Oracle® Tuxedo JCA Adapter

Product Overview

12*c* Release 1 (12.1.1)

June 2012

ORACLE

Oracle Tuxedo JCA Adapter Product Overview, 12*c* Release 1 (12.1.1)

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Oracle Tuxedo JCA Adapter Overview

This chapter contains the following sections:

- Understanding the Oracle Tuxedo JCA Adapter
- A Brief History of the Oracle JCA Adapter
- Oracle Tuxedo JCA Adapter Supported Standards
- What's Next

Understanding the Oracle Tuxedo JCA Adapter

The Oracle Tuxedo JCA Adapter (Tuxedo JCA Adapter) is a JCA-based resource adapter that provides bi-directional service invocation between a JCA 1.5 compliant application servers and the Oracle Tuxedo system. Tuxedo JCA Adapter supports global and local transactions conforming to JCA transaction standards. It supports connection management, transaction propagation, identity propagation, and link-level security. Link-level security uses industry standard SSL/TLS or a proprietary high performance algorithm.

It supports synchronous and asynchronous request invocations. It supports both JCA standard Common Client Interface (CCI) and Oracle Tuxedo ATMI (Application-To-Monitor Interface, a X/Open standard) API in Java language binding. A JEE application (EJBs, POJOs, Servlets/JSPs, etc.) can use one of these APIs to access Oracle Tuxedo application domain resources.

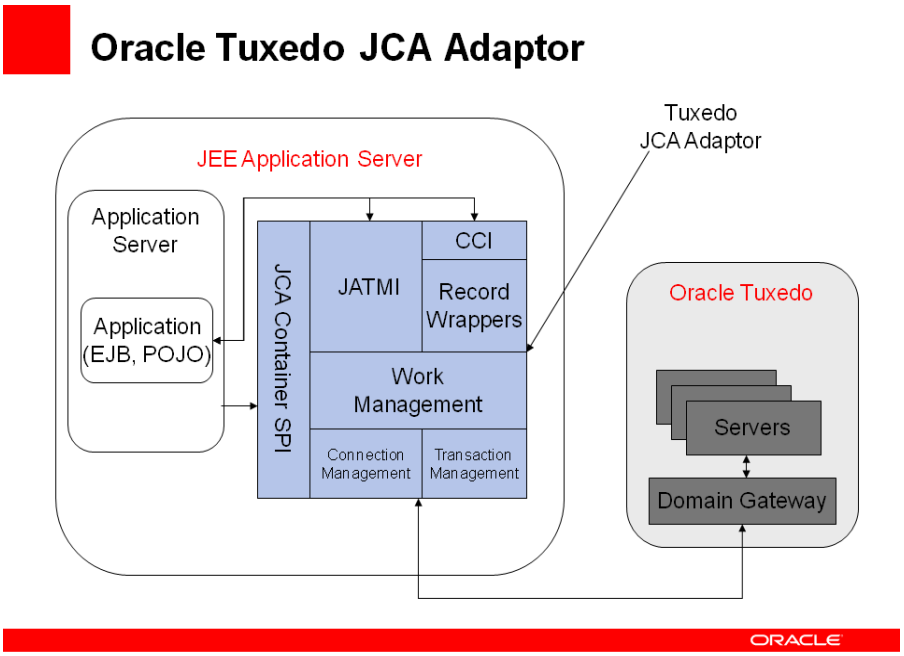
Conversely, a Java JEE application service can be exported by the Tuxedo JCA Adapter to Oracle Tuxedo. It appears as a imported Oracle Tuxedo resource and can be readily accessed by an Oracle Tuxedo ATMI client.

The Tuxedo JCA Adapter also creates a contract between the application server and the resource adapter using JCA standard Service Provider Interface (SPI). It allows the Tuxedo JCA Adapter to be managed by (and compatible with), any JCA compliant application server.

The Tuxedo JCA Adapter can be configured using a combination of the JCA standard resource adapter configuration file (`ra.xml`), and the Oracle Tuxedo specific configuration file (`dmconfig.xml`). Also, Tuxedo JCA Adapter can be deployed using native application server methods.

Figure 1 shows a graphical representation of the Tuxedo JCA Adapter architecture.

Figure 1 Tuxedo JCA Adapter Architecture



A Brief History of the Oracle JCA Adapter

Release 11g Release 1 (11.1.1.1.0)

Tuxedo JCA Adapter 11g Release 1 (11.1.1.1.0.) introduced the following features:

- Bi-Directional Service Request Invocation

  The Tuxedo JCA Adapter allows a JEE application to access Oracle Tuxedo services using the JCA Common Client Interface (CCI) or the Java Application-To-Monitor Interface (JATMI). It also allows Oracle Tuxedo clients to access a POJO or EJB java object in an application server.

- Transaction Context and Identity Propagation

  Outbound transactions (application server-to-Oracle Tuxedo) are supported for transaction types defined by the Tuxedo JCA Adapter. The following transactions are supported:

  – Container managed XA Transactions

  – Container managed Local Transactions

  – Adapter managed Local Transactions

  Tuxedo JCA Adapter allows user identity to be sent to Oracle Tuxedo along with the service request. This allows proper access control of Oracle Tuxedo services from a remote user.

- Session Authentication

  Session authentication allows the Tuxedo JCA Adapter and the Oracle Tuxedo system to authenticate each other and create a trust relationship. Session authentication supports both domain password authentication and application password authentication.

- Data Privacy

  Link-level encryption is supported up to 128-bit encryption strength to protect data privacy between the java application server and Oracle Tuxedo. The following encryption strength levels are supported:

  – 40-bit

  – 56-bit

  – 128-bit

- Secure Socket Layer Support

Industrial standard Secure Socket Layer is supported for added security between Tuxedo JCA Adapter and Oracle Tuxedo. The following encryption strength levels are supported:

  - 56-bit
  - 112-bit
  - 128-bit
  - 256-bit

- Common Client Interface for Application Development

  The JEE Connector Architecture Common Client Interface (CCI) is supported for Oracle Tuxedo client access. The following Oracle Tuxedo typed buffers are supported for use with CCI records:

  - STRING
  - CARRAY
  - FML/FML32
  - MBSTRING
  - VIEW/VIEW32
  - X_C_TYPE
  - X_COMMON
  - X_OCTET
  - XML

  For more information see, Oracle Tuxedo11gR1, Managing Typed Buffers in Programming An Oracle Tuxedo ATMI Application Using C.

- Java Application-To-Monitor Interface

  The Java Application-To-Monitor Interface (JATMI) is a Java language-based, X/open XATMI interface that provides high performance global transaction synchronization functionality supported by Oracle Tuxedo. The following Oracle Tuxedo ATMIs are supported:

  - `tpcall`
  - `tpacall`
  - `tpconnect`
  - `tprecv`

  - `tpsend`
  - `tpdiscon`
  - `tpacall`(with asynchronous reply)
  - `tpcancel`
  - `tpgetrply`
  - `tpenqueue`
  - `tpdequeue`

  For more information. see the Oracle Tuxedo 11gR1 Command Reference Guide.

Limitations

The Tuxedo JCA Adapter *does not* support the following functionality:

- Inbound from Oracle Tuxedo request impersonation for authentication and ACL

Release 11g Release 1 (11.1.1.2)

Tuxedo JCA Adapter 11g Release 1 (11.1.1.2) introduced the following enhancements:

- Enhancements
  - Simplified Configuration and Deployment

Release 12c Release 1 (12.1.1)

Tuxedo JCA Adapter 12c Release 1 (12.1.1) introduces the following enhancements:

- Transaction Context Propagation Started from Oracle Tuxedo

  XA transaction context can be propagated from Oracle Tuxedo applications to J2EE applications.

- Integration with JDeveloper SOA Extension

  Tuxedo JCA Adapter is integrated with the Oracle JDeveloper SOA Extension for enhanced user experience. This feature allows user applications to access Oracle Tuxedo services through SOA components without needing to write any code.

- Conversational APIs

  JEE applications can access Oracle Tuxedo ATMI conversational services.

For more information, see Oracle Tuxedo JCA Adapter Users Guide, Oracle Tuxedo JCA Adapter Programming Guide, and Oracle Tuxedo JCA Adapter Reference Guide.

- New Data Type Support

  Supports nested View32 data types.

  For more information, see Data Type Mapping and Message Conversion in the Oracle SALT Programming Guide.

Oracle Tuxedo JCA Adapter Supported Standards

Tuxedo JCA Adapter 12cR1 supports the following standard(s):

- J2EE Connector Architecture (Specification 1.5)

  http://java.sun.com/j2ee/connector/download.html

- J2EE Connector Architecture (Specification 1.6)

  http://download.oracle.com/otn-pub/jcp/connector_architecture-1.6-fr-oth-JSpec/connector-1_6-final-spec.pdf?AuthParam=1340782419_c580f52980508556863170eb5b6206b7

What's Next

After becoming familiar with the Tuxedo JCA Adapter Product Overview, refer to the following topics:

- Release Information
- For information regarding the current product release, refer to the Oracle Tuxedo JCA Release Notes.
- Installing, Configuring, and Deploying the Tuxedo JCA Adapter.

  For an explanation of how to install the product, refer to the Oracle Tuxedo JCA Adapter Users Guide.

- Programming the Tuxedo JCA Adapter and Examples

  For an explanation of how to program with the product, refer to the Oracle Tuxedo JCA Adapter Programming Guide and Oracle Tuxedo JCA Adapter Reference Guide.