

# Oracle® Retail EFTLink

## Rest API Guide



Release 22.0

F74406-01

January 2023

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

ORACLE®

Oracle Retail EFTLink Rest API Guide, Release 22.0

F74406-01

Copyright © 2023, Oracle and/or its affiliates.

Primary Author: Tracy Gunston

Contributors: Matthew Preston, Ian Williams

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, software documentation, data (as defined in the Federal Acquisition Regulation), 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," "commercial computer software documentation," or "limited rights data" 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	v
Related Documents	v
Customer Support	v
Review Patch Documentation	vi
Improved Process for Oracle Retail Documentation Corrections	vi
Oracle Retail Documentation at the Oracle Help Center	vi
Conventions	vi

## 1 Overview

---

## 2 Installation

---

Prerequisites	2-1
Java	2-1
Installing EFTLink Rest API	2-1
Setting up Jetty for SSL Communication	2-1
Creating a Key Store File with Self-Signed Certificate	2-2
Obfuscating Text using Jetty	2-2
Installing as a Service	2-3
Windows Configuration	2-3
Linux Configuration	2-3
Self-Signed Certificate Trust	2-4

# Send Us Your Comments

Oracle Retail EFTLink Rest-API Guide, Release 22.0

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 Help Center (OHC) website ([docs.oracle.com](https://docs.oracle.com)). 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](mailto: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 website at <http://www.oracle.com>.

# Preface

The *Oracle Retail EFTLink Rest API Guide* provides an overview and how to install EFTLink Rest API.

## Audience

This Installation Guide is for the following audiences:

- System administrators and operations personnel
- Database administrators
- System analysts and programmers
- Integrators and implementation staff personnel

## Related Documents

For more information, see the following documents in the Release 22.0 documentation set:

- *Oracle Retail EFTLink Release Notes*
- *Oracle Retail EFTLink Core Configuration Guide*
- *Oracle Retail EFTLink Framework Advanced Features Guide*
- *Oracle Retail EFTLink Framework Installation and Configuration Guide*
- *Oracle Retail EFTLink Security Guide*
- *Oracle Retail EFTLink Xstore Compatibility Guide*
- *Oracle Retail EFTLink Validated Partners Guide*
- *Oracle Retail EFTLink Validated OPI Partners Guide*

## 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

## Review Patch Documentation

When you install the application for the first time, you install either a base release (for example, 22.0) or a later patch release (for example, 22.0.x). If you are installing the base release, additional patch, and bundled hot fix releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch and bundled hot fix releases can contain critical information related to the base release, as well as information about code changes since the base release.

## 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 at the Oracle Help Center (OHC) website ([docs.oracle.com](https://docs.oracle.com)), 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 at the Oracle Help Center at the following URL:

<https://docs.oracle.com/en/industries/retail/index.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 F123456-02 is an updated version of a document with part number F123456-01.

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

## Oracle Retail Documentation at the Oracle Help Center

Oracle Retail product documentation is available on the following website:

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

(Data Model documents are not available through Oracle Help Center. You can obtain them through My Oracle Support.)

## Conventions

The following text conventions are used in this document:

<b>Convention</b>	<b>Meaning</b>
<b>boldface</b>	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

## Overview

This chapter provides an overview to Rest API.

The purpose of the REST API is for mobile or web based clients that need to communicate to EFTLink.

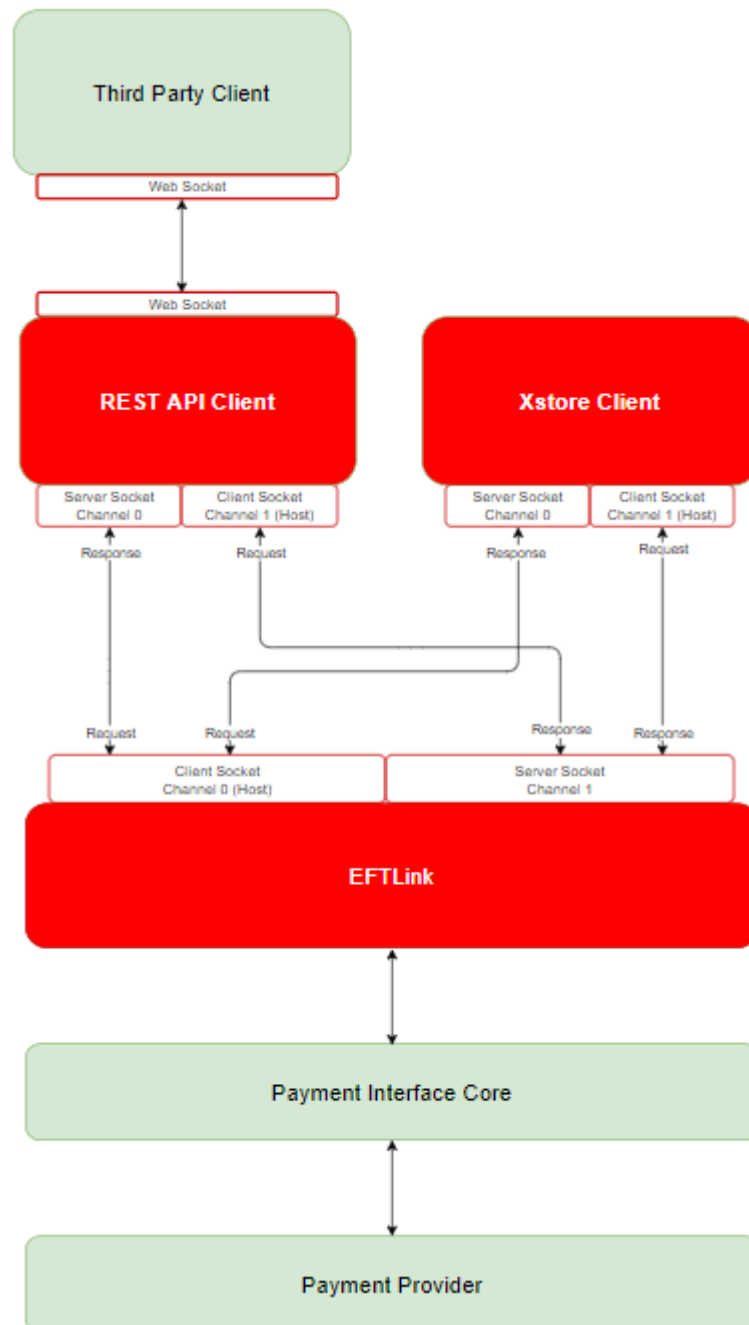
These clients, unlike Xstore or Xstore mobile cannot reference the eftlink.jar library. Therefore, they cannot use the existing socket API that is in EFTLink.

Rest API uses the web socket protocol in order to support full duplex communication. The client is responsible of handling the device requests coming in from EFTLink while processing a payment request.

Rest API is included as part of EFTLink and can be setup to run as a service using Tanuki wrapper. This is the recommended way.



Figure 1-1 Rest API Overview



# 2

## Installation

This chapter describes the installation of Rest API and covers the following topics:

- [Prerequisites](#)
- [Installing EFTLink Rest API](#)

### Prerequisites

This section assumes you have already configured EFTLink following the instructions set out in the *Oracle Retail EFTLink Framework Installation and Configuration Guide*.

### Java

EFTLink Rest API will run with any version of Java from 1.8.

The Rest API by default expects Java jre to exist in the folder location `C:\jre` (on Windows) or `/opt/jre` (on a Linux kernel). To change the default location of java you will need to update either `include-efmlink-rest-api-windows.conf` or `include-efmlink-rest-api-linux.conf` which are located in `<installation directory>\wrapper\conf`.

### Installing EFTLink Rest API



#### Note:

All files necessary, are already in place so long as you have completed the instructions set out in the *Oracle Retail EFTLink Framework Installation and Configuration Guide*.

- [Setting up Jetty for SSL Communication](#)
- [Creating a Key Store File with Self-Signed Certificate](#)
- [Obfuscating Text using Jetty](#)
- [Installing as a Service](#)
- [Self-Signed Certificate Trust](#)

### Setting up Jetty for SSL Communication

- Out of the box, the Rest API will only allow SSL communication. However, you are required to setup a key store that includes a server certificate.
- The certificate can be either a self-signed (for internal testing use only) or signed by known third party Certificate Authority (CA) vendor like Verisign.

- See [Creating a Key Store File with Self-Signed Certificate](#) details below on how to create a self-signed certificate.
- Once the `eftlink-rest-api` "keystore" file has been created, you will need to obfuscate the password (See [Obfuscating Text using Jetty](#) section below).
- Once you have the obfuscated password, open the `jetty.xml` file located in the root of the `eftlink` installation directory.
- Replace the text **ObfuscatedPasswordHere** with your obfuscated password.

For example,

```
<New id="sslContextFactory"
class="org.eclipse.jetty.util.ssl.SslContextFactory">
...
<Set name="KeyStorePassword">ObfuscatedPasswordHere</Set>
<Set name="KeyManagerPassword">ObfuscatedPasswordHere</Set>
<Set name="TrustStorePassword">ObfuscatedPasswordHere</Set>
...
</New>
```

## Creating a Key Store File with Self-Signed Certificate

1. Open a command terminal.
2. Navigate to `C:\eftlink\keys` or any other directory.
3. Execute the command below. The command will ask of your first and last name (Common Name or CN).

Enter the machine name or localhost. Populate the other details. The alias below, "`<alias name>`" need to be replaced and can be anything.

The sample password below is "`<password>`". You can use any password you desire for your key store and certificate. Just take note of them as we need to obfuscate them later.

The command will produce the key store file, `eftlink-rest-api.keystore` on the current directory.

```
C:\jre\bin\keytool -genkey -keyalg RSA -alias <alias name> -keystore
eftlink-rest-api.keystore -storepass <password> -validity 360 -keysize
2048
```

4. The output file needs to be copied in `C:\eftlink\keys` if it's not there yet. Create the keys directory if needed.

## Obfuscating Text using Jetty

1. Assuming that EFTLink is already installed at `C:\eftlink`, open a command terminal and navigate to `C:\eftlink\lib`.
2. Execute the command below. The parameter 'Password' is your desired password to obfuscate.

If Jetty is upgraded in the future, replace the filename(`jetty-util-9.4.27.v20200227.jar`) below.

```
java -cp jetty-util-9.4.27.v20200227.jar org.eclipse.jetty.util.security.Password Password
```

3. Sample output below. We are interested with the OBF version.

```
Password
```

```
OBF:1eam1lmn1hv41ink1uh21ugo1iku1hse1lj31e8w
```

```
MD5:2d6df80067293fb807d8adc12fa17650
```

## Installing as a Service

This section describes how to install EFTLink Rest API as a service.

## Windows Configuration

It is possible to install EFTLink Rest API as a windows service, using a third-party wrapper. EFTLink is distributed with a version of Tanuki Software Limited Java Service Wrapper.

Follow the steps below on how to configure EFTLink to run as a Windows service.

1. Installing the Service.
  - a. From a command line (with administrative privileges) change to the root directory for EFTLink. For example, type `cd /eftlink`.
  - b. To install EFTLink Rest API as a window service, type `eftlink-rest-api install`.

If there are problems during install, it is possible to remove the service by typing `eftlink-rest-api remove`. This may be necessary if the service is previously installed in a different folder. The service may then be reinstalled at the correct location by entering `eftlink-rest-api install`.

- c. Once installed the service can be started and stopped from a command line:

```
Eftlink-rest-api start
```

```
Eftlink-rest-api stop
```

The service can also be controlled from the Windows Services Control Panel applet (Rest API).

2. Examine the log file **Wrapper.log**.
  - a. The log file can be found in the designated EFTLink folder\log\eftlink-rest-api\_wrapper.log
  - b. Installing, starting the service, stopping the service, and uninstalling the service are all briefly logged in wrapper.log, and this can be used to diagnose any problems.

## Linux Configuration

It is possible to run EFTLink-rest-api as a service, using a third-party wrapper. EFTLink-rest-api is distributed with a version of Tanuki Software Limited Java Service Wrapper.



**Note:**

You may be required to give script file(s) execution rights. This can be accomplished by opening a terminal window and typing:

```
sudo chmod +x <PathToFile>
```

for example, `sudo chmod +x /opt/eftlink/eftlink-rest-api.sh`

Follow the steps below on how to configure EFTLink to run as a service.

1. Running EFTLink-rest-api.
  - a. From a terminal change to the directory for EFTLink.  
For example, type `cd /opt/eftlink`.
  - b. To run EFTLink-rest-api as a service from a terminal type the following command `sudo./eftlink-rest-api.sh start`.
  - c. To stop, check the status or to restart EFTLink-rest-api from a terminal, type one of the following commands: `sudo./eftlink-rest-api.sh stop` `sudo./eftlink-rest-api.sh status` `sudo./eftlink-rest-api.sh restart` `sudo./eftlink-rest-api.sh condrestart`
2. Examine the log file **Wrapper.log**.
  - a. The log file can be found in the designated EFTLink folder `log\eftlink-rest-api_wrapper.log`
  - b. Starting the service and stopping the service are all briefly logged in `wrapper.log`, and this can be used to diagnose any problems.

## Self-Signed Certificate Trust

To trust the self-signed certificate in your browser:

1. Open your browser (for example, Google Chrome).
2. Ensure the REST API is running.
3. Navigate to `https://localhost:8443/`.
4. The browser will warn you that your connection is not private. Click on **Advance**.
5. Click **Proceed to localhost (unsafe)**.
6. Disregard the 404 not found error.

Your browser is now ready to talk to the REST API using the `client.html` or `custom_form.html` file.