

# Oracle® Banking Payments

## Multi-byte Character Support



Release 14.8.0.0.0  
G32389-01  
April 2025

ORACLE®

Oracle Banking Payments Multi-byte Character Support, Release 14.8.0.0.0

G32389-01

Copyright © 2017, 2025, Oracle and/or its affiliates.

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, MySQL, and NetSuite 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

|     |                             |     |
|-----|-----------------------------|-----|
| 1   | Preface                     |     |
| 1.1 | Purpose                     | 1-1 |
| 1.2 | Audience                    | 1-1 |
| 1.3 | Documentation Accessibility | 1-1 |
| 1.4 | Critical Patches            | 1-1 |
| 1.5 | Diversity and Inclusion     | 1-2 |
| 1.6 | Conventions                 | 1-2 |
| 2   | Introduction                |     |
| 2.1 | Background                  | 2-1 |
| 2.2 | Approach                    | 2-1 |

# 1

## Preface

- [Purpose](#)
- [Audience](#)  
This manual is intended for the following User/User Roles:
- [Documentation Accessibility](#)
- [Critical Patches](#)
- [Diversity and Inclusion](#)
- [Conventions](#)

### 1.1 Purpose

This guide is designed to help acquaint you with the Oracle Banking Payments application. This guide provides answers to specific features and procedures that the user need to be aware of the module to function successfully.

### 1.2 Audience

This manual is intended for the following User/User Roles:

**Table 1-1 User Roles**

| Role                      | Function                                     |
|---------------------------|--|
| Implementation & IT Staff | Implementation & Maintenance of the Software |

### 1.3 [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.

### 1.4 Critical Patches

Oracle advises customers to get all their security vulnerability information from the Oracle Critical Patch Update Advisory, which is available at [Critical Patches, Security Alerts and Bulletins](#). All critical patches should be applied in a timely manner to make sure effective security, as strongly recommended by [Oracle Software Security Assurance](#).

## 1.5 Diversity and Inclusion

Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

## 1.6 Conventions

The following text conventions are used in this document:

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

# 2

## Introduction

Oracle Banking Payments Solution supports multi-byte characters by means of setting session-level character length semantics during Payments installation using the `NLS_LENGTH_SEMANTICS` parameter of Oracle Database. Most of the application code is written without explicit length semantics (BYTE or CHAR) and, hence, adapts to the session-level semantics during compilation at the time of Payments installation.

- [Background](#)
- [Approach](#)

### 2.1 Background

`NLS_LENGTH_SEMANTICS` parameter allows you to specify the length of a column datatype/PLSQL variable in terms of characters (CHAR) instead of the default BYTE. Typically, you would need this if you were to deal with (in PL/SQL code) and store data that contains multi-byte characters such as Japanese or Mandarin characters.

Oracle strongly recommends that you do not set `NLS_LENGTH_SEMANTICS` parameter on instance level (i.e. in the server parameter file) but only use it to alter session-level semantics as necessary. From MOS note 144808.1:

“Oracle advises to use explicit CHAR semantics in the SQL or PL/SQL syntax OR To make sure your application does an "ALTER SESSION SET `NLS_LENGTH_SEMANTICS=CHAR`;" when connecting if CHAR semantics is required but the semantic is not defined explicit in SQL.”

Based on this note and other available documentation for the parameter, we recommend an approach in the next section which should be followed in sites where multi-byte character support is required.

**Figure 2-1 STOP**



SR with oracle mentioned below is feasible. (SR 3-16364463401)

### 2.2 Approach

In situations where PL/SQL code would interact with multi-byte character data and the same kind of data would be stored in Payments tables, follow below approach:

Please note the approach is suggested for 12c Database version only.

1. Complete the database installation and set up as per the Oracle Banking Payments Database Best Practices for your Payments release.
2. Immediately after creating the Payments application user (schema), create a logon trigger as the SYS user to alter each new session so that the session-level length semantics are

maintained as CHAR for the user at all times. For example, if the schema name was PAYMENTS and the trigger was named "PAYMENTS\_LOGON", the trigger would look like: CREATE OR REPLACE TRIGGER SYS.PAYMENTS\_LOGON AFTER LOGON ON PAYMENTS.SCHEMA BEGIN EXECUTE IMMEDIATE 'alter session set nls\_length\_semantics=CHAR'; END;/

3. Proceed with the rest of the Payments installation as per the installation documents. In situations where an operation results in Payments objects being invalidated, make sure the objects are re-compiled either:
  4. by the PAYMENTS schema user using one of the following options:
    - Manually using ALTER... COMPILE statements
    - SYS.UTL\_RECOMP.RECOMP\_PARALLEL procedure
    - SYS.UTL\_RECOMP.RECOMP\_SERIAL procedure
- Or,
5. by a user with appropriate privileges on SYS.UTL\_RECOMP package (such as the SYS user) using one of the following options only:
    - SYS.UTL\_RECOMP.RECOMP\_PARALLEL procedure
    - SYS.UTL\_RECOMP.RECOMP\_SERIAL procedure

Oracle Banking Payments strongly advises against manually compiling PAYMENTS schema objects (using ALTER...COMPILE) as a non-Payments application user when length semantics of CHAR are being enforced. Such an attempt may change the NLS\_LENGTH\_SEMANTICS parameter setting of the PL/SQL objects to BYTE and this may result in runtime exceptions within the application, such as: "ORA-06502- PL/SQL: numeric or value error: character string buffer too small".

## Figure 2-2 STOP



If the PAYMENTS schema is ever re-compiled using SYS.DBMS\_UTILITY.COMPILE\_SCHEMA in an environment that is using CHAR semantics, then it must be ensured that for the user executing the procedure, the session-level NLS\_LENGTH\_SEMANTICS parameter is set to CHAR. This is because while SYS.UTL\_RECOMP.x procedures re-use existing PL/SQL object settings, SYS.DBMS\_UTILITY.COMPILE\_SCHEMA compiles the objects with the NLS settings of the invoking user's session and may alter the PL/SQL object settings of the objects (including length semantics).