MIS 5208 – Lecture 10 – Credit Card Fraud

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Types of Credit Card Fraud

Credit Card Skimmers

Reading the Credit Card Mag Stripe

- There are up to three tracks on magnetic cards known as tracks 1, 2, and 3.
- Track 3 is virtually unused by the major worldwide networks, and often isn't even physically present on the card by virtue of a narrower magnetic stripe.
- Point-of-sale card readers almost always read track 1, or track 2, and sometimes both, in case one track is unreadable.
- The minimum cardholder account information needed to complete a transaction is present on both tracks.
- Track 1 has a higher bit density (210 bits per inch vs. 75), is the only track that may contain alphabetic text, and hence is the only track that contains the cardholder's name.

Source: https://en.wikipedia.org/wiki/Magnetic_stripe_card

Magstripe Formats

- Track 1 is written with code known as DEC SIXBIT plus odd parity. The information on track 1 on financial cards is contained in several formats:
  - **A**, which is reserved for proprietary use of the card issuer,
  - **B**, which is described below,
  - **C-M**, which are reserved for use by ANSI Subcommittee X3B10
  - **N-Z**, which are available for use by individual card issuers:

Source: https://en.wikipedia.org/wiki/Magnetic_stripe_card

Track 1 – Format B:

- **Start sentinel** — one character (generally '%')
- **Format code="B"** — one character (alpha only)
- **Primary account number** (PAN) — up to 19 characters. Usually, but not always, matches the credit card number printed on the front of the card.
- **Field Separator** — one character (generally '^')
- **Name** — 2 to 26 characters
- **Field Separator** — one character (generally '^')
- **Expiration date** — four characters in the form YYMM.
- **Service code** — three characters
- **Discretionary data** — may include Pin Verification Key Indicator (PVKI, 1 character), PIN Verification Value (PVV, 4 characters), Card Verification Value or Card Verification Code (CVV or CVC, 3 characters)
- **End sentinel** — one character (generally '?')
- **Longitudinal redundancy check** (LRC) — it is one character and a validity character calculated from other data on the track.

Source: https://en.wikipedia.org/wiki/Magnetic_stripe_card

Track 2 – Format B:

- **Track 2**: This format was developed by the banking industry (ABA).
  - This track is written with a 5-bit scheme (4 data bits + 1 parity), which allows for sixteen possible characters, which are the numbers 0-9, plus the six characters : ; < = > ? .
  - The selection of six punctuation symbols may seem odd, but in fact the sixteen codes simply map to the ASCII range 0x30 through 0x3f, which defines ten digit characters plus those six symbols. The data format is as follows:
  - **Start sentinel** — one character (generally ';')
  - **Primary account number** (PAN) — up to 19 characters. Usually, but not always, matches the credit card number printed on the front of the card.
  - **Separator** — one char (generally '=')
  - **Expiration date** — four characters in the form YYMM.
  - **Service code** — three digits. The first digit specifies the interchange rules, the second specifies authorization processing and the third specifies the range of services
  - **Discretionary data** — as in track one
  - **End sentinel** — one character (generally '?')
  - **Longitudinal redundancy check** (LRC) — it is one character and a validity character calculated from other data on the track. Most reader devices do not return this value when the card is swiped to the presentation layer, and use it only to verify the input internally to the reader.
  - **Service code** values common in financial cards:

Source: https://en.wikipedia.org/wiki/Magnetic_stripe_card

Common Service codes: Financial Cards:

- First Digit
  - 1: International interchange OK
  - 2: International interchange, use IC (chip) where feasible
  - 5: National interchange only except under bilateral agreement
  - 6: National interchange only except under bilateral agreement, use IC (chip) where feasible
  - 7: No interchange except under bilateral agreement (closed loop)
  - 9: Test
- Second Digit
  - 0: Normal
  - 2: Contact issuer via online means
  - 4: Contact issuer via online means except under bilateral agreement
- Third digit
  - 0: No restrictions, PIN required
  - 1: No restrictions
  - 2: Goods and services only (no cash)
  - 3: ATM only, PIN required
  - 4: Cash only
  - 5: Goods and services only (no cash), PIN required
  - 6: No restrictions, use PIN where feasible
  - 7: Goods and services only (no cash), use PIN where feasible

Carding, Skimming

Source: Lycroft Eugenia Published on Aug 17, 2012 (https://www.youtube.com/watch?v=k_brU9Jwhww)

Thank you