Threat Landscape: Skimming at the Point of Sale

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Agenda

• Global Data Compromise Landscape
• Modus Operandi of a Typical Skimming Attack
• Safeguarding Against Skimming
• Detecting, Responding andReporting a Skimming Incident
• Key Takeaways
Global Data Compromise Landscape

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Visa Security Pillars

Remove sensitive data

Devalue Data
Render data useless for criminals, reducing incentive for payment breaches
- Tokenization
- EMV

Protect Data
Safeguard payment data
- Encryption
- PCI DSS

Prevent fraud

Harness Data
Identify fraud before it occurs and increase confidence in approving good transactions
- Risk-Based Authentication
- One-time Passcode
- Dynamic CVV2
- Breach Response

Empower Consumers
Engage cardholders as an underutilized resource in fighting fraud
- Transaction Alerts
- Spend Controls
- Geolocation
Transactional Threat Intelligence

Intelligence comes from recognizing fraud patterns, predicting fraud activity
- Cardholders report fraud to their bank
- Banks report fraud to Visa (CPP)
- Visa reports fraud to other banks
- Breach found, stopped

One major limitation: **What if there’s no fraud?**
Global Fraud and Breach Investigation Trends

Breach Events by Entity Type and Merchant Level

<table>
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<th>2013</th>
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<th>2016*</th>
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<td>100%</td>
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</tbody>
</table>

- As a proportion of the total number of breach events, Level 4 (L4) merchants represent 90% of compromise cases investigated in 2015
- Nearly half of the at-risk accounts distributed through CAMS in 2015 were attributed to L4 merchants
- Small merchant compromises are fueled by use of insecure Integrator/Resellers
- Threat actors continue to target smaller interconnected merchants in large numbers

*2016 year-to-date through May
Source: Compromised Account Management System (CAMS) – Original “IC” and “PA” Alerts

- Visa investigated fewer large merchant breaches in 2015; Down 29% from 2014
  - However, skimming attacks across the grocer and retail verticals are on the rise
- U.S. large breaches comprised 53% of the total at-risk accounts distributed in 2015 – related to large hotel and restaurant events
In 2015, total CAMS alerts increased to the highest level in 3 years.

The sheer magnitude of the number of small merchants worldwide, especially in the United States, comprise the majority of reported compromises.

Investigations revealed cyber criminals exploiting inadequate controls to gain unauthorized access to the POS systems of small level 4 merchants and then ultimately to their payment card data.
Fraud Migration to Other Channels

Fraud migrating to e-commerce, automated fuel dispensers, and ATMs

- Fraud and attacks will continue in CNP / e-commerce channels
- Attackers will exploit insecure websites and mis-configured security settings
- Internet facing websites at-risk
  
- AFD EMV liability shift in October 2017
- Stations in remote locations often targeted
- Skimmers and overlays more sophisticated and harder to detect
  
- ATM EMV liability shift in October 2017
- Overlays and cameras are more sophisticated
- Remote locations at higher risk

- Scan for vulnerabilities
- Be aware of OWASP Top 10
  
- Regularly check pumps for devices
- Review POS for overlays
- Know who to contact if known or suspected attack
  
- Regularly check ATMs
- Ensure software is kept up to date
- Know who to contact if known or suspected attack
Skimming continues to be the #1 cause of fraud loss on ATMs

- Criminal techniques have grown increasingly sophisticated and diversified to avoid anti-skimming defenses

- An arms race:
  - Industrialization
  - Avoidance techniques
  - Sabotage
  - Side Channels
Criminals are targeting mag stripe data

- Criminals are shifting their attacks to skimming
- Increase in report skimming attacks in the news
- Criminals are targeting:
  - Self-checkout terminals
  - Automated fuel dispensers
  - White-label ATMs
- Increasing in sophistication of attacks and technology
- All stores targeted – regardless if they are 100% EMV enabled
- Skimming Overlays
  - 3D printers leveraged by criminals
  - Placed in seconds not minutes as with physical swaps
  - Easier to deploy in large numbers

The rise in skimming attacks has been highlighted in recent news, with reports of attacks on self-checkout terminals, automated fuel dispensers, and white-label ATMs. The sophistication of these attacks is increasing, with criminals leveraging technology such as 3D printers to deploy skimming devices more easily and in larger quantities. The threat extends to all stores, regardless of their EMV status.
Modus Operandi of a Typical Skimming Attack

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Modus Operandi of a Typical Attack

• Suspects will operate in groups of 2 to 3
  – 1<sup>st</sup> suspect places device
  – 2<sup>nd</sup> suspect provides cover - shielding any view of the device placement; may utilize large items at checkout
  – 3<sup>rd</sup> suspect acts as lookout and providing counter surveillance
  – Suspects may scout a location prior to placing a device so be aware of individuals that appear out of place

• Targeted terminals include:
  – Self checkout lanes
  – Coffee stands
  – Deli counters
  – Regularly unattended devices

Skimmers Caught on Tape (Video)
Overlay Examples
Criminal Lab Raid: Germany
Safeguarding Against Skimming
Device Inventory Management

• Daily checks of POS terminals
  – Use teams when inspecting devices
• Maintain a log of devices and their locations within the business
• Use unique markings/stickers on your devices to quickly identify overlays
• Utilize tamper screws or cable locks
• Identify key risk areas where attacks may occur
  – High volume
  – Unattended
  – Areas with limited visibility
Use of Contactless Card Readers to Minimize Skimming Risks

Magnetic Stripe Vulnerabilities

- Markets that use magnetic stripe are more vulnerable to counterfeit
- EMV chip cards reduce the risk
- Card skimming still occurs in EMV markets, because the data can be used in non-EMV markets

Contactless Security Benefits

- Reduces the risk for card data to be skimmed since there is no dip or swipe
- Excellent migration properties
- Just one solution reduce the risk
Always Use PCI Approved Devices

- Follow Visa deployment requirements for use of *only* PCI approved PIN Entry Devices
- As a best practice:
  - Use only PCI approved Unattended Payment Terminals (UPT)
  - Use devices that are PCI approved for Secure Reading and Exchange of Data (SRED)
- Switch to EMV terminals
- Monitor for changes to internal serial numbers of devices
- Monitor for connectivity changes
Detecting, Responding and Reporting a Skimming Incident
Responding to a Skimming Incident

What to do if a skimmer is found

Do not approach or confront anyone who looks suspicious
Might be installing or removing a skimming device
May be armed and dangerous

Use protective gloves to remove the device
Criminals may leave DNA on device
Keep in protective bag and store securely
Review CCTV for surveillance of suspects

Document and take pictures of the skimming device as-is
Document before and after removal
Document date/time

Contact the local authorities and the U.S. Secret Service (U.S.S.S.)
U.S.S.S is the law enforcement branch responsible for investigating these crimes
Notify your acquirer who will coordinate the investigation with Visa
How to Report a Compromise to Visa

1. Complete Incident Questionnaire
   - Issuers send to Visa Fraud and Breach Investigations
   - Merchants send to Acquirer (who will forward to Visa)
2. Skimming incidents often involve the compromise of highly sensitive PIN data
3. Issuers must be notified of the potential at-risk accounts quickly
4. Try to determine the potential Window of Exposure of the event
5. Pulling at-risk accounts
   - Issuers pull and send compromised accounts to Visa via CAMS*
   - Acquirers pull and send in the compromised accounts on behalf of the merchant via CAMS
6. Visa will distribute the at-risk accounts to the affected Issuers via CAMS

*Note – Most Issuers are set up as CAMS receivers only, send email to VAA_VRM@Visa.com to be a submitter
Key Takeaways
Conclusion and Recap: What to Expect

• Be aware that due to EMV liability shift, fraud and compromises will likely migrate to other channels ...
• Recognize that criminals are targeting mag stripe data and transactions
• Skimming devices are becoming more sophisticated
• Increase inspections and understand how to identify different types of skimming devices
• Learn best practices for safeguarding against skimming attacks
• Conduct regular, ongoing training for current and new employees
• Know what to do if a skimmer is found and how to report a suspected compromise
• These attacks are not limited to instore devices; Check Kiosk and ATMs
• Key to mitigating and preventing additional data loss is having a strong response plan in place
Visa Security Alerts
Information on the latest Skimming Attacks

Visit [www.visa.com/cisp](http://www.visa.com/cisp) for recent Skimming Security Alerts from Visa

**VISA SECURITY ALERT**
April 2016

**THREAT LANDSCAPE: PIN PAD/POS SKIMMING**

**Distribution:** Merchants, Acquirers, Risk Personnel

**Incident Details**

Visa Global Payment System Risk is aware of increasing incidents involving suspects placing skimming devices on point-of-sale (POS) terminals for the purpose of collecting payment card information, including PIN numbers. Perpetrators use this information to create counterfeit cards re-encoded with the stolen card information and make unauthorized ATM withdrawals. The primary targets for these recent skimming events are self-checkout terminals in supermarkets. However, any POS terminal may...
Upcoming Events and Resources

Resources

- PCI Standards Council: Skimming Prevention
- Visa’s “What To Do If Compromised” guidelines
- Visa’s “Payment Acceptance Best Practices for U.S. Retail Petroleum Merchants” guidelines

Visa Data Security Website – www.visa.com/cisp
- Alerts, Bulletins
- Best Practices, White Papers
- Webinars

PCI Security Standards Council Website – www.pcissc.org
- Data Security Standards – PCI DSS, PA-DSS, PTS
- Programs – ASV, ISA, PA-QSA, PFI, PTS, QSA, QIR, PCIP, and P2PE
- Fact Sheets – ATM Security, Mobile Payments Acceptance, Tokenization, Cloud Computing, and many more...
Questions?