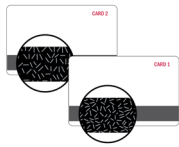


# Magensa Global MagnePrint® Exchange

## Card authentication for magnetic stripe cards in existence already

No two cards are alike



### Card Authentication that Stops Fraud

The Global MagnePrint Exchange is a web accessible database of magnetic stripe card verification data. Using Magensa Services, you have access to the database and can verify the authenticity of magnetic stripe cards that exist in the field. This delivers card authentication of any magstripe card, from any point around the globe that has also been sent to the database. MagTek secure card reader authenticators (SCRAs) read more and encrypt more than every other reader in the card reading industry. SCRAs read and encrypt the card data and in the same swipe also read and encrypt the underlying MagnePrint of the card. These items, coupled together, can securely verify the validity of the card itself, and determine if the card is counterfeit, in real-time, preventing fraud.

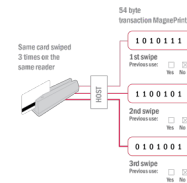
### MagnePrints are Magnetic Prints Naturally Created

Magnetic prints can uniquely identify magnetic stripe cards due to the stripe composition. A magnetic stripe is created from billions of nano-particles of ferrous oxide particles. The particles are various shapes and sizes and are mixed in a random pattern when the magnetic slurry is prepared. They are sealed in place when the slurry dries, during the tape manufacturing process. The stationary particles emit a permanent, repeatable and distinctive magnetic signal, which is the MagnePrint. The MagnePrint is in the background

of the stripe. It is sometimes referred to as “noise”. It does not interfere with the cardholder personal data encoded in the foreground. Nor can the encoded data remove or erase the MagnePrint. The MagnePrint is converted to an ANSI standard 54 byte digital string and remains virtually unchanged for the life of the card.

### MagnePrint and encoded data link Swipes turn static data into dynamic data

MagnePrint transforms the encoded cardholder data and delivers unique data each time a card is swiped. This goes beyond a dynamic key management scheme. This is the “noise” coupling with the static data and making it unique.



### Secure Database Exchange

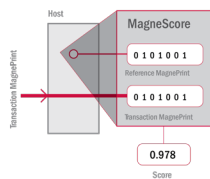
The database is the reservoir of the card information. The database becomes populated over the course of time during normal card use, or at point issuance, eliminating the need to re-issue cards. SCRAs make this possible by transmitting the authentication data at every swipe with no additional action needed by any other participant in the transaction process. The database stores the MagnePrint that happen at the point of every transaction (Transaction MagnePrint) and the validated cards (Reference MagnePrint). The process

of transmitting and storing MagnePrint is called Card Registration, and is the backbone to card authentication.

### Adding card information to the database

MagTek provides almost three quarters of the financial world's secure magnetic stripe components, in use in the majority of ATMs and Point of Sale terminals. Since 2009, almost every new product shipped from MagTek has integrated MagnePrint reading capability. Cards are added to the database during normal use or at the point of issuance. When added during normal use, the MagnePrint is transmitted to Magensa at first read. Each time the card is read, the MagnePrint is transmitted. Since MagnePrints are created stochastically and each swipe changes dynamically, in ways that cannot be mathematically predicted, each MagnePrint is slightly different, but fits into a certain correlation. After several rounds of comparing the results of the MagnePrints, correlated prints are validated as the Reference MagnePrint and will be used as the base to compare all other MagnePrints. This makes it possible to add cards to the database while they are already in the field and re-issuance is not needed.

Card registration during issuance occurs when the card issuer issues the card and transmits the card information, its index and MagnePrint at the same time, to Magensa. Since it occurs at point of issuance, it is immediately designated as the Reference MagnePrint.



## Risk Management

Magensa provides a universally available service to the transaction community, which calculates a score based on the comparison and correlation between the Transaction MagnePrint to the Reference MagnePrint. By accessing the shared database, any participant in the authorization process can assess the validity of the credentials they rely upon. This card authentication allows for the affirmation of the physical card's authenticity or fraudulence. If a counterfeit card is presented, the MagnePrint score will not correlate. It will either drop dramatically or match exactly. The entity connected to the Global MagnePrint Exchange sets their own risk management threshold decisions and uses this as part of the transaction accept/decline criteria. MagnePrint scoring is a fast "real-time" process, with typical scoring times at 10 milliseconds or less.

### High score

A high score indicates a legitimate card and shows that the MagnePrint correlates to the Reference MagnePrint.

### Exactly matching score

The odds of obtaining two identical 54 byte MagnePrints from a single card are over 1 in 100 million due to the inherent variability of MagnePrints. They provide an algorithmically verifiable, unique transaction number for every card swipe. A MagnePrint identical to one previously used will be rejected.

### Low Score

A low score signals to Magensa that the MagnePrint does not correlate and transmits a Red-Light-Alert to the subscriber.

---

## Fraud Alerts and Reporting Services

Magensa delivers alerting and reporting services that can help prevent theft. Our real-time fraud alerts protect you from charge backs, tampering, replays, expired sessions, and counterfeit cards. Magensa provides the best in custom analytical reporting so you get the information you need, when you need it, saving time and resources. Our team of experts will work with you to determine the most critical elements for your specific transactional needs.

---

## Use Cases

Using the Global MagnePrint Exchange secures all card swipe transactions. MagnePrint technology has been successfully tested by two of the three largest card brands, and been validated as "effective, robust, and scalable." MagnePrint has also been used in multiple bank trials, resulting in preventing counterfeit card fraud.

MagnePrint is especially great for two-factor authentication. This combines dynamic card authentication (something you have, which cannot be duplicated) with a password (something you know).

While there are over 2.7 billion magnetic stripe cards in use throughout the global financial community, there are almost 30 billion more magnetic stripe cards being used to secure physical access (office doors, hotel rooms, campus), identification (driver's license, employee & student ID), and electronic access (computer, alarms). MagnePrint technology can ensure the validity of each of these cards, with the same level of assurance as in financial transactions. This provides a true return on investment.