Oracle Advanced Security Data Redaction

Frequently Asked Questions (FAQ)

SEPTEMBER 2016

Product Overview

Q: **What is Data Redaction or Dynamic Data Masking?**

A: Data Redaction or Dynamic Data Masking is the process of obfuscating or hiding sensitive data elements such as Credit Card Numbers in the SQL query results prior to display by applications. For example, a credit card number 5105-1051-0510-5100 can be redacted to xxxx-xxxx-xxxx-5100. Sensitive data is redacted on-the-fly without changing actual data stored in the database.

Q: **Why do I need to redact sensitive data?**

A: Displaying sensitive data in application screens, dashboards, and panels increases the risk of exposing sensitive information such as credit card numbers and national identifiers to unauthorized users. In addition, many data privacy standards such as PCI-DSS recommend redacting sensitive data that is displayed by applications. Redacting on-the-fly using simple policies enforced by the database is an easy way to improve security and achieve compliance while minimizing costly application changes.

Q: **What redaction capabilities does Oracle provide?**

A: Oracle Data Redaction, a component of Oracle Advanced Security, provides selective on-the-fly redaction of sensitive data in SQL query results prior to display by applications so that unauthorized users cannot view the sensitive data. Oracle Advanced Security is a licensable option for Oracle Database Enterprise Edition 11gR2 and 12c.

Q: **What are the use cases for Oracle Data Redaction?**

A: Oracle Data Redaction reduces exposure of sensitive information and helps prevent exploitation of application flaws that may disclose sensitive data in application pages. It is well suited for both new and legacy applications that need to limit exposure of sensitive information without invasive application changes.

Q: **Who are the target users of Oracle Data Redaction?**

A: The target users of Oracle Data Redaction are database or application administrators, security administrators, and application owners who want an easy way to improve security and comply with regulations that require redacting sensitive data displayed by applications.

Q: **What security threats does Oracle Data Redaction protect against?**

A: Redacting data displayed by applications using Oracle Data Redaction limits the risk of exposing sensitive data to application users who should not see it. In addition, Oracle Data Redaction helps prevent accidental disclosure of data to database users who do not desire to see sensitive information yet may come in contact with it while working with the database.

Oracle Data Redaction is *not* intended to protect against attacks by privileged database users. For example, a user or program with super user privileges such as SYSDBA will be able to see un-redacted data if desired. Also, Oracle Data Redaction is not intended to protect against SQL injection or inference attacks, where the attacker runs repeated ad hoc database queries to guess and finally discover real values.

Oracle recommends a defense-in-depth strategy to protect databases through evaluation, prevention, and detection. This approach complements Data Redaction with related controls targeted at privileged user exploits, SQL injection, inference attacks, and so forth. For more information, please visit the Database Security page on Oracle Technology Network.

Q: **What are the benefits of Oracle Data Redaction compared to third-party proxy solutions?**

A: Because it is part of Oracle Database, Oracle Data Redaction is very easy to setup and maintain compared to proxy-based solutions. Patching and upgrading is part of the standard Oracle Database update process.

Oracle Data Redaction also provides more accurate results for real-world application queries because, rather than attempting to modify complex inbound SQL statements, it allows all query processing to complete as normal before finally redacting the results. In addition, the security profile of Oracle Data Redaction is stronger than proxy-based solutions that require overwriting core database components, thus introducing new surfaces for attackers to exploit.

Components and Features

Q: **What are the main features of Oracle Data Redaction?**

A: Oracle Data Redaction consists the following main features:

Redaction Transformations**:** Transformations such as full, partial, regular expression, random, and nullify that determine how to redact sensitive columns.

Redaction Formats**:** Pre-defined redaction formats in Oracle Enterprise Manager such as U.S. Social Security Number and Credit Card Number. The redaction format library provides several out-of-the-box formats for ease of use. You can create a custom formats in Oracle Enterprise Manager by combining transformations.

Policy Expressions**:** Expressions that define runtime conditions for when to redact sensitive columns. You can define powerful runtime conditions using factors such as database user, database role, application user, IP address, hostname, domain, application context, and more.

Redaction Policies**:** Easy declarative policies that define the transformation, format, expression, and column information required to apply redaction to sensitive data in an Oracle Database.

Q: **Does Oracle Data Redaction include pre-configured templates?**

A: Yes, Oracle Data Redaction provides several out-of-the-box templates or formats such as Credit Card Number, U.S. Social Security Number, telephone number, and more. Also, you can create custom templates or formats using built-in transformations and functions.

Q: **What runtime factors can I take into account when redacting data?**

A: You can redact data based on several runtime factors in the context of a database session such as database user, LDAP user, database role, IP address, and hostname. You also can redact based on runtime factors in the context of an application session such as application user, identifier, and module.

Q: **Can I use Oracle Data Redaction with other common Oracle Database features?**

A: Yes, Oracle Data Redaction works with common Oracle Database features such as Data Pump, Virtual Private Database, Database Vault, and more. For details, please refer to the Oracle Advanced Security end-user documentation.

Q: **Can I redact databases running in Oracle Cloud?**

A: Yes, you can redact databases in Oracle Database Cloud Service (DBCS). Oracle Data Redaction for cloud databases works much like it does for on-premises databases. DBCS High Performance, Extreme Performance, and Exadata Service all come with a free license of Oracle Advanced Security including Oracle Data Redaction.

Deployment and Administration

Q: **How do I set up Oracle Data Redaction?**

A: Oracle Data Redaction is pre-installed in Oracle Database Enterprise Edition 12*c* and 11*g*R2. No additional installation is required. This includes on-premises and cloud databases. You must have an Oracle Advanced Security license to use Oracle Data Redaction. This license is purchased separately for on-premises databases, and for cloud databases, it is included by default with High Performance, Extreme Performance, and Exadata Service. You can get started with Oracle Data Redaction quickly by creating a few simple redaction policies.

Q: **How do I manage Oracle Data Redaction?**

A: Oracle provides both a GUI management console in Oracle Enterprise Manager and an easy PL/SQL interface for managing Oracle Data Redaction.

Q: **What is the performance of Oracle Data Redaction?**

A: Because it is part of the Oracle Database kernel, Oracle Data Redaction provides fast kernel-level speed. It has very little impact on the performance of applications or the database itself. The performance overhead from full and partial redaction is near zero in most cases.

Q: **How do I deploy Oracle Data Redaction policies?**

A: Any changes to Oracle Data Redaction policies are applied upon saving and enabling the policy. Policies go into effect immediately, without the need to restart Oracle Database.

Q: **Is it safe to use Oracle Data Redaction in a production environment?**

A: With its low overhead and ease of deploying and maintaining, Oracle Data Redaction is suitable for all environments including production, test, and development databases.

Q: **Is Oracle Data Redaction transparent to applications? Are application changes required?**

A: Oracle Data Redaction avoids requiring you to make application changes in most cases. Redacted values preserve essential characteristics the original data such data type and length to make the fact that redaction occurred highly transparent to applications.

Q: **Does Oracle Data Redaction change the way applications or application servers connect to the database?**

A: Oracle Data Redaction does not impact connectivity between applications or application servers and Oracle Database. Note this is in stark contrast to third-party redaction solutions that require installing and configuring a proxy, thus altering connectivity to the database.

More Information

Q: **Where can I find more information about Oracle Data Redaction?**

A: For more information, please see the Oracle Advanced Security Data Redaction page on Oracle Technology Network. This page provides links to a variety of helpful information including data sheet, white paper, customer references, videos, tutorials, end-user documentation, product blog, and a discussion forum.

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