

Oracle® Retail Merchandising Cloud Service Suite

Security Guide – volume 1



Release 22.1.301.0

F58762-02

August 2022

The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

ORACLE®

F58762-02

Copyright © 2022, Oracle and/or its affiliates.

Primary Author:

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle, Java, and MySQL are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Contents

Send Us Your Comments

Preface

Audience	vii
Documentation Accessibility	vii
Customer Support	vii
Improved Process for Oracle Retail Documentation Corrections	viii
Oracle Retail Documentation on the Oracle Help Center (docs.oracle.com)	viii
Conventions	viii

1 Introduction

2 Responsibilities

Retailer Responsibilities	2-1
Oracle Responsibilities	2-1

3 Oracle Retail SaaS Security

Secure Product Engineering	3-1
Secure Deployment	3-1
Physical Safeguards	3-1
Network Security	3-2
Infrastructure Security	3-2
Data Security	3-2
Secure Management	3-2
Assessment and Audit	3-3

4 Merchandising Cloud Service Suite Architecture

Architecture Overview	4-1
-----------------------	-----

5 Merchandising Cloud Service Suite Authentication, Authorization and Data Filtering

Authentication and IDCS or OCI IAM	5-1
IDCS and OCI IAM	5-1
IDCS, OCI IAM, and Oracle Retail Enterprise Roles	5-2
IDCS, OCI IAM, and Application Users	5-2
Authorization	5-3
Roles	5-3
Duties and Privileges	5-4
Data Security/Filtering	5-5

6 Frequently Asked Questions

List of Tables

5-1	Duties and Privileges	5-4
6-1	FAQs	6-1

Send Us Your Comments

Oracle Retail Merchandising Cloud Service Suite Security Guide - volume 1, Release 22.1.301.0

Oracle welcomes customers' comments and suggestions on the quality and usefulness of this document.

Your feedback is important, and helps us to best meet your needs as a user of our products. For example:

- Are the implementation steps correct and complete?
- Did you understand the context of the procedures?
- Did you find any errors in the information?
- Does the structure of the information help you with your tasks?
- Do you need different information or graphics? If so, where, and in what format?
- Are the examples correct? Do you need more examples?

If you find any errors or have any other suggestions for improvement, then please tell us your name, the name of the company who has licensed our products, the title and part number of the documentation and the chapter, section, and page number (if available).



Note:

Before sending us your comments, you might like to check that you have the latest version of the document and if any concerns are already addressed. To do this, access the Online Documentation available on the Oracle Technology Network Web site. It contains the most current Documentation Library plus all documents revised or released recently.

Send your comments to us using the electronic mail address: retail-doc_us@oracle.com

Please give your name, address, electronic mail address, and telephone number (optional).

If you need assistance with Oracle software, then please contact your support representative or Oracle Support Services.

If you require training or instruction in using Oracle software, then please contact your Oracle local office and inquire about our Oracle University offerings. A list of Oracle offices is available on our Web site at <http://www.oracle.com>.

Preface

This document serves as a guide for administrators, developers, and system integrators who securely administer, customize, and integrate Oracle Retail Merchandising Cloud Service Suite applications.

Audience

This document is intended for administrators, developers, and system integrators who perform the following functions:

- Document specific security features and configuration details for the above mentioned product, in order to facilitate and support the secure operation of the Oracle Retail Product and any external compliance standards.
- Guide administrators, developers, and system integrators on secure product implementation, integration, and administration.

We assume that the readers have general knowledge of administering the underlying technologies and the application.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Customer Support

To contact Oracle Customer Support, access My Oracle Support at the following URL:

<https://support.oracle.com>

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to re-create
- Exact error message received

- Screen shots of each step you take

Improved Process for Oracle Retail Documentation Corrections

To more quickly address critical corrections to Oracle Retail documentation content, Oracle Retail documentation may be republished whenever a critical correction is needed. For critical corrections, the republication of an Oracle Retail document may at times not be attached to a numbered software release; instead, the Oracle Retail document will simply be replaced on the Oracle Technology Network Web site, or, in the case of Data Models, to the applicable My Oracle Support Documentation container where they reside.

This process will prevent delays in making critical corrections available to customers. For the customer, it means that before you begin installation, you must verify that you have the most recent version of the Oracle Retail documentation set. Oracle Retail documentation is available on the Oracle Technology Network at the following URL:

<http://www.oracle.com/technetwork/documentation/oracle-retail-100266.html>

An updated version of the applicable Oracle Retail document is indicated by Oracle part number, as well as print date (month and year). An updated version uses the same part number, with a higher-numbered suffix. For example, part number E123456-02 is an updated version of a document with part number E123456-01.

If a more recent version of a document is available, that version supersedes all previous versions.

Oracle Retail Documentation on the Oracle Help Center (docs.oracle.com)

Oracle Retail product documentation is also available on the following Web site:

<https://docs.oracle.com/en/industries/retail/index.html>

(Data Model documents can be obtained through My Oracle Support.)

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Introduction

Software-as-a-Service (SaaS) is changing technology today. SaaS applications shift responsibilities from retailers and their data centers to cloud service providers. The cloud service provider is responsible for upgrades, uptime and security. Oracle provides many retail cloud services, including Oracle Retail Merchandising Cloud Service Suite.

The Oracle Retail Merchandising Cloud Service is a suite of software-as-a service solutions that provides retailers with breakthrough capabilities. This includes role-based dashboards that surface relevant buying, inventory, pricing and financial information, leveraging retail science and data analytics to accelerate critical decision making. By using Oracle's modern exception-based retailing methodology to identify situations that require attention, the solution vastly reduces the amount of time merchandising professionals spend on nonproductive tasks and frees up more time to focus on strategic business goals.

Oracle Retail Merchandising Cloud Service Suite consists of:

- Oracle Retail Merchandising Foundation Cloud Service
- Oracle Retail Pricing Cloud Service (optional licensable component)
- Oracle Retail Allocation Cloud Service (optional licensable component)
- Oracle Retail Invoice Matching Cloud Service (optional licensable component)

This document is divided into six main sections:

- [Responsibilities](#) – The Responsibilities section of the document discusses the shared responsibility model of security.
- [Oracle Retail SaaS Security](#) – This section of the document outlines the policies and procedures Oracle Retail uses to meet its security responsibilities.
- [Merchandising Cloud Service Suite Architecture](#) – This section details the architecture of the Merchandising Cloud Service, particularly as it relates to security.
- [Merchandising Cloud Service Suite Authentication, Authorization and Data Filtering](#) – This section describes how Merchandising Cloud Service performs authentication and authorization, as well as how data filtering can be applied.
- [Frequently Asked Questions](#) – This section includes a number of specific questions related to security that are frequently asked by prospects, customers and implementers.

The goals of this document are to:

- Explain the security responsibilities of Oracle and the Retailer in the SaaS model
- Educate retailers about Oracle's cloud security policies and controls
- Describe Merchandising Cloud Service's
 - general architecture, particularly as it relates to security
 - security features
- Define additional steps customer IT staff must perform to communicate securely with Merchandising Cloud Service
- Guide Customer administrators in the actions they need to perform to

- create application users
- assign roles to application users
- Provide answers to frequently asked questions about Merchandising Cloud Service security

2

Responsibilities

As retailers migrate to the cloud, they must consider how the cloud, and more specifically SaaS, will impact their privacy, security, and compliance efforts. As the cloud service provider, Oracle Retail works together with customers to meet cloud security objectives.

Retailer Responsibilities

At a high level, retailers are responsible for:

- Understanding Oracle's security policies
- Implementing their own corporate policies via Oracle tools
- Creating and administering users via Oracle tools
- Ensuring data quality and enforcing end-user devices security controls, so that antivirus, malware and other malicious code checks are performed on data and files before uploading data
- Ensuring that end-user devices meet the minimum security requirements

To securely implement Merchandising Cloud Service, retailers and their implementation partners should read this document to understand Oracle's security policies. This document summarizes information and contains links to many other Oracle documents.

Oracle Responsibilities

As the cloud service provider, at the highest level Oracle Retail is responsible for:

- building secure software
- provisioning and managing secure environments
- protecting the retailer's data

Merchandising Cloud Service fulfills its responsibilities by a combination of corporate level development practices and cloud delivery policies. Sections in this document will describe this information in great detail later in this document.

3

Oracle Retail SaaS Security

Security is a many faceted issue to address. To discuss Oracle Retail SaaS security, it helps to define and categorize the many aspects of security. For the purposes of this document, we discuss the following categories of SaaS security:

- Secure Product Engineering
- Secure Deployment
- Secure Management
- Assessment and Audits

Secure Product Engineering

Oracle builds secure software through a rigorous set of formal, always evolving security standards and practices known as Oracle Software Security Assurance (OSSA). OSSA encompasses every phase of the product development lifecycle.

More information about OSSA can be found at:

<https://www.oracle.com/corporate/security-practices/assurance/>

The cornerstones of OSSA are Secure Coding Standards and Security Analysis and Testing.

Secure Coding Standards include both general use cases and language specific security practices. More information about these practices can be found at:

<https://www.oracle.com/corporate/security-practices/assurance/development/>

Security Analysis and Testing includes product specific functional security testing and both static and dynamic analysis of the code base. Static Analysis is performed via tools including both internal Oracle tools and HP's Fortify. Dynamic Analysis focuses on APIs and endpoints, using techniques like fuzzing to test interfaces and protocols.

<https://www.oracle.com/corporate/security-practices/assurance/development/analysis-testing.html>

Specific security details of the Merchandising Cloud Service are discussed in detail later in this document.

Secure Deployment

Secure deployment refers to the security of the infrastructure used to deploy the SaaS application. Key issues in secure deployment include Physical Safeguards, Network Security, Infrastructure Security and Data Security.

Physical Safeguards

Oracle Retail SaaS applications are deployed via Oracle Cloud Infrastructure datacenters. Access to Oracle Cloud data centers requires special authorization that is monitored and

audited. The premises are monitored by CCTV, with entrances protected by physical barriers and security guards. Governance controls are in place to minimize the resources that are able to access systems. Physical security safeguards are further detailed in Oracle's Cloud Hosting and Delivery Policies.

<http://www.oracle.com/us/corporate/contracts/ocloud-hosting-delivery-policies-3089853.pdf>

Network Security

The Oracle Cloud network is isolated from the Oracle Corporate Network. Customer instances are separated down to the VLAN level.

Infrastructure Security

The security of the underlying infrastructure used to deploy Oracle Retail SaaS is regularly hardened. Critical patch updates are applied on a regular schedule. Oracle maintains a running list of critical patch updates and security alerts. Per Oracle's Cloud Hosting and Delivery Policies, these updates are applied to all Oracle SaaS systems.

<https://www.oracle.com/technetwork/topics/security/alerts-086861.html>

Before Oracle Retail deploys code to SaaS, Oracle's Global Information Security team performs penetration testing on the cloud service. This penetration testing and remediation prevents software or infrastructure issues in production systems.

<https://www.oracle.com/corporate/security-practices/assurance/development/ethical-hacking.html>

Data Security

Oracle Retail uses a number of strategies and policies to ensure the Retailer's data is fully secured.

- Data Design - Oracle Retail applications avoid storing personal data. Where PII data exists in a system, Data Minimization, Right to Access and Right to Forget services exist to support data privacy standards.
- Storage - Oracle Retail applications use encrypted tablespaces to store sensitive data.
- Transit - All data is encrypted in transit, Retail SaaS uses TLS for secure transport of data, as documented in Oracle's Cloud Hosting and Delivery policy.

<https://www.oracle.com/assets/ocloud-hosting-delivery-policies-3089853.pdf>

- Merchandising Cloud Service also implements data filtering so that users see the data stripes relevant to their own jobs. Merchandising Data Filtering is described in more detail later in this document.

Secure Management

Oracle Retail manages SaaS based on a well-documented set of security-focused Standard Operating Procedures (SOPs). The SOPs provide direction and describe activities and tasks undertaken by Oracle personnel when delivering services to customers. SOPs are managed centrally and are available to authorized personnel through Oracle's intranet on a need-to-know basis.

All network devices, servers, OS, applications and databases underlying Oracle Retail Cloud Services are configured and maintain auditing and logging. All logs are forwarded to a Security Information and Event Management (SIEM) system. The SIEM is managed by the Security Engineering team and is monitored 24*7 by the GBU Security Operations team. The SIEM is configured to alert the GBU Security Operations team regarding any conditions deemed to be potentially suspicious, for further investigation. Access given to review logs is restricted to a subset of security administrators and security operations personnel only.

Assessment and Audit

Oracle Cloud meets all ISO/IEC 27002 Codes of Practice for Information Security Controls. Third Party Audit Reports and letters of compliance for Oracle Cloud Services are periodically published.

4

Merchandising Cloud Service Suite Architecture

Merchandising Cloud Service Suite is a set of ADF-based Java applications deployed on Oracle's Global Business Unit Cloud Services Foundation Services. The applications are deployed in a highly available, high performance, horizontally scalable architecture. As of release 16.0.030, Merchandising Cloud Services uses either Oracle Identity Cloud Service (IDCS) or Oracle Cloud Infrastructure Identity and Access Management (OCI IAM) as its identity provider (IDP). Information about logical, physical and data architecture in this document focuses on how the architecture supports security.

Architecture Overview

Most customer access to the Merchandising Cloud Service is via the web tier. The web tier contains the perimeter network services that protect the Merchandising applications from the internet at large. All traffic from the web tier continues to the Web Tier Security Server (WTSS), which in turn uses the customer's Oracle Identity Cloud Service (IDCS) or Oracle Cloud Infrastructure Identity and Access Management (OCI IAM) tenancy to perform authentication. More information about authentication via IDCS or OCI IAM is provided later in this document.

The Merchandising applications are deployed in a Kubernetes. Scheduling of batch processes is provided by Job Orchestration and Scheduling (JOS). Reporting is provided by an OBIEE instance which can connect to the underlying database.

The underlying container DBaaS includes one pluggable database (PDB) for Merchandising. Applications are able to access the Merchandising schema on the Merchandising PDB. Transparent data encryption (TDE) is set during provisioning. Tablespaces that contain personal data are encrypted.

Merchandising Cloud Service Suite applications integrate with external business systems via:

- Native files upload/download
- Native Rest Services
- Retail Integration Cloud Service, which includes Retail Integration Bus (RIB), Retail Service Bus (RSB) and Bulk Data Integration (BDI)
- Files via service based upload to Object Storage. All inbound files are scanned by anti-virus and anti-malware software.

Merchandising Cloud Service Suite authenticates native rest services using OAuth2.0 via IDCS or OCI IAM. As a common authentication pattern is used, web service users are subject to the same strong controls as application users. All rest service calls are logged in the application logs.

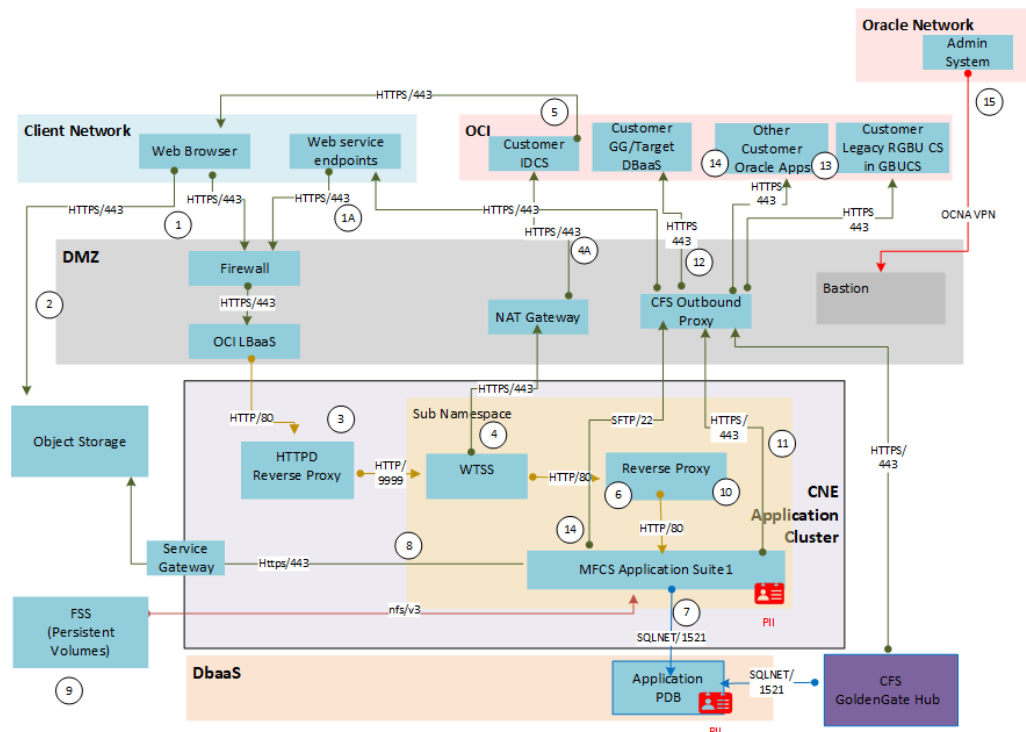
All communication between Merchandising Cloud Service Suite and Retail Integration Cloud Service is via secured web services.

Retailers may also choose to replicate a subset of their data from the Merchandising PDB to an external database controlled by the Retailer. The replication uses Oracle Golden Gate. All

Golden Gate trail files are encrypted and communicated via https. The retailer is responsible for securing the target destination database.

Access Flow

This document does not explain the full access flow of the Merchandising Cloud Service, but instead focuses on the high level aspects of this data flow that relate to security.



Merchandising Cloud Service Suite is deployed on a Kubernetes cluster. Each application resides in an appropriate tier and each tier resides in its own subnet. Communication between tiers within the Merchandising Cloud Service is limited by subnet ingress security lists.

To reduce attack surface, access to the Merchandising Cloud Service from the open internet is very limited.

- Business Users (via web browser) and external web service endpoints access application over https/443 (1, 1A). Firewall and load balancer in the DMZ route to the customer tenancy via reverse proxy forward to WTSS (3). WTSS forwards (4) unauthenticated requests to the customer's IDCS or OCI IAM tenancy via NAT Gateway (4A). IDCS or OCI IAM sends authentication HTML content to the end user (IDCS or OCI IAM Logon page) (5). On successful AuthN, WTSS sends a call to the reverse proxy ingress controller, which routes to the appropriate application component (6).
- Pre Authenticated Request (PAR) service calls can drop/collect files from Object Storage (2).

Access to the underlying DBaaS is only available via the application M-Tier (67). The M-Tier is able to get and place files into object storage (8), which in turn allows the

exchange of files with the Retailer (2). Both outbound web service traffic (811) and replication of data (912) are routed through the outbound proxy in the DMZ.

A subset of Oracle Retail AMS has very limited access to the underlying M-Tier (15). This access is limited to a small subset of Oracle employees as described in Oracle's Cloud Hosting and Delivery policy.

<https://www.oracle.com/assets/ocloud-hosting-delivery-policies-3089853.pdf>

5

Merchandising Cloud Service Suite Authentication, Authorization and Data Filtering

Authentication confirms the identity of a user (is this user John Smith?). Authorization determines what parts of an application a user can access and what actions the user can perform (is John Smith allowed to create a purchase order?). Data Filtering is not strictly part of the Merchandising Cloud Service Suite security model, but can be implemented to further reduce attack surface (John Smith is allowed to create a purchase order, but only for items in Department 1234).

Authentication and IDCS or OCI IAM

As of version 21.0.000, Merchandising Cloud Service Suite uses either Oracle Identity Cloud Service (IDCS) or Oracle Cloud Infrastructure Identity and Access Management (OCI IAM) as its identity provider (IDP):

- Oracle Identity Cloud Service (IDCS):
<https://www.oracle.com/cloud/paas/identity-cloud-service.html>
- Oracle Cloud Infrastructure Identity and Access Management (OCI IAM):
<https://docs.oracle.com/en-us/iaas/Content/Identity/home.htm>

When a user connects to the Merchandising Cloud Service UI, Merchandising Cloud Service Suite redirects application URL requests to the IDCS or OCI IAM login screen. IDCS or OCI IAM authenticates the user. When a user logs out of the Merchandising Cloud Service, Merchandising invokes an IDCS or OCI IAM logout to disable session authentication.

IDCS and OCI IAM

IDCS and OCI IAM are Oracle's cloud native security and identity platforms. They provide a powerful set of hybrid identity features to maintain a single identity for each user across cloud, mobile, and on-premises applications. Both IDCS and OCI IAM enable single sign on (SSO) across all applications in a customer's Oracle Cloud tenancy. Customers can also integrate IDCS or OCI IAM with other on premise applications to extend the scope of this SSO.

Both IDCS and OCI IAM are available in two tiers: Foundation and Standard.

- Oracle Identity Cloud Service Foundation: Oracle provisions this free version of Oracle Identity Cloud Service for customers that subscribe to Oracle Software-as-a-Service (SaaS), Oracle Platform-as-a-Service (PaaS), and Infrastructure-as-a-Service (IaaS) applications. A customer can use this version to provide basic identity management functionalities, including user management, group management, password management, and basic reporting.
- Oracle Identity Cloud Service Standard: This licensed edition provides customers with an additional set of Oracle Identity Cloud Service features to integrate with other Oracle

Cloud services, including Oracle Cloud SaaS and PaaS, custom applications hosted on-premises, on Oracle Cloud, or on a third-party cloud, as well as third-party SaaS applications. Features listed in this pricing tier are applicable for both Enterprise users and Consumer users.

Details of the specific features available in each tier and IDCS or OCI IAM Standard Tier licensing model are available in [Administering Oracle Identity Cloud Service](#). Merchandising Cloud Service Suite only requires the Foundation Tier, as the Foundation Tier includes key features such as User and Group Management, Self-Service Profile Management and Password Reset, SSO. However, Oracle Retail customers may wish to consider licensing the Standard Tier of IDCS or OCI IAM to also have access to more advanced identity features including Identity Synchronization with Microsoft Active Directory, SSO for Third Party Cloud Services and Custom Applications, Multi-Factor Authentication and generic SCIM Templates.

IDCS, OCI IAM, and Oracle Retail Enterprise Roles

When any Oracle Retail cloud service is provisioned, Oracle Retail's Enterprise Roles are seeded into the customer's IDCS or OCI IAM instance as Roles. It is expected that customers will also have other roles defined for other cloud services that use this IDCS or OCI IAM instance.

IDCS, OCI IAM, and Application Users

Upon provisioning a new cloud service instance, Oracle Retail creates a single delegate customer administrator user.

The customer administrator user has the ability to define password complexity and rotation rules. All Application User maintenance is performed by Customer Administrators via IDCS or OCI IAM. A key feature of IDCS or OCI IAM is that basic user maintenance can be further delegated via identity self-service.

When application users are created in IDCS or OCI IAM, they must be associated with an appropriate Oracle Retail Enterprise Role to access Merchandising Cloud Service Suite. For more detailed information and procedures, see [Managing Oracle Identity Cloud Service Users](#) in *Administering Oracle Identity Cloud Service*.

 **Note:**

IDCS or OCI IAM username will be passed to Merchandising as the application user id. It will be persisted on the database as part of the basic Merchandising transaction audit trail. If corporate email address is used as the IDCS or OCI IAM username, corporate email address will be persisted to the Merchandising database. To fully inform Merchandising users that their corporate email address will be saved, we recommend that retailers implement IDCS or OCI IAM Terms of Use functionality. The IDCS or OCI IAM Terms of Use feature enables retailers to set the terms and conditions for users to access an application, based on the user's consent. This feature allows the identity domain administrator to set relevant disclaimers for legal or compliance requirements and enforce the terms by refusing the service. The Terms of Use feature can be used to explicitly obtain user consent to persist corporate email address for Merchandising auditing. See [Administering Oracle Identity Cloud Service](#) for more information about Terms of Use.

<https://docs.oracle.com/en/cloud/paas/identity-cloud/uuids/understand-terms-use.html>

Authorization

While IDCS and OCI IAM have some authorization features, as an ADF application, Merchandising Cloud Service Suite manages this type of access functional security using Fusion Middleware's security model. Fusion security supports a role-based, declarative model that employs container-managed security where resources are protected by roles that are assigned to users. Duties and privileges provide a further level of control.

Users are associated with Enterprise Roles in IDCS or OCI IAM. Enterprise Roles are mapped to Duties and Privileges. Default mappings of Enterprise to Duties and Privileges are provided as part of Merchandise Cloud Service provisioning.

Roles

The default configuration includes a number of default roles. This document describes some sample roles for each application in describing the overall security model. For a full set of roles for each Oracle Retail Merchandising Cloud Service, please see the Cloud Service specific Security Guides:

- Merchandising Cloud Services Security Guide Volume 2 - Merchandising and Import Management
- Merchandising Cloud Services Security Guide Volume 2 - Pricing
- Merchandising Cloud Services Security Guide Volume 2 - Sales Audit
- Merchandising Cloud Services Security Guide Volume 2 - Allocation
- Merchandising Cloud Services Security Guide Volume 2 - Invoice Matching

Sample roles include but are not limited

- Application Administrator
- Data Steward
- Buyer

- Inventory Analyst
- Inventory Manager
- Corporate Inventory Control Analyst
- Pricing Analyst
- Allocator

These roles are used in common terminology throughout the business processes defined in the Oracle Retail Reference Model (see MOS Doc ID 2458078.1)

One important thing to note is that there is also a mirrored set of these Enterprise roles with the suffix `_PREPROD` (Data Steward `_PREPROD`, Buyer `_PREPROD`, Inventory Analyst `_PREPROD`, etc) available in IDCS or OCI IAM. This set of `_PREPROD` roles should be used so that users can have different access in non-production vs production systems. For example, it is common for QA employees to have virtually all Enterprise roles, and therefore unlimited access, to non-production systems. However these same QA employees might have limited or no access to production systems.

Duties and Privileges

Within Merchandising Cloud Service Suite, Enterprise Roles are mapped to Duties and Privileges. Privileges are essentially actions that a user can perform. Duties are collections of related privileges.

In Merchandising Cloud Service Suite, role-based security is implemented to control:

- Access to navigational links/tasks in the application. The role associated with the user (for example a Buyer or Inventory Analyst) determines the set of links visible in the task pane.
- Access to various UI widgets in the screens like buttons, menu items, LOVs, Panels and so on. The role determines if the UI widgets are to be shown or hidden and if shown whether they need to be enabled or disabled.
- How the screens will be opened, such as in an edit or view only mode based on the role the user belongs to and the duties and privileges mapped to that role.

Duties are intended to build on one another and work in a hierarchical manner. The example in the table below illustrates how this works using purchase orders as an example. The most basic purchase order duty is Purchase Order Inquiry, which grants the user permission to search and view purchase orders. The next level of access is Purchase Order Management, which grants the user the ability to search and view purchase orders, but also maintain and submit them. The final level of access in this example is Purchase Order Approval, which grants the user the ability to approve orders, in addition to searching, viewing, and maintaining them.

Table 5-1 Duties and Privileges

Duty	Privileges
Purchase Order Inquiry	<ul style="list-style-type: none"> • Search Purchase Orders • View Purchase Orders
Purchase Order Management	<ul style="list-style-type: none"> • All Privileges in Purchase Order Inquiry • Maintain Purchase Orders • Submit Purchase Orders

Table 5-1 (Cont.) Duties and Privileges

Duty	Privileges
Purchase Order Approval	<ul style="list-style-type: none"> All Privileges in Purchase Order Management Approve Purchase Orders

The application specific security guides for each solution in the Merchandising Cloud Service Suite describe the Privileges and Duties for each application. See the following documents for more information.

- Merchandising Cloud Services Security Guide Volume 2 - Merchandising and Import Management
- Merchandising Cloud Services Security Guide Volume 2 - Pricing
- Merchandising Cloud Services Security Guide Volume 2 - Sales Audit
- Merchandising Cloud Services Security Guide Volume 2 - Allocation
- Merchandising Cloud Services Security Guide Volume 2 - Invoice Matching

Administrator users can change the mappings of Enterprise Roles, Duties and Privileges in the Merchandising Cloud Service Suite user interface. Details about how to manage these application security policies are available in Chapter 2, Manage Security Policies in the *Merchandising Cloud Services Administration Guide*.

Data Security/Filtering

Oracle Retail Cloud Service offers an additional optional layer of data filtering. Data filtering in the application UI limits the data end users see by levels in the merchandise and organizational hierarchies.

Note:

Data Filtering is implemented in all Merchandising Cloud Service Suite applications, with the exception of Allocation.

Data level security is configured by assigning users to a data security group within Merchandising Cloud Service Suite. All users within a group would have similar access to a particular section of the merchandise or organizational hierarchy. For example, a group may be defined for a particular division, giving users across Application Roles access to the departments, classes, subclasses, and items in that division.

To implement data security/filtering, Data Security Groups must be defined in Merchandising Cloud Service Suite. These groups are associated with levels of the merchandise and organizational hierarchies. Every application user must also be defined in Merchandising Cloud Service Suite and assigned to Data Security Groups. The processes for defining these groups, hierarchy associations and users is detailed in Chapter 3, Data Security/Filtering in the *Merchandising Cloud Services Administration Guide*.

 **Note:**

Adding these users to Merchandising Cloud Services for data security/filtering purposes is a manual process (via spreadsheet upload). Users are not automatically loaded from IDCS or OCI IAM for data security purposes.

When considering whether to implement data filtering/security, customers should consider the benefits of data filtering and the processes they would need to implement to synchronize Merchandising Cloud Service Suite with IDCS or OCI IAM. As authentication is based on user definition in IDCS or OCI IAM (which includes Enterprise Role), it is possible that a user could authenticate correctly and reach Merchandise Cloud Service and based on the mapping of their Enterprise Role to Application Role, be authorized to access various user interfaces. However, if the data filtering/security is in use, and the user is defined in Merchandising Cloud Service Suite or not associated with a Data Security Group, the user may not see certain types of data in the application.

6

Frequently Asked Questions

This section includes a number of specific questions related to security that are frequently asked by prospects, customers and implementers.

Table 6-1 FAQs

Question	Answer
Does Merchandising Cloud Service Suite support data encryption?	Yes. Sensitive Personal Data is stored in encrypted tablespace. All data is encrypted in transit, Merchandising Cloud Service Suite uses TLS for secure transport of data.
Does Merchandising Cloud Service Suite provide network segregation?	Yes. The Oracle Cloud network is isolated from the Oracle corporate network.
Does Merchandising Cloud Service Suite provide secure backups?	Yes. Backup is a standard process for the Merchandising Cloud Service Suite. Database and application servers backed up both incrementally (daily) and fully (weekly). Backups are stored for at least 60 days.
Does Merchandising Cloud Service Suite provide centralized logging?	Yes. All application and infrastructure logs are forwarded to a centralized Security Information and Event Management system.
Does Merchandising Cloud Service Suite provide antivirus?	Yes. All files uploaded into Merchandising Cloud Service Suite are scanned by anti-virus and anti-malware software. All hosts in the cloud service are regularly patched with the latest critical patch updates.
Does Merchandising Cloud Service Suite provide strong authentication options such as 2-factor, one-time Password?	Multi-Factor Authentication is an option if a customer chooses to license the Standard Tier of IDCS or OCI IAM.
Does Merchandising Cloud Service Suite include a configurable warning banner which is presented upon login?	Terms of Use is an option if a customer chooses to license the Standard Tier of IDCS or OCI IAM. It presents disclaimers and acceptable use policies to users.
Does Merchandising Cloud Service Suite implement access lists to secure each tier of the solution?	Yes. Communication between tiers within Merchandising Cloud Service Suite is limited by subnet ingress security lists.
Does Merchandising Cloud Service Suite include and support the capability to change default account passwords?	All user password management occurs in IDCS or OCI IAM.
Does Merchandising Cloud Service Suite support Roles with defined access levels?	Yes. Oracle Retail Enterprise roles span Oracle Retail applications. Within Merchandising Cloud Service Suite, privileges and duties can be assigned to roles to define what is accessible to certain types of users.
Does Merchandising Cloud Service Suite support synchronizing with an external time source?	All hosts within the solution are synchronized to the same time source.

Table 6-1 (Cont.) FAQs

Question	Answer
Does Merchandising Cloud Service Suite provide strong password options such as complexity, history, aging, account lockout.	IDCS or OCI IAM provides robust password policy management functionality. When a user creates a password, IDCS or OCI IAM validates the password against the password policies. More information about password policies is available at https://docs.oracle.com/en/cloud/paas/identity-cloud/uaid/manage-oracle-identity-cloud-service-password-policies1.html