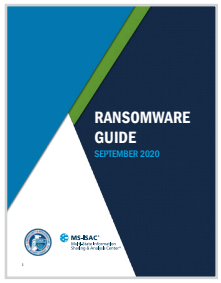
Payment Protection Resources for Small Merchants: Guide to Safe Payments

RELATED INDUSTRY RESOURCES

Don't be the next ransomware victim. Help protect your organization with these best practices

Ransomware: What It Is & What To Do About It

No More Ransom Project



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For expert comment or questions, please contact: press@pcisecuritystandards.org

For more information on PCI Standards and resources, visit: www.pcisecuritystandards.org.