Multi-byte Character Support
Oracle Banking Treasury Management

Release 14.5.4.0.0
Part No. F53253-01
[February] [2022]

ORACLE®
FINANCIAL SERVICES

Contents

ORACLE

1. Introduction

Oracle Banking Treasury Management supports multi-byte characters by means of setting session-level character length semantics during OBTR 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 OBTR installation.

1.1 <u>Background</u>

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 advices 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.

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

1.2 <u>Approach</u>

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

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

1. Complete the database installation and set up as per the Oracle OBTR Database Best Practices for your OBTR release.

2. Immediately after creating the OBTR 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 were OBTR and the trigger was named "FCUSER_LOGON", the trigger would look like:
    CREATE OR REPLACE TRIGGER SYS.FCUSER_LOGON
    AFTER LOGON ON OBTR.SCHEMA
    BEGIN
    EXECUTE IMMEDIATE 'alter session set nls_length_semantics=CHAR';
    END;

ORACLE

/

3. Proceed with the rest of the OBTR installation as per the installation documents.

In situations where an operation results in OBTR objects being invalidated, make sure the objects are re-compiled either:

1. By the OBTR schema user using one of the following options:

   a. Manually using ALTER… COMPILE statements
   b. SYS.UTL_RECOMP.RECOMP_PARALLEL procedure
   c. SYS.UTL_RECOMP.RECOMP_SERIAL procedure

Or,

2. By a user with appropriate privileges on SYS.UTL_RECOMP package (such as the SYS user) *using one of the following options only*:

   a. SYS.UTL_RECOMP.RECOMP_PARALLEL procedure
   b. SYS.UTL_RECOMP.RECOMP_SERIAL procedure

Oracle OBTR strongly advises against manually compiling OBTR schema objects (using ALTER…COMPILE) as a non-OBTR 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*"*.

Note:

If the OBTR 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).

ORACLE

ORACLE®

Multi-byte Character Support

[February] [2022]

Version 14.5.4.0.0

Oracle Financial Services Software Limited
Oracle Park
Off Western Express Highway
Goregaon (East)
Mumbai, Maharashtra 400 063
India

Worldwide Inquiries:
Phone: +91 22 6718 3000
Fax:+91 22 6718 3001
www.oracle.com/financialservices/