IRI FieldShield

PII / PHI Classification & Masking

- Discover, Classify, Score Re-ID Risk
- Encrypt, Pseudonymize, Redact, etc
- Comply with HIPAA, PCI, GDPR, etc.
- Log, Integrate, Share & Secure Jobs

De-Identification of Sensitive Data

Product Summary

Data privacy law compliance, data breach nullification, and test data safety are critical elements of modern data governance. Securing information is a multifaceted problem that involves: 1) business rules and regulatory environments, 2) identifying sensitive data and its authorized recipients, and 3) de-identifying that data and auditing all activities that support these aims.

What Does FieldShield Do?

IRI FieldShield supports the risk and controls framework in corporate and government IT environments by classifying, finding, masking, risk-scoring, and auditing sensitive data in database tables, flat files, and other legacy and modern data sources. FieldShield quickly and securely obfuscates data at the field level, before it leaves the firewall. FieldShield is used to secure:

- **Personally Identifiable Information (PII)** that reveals someone directly, or in combination with other data.
- **Protected Health Information (PHI)** that identifies someone from a medical record or a designated data set that was created, used, or disclosed in the course of providing a health care service.
- **Payment Card Industry Data (PCI)**, that credit card payments generate, and is thus subject to hacking, fraud, etc.

FieldShield encrypts, masks, or otherwise anonymizes this data according to business rules and privacy laws.

How Does FieldShield Work?

FieldShield locates and categorizes CSI, PI, PII, PHI, PAN and other private data in structured sources with built-in data classification, profiling and search tools. You can then assign specific protections to mask each element, i.e., you can:

- Encrypt with built-in, or your own, libraries
- Filter or mask values, columns, or rows conditionally
- Redact via obfuscating characters or string manipulation
- Pseudonymize, hash, shuffle, randomize, blur, bucket, etc.

FieldShield jobs run in a free graphical IDE built on Eclipse called IRI Workbench, on the command line, and from within batch or application programs. To preserve referential integrity, you can secure like columns across multiple tables in one pass using masking functions that you define or import from a rules library. An XML audit log with all job and runtime details shows the data protections applied to verify compliance with data privacy regulations.

You can also use FieldShield encryption, hashing, and redaction functions for dynamic data masking or unmasking work. The FieldShield software development kit (SDK) supports and documents these API calls in C/C++, Java, and .NET.

Encryption and Decryption Functions

Among FieldShield's many data-centric protection functions are powerful encryption and decryption routines:

- **AES-128 or 256** - Displays expanded ciphertext fields as printable ASCII characters
- **3DES** - Uses public key ring files
- **GPG/PGP** - Works with GPG key ring management and does not retain the input format
- **OpenSSL** - Conforms to the FIPS 140-2 computer security standard
- **Format-Preserving** - Retains the original width and alpha-numeric field (column) format
- **Width-Preserving** - Retains the original field width, but not the original data format
- **Custom Algorithms** - Supports any function you write or link to that protects data in that field

Symmetric encryption keys can be: 1) held within job scripts as passphrases or environment variables; 2) embedded in secured files (on secured servers); or, 3) remain invisible (by default). Store asymmetric (public) encryption and (private) decryption keys in central key ring servers. HSM and key vault support is via MS Azure or Townsend Alliance Key Manager.

Running FieldShield in Database Environments

FieldShield connects to any RDBMS (SQL) database at rest or in-motion, and runs data masking jobs:

- from the command line, batch program or job scheduler
- in its Eclipse IDE: IRI Workbench – including within IRI Voracity ETL jobs and IRI Ripcurrent real-time DB ops
- through a system call, or API call from a C++, Java, or .NET program
- in situ, via SQL procedures using a custom library

What are the Technical Advantages of FieldShield?

Though many physical and broad-brush logical security solutions are available, the wrong design or execution choice reduces performance and leaves data vulnerable to privacy breaches. By contrast, FieldShield delivers:

- Efficiency - speeds protection by targeting only sensitive data
- Simplicity - requires only one job for multiple protections and recipients
- Security - supports different security functions or encryption keys for each field
- Flexibility - allows masking and unmasking based on data values or authorization
- Clarity - Uses a familiar Eclipse GUI and self-documenting 4GL to define data layouts and protection function

What are the Business Benefits of FieldShield?

FieldShield helps CDOs and CISOs adhere to both business rules and privacy laws in a data-centric context. Some fields remain clear, while others are secured. With FieldShield:

- PII is automatically (or manually) found and classified
- Data are protected at sources and endpoints with multiple functions
- Data stays safe even if it is stolen, or if a laptop or network is decrypted
- Protected data can retain realism for testing, sharing, and database subsetting
- Implementation and maintenance is easier than with DB-specific column encryption
- A query-ready XML audit log helps to verify compliance with data privacy regulations

What else? File and table-specific data profiling, ERDs, and fuzzy search, plus schema-wide data class and pattern search to help you organize and find PII everywhere. The ability to send output to multiple targets simultaneously provides for the separate data masking functions and custom-formatted output to recipients with different authorizations and needs. The graphical multi-table protection wizards mask like columns across tables in the same way, saving multiple design steps, I/O passes, data synchronization errors, and referential integrity. Peer-reviewed statistical re-ID risk scoring and anonymization facilities combine to render data compliant with FERPA and HIPAA regulations, but still valuable for marketing and research.

What are Some Data Sources FieldShield Protects?

Standard

- CSV / Delimited
- Fixed & Fixed Block
- Excel, JSON, LDIF & XML
- Line, Record, Variable Sequential
- Micro Focus Variable Length & ISAM
- Oracle, DB2, MS SQL, MySQL
- Ingres, PostgreSQL, Sybase
- SAP HANA, Snowflake, Teradata

Cloud, Hadoop, NoSQL

- Amazon Redshift, RDS, etc.
- Cloudera CDH & Impala
- Google BigQuery
- Hortonworks & MapR HIVE
- MS SQL Azure
- NoSQL (Cassandra & MongoDB)
- Pivotal (Greenplum, HIVE)
- Salesforce

*Legacy**

- Adabas
- C-ISAM Informix
- D-ISAM
- dBase
- Datacom & DataFlex
- IDMS & IMS
- Unidata

* *may require IRI-partner drivers*

What Applications are Compatible with FieldShield?

FieldShield runs on UNIX, Linux, and Windows, masking data in the databases and file formats they support, plus mainframe, Hadoop, some NoSQL, and SaaS platforms. FieldShield is also compatible with the metadata or masking functions used by:

- IRI Voracity - the big data management platform that includes FieldShield, DB subsetting, *and*:
- IRI CellShield EE - for masking data in Excel
- IRI DarkShield - for masking semi- and unstructured data
- IRI RowGen - for synthesizing intelligent test data
- IRI CoSort - for data transformation, cleansing, wrangling and reporting
- IRI NextForm - for data, file, and database conversion and replication

FieldShield data definition file (.ddf) format is also supported by DataSwitch and Value Labs Test Data Hub, plus:

- erwin (Quest) Mapping Manager & Smart Connectors
- MITI Meta Integration Model Bridge

These tools facilitate the creation or conversion of third-party ETL, BI, and modeling tool metadata into FieldShield metadata, so that you can accelerate the building of masking jobs for the sensitive data already defined in those environments.

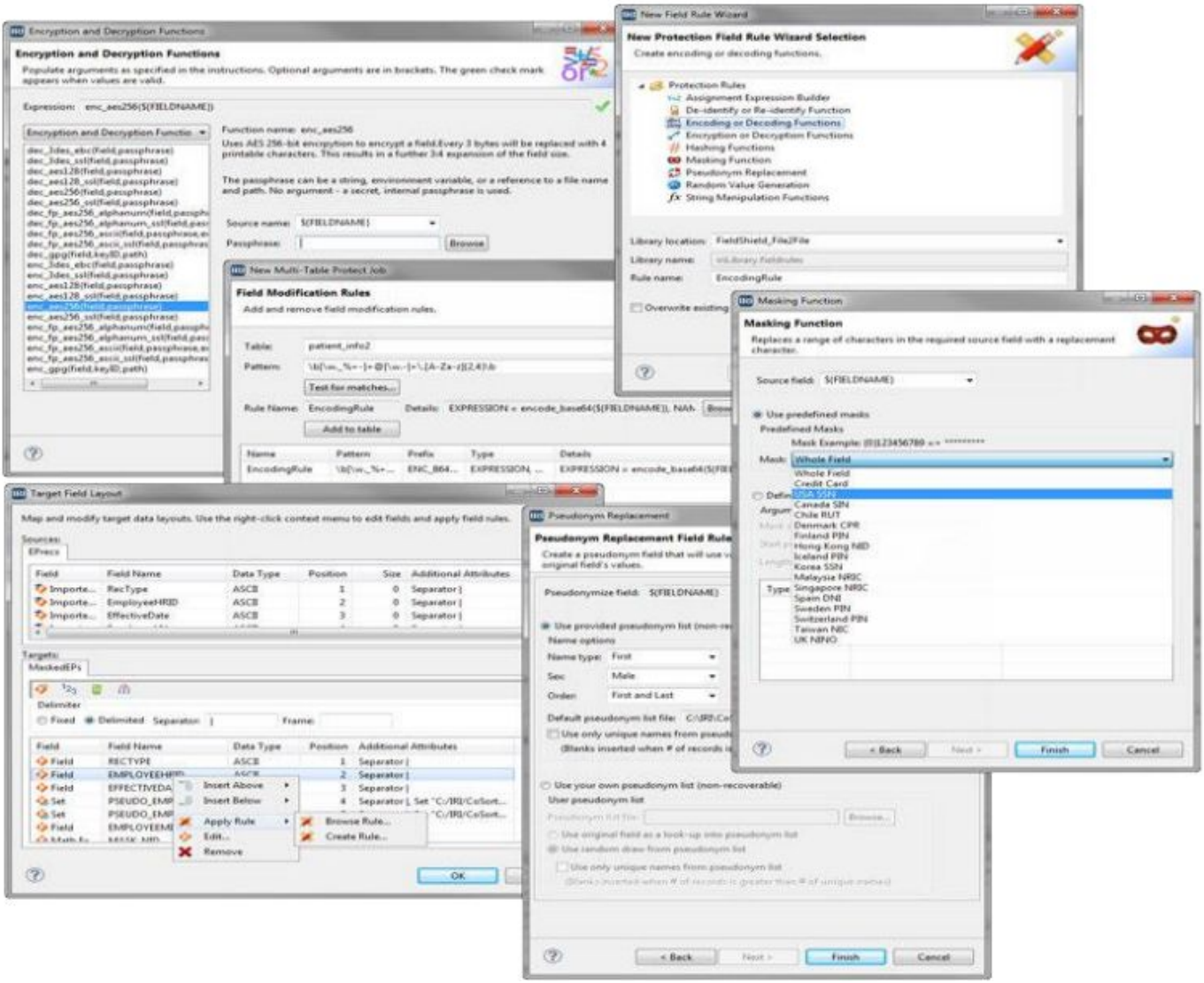
FieldShield is also certified to run in conjunction with database cloning software from Actifio, Commvault and Windocks.

FieldShield-Supported Platforms

- UNIX (AIX, HP-UX, Solaris)
- Linux on x86, Itanium, IBM s/p/i/z
- macOS
- Microsoft Windows

FieldShield in IRI Workbench

FieldShield users leverage a free Eclipse plug-in to create, run, and manage data protection jobs. This graphical user interface supports all data classification, search, and masking activities. Multiple methods support target format control.



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