

Micro Focus Voltage: Security, Flexibility for Test Data Management



Historically in software testing, the use of production data containing personally identifiable information (PII) has posed a major security risk. With an estimated 80 percent of organizations using production data in testing and development, one heavily adopted solution has been data masking, which anonymizes data sets while retaining the data's production-like quality.


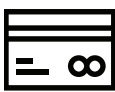


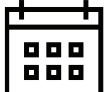
While masking solutions provide anonymous PII data for testing, their shortcomings are significant:

- **Data anonymization is a one-way process.** Masked data cannot undergo "re-identification" to return the PII to its original form. If a defect is discovered, teams cannot review the data to confirm if a code defect or a data issue caused the problem.
- **Data masking is a siloed operation.** For tests involving multiple interconnected systems, each system's data set is masked with an encryption key specific to that data set, which can prevent the systems from performing accurate lookups.
- **Data formats are not preserved.** If masked data is not contextually identical to the original, it increases errors, causes issues with fixed-form fields, and complicates decryption and later use.

Voltage Solves These Problems, and More.

Voltage Secure Stateless Tokenization and FPE

Field level, format-preserving encryption, reversible data de-identification

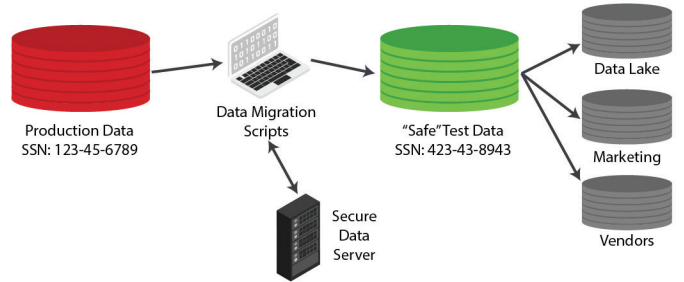
PII	SST	FPE		
PII Data 	Credit card 	SSN/D 	Email 	DOB 
Original	1234 5678 8765 4321	934-72-2356	bob@voltage.com	31-07-1966
Full	8736 5533 4678 9453	347-98-8309	hry@ghohawd.jiw	20-05-1972
Partial	1234 5681 5310 4321	634-34-2356	hry@ghohawd.jiw	20-05-1972
Obvious	1234 56AZ UYTZ 4321	AZS-UD-2356	hry@ghohawd.jiw	20-05-1972

Micro Focus Voltage is a powerful field-level, format-preserving, reversible encryption tool for structured data that uses National Institute of Standards and Technology (NIST) AES FFX mode FF1. Voltage works with an unlimited number of PII and other data types, generating keys that can be used for both encryption and decryption.

Voltage Key Features and Capabilities

- Datatype agnostic—Supports data of virtually any format, including numeric, alphanumeric, and even date fields.
- Widely reusable—Once encrypted for testing, PII can also be used for other operations that require anonymous data with formats preserved.
- Maintains referential integrity—anonimized data maintains its relationships intact.
- Promotes uniformity—Enterprises can develop and enforce a single set of data security policies across multiple test environments and other software development lifecycle (SDLC) activities.

Use Case: Test Data Management



- Globally compliant—Enterprises that develop and test software on a global scale gain compliance with privacy and security regulations such as GDPR, PCI DSS and HIPAA.

Software testing and development have become increasingly integrated, and the pressure for accelerated results to fit into tight DevOps and Agile pipelines is extreme. With Voltage, companies can expedite defect resolution, ensure consistency for multiple data sets and in disparate team locations, and maximize their investment in PII data protection.

Before: All applications and users have access to data

Name	SS#	Credit Card #	Street Address	Customer ID	State	Score
James Potter	385-12-1199	3712 4567 8901 001	1279 Farland Avenue	G8199143	NY	100
Ryan Johnson	857-64-4190	5587 0806 2212 0139	111 Grant Street	S3626248	NY	200
Carrie Young	761-58-6733	5348 9261 0695 2829	4513 Cambridge Court	B0191348	CA	120
Brent Warner	604-41-6687	4929 4358 7398 4379	1984 Middleville Road	G8888767	CA	120
Anna Berman	416-03-4226	4556 2525 1285 1830	2893 Hamilton Drive	S9298273	KY	160

After: Format-preserving encryption at the field level

Name	SS#	Credit Card #	Street Address	Customer ID	State	Score
Kwfdv Cgvzgzk	161-82-1199	3712 4588 7865 001	2890 Ykzbpoi Clpppn	G7202483	NY	100
Veks lounrfo	200-79-4190	5587 0876 5467 0139	406 Cmxt0 Osfalu	S0928254	NY	200
Pdnme Wntob	095-52-6733	5348 9212 3456 2829	1498 Zejojtbbox Pqkag	B7265029	CA	120
Eskfw Gzhqlv	178-17-6687	4929 4356 7432 4379	8261 Saicbmayqw Yotv	G3951257	CA	120
Jsfk Tbluhm	525-25-4226	4556 2598 7643 1830	8412 Wbbhalhs Ueyzg	S6625294	KY	160



Analysts



Help Desk



DBAs



Malicious User



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