

**Oracle® Payment Interface**  
Security Guide  
Release 6.1  
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# Preface

This document provides security reference and guidance for the Oracle Payment Interface (OPI).

## Audience

This document is intended for:

- System administrators installing the Oracle Payment Interface
- End users

## 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 and any associated log files
- Screenshots of each step you take

## Documentation

Oracle Hospitality product documentation is available on the Oracle Help Center at the following URL: <http://docs.oracle.com/en/industries/hospitality/>

## Revision History

| Date           | Description of Change        |
|----------------|------------------------------|
| September 2016 | Initial publication          |
| December 2016  | Updated RES 3700 5.0         |
| June 2017      | Updated architecture diagram |

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# 1 Oracle Payment Interface Security Overview

This chapter provides an overview of the Oracle Payment Interface security and explains the general principles of application security.

## Basic Security Considerations

The following principles are fundamental to using any application securely:

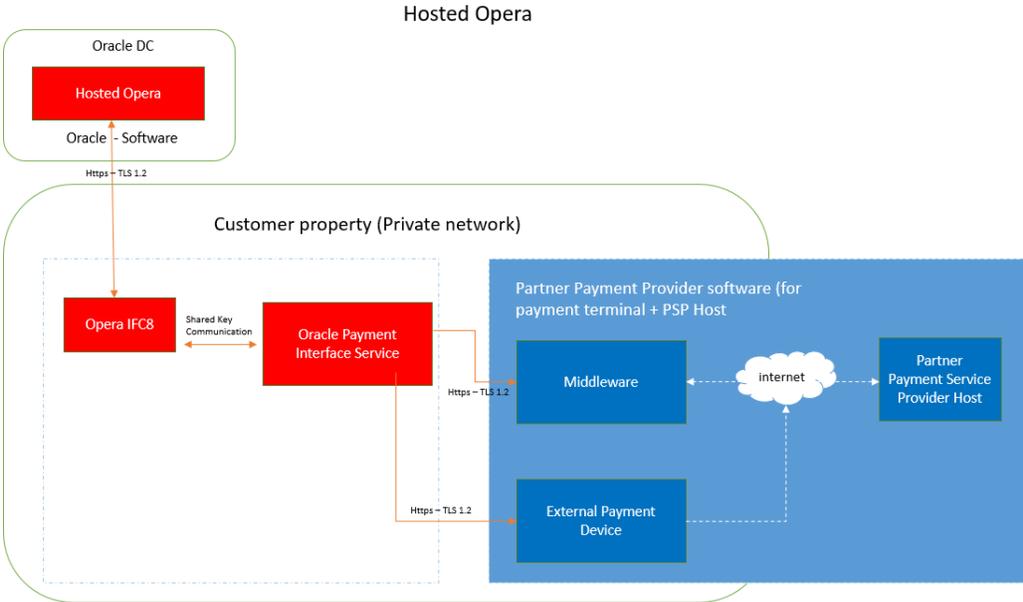
- **Keep software up to date.** This includes the latest product release and any patches that apply.
- **Limit privileges as much as possible.** Users should be given only the access necessary to perform their work. User privileges should be reviewed periodically to determine relevance to current work requirements.
- **Monitor system activity.** Establish who should access which system components, and how often, and monitor those components.
- **Install software securely.** For example, use firewalls, secure protocols using TLS (SSL), and secure passwords.
- **Learn about and use the Oracle Payment Interface security features.** See *Implementing Oracle Payment Interface Security* for more information.
- **Use secure development practices.** For example, take advantage of existing database security functionality instead of creating your own application security.
- **Keep up to date on security information.** Oracle regularly issues security-related patch updates and security alerts. You must install all security patches as soon as possible. The *Critical Patch Updates and Security Alerts* website contains more information at the following URL:  
<http://www.oracle.com/technetwork/topics/security/alerts-086861.html>

## Oracle Payment Interface Security Overview

The Oracle Payment Interface (OPI) integrates with the Point-of-Sale (POS) and the Property Management Systems (PMS) to manage the connections with third-party payment service providers (PSP) and payment processors. It is an interface bridging POS/PMS and processors/partner PSP. It shields POS/PMS from credit card processing details and from details of interfacing with different payment terminals and processors/3rd party payment service providers. It is a semi-integrated solution that can reduce and remove POS/PMS out of PCI. It also provides a common platform that facilitates the adoption of new payment technologies/solutions.

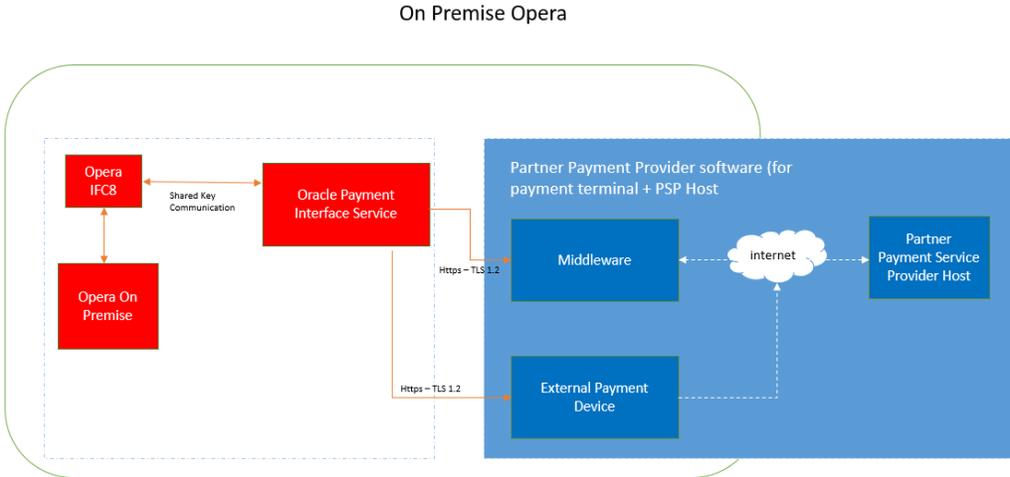
The Oracle Payment Interface deploys on-premise with the POS and PMS client to transfer transaction data between the POS, PMS, and third-party payment service provider (PSP) hosts and terminals.

The following diagrams show how OPI bridges between POS/Opera and 3rd party PSPs for credit card processing.



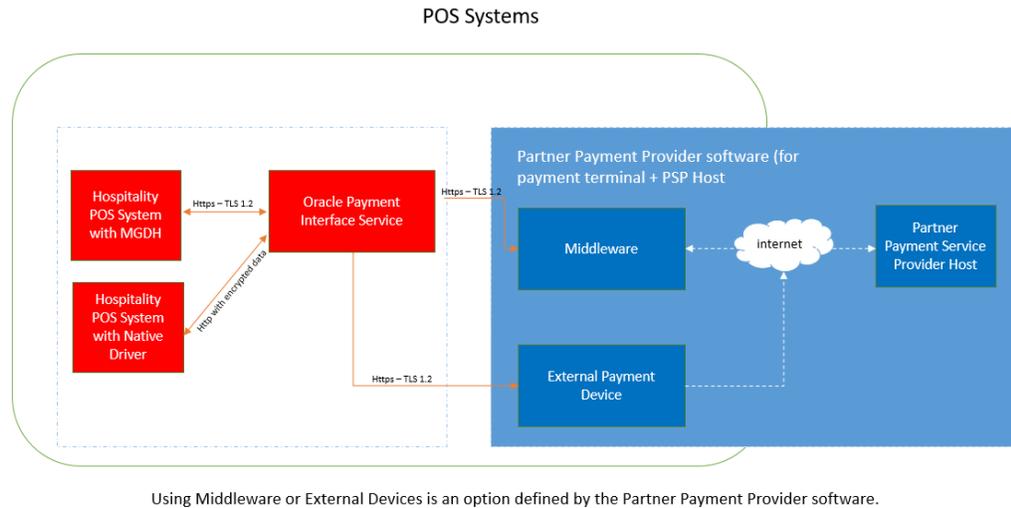
Using Middleware or External Devices is an option defined by the Partner Payment Provider software.

**Figure 1 – Hosted Opera Integrates with OPI and PSP**



Using Middleware or External Devices is an option defined by the Partner Payment Provider software.

**Figure 2 – On Premise Opera Integrates with OPI and PSP**



**Figure 3 – POS Integrates with OPI and PSP**

## Establishing Secure Connections

The Property Management System (PMS) Hosted or On Premise both use IFC8 to connect with OPI. IFC8 provides a shared key protected mechanism to secure the connection.

POS has two ways to connect to OPI depending on what type of interface between POS and OPI. POS systems with MGDH use HTTPS with TLS 1.2 to connect to OPI and POS with native driver use HTTP with encrypted data to connect to OPI.

OPI use HTTPS with TLS 1.2 to connect to PSP.

## Recommended Deployment Configurations

The Oracle Payment Interface (OPI) deploys on-premise with the POS and the PMS. The Oracle Payment Interface service deploys as a Microsoft Windows Service and listens to a configurable port for requests. The system administrator can use the OPI Configurator, a windows application to configure the Oracle Payment Interface Service. The Oracle Payment Interface service uses Java KeyStore to save the communication certificates. You can configure the Java KeyStore password when installing the Oracle Payment Interface.

## Component Security

### Oracle Database Security

The *Oracle Database Security Guide* contains more information about the security best practices.

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## 2 Installing a Secure Oracle Payment Interface

This chapter describes how to plan for installing the Oracle Payment Interface. The *Oracle Hospitality Oracle Payment Interface Installation Guide* contains more information.

### Configuring for the Installation

Before you install the Oracle Payment Interface, you must complete the following tasks:

- Apply critical security patches to the operating system.
- Apply critical security patches to the database server application.
- If MySQL previously installed, you must confirm the root case sensitive password follows the Oracle GIS Guidelines and contains:
  - 8 characters
  - 1 letter
  - 1 number
  - 1 special character !@#\$\$%^&\*
- Configure the Microsoft Windows system administrator account case sensitive password following the Oracle GIS Guidelines and contains:
  - 8 characters
  - 1 letter
  - 1 number
  - 1 special character !@#\$\$%^&\*
- Confirm the memory size contains at least 1024 MB of free space.
- Confirm the hard drive disk space contains at least 6 GB of free space.
- Install the latest version of Microsoft .Net Framework. You must install Microsoft .Net Framework release 4.0.30319 or higher.
- If the Oracle Payment Interface installed and uninstalled previously, you must rename or remove the following `C:\programData\MySQL`

### Installing the Oracle Payment Interface

The Oracle *Payment Interface Installation Guide* contains more information.

### Installing the MySQL Database

If MySQL was not previously installed, running the Oracle Payment Interface Service Installer installs the MySQL 5.6 database and provides the option to enter a password for the MySQL root user. The password must follow the Oracle GIS guidelines. The Oracle Payment Interface Service Installer creates a MySQL database user for the service to make updates to the database. The installer prompts you for the user name and password for Oracle Payment Interface. These credentials save the transaction data to the database. This password must follow the Oracle GIS guidelines.

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## Configuring the Connection

Use the native driver to connect to the Oracle Payment Interface when possible.

When integrating with the Oracle Hospitality POS with the native driver, the Oracle Payment Interface Service Installer requests a POS Key or passphrase to authenticate the POS connection request from the native POS driver. This passphrase must contain at least 15 characters with at least one alphabet, one special character, and one number character.

The following Oracle Hospitality POS systems support connecting using a native driver:

- Symphony release 2.9 or higher
- RES 3700 release 5.5 MR1 or higher

When connecting to the Oracle Hospitality POS with an MGDH connection, during the installation process you must configure a POS certificate password when setting up a property. The POS certificate password must follow the Oracle GIS guidelines. The following systems connect using an MGDH connection.

- Symphony release 2.7 MR4 or higher
- Symphony First Edition release 1.6 MR6 or higher
- RES 3700 release 5.0 or higher
- 9700 Point-of-Sale release 4.0 or higher

When connection to PMS, during the installation process, you must create a key to secure the communication to IFC8. The key needs to input in PMS IFC8 configuration too. The following Oracle Hospitality PMS systems support connecting to the Oracle Payment Interface:

- Oracle Hospitality OPERA Property Management release 5.5.0.11 or higher
- Oracle Hospitality OPERA Cloud release 1.21 or higher

## Post-Installation Configuration

This section describes additional security configuration steps to complete after you install the Oracle Payment Interface.

### Applying Software Patches

Apply the latest Oracle Payment Interface patches available on My Oracle Support. Follow the installation instructions included with the patch.

### Configuring the Oracle Payment Interface Service

During the installation, the Oracle Payment Interface Configuration Wizard launches to configure the Oracle Payment Interface Service. You can access the Configuration Wizard manually to add or update connections after the installation. Please refer to Oracle Payment Interface Installer Guide for the detailed steps.

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## Rotating the Keys protecting communications

System administrators must update the password and rotate the POS Key frequently by following the PCI Guidelines for rotating encryption keys.

To rotate the POS key for POS with native driver:

1. On the OPI installation directory, go to the Bin directory.
2. Run the `nwregistry.exe` file.
3. Update the key from POS side

To rotate the shared security key for PMS IFC8,

1. Run configuration wizard to recreate the key
2. Update PMS IFC8 configuration to have the new key.

## Changing Database Passwords

The Oracle Payment Interface Service Installer creates a database user. You must change this password frequently. Use the MySQL command line to update the database password.

## Purging Data

Audit data, logs, and transaction records save to database. Purge data according to the merchant's contract policy.

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## 3 Implementing Oracle Payment Interface Security

### Oracle Payment Interface Service Security

#### Managing Users

To log in to the Oracle Payment Interface Configuration Tool and the Wizard, use the Microsoft Windows System Administrator account credentials. Make sure the password follows the Oracle GIS guidelines.

#### Authenticating the Service

Authentication means verifying the identity of a user, device, or other entity who wants to use data, resources, or applications. Validating that identity establishes a trust relationship for future interactions and applies to the entity accessing the service and to the entity providing the service.

In this release, the native POS driver communicates from the POS to Oracle Payment Interface using a shared passphrase to generate a Server Key encrypting the communication between client and server. Only the server/client which has the shared passphrase configured is an authenticated server/client.

PMS IFC8 communication channel uses shared key to authenticate server and client.

#### Audit Trail Logging

When a Microsoft Windows System Administrator makes changes to the Oracle Payment Interface settings, the changes save in the database. Using the Oracle Payment Interface AuditLog Tool the Microsoft Windows System Administrator can review, filter, and purge the audit log records. For security, no audit log information shows in the debug log files.

#### Purging Audit Trail Data

The audit records save in the database for minimum 90 days. You can manually purge the records older than 90 days using the AuditLog tool.

To purge Audit records:

1. Log in to AuditLog Tool using your Microsoft Windows System Administrator account.
2. Select the **Start date** and **End Date** to view the audit record.
3. Select the **View** option to view the records from the date range defined.
4. Select the **Purge** option to purge the Audit records.

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# Appendix A Secure Deployment Checklist

This appendix lists best practices to create a secure system.

The following security checklist includes guidelines that help secure your database:

- Install only what is required.
- Enforce password management.
- Practice the principle of least privilege.
  - Grant necessary privileges only.
  - Revoke unnecessary privileges from the PUBLIC user group.
  - Restrict permissions on run-time facilities.
- Restrict network access.
- Apply all security patches and workarounds.
  - Use a firewall.
  - Never poke a hole through a firewall.
  - Protect the Oracle listener.
  - Monitor listener activity.
  - Monitor who accesses your systems.
  - Check network IP addresses.