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ORACLE Enterprise Manager 24ai

Oracle Data Masking and Subsetting on Enterprise Manager 24ai

The growing security threats and ever-expanding privacy regulations have made it necessary to limit exposure of sensitive data. Copying production data for non-production purposes such as development and data analytics proliferates sensitive data, expanding the security and compliance boundary and increasing the likelihood of data breaches. Oracle Data Masking and Subsetting provides a flexible solution that discovers, masks and subsets sensitive data, enabling the data to be safely shared across non-production environments.

Key Business Benefits

- Reduces sensitive data exposure in non-production environments
- Improves compliance with data privacy laws and standards
- Improves quality of data available for development, data analytics, and other use cases.
- Minimizes storage costs by subsetting data

INTRODUCTION TO DATA MASKING AND SUBSETTING

Non-production environments such as test and development systems are the potential targets for a cyber-attack as they generally contain copies of production data. Such environments are typically not as protected or monitored as production systems, putting your sensitive data at risk. Therefore, you should copy only the relevant production data and mask it before using for non-production purposes.

Figure 1. Overview of Data Masking

Oracle Data Masking and Subsetting extracts entire copies or subsets of application data from the database and masks sensitive data so that it can be safely shared for non-production use. Oracle Data Masking and Subsetting

improves security by reducing the exposure of sensitive data in nonproduction environments. Compliance costs are lowered as the masked non-production databases are out of the scope for the audit teams.

SENSITIVE DATA DISCOVERY AND MODELING

Finding sensitive data in today's complex applications is a non-trivial task. Application Data Modeling automates the discovery of columns holding sensitive data and the corresponding parent-child relationships defined in the database. The discovery process uses built-in extensible patterns such as credit card numbers and national identifiers to check metadata and column data to identify sensitive columns. The resulting Application Data Model provides a complete set of sensitive columns along with referential relationships ensuring that the application integrity is maintained by the masking and subsetting process.

Key Features

- Automated discovery of sensitive columns and parent-child relationships
- Comprehensive and extensible built-in masking formats
- Creation and reuse of custom templates for applications
- Integrated data subsetting
- Masking and subsetting in database or during extraction
- Masking and subsetting on premises or in the Oracle Cloud
- High performance and repeatable process

DATA MASKING

Oracle Data Masking and Subsetting provides a comprehensive and extensible library of masking formats which define the logic to mask data. Sensitive data such as credit card numbers, national identifiers, and other personally identifiable information (PII) can be masked using predefined masking formats.

Oracle Data Masking and Subsetting also provides the capability to easily create new masking formats to meet your specific requirements. You can create simple masking formats using options such as generating fixed/random characters or numbers, replacing with null value, substituting data from a list of values or a table column, and SQL or regular expression-based masking. You also have several advanced options to meet your complex business requirements such as:

- **Shuffle Masking** randomly shuffles data within a column. For example, columns containing salaries can be shuffled to break the employee-salary mapping.
- **Encryption** encrypts the sensitive data using a cryptographic key while preserving the format of the data. It's a reversible masking option as you can decrypt your data using the same key. It's useful when masked data sent to a third party must be merged back along with further updates.
- **Format Preserving Randomization** randomizes the data while preserving the input length, position and case of characters, and special characters.
- **Conditional Masking** masks column data using different masking formats based on user-defined conditions. For example, in a column, the US identifiers can be masked using the Social Security Number format and the UK identifiers using the National Insurance Number format.

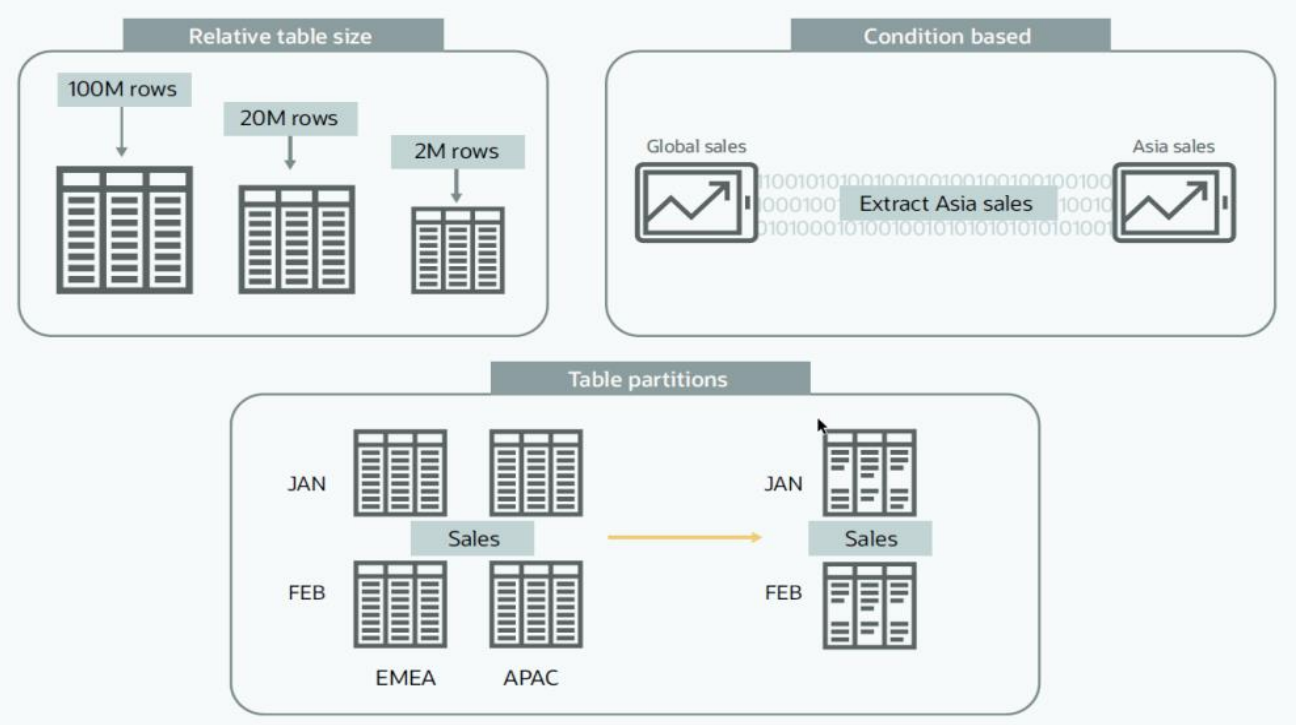
- **Compound Masking** masks related columns as a group, ensuring the masked data across the related columns retain the same relationship. For example, address fields such as city, state, and postal codes can be masked consistently.
- **Deterministic Masking** generates consistent masked output for a given input across application schemas and databases.
- **User-defined PL/SQL Masking** enables you to define custom masking logic or migrate your existing masking scripts.

DATA SUBSETTING

Data Subsetting reduces security risk and helps minimize storage costs by removing unnecessary data from a database before sharing it for non-production use.

Oracle Data Masking and Subsetting provides goal-based and condition-based subsetting. A goal can be a relative table size such as extracting 1% subset of a table containing 10 billion rows. A condition can be based on time, for example, discarding all user records created prior to a particular year. A condition can also be based on region, for example, extracting Asia Pacific information for a new application development.

Figure 2. Data Subsetting Use Cases



CENTRALIZED ADMINISTRATION AND FLEXIBLE EXECUTION

Oracle Data Masking and Subsetting Pack is installed by default with Oracle Enterprise Manager. It provides a centralized, unified, and browser-based GUI for administration. In addition to its intuitive GUI, Oracle Enterprise Manager also provides Command Line Interface (EMCLI) to automate select Data Masking and Subsetting tasks.

Masking and subsetting can be performed on a cloned copy of the original data, eliminating any overhead on production systems. Alternatively, it can be performed during database export, eliminating the need for staging servers.

High performance masking and subsetting is achieved through integration with Oracle Database and Oracle Data Pump. Once the Application Data Model is created, the masking process can be repeated, minimizing the overhead.

Subsetting and masking can be performed on data in non-Oracle relational databases (MySQL, SQL Server, Sybase, DB2, Informix, and Teradata) by staging the data in an Oracle Database using Oracle Database Gateway.

SOFTWARE LIFECYCLE INTEGRATION

Oracle Data Masking and Subsetting is integrated with Oracle data management and testing tools. For example, the integration with Oracle Database Life Cycle Management Pack facilitates masking and database cloning in a single workflow. Integration with Oracle Real Application Testing Pack enables masking sensitive data in production workload capture and replaying it on test systems without the risk of exposing sensitive data. Integration with Oracle Data Integrator masks and subsets data during data synchronization between source and target databases.

MASKING AND SUBSETTING FOR HYBRID CLOUD

Oracle Data Masking and Subsetting also helps organizations achieve data privacy and compliance for non-production databases hosted in the Oracle Cloud. Using the on-premises Oracle Enterprise Manager, you can mask and subset databases on premises or in the Oracle Cloud. This hybrid management capability also facilitates masking and subsetting during the migration of data from on-premises to the Oracle Cloud.

MORE INFORMATION

For more information such as product FAQ, tutorials, documentation, customer references, and blog, please visit the following Oracle Data Masking and Subsetting page on Oracle Technology Network.
https://www.oracle.com/database/technologies/security/data-masking-subsetting.html

Related products

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