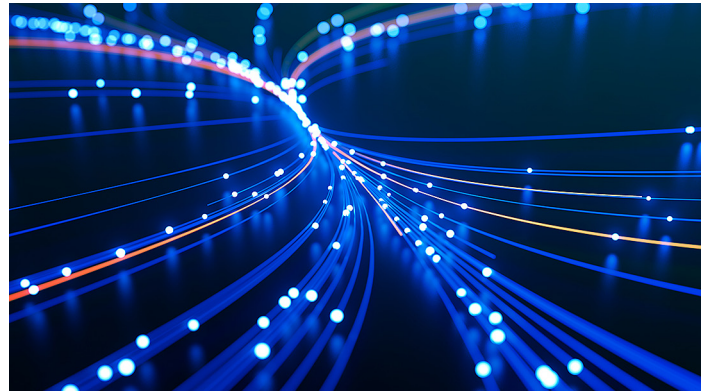**IQVIA**

Patient Tokenization

Enabling patient-level linkages in a privacy protected manner

Today's reality

Due to continuous growth in terms of the volume and variety of available data sources that grant increased visibility into de-identified patient records, there is a growing need to anonymously link multiple disparate data sets together at the patient level, providing manufacturers with the most comprehensive view of the patient journey while maintaining a minimum risk of re-identification.

Patient Tokenization benefits

- View and analyze behavior as the patient interacts with assistance hubs, specialty pharmacies, hospitals, and their physician's office setting.

- Link acquired de-identified data sets from your network of data providers to IQVIA data sets via one common patient ID.

- Get a consistent, anonymous patient identifier that enables longitudinal tracking of patients across settings of care.

- Enable patient linkage and integration with IQVIA's patient-level data assets (i.e., LAAD), while protecting patient privacy and minimizing the risk of patient re-identification.

Key differentiator

Maximize sample
Tokenization engine enables linkages to IQVIA assets without the need for additional cross-reference files or modeling resulting in the most robust sample possible.

Patient matching
Hierarchical matching process scores and compares tokens while controlling for missing data in order to assign a single patient ID based on the set of tokens produced
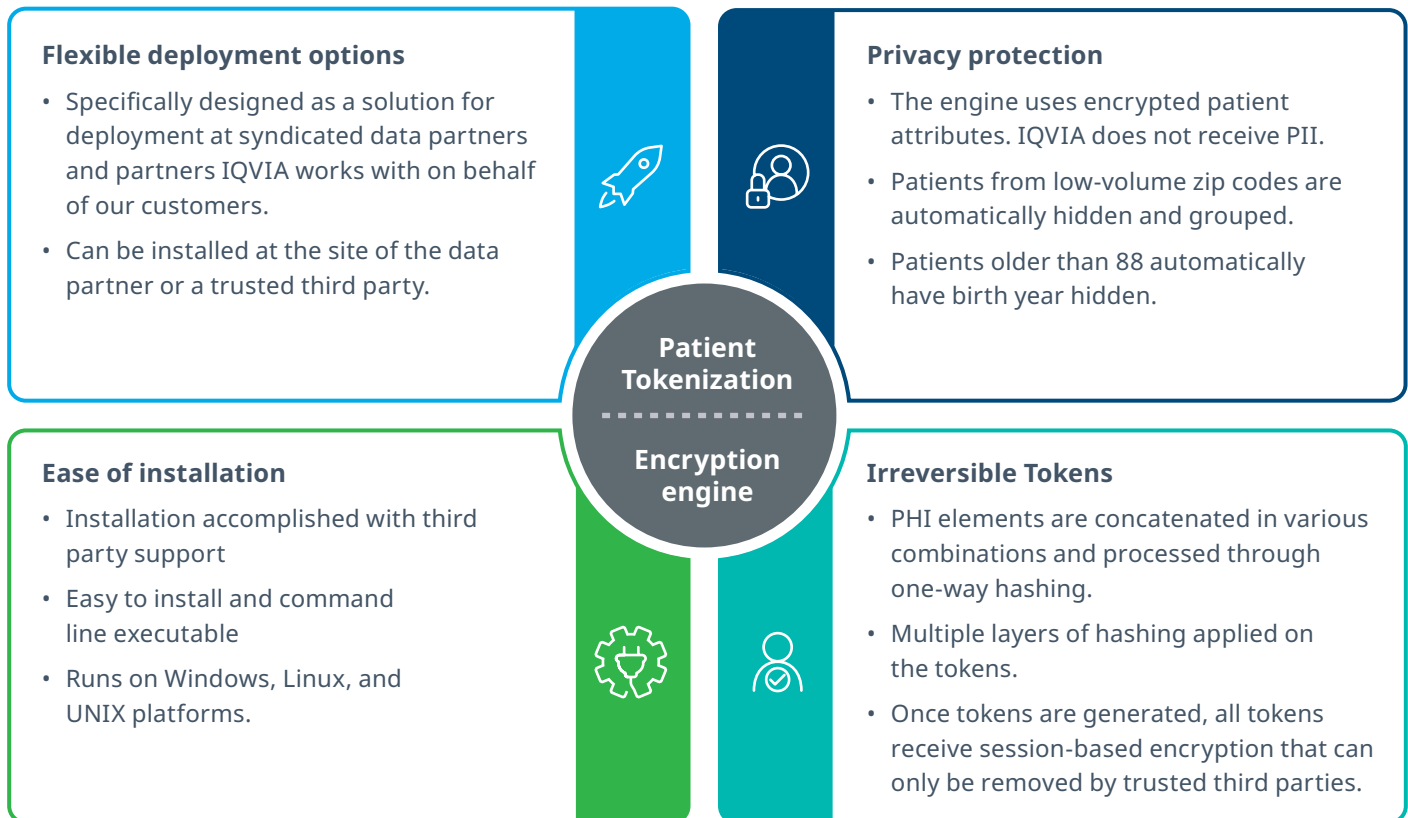
Methodology
Tokenization engine contains features aimed at minimizing false positives and false negatives, such as controlling for seasonal residency, name standardization, name changes via marriage, etc.

Consistency
Approach and methodology for customer solutions are identical to those used on IQVIA's patient-level assets.

Patient Tokenization is an integrated patient data solution

Flexible deployment options

- Specifically designed as a solution for deployment at syndicated data partners and partners IQVIA works with on behalf of our customers.
- Can be installed at the site of the data partner or a trusted third party.

Privacy protection

- The engine uses encrypted patient attributes. IQVIA does not receive PII.
- Patients from low-volume zip codes are automatically hidden and grouped.
- Patients older than 88 automatically have birth year hidden.

Patient Tokenization

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Encryption engine

Ease of installation

- Installation accomplished with third party support
- Easy to install and command line executable
- Runs on Windows, Linux, and UNIX platforms.

Irreversible Tokens

- PHI elements are concatenated in various combinations and processed through one-way hashing.
- Multiple layers of hashing applied on the tokens.
- Once tokens are generated, all tokens receive session-based encryption that can only be removed by trusted third parties.

Related IQVIA solutions

- ValueTrak BI platform that provides end-to-end data visibility from the manufacturer to the patient to help companies maximize the value of their products

- Health economics and outcomes research (HEOR)

- Omnichannel promotional effectiveness

- Longitudinal access and adjudicated data (LAAD)

- Data strategy consulting

- Specialty data aggregation

- Data integration

IQVIA