Oracle® Tuxedo

Release Notes

12*c* Release 2 (12.1.3)

April 2014

ORACLE

Oracle Tuxedo Release Notes, 12*c* Release 2 (12.1.3)

Copyright © 1996, 2014, Oracle and/or its affiliates. All rights reserved.

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, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. 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 and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

This software or hardware and documentation may provide access to or information on 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. 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.

Contents

Oracle Tuxedo 12*c* Release 2 (12.1.3) Release Notes

Oracle Tuxedo 12*c* Release 2 (12.1.3) Release Notes

Date: April 2014

Table 1 Revision History

Revision Date	Summary of Change
March 2015	12c Release 1 (12.1.3) Rolling Patch 017
April 2014	12c Release 1 (12.1.3) GA

This document contains release notes for the Oracle Tuxedo 12*c* Release 2 (12.1.3). It includes the following topics:

About This Oracle Tuxedo Release

What's New and Improved

Oracle Tuxedo 12*c* Release 2 (12.1.3) includes the following new major features and enhancements:

Optimizations for Oracle Exalogic/SPARC SuperCluster

- XA Affinity for Transactions
- Common XID
- Single Group Multiple Branches (SGMB)
- FAN Integration
- Direct Cross Domain Communication Leveraging RDMA
- Other Optimizations

For more information, see Oracle Tuxedo/Oracle Exalogic Users Guide.

XA Affinity for Transactions

XA affinity provides the ability to route all database requests within one global transaction to the same Oracle RAC instance; no matter if the requests come from an Oracle Tuxedo application server or Oracle WebLogic Server. This feature can reduce the cost of redirecting database requests to a new Oracle RAC instance, and thus can improve overall application performance.

For more information, see Using Tuxedo with Oracle Real Application Clusters (RAC).

Common XID

With the common XID (transaction branch identifier) feature in this release, Tuxedo shares the XID of the coordinator group with all other groups within the same global transaction. This is as opposed to each group having its own XID and thus requiring two-phase commit in earlier releases if multiple groups are participating.

Common XID eliminates the need to XA commit operations for groups that connect to the same Oracle RAC instance through the same service by using the coordinator branch directly.

In other cases, where all groups in a global transaction use the coordinator branch directly, one-phase commit protocol is used instead of two-phase commit protocol, and thus avoid writing to `TLOG`.

For more information, see Using Tuxedo with Oracle Real Application Clusters (RAC).

Single Group Multiple Branches (SGMB)

This feature eliminates the need to use singleton RAC service when multiple servers in a server group participate in the same global transaction. If servers in the same server group and same

global transaction happen to connect to different RAC instances, a different transaction branch is used. This enables such applications to perform load balancing across available RAC instances.

For more information, see Using Tuxedo with Oracle Real Application Clusters (RAC).

FAN Integration

FAN (Fast Application Notifications) are events published by Oracle RAC to indicate configuration changes. A system server, `TMFAN`, is introduced to monitor FAN events and automatically reconfigure Tuxedo server connection to the appropriate Oracle RAC instance for planned DOWN events, UP events, LBA (Load Balancing Advisor) notifications, etc.

For more information, see Using Tuxedo with Oracle Real Application Clusters (RAC).

Direct Cross Domain Communication Leveraging RDMA

This feature enables application in an Oracle Tuxedo domain to directly communicate with another application in another domain using RDMA technology on Exalogic. Applications can directly access IPC queues of remote applications removing `GWTDOMAIN` as a potential bottleneck, thus reducing the latency and improving throughput and scalability.

For more information, see Direct Cross-Domain Communication Leveraging RDMA on Exalogic.

Other Optimizations

The following optimizations are supported on both Linux platforms on Oracle Exalogic and Solaris platforms on SPARC SuperCluster.

- Self-Tuning Lock Mechanism
- Oracle Tuxedo SDP Support
- Use of Shared Memory for Inter Process Communication
- Read-Only Optimization for XA
- Shared Applications Staging
- Tightly Coupled Transaction Branches Crossing Domain

TLOG Information to Oracle Database

This feature enables creation of `TLOG` in Oracle Database. This feature is now available on all platforms supported in Oracle Tuxedo 12*c* Release 2 (12.1.3).

For more information, see About Transactions in Setting Up an Oracle Tuxedo Application in the Oracle Tuxedo Users Guide, File Formats, Data Descriptions, MIBs, and System Processes Reference and Command Reference in the Oracle Tuxedo Reference Guide.

Diagnostic Tool

Diagnostic tool provides a convenient way for system administrators to collect Oracle Tuxedo system runtime information and store it locally. You can choose to provide this information to Oracle support as this information can be very helpful to Oracle support engineers in analyzing Oracle Tuxedo system issues, especially for issues that can only be reproduced in production environments.

For more information, see About Oracle Tuxedo Diagnostic Tool.

Enhancements for tpacall()

Oracle Tuxedo increases the maximum number of outstanding `tpacall()` to 2048, making it possible to invoke more `tpacall()` before `tpgetrply()`.

Oracle Entitlements Server (OES) Integration

Oracle Tuxedo integrates with Oracle Entitlements Server (OES), allowing organizations to protect resources by defining and managing policies that control access to/usage of these resources.

For more information, see File Formats, Data Descriptions, MIBs, and System Processes Reference and ATMI C Function Reference in the Oracle Tuxedo Reference Guide, and How to Enable Security Service for OES.

Oracle Tuxedo Plug-in for Oracle Virtual Assembly Builder

Oracle Tuxedo Plug-in for Oracle Virtual Assembly Builder supports Oracle Tuxedo Application Runtime for IMS and the following Oracle VM Server in this release:

- Oracle VM Server for x86
- Oracle VM Server for Exalogic

For more information, see Oracle Tuxedo Plug-in for Oracle Virtual Assembly Builder.

Generating a Java Application with the eGen Application Generator

The eGen utility maps a COBOL copybook into a Java class. The specified COBOL copybook is parsed a Java source file is generated. This utility can also create corresponding DTD and XML schema if XML support is needed. The generated artifacts can be used from a Java application, whether running within Tuxedo, in another application server or as a standalone application to access COBOL services hosted in Tuxedo or on mainframes within CICS/IMS application environments.

For more information, see Generating a Java Application with the eGen Application Generator.

Oracle Tuxedo Mainframe Transaction Publisher

Oracle Tuxedo Mainframe Transaction Publisher greatly simplifies access to mainframe transaction from Oracle Service Bus (OSB) by providing an Oracle JDeveloper based graphical user interface. This GUI tool, imports COBOL copybooks of mainframe transactions and generates all the artifacts required, including Java Beans and OSB configurations, to access mainframe transactions through Oracle Tuxedo Mainframe Adapters.

For more information, see Tuxedo Mainframe Transaction Publisher.

Developing New Applications Using Java

Oracle Tuxedo enhances the way of developing new applications using Java.

- Oracle Tuxedo supports the following new Java APIs in this release.
  - `tpacall`
  - `tpgetrply`
  - `tpcancel`
  - `tpsubscribe`
  - `tpunsubscribe`
  - `tppost`
  - `tpnotify`
  - `tpbroadcast`
  - `tpenqueue`
  - `tpdequeue`
  - `tpsblktime`
  - `tpgblktime`

  - tpforward
  - tpsuspend
  - tpresume
  - tpscmt
  - tpsprio
  - tpgprio
  - tpappthrinit
  - tpappthrterm
  - tpsetctxt
  - tpgetctxt
  - tpxmltofml
  - tpxmltofml32
  - tpfmltoxml
  - tpfml32toxml
  - Fvftos
  - Fvftos32
  - Fvstof
  - Fvstof32

- Oracle Tuxedo introduces a new version of Java server configuration file. It is strongly recommended to use this new version.
- Oracle Tuxedo expands standard Java server initialization and termination methods.
- Oracle Tuxedo provides an additional running mode for more flexibility (Java server now can run in single-thread mode).

For more information, see Programming An Oracle Tuxedo Application Using Java and Managing ATMI Java Server.

Java Server Transaction Management Integrating with Spring Framework

This release provides a JTA compliant transaction manager interface for Spring applications. Transaction manager interface can be specified in the Spring Framework application context configuration file and instantiated by Spring Framework. With the transaction manager, Spring applications can invoke Java server APIs to access existing Oracle Tuxedo application services, enqueue/dequeue message to/from Tuxedo persistent queue devices, execute database operations

via the connection Java server creates, and perform event related operations in a distributed transaction environment.

For more information, see Managing ATMI Java Server.

RECORD Features

The RECORD facility is particularly useful when the data is transferred between COBOL language and C language. Under such condition, RECORD buffer type can be used in C language, and copybook is used in COBOL language.

The RECORD facility has the following features:

- The `cpy2record` tool is used to generate record descriptions (stored in binary format) that are interpreted by your application programs at run time.
- At run time record descriptions are read into a record file cache on demand, and remain there until the cache is full. When the cache is full and a record description that is not in the cache is needed, the least recently accessed record description is removed from the cache to make room for the new one.
- When transferring data between RECORD buffers and COBOL records, the source data is automatically converted to the type of the destination data. For instance, a string field may be converted between EBCDIC and ASCII formats.

For more information, see `cpy2record(1)` in Oracle Tuxedo Command Reference, Programming An Oracle Tuxedo ATMI Application Using FML, Managing Typed Buffers in Programming An Oracle Tuxedo ATMI Application Using C, and Setting Up Data Translations in Oracle Tuxedo Mainframe Adapter for SNA User's Guide.

Logging Last Resource Transaction Optimization

This feature is a performance enhancement option that enables one non-XA resource to participate in a global transaction. It is introduced since Oracle Tuxedo 12.1.3.0.0 RP017 on Oracle Linux 64-bit platforms.

For more information, see Logging Last Resource Transaction Optimization.

Installation Upgrade Considerations

For complete information on upgrading to Oracle Tuxedo 12*c* Release 2 (12.1.3), see Upgrading the Oracle Tuxedo System to 12c Release 2 (12.1.3) in Installing the Oracle Tuxedo System.

Supported Platforms

Oracle Tuxedo software runs on the platforms listed in Oracle Tuxedo 12c Release 2 (12.1.3) Platform Data Sheets. Oracle has certified these platforms for development and production use with the Oracle Tuxedo 12*c* Release 2 (12.1.3) product. Oracle can provide customer support only for these platforms.

Note: Although Oracle has attempted to implement the Oracle Tuxedo software in a manner that conforms to industry-standards, it is not feasible for Oracle to certify its use with all third-party databases, ORBs, and other products.

Additional software ports and certifications will be made available after the initial release of 12*c* Release 2 (12.1.3). For information regarding subsequent ports and certifications, please refer to the Platform Support information on the Oracle Web site at the following link: Oracle Tuxedo 12c Release 2 (12.1.3) Platform Data Sheets.

Note: The required stack size for an Oracle Tuxedo server thread has slightly increased; you may need to adjust the thread stack size accordingly in case of stack overflow issues.