PeopleSoft

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Acronyms

The following acronyms are commonly used in ERP and might appear in the *Interoperability Guide*.

APAg	Advanced Planning Agent
API	Application Programming Interface
APPL	Application
BDA	Business View Design Aid
BSFN	Business Function
BSVW	Business View
COM	Component Object Model
CRP	Conference Room Pilot
DBMS	Database Management System
DCOM	Distributed Component Object Model
DD	Data Dictionary
DLL	Dynamic Link Library
DS or DSTR	Data Structure
EDI	Electronic Data Interchange
ER	Event Rules
ERP	Enterprise Resource Planning
FDA	Form Design Aid
IDL	Interface Definition Language
NER	Named Event Rules
ODA	Open Data Access
ODBC	Open Database Connectivity
OCM	Object Configuration Manager
OL	Object Librarian

OSA	Output Stream Access
QBE	Query by Example
RDA	Report Design Aid
SAR	Software Action Request
Specs	Specifications
SQL	Structured Query Language
TAM	Table Access Management
TBLE	Table
TC	Table Conversion
TDA	Table Design Aid
TER	Table Event Rules
UBE	Universal Batch Engine
WF	Workflow
XAPI	Extended Application Programming Interface
XML	Extensible Markup Language
XPI	Extended Process Integration
XTS	XML Transformation Service

Interoperability Overview

Interoperability is most often associated with software as a way to allow disparate software applications to work together. For example, interoperability makes it possible for a company to use applications from different vendors as if they were from a single vendor. Seamless sharing of function and information becomes possible.

Interoperability reduces or eliminates the problems of islands of automation. It allows business processes to flow from one application to another. Interoperability allows one system to work with another, in a near real-time fashion, to share critical business information. Interoperability options become the "glue" between systems and applications.

ERP Interoperability Features

Full interoperability among systems makes the flow of data among the systems seamless to the user. J.D. Edwards provides a framework to mask the complexity of interoperability with external systems, and to simplify interfacing with third-party packages.

The interoperability solution for ERP meets the following three important business objectives:

- Flexibility, Options, and Choice

  J.D. Edwards gives you several possibilities in the types of applications and information you want to work with ERP—legacy, best-of-breed, customer management, reporting tools, and many more. The developer can make the right choice for your particular environment and needs.

- Investment Preservation

  If you have existing applications you want to continue using, or if you have applications you are thinking about adopting, you can interface them to ERP. You can use industry standard methods if the existing or new technologies support them, or you can use J.D. Edwards business logic to create this interoperability. Also, you will benefit from our ongoing upgrades and improvements to that architecture.

- Manageability

  ERP is designed to make the interoperability process easily manageable.

Benefits

Interoperability offers the following benefits:

- Businesses can bring together applications and systems across an enterprise, irrespective of the vendors.
- Collaborations can occur between trading partners to lower the cost of doing business or increase competitiveness.
- Multiple systems can be linked together to share information in a real-time manner, delivering time-sensitive information to those who need it.
- Disparate solutions encountered because of mergers or acquisitions can be quickly incorporated into the enterprise's information technology solution.

The J.D. Edwards interoperability strategy includes wide-ranging models and capabilities (both industry standard and ERP-based).

Interoperability Models and Capabilities

The following matrix provides an overview of interoperability models that are supported by J.D. Edwards. The matrix shows the models, which are further divided into types, and the capabilities that can be used with each model type. The model and model types are listed in the left-hand column. Capabilities, which are ways to access ERP data, are shown as columns in the matrix. For each model type, you can read across the table to see what capabilities can be used with that model type. J.D. Edwards provides both interactive and batch capabilities. The capabilities are grouped by inbound, outbound, and batch. An inbound capability is a request for data or a transaction initiated outside of ERP. An outbound capability originates inside of ERP.

ERP Interoperability									
	Inbound to ERP				**Outbound from ERP**				**Batch**
Capability / **Model**	**BSFN Calls**	**XML CallObj., XML List, XML Trans.**	**Z Trans.**	**Flat Files**	**Events**		**Generate XML Output**	**Flat Files**	**Recom-mended for Batch**
					Real-Time and XAPI Events	**Z Events**			
XPI									
Enterprise XPI	Y	List	N	Y	Y	Y	Y	Y	N
Inter-Enterprise XPI	Y	List	N	Y	Y	Y	Y	Y	N
Connectors									
Dynamic Java Connector (Java Connector)	Y	CO, Trans, List	N	N	Y	Y	Y	N	N
JCA Resource Adapter	Y	CO, Trans, List	N	N	N	N	N	N	N
COM Connector	Y	CO, Trans, List	N	N	Y	Y	Y	N	N
ERP Messaging Adapters									
Adapter for MQSeries	Y	CO, Trans	Y	N	Y	Y	Y	N	Y
Adapter for MSMQ	Y	CO, Trans	Y	N	Y	Y	Y	N	Y
Batch Interfaces									
Interface Tables	Y	N	Y	Y	N	N	N	N	Y
ERP EDI	Y	N	Y	Y	N	N	N	Y	Y

ERP Interoperability									
	Inbound to ERP				Outbound from ERP				Batch
Capability / Model	BSFN Calls	XML CallObj., XML List, XML Trans.	Z Trans.	Flat Files	Events: Real-Time and XAPI Events	Events: Z Events	Generate XML Output	Flat Files	Recom-mended for Batch
Table Conversions	Y	N	Y	Y	N	N	N	Y	Y
OSA (UBE)	N	N	N	N	N	N	Y	N	Y
APAg/ Integration	N	N	Y	N	Y	N	Y	N	Y
Open Data Access	Supports business view and table inquiries				N				N

Interoperability Capabilities

A capability is a way to transfer information into ERP or to retrieve information from ERP. The interoperability matrix shows inbound and outbound capabilities and identifies capabilities that are appropriate for batch processing. Inbound capabilities let you inquire about data and update (add, change, or delete) data. With inquiry capabilities, you retrieve data for information purposes only. For example, you might want to see prices or availability of an item. Update capabilities can be performed on an individual transaction basis or in a batch process, which consists of groups of transactions. An individual transaction update involves updating a single record (for example, adding a purchase order or creating an invoice). Batch processes (groups of transactions) typically involve updating multiple records, are usually scheduled to occur at a specific time, and are non-interactive. Examples of batch processing are to upload 10,000 orders to the database at the end of the day or to obtain all of the pricing information that has changed and send that information to a Web site at the end of the day.

A brief overview of the capabilities that are available for transferring information into and retrieving information from ERP is provided in the following paragraphs. Each capability is discussed in further detail in other areas of this guide.

Business Function Calls

Business function calls are core to the J.D. Edwards interoperability. Business functions encapsulate transaction logic to perform specific tasks, such as journal entry transactions, depreciation calculations, and sales order transactions.

J.D. Edwards uses two types of business functions: regular business functions and master business functions (MBF). Regular business functions perform simple tasks, such as tax calculation or account number validation. Master business functions perform more complex tasks, and can call several regular business functions to perform those tasks.

See Also

- *Business Functions* in the *Development Tools Guide* for more information about business functions

XML

XML provides a flexible, standards-based way for sharing information and for moving data among systems. XML allows you to extend enterprise applications and collaborate with business partners and customers. You can use XML CallObject and XML Transaction to update or retrieve ERP data. You can use XML List to create an XML Data file in the ERP system repository and then to retrieve the data in small chunks to avoid network traffic. ERP output is an XML document.

Z Transactions

Z transactions provide inbound capability to ERP that allows you to update ERP data. J.D. Edwards provides interface tables (Z tables) that support Z transaction capability. You also can create your own Z tables.

Flat Files

Flat files (also known as user-defined formats) are text files that are usually stored on your workstation or server. Flat files do not have relationships defined for them, and they typically use the Unicode character set. Data in a flat file is stored as one continuous string of information. You can use flat files to import or export data from applications that have no other means of interaction. For example, you might want to share information between ERP and another application.

Events

Events are notifications to third-party applications or end users that an ERP business transaction has occurred. J.D. Edwards supports three kinds of events: Z events, real-time events, and XAPI events. Event data is represented as an XML document.

Z events use interface tables and a batch process to retrieve transaction information, and then use a Z event generator and the data export subsystem to manage the flow of the outbound data.

Real-time events can be generated from a server or a client. System calls (from a server) and client business function calls (from a client) retrieve transaction information. The transaction information is distributed to subscribers.

XAPI events are real-time events that require a response. A XAPI event is created in the same manner as a real-time event with additional data structure information for invoking a business function when the response XML Document is received.

Extended Process Integration (XPI)

XPI is the Extended Process Integration suite. It consists of two major products: Enterprise XPI and Inter-Enterprise XPI.

- Enterprise XPI provides the infrastructure for internal collaboration within the enterprise.

- Inter-Enterprise XPI provides the infrastructure for business-to-business collaboration beyond the enterprise.

Some benefits of using Enterprise XPI are:

- Many adapters already exist.
- A common access point is provided for security and permissions.
- Scalability is achieved by adding brokers and adapters.
- Message delivery is guaranteed.
- Graphic tools exist for creating integrations and workflows.
- Pre-defined extended business processes (XBPs) and canonicals provide easy integration with J.D. Edwards data.

Some benefits of using Inter-Enterprise XPI are:

- Provides interoperability to external sources, such as vendors and trading partners.
- Provides guaranteed delivery and security.
- Uses industry formats, such as standard XML, EDI, OAG, RosettaNet, BizTalk, eXML, and ebXML.
- Provides workflow and mapping functionality.
- Packaged transactions for RosettaNet are available.

For more information about using XPI, see the Enterprise XPI and Inter-Enterprise XPI documentation on the J.D. Edwards Knowledge Garden. Available documentation includes information about Enterprise foundation, Inter-enterprise foundation, adapters, and XBPs.

Interoperability Models

A model is a way for third parties to connect to or access the ERP system. J.D. Edwards supports the following five basic interoperability models:

- Extended Process Integration (XPI)
- Connectors
- Messaging Adapters
- Batch Interfaces
- Open Data Access

These models are further categorized by type. Each model type supports one or more of the J.D. Edwards capabilities for sending information into or retrieving information from the ERP database. The Interoperability Models and Capabilities matrix that was introduced above shows the model types and the capabilities that each model type supports. An overview of each of the model types is provided in the following paragraphs.

Connectors

Connectors are point-to-point component-based models that allow third-party applications and ERP to share logic and data. J.D. Edwards connector architecture includes Java and COM connectors. The connectors accept inbound XML requests and expose ERP business functions for reuse. Output from the connectors is in the form of an XML document.

- Java – The J.D. Edwards dynamic Java and Java connectors support real-time event processing. Java is a portable language, so you can easily tie ERP functionality to Java applications.
- COM – The J.D. Edwards COM connector solution is fully compliant with the Microsoft component object model. You can easily tie ERP functionality to Visual Basic and VC++ applications. The COM connector also supports real-time event processing.

Some benefits of using connectors are as follows:

- Scalable
- Designed to be multithreaded
- Allow concurrent users

See Also

Connectors and other topics in the *Connectors Guide* for more information about J.D. Edwards connectors

Messaging Adapters

J.D. Edwards provides messaging support for MQSeries and Microsoft Message Queuing (MSMQ). MQSeries and MSMQ handle message queuing, message delivery, and transaction monitoring. ERP can use these messaging systems to handle and pass requests for logic and data between ERP and third-party applications.

Some of the benefits of using messaging adapters are as follows:

- Reliable connection
- Guaranteed delivery
- Operations acknowledgement

See Also

- *Adapter Overview* and other topics in the *Asynchronous Messaging Programmer's Guide* for more information about using the messaging adapters

Batch Interfaces

Batch implies processing multiple transactions at the same time and usually involves movement of bulk information. Batch processing is often scheduled and is non-interactive. J.D. Edwards provides several model types for batch processing, and each model type has one or more capabilities that allow you to access ERP data. The model types are as follows:

- Interface Tables
- Electronic Data Exchange (EDI)
- Table Conversions
- UBEs
- APAg/Integration

Interface Tables

Interface tables provide point-to-point interoperability solutions for importing and exporting data. Interface tables are also called Z tables. Interface tables are working files into which you place transaction information to be processed into or out of ERP. In addition to the interface tables provided by J.D. Edwards, you can build your own interface tables. If you use interfaces tables to update ERP data, the format of the data must be presented in the J.D. Edwards-defined format. If you use interface tables to retrieve ERP data, you use a batch process that extracts the data from the applications tables.

Some of the benefits of using interface tables are as follows:

- Defined data structure
- Identifiable fields
- Customizable interface tables

Electronic Data Interchange (EDI)

EDI provides a point-to-point interoperability solution for importing and exporting data. EDI is the paperless computer-to-computer exchange of business transactions, such as purchase orders and invoices, in a standard format with standard content. As such, it is an important part of an electronic commerce strategy.

When computers exchange data using EDI, the data is transmitted in EDI standard format so it is recognizable by other systems using the same EDI standard format. Companies that use EDI must have translator software to convert the data from the EDI standard format to the format of their computer system.

The J.D. Edwards Data Interface for Electronic Data Interchange system acts as an interface between the J.D. Edwards system data and the translator software. In addition to exchanging EDI data, this data interface also can be used for general interoperability and electronic commerce needs where a file-based interface meets the business requirements.

Some benefits of using the Data Interface for Electronic Data Interchange system are as follows:

- Shorter fulfillment cycle
- Increased information integrity through reduced manual data entry
- Reduced manual clerical work

EDI is particularly effective at sending information to multiple applications simultaneously.

See Also

- *Overview for Data Interface for Electronic Data Interchange System* and other topics in the *Data Interface for Electronic Data Guide* for information about using electronic data interchange for interoperability

Table Conversion

Table conversion provides a point-to-point interoperability solution for importing and exporting data. Table conversion is a special form of Universal Batch Engine (UBE) that allows you to do high-speed manipulation of data in tables. ERP has a table conversion utility that you can use to gather, format, import, and export enterprise data. The table conversion tool allows you to transfer and copy data. You can also delete records from tables. Table conversion

allows you to use a non-J.D. Edwards table to process, call direct business functions, and give an output. For example, you might want to run a UBE that reads from an ERP master file to populate a non-ERP table.

The table conversion utility can make use of any ERP table, business view, and text file, or any table that is not an ERP table but resides in a database that is supported by ERP, such as Oracle, Access, AS/400, or SQL Server. These non-ERP tables are commonly referred to as foreign tables.

See Also

- *Table Conversions Overview* and other topics in the *Table Conversion Guide* for more information about table conversions

Output Stream Access (OSA)

OSA provides a point-to-point interoperability solution for exporting data from UBEs. OSA allows you to set up an interface for ERP to pass data to another software package, such as Microsoft® Excel, for processing.

The benefits for using OSA are as follows:

- Eliminates the manual task of manually formatting output
- Can employ the processing power of the target software program

See Also

- *Output Stream Access* in the *Enterprise Report Writing Guide* for more information about using Output Stream Access (OSA)

Advanced Planning Agent (APAg)/Integration

The J.D. Edwards Advanced Planning Agent (APAg) is a tool for batch extraction, transforming, and loading enterprise data. APAg supports access to data sources in the form of relational databases, flat file format, and other data or message encoding such as XML. APAg also moves data from one place to another and initiates tasks related to the movement of the data.

Benefits of using the APAg tool are as follows:

- Copies massive amounts of table data
- Efficiently and effectively accomplishes initial data loads

See Also

- *APAg Integrates Your System* and other topics in the *Advanced Planning Agent 3_3_3 User Guide* for information about the APAg tool

Open Data Access (ODA)

ODA provides the capability for you to extract ERP data (using SQL statements) so that you can summarize information and generate reports. You can use ODA with any of the following desktop applications:

- Microsoft Query
- Microsoft Access

- Microsoft Excel
- ODBCTEST
- Crystal Report
- Microsoft Analysis Service

ODA sits between the front-end query and reporting applications and the ERP-configured ODBC drivers.

The J.D. Edwards ERP database contains object and column names, specific data types, and security rules that must be converted or applied so that the data is presented correctly. The specific data types and rules include decimal shifting, Julian date, currency, media object, security, and user defined codes. In some instances, ODA modifies the SQL SELECT statement, as well as the data, so that it appears correctly within the selected application.

Some of the benefits of using ODA are as follows:

- Read-only access to all ERP data, including the entire data dictionary
- Use of the same security rules that you established for ERP
- Ability to extract ERP data easily

See Also

- *Open Data Access (ODA)* in the *Interoperability Guide* for more information about using ODA

Choosing an Interoperability Model

Choosing an interoperability model depends on your business needs. The following matrix can help you determine which interoperability model best supports your interoperability requirements.

ERP Interoperability					
Consider-ations / Model	**Platforms (Windows, UNIX, AS/400)**	**Integration Model**	**Best Fit Programming Languages**	**Critical Technical Skills for Creating Inbound Transaction**	**Critical Technical Skills for Creating Outbound Transactions**
XPI					
Enterprise XPI	SUN, AIX, Windows	Broker	Java	XPI Toolset	XPI Toolset, Real-Time Events, XAPI Events
Inter-Enterprise XPI	SUN, AIX, Windows	Broker	Java	XPI Toolset	XPI Toolset, Real-Time Events, XAPI Events
Connectors					
Java Connector	All	Point-to-Point	Java	Java APIs, GenJava	Real-Time Events, XAPI Events

ERP Interoperability					
Consider-ations / Model	**Platforms (Windows, UNIX, AS/400)**	**Integration Model**	**Best Fit Programming Languages**	**Critical Technical Skills for Creating Inbound Transaction**	**Critical Technical Skills for Creating Outbound Transactions**
COM Connector	Windows	Point-to-Point	C/C++/VB	COM, GenCOM	N/A
Messaging Adapters					
Adapter for MQSeries	All	Broker	HTML, C/C++, Java	MQSeries, XML	Z-Tables, Subsystem Processing (includes R00460, Data Export Controls, and so on)
Adapter for MSMQ	Windows	Broker	C/C++	MSMQ, XML	Z-Tables, Subsystem Processing (includes R00460, Data Export Controls, and so on)
Batch Interfaces					
Interface Tables	All	Point-to-Point	Any	Z-Tables, UBEs	Custom Code
ERP EDI	All	Point-to-Point	Any, Flat Files	Z-Tables, UBEs	Custom Code
Table Conversions	All	Point-to-Point	ERP TC	Table Conversions	Table Conversion Director/RDA
OSA (UBE)	All	Point-to-Point	HTML, C/C++	N/A	RDA, Custom Code
APAg/ Integration	UNIX, Windows	Point-to-Point	Own Language	APAg Tool, Z Tables	APAg Tool, Z-Tables
Open Data Access	All	Point-to-Point	VB	Custom code or third-party application (queries only)	

Other Industry Standard Support

ERP has a media object function that supports other industry standard functions, such as:

- Object Linking and Embedding (OLE) for the exchange of different data types
- Dynamic Data Exchange (DDE) for static and dynamic links across applications
- Binary Large Object (BLOB) for media object attachments within applications
- Extended Messaging API (MAPI) for message exchange across differing mail and groupware applications

See Also

- *Media Object Attachments* in the *Foundation Guide*
- *Media Objects and Imaging* in the *System Administration Guide*
- *Messages and Queues* in the *Foundation Guide*

Business Function Calls

A business function is an encapsulated set of business rules and logic that can be reused by multiple applications. Business functions provide a common way to access the ERP database. A business function accomplishes a specific task. Master business functions provide the logic and database calls necessary to extend, edit, and commit the full transaction to the database. Third-party applications can use master business functions for full ERP functionality, data validation, security, and data integrity.

You can use master business functions to update master files (such as Address Book Master and Item Master) or to update transaction files (such as sales orders and purchase orders). Generally, master file master business functions, which access tables, are much simpler than transaction file master business functions, which are specific to a program. Transaction master business functions provide a common set of functions that contain all of the necessary default values and editing for a transaction file. Transaction master business functions contain logic that ensures the integrity of the transaction being inserted, updated, or deleted from the database.

For interoperability, master file master business functions can be used instead of table input/output, which allows you to perform updates to related tables using the master business function instead of table event rules. Multiple records are not used; instead, all edits and actions are performed with one call.

The following models support business function calls:

- XPI
  - Enterprise XPI
  - Inter-Enterprise XPI
- ERP Connectors
  - Dynamic Java Connector
  - Java Connector
  - COM Connector
- Messaging Adapters
  - Adapter for MQSeries
  - Adapter for MSMQ
- ERP Batch Interfaces
  - Interface Tables
  - Electronic Data Interchange (EDI)
  - Table Conversions

See Also

- *Business Functions* in the *Development Tools Guide* for information about creating and using business functions

Finding the Right Business Function

Business functions are core for interoperability with J.D. Edwards. If you build custom integrations to interoperate with J.D. Edwards, you will need to know which business functions to call and how to call those business functions. You can use existing J.D. Edwards business functions, modify an existing business function, or create a custom business function. If you are creating a custom business function, J.D. Edwards suggests that you find an existing business function that is similar to what you want to accomplish and use the existing business function as a model. To find an existing business function, try the following:

- Review the online business function and API documentation
- Create business function documentation
- Use the following ERP tools:
  - Object Management Workbench
  - Cross Reference Facility
  - Autopilot Analyzer
  - Debug Application

Caution

When an update or ESU affects business functions, you might be required to modify your custom integration.

Reviewing Online API and Business Function Documentation

The online reference guide provides detailed information about J.D. Edwards business functions and APIs that you can use in your custom integrations. The online reference guide groups business functions as follows:

Master Business Functions	A collection of business functions that provide the logic and database calls necessary to extend, edit, and commit the full transaction to the database. The design of master business functions allows them to be called asynchronously and to send coded error messages back to calling applications.
Major Business Functions	Components that encapsulate reusable logic common to many applications, such as date editing routines and common multi-currency functions.
Minor Business Functions	Components that perform complex logic for a specific instance or single application. Minor business functions are used in ERP for processing that cannot be accomplished efficiently in event rules or for logic that might be needed in multiple places within a single application.

See Also

The ERP online reference guides for business functions and APIs

Creating Business Function Documentation

Business function documentation explains what individual business functions do and how to use each business function. You can generate information for all business functions, groups of business functions, or individual business functions. The documentation for a business function includes information such as:

- Purpose
- Parameters (the data structure used)
- Explanation of each individual parameter that indicates input/output required and explanation of return values
- Related tables (the table accessed)
- Related business functions (business functions called from within the functions itself)
- Special handling instructions

See Also

- *Business Function Documentation* in the *Development Tools Guide* for information about creating, generating, and viewing business function documentation

Using an ERP Application as a Model

If you can find an ERP application that is similar to what you need to do, you can use that application as a model. The ERP Cross Application Development Tools (GH902) menu provides several tools that you can use to determine what business functions an ERP application uses and how the business function is used in the ERP application. From the Cross Application Development Tools menu, you can access the following:

- Object Management Workbench
- Cross Reference Facility
- AutoPilot Analyzer
- Debug Application

Object Management Workbench

You can use the Object Management Workbench (OMW) to search for the business function object and then review the C code.

See Also

- *Object Management Workbench* in the *Development Tools Guide* for more information about using the Object Management Workbench

Cross Reference Facility

You can use the Cross Reference Facility to identify each instance where a business function is used. The Cross Reference (P980011) program is on the Cross Application Development Tools (GH902) menu.

See Also

- *Cross Reference Facility* in the *Development Tools Guide* for more information about searching for objects, including business functions

AutoPilot Analyzer

You can use J.D. Edwards AutoPilot Analyzer tool to capture and display information about the inputs and outputs of every business function and database API call made for an ERP application. To use the AutoPilot Analyzer tool, you must first capture the data, and then you must import the data to the AutoPilot Analyzer tool.

See Also

The following topics in the *Analyzer Tool Guide*:

- *Capturing Data for OneWorld Analyzer Tool* for information about capturing data
- *Importing Test Results* for information about displaying data that you previously captured

Debug Application

Another option that you might consider for understanding an ERP application is to run a J.D. Edwards debugger. You can run the Event Rules Debugger to obtain named event rule and table event rule information for an ERP application. You can use Microsoft Visual C++ to debug business functions that are written in C. You can use these two tools together.

See Also

See the following topics in the *Development Tools Guide*:

- *Working with the Event Rules Debugger*
- *Debugging Business Functions Using Microsoft Visual C++*

XML

Extensible Markup Language (XML) is a structured language that allows you to define how data is handled. XML is similar to Hypertext Markup Language (HTML), but XML provides more flexibility for displaying documents and provides a single platform for data interchange among multiple applications. An XML document can define how data is stored, transmitted, or processed. XML separates content from the format of the content so that information from one application can be used in a different application. For example, one company's application can use customer information, such as name, address, phone, and subscription options for producing bills for cable television services, while another company's application can use the same information for determining which commercials to show in different geographical areas.

The document object model (DOM) stores the data structure of an XML document. The DOM uses a tree structure that has a root document and a tree of elements and attributes.

The following diagram illustrates the typical structure for an XML document.

```
<Elem>
   <SubElem name="   version      >
   </SubElem>
</Elem>
```

XML and ERP Solution

The J.D. Edwards XML solution supports well-formed XML documents. This XML solution supports UTF8 and UTF16 Unicode standards for inbound and outbound information. Outbound information is supported in UTF8 Unicode. Inbound and outbound information is supported in UTF16 Unicode. The J.D. Edwards XML solution includes the following:

XMLDispatch	Provides a single point of entry for all XML documents coming into ERP and for ERP responses.
XML Transformation System (XTS)	Transforms a non-ERP formatted XML document into an XML document that can be processed by ERP, and transforms the ERP response back to your XML format.
XML CallObject	Allows you to call J.D. Edwards business functions.
XML Transaction	Allows you to use a predefined transaction type (such as JDEPOIN) to send information to or request information from ERP. XML transaction uses J.D. Edwards interface table functionality.
XML List Kernel	Allows you to request and receive ERP database information in chunks.
XML Service Kernel	Allows you to request ERP events from one ERP system and receive a response from another ERP system.

Some of the benefits of using XML are as follows:

- Models using XML are scalable, allowing multiple connections to be opened.
- XML can be used with ERP messaging adapters, providing a reliable connection and acknowledging operations.
- XML exposes business functions and interface tables.
- XML can be used to aggregate business function calls into one document, which reduces network traffic.
- XML can manage session creation, validation, and tracking.

If you can create XML documents on your interoperability server, you can use XML for your interoperability solution. XML callObject, XML List, and XML transactions capabilities can be used with the following ERP models:

- XPI
  - Enterprise XPI
  - Inter-Enterprise XPI
- ERP Connectors
  - Dynamic Java Connector
  - Java Connector
  - COM Connector
- ERP Messaging Adapters
  - ERP Adapter for MQSeries
  - ERP Adapter for MSMQ

See Also

- *World Wide Web Consortium (W3C)* XML home page *http://www.w3.org/XML/* for general information about XML

The following topics in the *Interoperability Guide*:

- *Interoperability Overview* for information about the J.D. Edwards models and capabilities that support these models
- *Business Function Calls* for information about choosing which business function to use
- *XML* for information about XML CallObject, XML Transaction, and XML List features
- *Events* for information about Z, real-time, and XAPI events

Formatting an XML Document

When you send an XML document to ERP for processing, the document must be in the XML format that is defined by J.D. Edwards. Once the document reaches the enterprise server, the system processes the document based on the document type. All XML documents must contain the following elements:

- One of the following types:
  - jdeRequest Type
  - jdeResponseType
- Establish Session
- Expire Session
- Terminate Session

In addition, you can use the following optional elements:

- Explicit Transaction
- Implicit Transaction
- Prepare/Commit/Rollback

Type Element

The type element, which can be jdeRequest or jdeResponse, is the root element for all request documents coming into the XML infrastructure. This element contains basic information about the execution environment. The following attributes form the jdeRequest and jdeResponse type element:

Type	Specifies the type of XML document request. Depending on the operation to be performed, the jdeRequest type can be one of the following: • Callmethod • List • Trans • xapicallmethod The jdeResponse type indicates an XML document coming from another ERP system. The operation for jdeResponse is realTimeEvent. **Note** The xapicallmethod and realTimeEvent types are discussed in the Events section of this document.
User	Specifies the user name for user identification and validation.
Pwd	Specifies the user password for user identification and validation.
Environment	Specifies the system environment.
Session	Specifies the session ID. This attribute is optional.
Sessionidle	Specifies the session timeout time. This attribute is optional.

Establish Session

A session must be established. Establish session is addressed by the session attribute of the standard jdeRequest element. When the session attribute is an empty string, a new session is started. On the server, the SessionManager singleton class creates a new instance of a session object given the user name, password, and environment name. The session can be reused before it expires to avoid the overhead of session initialization. You can specify the session ID in the session attribute for an already established session in an earlier request.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz'
environment='prod' session='' sessionidle='1800'>
...
</jdeRequest>
```

Expire Session

Session expiration is addressed by the sessionidle attribute of the standard jdeRequest element. This attribute, when given on a session creation request, specifies the amount of time in seconds that this session is allowed to be idle. If the SessionManager determines that a session has not had any requests processed in this amount of time, it terminates the session and frees all associated resources. The session idle default is 30 minutes. You can change the default session idle time in the jde.ini file.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz'
environment='prod' session='' sessionidle='1800'>
...
</jdeRequest>
```

Explicit Transaction

Explicit database transactions are supported by another element, the startTransaction tag. The startTransaction tag specifies whether transactions are to be manually or automatically committed. The startTransaction tag element is an empty element, meaning that all of its information is in the attributes.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<startTransaction trans='t1' type='manual'/>
</jdeRequest>
```

Implicit Transaction

An XML request is included in a transaction set when the name of a transaction set is referenced in its trans attribute. Implicit start transactions can be included in the request by specifying the name of a transaction set that has not previously been created. For an implicit start, the transaction set will be a manual commit set.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101' trans='t1'>
<params>
<param name='CostCtr'>      1001</param>
</params>
</callMethod>
</jdeRequest>
```

Prepare/Commit/Rollback

Manual transaction sets can be committed or rolled back. As part of a two-phase commit, they can be prepared to commit. Prepare, commit, and rollback requests to the database are made by using the endTransaction element. The transaction set is identified by the *trans* attribute. The *action* attribute indicates the action to take on the transaction set. The value can be *prepare*, *commit*, or *rollback*. This element is always an empty element, as shown by the forward slash.

J.D. Edwards recommends that you manage the session ID when doing manual commits, and terminate the session after the transaction is complete.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<endTransaction trans='t1' action='commit'/>
</jdeRequest>
```

Note
If startTransaction and endTransaction are in separate documents, one of the following occurs:

- The session attribute is not sent in the second document. In this case the user, password, and environment are used to match the previous session.
- The session number from the response of the first document is sent in the session attribute of the documents that are associated with the same transaction.

Terminate Session

Session termination is done by submitting an XML document to explicitly terminate the session. You must specify the session to be terminated in the jdeRequest element tag.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=5665.931961929.454'>
<endSession/>
</jdeRequest>
```

ERP Standards for Creating XML Documents

In addition to ensuring that your XML documents have the required format elements (jdeRequest or jdeResponse Type, Establish Session, Expire Session, and Terminate Session), J.D. Edwards has some standards for XML documents that are different from industry standards.

Decimal and Comma Separators

J.D. Edwards uses the decimal and thousands separators differently than XML industry standards. The decimal and thousands separators do not depend on use profile settings, jde.ini settings, or regional settings for that computer. When you write XML documents to interface with ERP, the decimal character "." (dot) should always be used as a decimal separator, and a comma "," should be used as a thousands separator. The purpose of the separator standards is to achieve consistent interoperability policy and to prevent data corruption.

Date Usage

Different components of the XML foundation use different format codes and APIs to format the following dates:

- to XML date
- from XML date
- to JDEDATE
- from JDEDATE

The following table explains the formats used by each J.D. Edwards-supported XML component:

	Inbound		Outbound	
Component	**Format**	**Outcome**	**Format**	**Outcome**
XMLCallObject	F	YYYYMD	ESOSA	YYYY/MM/DD
XMLTransaction	F*	User Preference	ESOSA	YYYY/MM/DD
XMLList	B*	User Preference	NULL	User Preference

* Component ignores the format code

Configure the System Environment for XML

Before you can use XML with ERP, you must ensure that the ICU_DATA system environment variable is correctly defined on your ERP enterprise system. If the ICU_DATA variable is not correctly defined, ERP produces the following error message:

> The default Unicode converter could not be found within the jdenet_n.log on the OneWorld Enterprise Server.

For ERP, the ICU conversion table, icu_data.dat, is generally located in system/locale/xml. Settings for different platforms are discussed in the following paragraphs. Use the appropriate setting for your platform.

UNIX

For UNIX systems, the ICU_DATA path is based on the ICU_DATA environment variable. The UNIX ERP user login script sets the ICU_DATA environment variable to the directory location of the ICU resource file, incudata.dat. If the user login script does not set the ICU_DATA environment variable, you must define the ICU_DATA variable with a trailing slash, as follows:

```
Export ICU_DATA=$SYSTEM/locale/xml/
```

Where $SYSTEM represents your ERP install directory.

AS/400

For AS/400 systems, the ICU_DATA path is set when the ICU 1.6 conversion function is first called by the system. The system looks up Data Area BUILD_VER in the system library for the System Directory setting: For example:

```
System Directory: B9_S
```

The system appends locale/xml to the path specified in the BUILD_VER, and then uses this path as the ICU_DATA path. You must ensure the BUILD_VER data area is properly set to reflect the system directory setting.

WIN32

For WIN32 systems, the ICU_DATA path is set when the ICU 1.6 conversion function is first called. The following logic is used on WIN32:

1. The system looks up the environment variable JDE_B9_ICU_DATA. If this environment is found, it becomes the path for the conversion files.
2. The system looks for the following section in the jde.ini file:

   [XML]

   ICUPath=<<install>>/system/locale/xml

   If the ICUPath setting is found, it becomes the path for the conversion files.
3. If the system cannot find the ICUPath setting in the jde.ini file, the ICU_Path defaults to:

   EXECUTABLE_DIRECTORY/./system/locale/xml

   The EXECUTABLE_DIRECTORY must be <<install>>/system/bin32.

Based on the above logic, you usually do not need to set the JDE_B9_ICU_DATA ENVIRONMENT variable or the jde.ini file. You need to set the jde.ini ICUPath only when the location of the icudata.dat is different from system/locale/xml.

Note

The ERP client install sets the environment variable JDE_B9_ICU_DATA.

XML Transformation Service

The J.D. Edwards XML transformation system (XTS) uses extensible stylesheet language (XSL) to transform non-ERP formatted XML documents into the XML format that ERP requires. XTS also transforms ERP response XML documents back to the XML format of your original request.

XTS is a multithreaded Java process that runs as an ERP kernel process. Upon system startup, the XTS kernel library loads a Java virtual machine (JVM). Once the JVM is loaded, the server proxy is started. If you do not have JVM available on your server, you must install one. J.D. Edwards supports Java JVM version 1.3 and later.

XTS is available on all platforms that ERP supports.

XTS Processing

When the ERP XML Dispatch kernel receives an XML document that it does not recognize, it sends the document to XTS for transformation. XTS reads the XSL, transforms the document to a format that is compatible with ERP, and sends the document back to the XML Dispatch kernel for ERP processing. When the ERP response comes into XML Dispatch, XML Dispatch remembers that the document needs to be transformed from the ERP XML format and sends the document to XTS for transformation. XTS transforms the ERP XML document back to your original XML format and sends the document to XML Dispatch for distribution to you.

All XML documents coming into ERP must be in native XML format. Native XML format is the XML format that is defined by J.D. Edwards and is documented in this guide. The ERP kernel processes (such as, XML CallObject, XML trans, XML list, and so on) can only process XML documents that are in native format. As part of the XTS solution, J.D. Edwards provides a selector that determines whether a non-ERP XML document can be transformed. A selector is code that looks at an XML document to see if it recognizes the document. If the selector recognizes the XML document, the selector is able to associate the XML document with a provided stylesheet for transformation. The selector that J.D. Edwards provides is able to transform Version 1 XML format into ERP native XML format. Version 1 XML format is XML format that is defined by J.D. Edwards but has been modified to be tool friendly. Native XML format uses a field name that is preceded by param name. Version 1 XML format uses just the field name.

Example: ERP Native XML Format

The following sample shows ERP native XML format:

```
<?xml version="1.0" encoding="UTF-8" ?>
<jdeRequest type="callmethod" user="JDE" pwd="JDE" environment="PRD733"
session="">
  <callMethod name="GetLocalComputerId" app="MSMQ" runOnError="no">
    <params>
      <param name="szMachineKey" id="2" />
    </params>
    <onError abort="yes" />
  </callMethod>
- <callMethod name="F4211FSBeginDoc" app="MSMQ" runOnError="no">
    <params>
      <param name="mnCMJobNumber" id="1" />
      <param name="cCMDocAction">A</param>
      <param name="cCMProcessEdits">1</param>
      <param name="szCMComputerID" idref="2" />
      <param name="cCMUpdateWriteToWF">2</param>
      <param name="szCMProgramID">MSMQ</param>
      <param name="szCMVersion">MSMQ</param>
      <param name="szOrderType">SQ</param>
      <param name="szBusinessUnit">M30</param>
      <param name="mnAddressNumber">4242</param>
      <param name="szReference">2</param>
      <param name="cApplyFreightYN">Y</param>
      <param name="szCurrencyCode">CAD</param>
      <param name="cWKSourceOfData" />
      <param name="cWKProcMode">1</param>
      <param name="mnWKSuppressProcess">0</param>
    </params>
    <onError abort="yes">
      <callMethod name="F4211ClearWorkFile" app="MSMQ" runOnError="yes">
        <params>
          <param name="mnJobNo" idref="1" />
          <param name="szComputerID" idref="2" />
          <param name="mnFromLineNo">0</param>
          <param name="mnThruLineNo">0</param>
          <param name="cClearHeaderWF">2</param>
          <param name="cClearDetailWF">2</param>
```

```
          <param name="szProgramID">MSMQ</param>
          <param name="szCMVersion">ZJDE0001</param>
        </params>
      </callMethod>
    </onError>
  </callMethod>
  <callMethod name="F4211FSEditLine" app="MSMQ" runOnError="yes">
    <params>
      <param name="mnCMJobNo" idref="1" />
      <param name="cCMLineAction">A</param>
      <param name="cCMProcessEdits">1</param>
      <param name="cCMWriteToWFFlag">2</param>
      <param name="szCMComputerID" idref="2" />
      <param name="mnLineNo">1</param>
      <param name="szItemNo">1001</param>
      <param name="mnQtyOrdered">5</param>
      <param name="cSalesTaxableYN">N</param>
      <param name="szTransactionUOM">EA</param>
      <param name="szCMProgramID">1</param>
      <param name="szCMVersion">ZJDE0001</param>
      <param name="cWKSourceOfData" />
    </params>
    <onError abort="no" />
  </callMethod>
  <callMethod name="F4211FSEndDoc" app="MSMQ" runOnError="no">
    <params>
      <param name="mnCMJobNo" idref="1" />
      <param name="szCMComputerID" idref="2" />
      <param name="szCMProgramID">MSMQ</param>
      <param name="szCMVersion">ZJDE0001</param>
      <param name="cCMUseWorkFiles">2</param>
      <param name="mnSalesOrderNo" id="3" />
      <param name="szKeyCompany" id="4" />
      <param name="mnOrderTotal" id="5" />
    </params>
    <onError abort="no">
      <callMethod name="F4211ClearWorkFile" app="MSMQ" runOnError="yes">
        <params>
          <param name="mnJobNo" idref="1" />
          <param name="szComputerID" idref="2" />
          <param name="mnFromLineNo">0</param>
          <param name="mnThruLineNo">0</param>
          <param name="cClearHeaderWF">2</param>
          <param name="cClearDetailWF">2</param>
          <param name="szProgramID">MSMQ</param>
          <param name="szCMVersion">ZJDE0001</param>
        </params>
      </callMethod>
    </onError>
  </callMethod>
  <returnParams failureDestination="error" runOnError="yes"
successDestination="success">
    <param name="mnOrderNo" idref="3" />
    <param name="szOrderCo" idref="4" />
    <param name="mnWKOrderTotal" idref="5" />
```

```
  </returnParams>
  <onError abort="yes">
    <callMethod name="F4211ClearWorkFile" app="MSMQ" runOnError="yes">
      <params>
        <param name="mnJobNo" idref="1" />
        <param name="szComputerID" idref="2" />
        <param name="mnFromLineNo">0</param>
        <param name="mnThruLineNo">0</param>
        <param name="cClearHeaderWF">2</param>
        <param name="cClearDetailWF">2</param>
        <param name="szProgramID">MSMQ</param>
        <param name="szCMVersion">ZJDE0001</param>
      </params>
    </callMethod>
  </onError>
</jdeRequest>
```

Example: ERP Version 1 XML Format

The following sample shows Version 1 XML format:

```
<?xml version="1.0" ?>
<intBPAPI>
  <dsControl>
    <dsLogin>
      <User>JDESVR</User>
      <Password>JDESVR</Password>
      <Environment>ADEVNIS2</Environment>
      <Session />
    </dsLogin>
    <dsAPI>
      <Noun>jdeSalesOrder</Noun>
      <Verb>Create</Verb>
      <Version>1.1</Version>
    </dsAPI>
    <dsTranslation>
      <InMap />
      <OutMap />
    </dsTranslation>
  </dsControl>
  <dsData>
    <callMethod_GetLocalComputerId app="NetComm" runOnError="no">
      <szMachineKey id="2" />
      <onError_GetLocalComputerId abort="yes" />
    </callMethod_GetLocalComputerId>
  <callMethod_F4211FSBeginDoc app="NetComm" runOnError="no">
    <mnCMJobNumber id="1" />
    <cCMDocAction>A</cCMDocAction>
    <cCMProcessEdits>1</cCMProcessEdits>
    <szCMComputerID idref="2" />
    <cCMUpdateWriteToWF>2</cCMUpdateWriteToWF>
    <szCMProgramID>NetComm</szCMProgramID>
    <szCMVersion>NetComm</szCMVersion>
```

```
  <szOrderType>SQ</szOrderType>
  <szBusinessUnit>M30</szBusinessUnit>
  <mnAddressNumber>4242</mnAddressNumber>
  <szReference>2</szReference>
  <cApplyFreightYN>Y</cApplyFreightYN>
  <szCurrencyCode>CAD</szCurrencyCode>
  <cWKSourceOfData />
  <cWKProcMode>1</cWKProcMode>
  <mnWKSuppressProcess>0</mnWKSuppressProcess>
  <onError_F4211FSBeginDoc abort="yes">
    <callMethod_F4211ClearWorkFile app="NetComm" runOnError="yes">
      <mnJobNo idref="1" />
      <szComputerID idref="2" />
      <mnFromLineNo>0</mnFromLineNo>
      <mnThruLineNo>0</mnThruLineNo>
      <cClearHeaderWF>2</cClearHeaderWF>
      <cClearDetailWF>2</cClearDetailWF>
      <szProgramID>NetComm</szProgramID>
      <szCMVersion>ZJDE0001</szCMVersion>
    </callMethod_F4211ClearWorkFile>
  </onError_F4211FSBeginDoc>
</callMethod_F4211FSBeginDoc>
  <callMethod_F4211FSEditLine app="NetComm" runOnError="yes">
    <mnCMJobNo idref="1" />
    <cCMLineAction>A</cCMLineAction>
    <cCMProcessEdits>1</cCMProcessEdits>
    <cCMWriteToWFFlag>2</cCMWriteToWFFlag>
    <szCMComputerID idref="2" />
    <mnLineNo>1</mnLineNo>
    <szItemNo>1001</szItemNo>
    <mnQtyOrdered>5</mnQtyOrdered>
    <cSalesTaxableYN>N</cSalesTaxableYN>
    <szTransactionUOM>EA</szTransactionUOM>
    <szCMProgramID>1</szCMProgramID>
    <szCMVersion>ZJDE0001</szCMVersion>
    <cWKSourceOfData />
    <onError_F4211FSEditLine abort="no" />
  </callMethod_F4211FSEditLine>
  <callMethod_F4211FSEndDoc app="NetComm" runOnError="no">
    <mnCMJobNo idref="1" />
    <szCMComputerID idref="2" />
    <szCMProgramID>NetComm</szCMProgramID>
    <szCMVersion>ZJDE0001</szCMVersion>
    <cCMUseWorkFiles>2</cCMUseWorkFiles>
    <mnSalesOrderNo id="3" />
    <szKeyCompany id="4" />
    <mnOrderTotal id="5" />
    <onError_F4211FSEndDoc abort="no">
      <callMethod_F4211ClearWorkFile app="NetComm" runOnError="yes">
        <mnJobNo idref="1" />
        <szComputerID idref="2" />
        <mnFromLineNo>0</mnFromLineNo>
        <mnThruLineNo>0</mnThruLineNo>
        <cClearHeaderWF>2</cClearHeaderWF>
        <cClearDetailWF>2</cClearDetailWF>
```

```
          <szProgramID>NetComm</szProgramID>
          <szCMVersion>ZJDE0001</szCMVersion>
        </callMethod_F4211ClearWorkFile>
      </onError_F4211FSEndDoc>
    </callMethod_F4211FSEndDoc>
    <returnParams failureDestination="error" successDestination="success"
runOnError="yes">
      <mnOrderNo idref="3" />
      <szOrderCo idref="4" />
      <mnWKOrderTotal idref="5" />
    </returnParams>
    <onError abort="yes">
      <callMethod_F4211ClearWorkFile app="NetComm" runOnError="yes">
        <mnJobNo idref="1" />
        <szComputerID idref="2" />
        <mnFromLineNo>0</mnFromLineNo>
        <mnThruLineNo>0</mnThruLineNo>
        <cClearHeaderWF>2</cClearHeaderWF>
        <cClearDetailWF>2</cClearDetailWF>
        <szProgramID>NetComm</szProgramID>
        <szCMVersion>ZJDE0001</szCMVersion>
      </callMethod_F4211ClearWorkFile>
    </onError>
  </dsData>
</intBPAPI>
```

Build a Custom Selector

You can build a selector to transform your XML format into ERP native XML format. If you write a custom selector, include both request and response extensible stylesheet language transformation (XSLT) documents.

Inside the Java file, two APIs are used to select templates. Use the boolean fetchTemplates API to fetch the appropriate XSLT document for the request document. Public boolean fetchTemplates throws IXTSMTemplateSelector.TemplateFetchException, XTSXMLParseException. The following sample shows how to use this API:

```
fetchTemplates(XTSDocument  inXML,  IXTSMSelectionInfo  info)
```

Use the Public void fetchTemplates to fetch the appropriate XSLT document for the response document. Public void fetchTemplates throws IXTSMTemplateSelector.TemplateFetchException.

```
fetchTemplates(IXTSMSelectionInfo  info)
```

Sample code showing how J.D. Edwards wrote a selector is provided below.

Note

Ensure that your custom selector is accessible in the ClassPath.

XTS APIs When you write a custom selector, you can use the following APIs to interface with ERP:

- IXTSMTemplateSelector
- IXTSMTemplateSelector.TemplateFetchException

Detail information for these APIs is provided in the online reference guide.

Example: Creating a Selector

The following code was written by J.D. Edwards to build the Version 1 XML selector:

```
File: XTSMJDETemplateSelector.java
//
////////////////////////////////////////////////////////////////////////////
///
//
// Copyright (c) 2001 J.D. Edwards World Source Company
//
// This unpublished material is proprietary to J.D. Edwards World Source
// Company. All rights reserved.  The methods and techniques described
// herein are considered trade secrets and/or confidential.  Reproduction
// or distribution, in whole or in part, is forbidden except by express
// written permission of J.D. Edwards World source Company.
//
////////////////////////////////////////////////////////////////////////////
///

package com.jdedwards.xts.xtsm;

import com.jdedwards.xts.xtsr.IXTSRepository;
import com.jdedwards.xts.xtsr.IXTSRKey;
import com.jdedwards.xts.xtsr.XTSRException;
import com.jdedwards.xts.xtsr.XTSRInvalidKeyStringException;
import com.jdedwards.xts.xtsr.XTSRInvalidKeyFieldException;
import com.jdedwards.xts.xtsr.XTSRKeyNotFoundException;

import com.jdedwards.xts.XTSDocument;
import com.jdedwards.xts.XTSFactory;
import com.jdedwards.xts.XTSLog;
import com.jdedwards.xts.XTSConfigurationException;
import com.jdedwards.xts.XTSXMLParseException;

import com.jdedwards.xts.xtsm.IXTSMTemplateSelector;

import com.jdedwards.xts.xtse.IXTSEngine;
import com.jdedwards.xts.xtse.IXTSECompiledProcessor;

import java.util.List;
import org.w3c.dom.*;


/**
```

```
 * This class is the JDEdwards Template Selector. It will recognize
 * J.D. Edwards standard XML documents, and return the appropriate XSL
 * stylesheets necessary for transformation.
 */
public class XTSMJDETemplateSelector implements IXTSMTemplateSelector
{
   /** Class constructor. */
   public XTSMJDETemplateSelector()
   {
      XTSLog.trace("XTSMJDETemplateSelector()", 3);

      // get repository reference
      XTSFactory factory = XTSFactory.getInstance();
      m_repository = factory.createXTSRepository();
   }

   /**
    * Fetch the appropriate XSLT document(s) and/or IXTSECompiledProcessors
as
    * indicated by the TPT stored in the <code>info</code> parameter.
    * @param info - Selection Info which contains TPI and should be modified
    * by the selector to specify transformation information.
    * @exception IXTSMTemplateSelector.TemplateFetchException - thrown
    * if an error occurs when extracting information from the
    * inclement.
    */
   public void fetchTemplates(IXTSMSelectionInfo info)
          throws IXTSMTemplateSelector.TemplateFetchException
   {

XTSLog.trace("XTSMJDETemplateSelector.fetchTemplates(XTSMSelectionResult)",
3);

      NodeList nodes =
info.getTPIElement().getElementsByTagName(JDE_TS_XTSR_KEY);
      int numNodes = nodes.getLength();
      for(int i = 0; i < numNodes; i++)
      {
         // extract key info & create a key
         IXTSRKey key = createKeyFromNode((Element)nodes.item(i));

         // fetch the doc and add it to the list
         try
         {
            info.getXSLList().add(m_repository.fetch(key));
         }
         catch (XTSRKeyNotFoundException e)
         {
            throw new IXTSMTemplateSelector.TemplateFetchException(
                  "Selected XTSRKey not found in repository: "
                  + JDE_TS_XTSR_KEY);
         }
         catch (XTSRException e)
         {
            throw new IXTSMTemplateSelector.TemplateFetchException(
```

```
                  "Unable to fetch the XSL document specified within '"
                  + JDE_TS_XTSR_KEY +
                  "' from the XTSRepository");
         }
      }
   }

   /**
    * Fetch the appropriate XSLT document(s)/compiled processors for the
given
    * document.
    * @param inXML - the XTSDocument to try to recognize.
    * @param info - Selection Info object to be modified by selector to
    * indicate transformation information.
    * @return - <code>true</code> if the selector has recognized the
document
    * and specified the appropriate selection info via <code>info</code>,
    * <code>false</code> otherwise.
    * @exception TemplateFetchException - thrown when an error occurs when
    * trying to recognize the DOM.
    * @exception XTSXMLParseException - thrown if <inXML> could not be
parsed.
    */
   public boolean fetchTemplates(XTSDocument inXML,
                                 IXTSMSelectionInfo info)
      throws IXTSMTemplateSelector.TemplateFetchException,
             XTSXMLParseException
   {
      XTSLog.trace("XTSMJDETemplateSelector.fetchTemplates(Document,
Element)", 3);

      boolean recognized = false;
      Document inDOM = inXML.getDOM();
      // see if a XTSR key is specified within the document:
      NodeList nodeList = inDOM.getElementsByTagName(JDE_XTSR_KEY);

      if (nodeList.getLength() > 0)
      {
         try
         {
            // extract key info & create a key
            IXTSRKey key = createKeyFromNode((Element)nodeList.item(0));

            // add transformation path information to outElement
            createNodeChildFromKey(info.getTPIElement(), key);

            // fetch the doc and add it to the list
            info.getXSLList().add(m_repository.fetch(key));

            info.setResultXML(true);
            info.setPathInfoStored(false);

            recognized = true;
         }
         catch (XTSREException e)
```

```
         {
            throw new IXTSMTemplateSelector.TemplateFetchException(
                      "Unable to fetch the XSL document specified within '"
                      + JDE_XTSR_KEY +
                      "' from the XTSRepository");
         }
         catch (XTSRKeyNotFoundException e)
         {
            throw new IXTSMTemplateSelector.TemplateFetchException(
                      "Key specified in TPI not found in repository"
                      + JDE_XTSR_KEY);
         }
      }
      else // no XTSR key, so look for JDE information:
      {
         nodeList = inDOM.getElementsByTagName(JDE_INT_BPAPI);
         if (nodeList.getLength() != 0)
         {
            // add transformation path information to outElement
            createNodeChildFromKey(info.getTPIElement(),
getVersion1toNativeKey());

            // fetch the doc and add it to the list
            info.getXSLList().add(getVersion1toNativeXSL());

            info.setResultXML(true);
            info.setPathInfoStored(true);

            recognized = true;
         }
      }

      return recognized;
   }

   /**
    * Extracts XTSRKey information from the given node, and creates an
    * instance of IXTSRKey based on that information.
    * @return - the new IXTSRKey.
    * @param element - Element that contains the key information.
    * @exception XTSMUnrecognizedElementException - thrown if the Element
    * format is unrecognized.
    */
   protected IXTSRKey createKeyFromNode(Element element)
             throws XTSMUnrecognizedElementException
   {
      XTSLog.trace("XTSMJDETemplateSelector.createKeyFromNode(Element)", 4);

      IXTSRKey key = null;
      boolean request = false;
      boolean response = false;
      if (element.getNodeName().equals(JDE_XTSR_KEY))
      {
         request = true;
      }
```

```
      else if (element.getNodeName().equals(JDE_TS_XTSR_KEY))
      {
         response = true;
      }
      if (request || response)
      {
         key = m_repository.createKey();
         try
         {
            String keyString = element.getAttribute(JDE_XTSR_KEY_ATTRIBUTE);
            key.setFieldsFromString(keyString);
            if (key.getFieldValue(SUBTYPE_FIELD).length() == 0)
            {
               if (request)
               {
                  key.setFieldValue(SUBTYPE_FIELD, SUBTYPE_REQUEST);
               }
               else
               {
                  key.setFieldValue(SUBTYPE_FIELD, SUBTYPE_RESPONSE);
               }
            }
         }
         catch (XTSRInvalidKeyStringException e)
         {
            throw new XTSMUnrecognizedElementException(
                      "Specified '" + JDE_XTSR_KEY +
                      "' element format is invalid for this XTSRepository");
         }
         catch (XTSRInvalidKeyFieldException e)
         {
            throw new XTSConfigurationException(
                      "Specified '" + SUBTYPE_FIELD +
                      "' field name not supported by repository key");
         }
      }
      return key;
   }

   /**
    * Creates a node that contains the key fields values and appends it to
    * the given parentNode.
    * @param parentNode - Node to which the key information should be
    * appended.
    * @param key - Key information to store in the node.*/
   protected void createNodeChildFromKey(Node parentNode, IXTSRKey key)
   {

XTSLog.trace("XTSMJDETemplateSelector.createKeyFromNode(Node,IXTSRKey)", 4);

      try
      {
         IXTSRKey keyClone = key.getRepository().createKey();
         keyClone.setFieldsFromString(key.getFieldsString());
```

```
         // we don't want to store the sub type, so we will clear it here:
         keyClone.setFieldValue(SUBTYPE_FIELD, "");

         // create new node and append it to the provided element:
         Element element =
(Element)parentNode.getOwnerDocument().createElement(JDE_TS_XTSR_KEY);
         element.setAttribute(JDE_XTSR_KEY_ATTRIBUTE,
keyClone.getFieldsString());
         parentNode.appendChild(element);
      }
      catch (XTSRInvalidKeyStringException e)
      {
         XTSLog.log("Unexpected ");
         XTSLog.log(e);
         throw new RuntimeException("Unexpected Exception: " +
e.toString());
      }

   }

   /**
    * Returns the key of the stylesheet to use in converting JDE version 1
    * documents into JDE native documents.
    * @return - The key for the XSL stylesheet.
    */
   protected IXTSRKey getVersion1toNativeKey()
   {
      XTSLog.trace("XTSMJDETemplateSelector.getVersion1toNativeKey()", 5);
      if (null == m_version1ToNativeKey)
      {
         try
         {
            // create standard xsl XTSRKey:
            m_version1ToNativeKey = m_repository.createKey();
            m_version1ToNativeKey.setFieldsFromString(V1_TO_NATIVE_KEY);
         }
         catch (XTSRInvalidKeyStringException e)
         {
            String error = "XTSRKey necessary for JDE template selection is
invalid: "
                        + V1_TO_NATIVE_KEY;
            XTSLog.log(error);
            XTSLog.log(e);
            throw new XTSConfigurationException(error);
         }
      }
      return m_version1ToNativeKey;
   }

   /**
    * Returns the XTSDocument which contains the XSL stylesheet for
converting
    * JDE version 1 documents into JDE native documents.
    * @return - XTSDocument containing the XSL stylesheet.
    */
```

```
   protected IXTSECompiledProcessor getVersion1toNativeXSL()
   {
      XTSLog.trace("XTSMJDETemplateSelector.getVersion1toNativeXSL()", 5);
      if (null == m_version1ToNativeXSL)
      {
         XTSDocument xsl = null;
         Try
         {
            xsl = m_repository.fetch(getVersion1toNativeKey());
            IXTSEngine engine = XTSFactory.getInstance().createXTSEngine();
            m_version1ToNativeXSL = engine.createCompiledProcessor(xsl);
         }
         catch (XTSRException e)
         {
            String error = "Unable to fetch selected template from the
repository: ";
            XTSLog.log(error);
            XTSLog.log(e);
            throw new XTSConfigurationException(error + e.toString());
         }
         catch (XTSRKeyNotFoundException knfe)
         {
            String error = "Selected template XTSRKey not found in
repository:";
            XTSLog.log(error);
            XTSLog.log(knfe);
            throw new XTSConfigurationException(error + knfe.toString());
         }
         catch (XTSXMLParseException pe)
         {
            String error = "Invalid XSL document in repository";
            XTSLog.log(error);
            XTSLog.log(pe);
            throw new XTSConfigurationException(error + pe.toString());
         }
      }
      return m_version1ToNativeXSL;
   }

   /** Referenct to the XTSRepository */
   private IXTSRepository      m_repository           = null;

   /** Key for converting JDE version 1 documents to JDE native documents.
*/
   private IXTSRKey            m_version1ToNativeKey  = null;

   /** Compiled XSL Stylesheet for converting JDE version 1 docs to
    *  JDE native docs. */
   private IXTSECompiledProcessor m_version1ToNativeXSL  = null;

   /** Field Value for the XTSRKey that indicates the document is an XSL doc
*/
   private static final String DOC_TYPE_XSL           = "XSL";

   /** Element name that indicates the DOM is a JDEdwards Version 1 document
```

```
*/
   private static final String JDE_INT_BPAPI          = "intBPAPI";

   /** Element name that indicates the DOM is a request and not a response
or
    *  error. */
   private static final String JDE_REQUEST            = "jdeRequest";

   /** Element name that indicates the DOM is a response */
   private static final String JDE_RESPONSE           = "jdeResponse";

   /** Element name that specifies an XTSRKey to use in transforming the
    *  document. */
   private static final String JDE_XTSR_KEY           = "jdeXTSRKey";

   /** The attribute of the <code>JDE_XTSR_KEY</code> element which stores
    *  the XTSRKey string value */
   private static final String JDE_XTSR_KEY_ATTRIBUTE = "key";

   /** XTSRKey field name which specifies the sub-type of the XML document.
    *  Normal values for the sub-type are defined by
    *  <code>SUBTYPE_REQUEST</code> and <code>SUBTYPE_RESPONSE</code> */
   private static final String SUBTYPE_FIELD          = "SUB_TYPE";

   /** XTSRKey field name which specifies the type of the XML document.
    *  The normal value is defined by <code>DOC_TYPE_XSL</code> */
   private static final String FIELD_TYPE             = "TYPE";

   /** XTSRKey field name which specifies the format (or owner) of the XML
    *  document.  The normal value recognized by this selector is 'JDE' */
   private static final String FIELD_FORMAT           = "FORMAT";

   /** XTSRKey field name which specifies the particular transformation
which
    *  the XSL document will perform.  This selector uses 'V1_NATIVE' for
    *  transformations between JDEdwards Version 1 XML documents and J.D.
Edwards
    *  native version documents. */
   private static final String FIELD_ID               = "ID";

   /** The string representation of the XTSRKey for the XSL document to
format
    *  JDEdwards version 1 request documents into JDEdwards native request
    *  documents. */
   private static final String V1_TO_NATIVE_KEY       = "XSL-JDE-V1_NATIVE-
REQUEST";

   /** XTSRKey field <code>SUBTYPE_FIELD</code> value that indicates the XSL
    *  document will transform jdeRequest documents. */
   private static final String SUBTYPE_REQUEST        = "REQUEST";

   /** XTSRKey field <code>SUBTYPE_FIELD</code> value that indicates the XSL
    *  document will transform jdeResponse documents. */
   private static final String SUBTYPE_RESPONSE       = "RESPONSE";
```

```
   /** Element name stored within the Transformation Path Information (TPI)
    *  which specifies the XTSRKey used to transform the document. */
   private static final String JDE_TS_XTSR_KEY        = "XTSJDETemplateKey";

   private static class XTSMUnrecognizedElementException
           extends IXTSMTemplateSelector.TemplateFetchException
   {
      public XTSMUnrecognizedElementException(String text)
      {
         super(text);
      }
   }
}
```

Configure the jde.ini File for XTS

The XTS Kernel must be defined in the server jde.ini file. The name of the configuration file is retrieved from the config_file system variable in the JVM, and these property settings are part of a configuration file other than jde.ini. The jde.ini file does not require any special configurations, other than defining the XTS Kernel.

The kernel settings are as follows:

```
[JDENET_KERNEL_DEF23]
krnlName=JDEXTS KERNEL
dispatchDLLName=xtskrnl.dll
dispatchDLLFunction=_JDEK_DispatchXTSMessage@28
maxNumberOfProcesses=1
numberOfAutoStartProcesses=0
```

Refer to the following table for different .dll extensions for other platforms.

	dispatch DLLName	**dispatchDLLFunction**
AS400	XTSKRNL	JDEK_DispatchXTS
HP9000B	libxtskrnl.sl	JDEK_DispatchXTS
SUN or RS6000	libxtskrnl.so	JDEK_DispatchXTS

Other jde.ini File settings include the following:

```
[JDE_CG]
CLASSPATH=<install-path>\system\Classes\xalan.jar;<install-
path>\system\Classes \xerces.jar;<install-
path>\system\Classes\_Kernel.jar;<install-path>\system\Classes\XTS.jar;
<install-path>\system\Classes\log4j.jar;<install-path>\system\Classes
```

Note

Update the CLASSPATH to include your custom class file provided in the XTSTemplaceSelector2 in the [XTS] section.

Do not use $SYSTEM in your classpath. The full name of the system directory must be included.

[JDENET]
maxKernelRanges=24.

Note

For the XTS kernel to run, the maxKernelRanges setting should be at least 23.

[XTSRepository]
XSL-JDE-V1_NATIVE-REQUEST=ml.xsl
XSL-JDE-V1_NATIVE-RESPONSE=lm.xsl

Note

The first setting is the JD Edwards default XSL to transform the request document from Version 1 to native. The second settings is the J.D. Edwards default XSL to transform the response document from native to version 1.

You can provide your XSL files either at this location or any other location as long as your selector can find and access your XSL. If you want to add your XSL files to this location, use the following naming convention, where Filename is the name of your XSL documents:

XSL-JDE-Filename-REQUEST=

XSL-JDE-Filename-RESPONSE=

[XTS]
XTSTemplateSelector1=com.jdedwards.xts.xtsm.XTSMJDETemplateSelector
XTSTraceLevel=2

Note

The XTSTemplaceSelector1 setting is J.D. Edwards default template selector for providing XSL to transform between Version 1 and native format.

You can add your custom template selector to this section. For example, your template selector setting could be defined as follows:

XTSTemplateSelector2=com.customer.CustomTemplateSelector

The XTSTraceLevel=2 setting defines the level of XTS logging.

XML Dispatch

XML Dispatch is XML-based interoperability that runs as an ERP kernel process. The XML Dispatch kernel is the ERP central entry point for all XML documents. For incoming XML documents, XML Dispatch identifies what kind of document is coming into ERP and sends the document to the appropriate kernel for processing. If XML Dispatch does not recognize the document, XML Dispatch sends the document to XTS to recognize and transform into native ERP format. After XTS transforms the document, the document is sent back to XML

Dispatch to be sent to the appropriate kernel for processing. For outgoing documents, XML Dispatch is able to remember whether the request document was transformed into ERP native format. If the incoming request was transformed, then the outgoing response document is sent to XTS for transformation from native ERP format back into the format of the original request. After XTS transforms the document, the document is sent to XML Dispatch to distribute to the originator.

The XML Dispatch kernel is able to route and load balance the XML documents. For example, if you have many XML CallObject message types coming in at once, XML Dispatch will try to instantiate a new CallObject kernel. You set up the number of instances that a kernel can have in the jde.ini file. For example, if you set the number of instances for the CallObject kernel to 5, if more that one CallObject document comes into ERP, XML Dispatch sees that a particular kernel is busy and instantiates another one (up to 5). XML Dispatch is able to recognize new kernel definitions (such as XAPI) if the kernel is defined in the jde.ini file. You are not required to change JDENET code when new kernels are added.

XML Dispatch is available on all platforms that ERP supports.

XML Dispatch Process

XML Dispatch receives standard JDENET messages (in the form of an XML document) from a transport driver or other jdenet_n. The communication between a transport and XML Dispatch is local inter-process communication (IPC) using JDENET APIs. The communication between XML Dispatch and XTS and between XML Dispatch and XML kernels can be either IPC or remote network using JDENET APIs.

XML Dispatch parses the XML document and sends the document to the appropriate ERP kernel for processing.

XML Dispatch Recognizers

XML Dispatch uses recognizers to determine how to handle incoming and outgoing XML documents. If XML Dispatch recognizes an incoming XML document as being in ERP native XML format, the XML document is parsed and sent to the appropriate kernel. For outgoing documents, the recognizer determines whether an ERP XML document can left as ERP native XML format or whether it must be transformed.

More than one recognizer can be added to XML Dispatch to recognize different XML grammar. XML Dispatch recognizes the following types:

- jdeRequest
- jdeResponse
- jdeWorkflow

The XML Dispatch recognizer raises DocIsRecognized exception on document identification to stop further parsing.

You can write a recognizer to be able to recognize other types of XML documents. The specification for the type is configured in the jde.ini file.

XML DispatchTransports

As part of XML Dispatch, you can write a transport. Transports communicate with external systems using mechanisms such as MQSeries, MSMQ, HTTP, TCP/IP, and so on. Transport processes must run on the same machine as XML Dispatch. To develop a custom transport to communicate with ERP, use the following APIs:

- jdeTransportInit
- jdeTransportMessagePut
- jdeTransportMessageGet
- jdeTransportDoIExit

The transport APIs assume a polling model, which means calls to put or receive messages are given without a timeout. For more information about the transport APIs, see the online reference documentation.

Configure the jde.ini File for XML Dispatch

The XML Dispatch kernel must be defined in the jde.ini file. The settings for XML Dispatch are as follows:

```
[JDENET_KERNEL_DEF22]
    krnlName=XML DISPATCH KERNEL
    dispatchDLLName=xmldispatch.dll
    dispatchDLLFunction=_XMLDispatch@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=1
```

The above settings are for Windows 2000 and NT. If you use a different platform, use the following settings for dispatchDLLName and dispatchDLLFunction:

Platform	dispatchDLLName	dispatchDLLFunction
AS/400	XMLDSPATCH	JDEK_XMLDispatch
HP9000	libxmldispatch.sl	JDEK_XMLDispatch
SUN or RS6000	libxmldispatch.so	JDEK_XMLDispatch

XML Dispatch uses the settings in the [XMLLookupInfo] section of the jde.ini file to route XML documents to the corresponding XML kernels. Three keywords (XMLRequestN, XMLKernelMessageRangeN, and XMLKernelHostN) are used to map a pair that consists of an XML request and an XML kernel. A description of the settings in the [XMLLookupInfo] section are explained in the following table:

Setting	Purpose
XMLRequestTypeN=	Identifies the type of message to be processed.
XMLKernelMessageRangeN=	A hard-coded number that identifies the kernel message range.
XMLKernelHostNameN=	The name of the host.
XMLKernelPortN=	Value is 0 or 1. To indicate a local host, enter 0. To indicate a remote host, enter 1.

Setting	Purpose
XMLKernelRplyN=	Value is 0 or 1, with 1 as the default. A value of 0 indicates no reply is required. A value of 1 indicates a reply should be returned to the originator. **Note** XMLKernelRplyN setting is not required for list, callmethod, and trans. The reply setting is an implied 1 by default. XMLService does not send a response, and the setting for XMLKernelReplyN should be zero (0).

Where N starts with 1, and multiple groups of these keys can be in this section.

The [XMLLookupInfo] section should have 6 groupings, as follows:

```
[XMLLookupInfo]
    XMLRequestType1=list
    XMLKernelMessageRange=5257
    XMLKernelHostName1=local
    XMLKernelPort1=0

XMLRequestType2=callmethod
    XMLKernelMessageRange2=920
    XMLKernelHostName2=local
    XMLKernelPort2=0

XMLRequestType3=trans
    XMLKernelMessageRange3=5001
    XMLKernelHostName3=local
    XMLKernelPort3=0

XMLRequestType4=JDEMSGWFINTEROP
    XMLKernelMessageRange4=4003
    XMLKernelHostName4=local
    XMLKernelPort4=0
    XMLKernelReply4=0

XMLRequestType5=xapicallmethod
    XMLKernelMessageRange5=14251
    XMLKernelHostName5=local
    XMLKernelPort5=0
    XMLKernelReply5=0

XMLRequestType6=realTimeEvent
    XMLKernelMessageRange6=14251
    XMLKernelHostName6=local
    XMLKernelPort6=0
    XMLKernelReply6=0
```

XML Dispatch Error Handling

XML Dispatch handles three types of errors. The following table identifies the errors and the way that XML Dispatch handles the error:

An error occurs while XML dispatch, XTS, and the XL kernel processes are exchanging data. For example, communication is broken.	XML Dispatch generates an error report, which is an XML document that describes the error.
An error occurs while the parser or XTS is processing an XML document. For example, a syntax error, an invalid request, and so on.	XML Dispatch generates an error report that is based on the error message that is generated by either the parser or XTS.
An error occurs while an XML kernel is processing an XML document. For example, the user name in invalid, the transaction is rolled back, and so on.	XML Dispatch uses XTS to transform the XML kernel generated error report when necessary.

XML Dispatch sends generated error reports to the corresponding transport process.

XML CallObject

XML CallObject is XML-based interoperability that runs as an ERP kernel process. You can also use XML CallObject with a messaging adapter. The following lists some of the features of XML CallObject:

- Allows you to make business function calls to ERP using XML documents.
- Provides business function templates, and also allows you to create your own templates.
- Allows you to call multiple business functions using a single XML document.
- Provides a simpler way of interfacing with ERP compared to using COM or Java APIs.

XML CallObject Templates

XML CallObject provides a blank template that you can complete so that you can make CallObject requests for a given business function. You also have the option of creating your own custom XML documents.

To request an XML template for a given business function, you create an XML document that is a callMethod request type. When you make a CallObject template request, the response is the template that has information about all of the function parameters but with no data values filled in. The user, password, and session attribute values are blanked out so that you can cache the response for later use.

A CallObject template request is an exception to the convention that a jdeRequest returns a jdeResponse. Instead of data, you receive the template, which you use to make another CallMethod request. When you request a CallObject template, the request for the template is the only request that can be made in the XML document. The XML document must include the business function.

The following example illustrates a request for a CallObject template:

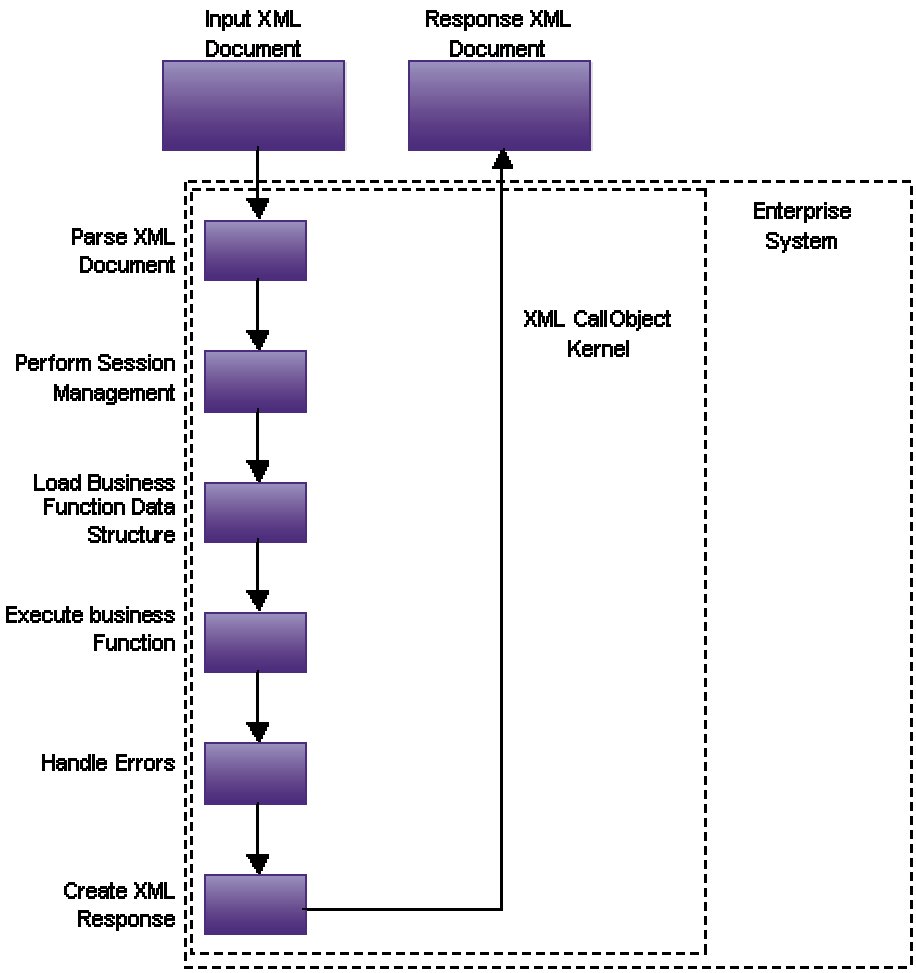
```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' en
vironment='prod' session=''>
<callMethodTemplate name='myfunc' app='P42101'/>
</jdeRequest>
```

The following example illustrates a response to a CallObject template request. This response can then be filled in with the appropriate information and sent back as a request.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='' pwd='' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101'>
<params>
<param name='CostCtr'></param>
<param name='ExpDate'></param>
<param name='Quantity'></param>
</params>
</callMethod>
</jdeRequest>
```

XML CallObject Process

The XML CallObject process is illustrated below:



- The enterprise server receives an XML document.
- XML CallObject processes the message by parsing the XML document.
- The session manager validates the user and password.
- Each requested business function is called separately or within requested transaction boundaries until all calls are processed.
- Output data and error messages are merged with the data from the input XML document and a new response document is created and sent to the originator.

XML CallObject Elements

Your XML document must have the following elements at the beginning of the document:

- jdeRequest Type
- Establish Session

- Expire Session

Your XML document must end with the following element:

- Terminate Session

Your XML CallObject document can also have the following optional elements:

- Call Object
- On Error Handling
- Call Object Error Handling
- Error Text
- Multiple Requests per Document
- ID/IDREF Support
- Return NULL Values

Call Object

Tags are used to call business functions on the server.

The following illustration and discussion show how to use callObject:

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod'>
<callMethod name='myfunc' app='P42101'>
<params>
<param name='CostCtr'>      1001</param>
<param name='ExpDate'>1999/10/31</param>
<param name='Quantity'>12</param>
</params>
</callMethod>
</jdeRequest>
```

The callMethod element details which function to call and in what context it is being called. The name attribute specifies which business function to call, and the app attribute allows the business function to know who is calling it.

The params and param elements define the data structure of the business function. Each param element describes one data structure member. The caller is only required to give the name attribute.

If no param element value is given for an input data structure member, then the value will be treated as if it were NULL or zero.

On Error Handling

You can add an onError element to the callMethod request to take a specific action if an error occurs. The onError tag can specify an abort attribute that specifies whether all subsequent requests should be skipped. The allowed values are *yes* or *no*. A global onError tag can be specified as a child of the jdeRequest tag, which will be executed if there were errors

encountered and no other onError tag with abort='yes' was executed. The global onError tag should be the last request in the document.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101' trans='t1' runOnEr
ror='yes'>
<params>
<param name='CostCtr'>      1001</param>
</params>
<onError abort='no'>
<endTransaction trans='t1' action='rollback'/>
</onError>
</callMethod>
</jdeRequest>
```

Call Object Error Handling

System errors on a call object are reported in the returnCode element. The numeric code is returned in the code attribute and the corresponding text is returned as a child text node of the returnCode element. The standard jdeCallObject return codes are used for the code attribute.

```
<?xml version='1.0' ?>
<jdeResponse type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101' trans='t1'>
<params>
<param name='CostCtr'>      1001</param>
</params>
<returnCode code='0'>Success</returnCode>
</callMethod>
</jdeResponse>
```

Error Text

You can use error text to handle business function errors. When you use error text, business function error messages are returned in the errors element. Within the errors element there can be zero or more error elements containing a code attribute for the error code and a child text node containing the error text. The name attribute describes the param element that is referred to by the error.

```
<?xml version='1.0' ?>
<jdeResponse type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101' trans='t1'>
<params>
<param name='CostCtr'>      1001</param>
</params>
<returnCode code='2'>Errors</returnCode>
<errors>
   <error code='192' name='CostCtr'>Cost Center not valid</er
ror>
</errors>
</callMethod>
</jdeResponse>
```

Multiple Requests per Document

Multiple requests can be included in the XML document. By default, requests are not run if there have been any errors on previous requests. If a request should be run even if errors have occurred, then the default behavior can be overridden by using the runOnError attribute on the request with a value of yes.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101' trans='t1' runOnEr
ror='yes'>
<params>
<param name='CostCtr'>      1001</param>
</params>
</callMethod>
</jdeRequest>
```

ID/IDREF Support

ID type attributes uniquely identify, by a string value, elements in a XML document. IDREF attributes allow other elements to reference the specified element. An IDREF attribute must not be used in a document before the ID it references is defined.

A param element can specify an ID attribute so that its output value from the callMethod request will be saved and referred to later in another param element by an IDREF attribute. If a param element contains an IDREF attribute, the value of the given parameter is used as the input value for the param element. For example, the output value from referenced parameter is used instead of the value in the XML.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='steve' pwd='xyz' environ
ment='prod' session=''>
<callMethod name='myfunc' app='P42101' trans='t1' runOnEr
ror='yes'>
<params>
<param name='CostCtr'>      1001</param>
<param name='Company1' id='c1'></param>
<param name='Company2' id='c2'></param>
</params>
</callMethod>
<callMethod name='myfunc2' app='P42101' trans='t1' runOnEr
ror='yes'>
<params>
<param name='Company1' idref='c1'></param>
</params>
<returnParams><param idref='c2'/></returnParams>
</callMethod>
</jdeRequest>
```

You can specify a special request tag called returnParams that can contain one or more param elements. If the param elements contain IDREF attributes, then the referenced values are copied into the response.

Return NULL Values

By default, if a parameter was not specified in the request document, it will not be returned in the response document unless its value is non-blank or non-zero. This behavior can be modified by specifying the returnNullData attribute on the callMethod element with a value of yes.

```
<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='' pwd='' environment='prod'
session=''>
<callMethod name='myfunc' app='P42101' returnNullData='yes'>
<params>
<param name='CostCtr'></param>
<param name='ExpDate'></param>
<param name='Quantity'></param>
</params>
</callMethod>
</jdeRequest>
```

Configure the jde.ini File for XML CallObject

The jde.ini settings for the XML callobject kernel are as follows:

```
[JDENET_KERNEL_DEF6]
    krnlName=CALL OBJECT KERNEL
    dispatchDLLName=XMLCallObj.dll
    dispatchDLLFunction=_XMLCallObjectDispatch@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=1
```

Refer to the following table for different .dll extension for other platforms:

Platform	dispatchDLLName	dispatchDLLFunction
AS/400	XMLCALLOBJ	XMLCallObjectDispatch
HP9000	libxmlcallobj.sl	XMLCallObjectDispatch
SUN or RS6000	libxmlcallobj.so	XMLCallObjectDispatch

Example: CallObject Request

The following code sample shows a CallObject request:

```
<?xml version="1.0" encoding="utf-8" ?>
<jdeRequest pwd="JDE" type="callmethod" user="JDE" session=""
environment="M7333NIS2" sessionidle="1800">
  <callMethod app="XMLTest" name="AddressBookMasterMBF">
    <params>
      <param name="cActionCode">A</param>
      <param name="cUpdateMasterFile">1</param>
      <param name="mnAddressBookNumber" idref="ABNumber" />
      <param name="szSearchType">C</param>
      <param name="szAlphaName">bobs</param>
      <param name="szMailingName">Bob's Shrimp boats</param>
      <param name="szAddressLine1">One Technology Way</param>
      <param name="szPostalCode">80237</param>
      <param name="szCity">Denver</param>
      <param name="szCounty">Denver</param>
      <param name="szState">CO</param>
      <param name="szCountry">US</param>
      <param name="cPayablesYNM">N</param>
      <param name="cReceivablesYN">Y</param>
      <param name="cEmployeeYN">N</param>
      <param name="cUserCode">N</param>
      <param name="cARAPNettingY">N</param>
      <param name="jdDateEffective">01/23/2001</param>
      <param name="szProgramId">EP01012</param>
      <param name="mnAddNumParentOriginal">0</param>
      <param name="szVersionconsolidated" idref="Version" />
      <param name="szCountryForPayroll">US</param>
    </params>
```

```
  </callMethod>
</jdeRequest>
```

Example: CallObject Response

The following code sample shows a CallObject response:

```
<?xml version="1.0" encoding="UTF-8" ?>
<jdeResponse pwd="JDE" role="*ALL" type="callmethod" user="JDE"
session="2360.1049473980.6" environment="PDEVNIS2" sessionidle="1800">
<callMethod app="XMLTest" name="AddressBookMasterMBF">
  <returnCode code="0" />
    <params>
      <param name="cActionCode">A</param>
      <param name="cUpdateMasterFile">1</param>
      <param name="mnAddressBookNumber">57322</param>
      <param name="szSearchType">C</param>
      <param name="szAlphaName">bobs</param>
      <param name="szMailingName">Bob's Shrimp boats</param>
      <param name="szBusinessUnit">1</param>
      <param name="szAddressLine1">One Technology Way</param>
      <param name="szPostalCode">80237</param>
      <param name="szCity">Denver</param>
      <param name="szState">CO</param>
      <param name="szCountry">US</param>
      <param name="cPayablesYNM">N</param>
      <param name="cReceivablesYN">Y</param>
      <param name="cEmployeeYN">N</param>
      <param name="cUserCode">N</param>
      <param name="cARAPNettingY">N</param>
      <param name="cAddressType3YN">N</param>
      <param name="cAddressType4YN">N</param>
      <param name="cAddressType5YN">N</param>
      <param name="jdDateEffective" />
      <param name="szProgramId">EP01012</param>
      <param name="szVersionconsolidated">ZJDE0001</param>
      <param name="cEdiSuccessfullyProcess">0</param>
      <param name="szCountryForPayroll">US</param>
    </params>
  </callMethod>
</jdeResponse>
```

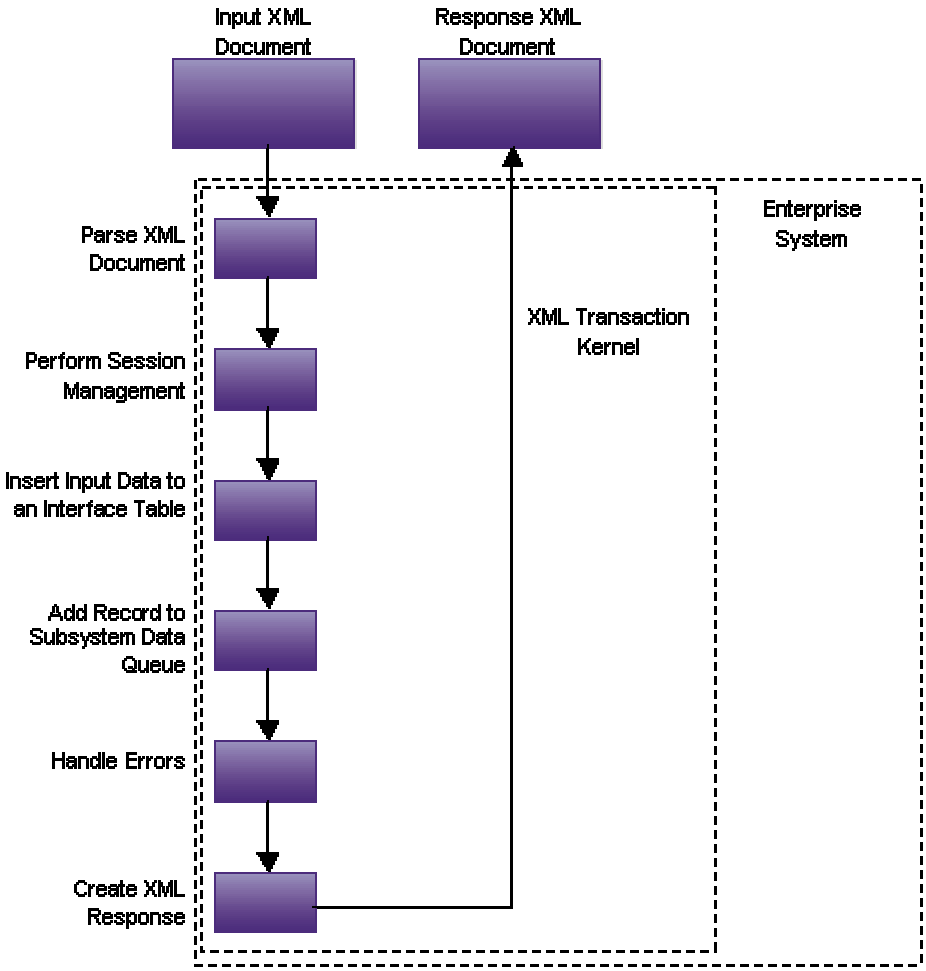
XML Transaction

XML Transaction is XML-based interoperability that runs as an ERP kernel process. You can also use XML Transaction with a messaging adapter. XML Transaction interacts with interface tables (Z tables) to update the ERP database or to retrieve ERP data. You can create one XML document that includes both updates to ERP and retrieval of data from ERP.

XML Transaction Update Process

To insert data into ERP, you use a formatted XML document. The XML document includes a predefined transaction type, such as JDEPOIN. The XML document identifies one or more ERP interface tables and lists all of the data (data type and actual data values) to be updated.

The following illustration shows the XML Transaction update process.

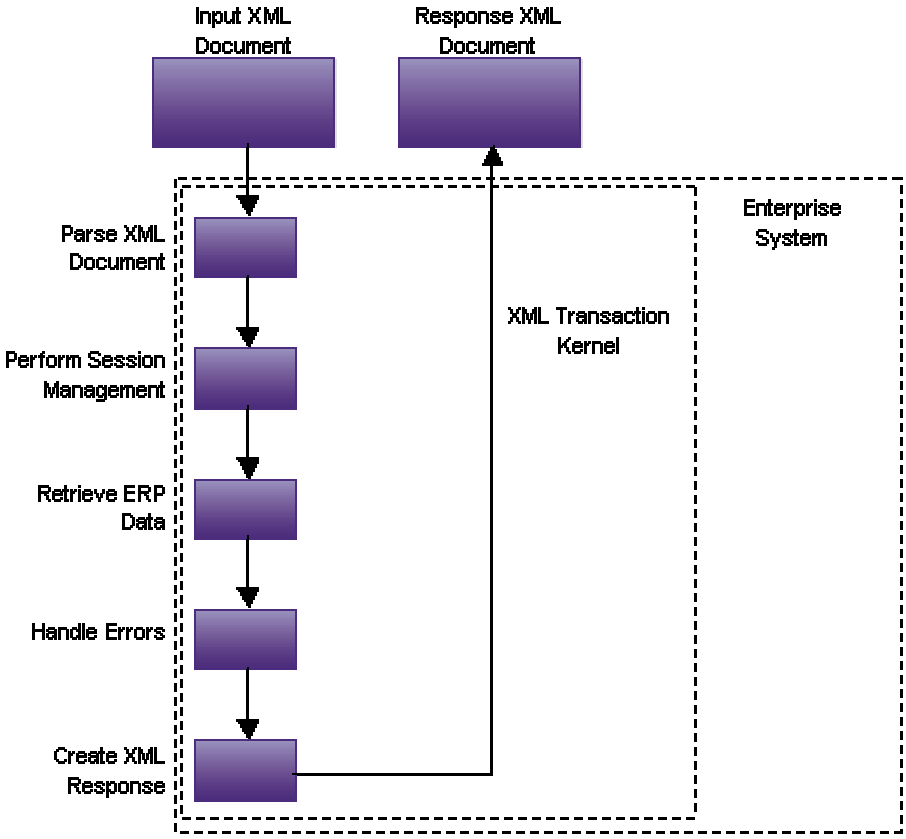


- A request in the form of an XML document contains a list of the data for a predefined transaction type.
- XML Transaction parses the XML inbound document and inserts the data into an ERP inbound interface table.
- XML Transaction adds a subsystem data queue record to inform the ERP subsystem to process the added record.
- A response that indicates whether the insertion into the interface table and the subsystem data queue addition were successful is sent to the requestor.

XML Transaction Data Request Process

To request data from ERP, you use a formatted XML document. The XML document contains a transaction type, such as JDESOUT, and an index that identifies the data to be retrieved from the ERP interface tables. You supply a template to retrieve the specific data.

The following illustration shows the XML Transaction data request and response process.



- A request in the form of an XML document contains the transaction type and an index of the requested data.
- XML Transaction parses the XML inbound document to get the transaction type and the index.
- XML Transaction retrieves the data from ERP and inserts the data into ERP interface tables.
- XML Transaction creates a response in the form of an XML document. The response is comprised of the interface table data records that match the transaction type and index. The response also contains any error messages that might have occurred.

Setting the jde.ini File for XML Transaction

The jde.ini settings for the XML transaction kernel are as follows:

```
[JDENET_KERNEL_DEF15]
    krnlName=XML TRANSACTION KERNEL
    dispatchDLLName=XMLTransactions.dll
    dispatchDLLFunction=_XMLTransactionDispatch@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=1
```

Refer to the following table for different .dll extension for other platforms:

Platform	dispatchDLLName	dispatchDLLFunction
AS/400	XMLTRANS	XMLTransactionDispatch
HP9000	libxmltransactions.sl	XMLTransactionDispatch
SUN or RS6000	libxmltransactions.so	XMLTransactionDispatch

Example: Outbound Order Status XML Request & Response Format

The XML transaction data request is created by the outbound function and sent to the XML transaction API. The following code samples show a sales order request and response.

The following code sample shows the XML Transaction request:

```
"This format will return all columns for the sales order header (F4201Z1)
and detail lines (F4211Z1). "

<?xml version='1.0' ?>
<jdeRequest type='trans' user='user' pwd='password'
environment='environment' session='
` sessionidle='300'>
<transaction action='transactionInfo' type='JDESOOUT'>
<key>
<column name='EdiUserId'>value</column>
<column name='EdiBatchNumber'>value</column>
<column name='EdiTransactNumber'>value</column>
</key>
</transaction>
</jdeRequest>
```

The following code sample shows the XML Transaction response:

```
<?xml version='1.0' encoding='utf-8' ?>
<jdeResponse type='trans' user='user' session='session1' environment='env'>
   <transaction type='JDESOOUT' action='transactionInfo'>
          <returnCode code='0'>XML Request OK</returnCode>
          <key>
                 <column name='EdiUserId'></column>
                 <column name='EdiBatchNumber'></column>
```

```
                <column name='EdiTransactNumber'></column>
          </key>
          <table name='F4201Z1' type='header'>
                <column name='EdiUserId'></column>
                <column name='EdiBatchNumber'></column>

          </table>
          <table name='F4211Z1' type='detail'>
                <column name='EdiUserId'></column>
                <column name='EdiBatchNumber'></column>

          </table>
          <table name='F49211Z1' type='additionalHeader'>
                <WARNING>No record found</WARNING>
          </table>
    </transaction>
</jdeResponse>
```

XML List

XML List is XML-based interoperability that runs as an ERP kernel process. XML List provides List/GetNext functionality that allows you to collect a list of records from ERP. XML List built on the ERP table conversion (TC) engine. XML List takes an XML document as a request and returns an XML document with the requested data. A list can represent data in a table, a business view, or data from a table conversion. Using data from a table conversion allows you to use multiple tables. By sending an XML document, you can retrieve metadata for a list, create a list, retrieve a chunk of data from a list, or delete a list. You can send the request through JDENet or third-party software to perform any of the following operations:

- Create List
- Get Template
- Get Group
- Delete List

XML List provides both trivial and non-trivial List/GetNext APIs. A trivial List/GetNext API performs simple gets such as selecting data from a single table. A non-trivial API uses additional functionality such as event rules. Each non-trivial List/GetNext BPAPI must have a table conversion designed for it. The data selection and data sequencing can be defined in an XML request at runtime.

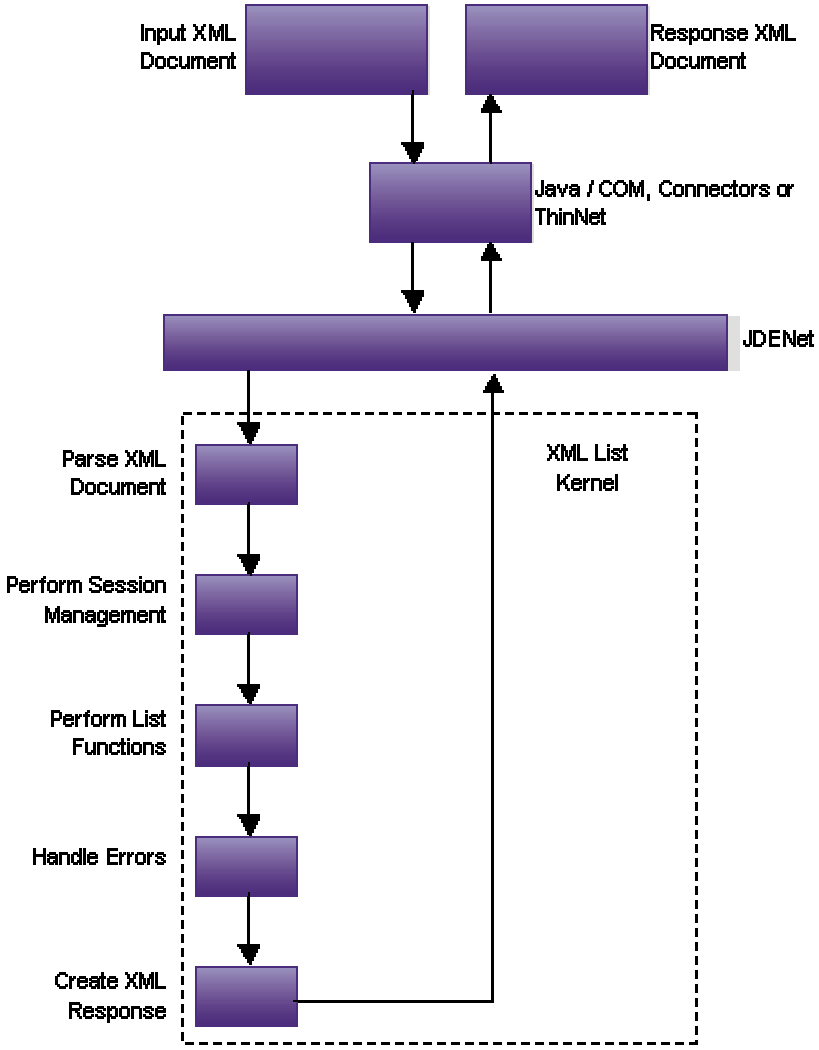
XML List provides a list-retrieval engine that allows you to create an XML data file in the system repository and then retrieve the data in small chunks.

List-Retrieval Engine Table Conversion Wrapper

A list-retrieval engine is an optimized database engine that provides and manages access to XML repository files. Each XML list repository file is a pair of index and data files with *.idb and *.ddb extensions. The .idb file keeps an index generated on a data file, and the .ddb file keeps data generated by the table conversion engine. TCWrapper is a system module that aggregates list-retrieval and list-processing APIs from TCEngine and list-retrieval engine and provides a uniform access to the data for XML List.

XML List Process

The following illustration shows the XML List process for both a trivial and non-trivial XML List request:



- JDENet receives the XML document.
- JDENet passes the XML Document to the XML List kernel.
  - If the request is for CreateList or GetTemplate, XML List creates a session.
  - If the request is a trivial request, XML List retrieves the data and creates a response message to send to the requestor.
  - If the request is a non-trivial request, XML List kernel passes the request to the appropriate API:
    - GetTemplate
    - CreateList
    - GetGroup
    - DeleteList

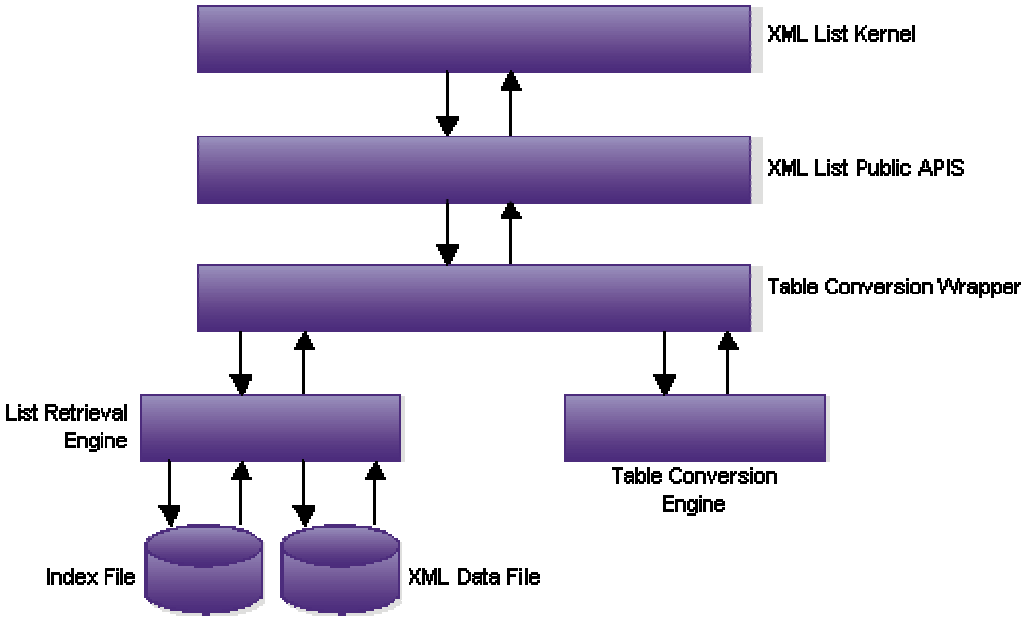
- A table conversion wrapper processes data retrieved as a result of a non-trivial request. The table conversion wrapper aggregates list-retrieval and list-processing APIs from the table conversion engine and the list-retrieval engine to provide a uniform access to the data.

XML List Requests

You can make any of the following requests using XML List:

GetTemplate	Send a request to retrieve metadata information for a list so that data selection and data sequencing can be added to the CreateList request.
CreateList	Send a request with TC/Table name along with data selection and sequencing. The response is an XML document that has a handle and size associated with the created list in the repository.
GetGroup	Send a request to retrieve data from the generated list by the previous CreateList request. GetGroup passes the handle value and range of records to be retrieved.
DeleteList	Send a request to delete a list from the repository.

The following illustration shows the various components involved in list operations:



You can use an XML List request to perform the following actions:

- Create a list.
- Retrieve data from a list.
- Delete a list.
- Get column information for a list.

Creating a List

The following example illustrates using CreateList for an XML request with the TC Name/Table Name, and data selection and sequencing. It returns an XML response with a handle associated with the created list.

```
<?xml version="1.0"?>
<jdeRequest type="list" user="JDE" pwd="JDE" environment="PRODHP01"
session="" sessionidle="">
   <ACTION TYPE="CreateList">
      <TC_NAME VALUE=""/>
      <TC_VERSION VALUE=""/>
      <FORMAT VALUE="UT"/>
         <RUNTIME_OPTIONS>
         <DATA_SELECTION>
            <CLAUSE TYPE="WHERE">
               <COLUMN NAME="" TABLE="" INSTANCE="" ALIAS=""/>
               <OPERATOR TYPE="EQ"/>
               <OPERAND>
                  <COLUMN NAME="" TABLE="" INSTANCE="" ALIAS=""/>
                  <LITERAL VALUE=""/>
                  <LIST>
                     <LITERAL VALUE=""/>
                  </LIST>
                  <RANGE>
                     <LITERAL_FROM VALUE=""/>
                     <LITERAL_TO VALUE=""/>
                  </RANGE>
               </OPERAND>
            </CLAUSE>
<CLAUSE TYPE="OR">
               <COLUMN NAME="" TABLE="" INSTANCE="" ALIAS=""/>
               <OPERATOR TYPE="EQ"/>
               <OPERAND>
                  <COLUMN NAME="" TABLE="" INSTANCE="" ALIAS=""/>
                  <LITERAL VALUE=""/>
                  <LIST>
                     <LITERAL VALUE=""/>
                  </LIST>
                  <RANGE>
                     <LITERAL_FROM VALUE=""/>
                     <LITERAL_TO VALUE=""/>
                  </RANGE>
               </OPERAND>
            </CLAUSE>
         </DATA_SELECTION>
         <DATA_SEQUENCING>
            <DATA SORT="ASCENDING">
               <COLUMN NAME="Product Code" TABLE="F0004" INSTANCE=""
ALIAS=""/>
            </DATA>
         </DATA_SEQUENCING>
      </RUNTIME_OPTIONS>
   </ACTION>
</jdeRequest>
```

Either TC_NAME and TC_VERSION or TABLE_NAME and TABLE_TYPE must be defined in the request. TABLE_TYPE can be one of the following:

- OWTABLE
- OWVIEW
- FOREIGN_TABLE

The CLAUSE can be WHERE, OR, or AND to simulate a SQL statement.

You can specify the COLUMN NAME with any meaningful name to help recognize the real column name in the table, which should be defined in ALIAS. The values of TABLE, INSTANCE, and ALIAS should be the same as those in the XML response returned by a GetTemplate request. For example, if Column X is in the data selection, it should be <COLUMN NAME="My column" TABLE="F9999" INSTANCE="0" ALIAS="X"/> because the following information will be returned by a GetTemplate request similar to the following example:

> <COLUMN NAME="X" ALIAS="X" TYPE="String" LENGTH="32" TABLE="F9999" INSTANCE="0">

The OPERATOR uses values of EQ, NE, LT, GT, LE, GE, IN, NI, BW (between) or NB.

The OPERAND node can contain one of the following supported element types:

- Column
- Literal
- List
- Range

The following XML node shows the supported elements in the OPERAND node (in bold type). This is a template fragment and it should be used with only *one* of the supported elements.

```
<CLAUSE TYPE="WHERE" >
   <COLUMN NAME="UserDefinedCodes" TABLE="F0005" INSTANCE="" ALIAS="RT" />
   <OPERATOR TYPE="EQ"/>
   <OPERAND>
          <COLUMN NAME="" TABLE="" INSTANCE="" ALIAS="null"/>
          <LITERAL VALUE="P4"/>
          <RANGE>
          </RANGE>
   </OPERAND>
</CLAUSE>
```

The following sample XML nodes show the operator type (in bold type) and the operand (in bold type) using the different supported elements.

If the operand is a COLUMN, populate the COLUMN element. For example:

```
<CLAUSE TYPE="WHERE">
   <COLUMN NAME="DRSY" TABLE="F0005" INSTANCE="0" ALIAS="SY"/>
   <OPERATOR TYPE="EQ"/>
   <OPERAND>
          <COLUMN NAME="DRRT" TABLE="F0005" INSTANCE="0" ALIAS="RT"/>
   </OPERAND>
</CLAUSE>
```

If the operand is a LITERAL, populate the LITERAL element.

```
<CLAUSE TYPE="WHERE">
    <COLUMN NAME="DRSY" TABLE="F0005" INSTANCE="0" ALIAS="SY"/>
    <OPERATOR TYPE="EQ"/>
    <OPERAND>
           <LITERAL VALUE="08"/>
    </OPERAND>
</CLAUSE>
```

If the operand is a LIST, populate the element LIST. LIST should be used with IN or NI.

```
<CLAUSE TYPE="WHERE">
    <COLUMN NAME="DRSY" TABLE="F0005" INSTANCE="0" ALIAS="SY"/>
    <OPERATOR TYPE="IN"/>
    <OPERAND>
           <LIST>
                  <LITERAL VALUE="08"/>
                  <LITERAL VALUE="09"/>
           </LIST>
    </OPERAND>
</CLAUSE>
```

If the operand is a RANGE, populate the element RANGE. RANGE should be used with BW or NB.

```
<CLAUSE TYPE="WHERE">
    <COLUMN NAME="DRSY" TABLE="F0005" INSTANCE="0" ALIAS="SY"/>
    <OPERATOR TYPE="BW"/>
    <OPERAND>
           <RANGE>
                  <LITERAL_FROM VALUE="08"/>
                  <LITERAL_TO VALUE="10"/>
           </RANGE>
    </OPERAND>
</CLAUSE>
```

The XML response for a CreateList request is similar to the following:

```
<?xml version=”1.0”?>
<jdeResponse type=”list” session=”5665.931961929.454”>
<returnCode code=”0”>XMLRequest OK</returnCode>
    <ACTION TYPE=”CreateList”>
                        <TABLE_NAME VALUE=”F0005”>
           <HANDLE>”1r4670001”</HANDLE>
           <SIZE>773</SIZE>
    </ACTION>
</jdeResponse>
```

The value of HANDLE can be published and referenced in a GetGroup or DeleteList request.

Retrieving Data from a List

You can retrieve data from a list generated by a previous CreateList request by using a GetGroup request. The HANDLE, FROM VALUE, and TO VALUE can be defined in the request.

```
<?xml version="1.0"?>
<jdeRequest type="list" user="JDE" pwd="JDE" environment="PRODHPO1" >
   <ACTION TYPE="GetGroup">
      <HANDLE VALUE="lr4670001"/>
      <FROM VALUE="10"/>
      <TO VALUE="50"/>
   </ACTION>
</jdeRequest>
```

The XML response lists records falling into the range specified. The response returns the records in the list from #10 to #50 in the following format. The default FROM value is the first record and the default TO value is the last record in the list. For a GetGroup request for the whole list, no FROM and TO values need to be specified.

```
<?xml version="1.0"?>
<jdeResponse type="list">
<returnCode code="0">XMLRequest OK</returnCode>
<ACTION TYPE="GetGroup">
<HANDLE VALUE="lr4670001"/>
      <FROM VALUE="10"/>
      <TO VALUE="50"/>
   <Format name='Standard'><Column name='X>abc</Column><Column
name='Y'>edf</Column></Format>
   00
   </ACTION>
</jdeResponse>
```

Deleting a List

A list can be deleted if all GetGroup requests are done.

```
<?xml version="1.0"?>
<jdeRequest type="list" user="JDE" pwd="JDE" environment="PRODHPO1">
   <ACTION TYPE="DeleteList">
      <HANDLE VALUE="lr4670001"/>
   </ACTION>
</jdeRequest>
```

The list result defined in the HANDLE is deleted from the storage and a response with the status is returned to the caller.

```
<?xml version="1.0"?>
<jdeResponse type="list" >
<returnCode code="0">XMLRequest OK</returnCode>
   <ACTION TYPE="DeleteList">
<HANDLE VALUE="lr4670001"/>
      <STATUS>OK</STATUS>
   </ACTION>
</jdeResponse>
```

Getting Column Information for a List

You can send a GetTemplate request to get the column information for a list so that data selection and sequencing can be added to the CreateList request. If OUTPUT is defined in the TEMPLATE_TYPE, the response is only for those columns in the XML output generated by a CreateList request based on the table conversion. For a trivial table conversion, both templates should be the same. The default template type is INPUT if no tag is specified.

```
<?xml version="1.0"?>
<jdeRequest type="list" user="JDE" pwd="JDE" environment="PRODHPO1" session=""
sessionidle="">
   <ACTION TYPE="GetTemplate">
      <TABLE_NAME VALUE="F0004"/>
      <TABLE_TYPE VALUE="OWTABLE"/>
      <TEMPLATE_TYPE VALUE="OUTPUT"/>
   </ACTION>
</jdeRequest>
```

The response for the input template lists all of the columns with alias name, type and the length of the data type, even though the length is only meaningful for the string type.

```
<?xml version="1.0"?>
<jdeResponse type="list" session="5665.931961929.454">
<returnCode code="0">XMLRequest OK</returnCode>
   <ACTION TYPE="GeTemplate">
            <TABLE_NAME VALUE="F0004"/>
      <TABLE_TYPE VALUE="OWTABLE"/>
      <TEMPLATE_TYPE VALUE="INPUT"/>
      <COLUMN Name="Address" Alias="X" TYPE="String" LENGTH="32"
TABLE="F9999" INSTANCE="0">
   </ACTION>
</jdeResponse>
```

Setting the jde.ini File for the List-Retrieval Engine

The list-retrieval engine uses a predefined folder as its system directory to keep and manage repository files. This system directory should be configured in jde.ini file as follows:

```
[LREngine]
    System=C:\output
    Repository_Size=20 (allocates percentage of disk free space for XML list
    repository)
    Disk_Monitor=Yes (monitors free space on the disk)
```

Note

The engine uses the IFS file system on AS400, so a corresponding system subsection must be set up.

The [SECURITY] section of the jde.ini file should also be configured. The DefaultEnvironment, Password, and User settings should be filled in for the engine to validate the default user and to initialize the default environment.

Configure the jde.ini File for XML List

The jde.ini settings for the XML List kernel are as follows:

```
[JDENET_KERNEL_DEF16]
    krnlName=XML LIST
    dispatchDLLName=xmllist.dll
    dispatchDLLFunction=_XMLListDispatch@28
    maxNumberOfProcesses=3
    beginningMsgTypeRange=5257
    endingMsgTypeRange=5512
    newProcessThresholdRequest=0
    numberOfAutoStartProcesses=1
```

Refer to the following table for different .dll extension for other platforms:

Platform	dispatchDLLName	dispatchDLLFunction
AS/400	XMLLIST	XMLListDispatch
HP9000	libxmllist.sl	XMLListDispatch
SUN or RS6000	libxmllist.so	XMLListDispatch

Troubleshooting: XML Kernel

If one or more XML kernels are not working properly, use the following troubleshooting guidelines to ensure that your system is correctly set up.

- Check the kernel definition in the server jde.ini file. Also check that the library name is correct for the platform on which you are running. Check the entry function name.
- Check that the kernel is allowed to start. Check the maxNumberOfProcesses and numberOfAutoStartProcesses values for the kernel in the server jde.ini file. It is not necessary to auto start kernels. To work with a particular kernel, the allowed number of processes should be one or more.
- If you have a large number of simultaneous requests made to a particular kernel type, increase the number of allowed processes for that kernel. This will not only reduce the turnaround time for requests but also eliminate any "Queue Full" errors.
- If you are using XMLList kernel, check that the LREngine section is correctly setup in the server jde.ini file, and that the specified path exists. Also check that the ERP user has write permission to this location.
- Check that the XML document is a well-formed XML document. To do this, use any XML editor or open the document in Microsoft Internet Explorer and check for errors.
- Check that the root of the input XML document is jdeRequest. All input XML documents should have jdeRequest as their root element.
- Check that valid user ID, password, and environment are provided in the XML document.
- Check that the request type in the XML document is correct. The allowed request types are callmethod, list, and trans for XMLCallObject, XMLList and XMLTransaction kernels, respectively.

Z Transactions

Z transactions are non-ERP information that is properly formatted in ERP interface tables (Z tables) for updating to the ERP database. Interface tables are working tables that mirror ERP applications tables. J.D. Edwards provides predefined interface tables for some application transactions. You also can create your own interface tables as long as they are formatted according to J.D. Edwards standards.

You can process Z transactions into ERP one transaction at a time (referred to as a batch of one), or you can place a large number of transactions into the interface table and then process all of the transactions at one time (referred to as a true batch).

You can use Z transactions with the following model types to transfer information into ERP:

- Messaging Adapters
  - MQSeries
  - MSMQ
- Batch Interfaces
  - Interface Tables
  - Electronic Data Interchange (EDI)
  - Table Conversions
  - Advanced Planning Agent (APAg)/Integration

See Also

- *Interface Tables* in the *Interoperability Guide* for information about the format for interface tables

Processing Z Transactions

The following list identifies the tasks required for using Z transactions to transfer information into ERP:

- Name the transaction.
- Add records to the inbound interface table.
- Run an update process.
- Check for errors.
- Confirm the update (option, user supplied).
- Purge the data from the interface table.

Name the Transaction

Z transaction types are defined in user defined code 00/TT. If you create a new transaction, you must define the transaction in user defined code 00/TT. When you name a new transaction type, the name must start with JDE and can be up to eight characters in length. The following examples illustrate a proper transaction name:

- JDERR for Receipt Routing Transaction
- JDEWO for Work Order Header Transaction

Add Records to the Inbound Interface Table

When you write your transaction to the appropriate interface table, you make the information available to ERP for processing. Z transactions may be written directly to interface tables that are already in ERP database format. The following list shows some of the ways that you can add records to the inbound interface tables:

- Create a flat file and then convert the flat file data into records in the interface table.
- Write an Application Programming Interface (API), using ERP published APIs to update the interface table.
- Use Electronic Data Interchange (EDI) to update the interface table.
- Place a message in an MQ Series or MSMQ messaging adapter.
- Use Structured Query Language (SQL) or stored procedures. You must be able to convert your records to the J.D. Edwards interface table format.

Caution

If you are using a flat file to add records to the J.D. Edwards interface tables, verify that a version of the Inbound Flat File Conversion (R47002C) program for the transaction you are trying to create exists.

Net Change Considerations

Changing the set of data elements of a transaction to new values (including the value of blank) is referred to as Net Change Processing.

Net change is handled by the deliberate use of NULL. A NULL value in a field indicates to the master business function that this inbound field is not to be changed from its current value. Any other value in the inbound field is validated and subsequently updated to the database.

When a record is inserted into the database, any fields that are NULL are initialized to one blank. For the unedited transaction tables, an additional characteristic is required, whereby the database middleware does not initialize a NULL value to blank. This functionality allows a table column to have a value of NULL, which can be assigned to a Master Business Function data structure parameter.

Run an Update Process

You can process Z transactions in one of the following ways:

- Run an input batch process, which allows you to place a large number of transactions into the interface table and then process all of the transactions at one in batch mode.
- Run a subsystem job, which allows you to send transactions into ERP one at a time without having to wait for completion in order to continue processing using the subsystem.

J.D. Edwards provides input batch and input subsystem processes for some applications.

See Also

- *Interoperability Interface Table Information* in the *Interoperability Guide* for information about the input processor batch processes and input subsystem batch processes

Run an Input Batch Process

The input batch process allows you to place one or more records in an interface table and then run a UBE to process all of the records at one time. You use the Solution Explorer to initiate the input batch process for an application that supports inbound interoperability processing. When you choose the input batch program, the program displays a version list of report features. You can use an existing report version, change an existing report version, or add a report version. You can change the processing options and data selection when you use a report version. The input batch process program generates an audit report that lists the transactions that were processed, totals for the number of processed transactions, and errors that occurred during processing.

► To run the input batch process

Start the Input Batch Process for the inbound transaction type. For example, Purchase Order has an input batch process. The Interoperability Interface Table Information at the end of this section identifies programs that have an input batch process.

1. On Work With Batch Versions, review the processing options to determine how the data is processed by the inbound edit/update program.
2. Choose the version you want to run, and then click Select.
3. On Version Prompting, click any of the following to review the report feature options:
   - Data Selection
   - Data Sequencing
4. Click the Submit button to start the input batch process for the inbound transaction type.

Run a Subsystem Job

Subsystem jobs are continuous jobs that process records from a data queue and run until you terminate the job. Subsystem jobs read records one at a time for a subsystem table, retrieve information from that particular record, and run a UBE or table conversion for each record. This triggers the inbound processor batch process that processes that specific key. If required, a preprocessor runs from the inbound processor batch process to establish key information matching the interface table record to the original application record, for example, the key to a cash receipt or purchase receipt. After processing the last record, instead of ending the job, subsystem jobs wait for a specific period and then tries to retrieve a new record. For each subsystem job multiple records can exist in the subsystem table.

You can schedule subsystem jobs.

You initiate a subsystem job in one of the following ways:

Use a business function	You can use the generic subsystem business function, Add Inbound Transaction to Subsystem Queue (B0000175), for inbound transactions. This function writes a record to the Subsystem Job Master (F986113) table to specify a batch process

	that needs to be awakened in the subsystem. The business function also passes keys to the subsystem data queue. The business function then starts processing the transaction.
Use the Solution Explorer	You can use the Solution Explorer to initiate the input subsystem batch process for an application that supports inbound interoperability processing. You start the subsystem job as you would a regular batch job. Unlike other batch jobs, subsystem jobs can only run on a server. Before processing, ERP makes sure that limits for the subsystem job on the particular server have not been exceeded. If limits have been exceeded, the subsystem job will not be processed. To process your Z transaction in near real-time mode, start the subsystem when you start your system. You will need to place your request in the data queue before you write your transaction to the interface table.

Caution

Instead of ending the job after the records have been processed, subsystem jobs look for new data in the data queue. Subsystem jobs run until you terminate them.

See Also

The following topics in the *System Administration Guide*:

- *Enabling ERP 9.0 Subsystems* for information about creating and starting subsystems
- *Terminating ERP 9.0 Subsystems* for more information about stopping and ending a subsystem job
- *The Scheduler Application* for more information about scheduling subsystem jobs

► To run a subsystem job

Start the inbound processor batch process for the inbound transaction type. For example Purchase Order has an Input Subsystem Process. The Interoperability Interface Table Information at the end of this section identifies programs that have a subsystem batch process.

Review the processing options to determine how the data will be processed by the subsystem job.

1. On Work With Batch Versions - Available Versions, choose the subsystem version you want to run, and then click Select.
2. On Version Prompting, click any of the following to review the report feature options:
   - Data Selection
   - Data Sequencing
3. Click the Submit button.

Check for Errors

The input batch process uses the data in the interface tables to update the appropriate J.D. Edwards application tables as dictated by the business logic. If the process encounters an error for the transaction, the record is flagged on the processor audit trail report and error messages are sent to the Employee Work Center in the form of action messages. These action messages, when invoked, call a revision application that allows you to make corrections to the interface table.

When you review the errors in the work center, you can link directly to the associated transaction in the interface table to make corrections. You use a revision application to resubmit individual corrected transactions for immediate processing, or you can correct all transaction errors and then resubmit them all at once in a batch process.

Transactions that have been successfully updated to the live files are flagged as successfully processed in the interface tables.

See Also

- *Revision Application* in the *Interoperability Guide* for information about modifying records in interface tables

Confirm the Update

This step is optional. If you use a business function, you can provide a confirmation function to alert you that a transaction you sent into the J.D. Edwards system been processed. When processing is complete, ERP calls the function specified in the request to notify you of the status of your process. The confirmation functions are written to your specifications, but you must use the J.D. Edwards defined data structure. Interoperability inbound confirmation functions are called from the inbound processor batch program through the Call Vendor-Specific Function - Inbound business function.

The confirmation function is specific to a process and must accept the following parameters:

User ID	11 characters
Batch Number	16 characters
Transaction Number	23 characters
Line Number	double
Successfully Processed	1 characters

The first four parameters are the keys (EDUS, EDBT, EDTN, EDLN) to the processed transaction. The last full path of the library containing the function must be passed to the subsystem batch process that processes the transaction. This information is passed through the inbound transaction subsystem data structure.

After the subsystem batch process finishes processing the transaction, it calls the inbound confirmation function, passing the keys to the processed transaction and the notification about whether the transaction was successfully processed. You include logic in your function to take appropriate action based on the success or failure of the transaction.

If you create a transaction confirmation function, you can also use the function to perform any of the following tasks:

Update your original transaction	By creating a cross reference between the original transaction and the transaction written to the interoperability table, you can access the original transaction and update it as completed or in an error status. Using the key returned to this function, you can access the transaction written to the interoperability interface table and retrieve any calculated or defaulted information to update your original transaction.
Run other non-J.D. Edwards business processes	If your transaction is complete, you may want to run a business process that completes the transaction in the non-J.D. Edwards software.
Send messages to users	You may want to inform your users of the status of their original transactions.

Purge the Data from the Interface Table

You should periodically purge records that have been successfully updated to the ERP database from the interface tables.

See Also

The following topics in the *Interoperability Guide*:

- *Interoperability Interface Table Information* to review the Purge Batch Processes
- *Purge Interface Table Information* for more information about purging data from the interface tables

Flat Files

Flat files (also known as user-defined formats) are usually text files stored on your workstation or server, and typically use the ASCII character set. Because data in a flat file is stored as one continuous string of information, flat files do not have relationships defined for them as relational database tables do. Flat files can be used to import or export data from applications that have no other means of interaction. For example, you might want to share information between ERP and another application. If the non-ERP application does not support the same databases that ERP supports, then flat files might be the only way to transfer data between the two applications.

You can use flat files with the following model types:

- XPI
  - Enterprise XPI
  - Inter-Enterprise XPI

  Note
  Typically, XPI uses the File I/O Adapter for flat file processing.

- Batch Interfaces
  - Interface Tables
  - Electronic Data Interface (EDI)
  - Table Conversions

When you use flat files to transfer data into ERP, the data must be converted to J.D. Edwards format before it can be updated to the live database. You can use J.D. Edwards interface tables along with a conversion program, electronic data interface (EDI), or table conversion to format the flat file data. You can use EDI or table conversion to retrieve ERP data for input to a flat file.

XPI and some J.D. Edwards batch interfaces, such as the batch extraction programs, can accept flat files and parse the information to data format.

See Also

- *Data Interface* in the *Electronic Data Interchange Guide* for information about EDI
- *Setting Up a Table Conversion* in the *Table Conversion Guide* for more information about table conversions

The following topics in the *Interoperability Guide*:

- *Interface Tables* for information about creating a custom interface table
- *Interoperability Interface Table Information* for a list of processes for J.D. Edwards interface tables

Flat File Formats

When you import data using J.D. Edwards interface tables, the format for flat files can be user defined or character delimited. The following example illustrates a single database character record that has a user-defined format with five columns: Last, First, Addr, City, and Phone.

Doe	John	123 Main	Any town	5551234	←database record
Last	First	Addr	City	Phone	

The above user-defined format example is a fixed-width column format in which all of the data for each column starts in the same relative position in each row of data.

The following is an example of the same data in a character-delimited format:

“Doe”, “John”, “123 Main”, “Anytown”, “5551234”

Setup Requirements for Flat File Conversion

The format of the record in the flat file must follow the format of the interface table. This means that every column in the table must be in the flat file record and the columns must appear in the same order as the interface table. Every field in the interface tables must be written to, even if the field is blank. Each field must be enclosed by a symbol that marks the start and end of the field. Typically, this symbol is a double quotation mark (""). In addition, each field must be separated from the next field with a field delimiter. Typically, this separator value is a coma (,). However, any field delimiter and text qualifier may be used as long as they do not interfere with the interpretation of the fields. You set the processing options on the conversion program to define the text qualifiers and field delimiters. If you are receiving documents with decimal numbers, you must use a placeholder (such as a period) to indicate the position of the decimal. You define the placeholder in the User Preference table.

The first field value in a flat file record indicates the record type. In other words, the first field value indicates which interface table the conversion program should insert the record into. Record type values are defined and stored by the record type user defined code table (00/RD). The hard-coded values are:

1 – Header

2 – Detail

3 – Additional Header

4 – Additional Detail

5 – SDQ

6 – Address

7 – Header Text

8 – Detail Text

For example, suppose a record in the header table looked like the following (this example ignores table layout standards):

Record Type	Name	Address	City	Zip Code
1	Joe	<Blank>	Denver	80237

The record in the flat file would look like the following.

"1","Joe"," ","Denver","80237"

Notice that 1 corresponds to a header record type, and the blank space corresponds to the <Blank> in the Address column.

Dates must be in the format MM/DD/YY. Numeric fields must have a decimal as the place keeper. A comma cannot be used.

Converting Flat Files

J.D. Edwards supports flat file conversion on the Windows platform only. If you have a Windows platform, you can use the Inbound Flat File Conversion program (R74002C) or the Import Flat File To JDE File (B4700240) business function.

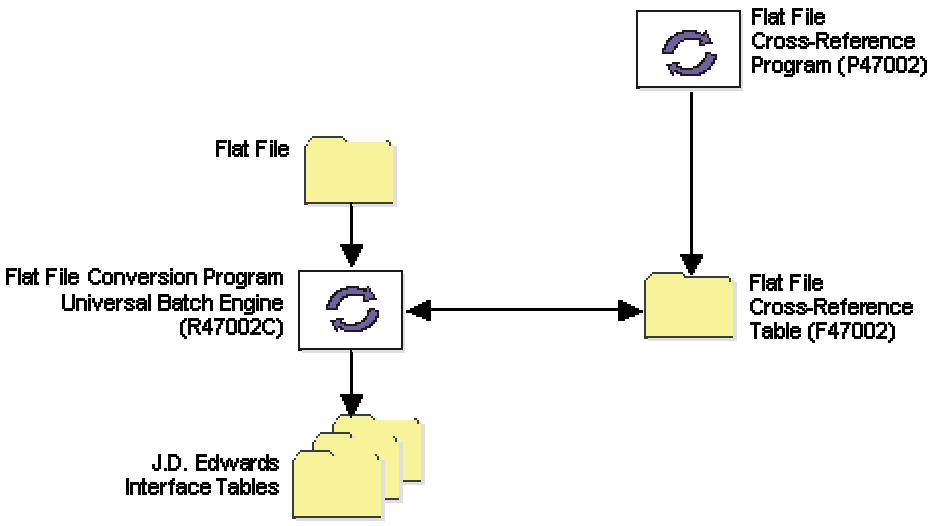
Flat File Conversion Program

If you are on a Windows platform, you can use the Inbound Flat File Conversion program (R47002C) to import flat files into J.D. Edwards interface tables. You create a separate version of the Inbound Flat File Conversion program for each interface table.

Note

To use the Inbound Flat File Conversion program, you must map a drive on your PC to the location of the flat file.

The following illustration shows the process for updating J.D. Edwards interface tables using flat files.



You use the Flat File Cross-Reference program (P47002) to update the Flat File Cross-Reference table (F47002). The conversion program uses table F47002 to determine which flat file to read from based on the transaction type being received. The following list identifies some of the information that is in table F47002.

Transaction Type	The specific transaction type. The transaction type must be defined in UDC 00/TT.
Direction Indicator	A code that indicates the direction of the transaction. The direction indicator code must be defined in UDC 00/DN.
Flat File Name	Path to the flat file on your Windows PC.
Record Type	An identifier that marks transaction records as header, detail, and so on. The record type indicator must be defined in UDC 00/RD.
File Name	A valid ERP interface table.

The conversion program uses the Flat File Cross-Reference table to convert the flat file to the ERP interface tables. The conversion program recognizes both the flat file it is reading from and the record type within that flat file. Each flat file contains records of differing lengths based on the corresponding interface table record.

The conversion program reads each record in the flat file and maps the record data into each field of the interface table based on the text qualifiers and field delimiters specified in the flat file. All fields must be correctly formatted in order for the conversion program to correctly interpret each field and move it to the corresponding field in the appropriate inbound interface table.

The conversion program inserts the field data as one complete record in the interface table. If the conversion program encounters an error while converting data, the interface table is not updated. Because the flat file is an external object created by third-party software, the conversion program is not able to determine which flat file data field is formatted incorrectly. You must determine what is wrong with the flat file. When the conversion program

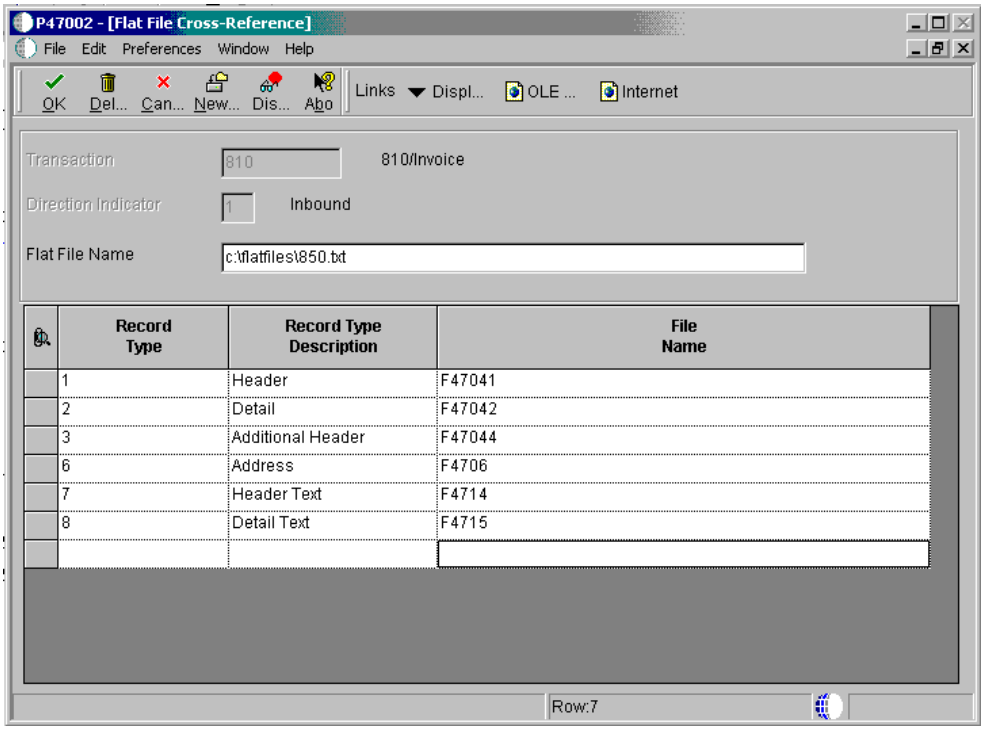
successfully converts all data from the flat file to the interface tables, the conversion program automatically deletes the flat file after the conversion. After the data is successfully converted and if you set the processing option to start the next process in the conversion program, the conversion program automatically runs the inbound processor batch process for that interface table.

If the flat file was not successfully processed, you can review the errors in the Employee Work Center, which you can access from the Workflow Management menu (G02). After you correct the error condition, run R47002C again.

► To update flat file cross-reference

From an application that supports flat file conversion, open the Flat File Cross-Reference program (P47002).

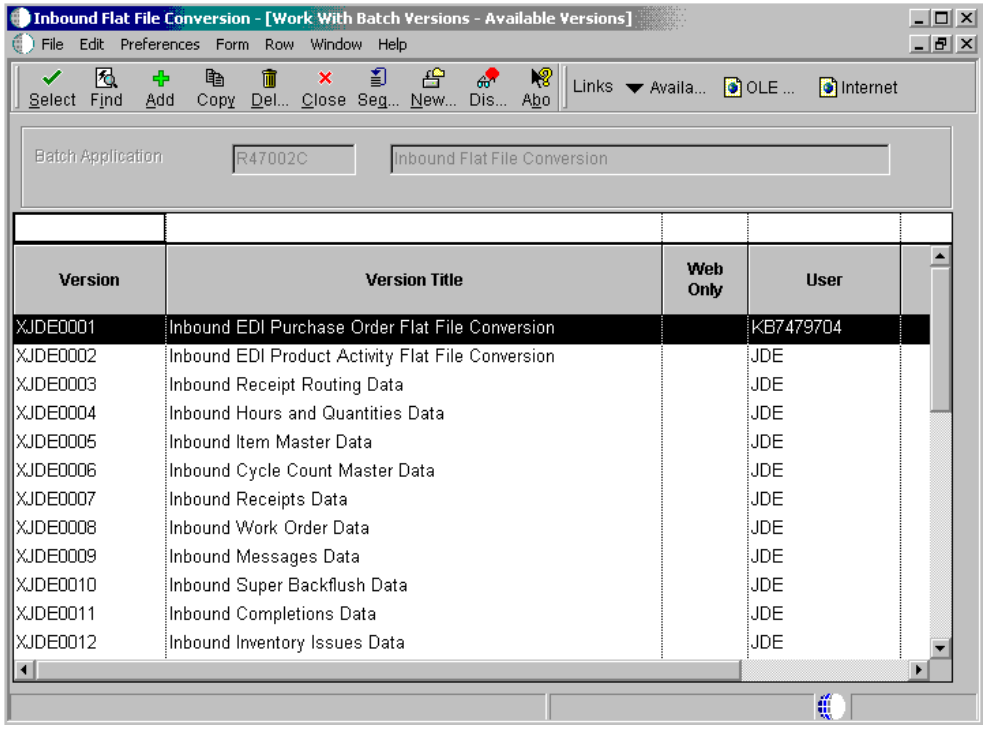
1. On Work With Flat File Cross-Reference, complete the following field:
   - Transaction
2. From the Row menu, choose Define.



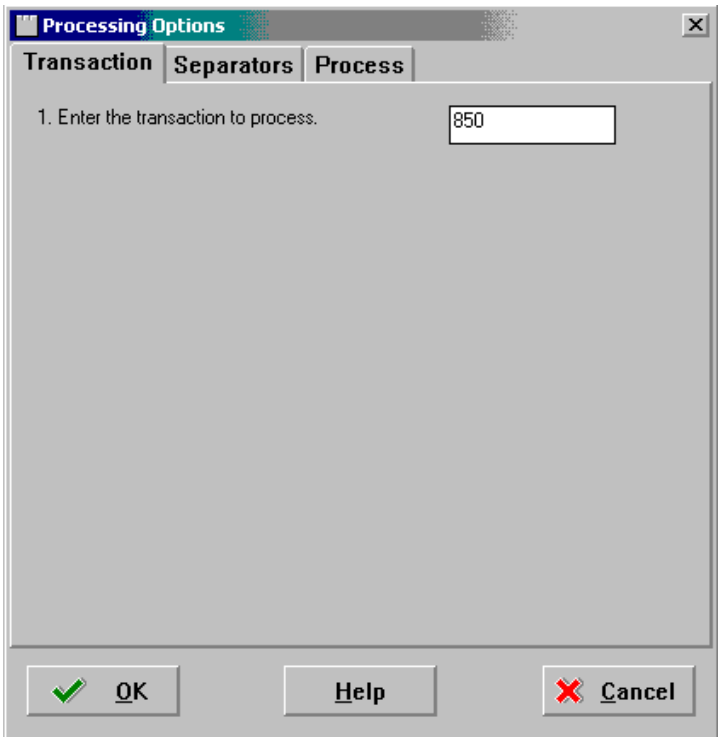
3. On Flat File Cross-Reference, complete the following field in the header area:
   - Flat File Name
4. In the detail area, change the following fields, if necessary:
   - Record Type
   - Record Type Description
   - File Name

► To import from flat files

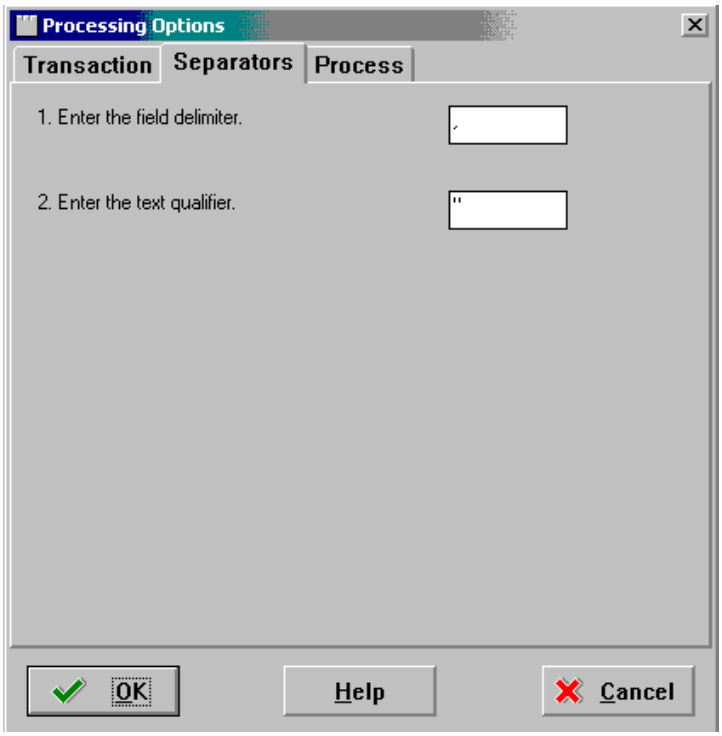
Open the Flat-File Conversion (R47002C) batch process.



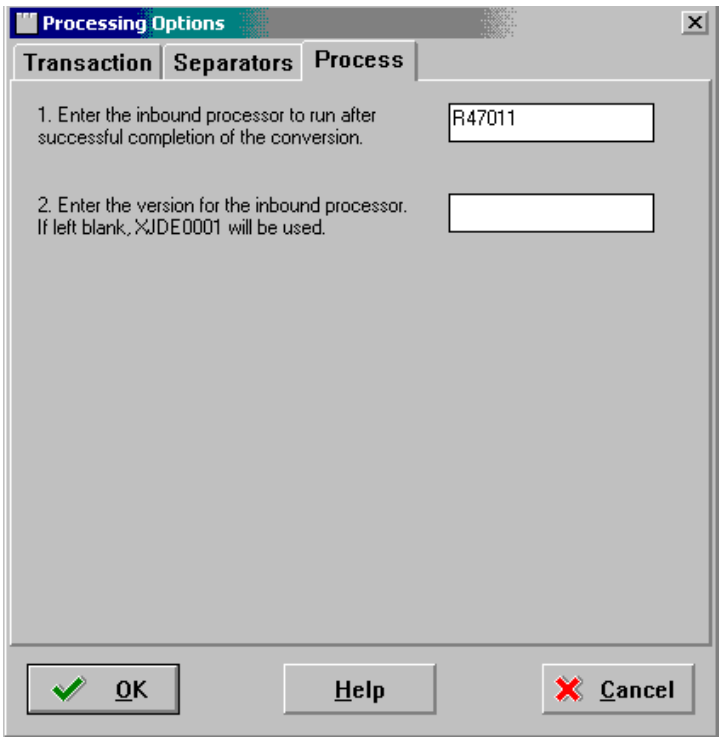
1. On Work With Batch Versions - Available Versions, choose the program version that you want to use.
2. From the Row menu, choose Processing Options.



3. Click the Transaction tab and enter the transaction type that you are importing: for example, 850.



4. Click the Separators tab and enter the field delimiter character and the text qualifier character your system uses to identify fields and text.



5. Click the Process tab and enter the name of the inbound program and the version of the program to run after the Flat File Conversion program has successfully completed.
6. Click OK.
7. On Work With Batch Versions, click Select.
8. On Version Prompting, click either of the following to review the report feature options:
   - Data Selection
   - Data Sequencing
9. Click the Submit button.

Import Flat File Using Business Function

If you are on a windows platform, you can use the business function, Import Flat File To JDE File (B4700240). Because of changes to server operating systems and the various ways that operating systems store files, J.D. Edwards only supports the business function when run from a Windows platform. If you use the Import Flat File To JDE File (B4700240) business function, note the following constraints:

- Transaction Type and Flat File Name fields must contain data.
- Only one character is allowed in the Record Type field.
- Maximum length per line is 4095 characters.
- Maximum record types are 40.

- Every line must have a record.
- Text qualifier cannot be the same as the column delimiter.

To ensure that flat file data is properly formatted before being inserted into ERP interface tables, the business function uses the Primary Index Detail table (F98713) to obtain primary index key information. Normally, table F98713 is located under the Default Business Data table mapping in the Object Configuration Manager. So that the business function can find table F98713, you must do one of the following:

- Map table F98713 in the system data source
- Ensure table F98713 exists in the business data source

Map Table F98713 in the System Data Source

To map the table in the system data source, you add an OCM mapping that points table F98713 to the central objects data source.

Ensure Table F98713 Exists in the Business Data Data Source

If you generate table F98713 in the business data source, you must ensure that file extensions on your PC are hidden. To hide file extensions, do the following:

1. From Start/Settings/Control Panel/Folder Options, click the View tab.
2. Turn on the Hide file extension for known file types option, and then click OK.

You must also ensure that the Flat File Name field in the Flat File Cross-Reference (F47002) table has a file extension: for example, C:\flatfiles\850.txt.

Flat File Conversion Error Messages

The following two errors might occur when you use the business function to convert flat files:

- 4363 Null Pointer
- 4377 Invalid Input Parameter

Both of the above errors are internal problems within the business function.

The following errors might occur as a result of problems with user setup or with the configurable network computing (CNC) implementation:

- 0073 Invalid File Name
- 128J (filename) Insert Failed
- 3003 Open of File Unsuccessful
- 4569 Invalid Format

Flat File APIs

In addition to the existing flat file APIs, J.D. Edwards provides APIs for non-Unicode flat files. The Unicode APIs are required when flat file data is being written to or read by a process outside of ERP. The J.D. Edwards APIs, such as jdeFWrite() and jdeFRead(), do not convert flat file data, which means that the default flat file I/O for character data is in Unicode. If you use ERP-generated flat files and the recipient system is not expecting Unicode data, you will not be able to read the flat file correctly. For example, if the recipient system is not Unicode

enabled and the system is expecting data in the Japanese Shift_JIS code page (or encoding), you will not be able to read the flat file correctly. To enable the creation of the flat file in the Japanese Shift_JIS page, the application creating the flat file must be configured using the Unicode Flat File Encoding Configuration program (P93081). If the flat file is a work file or debugging file and will be written and read by ERP only, the existing flat file APIs should be used. For example, if the business function is doing some sort of caching in a flat file, that flat file data does not need to be converted.

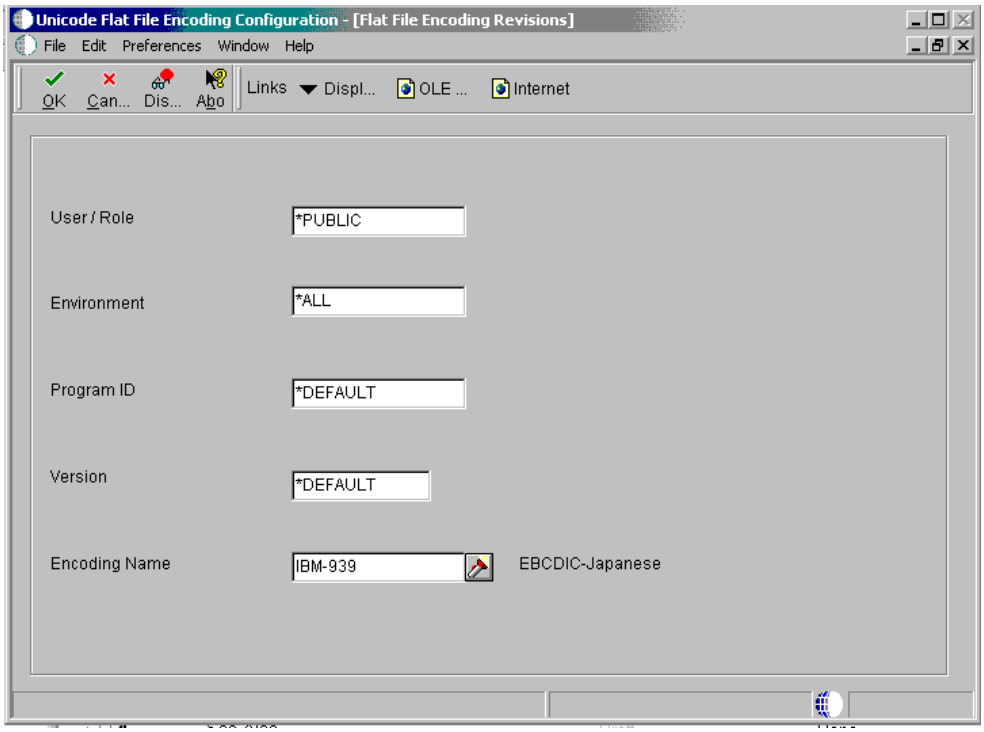
The ERP conversion to Unicode uses UCS-2 encoding in memory, or two bytes per character (JCHAR), for representation of all character data. The character data passed to the output flat file APIs needs to be in JCHAR (UCS-2). The input flat file APIs will convert the character data from a configured code page to UCS-2 and return the character in JCHAR (or JCHAR string). The flat file conversion APIs allow you to configure a code page for the flat file at run time. You use P93081 to set up the flat file code page. Flat file encoding is based on attributes such as application name, application version name, user name, and environment name.

If no code page is specified in the configuration application, the APIs perform flat file I/O passing through the data as it was input to the specific function. For example, jdeFWriteConvert() will write Unicode data and no conversion will be performed.

▶ To set up flat file encoding

From the System Administration Tools (GH9011) menu, choose Unicode Flat File Encoding Configuration.

1. On Work With Flat File Encoding, click Add.



2. On Flat File Encoding Revisions, complete the following fields:
   - User/Role

- Environment
- Program ID
- Version
- Encoding Name

3. Click OK to save your entry.
4. Click Cancel to return to Work With Flat File Encoding.
5. On Work With Flat File Encoding, click Find.
6. To activate your new entry, choose the entry in the detail area.
7. From the Row menu, choose Change Status.

   Active status is AV and inactive status is NA.
8. Click Close to return to the main menu.

See Also

- *Work with Flat File Encoding* in the *System Administration Guide* for more information about flat file encoding

Events

J.D. Edwards event functionality provides an infrastructure that can capture ERP transactions in various ways and provide real-time notification to third-party software, end users, and other J.D. Edwards systems, such as XPI, CRM, and APS.

ERP notifications are called events. The ERP event system implements a publish/subscribe model. ERP events are delivered to subscribers in XML documents that contain detailed information about the event. For example, when a sales order is entered into the system, the sales order information can be automatically sent to a CRM or supply chain management application to be further processed. If your system is IBM, you can use MQSeries messaging to receive events. If your system is MS, you can use MSMQ messaging to receive events. MQSeries and MSMQ provide a point-to-point interface with ERP. ERP supports three kinds of events:

Z Events	A service that uses ERP interface table functionality to capture ERP transactions and provide notification to third-party software, end-users, and other J.D. Edwards systems that have requested to be notified when certain transactions occur.
Real-Time Events	A service that uses system calls to capture ERP transactions as they occur and provide notification to third-party software, end users, and other J.D. Edwards systems that have requested to be notified when certain transactions occur.
XAPI Events	A service that uses system calls to capture ERP transactions as they occur and then calls third-party software, end users, and other J.D. Edwards systems that have requested to be notified when the specified transactions occur to return a response.

The ERP event system consists of the following modules:

- An event distributor
- Event generators
- Transport drivers

The event distributor is an ERP kernel process called the event notification (EVN) kernel. The EVN kernel manages the subscribers and notifies them when an event occurs. The EVN kernel is shared by Z events, real-time events, and XAPI events.

Event generators are processes or libraries capable of generating ERP events. J.D. Edwards provides three default event generators:

- Z event generator, which generates Z events
- Real-time event generator, which generates real-time events
- XAPI event generator, which generates XAPI events

Z events, real-time events, and XAPI events have slightly different XML documents.

The event distributor uses a transport driver to send out ERP events. ERP provides a default transport driver that uses JDENET. The event distributor can also send ERP event documents to designated MQSeries or MSMQ outbound queues using MQSeries or MSMQ transport drivers. If you use MQSeries or MSMQ transport drivers to receive events, all

events that are defined in the Interoperability Event Definition table (F90701) will be sent to you.

The following model types support event generation:

- XPI
  - Enterprise XPI
  - Inter-Enterprise XPI
- Connectors
  - Dynamic Java Connector
  - Java Connector
  - COM Connector
- Messaging Adapters
  - ❑ Adapter for MQSeries (Z events only)
  - ❑ Adapter for MSMQ (Z events only)

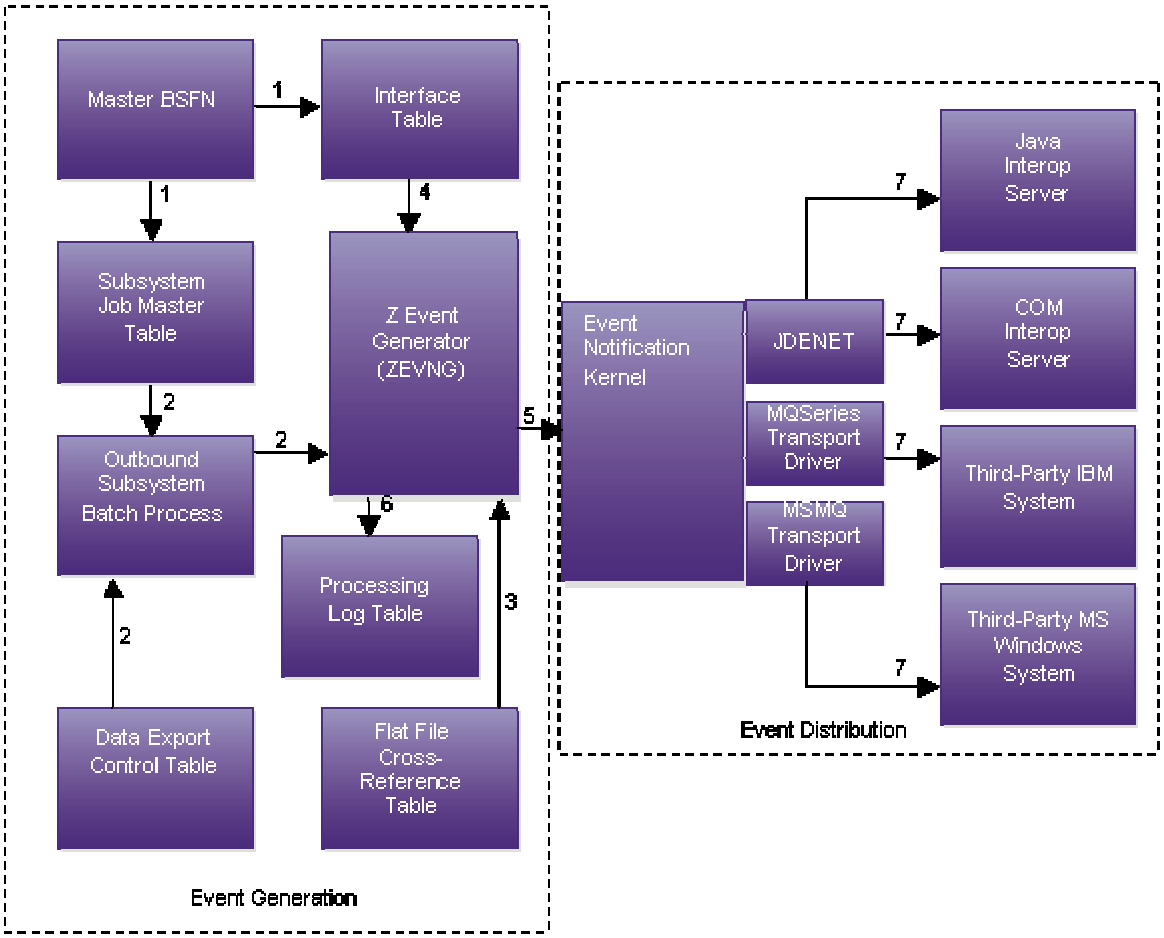
Note
All events can be sent to MQSeries or MSMQ queues using the respective transport driver. However, for outbound transactions from ERP, MQSeries and MSMQ adapters support only Z events. MQSeries and MSMQ adapters support inbound transactions to ERP.

Before You Begin

- ❑ ERP security must be enabled for the ERP enterprise server.
- ❑ The default user under the [SECURITY] section of the ERP enterprise server jde.ini file must have a security record (a valid ERP user).

Z Events

A Z event is near real-time notification that an interoperability transaction has occurred. To generate Z events, ERP uses the Z event generator and the existing interface table infrastructure. You can use the existing ERP interface tables, or you can build customized interface tables as long as the tables are created using J.D. Edwards standards. A logical representation of the processes and data for Z event generation are depicted in the following diagram and discussion:



1. When an ERP transaction occurs, the master business function writes the transaction information in the appropriate interface table and sends an update record to the Subsystem Job Master (F986113) table.
2. A batch process monitors the Subsystem Job Master table (F986113). When the batch process finds a W status in table F986113, it notifies the Z event generator. The batch process looks in the Data Export Control table (F0047) to determine which Z-event generator to call.
3. The Flat File Cross-Reference table (F47002) provides a cross-reference between the transaction and the interface table where the record is stored. This information is used by the Z-event generator.
4. The Z-event generator retrieves the transaction information from the interface table and converts the transaction information into an XML document using a J.D. Edwards DTD
5. The Z-event generator sends the event (in the form of an XML document) to the event notification kernel for distribution.
6. After an event is successfully generated, the successfully generated column in the Processing Log table (F0046) is updated. A UBE purges information in the interface table based on information in the Processing Log table.
7. The event notification kernel sends the XML document to all subscribers.

Note

If you use MQSeries or MSMQ transports, system and function errors that the transport driver encounters are written to the JDE error log. The driver writes error messages and adds the error codes if available.

To generate Z events, complete the following tasks:

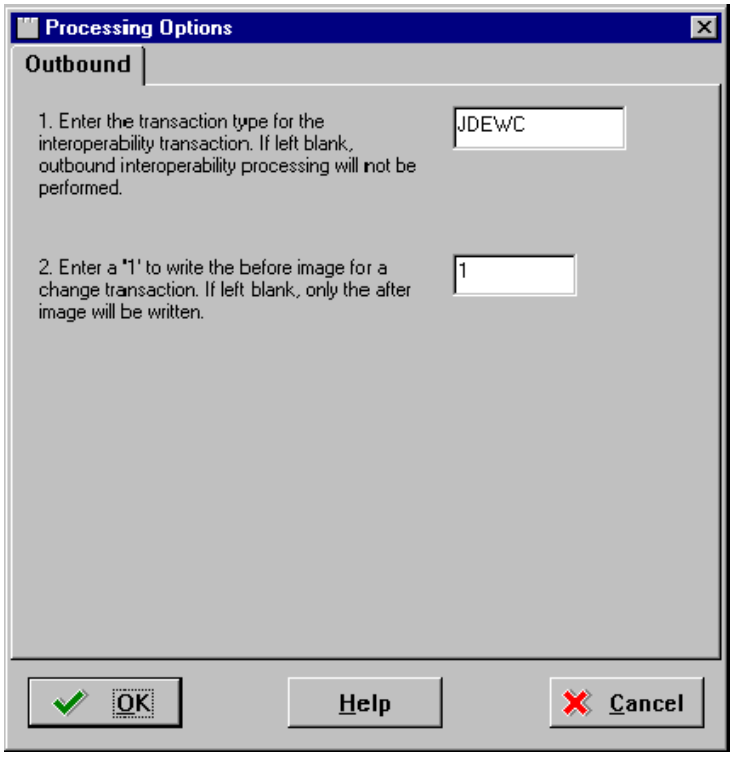
- Enable Z event processing.
- Set up the Flat File Cross-Reference (F47002) table.
- Set up the Data Export Control (F0047) table.
- Set up the Processing Log table (F0046)
- Verify the Subsystem Job is running.
- Purge the data from the interface table.
- Define Z events (F90701).
- Configure the jde.ini file.

Enabling Z Event Processing

You can enable or disable master business functions to write transaction information into interface tables and the Subsystem Job Master table (F986113) when a transaction occurs. All outbound master business functions that have the ability to create interoperability transactions have processing options that control how the transaction is written. The first processing option is the transaction type for the interoperability transaction. If this processing option is left blank, outbound interoperability processing will not be performed. The second processing option controls whether the before image is written for a change transaction. If this processing option is set to 1, before and after images of the transaction are written to the interface table. If this processing option is not set, then only an after image is written to the interface table.

► To enable Z event processing

1. Right-click the application that contains the processing options for the transaction's master business function.
2. Choose Prompt for Values from the menu.



3. Click either the Outbound tab or the Interop tab.
4. Enter the transaction type and set the before image flag if you want before and after images written to the interface table for change transactions, and then click OK.

See Also

- *Interoperability Interface Table Information* in the *Interoperability Guide* for a list of the applications that have processing options for interoperability

Setting Up Flat File Cross-Reference

When you enable Z events, you also update the Flat File Cross-Reference (F47002) table. The transaction type that you entered in the processing option maps to table F47002 to determine which interface tables to use to retrieve the information. You use the Flat File Cross-Reference program (P47002) to update table F47002.

Setting Up Data Export Controls

The generation of outbound data is controlled through the Data Export Control (F0047) table. You use the Data Export Controls program (P0047) to update table F0047. For each transaction type and order type, you must designate the Z event generator that will process the outbound data. To send a given transaction type to more than one third-party application, you associate the transaction type with each of the individual destinations by making separate entries in table F0047 for each destination. J.D. Edwards suggests that you specify the name of a third-party function that is called for each transaction as it occurs. Enough information is provided to notify you of the transaction and give you the key values so that you can retrieve the transaction.

► To set up Data Export Controls

From an application that supports event generation, choose the Data Export Controls application. Alternatively, enter P0047 on the fast path command line to access the Work With Data Export Controls form.

1. On Work With Data Export Controls, click Add.
2. On Data Export Control Revisions, complete the following fields:
   - Transaction
   - Order Type
3. For each detail row, enter the following:
   - Function Name
     - Windows NT: _CallOnUpdate@36
     - UNIX: CallOnUpdate
     - AS400: CallOnUpdate
   - Function Library
     - Windows NT: ERP Bin32 Path\zevg.dll
     - UNIX(HP): ERP Bin32 Path\libzevg.sl
     - UNIX(AIX, SUN): ERP Bin32 Path\libzevg.so
     - AS400: ERP Bin32 Path\ZEVG
   - Enter 1 in the Execute For Add column to generate an event for an add/insert. Complete the same process as appropriate for update, delete, and inquiry.
   - Enter 1 in the Launch Immediately column to launch the object from the Outbound Subsystem batch process.

     This column does not affect the Outbound Scheduler batch process.

   The system automatically increments the Sequence field for each line.

Processing Log Table

The Z event generator uses the Processing Log (F0046) table. Table F0046 contains the keys to the interoperability transaction along with a successfully processed column. The sequence number, transaction type, order type, function name, and function library are obtained from the Data Export Control (F0047) table. A vendor-specific record is sequentially created in table F0046 for every transaction processed by the Interoperability Generic Outbound Subsystem (R00460) UBE or the Interoperability Generic Outbound Scheduler UBE (R00461). For example, if three vendors have subscribed to a transaction using the Data Export Control table, three records are created in the Processing Log table, one record for each transaction. If the vendor-specific object successfully processed the transaction, the Processing Log record is updated with a Y in the successfully processed column. You can use the Processing Log (P0046) program to determine whether a vendor-specific object processed the interoperability transaction correctly.

A purging UBE that purges the interfaces tables runs based on information in the processing log table.

Data in the Processing Log table cannot be changed.

Verifying the Subsystem Job is Running

When the application master business function adds a record to the Subsystem Job Master (F986113) table, a subsystem job is started. Subsystem jobs are continuous jobs that process records from the Subsystem Job Master table. You should verify that the subsystem job is running.

Caution

After the records have been processed, instead of ending the job, subsystem jobs look for new data in the data queue. Subsystem jobs run until you terminate them.

You can schedule subsystem jobs.

See Also

See the following topics in the *System Administration Guide*:

- *Reviewing Job Records for ERP 9.0 Subsystems* for information about verifying that the subsystem job is running
- *Terminating ERP 9.0 Subsystems* for information about stopping and ending subsystem jobs
- *The Scheduler Application* for information about scheduling jobs

Purging Data from the Interface Table

After you receive the Z event, you should purge the data from the interface table. You can enter a purge UBE in the Processing Log table to purge the interface table.

See Also

See the following topics in the *Interoperability Guide*:

- *Interoperability Interface Table Information* for a list of applications that have a purge batch process
- *Purge Interface Table Information* for information about purging data from the interface tables

Defining Z Events

You use the Interoperability Event Definition program (P90701) to define Z events. After you define your Z event, be sure to activate the event by changing the status. If the event is not defined in the Interoperability Event Definition (F90701) table, the system call returns an error message.

Note

When you generate events, you might receive the following message:

> RDEL0000045 – Could not open the tables for reliable event delivery (F90703 and F90704). Reliable event delivery will be disabled.

This is only a warning message and should be ignored unless you are using the Reliable Event Delivery feature.

See Also

- *Defining Events* in the *Interoperability Guide* for information about defining events and for a description of errors if the event cannot be found

Z Event Sequencing

When you define your Z events, you indicate whether the event is reliable or volatile. If you define the event as volatile, the system automatically provides event sequencing to guarantee that events are delivered in the correct order. Volatile events will be stamped using J.D. Edwards Next Numbers features.

For sequencing of Z events, the Z event generator, ZEVG, retrieves the next number from the Z event sequencing bucket and sends the number to the EVN kernel for sequencing purposes. It is important to note that J.D. Edwards only guarantees the sequence for the particular type of event generator. This is due to the inherent delays involved in the Z event processing; an event that occurred earlier can get a later sequence number.

Event sequencing does impact performance. You can turn off events sequencing. You can also define a time out value to tell the system to stop looking for a missed event when events are out of sequence. The flag and timeout settings are in the [INTEROPERABILITY] section of the jde.ini file.

Configure the jde.ini File for Z Events

To generate Z events, the following sections of the enterprise server jde.ini file must be configured:

- [JDENET_KERNEL_DEF19]
- [JDEITDRV]
- [JDENET]
- [INTEROPERABILITY]

The settings for the EVN kernel, [JDEITDRV], and [JDENET] are defined in the jde.ini File configurations for Events section of this guide. The settings for [INTEROPERABILITY] are as follows:

```
[INTEROPERABILITY]
SequenceTimeOut=XX
XMLElementSkipNullOrZero=X
```

The SequenceTimeOut setting is for sequencing of volatile events. The value is in seconds.

By default, null strings and zeros are trimmed off of Z events. You can turn off this feature by entering a value of 0 (zero) for the XMLElementSkipNullOrZero setting.

Z File Events XML Document Format

Z event XML documents use the J.D. Edwards XML Response format. An example of the Z event XML document can be found in the Appendix, in the XML Format Examples (Z Events). Different events can have different table names and column names.

Vendor-Specific Outbound Functions

The purpose of the vendor-specific outbound function is to pass the key fields for a record in the ERP outbound interface tables to a third party. With these keys, you can process information from the database record into your third-party system. The generic Outbound Subsystem batch process calls the function.

Each vendor-specific function is specific to the transaction being processed. You must decide what the function actually does with the database record information. Although the functions are written to your specifications and most likely are written outside of ERP, these functions must use the required J.D. Edwards defined data structure shown below.

Data Item	Required	I/O	Description
szUserId	Y	I	User ID - 11 characters
szBatchNumber	Y	I	Batch Number - 16 characters
szTransactionNumber	Y	I	Transaction Number - 23 characters
mnLineNumber	Y	I	Line Number - double
szTransactionType	Y	I	Transaction Type - 9 characters
szDocumentType	Y	I	Document Type - 3 characters
mnSequenceNumber	Y	I	Sequence Number - double

Real-Time Events

A real-time event is notification that a business transaction has occurred in ERP. Real-time events can be generated on the enterprise server using any ERP interface, such as HTML, WIN32, and terminal servers. Real-time events can be used for both synchronous and asynchronous processing.

For example, an auction site using ERP as a backend can use real-time events to update the database immediately. A user enters a new item for auction, which triggers a transaction into the ERP system. The transaction is immediately captured. A notification is sent to an interoperability server, such as a Java connector, that then communicates the information to a web engine to update html pages so that all of the auction users can see the new item. This example illustrates a synchronous process.

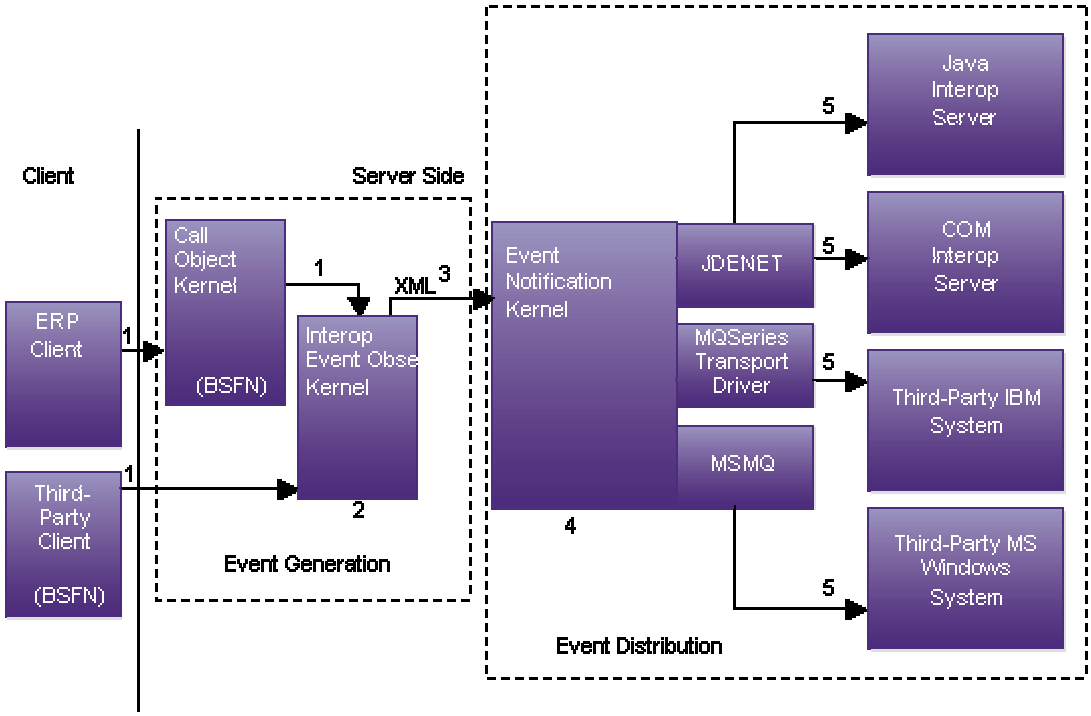
Real-time event generation can also be used for asynchronous processing. For example, an online store sends orders to different vendors (business to business), captures the

transactions, and the orders are entered into the vendors' systems. A user buys a book. Vendors want to enter a purchase order to the book publisher and a notification to the shipping company to pick up the book and deliver it. The book order itself can be completed as a purchase order transaction with ERP, but the shipping request requires that the data is packaged into a commonly agreed upon format for the shipping company to process.

Real-time events use system calls that receive data from business functions that use ERP data structures. Events can be one of the following:

Single Event	Contains one partial event. Is useful if the receiver requires that events be generated per system call. Can also be with different event types.
Aggregate Event	Contains multiple partial events. Is useful if the receiver requires a document containing multiple events. For example, a supply chain solution might want the complete sales order provided as one event that contain multiple partial events.
Composite Event	Contains only single events. Is useful if the customer has multiple receivers, some requiring single events and some requiring a complete event similar to an aggregate event.

Real-time event generation from a client consists of client business functions that call APIs, and then interfaces with the server Interoperability Event Observer (a kernel). Real-time event generation on the server side includes an event observer interface (a set of system APIs) that triggers real-time events, and an interoperability event observer (a kernel). Then the event observer kernel generates XML documents of the triggered real-time events and sends them to an event distribution component. The event distribution component is the same one used to send XML document notification to subscribers. A logical representation of the processes and data for real-time event generation are depicted in the following diagram and discussion:



1. Event generation is triggered by ERP business functions. You use the ERP Object Configuration Manager (OCM) to map business functions to run on the enterprise server or to run locally.
    - When a business function is mapped to run on the enterprise server, the J.D. Edwards business function calls the Interoperability Event Interface within the CallObject kernel. The CallObject kernel sends the information to the Interoperability Event Observation (IEO).
    - When a real-time event is generated from a client, the client business function calls the appropriate API. The API does OCM lookup to determine where the IEO kernel is located, validates, filters, and formats the data, and then sends the information to the IEO kernel.
2. The IEO kernel creates the real-time event and produces an XML document when the real-time event is finalized.
3. The IEO kernel packages the XML document and passes the document to the Event Notification (EVN) kernel.
4. The EVN kernel determines which transport driver should handle the event.
5. The transport driver distributes the event.

Note

If you use MQSeries or MSMQ transports, system and function errors that the transport driver encounters are written to the JDE error log. The driver will write error messages and add the error codes if available.

Event Unique ID

Each real-time event has a unique ID that includes the ERP session ID.

Journaling

Real-time events are journaled using the trace feature for the JDEDEBUG log files. Journaling can be turned on or off in the jde.ini file. Journaling occurs at two points:

- A system call logs the parameter received and the APIs called.
- During the interoperability event observer process, the kernel logs additional debugging information. The logging is controlled with the LEVEL key in the [INTEROPERABILITY] section. Following are some possible values for the LEVEL key.

[INTEROPERABILITY]

LEVEL=		Writes specified interoperability event data to the debug log file. You can specify one or more of the allowable logging settings. Separate multiple values with a comma. For example: [INTEROPERABILITY] LEVEL=EVENTS,DATA **Note** As with any logging operation, enabling any of these settings can impact performance and cause extensive amounts of data to be written.
	EVENTS	Use this value to log the flow of events in the IEO kernel. Receiving event data and sending events are logged, but the values of the event data are not logged. This is the default level. If the LEVEL key is not present, it is identical to LEVEL= EVENTS.
	DATA	Log values of the event data and flow of the events in the IEO kernel. This level also includes all data logged with the EVENTS switch.
	PERF	Log statistics about the number of events received and the time period in which they are processed.
	DOC	Outbound XML documents are written in the temporary file on disk. If the debug log is enabled, the document location is written in the debug log. The location of the document is one of the following: • If the value of the key TempFileDir in the Interoperability section is set, the file is written to that location. For example: [INTEROPERABILITY] TempFileDir=C:\XML_DOCUMENTS • If the key TempFileDir is not set, files are written in the same directory where JDE logs and debug logs are written. **Caution** Setting the LEVEL=DOC key causes all real-time events to be written to the disk, which can cause a significant performance impact on the enterprise server. J.D. Edwards suggests that you not use the LEVEL=DOC setting in a production environment or for stress testing of the QA environment.
	TRACE	This switch will trace execution of the IEO kernel and write data in the debug log. Because of the large amount of data logged, this level should be used only for debugging purposes.

Note

The LEVEL=DOC setting is not affected by whether debug logs are enabled or disabled. All other values under the LEVEL key (for example, TRACE) are affected by the debug log enable or disable setting.

You can also journal EVN documents by setting the SaveEVNDoc key in the [INTEROPERABILITY] section of the jde.ini file. SaveEVNDoc is similar to LEVEL=DOC but applies to the EVN kernel instead of the IEO kernel. The default value for SaveEVNDoc is zero (0), which means that EVN documents are not saved. To save EVN documents, change the value to one (1). EVN documents are saved to the directory where JDE logs and debug logs are written unless you specify a different directory. You can use TempFileDir to specify a directory, as shown in the following example:

```
[INTEROPERABILITY]
    SaveEVNDoc=1
    TempFileDir=C:\XML_Documents
```

See Also

- *The jde.ini File* in the *System Administration Guide* for more information about debug settings in the jde.ini file
- *Debug Tracing* in the *Development Tools Guide* for more information about enabling and disabling debug logs

Real-Time Event APIs

The system APIs are able to determine whether a system call is from a server or client. The following APIs are available for you to generate real-time events:

- jdeIEO_EventInit()
- jdeIEO_EventAdd()
- jdeIEO_EventFinalize()
- jdeIEO_CreateSingleEvent()
- jdeIEO_IsEventTypeEnabled()

Note

For specific information about these events, see the online API documentation.

Example: Interoperability Event Interface Calls

The following example illustrates how to create a single event:

1. Design the data structure to decide what values to provide to the real-time event.

```
typedef struct tagDSD55RTTEST
  {
  char              szOrderCo[6];
  char              szBusinessUnit[13];
  char              szOrderType[3];
  MATH_NUMERIC      mnOrderNo;
  MATH_NUMERIC      mnLineNo;
  JDEDATE           jdRequestedDate;
  char              szItemNo[27];
  char              szDescription1[31];
  MATH_NUMERIC      mnQtyOrdered;
  MATH_NUMERIC      mnUnitPrice;
  MATH_NUMERIC      mnUnitCost;
  char              szUserID[11];
  } DSD55RTTEST, *LPDSD55RTTEST;
```

2. Define the data structure object in the business function header file.
3. Modify the business function source to call jdeIEO_CreateSingleEvent.

```
JDEBFRTN(ID) JDEBFWINAPI RealTimeEventsTest (LPBHVRCOM  lpBhvrCom,
   LPVOID  lpVoid,
   LPDSD55REALTIME lpDS)
{
/* Define Data Structure Object */
DSD55RTTEST     zRTTest     = {0};
  IEO_EVENT_RETURN    eEventReturn    = eEventCallSuccess;
IEO_EVENT_ID     szEventID     = {0};

0Populate required members

/* Now call the API */
  szEventID = jdeIEO_CreateSingleEvent ( lpBhvrCom,
      "RealTimeEventsTest",
       "JDERTOUT",
       "SalesOrder",
       "D55RTTEST",
      &zRTTest,
      sizeof(zRTTest),
      0,
      &eEventReturn    );

  /* Error in jdeFeedCallObjectEvent is not a critical error
          and should only be treated as a warning */
     if( eEventReturn != eEventCallSuccess )
  {
     /* LOG the Warning and return */
     return ER_WARNING;
```

The following example illustrates how to create an aggregate event:

```
IEO_EVENT_RETURN eEventReturn = eEventCallSuccess;
IEO_EVENT_ID szEventID = jdeIEO_EventInit (pBhvrCom,
eEventAggregate,
"MyFunction1",
"JDESOOUT" // EventType for AggregateEvent
"EventScope1",
0,
&eEventReturn);
0

eEventReturn = jdeIEO_EventAdd (pBhvrCom,
szEventID,
"MyFunction2",
NULL,
"D55TEST01",
&zD55TEST01,
sizeof(zD55TEST01));
0

eEventReturn = jdeIEO_EventAdd (pBhvrCom,
szEventID,
"MyFunction3",
NULL,
"D55TEST02",
&zD55TEST02,
sizeof(zD55TEST02));
0

eEventReturn = jdeIEO_EventAdd (pBhvrCom,
EventID,
"MyFunction3",
NULL,
"D55TEST03",
&zD55TEST03,
sizeof(zD55TEST03));
0

eEventReturn = jdeIEO_EventFinalize (pBhvrCom,
EventID,
"MyFunction4");
```

The following example illustrates how to create a composite event:

```
IEO_EVENT_RETURN eEventReturn = eEventCallSuccess;
IEO_EVENT_ID szEventID = jdeIEO_EventInit (pBhvrCom,
eEventComposite,
 MyFunction1",
 JDESOOUT" // EventType for CompositeEvent
 EventScope1",
0,
&eEventReturn );
0

eEventReturn = jdeIEO_EventAdd ( pBhvrCom,
             szEventID,
              MyFunction2",
              SODOCBEGIN", // EventType for SingleEvent
              D55TEST01",
              &zD55TEST01,
              sizeof(zD55TEST01));
0

eEventReturn = jdeIEO_EventAdd ( pBhvrCom,
            szEventID,
             MyFunction3",
             SOITEMADD",  //EventType for SingleEvent
             EventScope3",
             D55TEST02",
            &zD55TEST02,
            sizeof(zD55TEST02));
0

eEventReturn  = jdeIEO_EventFinalize (pBhvrCom,
          EventID,
          MyFunction4");
```

Errors returned by the system calls might not be critical enough to stop the business process. Non-critical errors are flagged as warnings and are logged in the log file. If the business function is on the server, the warning is logged in the callobject kernel log. If the business function is on a client, the warning is logged in the client log file.

The following example illustrates an XML file that shows a composite real-time event consisting of a call to the business function F4211FSEditLine on 12/31/2000, arriving about noon, with the real-time event generated at 12:00:01.000.

```
<?xml version='1.0' encoding='utf-8' ?>
<jdeResponse type='realTimeEvent' user='JDE1214225' ses
sion='1234.786321234' environment='XDEVNIS2'>
  <header>
    <eventVersion>1.0</eventVersion>
    <type>JDESOOUT</type>
    <scope>SalesOrder</scope>
    <user>JDE1214225</user>
    <application>P0101</application>
    <version>XJDE101</version>
    <sessionID>1234.786321234</sessionID>
    <environment>XDEVNIS2</environment>
    <host>HP9000B</host>
    <eventID>
      HP9000B-1234-1231200012000100-JDE1214225-FFA123ECBBA123EC
    </eventID>
    <date>12312000</date>
    <time>120001000</time>
  </header>

 body elementCount='1'>
    <PartialEvent name='F4211FSEditLine' type='SOEDTLINE' executionOrd
er='1' parameterCount='12'>
  <szOrderCo type='String'>JD Edwards</szOrderCo>
      <szBusinessUnit type='String'>Mountain Region</szBusinessUnit>
      <szOrderType type='String'>SO</szOrderType>
   <mnOrderNo type='MATH_NUMERIC'>13209847</mnOrderNo>
      <mnLineNo type='MATH_NUMERIC'>122</mnLineNo>
      <jdRequestedDate type='Date'>12312000</jdRequestedDate>
      <szItemNo type='String'>12243234</szItemNo>
      <szDescription type='String'>Bicycle</szDescription>
      <mnQtyOrdered type='MATH_NUMERIC'>1</mnQtyOrdered>
      <mnUnitPrice type='MATH_NUMERIC'>249.99</mnUnitPrice>
      <mnUnitCost type='MATH_NUMERIC'>213.23</mnUnitCost>
<szUserID type='String'>JDE1214225</szUserID>
    </PartialEvent>
  </body>
</jdeResponse>
```

Generating Real-Time Events

The following list identifies tasks for generating real-time events.

- Set up the OCM.
- Define the real-time event.
- Configure the jde.ini file.

Note

When you generate events, you might receive the following message:

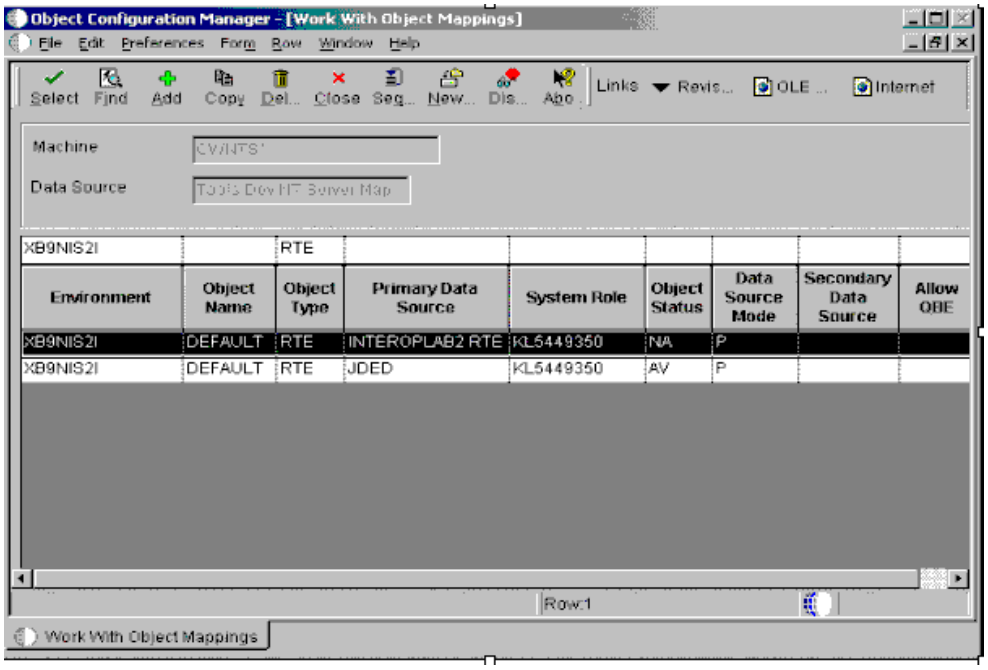
> RDEL0000045 – Could not open the tables for reliable event delivery (F90703 and F90704). Reliable event delivery will be disabled.

This is only a warning message and should be ignored unless you are using the Reliable Event Delivery feature.

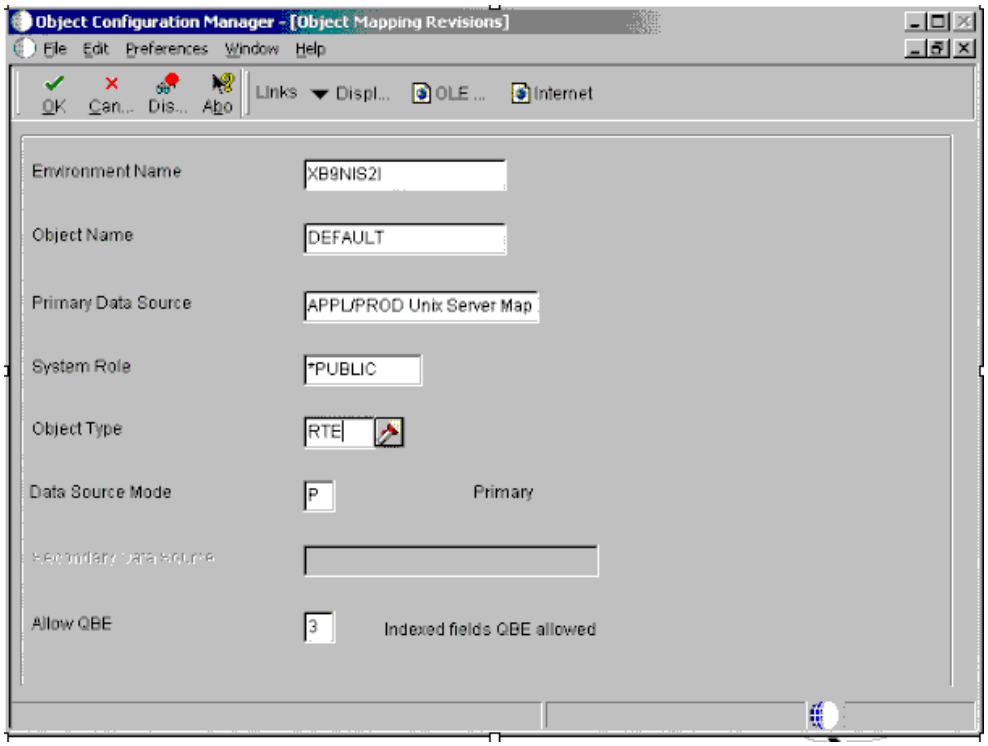
Setting Up the OCM for Real-Time Events

You configure the Object Configuration Manager (OCM) so that the system call can find the IEO kernel. If the business function is mapped to a client, an error is returned to the client by the system call if the IEO kernel isn't found. If the business function is mapped to the server, the error is logged in the Callobject kernel jde.log.

When you configure the OCM, include a specific environment and ensure that no two duplicate mappings are in active status at the same time. The following illustration shows the environment and the status.



To configure the OCM, access the Object Mapping Revisions form and enter RTE in the Object Type field, as shown below.



If the OCM mapping is not correctly configured on the client, the following message is written in the jde.log, and the event will not be generated:

RT0000011 jdeIEO_EventInit: Unable to find the server

If the OCM mapping is not correctly configured on the server, no error message is generated. The system call defaults to the local server for the location of the IEO kernel.

If the IEO kernel is not found on the machine that is configured in the OCM, the following error might occur:

RT0000004 jdeIEO_EventInit: ReceiveMsg failed. Error = <error test>

See Also

See the following topics in the *Configurable Network Computing Implementation Guide*:

- *Working with the Object Configuration Manager* for information about the Object Configuration Manager tool
- *Mapping Objects* for information about how to map a business function for event processing

Defining Real-Time Events

You use the Interoperability Event Definition program (P90701) to define real-time events. After you define your real-time event, be sure to activate the event by changing the status to active. If the event is not defined in the Interoperability Event Definition (F90701) table, the system call returns an error message.

See Also

- *Defining Events* in the *Interoperability Guide* for information about defining events and for a description of errors if the event cannot be found

Event Sequencing

When you define your real-time events, you indicate whether the event is reliable or volatile. If you define the event as volatile, the system automatically provides event sequencing to guarantee that events are delivered in the correct order. Volatile events will be stamped using J.D. Edwards Next Numbers features.

For sequencing of real-time events, the system call, jdeIEO_EventFinalize, retrieves the event number from the real-time events sequencing bucket and sends the number to the IEO kernel. The IEO kernel includes the event number as part of the generated event. The IEO kernel sends the event to the EVN kernel. The EVN kernel remembers the last shipped event and does sequencing based on the event number contained in the received event.

Event sequencing does impact performance. You can turn off events sequencing. You can also define a timeout value to tell the system to stop looking for a missed event when events are out of sequence. The flag and timeout settings are in the [INTEROPERABILITY] section of the jde.ini file.

Configure the jde.ini for Real-Time Events

To generate real-time events, the following sections of the enterprise server jde.ini file must be configured:

- [JDENET_KERNEL_DEF19]
- [JDENET_KERNEL_DEF20]
- [JDEITDRV]
- [JDENET]
- [INTEROPERABILITY]

Note

The settings for the kernels [JDEITDRV] and [JDENET] are defined in *jde.ini File Configurations for Events* in the *Interoperability Guide*.

The settings for [INTEROPERABILITY] are as follows:

```
[INTEROPERABILITY]
    SequenceTimeOut=XX
    XMLElementSkipNullOrZero=X
```

The SequenceTimeOut setting is for sequencing of volatile events. The default value is 10 seconds.

By default, null strings and zeros are trimmed from Z real-time events. You can turn off this feature by entering a value of 0 (zero) for the XMLElementSkipNullOrZero settings.

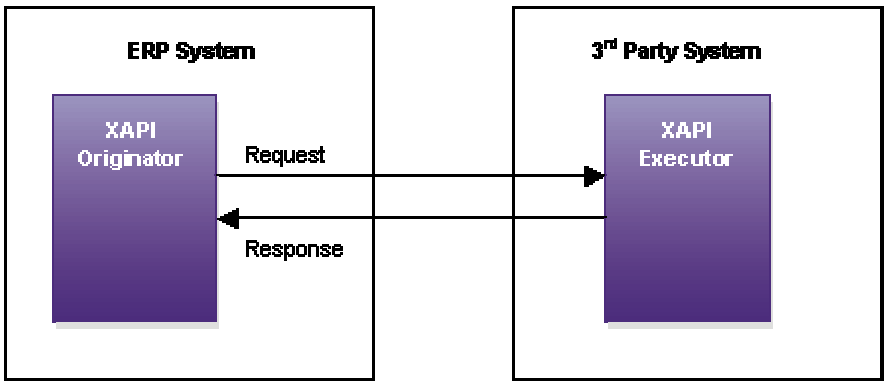
XAPI

XAPI is an ERP service that captures ERP transactions as the transaction occurs, and then calls third-party software, end users, and other J.D. Edwards systems to obtain a return response. XAPI is very similar to a real-time event, and uses the same infrastructure as real-time events. The difference between a real-time event and a XAPI event is that the subscriber to a XAPI event returns a reply to the originator. The XAPI event contains a set of structured data that includes a unique XAPI event name and a business function to be invoked upon return. Like real-time events, XAPI events can be generated on the enterprise server using any ERP interface, such as HTML, WIN32, and terminal servers.

The XAPI structure sends outbound events and receives a reply from third-party systems. The XAPI structure also provides complete request-reply connectivity between two ERP systems.

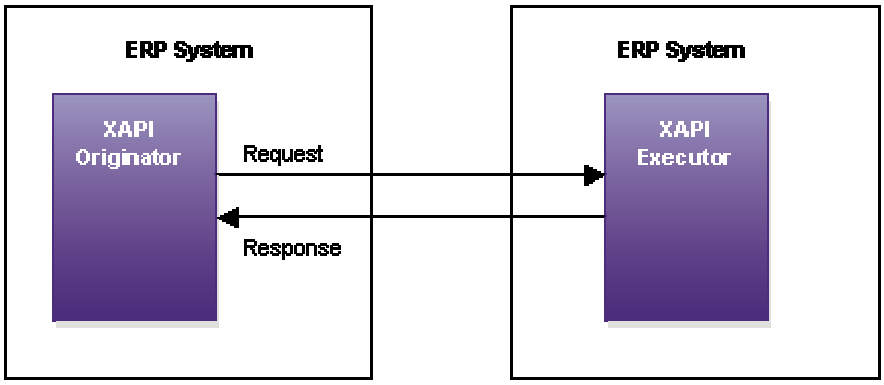
An event is generated in the ERP system and sent to a third-party system for processing. The third-party system sends a response back to the ERP system.

The following diagram shows a logical representation of the XAPI processing from ERP to a third-party system:



- ERP, the XAPI originator, sends a request.
- The request is sent to a third-party system.
- The third-party system, the XAPI executor, processes the request and sends a response back to the XAPI originator.

XAPI also provides a way for two different ERP systems to communicate with each other. The following illustration shows a logical representation of the XAPI processing from one ERP system to another ERP system:

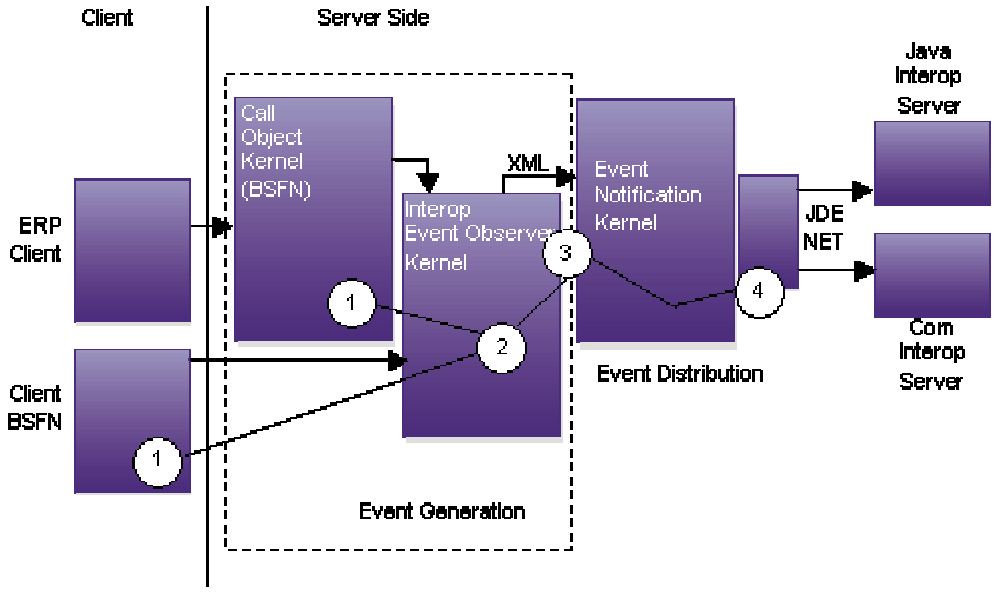


- The first ERP system, the XAPI originator, sends a request.
- The request is sent to a second ERP system, which may share the same or different environment as the first ERP system.
- The second ERP system (the XAPI executor) processes the request and sends a response back to the first ERP system (the XAPI originator).
- The first ERP system (the XAPI originator) processes the response.

XAPI Outbound Events

The XAPI structure supports XAPI outbound event generation. XAPI outbound events are generated exactly the same as real-time events.

The following diagram illustrates the flow for a XAPI outbound event that is sent to a third-party system:



1. When a XAPI event is generated from a client, the client business function calls the appropriate API. This API does an OCM lookup to determine where the IEO kernel is

located. The API validates, filters, and formats the data. When a XAPI event is generated from an enterprise server, the J.D. Edwards business function calls the Interoperability Event Interface within the CallObject kernel. The data is sent as a partial event to the IEO kernel.

2. The IEO kernel creates the XAPI event and produces an XML document when the XAPI event is finalized.
3. The IEO kernel packages the XML document and passes the document to the EVN kernel.
4. The EVN kernel determines the transport driver that should handle the event, and JDENet distributes the information to the subscribers.

Note

XAPI currently does not use MQSeries or MSMQ. All events that are defined in the Interoperability Event Definition (F90701) table are sent to you if you configure your system to receive events using MQSeries and MSMQ transport drivers.

XAPI Event APIs

The following APIs are available for you to generate a XAPI call:

- jdeXAPI_Init
- jdeXAPI_Add
- jdeXAPI_Finalize
- jdeXAPI_Free
- jdeXAPI_SimpleSend
- jdeXAPI_ISCallTypeEnabled
- jdeXAPI_CALLS_ENABLED

Note

For specific information about these events, see the online API documentation.

Example: XAPI Event Creation API Usage

The following code sample illustrates how to create a XAPI event.

```
#ifdef jdeXAPI_CALLS_ENABLED
          XAPI_CALL_ID            ulXAPICallID  = 0;
XAPI_CALL_RETURN           eXAPICallReturn     = eEventCallSuccess;
#endif

DSD4205010A   dsD4205010A                = {0}; /*Query Header*/
DSD4205010B   dsD4205010B                = {0}; /*Query Detail*/

#ifdef jdeXAPI_CALLS_ENABLED
if(jdeXAPI_IsCallTypeEnabled("XAPIOPOUT") &&
```

```
        jdeXAPI_IsCallTypeEnabled("XAPIOPIN") )
{
        bXAPIInUse = TRUE;
}
#endif

        /*-----------------------------------------------------*/
        /* Call XAPIInit    */

        #ifdef jdeXAPI_CALLS_ENABLED
        if(bXAPIInUse == TRUE)
        {
                ulXAPICallID = jdeXAPI_Init( lpBhvrCom,
                                                "SendOrderPromiseRequest",
                                        "XAPIOPOUT",
                                        NULL,
                                        &eXAPICallReturn);
                if (eXAPICallReturn != eEventCallSuccess)
                {
                        bExit = TRUE;
                }
        }
        #endif


        /*-------------------------------------------------*/
        /* Adding Header Information         */

                #ifdef jdeXAPI_CALLS_ENABLED
                if(bXAPIInUse == TRUE)
                {
                        eXAPICallReturn = jdeXAPI_Add( lpBhvrCom,
                                        ulXAPICallID,
                                        "SendOrderPromiseRequest",
                                        "D4205010A",
                                        &dsD4205010A,
                                        sizeof(DSD4205010A));
                        if (eXAPICallReturn != eEventCallSuccess)
                        {
                                bExit = TRUE;
                        }
                }
                #endif

        /*-------------------------------------------------*/
        /* Loading Detail Information      */


                        #ifdef jdeXAPI_CALLS_ENABLED
                        if(bXAPIInUse == TRUE)
                        {
                                eXAPICallReturn = jdeXAPI_Add( lpBhvrCom,
                                        ulXAPICallID,
                                        "SendOrderPromiseRequest",
                                        "D4205010B",
```

```
                                        &dsD4205010B,
                                        sizeof(DSD4205010B));
                                if (eXAPICallReturn != eEventCallSuccess)
                                {
                                        bExit = TRUE;
                                }
                        }
                        #endif

                #ifdef jdeXAPI_CALLS_ENABLED
                if(bXAPIInUse == TRUE)
            /*-------------------------------------------------*/
          /* Finalize    */
                {
                        eXAPICallReturn = jdeXAPI_Finalize( lpBhvrCom,
                                        ulXAPICallID,
                                        "SendOrderPromiseRequest",
                                        "OrderPromiseCallback");
                        if (eXAPICallReturn != eEventCallSuccess)
                        {
                                bExit = TRUE;
                        }
                }
                #endif

    #ifdef jdeXAPI_CALLS_ENABLED
    if (eXAPICallReturn != eEventCallSuccess)
    {
          /*-------------------------------------------------*/
          /* CleanUp */

          if(bXAPIInUse == TRUE)
          {
                jdeXAPI_Free( lpBhvrCom,
                                ulXAPICallID,
                                "SendOrderPromiseRequest");
          }
    }
    #endif
```

Example: XML for XAPI Outbound Event

The following example shows the XML template for a XAPI event.

```
xml version="1.0" encoding="utf-8" ?>
<jdeResponse type="realTimeEvent" user="KL5449350"
session="22558100.1004460662" subtype="XAPICall" environment="DV7333">
<event>
<header>
<eventVersion>1.0</eventVersion>
<type>XAPIOPOUT</type>
<user>KL5449350</user>
<application>APIDRV</application>
```

```
<version />
<sessionID>22558100.1004460662</sessionID>
<environment>DV7333</environment>
<host>DEN-PP6954083</host>
<sequenceID>DEN-PP6954083_1540_10302001095648_KL5449350_1</sequenceID>
<date>10302001</date>
<time>095649</time>
<scope />
<codepage>utf-8</codepage>
</header>
<body elementCount="3">
<detail date="10302001" name="APIDRVFunction" time="9:56:48" type=""
DSTMPL="D4205010A" executionOrder="1" parameterCount="23">
  <szRequestId type="String">1234567</szRequestId>
  <szUserId type="String">TestUser</szUserId>
  <szQueryMode type="String">Test</szQueryMode>
  <szCustomerName type="String">John Doe</szCustomerName>
  <mnCustomerId type="Double">12345</mnCustomerId>
  <szCustomerGroup type="String">Group 1</szCustomerGroup>
  <szAddress1 type="String">Line 1</szAddress1>
  <szAddress2 type="String">Suite 1</szAddress2>
  <szAddress3 type="String">123 E. Main</szAddress3>
  <szPostalCode type="String">50001</szPostalCode>
  <szCity type="String">Centennial</szCity>
  <szCounty type="String">Arap</szCounty>
  <szStateProvince type="String">CO</szStateProvince>
  <szCountry type="String">US</szCountry>
  <szBusinessObjective type="String" />
  <mnTraceDepth type="Double">0</mnTraceDepth>
  <mnPenaltyCostAdjustment type="Double">0</mnPenaltyCostAdjustment>
  <szOrderNumber type="String">1000</szOrderNumber>
  <nAllowBackorders type="Int">49</nAllowBackorders>
  <nAllowSubstitution type="Int">48</nAllowSubstitution>
  <nAllowPartialLineShip type="Int">49</nAllowPartialLineShip>
  <nAllowPartialOrderShip type="Int">49</nAllowPartialOrderShip>
  <nAllowMultisource type="Int">49</nAllowMultisource>
</detail>
<detail date="10302001" name="APIDRVFunction" time="9:56:49" type=""
DSTMPL="D4205010B" executionOrder="2" parameterCount="17">
  <mnLineNumber type="Double">1</mnLineNumber>
  <mnCacheLineNumber type="Double">1</mnCacheLineNumber>
  <mnItemNumber type="Double">2222</mnItemNumber>
  <sz2ndItemNumber type="String">1234567</sz2ndItemNumber>
  <sz3rdItemNumber type="String">2234567</sz3rdItemNumber>
  <szOrderUnit type="String">123</szOrderUnit>
  <mnOrderQuantity type="Double">12</mnOrderQuantity>
  <szPlanningUnit type="String">ECL</szPlanningUnit>
  <mnPlanningQuantity type="Double">12</mnPlanningQuantity>
  <mnPlanningMultiple type="Double">1</mnPlanningMultiple>
  <mnPlanningUnitPrice type="Double">1234</mnPlanningUnitPrice>
  <jdRequestDate type="Date">10302001</jdRequestDate>
  <szShippingGroup type="String">Ship Group</szShippingGroup>
  <szMultiSource type="String">MS</szMultiSource>
  <nAllowPartialLineShip type="Int">49</nAllowPartialLineShip>
  <nAllowBackorders type="Int">49</nAllowBackorders>
```

```
  <nAllowSubstitution type="Int">48</nAllowSubstitution>
</detail>
<detail date="10302001" name="XAPICall" time="09:56:49" type=""
DSTMPL="DXAPIROUTE" executionOrder="3" parameterCount="4">
  <ClientPort type="Int">6009</ClientPort>
  <ClientIP type="Int">167810863</ClientIP>
  <ClientMagicNumber type="Int">32781408</ClientMagicNumber>
  <XAPIMethodID type="String">GetComputerID</XAPIMethodID>
</detail>
</body>
</event>
</jdeResponse>
```

Routing Information

All XAPI events must include DXAPIROUTE in the XML file, as noted in the shaded area in the example XML file above. DXAPIROUTE contains the routing information that is to be returned to the originating client. The jdeXAPI_Finalize API appends DXAPIROUTE data execution.

Generating XAPI Events

The following list identifies tasks for generating XAPI events to send to a third-party:

- Set up the OCM.
- Define the XAPI" event in table F90701.
- Set up subscription information in table F90702.
- Configure the server jde.ini file.

Note

When you generate events, you might receive the following message:

> RDEL0000045 – Could not open the tables for reliable event delivery (F90703 and F90704). Reliable event delivery will be disabled.

This is only a warning message and should be ignored unless you are using the Reliable Event Delivery feature.

Set Up the OCM for XAPI

If your interface to the ERP system is other than an ERP client, you must configure the OCM so that the system call can find the IEO kernel. When you configure the OCM, include a specific environment and ensure that no two duplicate mappings are in active status at the same time.

To configure the OCM, access the Object Mapping Revisions form and enter XAPI in the Object Type field. Configuring the OCM with the XAPI entry enables the system call to find the IEO kernel. If the OCM is not properly configured, the system generates an error message. OCM error messages for XAPI events are the same as the OCM error messages for real-time events.

See Also

- *Setting Up the OCM for Real-Time Events* in the *Interoperability Guide* for information about setting up the Object Configuration Manager for events processing

See the following topics in the *Configurable Network Computing Implementation Guide*:

- *Working with the Object Configuration Manager*
- *Mapping Objects*

Define the XAPI Event

You use the Interoperability Event Definition (P90701) program to define XAPI events. When you define XAPI events, the system automatically updates the Event Category field to Container. All XAPI events use the data structure option. The system automatically adds the DXAPIROUTE data structure, which is required for XAPI events. The DXAPIROUTE data structure contains the routing information that is to be returned to the originating system. The jdeXAPI_Finalize API appends DXAPIROUTE data execution. After you define your XAPI event, be sure to activate the event by changing the status.

See Also

- *Defining Events* in the *Interoperability Guide* for information about how to add a XAPI event to the Interoperability Event Definition table (F90701)

Set Up XAPI Subscription Information

If you are generating XAPI events, you must define a logical subscriber and set up XAPI event subscriber information. The logical subscriber must exist before you can add XAPI event subscriber information. If subscriber information is missing, the XAPI event is generated but cannot be delivered. You use the Interoperability Event Subscription program (P90702) to define the logical subscriber and to set up XAPI subscriber information. After you set up the XAPI subscriber, be sure to activate the subscriber by changing the status.

See Also

- *Setting Up Subscriber Information* in the *Interoperability Guide* for information about how to define a logical subscriber and then set up XAPI subscriber information

Configure the jde.ini File for XAPI Events

To generate XAPI events, the following sections of the enterprise server jde.ini file must be configured:

- [JDENET_KERNEL_DEF19]
- [JDENET_KERNEL_DEF20]
- [JDEITDRV]

If the jde.ini file is not properly configured for XAPI events, the following error message is written to the jde.log file:

> XAPI Event [Event Name] cannot be subscribed. Must have XAPI Definition in the INI file.

Make sure the XAPI event is defined in the Single and Container Event Definition (F90701) table and that XAPI Executor information is defined in the jde.ini file.

You can ignore the following error message because XAPI subscription is persisted and cannot be unsubscribed:

Cannot unsubscribe XAPI event.

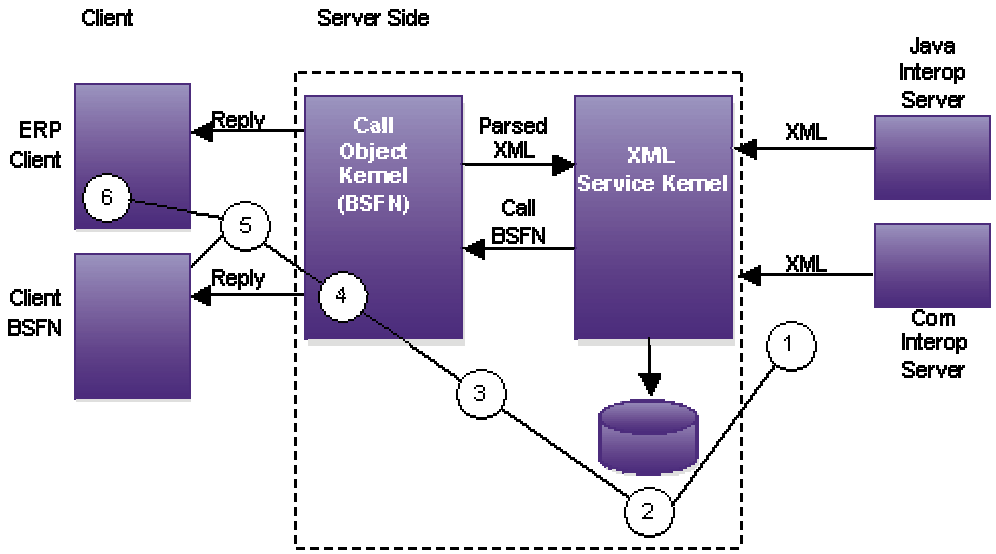
See Also

- *jde.ini File Configurations for Events* in the *Interoperability Guide* for server kernel and [JDEITDRV] configurations

XAPI Inbound Response

The XAPI structure provides for an inbound response. The XAPI inbound response happens after a XAPI event is generated. The XAPI inbound response is handled by the third-party system. The third-party system, the XAPI executor, processes the request (event) and returns a reply to the XAPI originator.

When the return XML document is received, it is routed to the XML service kernel. The XML service kernel saves the XML document to disk, creates a unique handle, and then calls the callback business function that is provided in the DXAPIROUTE XAPI method ID element in the XML document. The following diagram illustrates the flow of a XAPI response from a third-party system to the ERP originating system. The dotted line indicates the flow.



The inbound portion of XAPI functions as follows:

1. An inbound XML document is passed from a third-party system to the XML service kernel.
2. The XML service kernel creates a unique XML handle and stores the document on disk.
3. The XML service kernel reads the XAPICallMethod attribute from the XML document and passes the XML handle as the parameter to the specified business function.
4. The business function (XAPICallMethod) uses XML service APIs to read and parse the XML data into ERP data.

5. The business function (XAPICallMethod) uses XML CallObject to send the reply to the originator.
6. An ERP client can poll for the XAPI response from the ERP server.

XAPI Response Parsing APIs

The following APIs are available for you to generate an inbound XAPI response:

- jdeXML_GetDSCount
- jdeXML_GetDSName
- jdeXML_ParseDS
- jdeXML_DeleteXML

Note

For specific information about the XML service kernel, see the online API documentation.

Example: XAPI Response Parsing API Usage

The following example illustrates how the business function uses the XML service APIs to read and parse the XML data:

```
int iCurrentRecord;
    int           iHeaderCount;

    DSD4205030A         dsD4205030A = {0};
    DSD4205030B         dsD4205030B = {0};

    #ifdef jdeXAPI_CALLS_ENABLED

    if(jdeXAPI_IsCallTypeEnabled("XAPIOPOUT") &&
           jdeXAPI_IsCallTypeEnabled("XAPIOPIN") )
    {
           iRecordCount = jdeXML_GetDSCount(lpDS->szXMLHandle);

           if (iRecordCount > 0)
           {
                  for (iCurrentRecord = 0; iCurrentRecord < iRecordCount;
iCurrentRecord++)
                  {
                         jdeXML_GetDSName(lpDS->szXMLHandle,
                                                iCurrentRecord,
                                                nidDSName);
                          if (jdestrcmp(nidDSName,(const char*)"D4205030A") ==
0)
                         {
                                jdeXML_ParseDS( lpDS->szXMLHandle,
                                                iCurrentRecord,
                                                &dsD4205030A,
                                                sizeof(DSD4205030A));
                         }
```

```
                  else
                        {
                              jdeXML_ParseDS( lpDS->szXMLHandle,
                                              iCurrentRecord,
                                              &dsD4205030B,
                                              sizeof(DSD4205030B));
                        }

                  }

          }
          if (iCurrentRecord == iRecordCount)
          {
          jdeXML_DeleteXML(lpDS->szXMLHandle);
          }
    }
    #endif
```

Example: Inbound XAPI Response

The following sample shows an inbound XAPI response:

```
<?xml version="1.0" encoding="utf-8" ?>
<jdeRequest pwd="JDE" type="xapicallmethod" user="JDE" session=""
environment="DV7333" sessionidle="">
<header>
<eventVesrion>1.0</eventVesrion>
<type>XAPIOPIN</type>
<user>JDE</user>
<application>XPI</application>
<version />
<sessionID />
<environment>DEVXPINT</environment>
<host>denxpi7</host>
<sequenceID />
<date>09122001</date>
<time>094951</time>
<scope />
<codepage>utf-8</codepage>
</header>
<body elementCount="3">
<params type="D4205030A" executionOrder="1" parameterCount="24">
  <param name="type" />
  <param name="dateStamp" />
  <param name="timeStamp" />
  <param name="szRequestId">1|ZJDE0001</param>
  <param name="szBusinessObjective">Maximize_Service</param>
  <param name="mnResultNumber">0.0</param>
  <param name="mnTotalCost">0.0</param>
  <param name="mnTotalDeliveryCost">0.0</param>
  <param name="mnTotalPrice">0.0</param>
  <param name="mnTotalProfit">0.0</param>
  <param name="mnTotalMargin">0.0</param>
  <param name="mnTotalValue">0.0</param>
  <param name="mnLatestLineDate">0.0</param>
```

```
  <param name="mnNumberOfBackorders">0.0</param>
  <param name="mnNumberOfSubstitutions">0.0</param>
  <param name="mnOrderFillRate">0.0</param>
  <param name="szErrorCode" />
  <param name="szErrorDescription" />
  <param name="szOrderNumber">3115|SO|00200</param>
  <param name="nAllowPartialOrderShip">0</param>
  <param name="nAllowMultisource">0</param>
  <param name="nAllowBackorders">0</param>
  <param name="nAllowSubstitution">0</param>
  <param name="nAllowPartialLineShip">0</param>
</params>
<params type="D4205030B" executionOrder="2" parameterCount="28">
  <param name="type" />
  <param name="dateStamp" />
  <param name="timeStamp" />
  <param name="mnLineNumber">1.0</param>
  <param name="mnOriginalLineNumber">1.0</param>
  <param name="mnCacheLineNumber">1.0</param>
  <param name="mnRequestedItem">60011.0</param>
  <param name="mnAvailableItem">60011.0</param>
  <param name="mnAvailableAmount">25.0</param>
  <param name="jdAvaiableDate">09/12/2001 00:00:00</param>
  <param name="jdRequestedDate">09/10/2001 00:00:00</param>
  <param name="jdPickDate">09/11/2001 00:00:00</param>
  <param name="jdShipDate">09/11/2001 00:00:00</param>
  <param name="szShipLocation" />
  <param name="mnCost">0.0</param>
  <param name="mnDeliveryCost">0.0</param>
  <param name="mnPrice">0.0</param>
  <param name="mnProfit">0.0</param>
  <param name="mnMargin">0.0</param>
  <param name="mnValue">0.0</param>
  <param name="mnSubstitutionRatio">0.0</param>
  <param name="szShippingGroup" />
  <param name="szMultiSource" />
  <param name="szErrorCode" />
  <param name="szSuspectedCause" />
  <param name="nAllowPartialOrderShip">0</param>
  <param name="nAllowBackorders">0</param>
  <param name="nAllowSubstitution">0</param>
</params>
<params type="DXAPIROUTE" executionOrder="3" parameterCount="7">
  <param name="type" />
  <param name="dateStamp">09/05/2001 00:00:00</param>  <param
name="timeStamp">13:54:04</param>
  <param name="ClientPort">6009</param>
  <param name="ClientIP">168045665</param>
  <param name="ClientMagicNumber">3</param>
  <param name="XAPIMethodID">OrderPromiseCallback</param>
</params>
</body>
</jdeRequest>
```

Configure the jde.ini File for XAPI Response

The following sections of the enterprise server jde.ini file must be configured for the XAPI response portion of the XAPI structure:

- [JDENET_KERNEL_DEF22]
- [JDENET_KERNEL_DEF24]
- [XAPI]
- [XMLLookupInfo]

  [XAPI]
  XMLDirectory=c:\builds\bdev\log\

  Note
  The XML document directory must be registered in the jde.ini file on the server under the [XAPI] section in the XMLDirectory key. The key contains the directory on the server where XML documents are to be stored.

  [XMLLookupInfo]
  XMLRequestType5=realTimeEvent
  XMLKernelMessageRange5=14251
  XMLKernelHostName5=local
  XMLKernelPort5=0
  XMLKernelReply5=0

See Also

- *jde.ini File Configurations for Events* in the *Interoperability Guide* for kernel configurations

Configure the Client jde.ini File for XAPI

If you are using an ERP client to generate XAPI events, you must define the Client Dispatch kernel and [JDENET] sections of the client jde.ini file. If your interface to the enterprise server is other than an ERP client, these two settings are not required. The settings enable the ERP client to poll for the XAPI response message from the ERP server.

Use the following settings to configure your ERP client jde.ini file:

[JDENET_KERNEL_DEF27]
krnlName=CLIENT DISPATCH KERNEL
dispatchDLLName=jdeuser.dll
dispatchDLLFunction=_JDENET_ClientDispatch
maxNumberOfProcesses=0
numberOfAutoStartProcesses=0

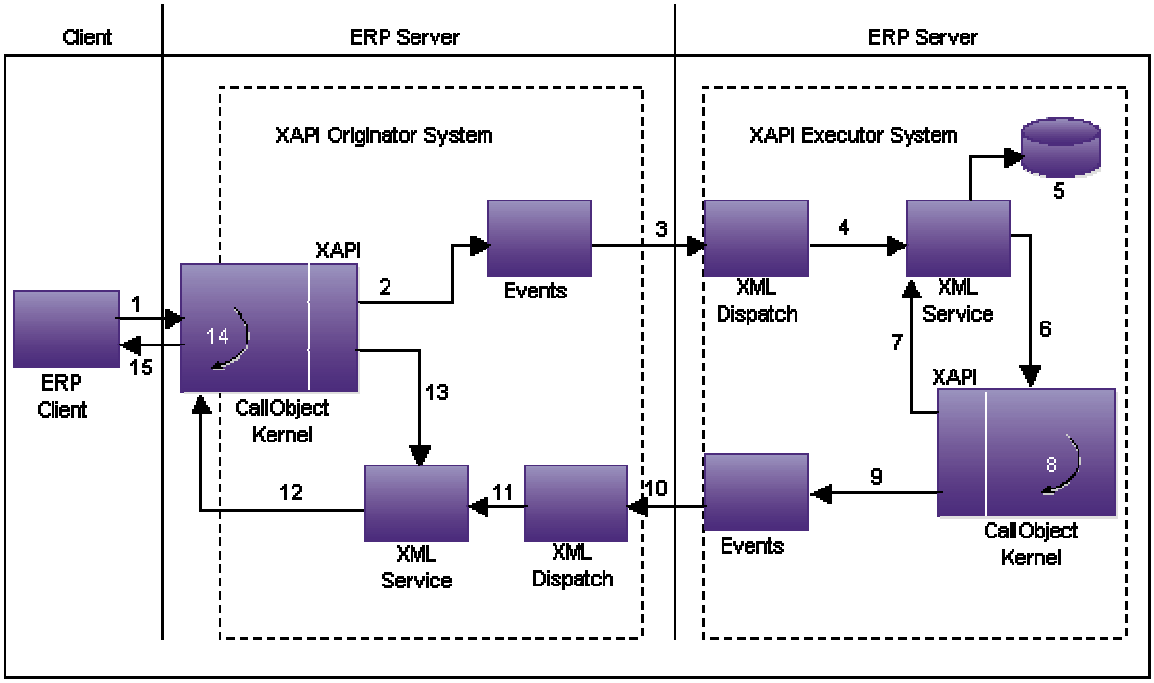
[JDENET]
serviceNameListen=6004
serviceNameConnect=6004
maxKernelRanges=27
netTrace=0

Note
The serviceNameListen and serviceNameConnect settings must be the same as the server's settings. For example, if your server jde.ini file has serviceNameListen=6005 and serviceNameConnect=6005, then your ERP client jde.ini file must be serviceNameListen=6005 and serviceNameConnect=6005.

The value for maxKernelRanges setting should be the same value as the server.

XAPI ERP System to ERP System

The XAPI structure also provides the capability for two different ERP systems to communicate with each other. The first ERP system (XAPI originator system) generates a XAPI request (event). Instead of the request being distributed to a third-party system, JDENet sends the request to a second ERP system. The second ERP system (XAPI executor system) processes the request and sends a response back to the first ERP system. The following illustration shows a logical representation of the ERP system to ERP system XAPI processing:



XAPI Originator System Flow

1. An ERP business function calls the Interoperability Event Interface within the CallObject kernel to send a request.
2. The business function uses XAPI APIs to create the XAPI request. XAPI adds the callback function and sends the request to the events structure
3. The IEO kernel creates the XAPI event in XML format and sends the XML document to the EVN kernel. The EVN kernel ships the XML document to the XML Dispatch kernel of the second ERP system. The XML document is shipped through JDENet

using persistent subscription information. A routing token that contains the sender's server and port information is added. The message type for the event must be *RealTimeEvent*.

XAPI Executor System

1. The XML Dispatch kernel receives the XML package and sends the event request and routing information to the XML Service kernel.
2. The XML Service kernel stores the XAPI request and creates a file handle for the XAPI request. The XML kernel also creates XML based routing information, stores the routing information, and creates a file handle for the routing information. The XML Service kernel uses the Event Request Definition table (F907012) to find the business function that will process the request.
3. The XML Service kernel invokes the business function (in CallObject) with the XML request handle and the routing information handle.
4. The business function uses XAPI APIs to parse and process the request. XAPI APIs load the XML request into memory.
5. The business function processes the XAPI event request. The business function also creates a XAPI response. The message type for the response must be *xapicallmethod*. The XAPI response is in XML format. The business function also passes the routing information handle.
6. The XAPI response originator sends the response and the routing information to the events structure.
7. The IEO kernel formats the XAPI response in XML format and sends the XML document to the EVN kernel. The EVN kernel uses direct routing to send the response and routing information to the XML Dispatch kernel of the first ERP system (XAPI originator system). Direct routing means sending the XAPI reply to the same request-originating server.

XAPI Originator System

1. The XML Dispatch kernel receives the response XML document and sends the response to the XML Service kernel.
2. The XML service kernel stores the response document, creates a file handle, and invokes the callback business function with the file handle.
3. The business function parses the response document using XAPI APIs (XAPI response handler). XAPI APIs use the XML Service kernel to load the document into memory.
4. The business function uses XAPI APIs (CallObject kernel) to process the response.
5. The business function can poll for the XAPI response from the ERP server.

Note
You can send a request from one ERP system to another ERP system for processing with no return reply. If you do not want a response, you would use the above steps through Step 8, without processing the request. No response would be generated.

You can use J.D. Edwards reliable event delivery feature to process XAPI events.

XAPI ERP System to ERP System APIs

Following is a list of APIs, categorized by function, that you use to generate XAPI events when you are working with two ERP systems. For specific information about these APIs, see the online API documentation.

XAPI Outbound Request Generation APIs

You use the following APIs to generate a XAPI event (request from the originator system). The APIs listed below are the same as those APIs identified in the XAPI Outbound Events section.

- jdeXAPI_SimpleSend
- jdeXAPI_Init
- jdeXAPI_Add
- jdeXAPI_Finalize
- jdeXAPI_Free

See Also

The following examples in the *Interoperability Guide*:

- *Example: XAPI Event Creation API Usage*
- *Example: XML for XAPI Outbound Event*

XAPI Outbound Request Handling APIs

The following APIs are used by the mapped business function (executor system) to retrieve XML data from the outbound XAPI request document:

- jdeXMLRequest_GetDSCount
- jdeXMLRequest_GetDSName
- jdeXMLRequest_ParseDS
- jdeXMLRequest_DeleteXML
- jdeXMLRequest_ParseNextDSByName
- jdeXMLRequest_PrepareDSListForIterationByName

Example: XAPI Outbound Request Parsing API Usage

The following code example shows the API Usage for generating a outbound request from the ERP originator system to the ERP executor system:

```
API_System FunctionsSampleXAPIRequestParsingAPIUsage
Last Modified: ERP 9.0| October 21, 2002

Example
int           iXMLRecordCount  = 0;
int           iCurrentRecord   = 0;
NID           nidDSName;
ID            idReturnValue    = ER_SUCCESS;
ID            idSORecordCount  = ER_ERROR;  /*Return Code*/
MATH_NUMERIC  mnBatchNumber    = {0};
unsigned long lBatchNumber     = {0};

DSD4206030A   dsD4206030A      = {0};
/* CacheProcessInboundDemandRequest B4206030.c */
DSD4206000I   dsD4206000I      = {0};
/* Demand scheduling inbound DSTR */


iXMLRecordCount  =  jdeXMLRequest_GetDSCount(lpDS->szXMLHandle);

if( iXMLRecordCount > 0)
{
   for ( iCurrentRecord = 0; iCurrentRecord < iXMLRecordCount;
iCurrentRecord++)
   {
      memset((void *)(&dsD4206000I), (int)(_J('\0')), sizeof(DSD4206000I));
      memset((void *)(nidDSName), (int)(_J('\0')), sizeof(NID));

      if(jdeXMLRequest_GetDSName(lpDS->szXMLHandle,
                                          iCurrentRecord,
                                          nidDSName))
      {
         /* Retrieving data*/
         if (jdeStricmp(nidDSName, (const JCHAR *)_J("D40R0180B")) == 0)
{
            if (jdeXMLRequest_ParseDS(lpDS->szXMLHandle,
                                       iCurrentRecord,
                                       &dsD4206000I,
                                       sizeof(DSD4206000I)))
            {
               /* Get next number for the batch number of the
              inbound INVRPT record*/if
              ( dsD4206000I.cInventoryAdvisement == _J('1'))
              {
                 lBatchNumber    = JDB_GetInternalNextNumber();
                 LongToMathNumeric(lBatchNumber, &mnBatchNumber);
                 FormatMathNumeric(dsD4206000I.szBatch,
&mnBatchNumber);
              }
```

```
               /* Setup cancel flag for pending delete record */
               if ( dsD4206000I.cPendingDelete == _J('1'))
               { /* Flag set as 1 for any cancel demand record */
               dsD4206000I.cCancelFlag = _J('1');
               }
               else
               { /* Flag set as 9 for any non cancel demand record */
               dsD4206000I.cCancelFlag = _J('9');
               }

               /* Load parms for cache */
               memset((void *)(&dsD4206030A), (int)(_J('\0')),
sizeof(DSD4206030A));

              I4206000_LoadParmsToCache(&dsD4206000I, &dsD4206030A);
              MathCopy(&dsD4206030A.mnJobnumberA, lpmnJobNumber);

              /* Add the DSTR to cache */
              idReturnValue = jdeCallObject(
_J("CacheProcessInboundDemandRequest") ,
                                              (LPFNBHVR)NULL ,
                                              lpBhvrCom ,
                                              lpVoid ,
                                              (LPVOID)&dsD4206030A,
                                              (CALLMAP *) NULL,
                                              (int) 0,
                                              (JCHAR*)NULL ,
                                              (JCHAR*)NULL ,
                                              (int) 0 );
              /* Write XML DSTR to cache fail */
              if (idReturnValue == ER_ERROR)
              {
                 jdeErrorSet(lpBhvrCom, lpVoid, (ID) 0, _J("032E"), (LPVOID)
NULL);
              }

           }
           else
           {   /* warning XML parse fail */
                    jdeErrorSet(lpBhvrCom, lpVoid, (ID) 0, _J("40R46"),
(LPVOID) NULL);
           }
        } /* end if  */
     }/* end if DS name */
   }/* end for - looping all matching XML DSTR */

   /* Ensure there is at least one record */
   idSORecordCount = ER_SUCCESS;

}/*if( iXMLRecordCount > 0) */

return idSORecordCount;
```

Example: XML for XAPI Request from ERP Originator System

The following illustrates the XAPI request document from the ERP originator system to the ERP executor system:

```
<?xml version="1.0" encoding="UTF-16" ?>
<jdeRequest pwd="4f3e65076f446c5d20666f4172536518435c" role="*ALL"
type="xapicallmethod" user="PP6954083" session="" environment="DV9NIS2"
responseCreator="XAPI">
  <header>
    <eventVersion>1.0</eventVersion>
    <type>XAPIDEMO</type>
    <user>PP6954083</user>
    <role>*ALL</role>
    <application />
    <version />
    <sessionID>35087181.1050101193</sessionID>
    <environment>DV9NIS2</environment>
    <host>DEN-PP6954083B</host>
    <sequenceID>DEN-PP6954083B_3112_041120031647161</sequenceID>
    <date>04112003</date>
    <time>164716</time>
    <scope />
    <codepage>utf-8</codepage>
    <instanceInfo>
      <host>DEN-PP6954083B</host>
      <port>6025</port>
      <type>JDENET</type>
    </instanceInfo>
  </header>
  <body elementCount="3">
    <errors errorCount="4">
      <error code="041H" type="BSFN ERROR" />
      <error code="041I" type="BSFN ERROR" />
      <error code="2597" type="BSFN ERROR" />
      <error code="4136" type="BSFN ERROR" />
    </errors>
    <params type="D907001A" executionOrder="0" parameterCount="14">
      <param name="szXMLHandle">DEN-
PP6954083B_||_C:\builds\B9_SP0\log\J3E9745EE032D-00000C28-00000001-
000000000000000000FFFF0A0396A3.xml</param>
      <param name="mnAddressNumber">55617</param>
      <param name="szNameAlpha">Pradip Pandey</param>
      <param name="szNameMailing">Pradip K Pandey</param>
      <param name="szAddressLine1" />
      <param name="szAddressLine2" />
      <param name="szZipCodePostal">80237</param>
      <param name="szCity">Denver</param>
      <param name="szState">CO</param>
      <param name="szCountry" />
      <param name="mnAmountGross">100.00</param>
      <param name="mnUnits">100.00</param>
      <param name="jdDtForGLAndVouch1">2001/01/01</param>
      <param name="cDefaultAddressLine1">9</param>
    </params>
```

```
    <params type="DXAPIROUTE" executionOrder="1" parameterCount="4">
      <param name="ClientPort">6024</param>
      <param name="ClientIP">168007331</param>
      <param name="ClientMagicNumber">1</param>
      <param name="XAPIMethodID">XAPITestResponse</param>
    </params>
  </body>
</jdeRequest>
```

XAPI Inbound Response Generation APIs

The following APIs are used to generate a response (executor system):

- jdeXAPIResponse_SimpleSend
- jdeXAPIResponse_Init
- jdeXAPIResponse_Add
- jdeXAPIResponse_Finalize
- jdeXAPIResponse_Free

Example: XAPI Inbound Response Parsing API Usage

The following code example shows the API usage for generating an inbound reply from the ERP executor system to the ERP originator system:

```
JDEBFRTN (ID) JDEBFWINAPI SendOrderPromiseRequest (LPBHVRCOM lpBhvrCom,
LPVOID lpVoid, LPDSD4205010 lpDS)
{
/************************************************************
*  Variable declarations
************************************************************/

     char       cPromisableLine             = ' ';
     int        nHeaderBackOrderAllowed     = ' ';
     HUSER      hUser       ;
     ID         JDEDBResult                 = JDEDB_PASSED;
     BOOL       bExit                       = FALSE;
     BOOL       bB4001040Called             = FALSE;
     BOOL       bXAPIInUse                  = FALSE;
     BOOL       bAtLeastOneDetail           = FALSE;

     #ifdef jdeXAPI_CALLS_ENABLED
     XAPI_CALL_ID          ulXAPICallID      = 0;
     XAPI_CALL_RETURN      eXAPICallReturn   = eEventCallSuccess;
     #endif
/************************************************************
* Declare structures
************************************************************/
     DSD4001040      dsD4001040         = {0};
     DSD4205020      dsD4205020         = {0};
     DSD4205040      dsD4205040         = {0}; /* Header Info */
     DSD4205050      dsD4205050         = {0}; /* Detail Info */
     DSD4205010A     dsD4205010A        = {0}; /* Query Header */
```

```
     DSD4205010B     dsD4205010B        = {0} /* Query Detail */
     DSD0100042      dsD0100042         = {0};
     LPDSD4205040H   lpDSD4205040H       = (LPDSD4205040H) NULL;
     LPDSD4205050D   lpDSD4205050D       = (LPDSD4205050D) NULL;


/*****************************************************************
* Declare pointers
*****************************************************************/

/*****************************************************************
* Check for NULL pointers
*****************************************************************/
if ((lpBhvrCom == (LPBHVRCOM) NULL) ||
   (lpVoid    == (LPVOID)    NULL) ||
   (lpDS      == (LPDSD4205010)              NULL))
{
  jdeErrorSet (lpBhvrCom, lpVoid, (ID) 0, "4363", (LPVOID) NULL);
  return ER_ERROR;
}

/* Retrieving hUser */

JDEDBResult = JDB_InitBhvr (lpBhvrCom, &hUser, (char *)NULL,
JDEDB_COMMIT_AUTO ) ;

if ( JDEDBResult == JDEDB_FAILED )
{
  jdeSetGBRError ( lpBhvrCom, lpVoid, (ID) 0, "4363" ) ;
  return ER_ERROR ;
}
/*****************************************************************
* Set pointers
*****************************************************************/
/*****************************************************************
* Main Processing
*****************************************************************/
   /*-------------------------------------------------------*/
   /* Setting Up ErrorCode
              */
   lpDS->cErrorCode = '0';

   /*-------------------------------------------------------*/
   /* Determing if XAPI is ready to be used               */

   bXAPIInUse = FALSE;

   #ifdef jdeXAPI_CALLS_ENABLED
   if(jdeXAPI_IsCallTypeEnabled("XAPIOPOUT") &&
            jdeXAPI_IsCallTypeEnabled("XAPIOPIN") )
   {
            bXAPIInUse = TRUE;
   }
   #endif
   /*-------------------------------------------------------*/
```

```
   /* Data validation and defaults.                          */
   /* When Display Before Accecpt Mode is on,validate Key */
   /* Information.Otherwise retrieve it from Header Record*/

   if((lpDS->cDisplayBeforeAcceptMode == '1')      &&
             ((MathZeroTest(&lpDS->mnOrderNumber) == 0) ||
               (IsStringBlank(lpDS->szOrderType))      ||
               (IsStringBlank(lpDS->szOrderCompany))))
   {
             bExit = TRUE;
   }
   else
   {
             MathCopy(&dsD4205040.mnOrderNumber,&lpDS->mnOrderNumber);
             strncpy(dsD4205040.szOrderType,
                lpDS->szOrderType,
                   sizeof(dsD4205040.szOrderType));
             strncpy(dsD4205040.szComputerID,
                lpDS->szOrderCompany,
                   sizeof(dsD4205040.szOrderCompany));
             dsD4205040.cUseCacheOrWF = lpDS->cUseCacheOrWF;
             strncpy(dsD4205040.szComputerID,
                lpDS->szComputerID,
                   sizeof(dsD4205040.szComputerID));
             MathCopy(&dsD4205040.mnJobNumber,&lpDS->mnJobNumber);
             jdeCallObject( "GetSalesOrderHeaderRecord",
                       NULL,
                       lpBhvrCom, lpVoid,
                       (LPVOID)&dsD4205040,
                       (CALLMAP *) NULL,
                       (int) 0,
                       (char *) NULL,
                       (char *) NULL,
                       (int) 0 ) ;

             lpDSD4205040H = (LPDSD4205040H)jdeRemoveDataPtr(hUser,
(ulong)dsD4205040.idHeaderRecord);

             if (lpDSD4205040H == NULL)
             {
                      bExit = TRUE;
             }
   }

   /*-------------------------------------------------------*/
   /* Set error if we're exiting at this point            */

   if (bExit == TRUE)
   {
             lpDS->cErrorCode = '1';
             /* Sales Order Header Not Found */
             strncpy(lpDS->szErrorMessageID,
                   "072T",
                      sizeof(lpDS->szErrorMessageID));
             if (lpDS->cSuppressError != '1')
```

```
            {
                  jdeErrorSet (lpBhvrCom, lpVoid, (ID) 0, "072T", (LPVOID)
NULL);
            }
   }

   /*-------------------------------------------------------*/
   /* Default Promising Flag is always 1 for Xe           */
   lpDS->cDefaultPromisingFlags = 1;

   if (bExit == FALSE)
   {
      /*-------------------------------------------------------*/
      /* Call XAPIInit      */

      #ifdef jdeXAPI_CALLS_ENABLED
      if(bXAPIInUse == TRUE)
      {
            ulXAPICallID = jdeXAPI_Init( lpBhvrCom,
                                    "SendOrderPromiseRequest",
                              "XAPIOPOUT",
                              NULL,
                              &eXAPICallReturn);
            if (eXAPICallReturn != eEventCallSuccess)
            {
                     bExit = TRUE;
            }
      }
      #endif
      if (bExit == FALSE)
      {
            /*-------------------------------------------------*/
            /* Loading Header Information                     */

            I4205010_PopulateQueryHeader(lpDS,&dsD4205010A,
               lpDSD4205040H,&dsD0100042,hUser,lpVoid,lpBhvrCom);

            nHeaderBackOrderAllowed = dsD4205010A.nAllowBackorders;

            /*-------------------------------------------------*/
            /* Adding Header Information       */

            #ifdef jdeXAPI_CALLS_ENABLED
            if(bXAPIInUse == TRUE)
            {
                  eXAPICallReturn = jdeXAPI_Add( lpBhvrCom,
                                    ulXAPICallID,
                                    "SendOrderPromiseRequest",
                                    "D4205010A",
                                    &dsD4205010A,
                                    sizeof(DSD4205010A));
                  if (eXAPICallReturn != eEventCallSuccess)
                  {
                        bExit = TRUE;
                  }
```

```
            }
            #endif
      }
   }

   if (bExit == FALSE)
   {
      /*-------------------------------------------------------*/
      /* Loading Detail Information    */

      MathCopy(&dsD4205050.mnOrderNumber,&lpDS->mnOrderNumber);
      strncpy(dsD4205050.szOrderType,lpDS->szOrderType,
                              sizeof(dsD4205050.szOrderType));
      strncpy(dsD4205050.szOrderCompany,lpDS->szOrderCompany,
                              sizeof(dsD4205050.szOrderCompany));
      dsD4205050.cUseCacheOrWF = lpDS->cUseCacheOrWF;
      strncpy(dsD4205050.szComputerID,lpDS->szComputerID,
                              sizeof(dsD4205050.szComputerID));
      MathCopy(&dsD4205050.mnJobNumber,&lpDS->mnJobNumber);
      if (lpDSD4205040H->cActionCode != 'A')
      {
            dsD4205050.cCheckTableAfterCache = '1';
      }
      else
      {
            dsD4205050.cCheckTableAfterCache = '0';
      }
      jdeCallObject( "GetSalesOrderDetailRecordOP",
            NULL,
            lpBhvrCom, lpVoid,
            (LPVOID)&dsD4205050,
            (CALLMAP *) NULL,
            (int) 0, (char *) NULL,
            (char *) NULL, (int) 0 ) ;

      if (dsD4205050.cRecordFound != '1')
      {
            bExit = TRUE;
            lpDS->cErrorCode = '1';
            /* Sales Order Detail Not Found */
            strncpy(lpDS->szErrorMessageID,"4162",
                              sizeof(lpDS->szErrorMessageID));
            if (lpDS->cSuppressError != '1')
            {
                  jdeErrorSet (lpBhvrCom, lpVoid, (ID) 0, "4162", (LPVOID)
NULL);
            }
      }

      while ((dsD4205050.cRecordFound == '1') && (bExit == FALSE))
      {
            lpDSD4205050D = (LPDSD4205050D)jdeRemoveDataPtr( hUser,
(ulong)dsD4205050.idDetailRecord);
            /* Reset flags */
            cPromisableLine = '0';
```

```
            bB4001040Called = FALSE;

            /*-------------------------------------------------*/
            /* Evaluate the Record from F4211 (cDataSource = 2)*/
            /*   to find out if we should promise the line */
            /*   else find out from Order Promising Detail.*/

            if(dsD4205050.cDataSource == '1')
            {
                 if (lpDSD4205050D->cOPPromiseLineYN == 'Y')
                 {
                       cPromisableLine = '1';
                 }
            }
            else if(dsD4205050.cDataSource == '2')
            {
                 MathCopy ( &dsD4001040.mnShortItemNumber,
                            &lpDSD4205050D->mnShortItemNumber);
                 strncpy ( dsD4001040.szBranchPlant,
                       lpDSD4205050D->szBusinessUnit,
                              sizeof(dsD4001040.szBranchPlant));

                 jdeCallObject   ( "GetItemMasterDescUOM",
                                   NULL,
                                   lpBhvrCom, lpVoid,
                                    (LPVOID)&dsD4001040,
                                    (CALLMAP *) NULL,
                                    (int) 0, (char *) NULL,
                                    (char *) NULL, (int) 0 ) ;

                 bB4001040Called = TRUE;

                 cPromisableLine =
I4205010_IsLinePromisable(lpBhvrCom,lpVoid,
                                     hUser,lpDS,lpDSD4205050D,
dsD4001040.cStockingType);
            }
            if (cPromisableLine == '1')
            {
               /* Set this flag if at least one promisable */
               /*      detail record exists. */
               bAtLeastOneDetail = TRUE;

               if (bB4001040Called == FALSE)
               {
                   MathCopy (&dsD4001040.mnShortItemNumber,
                              &lpDSD4205050D->mnShortItemNumber);
                   strncpy ( dsD4001040.szBranchPlant,
                              lpDSD4205050D->szBusinessUnit,
                              sizeof(dsD4001040.szBranchPlant));

               jdeCallObject   ( "GetItemMasterDescUOM",
                                 NULL,
                                 lpBhvrCom, lpVoid,
                                 (LPVOID)&dsD4001040,
```

```
                    (CALLMAP *) NULL,
                    (int) 0, (char *) NULL,
                    (char *) NULL, (int) 0 ) ;
   }

   I4205010_PopulateQueryDetail( lpDS,&dsD4205010B,
                         lpDSD4205050D,
                    &dsD4001040,
                    &dsD4205010A,
                         &dsD0100042,
                    cPromisableLine,
                          hUser,
                          lpVoid,
                    lpBhvrCom);

   #ifdef jdeXAPI_CALLS_ENABLED
   if(bXAPIInUse == TRUE)
   {
        eXAPICallReturn = jdeXAPI_Add( lpBhvrCom,
                         ulXAPICallID,
                         "SendOrderPromiseRequest",
                         "D4205010B",
                         &dsD4205010B,
                         sizeof(DSD4205010B));
        if (eXAPICallReturn != eEventCallSuccess)
        {
                  bExit = TRUE;
        }
   }
   #endif
}

/*--------------------------------------------------*/
/* Fetching the next Detail Record                  */

MathCopy(&dsD4205050.mnOrderNumber,&lpDS->mnOrderNumber);
strncpy(dsD4205050.szOrderType,lpDS->szOrderType,
                   sizeof(dsD4205050.szOrderType));
strncpy(dsD4205050.szOrderCompany,lpDS->szOrderCompany,
                  sizeof(dsD4205050.szOrderCompany));
dsD4205050.cUseCacheOrWF = lpDS->cUseCacheOrWF;
strncpy(dsD4205050.szComputerID,lpDS->szComputerID,
                  sizeof(dsD4205050.szComputerID));
MathCopy(&dsD4205050.mnJobNumber,&lpDS->mnJobNumber);
if (lpDSD4205040H->cActionCode != 'A')
{
      dsD4205050.cCheckTableAfterCache = '1';
      }
      else
      {
             dsD4205050.cCheckTableAfterCache = '0';
      }
      jdeCallObject( "GetSalesOrderDetailRecordOP",
                      NULL,
                      lpBhvrCom, lpVoid,
```

```
                                    (LPVOID)&dsD4205050,
                                    (CALLMAP *) NULL,
                                    (int) 0, (char *) NULL,
                                    (char *) NULL, (int) 0 ) ;
            }

            if (!bAtLeastOneDetail)
            {
                  bExit = TRUE;
                  lpDS->cErrorCode = '1';
                  /* Sales Order Detail Not Found */
                  strncpy(lpDS->szErrorMessageID,"4162",
                                    sizeof(lpDS->szErrorMessageID));
                  if (lpDS->cSuppressError != '1')
                  {
                        jdeErrorSet (lpBhvrCom, lpVoid, (ID) 0, "4162",
(LPVOID) NULL);
                  }
            }
            if (bExit == FALSE)
            {
                  #ifdef jdeXAPI_CALLS_ENABLED
                  if(bXAPIInUse == TRUE)
                  {
                        eXAPICallReturn = jdeXAPI_Finalize( lpBhvrCom,
                                    ulXAPICallID,
                                    "SendOrderPromiseRequest",
                                    "OrderPromiseCallback");
                        if (eXAPICallReturn != eEventCallSuccess)
                        {
                              bExit = TRUE;
                        }
                  }
                  #endif
            }

            /*-------------------------------------------------*/
            /* Call B4205020 in Add Mode    */

            if((bExit == FALSE) &&
                   (lpDS->cDisplayBeforeAcceptMode != '1') &&
                   (lpDS->cUseCacheOrWF == '2'))
            {
                   MathCopy(&dsD4205020.mnOrderNumber,&lpDS->mnOrderNumber);
                   strncpy(dsD4205020.szOrderType,lpDS->szOrderType,
                              sizeof(dsD4205020.szOrderType));
                   strncpy(dsD4205020.szOrderCompany,lpDS->szOrderCompany,
                              sizeof(dsD4205020.szOrderCompany));
                  strncpy(dsD4205020.szComputerID,lpDS->szComputerID,
                              sizeof(dsD4205020.szComputerID));
                 MathCopy(&dsD4205020.mnJobNumber,&lpDS->mnJobNumber);

                 jdeCallObject( "MaintainOPWorkFile",
                         NULL,
                         lpBhvrCom, lpVoid,
```

```
                          (LPVOID)&dsD4205020,
                          (CALLMAP *) NULL,
                          (int) 0, (char *) NULL,
                          (char *) NULL, (int) 0 ) ;
            }
      }

 /************************************************************
* Function Clean Up
************************************************************/
     #ifdef jdeXAPI_CALLS_ENABLED
     if (eXAPICallReturn != eEventCallSuccess)
     {
        /*-------------------------------------------------------*/
        /* CleanUp */

        if(bXAPIInUse == TRUE)
        {
          jdeXAPI_Free( lpBhvrCom,
                   ulXAPICallID,
                   "SendOrderPromiseRequest");
        }

        lpDS->cErrorCode = '1';
        /* System Error - no reasonable error messages exist */
        /*     in Xe. */
        strncpy(lpDS->szErrorMessageID,"018Y",
                                 sizeof(lpDS->szErrorMessageID));
        if (lpDS->cSuppressError != '1')
        {
                jdeErrorSet (lpBhvrCom, lpVoid, (ID) 0, "018Y", (LPVOID)
NULL);
        }
     }
     #endif


     if(lpDSD4205040H != (LPDSD4205040H)NULL)
     {
           jdeFree((void *)lpDSD4205040H);
     }

     if(lpDSD4205050D != (LPDSD4205050D)NULL)
     {
           jdeFree((void *)lpDSD4205050D);
      }
   return (ER_SUCCESS);
}
```

Example: XAPI Response from Originator System

The following illustrates the XAPI response document from the ERP executor system to the ERP originator system:

```
<?xml version="1.0" encoding="UTF-16" ?>
<jdeResponse pwd="4f3e65076f446c5d20666f4172536518435c" role="*ALL"
type="realTimeEvent" user="PP6954083" session="35087181.1050101193"
environment="DV9NIS2" responseCreator="XAPI">
  <event>
    <header>
      <eventVersion>1.0</eventVersion>
      <type>XAPIDEMO</type>
      <user>PP6954083</user>
      <role>*ALL</role>
      <application>P90701XT</application>
      <version />
      <sessionID>35087181.1050101193</sessionID>
      <environment>DV9NIS2</environment>
      <host>DEN-PP6954083B</host>
      <sequenceID>DEN-PP6954083B_2864_041120031636402</sequenceID>
      <date>04112003</date>
      <time>164646</time>
      <scope />
      <codepage>utf-8</codepage>
      <instanceInfo>
        <host>DEN-PP6954083B</host>
        <port>6025</port>
        <type>JDENET</type>
      </instanceInfo>
    </header>
    <body elementCount="2">
      <detail date="04112003" name="XAPITestFunctionInitiateRequest"
time="16:39:54" type="" DSTMPL="D907001A" executionOrder="0"
parameterCount="14">
      <szXMLHandle type="String" />
      <szNameAlpha type="String">Pradip Pandey</szNameAlpha>
      <szNameMailing type="String">Pradip K Pandey</szNameMailing>
      <szAddressLine1 type="String" />
      <szAddressLine2 type="String" />
      <szZipCodePostal type="String">80237</szZipCodePostal>
      <szCity type="String">Denver</szCity>
      <szState type="String">CO</szState>
      <szCountry type="String" />
      <mnAmountGross type="Double">100.00</mnAmountGross>
      <mnUnits type="Double">100.00</mnUnits>
      <jdDtForGLAndVouch1 type="Date">2001/01/01</jdDtForGLAndVouch1>
      <cDefaultAddressLine1 type="Character" />
    </detail>
    <detail date="04112003" name="XAPITestFunctionInitiateRequest"
time="16:39:54" type="" DSTMPL="DXAPIROUTE" executionOrder="1"
parameterCount="4">
      <ClientPort type="Int">6024</ClientPort>
      <ClientIP type="Int">168007331</ClientIP>
      <ClientMagicNumber type="Int">1</ClientMagicNumber>
```

```
      <XAPIMethodID type="String">XAPITestResponse</XAPIMethodID>
    </detail>
   </body>
  </event>
</jdeResponse>
```

XAPI Inbound Response Handling APIs

The following APIs are used to retrieve XML data from the inbound XAPI document and generate an inbound XAPI response (originator system). The APIs that are listed below are the same as those APIs identified in the XAPI Inbound Response section.

- jdeXML_GetDSCount
- jdeXML_GetDSName
- jdeXML_ParseDS
- jdeXML_DeleteXML
- jdeXML_ParseNextDSByName
- jdeXML_PrepareDSListForIterationByName

See Also

The following examples in the *Interoperability Guide*:

- *Example: XAPI Response Parsing API Usage*
- *Example: Inbound XAPI Response*

XAPI Error Handling APIs

The following APIs are for error handling in the executor system:

- jdeXML_CheckSystemError

  The check system error API is for system errors. It tells the ERP originator system that a system error happened in the ERP executor system.

- jdeXML_GetErrorCount
- jdeXML_SetErrors

  The get error count and set errors APIs are for business errors. These two APIs, when used together, find the number of business errors and then send the errors to the BHVRCOM structure for you to resolve.

Generating XAPI ERP Request and ERP Response

To generate XAPI requests from the ERP originator system and replies from the ERP executor system, you perform the following tasks:

- Set up the OCM.
- Define the XAPI event (F90701).
- Set up subscription information (F90702).
- Configure the server jde.ini file.

Note

Setting up the OCM, defining the XAPI event, and setting up subscription information tasks are the same as for the tasks discussed in *XAPI Outbound Events* in the *Interoperability Guide*.

The jde.ini file configuration is discussed below:

In addition to the above setup tasks, you must do the following:

- Map the business function (F907012).
- Modify the element name for XML documents.

Configure the jde.ini File for XAPI ERP Originator and ERP Executor

To generate XAPI events, the following sections of the enterprise server jde.ini file must be configured:

- [JDENET_KERNEL_DEF19]
- [JDENET_KERNEL_DEF20]
- [JDENET_KERNEL_DEF22]
- [JDENET_KERNEL_DEF24]
- [JDEITDRV]
- [XAPI] – XMLDirectory setting
- [XMLLookupInfo]
- [INTEROPERABILITY] – LEVEL setting

```
[XAPI]
XMLDirectory=c:\builds\bdev\log\

[XMLLookupInfo]
XMLRequestType5=XAPICallMethod
XMLKernelMessageRange5=14251
XMLKernelHostName5=local
XMLKernelPort5=0
XMLKernelReply5=0

XMLRequestType6=realTimeEvent
XMLKernelMessageRange6=14251
XMLKernelHostName6=local
XMLKernelPort6=0
XMLKernelReply6=0

[INTEROPERABILITY]
LEVEL=DOC
```

Note
The LEVEL setting is for logging the Event XML document in the enterprise server for debugging purposes.

Setting the LEVEL=DOC key causes all real-time events to be written to the disk, which can cause a significant performance impact on the enterprise server. J.D. Edwards suggests that you not use the LEVEL=DOC setting in a production environment or for stress testing of the QA environment.

If you are using an ERP client to generate XAPI events, you must define the Client Dispatch kernel and [JDENET} sections of the client jde.ini file.

See Also

See the following topics in the *Interoperability Guide*:

- *jde.ini File Configurations for Events* for information about setting kernel configurations for the enterprise server
- *Configure the Client jde.ini File for XAPI* for information about setting kernel and JDENET configurations for the ERP client

Map the Business Function for XAPI Request and Response

When the ERP executor system receives an event from the ERP originator, it needs to know what business function or system API to invoke to process the XAPI request. You must map the business function or system API to the XAPI event name. You map business functions and system APIs in the Event Request Definition (F907012) table.

If you are mapping business functions, you enter the name of the business function. If you map APIs, you must enter the name of the API and the library where it is defined. In addition, the signature of the API must be made common, similar to the business function.

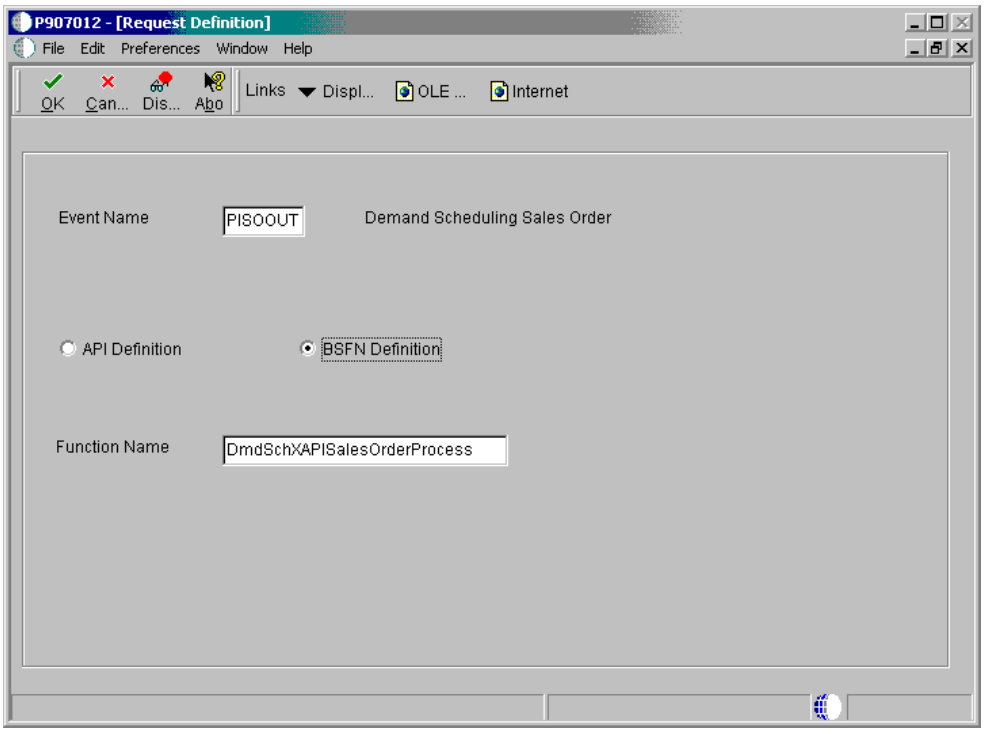
Mapping business function allows you to point a XAPI event to a business function or system API that you wrote. You do not need to modify source code of a business function that J.D. Edwards delivered to you.

You use the Event Request Definition program (P907012) to map business functions and APIs.

► To set up handler information

Enter P907012 on the fast path command line to access the Work with Definition form.

1. On Work with Definition, click Add.



2. On Request Definition, complete the following fields:
   - Event Name
   - Function Name
3. Choose one of the following options:
   - API Definition
   - BSFN Definition

Note
If you choose API definition, the DLL Name field appears on the form. Complete the DLL Name field.

4. Click OK to save your entries.
5. Click Cancel to return to Work with Definition.
6. Click Close to return to the main menu.

Modify Element Name for XML Documents

Prior to XAPI ERP processing, any document sent out of the ERP system was considered to be a response document, and any document coming in to the ERP system was considered to be a request document. However, with XAPI, request documents are generated by the ERP originating system and can be sent to the ERP executor system. Response documents are generated and sent out by the ERP executor system and received by the ERP originating system. To support XAPI and to enable the XML dispatch kernel to be able to distinguish

between a response and reply, J.D. Edwards created the following new “Type” attributes to be used with the jdeResponse element:

jdeResponse=RealTimeEvent	Use this element and attribute to identify a XAPI request from the ERP originating system and sent to the ERP executor system.
jdeResponse=xapicallmethod	Use this element and attribute to identify a XAPI response from the ERP executor system and sent to the ERP originating system.

When the XMLDispatch kernel receives a document with the jdeResponse element and one of the above “Type” attributes, XMLDispatch sends the document to the XMLService kernel. XMLService can distinguish a response or a reply based on the “Type” attribute associated with the jdeResponse element, and then will process the document appropriately.

Security for XAPI ERP Originator and ERP Executor

Access to the ERP originator and ERP executor systems is based on the following:

- User ID
- Password
- Environment
- Role

The ERP originating system verifies that the above security information is valid and creates an Huser object with an encrypted password to send to the ERP executor system. Encryption APIs (jdeEnchyper/jdeDecypher) are used to encrypt and decode the password. The security information is sent in the XAPI request XML document.

Note

The user ID, password, environment, and role must be the same on both ERP systems (ERP originator and ERP executor).

Error Processing for XAPI ERP Originator and ERP Executor

The following two kinds of errors might be encountered during XAPI error processing between two ERP systems:

- Business-related errors

  The business function or the business function specs cannot be found.

- System errors

  These errors occur in other parts of the system—for example, message delivery failure.

XAPI error processing for business-related errors are handled in the following ways:

- The XAPI system logs business-related errors in the enterprise server log. The errors are delivered as part of the XAPI reply.
- XAPI APIs parse business errors from the response document.
- XAPI logs all information available about the error in the enterprise server log.

jde.ini File Configurations for Events

The enterprise server jde.ini file must be properly configured to support Z, real-time, and XAPI event generation. You use a text editor to manually edit and verify specific settings in the enterprise server jde.ini file.

Note

If your enterprise contains more than one ERP enterprise server, you must ensure that each server has the same settings for all logic, batch, and interoperability sections.

Use the following kernel and [JDEITDRV]settings to configure the jde.ini file on your enterprise server. Configure the kernels that are appropriate for the type of event (Z, real-time, or XAPI) that you want to generate.

Note

To determine which kernels you need to set and for other jde.ini settings for each specific type of event, refer to the *Configure the jde.ini File* topics in the *Events* section of the *Interoperability Guide*.

```
[JDENET_KERNEL_DEF19]
    krnlName=EVN KERNEL
    dispatchDLLName=jdeie.dll
    dispatchDLLFunction=_JDEK_DispatchITMessage@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=0

[JDENET_KERNEL_DEF20]
    krnlName=IEO KERNEL
    dispatchDLLName=jdeieo.dll
    dispatchDLLFunction=_JDEK_DispatchIEOMessage@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=0

[JDENET_KERNEL_DEF22]
    krnlName=XML Dispatch KERNEL
    dispatchDLLName=xmldispatch.dll
    dispatchDLLFunction=_XMLDispatch@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=0
```

```
[JDENET_KERNEL_DEF24]
    krnlName=XML Service KERNEL
    dispatchDLLName=xmlservice.dll
    dispatchDLLFunction=_XMLServiceDispatch@28
    maxNumberOfProcesses=1
    numberOfAutoStartProcesses=0

[JDEITDRV]
    DrvCount=5
    Drv1=Z:zdrv.dll
    Drv2=RT:rtdrv.dll
    Drv3=JDENET:jdetrdrv.dll
    Drv4=MSMQ:msmqrtdrv.dll
    Drv5=MQS:mqsrtdrv.dll
```

Note

You set event generation and transport drivers in the [JDEITDRV] section of the jde.ini file. You are not required to set all of these drives. For example, if you do not use messaging adapters, you would not use the MSMQ and MQS settings. Be sure that you define DrvCount with the number of settings that you are using.

```
[JDENET]
    MaxKernelRanges=27
```

Note

The MaxKernelRanges setting specifies the maximum number of JDENET kernels. You must set this value to encompass the total number of kernels that you defined.

The above settings are for Windows 2000 and NT. The following table shows the settings for other platforms:

	AS400	HP9000B	Sun or RS6000
EVN (19) dispatchDLLName	JDEIE	libjdeie.sl	libjdeie.so
EVN (19) dispatchDLLFunction	JDEK_DispatchITMessage	JDEK_DispatchITMessage	JDEK_DispatchITMessage
IEO (20) dispatchDLLName	JDEIEO	libjdeieo.sl	libjdeieo.so
IEO (20) dispatchDLLFunction	JDEK_DispatchIEOMessage	JDEK_DispatchIEOMessage	JDEK_DispatchIEOMessage
XML Dispatch (22) dispatchDLLName	XMLDSPATCH	libxmldispatch.sl	libxmldispatch.so
XML Dispatch (22) dispatchDLLFunction	JDEK_XMLDispatch	JDEK_XMLDispatch	JDEK_XMLDispatch
XML Service (24) dispatchDLLName	XMLSERVICE	libxmlservice.sl	libxmlservice.so
XML Service (24) dispatchDLLFunction	JDEK_XMLServiceDispatch	JDEK_XMLServiceDispatch	JDEK_XMLServiceDispatch
Drv1	RTDRV	librtdrv.sl	librtdrv.so
Drv2	ZDRV	libzdrv.sl	libzdrv.so
Drv3	JDETRDRV	libjdetrdrv.sl	libjdstrdrv.so
Drv4	MSMQRTDRV	libmsmqrtdrv.sl	libmsmqrtdrv.so
Drv5	MQSRTDRV	libmqsrtdrv.sl	libmqsrtdrv.so

jde.ini File Configurations for MQSeries and MSMQ

If you use MQSeries or MSMQ to receive ERP events, additional settings in the jde.ini file must be defined.

Note

The event subscription from MQ Series/MSMQ outbound queue uses the ERP user ID, password, and environment that is supplied in the MQS or MSMQ section of the jde.ini file.

If you use MQSeries, define the following settings in the [MQ SI] section:

[MQ SI]

Setting	Purpose
QMGRName=	The name of the queue manager.

Setting	Purpose
QOutboundName=	The name of the queue where the MQ Series transport driver will put the XML message.
eventType_QMGR=	The name of the queue manager for a specific eventType. For example, if eventType is RTSOOUT, the setting would be as follows: RTSOOUT_QMGR=
eventType_Q=	The name of the queue for a specific eventType. For example, if eventType is RTSOOUT, the setting would be as follows: RTSOOUT_Q=

If you use the MSMQ, define the following settings in the [MSMQ] section:

[MSMQ]

Setting	Purpose
QLabelName=	Name of the queue label.
QOutboundName=	The name of the queue where the MSMQ transport driver will put the XML message.
eventType_Label=	The name of the queue label for a specific eventType. For example, if eventType is RTSOOUT, the setting would be as follows: RTSOOUT_Label=
eventType_Q=	The name of the queue for a specific eventType. For example, if eventType is RTSOOUT, the setting would be as follows: RTSOOUT_Q=

You set event generation and transport drivers in the [JDEITDRV] section of the jde.ini file. Only configure the transport drivers that you use and ensure that the value you enter for DrvCount is equal to the number of settings that you configure. The following is an example for setting [JDEITDRV]:

```
[JDEITDRV]
DrvCount=5
Drv1=Z:zdrv.dll
Drv2=RT:rtdrv.dll
Drv3=JDENET:jdetrdrv.dll
Drv4=MSMQ:msmqrtdrv.dll
Drv5 =MQS:mqsrtdrv.dll
```

Defining Events

You use the Event Request Definition (P90701) program to add new single and container events and to review your existing events. You add single events by event name. When you add a single event, you must include a data structure. A container event contains either single events or aggregate events or both. When you add a container event, you define events, single events to be used individually, or data structures, single events to be aggregated. You can change the information for single and container events. You can delete single and container events. You can change the status of an event to active or non-active. If your system has multiple environments, the event status is the same in all environments. You

define Z file events by choosing the Z File Events icon from the Form menu on the Event Definition Workbench form. You can use menu options to access the subscriber information.

When an event is generated, the IEO kernel reads the Interoperability Event Definition (F90701) table for that event. If the specified event category is different from the event category configured in the database, the system writes an error to the log file, as follows:

- If the database definition of the event is not found, the following error messages are written to the EVN log:

  Error in getNextNumberF0002: failed to open F0002 table.

  Warning: table F90702 doesn't exist. Some features will be turned off.

- If the database tables are missing, the following message is written to the EVN log:

  CheckTableExists failed: invalid hEnv or hUser.

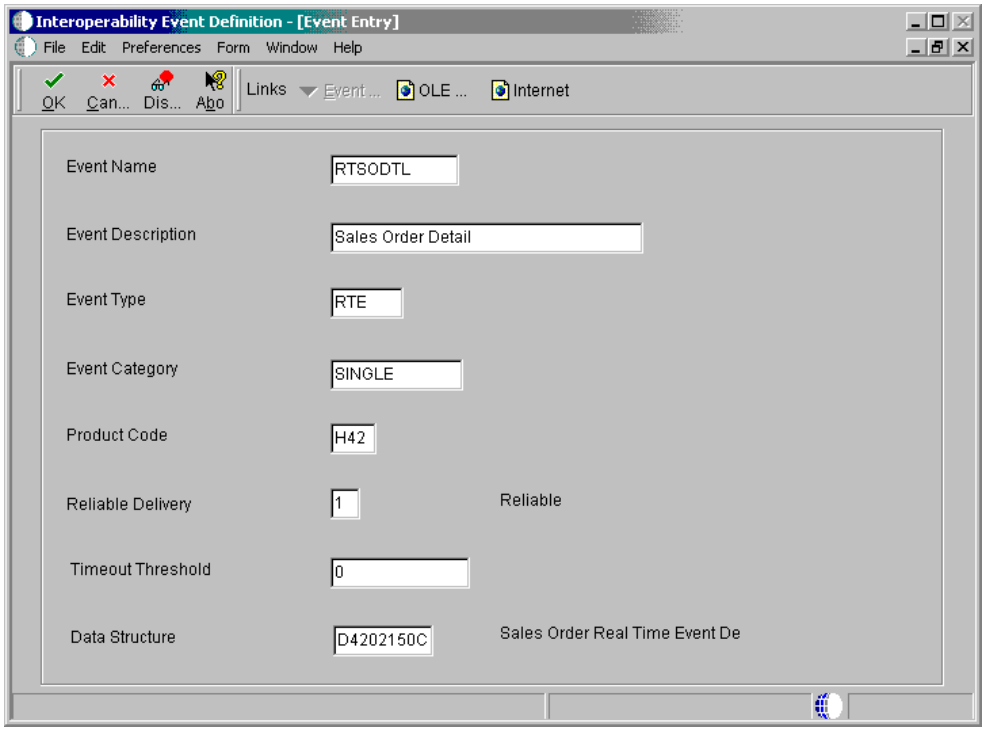
- And the following message is written to the IEO log.

  Warning: table %s doesn't exist. Some features will be turned off.

► To add a single event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, click Add.



2. On Event Entry, complete the following fields:

   - Event Name

- Event Description
- Event Type
- Event Category
- Product Code
- Reliable Delivery
- Timeout Threshold
- Data Structure

Note

If you are using the Reliable Event Delivery feature, you must set the Reliable Delivery field to reliable (1 or Y) and the Timeout Threshold field must be set. The Timeout Threshold field is in seconds and applies only to the reliable events for which an initial delivery attempt fails. This field determines the maximum amount of time that has to pass from the event creation to the time when the event will be discarded if not delivered successfully. Events with a threshold of zero never expire.

3. Click OK to save your updates.

Note

If you are adding XAPI events, the system automatically completes the Event Category field with Container and, after you click OK, the Event Definition Detail form appears. Complete the Data Structure and Data Description fields, and then click OK.

4. Click Cancel to return to Event Definition Workbench.
5. On Event Definition Workbench, click Find to view your events.
6. Click Close to return to the main menu.

► To add a container event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, click Add.
2. On Event Entry, complete the following fields:
   - Event Name
   - Event Description
   - Event Type
   - Event Category

- Product Code
- Reliable Delivery
- Timeout Threshold

Note

If you are using the Reliable Event Delivery feature, you must set the Reliable Delivery field to reliable (1 or Y) and the Timeout Threshold field must be set. The Timeout Threshold field is in seconds and applies only to the reliable events for which an initial delivery attempt fails. This field determines the maximum amount of time that has to pass from the event creation to the time when the event will be discarded if not delivered successfully. Events with a threshold of zero never expire.

3. Click OK to access Event Definition Detail.
4. On Event Definition Detail, click one of the following options:
   - Event Data
   - Data Structure Data

   Note
   Choose Event Data to define single individual (composite) events for the container event. Choose Data Structure Data to define aggregate events for the container event.

5. Do one of the following:
   - If you chose Event Data:
     - Click the visual assist in the first empty line under the Single Event field in the detail area.
     - On Event Search & Select, choose an event, and then click Select.
   - If you chose Data Structure Data:
     - Click the visual assist in the first empty line under the Data Structure field in the detail area.
     - On Individual Object Search and Select, choose a data structure, and then click Select.

     Repeat this step as many times as necessary to link the appropriate single events to the container event.
6. To save your changes and return to Event Entry, click OK.
7. On Event Entry, click Cancel to return to Event Definition Workbench.
8. On Event Definition Workbench, click Find to view your events.
9. Click Close to return to the main menu.

► To view or change the definition of a single event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description
   - Event Type
   - Product Code
2. Click one of the following options, and then click Find to display existing events.
   - Active Statuses
   - Non Active Statuses
   - All Statuses
3. Choose a single event, and then click Select.
4. On Event Entry, view or change the following fields:
   - Event Description
   - Event Type
   - Product Code
   - Reliable Delivery
   - Data Structure
5. Click OK to save your changes and return to Event Definition Workbench.
6. On Event Definition Workbench, click Close to return to the main menu.

► To change a single event to a container event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description
   - Event Type
   - Product Code
2. Click one of the following options, and then click Find to display existing events.

- Active Statuses
- Non Active Statuses
- All Statuses

3. Choose the single event that you want to change to a container event, and then click Select.
4. On Event Entry, change the following field:
   - Event Category
5. Click OK to access Event Definition Detail.
6. On Event Definition Detail, click the visual assist in the first empty line under the Single Event field in the detail area.
7. On Event Search & Select, choose an event, and then click Select.

   Repeat steps 6 and 7 as many times as necessary to link the appropriate single events to the container event.
8. Click OK to save your changes and return to the Event Definition Workbench.
9. On Event Definition Workbench, click Find to view your events.
10. Click Close to return to the main menu.

► To view or change the definition for a container event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description
   - Event Type
   - Product Code
2. Click one of the following options, and then click Find to display existing events.
   - Active Statuses
   - Non Active Statuses
   - All Statuses
3. Choose the detail line that contains the event to be viewed or changed, and then click Select.
4. On Event Entry, view or change the following fields:
   - Event Description

- Event Type
- Product Code
- Reliable Delivery

5. Click OK to save any changes and access Event Definition Detail.
6. On Event Definition Detail, do one of the following:
   - View the single events associated with the container event.
   - Add a single event to the container event.
     - In the detail area, click the visual assist in the empty row under the Single Event field.
     - When you click the visual assist, the Event Search & Select form appears. Choose an event type and then click Select. Repeat this process for each single event type that you want to link with the container event.
   - Change an existing single event that is associated with the container event.
     - In the detail area, choose the detail line that contains the event to be changed, and then click the visual assist that appears in the Single Event field.
     - When you click the visual assist, the Event Search & Select form appears. Choose an event type, and then click Select to return to the Event Definition Detail form. The row you chose will be updated.
   - Delete a single event from the container event.
     - In the detail area, choose the detail line that contains the event to be deleted, and then click delete.
     - Confirm the deletion.
7. Click OK to save changes and return to Event Definition Workbench.
8. On Event Definition Workbench, click Cancel to return to the main menu.

► To change a container event to a single event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description
   - Event Type
   - Product Code
2. Click one of the following options, and then click Find to display existing events.
   - Active Statuses
   - Non Active Statuses

- All Statuses

3. Choose the detail line that contains the container event that you want to change to a Single event, and then click Select.
4. On Event Entry, change the following field:
   - Event Category
5. Click OK.

   A warning message indicating the change will result in loss of detail appears.
6. On the warning message, click OK.
7. To complete the Data Structure field, click the visual assist.
8. On Individual Object Search and Select, choose a data structure, and then click Select.
9. On Event Definition Detail, click OK to save your changes and return to Event Definition Workbench.
10. On Event Definition Workbench, click Cancel to return to the main menu.

► To change the status of an event

From the Interoperability menu (GH9070), choose Interoperability Event Definition. Alternatively, enter P90701 on the fast path command line to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description
   - Event Type
   - Product Code
2. Click the following option, and then click Find to display existing events.
   - All Statuses
3. In the detail area, choose the event for which you want to change the status.
4. From the Row menu, choose Change Status.
5. To view the status change, click Find.
6. Click Close to return to the main menu.

Note

The status of the event is the same for all environments. If the event is active, that event is active for all environments. If the event is non-active, that event is non-active for all environments.

► To copy an event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description
   - Event Type
   - Product Code
2. Turn on one of the following options, and then click Find.
   - Active Statuses
   - Non Active Statuses
   - All Statuses
3. Choose the detail line that contains the event to be copied, and then click Copy.
4. On the Event Entry form, complete the following field:
   - Event Name
5. Do one of the following:
   - If you copied a single event, modify the definition for the new event.

     Note
     See Steps 4 through 6 of the *To view or change the definition for a single event* task in the *Interoperability Guide*.

   - If you copied a container event, modify the definition for the new event.

     Note
     See Steps 4 through 8 of the *To view or change the definition for a container event* task in the *Interoperability Guide*.

► To delete an event

From the Interoperability menu (GH9070), choose Interoperability Event Definition; or enter P90701 in the Fast Path to access the Event Definition Workbench form.

1. On Event Definition Workbench, complete the following fields:
   - Event Name
   - Description

- Event Type
- Product Code

2. Turn on the following option, and then click Find.
   - Active Statuses
3. Choose the detail line that contains the event to be deleted, and then click Delete.

   If you are deleting a container event, you must confirm the deletion.
4. To verify the event is deleted, click Find.
5. Click Close to return to the main menu.

Setting Up Subscriber Information

For XAPI events, you must update the Interoperability Subscriber Enrollment (F90702) table so that you can receive a response to your XAPI event. Each XAPI event must have a logical subscriber, which you might have to set up. For Z and real-time events, the system dynamically updates this table when the event is created. You can use this table to view the persistent subscriptions for your Z and real-time events. You use the Interoperability Event Subscription (P90702) program to add new subscription information and to review and change existing subscription information. You can also add a new subscription by copying and then modifying an existing subscription, and you can delete subscriptions.

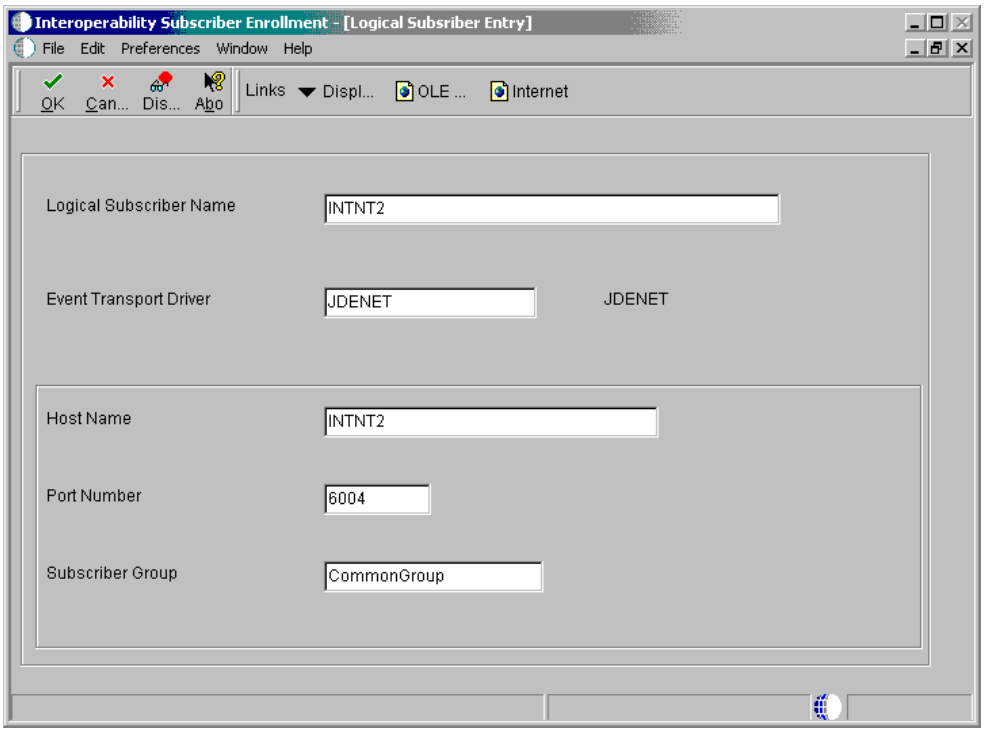
The F90702 table contains subscriber information, such as the machine name and port number, and is read by EVN. If subscriber information is missing for the XAPI event, the event is generated but cannot be delivered. You set up a logical subscriber by choosing Logical Subscriber from the Form menu.

You can access and view your real-time and XAPI event definitions by choosing Event Definition from the Form menu. You can also access and view Z events by clicking the Z File Events icon on the Subscriber Workbench form or by choosing the Z File Events option on the Form menu.

► To add a logical subscriber

From the Interoperability menu (GH9070), choose Interoperability Subscriber Enrollment; or enter P90702 in the Fast Path to access the Subscriber Workbench form.

1. On Subscriber Workbench, choose Logical Subscriber from the Form menu.
2. On Work With Logical Subscriber Names, click Add.



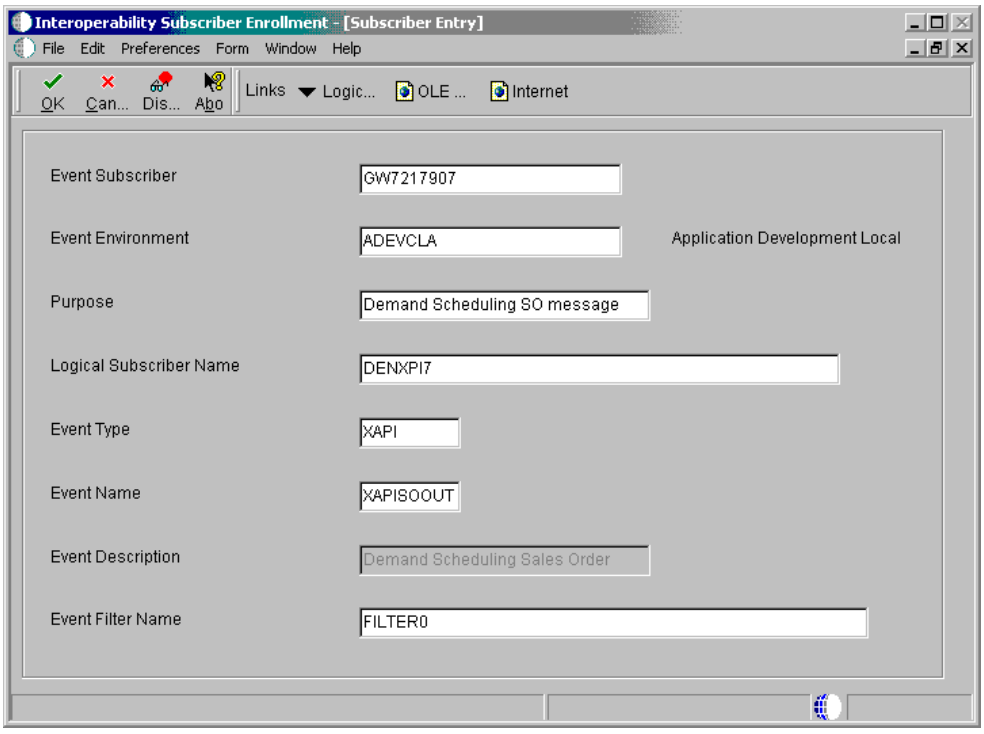
3. On Logical Subscriber Entry, complete the following fields:
   - Logical Subscriber Name

     Do not use spaces in the Logical Subscriber Name.
   - Event Transport Driver
   - Host Name
   - Port Number
4. Enter CommonGroup in the following field:
   - Subscriber Group
5. Click OK to save your updates.
6. Click Cancel to return to Work With Logical Subscriber Names.
7. Click Close to return to Subscriber Workbench.

► To add a subscription

From the Interoperability menu (GH9070), choose Interoperability Subscriber Enrollment; or, enter P90702 in the Fast Path to access the Subscriber Workbench form.

1. On Subscriber Workbench, click Add.



2. On Subscriber Entry, complete the following fields:
   - Event Subscriber
   - Event Environment
   - Purpose
   - Logical Subscriber Name
   - Event Type
3. The system automatically enters Filter0 for the following field:
   - Event Name
4. Click OK to save your updates.
5. Click Cancel to return to Subscriber Workbench.
6. On Subscriber Workbench, click Find to view your subscription.
7. Click Close to return to the main menu.

► To view or change a subscription

From the Interoperability menu (GH9070), choose Interoperability Subscriber Enrollment; or enter P90702 in the Fast Path to access the Subscriber Workbench form.

1. On Subscriber Workbench, complete the following fields:

- Subscriber Name
- Purpose

2. Click one of the following options, and then click Find to display existing subscriptions.
   - Active Status
   - Non-Active Status
   - All Statuses
3. Choose the subscription you want to view or change, and then click Select.
4. On Subscriber Entry, view or change either of the following fields:
   - Purpose
5. Click OK to save your updates and return to Subscriber Workbench.
6. On Subscriber Workbench, click Find to view the subscriptions.
7. Click Close to return to the main menu.

► To change the status of a subscription

From the Interoperability menu (GH9070), choose Interoperability Subscriber Enrollment; or enter P90702 in the Fast Path to access the Subscriber Workbench form.

1. On Subscriber Workbench, complete the following fields:
   - Subscriber Name
   - Purpose
2. Turn on the following option, and then click Find to display existing subscriptions.
   - All Statuses
3. In the detail area, choose the event for which you want to change the status.
4. From the Row menu, choose Change Status.
5. To view the status change, click Find.
6. Click Close to return to the main menu.

► To copy a subscription

From the Interoperability menu (GH9070), choose Interoperability Subscriber Enrollment; or enter P90702 in the Fast Path to access the Subscriber Workbench form.

1. On Subscriber Workbench, complete the following fields:
   - Subscriber Name
   - Purpose

2. Turn on one of the following options, and then click Find to display existing subscriptions.
    - Active Status
    - Non-Active Status
    - All Statuses
3. Choose the detail line that contains the event to be copied, and then click Copy.
4. On Subscriber Entry, update the following fields:
    - Event Subscriber
    - Event Environment
    - Purpose
    - Logical Subscriber Name
    - Event Type
    - Event Name
5. Click OK to return to Subscriber Workbench.
6. On Subscriber Workbench, click Find to view your subscriptions.
7. Click Close to return to the main menu.

► To delete a subscription

From the Interoperability menu (GH9070), choose Interoperability Subscriber Enrollment; or enter P90702 in the Fast Path to access the Subscriber Workbench form.

1. On Subscriber Workbench, complete the following fields:
    - Subscriber Name
    - Purpose
2. Turn on the following option, and then click Find.
    - All Statuses
3. Choose the detail line that contains the subscription to be deleted, and then click Delete.
4. To verify the event is deleted, click Find.
5. Click Close to return to the main menu.

Reliable Event Delivery

Reliable Event Delivery supports Z events, real-time events, and XAPI events. To use the Reliable Event Delivery feature, you must define your events in database tables. You cannot define your events in the jde.ini file.

The JDENET transport delivers Z events, real-time events, and XAPI events. Reliable event delivery ensures recovery and delivery of an event when transport problems arise, including some network problems. The following scenarios identify circumstances for which events might be lost, but can be recovered and delivered:

- JDENET process is down.
- JDENET fails to deliver because the network link between sender and receiver is permanently down.
- JDENET fails to deliver because the IPC buffer of the receiving kernel is full (sender and receiver are on different boxes).

Caution

Reliable delivery covers failures related to the transport of the events only. Reliable delivery does not provide a “once and only once”-type guarantee. Events might be lost and not recovered (or duplicates redelivered) in the presence of process failures (client and server).

Real-time event delivery is reliable for transportation failures between the real-time API and the Java connector, which includes IEO and EVN kernels. XAPI outbound event delivery is reliable for transportation failures between the XAPI API and the Java connector, including the IEO and EVN kernels. Z event delivery is reliable for transportation failures between the Z event generator and the Java connector.

The level of reliability is configurable based on whether the event is reliable or volatile. Volatile events are events that might be lost if the network or process fails and delivery is not reliable. Reliable events could be lost in the case of process failures only. You can configure the level of reliability for every event type. The level of reliability depends on whether the event is a business critical event. For example, you might configure an inquiry as volatile, because an inquiry is not a critical business event and you don’t want the system to continually look for the event should the event fail. You might configure a purchase order as reliable, because this is a critical business event and you do want the system to continually look for the event and make the transaction update. Volatile events offer better performance than reliable events, but delivery is not reliable if the event is lost during transportation.

Real-time and XAPI events can be single, aggregate, or composite events. A composite event consists of single events. The composite event and the single events that make up the composite event can have different levels of reliability. For example, you register composite events as RTSOOUT with a level of reliability as reliable, and you register single events as RTSOLINE with a level of reliability as volatile. The level of reliability configured for RTSOOUT will not override the level of reliability configured for RTSOLINE. The rationale for this is that the reliability of events is based on the event type. If you decide that single event types are not important enough to configure as reliable delivery, then the single events that are created during composite event creation should have the same level of reliability as other single events.

The APIs you use to create real-time and XAPI events are not affected by the level of reliability.

Configure Your System for Reliable Event Delivery

To use the reliable event delivery feature, you must define your events in the Single and Container Event Definition (F90701) table. Use the Interoperability Event Definition (P90701) program to accomplish this task. On the Event Entry form, the Reliable Delivery field must be set to reliable (either Y or 1), and the Threshold Timeout field must be set. The Timeout Threshold field is in seconds and applies only to the reliable events for which an initial delivery attempt fails. This field determines the maximum amount of time that has to pass from the event creation to the time when the event is going to be discarded if not delivered successfully. Events with a threshold of zero never expire.

Two database tables, Event Protocol (F90704) table and Event Link (F90703) table, enable communication between the sender and receiver. Event Protocol stores information that is related to the protocol that delivers an event. Event Link stores information that is related to the reliable event for which initial delivery failed. These tables are updated by the system when an event is created.

Caution

Both the sender and receiver must access the same instances (the data sources are the same) of the interoperability database tables.

Note

If the reliable event is not found, the following message might be generated in the client, Callobject, IEO, and EVN logs:

> RDEL0000045 – Could not open tables for reliable event delivery (F90703 and F90704). Reliable event delivery will be disabled.

If you receive this error message, verify your events are defined in the Single and Container Event Definition (F90701) table, that the Reliable Delivery and Threshold Time fields are set as discussed above, and that the Event Protocol and Event Link tables exist.

Events Self-Diagnostic Utility Tool

The Events Self-Diagnostic Utility Tool supports Z events and real-time events. Normally, your System Administrator runs the Self-Diagnostic Utility Tool to verify that your events infrastructure features are functional. The Self-Diagnostic Utility Tool can be used on the following platforms:

- Windows 2000 and NT
- AS400
- HP
- Sun
- AIX

The Events Self-Diagnostic Utility Tool analyzes the infrastructure of an event and reports configuration, kernel, and network problems that are detected as the event is processed through your system. You can use the tool to perform a comprehensive analysis, or you can configure the tool to perform an analysis that is specific for your needs. The Events Self-Diagnostic Tool uses XML comparator to compare XML documents to detect the presence of any data corruption in event information. The tool also suggests actions that you can take to resolve problems. You can run this tool on either a server or a client or both.

Events Self-Diagnostic Utility Tool Process Overview

After an event is generated at the call object API on the server or the application API on the client, problems that cause the event to fail can occur. Problems that might occur include the following:

- The jde.ini file has a configuration error.
- The ZEVG library is unavailable or the IEO or EVN kernel process is down.
- Subscribers and supported events have not loaded successfully.
- One or more of the kernels involved in the event delivery is corrupting the event information.
- The network link between any or all of the components involved in this infrastructure is permanently down.

When the Events Self-Diagnostic Tool detects a problem, the tool sends messages to you explaining the problem and suggesting resolutions and also logs the error in the appropriate log files. The message that is sent to you indicates which log files you should review. The following list provide some examples of how the Events Self-Diagnostic Tool detects problems:

- Performs an in-depth interoperability-oriented analysis of the jde.ini file.
- Reads the Interoperability Event Definition table (F90701) to determine whether the event is defined.
- Reads the Interoperability Subscriber Enrollment table (F90702) to determine whether the persistent subscription/un-subscription request, which is sent to the EVN kernel by the tool, is successful.
- Reads the Object Configuration Manager to find the location of the IEO kernel. In this process, the tool ensures there is only one active entry for the RTE object.
- Checks interconnectivity within events infrastructure by sending self-diagnostic connectivity message calls.
- Generates self-diagnostic events to test different services offered by the infrastructure and to verify event information against possible data corruption.

Note

The above list is general and not all-inclusive.

Events Self-Diagnostic Utility Tool Components

The Events Self-Diagnostic Utility Tool consists of three components:

- Event generator
- Event receiver
- XML comparator

Event Generator

The Events Self-Diagnostic Utility Tool starts with an event generator process. During startup, the event generator performs basic background analysis of the events infrastructure, which includes the following:

- Verification of interoperability specific sections of the jde.ini file
- Verification of real-time events definition
- Inter-component connectivity check within the events infrastructure

If startup is successful, the event generator tests different features offered by the events infrastructure. These features include generating and testing different types of events, listing the valid events, checking the event template, and testing subscription information. You can run one or more of these tests by using one of the following methods:

- Running the test against an existing configuration file that you previously set up
- Running the test against a new configuration file, which you will set up
- Choosing options and executing the test from the command line menu of the tool

After successful generation of a self-diagnostic event, the event is passed through the event infrastructure system. To test the accuracy of the event information being conveyed through the system, the event generator attaches an additional packet, in the form of XML stream, to the event. The diagnostic XML packet contains information about the event. At each stage of communication, each kernel (or component) verifies the event information by comparing standard message packets with the self-diagnostic XML packet. The kernel (or component) logs the result of this comparison at each point of comparison in respective log files. The accuracy of the information in template requests is tested the same way.

Event Receiver

The event receiver acts as a NULL transport driver that subscribes itself for self-diagnostic events during EVN kernel startup. The event receiver compares and verifies the XML documents contained in the received self-diagnostic events. The event receiver logs the result of this comparison in the EVN kernel log file.

XML Comparator

The event generator uses the XML comparator tool to test the accuracy of event information or of an event template request that is being passed through the system. The XML comparator compares any two given XML documents for equivalency, similarity, or both. To perform the comparison, the XML comparator requires three XML documents. Two of the documents are the actual XML documents to be compared. The third document is an

exclusion XML document that contains nodes that are to be ignored during the comparison of the two given XML documents.

Setting Up Database Tables for Self-Diagnostic Events Generation

If you use database tables to generate events, the Interoperability Event Definition (F90701) table must contain the self-diagnostic events. You use the Interoperability Event Definition (P90701) program to add both container and single events.

Executing the Event Self-Diagnostic Tool

To use the Event Self-Diagnostic Tool, you must have a valid ERP user ID, password, and environment. If you are using the tool from an ERP server and you do not supply this information as parameters, the username, password and environment information is read from the security section of the server jde.ini file. If you are using a client, you must enter a valid ERP username, password, and environment. If you do not enter this information, the tool will stop. If you are generating events from a client, you must also have a valid OCM mapping for RTE or Z events to a valid server.

Before You Begin

- Ensure PORTTEST runs successfully on your system.
- Ensure that one instance of the IEO and EVN kernel is running.

Start the Tool

To start the Events Self-Diagnostic Tool on the Enterprise Server, double-click the executable file at the following location:

```
$system\bin32\sdtool.exe
```

Or you can pass parameters, as follows:

```
$system\bin32\sdtool.exe username password environment
```

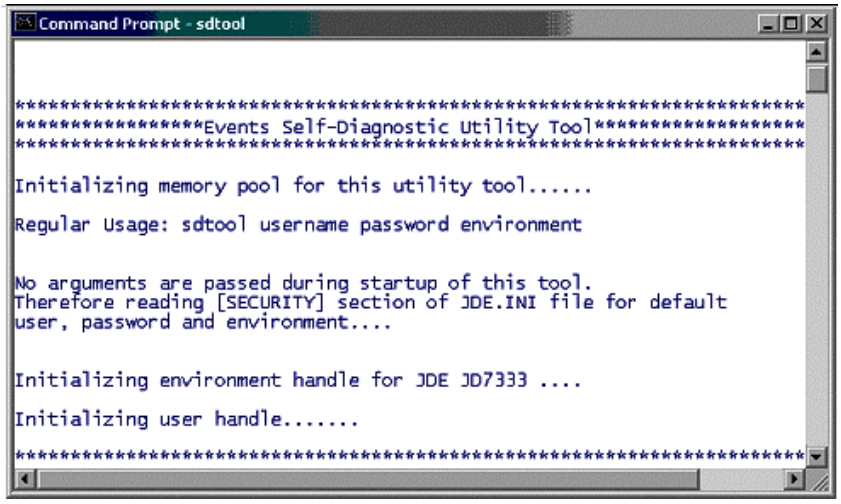
To start the tool from the client side, you must include parameters as follows:

```
$system\bin32\sdtool.exe username password environment
```

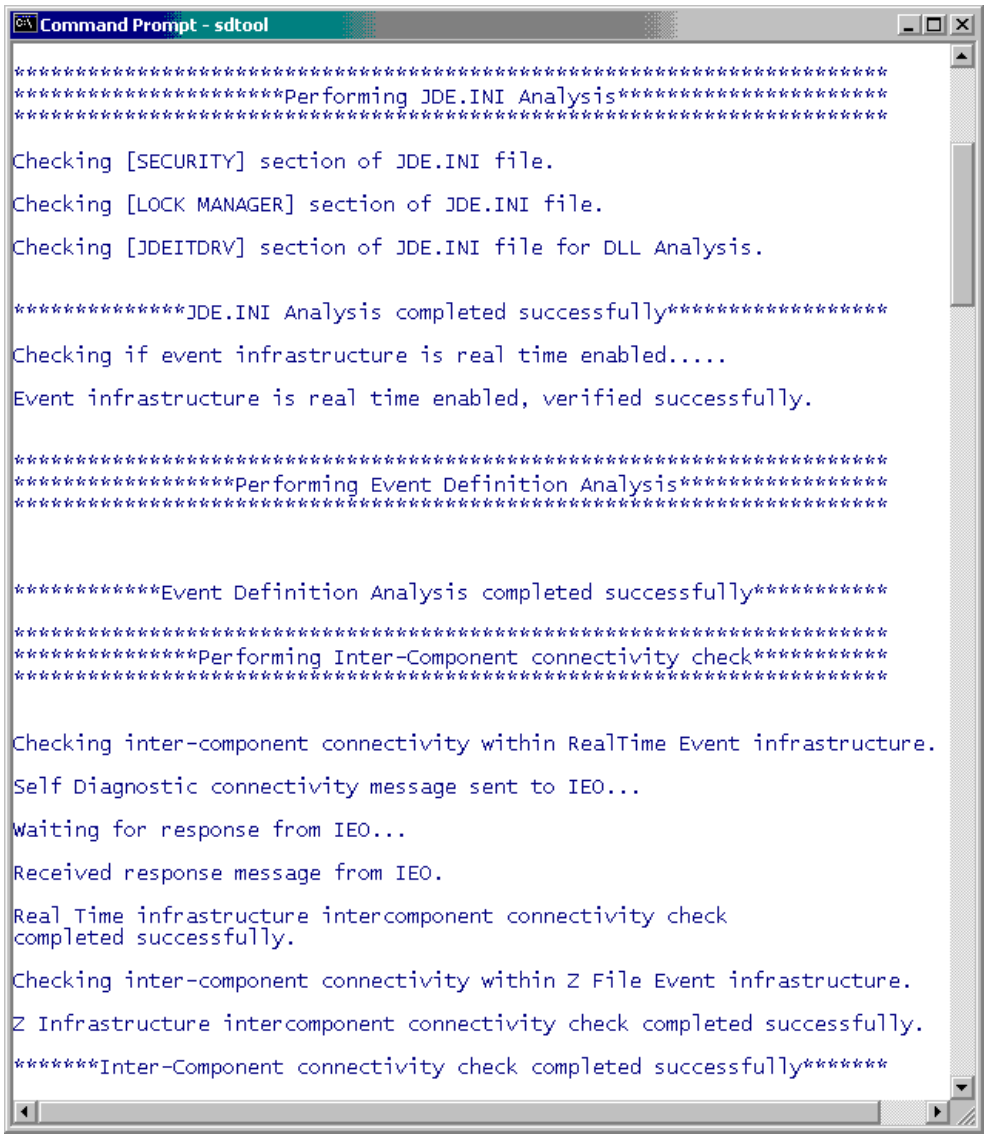
Note

$system refers to the path where the application is installed on your system.

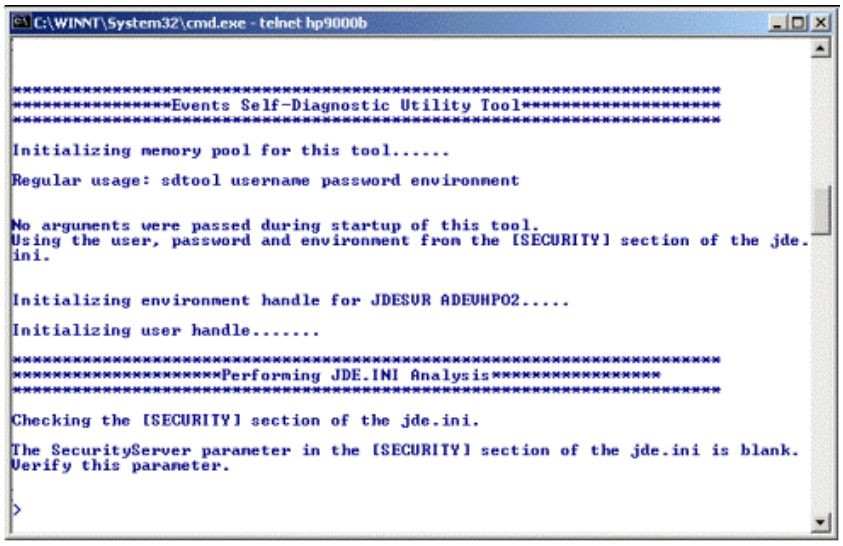
The following example shows starting the tool from an ERP server. In the example, the tool accesses the Security section of the jde.ini file for a valid username, password, and environment.



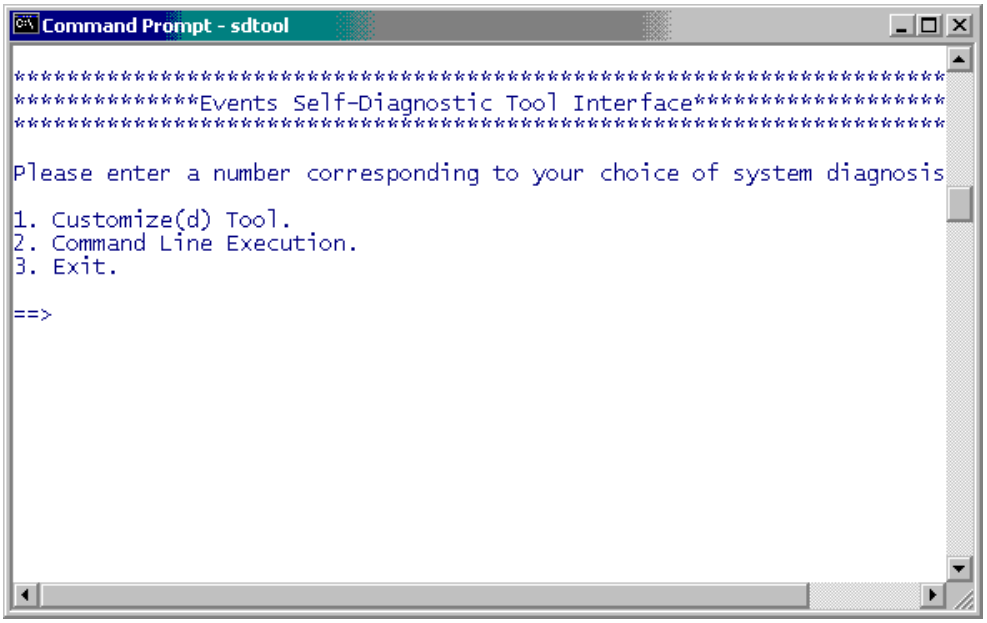
Upon startup, the Events Self-Diagnostic Tool analyzes the jde.ini file, verifies that events are defined, and checks the inter-component connectivity within the events infrastructure. As the tool analyzes each of these areas, it provides you with feedback about what is being analyzed and whether the analysis was successful. The following example shows the messages for successful diagnosis of the startup areas:



If the tool detects a problem in any one of the startup areas, the tool terminates the diagnosis and sends you a message explaining the problem encountered and suggesting actions for resolving the problem. The following example shows the error message when a log on was not provided and the tool could not find a valid username, password, and environment in the jde.ini file:

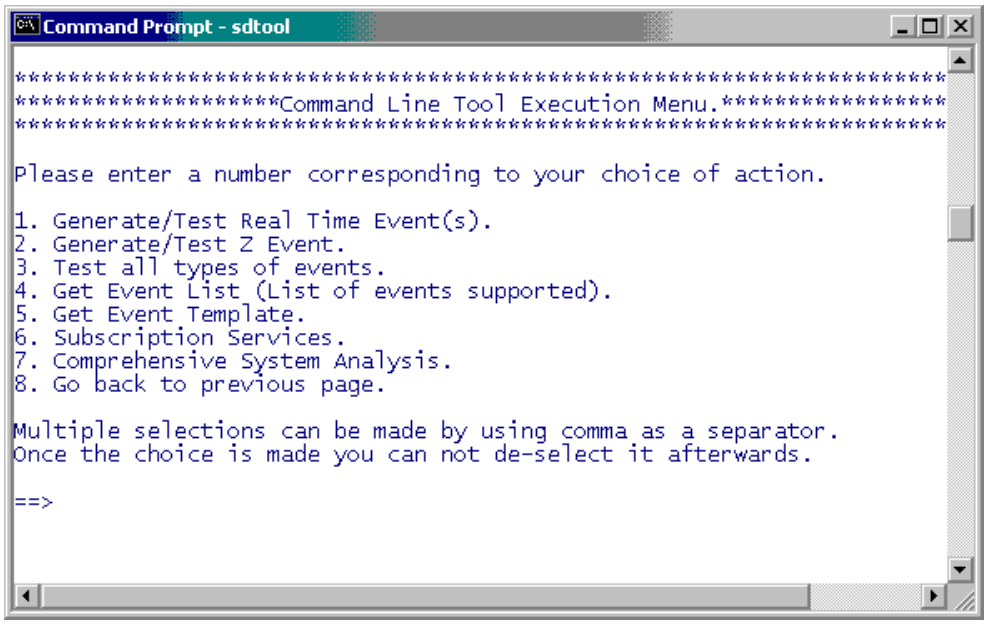


After successful startup, you have a choice of creating and using a customized configuration file or using the command line of the tool to run the diagnosis. The Customize(d) Tool option allows you to build and save a diagnostic test to a file so that you can run that test as often as needed without having to re-enter information into the tool. When you use the Command Line Execution option, you must enter the test information when the tool prompts you. The following example shows the options for you to designate how you want to run the test. When you run tests from the command line, this interface menu will always follow the results statements so that you can run another test or exit the tool.



Whether you choose Option 1, Customize(d) Tool, or Option 2, Command Line Execution, the tests that the tool performs are exactly the same. The following example shows the tests that are supported by the tool. The illustrations are from the Command Line Execution option;

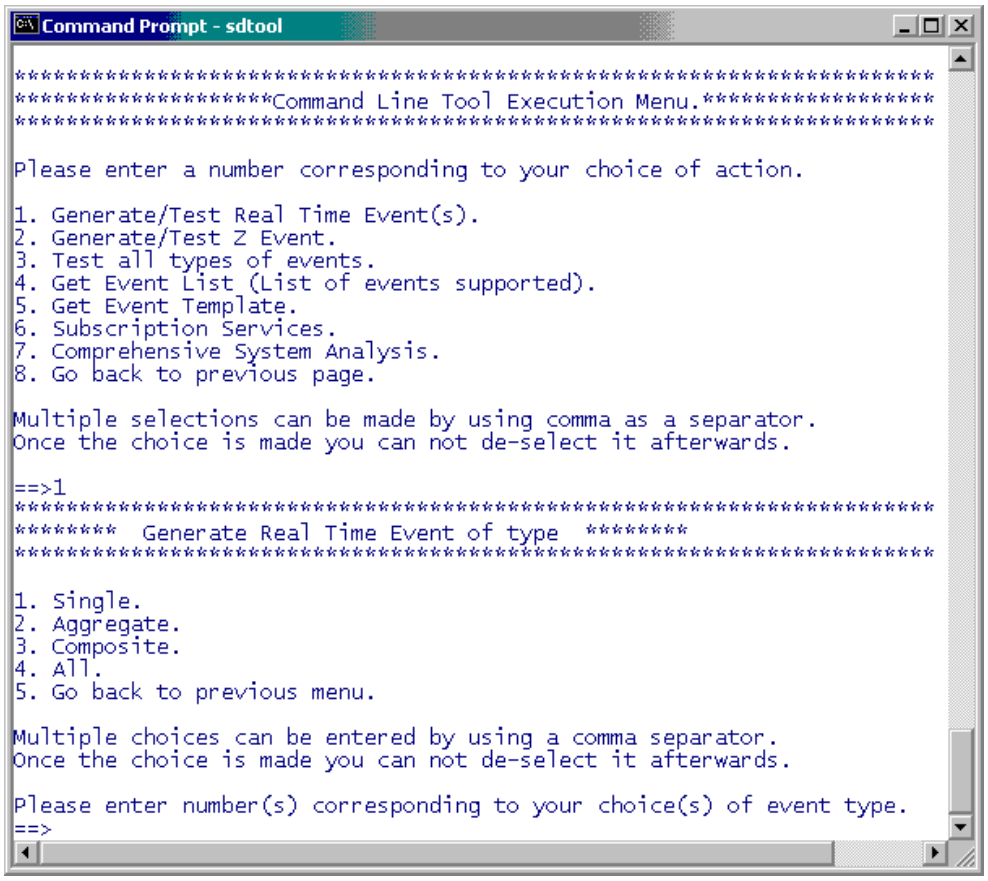
however, if you choose the Customize(d) option and create a new file, the menu for actions is the same.



You choose one or more tests by typing the number associated with the test at the prompt and then pressing Enter or Return. For multiple tests, separate the number of the test with a comma (,). Some of the tests provide further options. At the prompt, you enter one or more options, using a comma to separate multiple options. The tool performs the test and provides feedback to you indicating success or failure. If the test failed, the tool provides feedback that tells you that the test failed and identifies the logs you should review for more information.

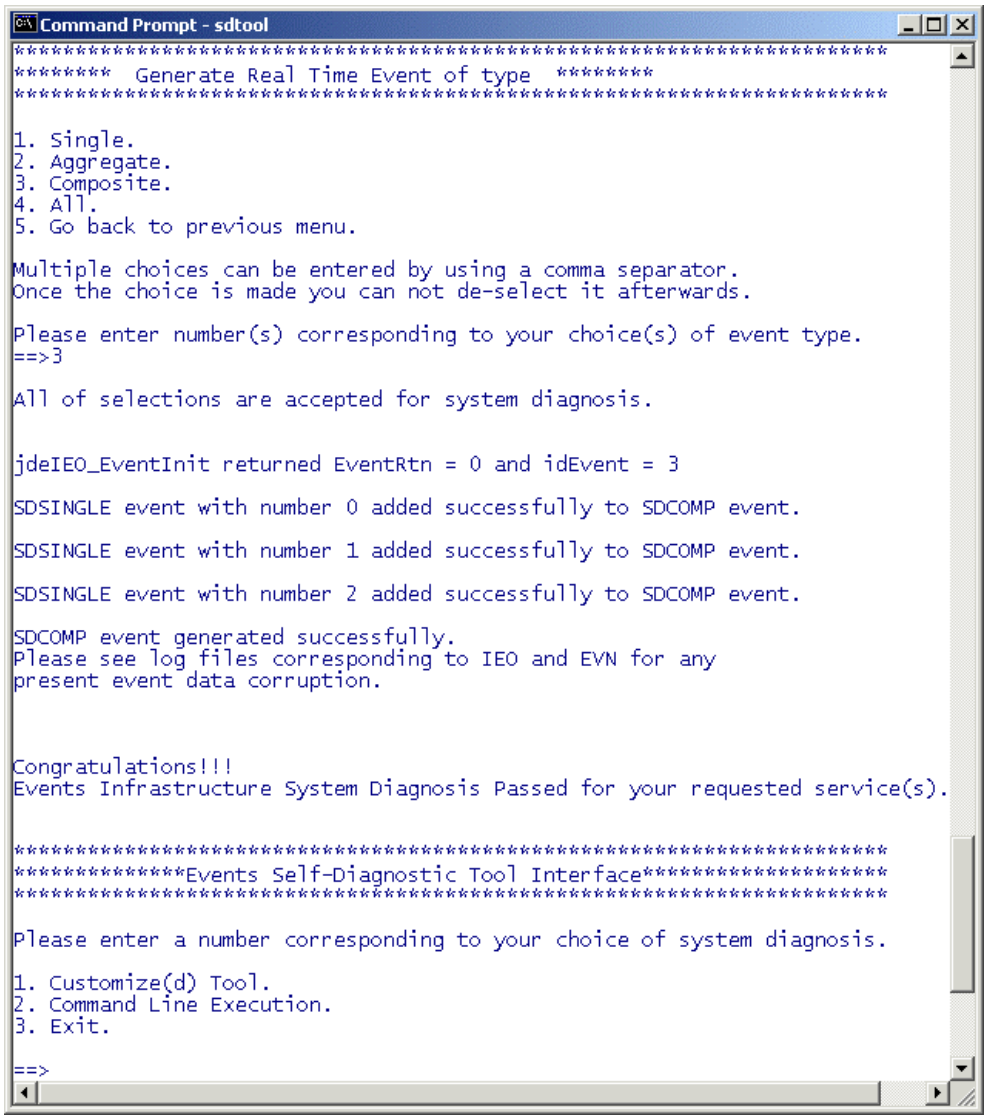
Generate/Test Real-Time Event

When you choose Action 1, Generate/Test Real Time Event(s), the tool displays the real-time event types from which you choose one or more real-time event types to test. The following example shows the options for real-time event types:



The tool generates the real-time event you requested and attaches a self-diagnostic XML document to the event. The event contents are verified for any data corruption against the attached XML document at each kernel in the events infrastructure and event receiver transport driver. You receive a message indicating whether the event was successfully generated. You also receive the following feedback message: Please see log files corresponding to IEO and EVN for any present event data corruption. This message tells you to look at the log files to determine whether an XML document mismatch occurred. The tool also provides a final message that indicates that the tool has completed the analysis for that action, and then it returns you to the tool interface menu.

The following example shows successful diagnosis for a composite real-time event:

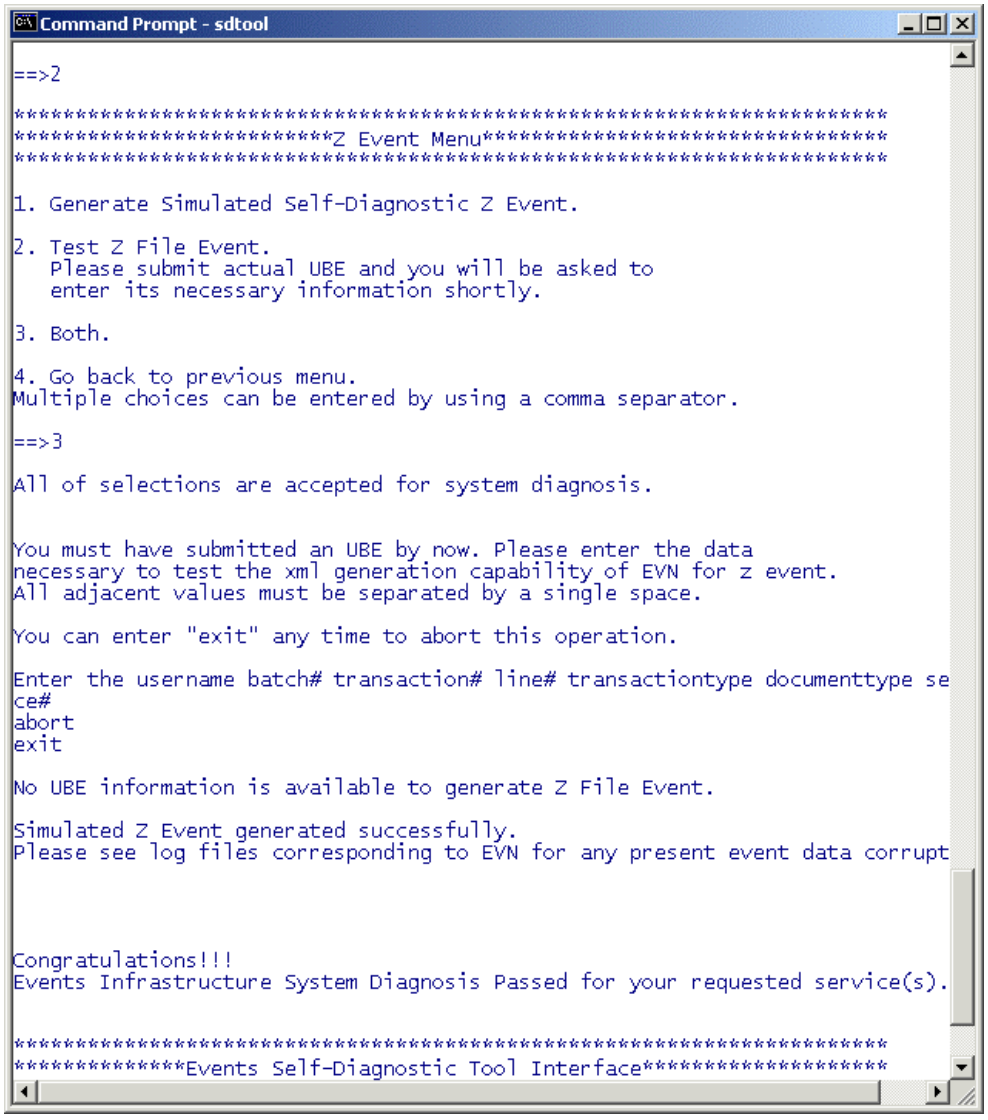


Generate/Test Z Event

When you choose Action 2, Generate/Test Z Event, the tool displays another set of options. You can test a simulated Z event and you can test a Z event that uses the actual interface tables (Z tables). If you choose to test a simulated Z event, the tool generates a simulated Z event and attaches a self-diagnostic XML document to the event. The event contents are verified for any data corruption against the attached XML document at the EVN kernel and event receiver transport driver. You receive a message indicating whether the event was successfully generated. You also receive the following feedback message: Please see log files corresponding to EVN for any present data corruption. This message tells you to look at the EVN log file to determine whether an XML document mismatch occurred. The tool also provides a final message that indicates that the self-diagnostic tool has completed the analysis for the action, and then it returns you to the tool interface menu.

If you generate an actual Z event, you must have a valid UBE and you must set up the appropriate interface tables. The tool asks you for your user name, batch number, transaction number, line number, transaction type, document type, and sequence number. The tool uses the live interface tables (Z tables) for this test. When you request an actual Z event, the tool generates the Z event but does not include a self-diagnostic XML document. The EVN kernel returns a message indicating whether the event was successful. Because no self-diagnostic XML document exists, the tool cannot diagnose data corruption.

The following example shows a diagnosis request for both a simulated Z event and an actual Z event. When the tool prompted for actual Z event information, the tool was aborted for this portion of the Z file generation/test. The tool tested the simulated Z event and provided the feedback information as shown below:



Test All Types of Events

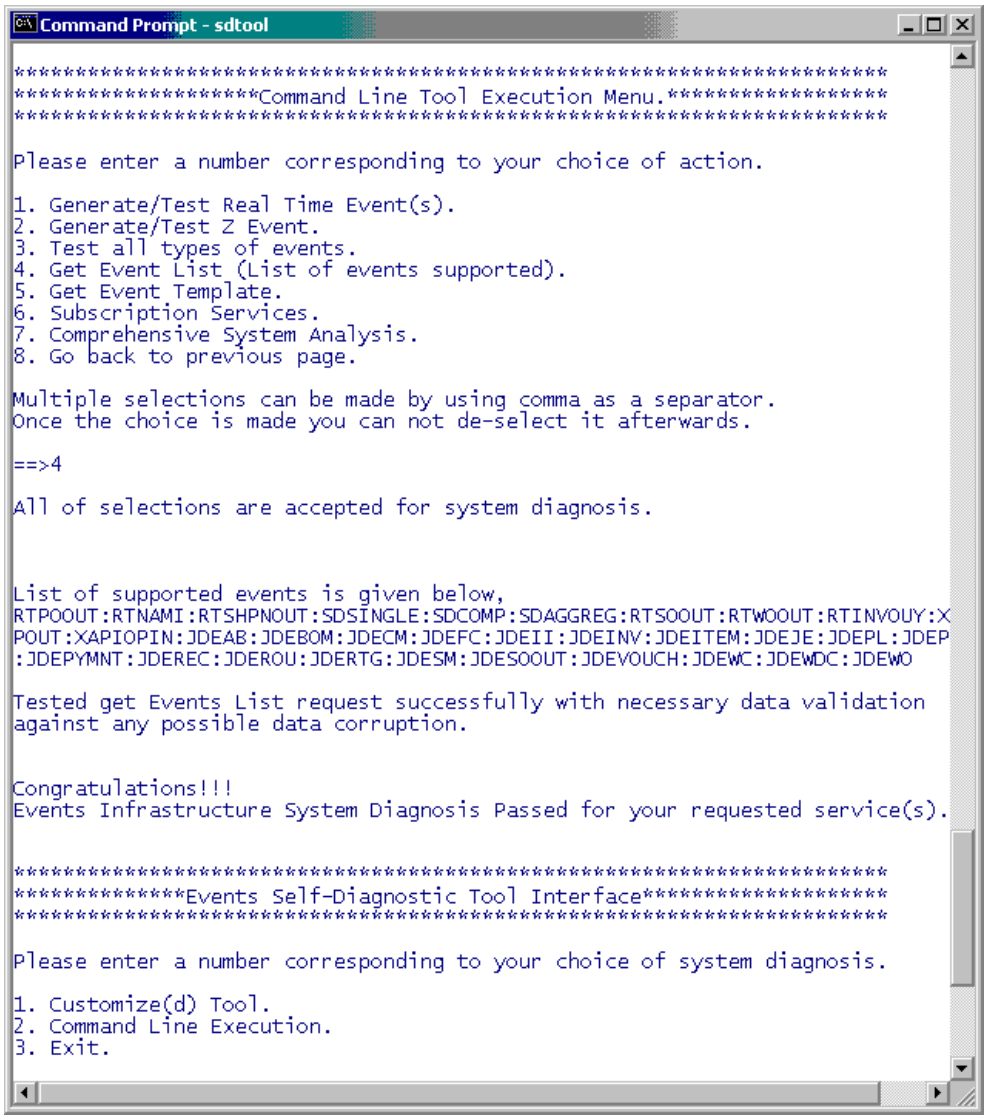
When you choose Action 3, Test all types of events, from the Execution menu, the tool tests all of the real-time events (single, aggregate, and composite) and both Z events (simulated and actual). Action 3 is the same as Action 1 (all three options) and Action 2 (both options) combined. For the real-time events and the simulated Z event, the tool generates the event and attaches a self-diagnostic XML document to the event so that any data corruption can be detected. If you choose this action, you must have a valid UBE and you must set up appropriate interface tables. If you run this test but do not have actual Z event data, you can abort that portion of the test by entering Exit when the tool asks for the Z event information.

The tool sends the event information to the IEO and EVN kernels, and the kernels return messages indicating whether each event was successful.

Get Event List

When you choose Action 4, Get Event List (List of events supported), from the Execution menu, the tool immediately runs the test.

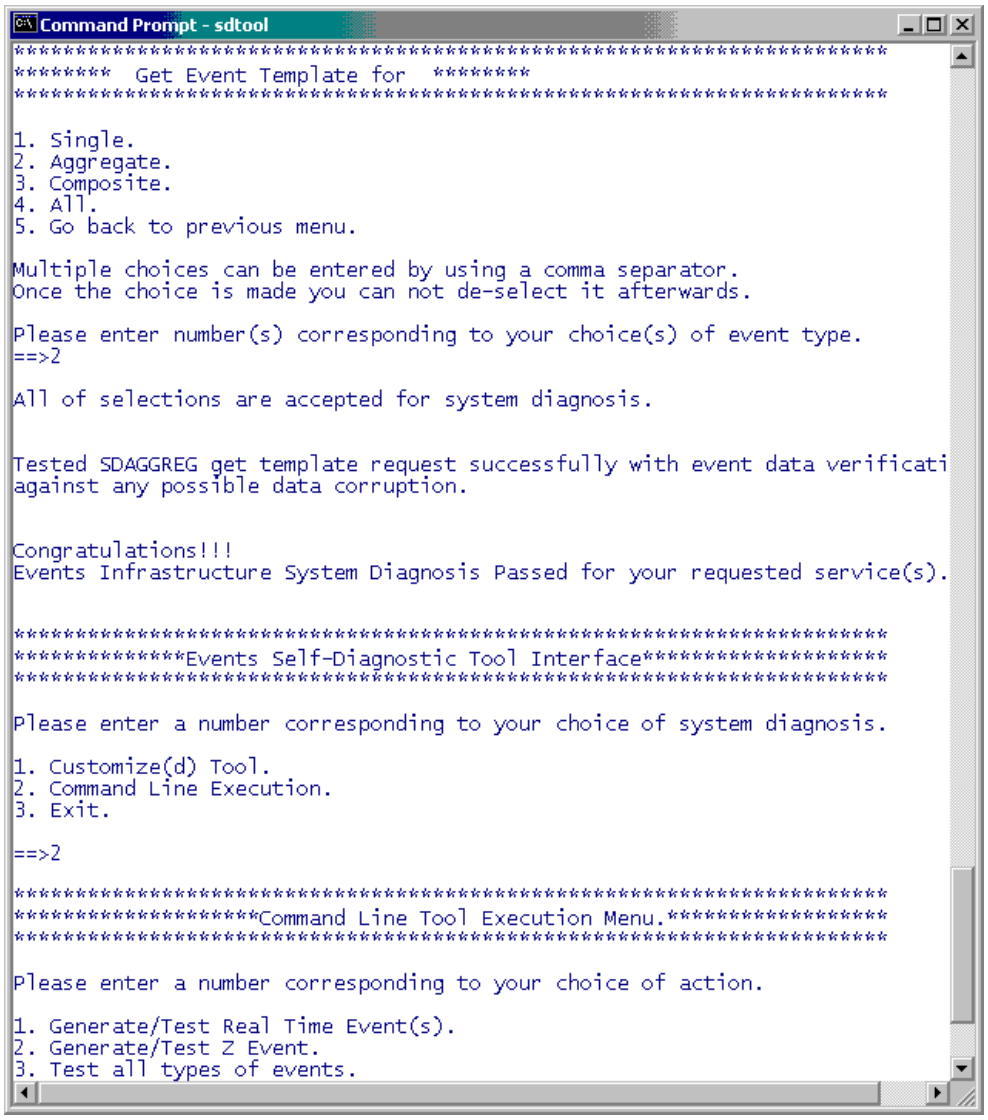
The tool sends a getEventList request to the EVN kernel. The EVN kernel responds with the list of event names that you have defined. To validate that the list is complete, the tool checks the list for the presence of self-diagnostic event names. The tool provides a list of the events to you along with a message indicating whether the test was successful. The following example shows the list of events that are supported, including the self-diagnostic events SDSINGLE, SDCOMP, and SDAGGREG.



Get Event Template

When you choose Action 5, Get Event Template, the tool displays the real-time event types that have a template associated with them.

The tool generates the template request and attaches a self-diagnostic XML document to the request. The template request is verified for any data corruption against the attached XML document at each kernel in the events infrastructure and event generator. The tool provides feedback that the template request was successful and that the template data was validated against the XML packet. If the test fails, the tool provides a message that indicates the reason for the failure. The following example shows a successful template request.



Subscription Services

When you choose Action 6, Subscription Services, the tool displays a set of options for the type of subscription service to be tested.

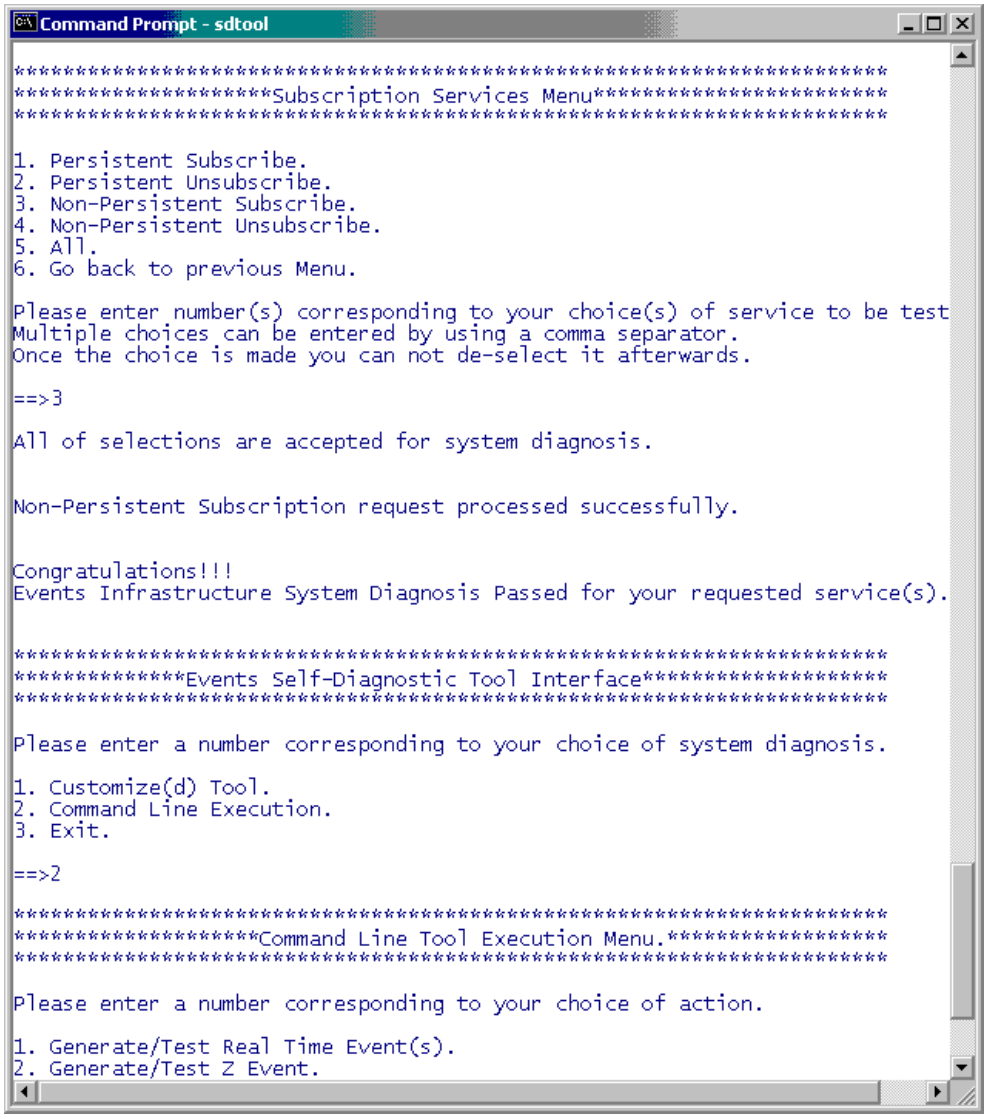
When you choose the Persistent Subscribe option, the tool sends a persistent subscription request for a registered self-diagnostic event to the EVN kernel. The tool verifies the list of subscribers that are maintained in a file or from the database table (depending on how your system is configured), and then sends you a message indicating whether the test was successful.

When you chose the Persistent Unsubscribe option, the tool sends a persistent un-subscription request for a registered self-diagnostic event to the EVN kernel. The tool verifies the subscription is no longer in the file or database table (depending on how your system is configured), and then sends you a message indicating whether the test was successful.

When you choose the Non-Persistent Subscribe option, the tool sends a non-persistent subscription request for a registered self-diagnostic event to the EVN kernel. The tool verifies the list of subscribers that is kept by the EVN kernel, and then sends you a message indicating whether the test was successful.

When you choose the Non-Persistent Unsubscribe option, the tool sends non-persistent un-subscription request for a registered self-diagnostic event to the EVN kernel. The tool verifies the subscription is no longer in EVN, and then sends you a message indicating whether the test was successful.

The following example shows a successful test for the Non-Persistent Subscribe option.



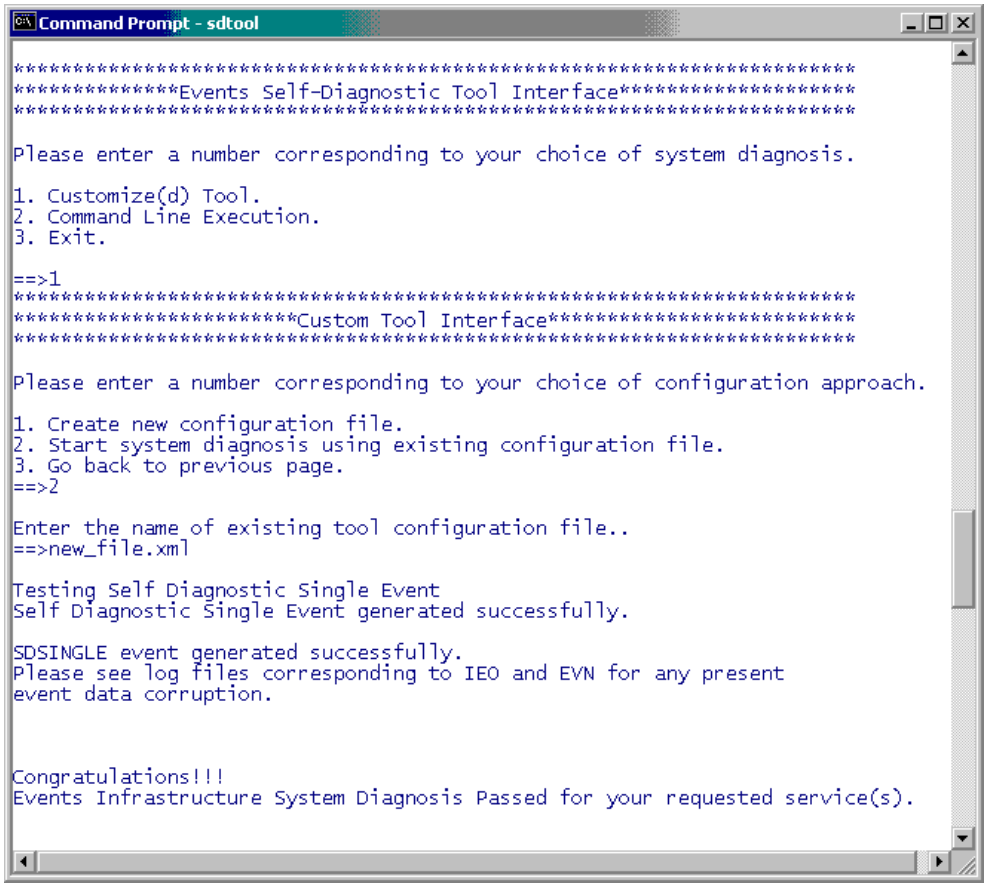
Comprehensive System Analysis

When you choose Action 7, Comprehensive System Analysis, the tool performs all of the tests and provides messages to you indicating whether each test was successful.

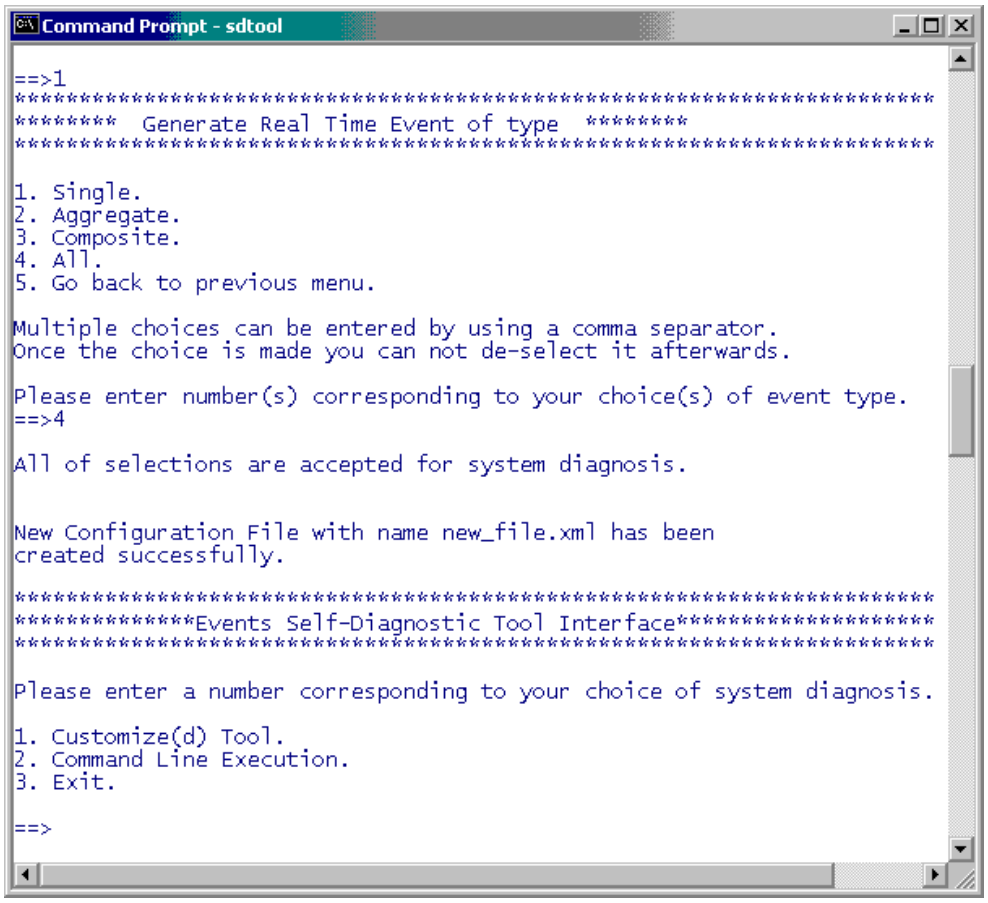
Customized Tool

When you choose the Customize(d) Tool option from the Interface menu, the tool prompts you to provide a new file name or to use an existing configuration file (one that you previously created using this tool). The tests (actions) and options for each test are the same tests that are discussed previously.

To use an existing configuration file (an .xml file that your previously created), type the filename at the prompt and press Enter or Return. The diagnosis against your previously built configuration file starts. The following example shows using an existing configuration file that tests generating a single real-time event.



To create a new configuration file, type a filename using .xml as the extension, and then press Enter or Return. The tool offers the same tests that are on the Command Line Execution Menu. You can choose one or more tests by using a comma to separate the test numbers. The following example shows how to create a new configuration file that tests the generation of single, aggregate, and composite real-time events:


Command Prompt - sdtool
==>1
****
******** Generate Real Time Event of type ********
****
1. Single.
2. Aggregate.
3. Composite.
4. All.
5. Go back to previous menu.
Multiple choices can be entered by using a comma separator.
Once the choice is made you can not de-select it afterwards.
Please enter number(s) corresponding to your choice(s) of event type.
==>4
All of selections are accepted for system diagnosis.
New Configuration File with name new_file.xml has been
created successfully.
****
**************Events Self-Diagnostic Tool Interface*********************
****
Please enter a number corresponding to your choice of system diagnosis.
1. Customize(d) Tool.
2. Command Line Execution.
3. Exit.
==>

Batch Interfaces

You usually use a batch interface to collect transactions over a period of time and then process all of the transactions at once. J.D. Edwards supports the following batch interface model types:

- Interface Tables
- Electronic Data Interface (EDI)
- Table Conversions
- Output Stream Access (OSA) UBEs
- Advanced Planning Agent (APAg)/Integration

Interface Tables

An interface table (also called Z table) is a working table where non-ERP information can be stored and then processed into ERP. You can also use interface tables to retrieve ERP data. J.D. Edwards interface tables mirror ERP application tables. The following capabilities can be used with interface tables:

- Business Functions
- Z Transactions
- Flat Files

J.D. Edwards provides predefined interface tables for transactions for some applications. You can also create your own interface tables as long as your interface table is formatted in accordance with J.D. Edwards standards.

See Also

- *Interface Tables* in the *Interoperability Guide* for a list of predefined interface tables and processes

Interface Table Structure

Each transaction uses a set of interface tables. Some files share a common set of interface tables. The interface table name is based on the ERP application table name and has Z1 as a suffix. For example, if the application table were F4211, the interface table would be F4211Z1.

Use the following guidelines to determine the based-on table:

- Inbound is based on the application table that is updated with data from the interface table.
- Outbound is based on the application table that has data extracted from it and placed in the interface table.

Both the inbound and outbound directions of an internal transaction within a system use a single set of interface tables. For example, in the Sales Order system, for a sales order, the inbound Customer Order (850) and the outbound Order Acknowledgment (855) share a set of interface tables.

If the interface table is used for both inbound and outbound transactions, the based-on table should be the same application table. In the above Sales Order example with an inbound Customer Order and an outbound Order Acknowledgment, the detail interface table would be based on table F4211.

If the interface table exceeds 250 columns or has a record length greater than 1968, an additional interface table is needed for the remaining columns. Columns in the additional interface table should contain infrequently used data. The additional interface table is named after the primary interface table with a letter, starting with A, after the Z1 suffix. For example, if the primary interface table were F4211Z1, the additional table would be F4211Z1A.

The beginning of the table has the following columns, which act as control fields:

- User ID (EDUS) - key field
- Batch Number (EDBT) - key field
- Transaction Number (EDTN) - key field
- Line Number (EDLN) - key field
- Document Type (EDCT)
- Transaction Type (TYTN)
- Translation Format (EDFT)
- Transmission Date (EDDT)
- Direction Indicator (DRIN)
- Number of Detail Lines (EDDL)
- Processed (EDSP)
- Trading Partner ID (PNID)
- Action Code (TNAC)

You must use the above key structure.

The end of the table has the following columns, which are reserved for user and audit fields:

- User Reserved Code (URCD)
- User Reserved Date (URDT)
- User Reserved Amount (URAT)
- User Reserved Number (URAB)
- User Reserved Reference (URRF)
- Transaction Originator (TORG)
- User ID (USER)
- Program ID (PID)
- Work Station ID (JOBN)
- Date Updated (UPMJ)
- Time of Day (TDAY)

The middle of the table has all of the columns from the based-on application table, excluding user reserved and audit field columns. An exception to this is when the interface table is near

the 250-column limit or the 1968-record length limit. In this case, columns from the application table that most likely will not be needed should be excluded.

Prefixes for the table columns are SY for the header and SZ for the detail.

Change or match interface tables, such as a cash receipt or purchase receipt, might require additional columns that correspond to user input capable controls on an interactive form.

A header table is not required for every transaction.

Note

If you create custom interface tables, use the structure and format discussed above.

Inbound Interface Table Processing

You use interface tables to import non-ERP transactions into the live ERP database. Inbound interface tables are based on the ERP application table where the transaction will be stored. ERP can process the records from the inbound interface tables in the following ways:

- Run an inbound batch process.
- Use a business function.
- Use a subsystem to trigger the transaction.

Note

The non-ERP transactions are referred to as Z transactions, and specific information about processing the non-ERP information into ERP is provided in *Z Transactions* in the *Interoperability Guide*.

See Also

- *Z Transactions* in the *Interoperability Guide* for information about transferring non-ERP transactions into ERP

Outbound Interface Table Processing

You can use interface tables to retrieve information from ERP. Outbound interface tables are based on the ERP application table from where the data is extracted. You can retrieve records from ERP in any of the following ways:

- Run an extraction batch process.
- Use a vendor-specific outbound batch process.
- Use the subsystem business function.

See Also

- *Z Events* in the *Interoperability Guide* for information about retrieving information from ERP by setting outbound master business function processing options to process one transaction at a time

Run an Extraction Batch Process

Batch transactions from ERP allow you to place a large number of transactions into an interface table and then process all of the transactions at once. You copy the records from the J.D. Edwards application tables to the J.D. Edwards outbound interface tables using the extraction batch process that is specifically set up for the type of document you are sending.

You use the Solution Explorer to initiate the extraction batch process for applications that support extraction batch processing. The extraction batch process displays a version list of report features. You can run an existing version, change an existing version, or add a version. You can also change the processing options and data selection options for that version to fit your needs.

When you run the extraction batch process, the program retrieves data from the J.D. Edwards application tables for the transaction and copies the data into the interface tables. The system also generates an audit report that lists which documents were processed. Errors are placed on the audit report and also sent to the Employee Work Center. You can use the Revisions Application to add, change, or delete records in the interface table.

► To run the Extraction Batch Process

Start the Extraction Batch Process for the transaction type you want to export. For example, Work Order Routing has an extraction batch process. The Interoperability Interface Table Information at the end of this section identifies programs that have an extraction batch process.

1. On Version Prompting, click any of the following to review the report feature options:
   - Data Selection
   - Data Sequencing
2. Click the Submit button.

The Extraction Batch Process retrieves data from the J.D. Edwards application tables and copies the data into the outbound interface tables.

The Extraction Batch Process program generates an audit report that lists the documents that completed successfully.

Vendor-Specific Outbound Batch Process

The purpose of the vendor-specific outbound batch process is to process interface table records in a batch mode. The batch process is called by the Interoperability Generic Outbound Subsystem UBE (R00460) and receives the key to the record in the interface table.

Each vendor-specific batch process is specific to the transaction being processed. You must decide what the batch process actually does with the database record information. The batch processes are written to your specifications using the J.D. Edwards toolset. However, you must use the J.D. Edwards defined data structure shown below.

Data Item	Required	I/O	Description
EDUS	Y	I	User ID
EDBT	Y	I	Batch Number

Data Item	Required	I/O	Description
EDTN	Y	I	Transaction Number
FFEM	N	I	Flat File Export Mode
EDEM	N	I	External Database Export Mode
EAEM	N	I	External API Export Mode
ERRC	N	O	Error Code
EDLN	N	I	Line Number

Subsystem Business Function

You can use the generic outbound subsystem business function, Add Transaction To Subsystem Queue (B0000176), to write a record to the subsystem data queue to specify a batch process that needs to be awakened in the subsystem. This business function starts processing of a batch of one (single transaction). The business function also passes keys to the subsystem data queue.

The data structure for the outbound transaction is as follows:

Line number	EDLN
Transaction type	TYTN
Document type	DCTO
Action code	TNAC

Interface Table Maintenance

If you receive an error message when the interface table is processed, you can use a revision application to make corrections to the data and then reprocess the data in batch or transaction mode. After you have successfully processed the data in the interface table, you should run a purge application to remove all records from the interface table and to any remove secondary interface tables from the system.

Revision Application

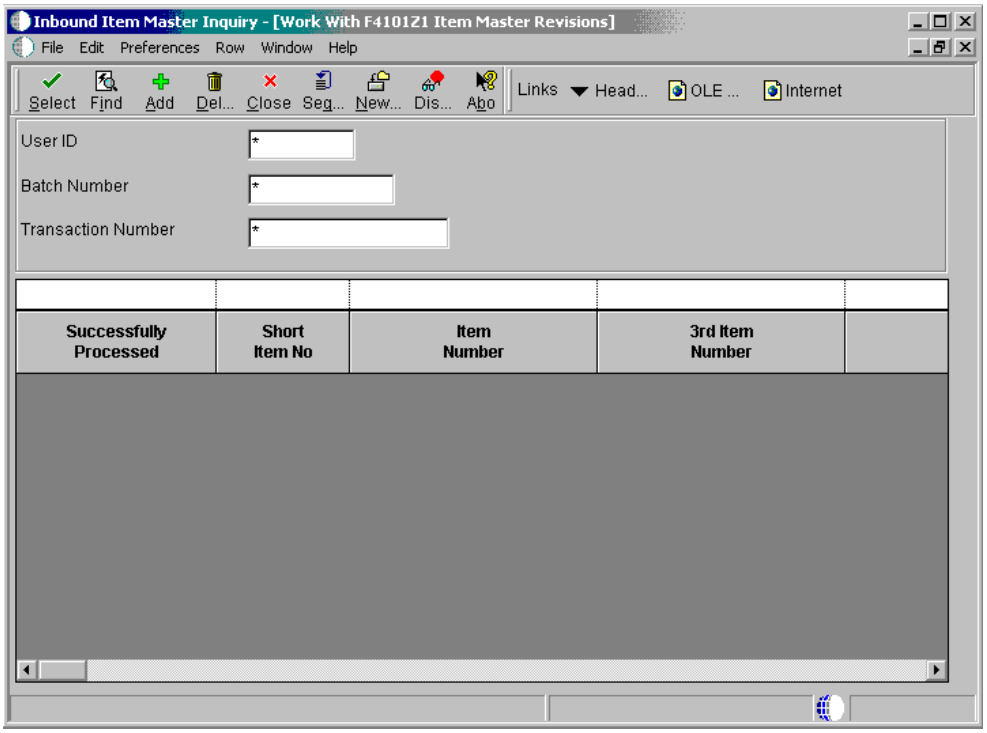
A Revision Application is used to add, delete, edit, and review transactions in the interface tables. Use the revision application that is appropriate for the type of transaction you are processing. You can use a revision application to correct the record in error. You then run the process again, continuing to make corrections and rerunning the transaction process until the program completes without errors. When deleting records, a revisions application calls the appropriate purge named event rule to delete records. The name is based on the detail interface table. For example, if the tables for Sales Order Entry were F4201Z1 and F4211Z1, the application would be called P4211Z1.

See Also

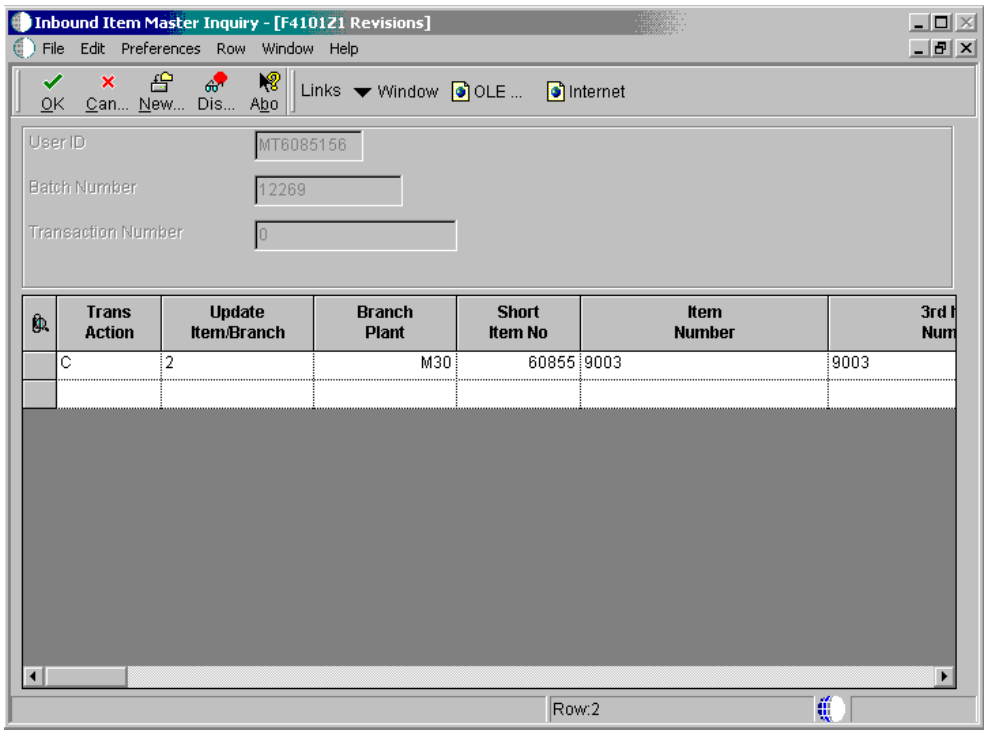
- *Interoperability Interface Table Information* in the *Interoperability Guide* for a list of Revision Applications that are available for you to use with J.D. Edwards predefined interface tables

▶ To review and revise inbound transactions

From the application that supports interoperability (for example, Work With Item Master Revisions), choose the revisions application that you want to use.



1. On the revisions application you wish to use (for example, Work With Item Master Revisions) to limit the search to specific transactions, complete the following fields:
   - User ID
   - Batch Number
   - Transaction Number
2. Click Find.
3. Choose the transaction and click Select.



4. On Revisions, review and revise the transaction, and click OK.
5. If applicable, choose Detail Revisions from the Row menu to review or change additional detail information, and then click OK when finished.

After you correct the errors identified by the Inbound Transaction Process, run the transaction process again. If other errors are identified, correct them and run the transaction process again.

Purge Interface Table Information

You should run a purge batch process periodically after you have successfully processed the data in the interface tables. The purge batch process should have one or two sections; the number of sections depends on the interface tables. The purge batch process calls the purge NER. The name of the purge batch process is based on the revisions application with a P suffix. For example, if the revisions application is P4211Z1, the purge batch process is R4211Z1P.

Purge named event rules has two modes:

- Header mode, which deletes the header record and all associated records in independent tables
- Detail mode, which deletes the detail record and all associated records in dependent tables

The purge NER is named after the purge batch process. Only eight characters are allowed for the NER name. If the name has nine characters using these standards, remove the P suffix. For example, if the purge batch process is R4211Z1P, the purge NER will be N4211Z1P.

When a "before image" for net change is deleted, the corresponding "after image" is also deleted. When an "after image" is deleted, the corresponding "before image" is also deleted.

See Also

- *Interoperability Interface Table Information* in the *Interoperability Guide* for a list of the Purge Batch Processes

Interoperability Interface Table Information

Application	Interface Table (Z table)	Input Subsystem Batch Process	Input Processor Batch Process	Extraction Batch Process	Revisions Application	Purge Batch Process	Application with Processing Options
Financials							
Address Book	F0101Z2	R01010Z - ZJDE0002	R01010Z - ZJDE0001		P0101Z1	R0101Z1P	P0100041
Customer Master	F03012Z1	R03010Z - ZJDE0002	R03010Z - ZJDE0001		P0301Z1	R0101Z1P	P0100042
Supplier Master	F0401Z1	R04010Z - ZJDE0002	R04010Z - ZJDE0001		P0401Z1	R0101Z1P	P0100043
A/R Invoice	F03B11Z1, F0911Z1, F0911Z1T	R03B11Z1I	R03B11Z1I - ZJDE0001	N/A	P03B11Z1	R03B11Z1P	N/A
A/P Invoice	F0411Z1, F0911Z1	R04110Z - ZJDE0002	R04110Z - ZJDE0001	N/A	P0411Z1	R0411Z1P	N/A
Payment Order with Remittance	F0413Z1, F0414Z1	N/A	N/A		P0413Z1	R0413Z1	P0413M
Journal Entry	F0911Z1, F0911Z1T	R09110Z - ZJDE0005	R09110Z - ZJDE0002		P0911Z1	R0911Z1P	N/A
Fixed Asset Master	F1201Z1, F1217Z1	R1201Z1I - XJDE0002	R1201Z1I - XJDE0001	R1201Z1X	P1201Z1	R1201Z1P	P1201
Account Balance	F0902Z1	N/A		N/A	P0902Z1	R0902ZP	N/A
Batch Cash Receipts	F03B13Z1	N/A	R03B13Z1I - ZJDE0001	N/A			N/A
HRM							
Payroll Time Entry	F06116Z1	R05116Z1I	R05116Z1I - ZJDE0001	N/A	P05116Z1	R05116Z1P	N/A

Application	Interface Table (Z table)	Input Subsystem Batch Process	Input Processor Batch Process	Extraction Batch Process	Revisions Application	Purge Batch Process	Application with Processing Options
Distribution							
Purchase Order	F4301Z1, F4311Z1	R4311Z1I - XJDE0002	R4311Z1I - XJDE0001		P4311Z1	R4301Z1P	P4310
Outbound Purchase Receipts	F43121Z1	N/A	N/A		P43121Z1	R43121Z1P	P4312
Receipt Routing	F43092Z1	R43092Z1I - XJDE0002	R43092Z1I - ZJDE0001		P43092Z1	R43092Z1P	P43250
Outbound Sales Order	F4201Z1, F4211Z1, F49211Z1	N/A	N/A		P4211Z1	R4211Z1P	P4210
Outbound Shipment Confirmation	F4201Z1, F4211Z1, F49211Z1	N/A	N/A		P4211Z1	R4211Z1P	P4205
Logistics							
Cycle Counts	F4141Z1	R4141Z1I	R4141Z1I - ZJDE0001	N/A	P4141Z1	R4141Z1P	N/A
Item Master	F4101Z1, F4101Z1A	R4101Z1I	R4101Z1I - ZJDE0001		P4101Z1		P4101
Item Cost	F4105Z1	N/A	R4105Z1I - XJDE0001		P4105Z1	R4105Z1P	P4105
Warehouse Confirmations (Suggestions)	F4611Z1	R4611Z1I	R4611Z1I - ZJDE0001		P4611Z1	R4611Z1P	N/A
Manufacturing							
Work Order Header	F4801Z1	Use Work Order Completions	Use Work Order Completions	R4101Z1O	P4801Z1	R4801Z1P	P48013
Work Order Parts List	F3111Z1	Use Planning Messages	Use Planning Messages		P4801Z1	R3111Z1P	P3111

Application	Interface Table (Z table)	Input Subsystem Batch Process	Input Processor Batch Process	Extraction Batch Process	Revisions Application	Purge Batch Process	Application with Processing Options
Work Order Routing	F3112Z1	Use Planning Messages	Use Planning Messages	R4801Z2X	P4801Z1	R3112Z1P	P3112
Work Order Employee Time Entry	F31122Z1	R31122Z1I - XJDE0002	R31122Z1I - XJDE0001		P31122Z1	R31122Z1	P311221
Work Order Inventory Issues	F3111Z1	R31113Z1I - ZJDE0002	R31113Z1I - ZJDE0001		P3111Z1	R3111Z1P	N/A
Work Order Completions	F4801Z1	R31114Z1I - XJDE0002	R31114Z1I - XJDE0001		P4801Z1	R4801Z1P	N/A
Super Backflush	F3112Z1	R31123Z1I	R31123Z1I - ZJDE0001		P3112Z1	R3112Z1P	N/A
Bill of Material	F3002Z1	R3002Z1I - ZJDE0002	R3002Z1I - ZJDE0001		P3002Z1	R3002Z1P	P3002
Routing Master	F3003Z1	R3003Z1I - ZJDE0002	R3003Z1I - ZJDE0001		P3003Z1	R3003Z1P	P3003
Work Center Master	F30006Z1	R30006Z1I - ZJDE0002	R30006Z1I - ZJDE0001		P30006Z1	R30006Z1P	P3006
Work Day Calendar	F0007Z1	R0007Z1I - XJDE0002	R0007Z1I - XJDE0001		P0007Z1	R0007Z1P	P00071
Planning Messages	F3411Z1	R3411Z1I - ZJDE0002	R3411Z1I - ZJDE0001		P3411Z1	R3411Z1P	N/A
Detail Forecast	F3460Z1	R3460Z1I - XJDE0002	R3460Z1I - XJDE0001		P3460Z1	R3460Z1P	P3460, R3465, R34650 (Each done individually)
Kanban Transactions	F30161Z1	R30161Z1I - XJDE0002	R30161Z1I - XJDE0001	N/A	P30161Z1	R30161Z1P	N/A

Electronic Data Interface (EDI)

The J.D. Edwards Data Interface for Electronic Data Interchange system acts as an interface between the J.D. Edwards system data and the translator software. In addition to exchanging EDI data, this data interface can also be used for general interoperability and electronic commerce needs where a file-based interface meets the business requirements.

See Also

- *Overview for Data Interface for Electronic Data Interchange System* and other topics in the *Data Interface for Electronic Data Guide* for information about using electronic data interchange for interoperability

Table Conversion

Table conversion is a special form of Universal Batch Engine (UBE) that allows you to do high-speed manipulation of data in tables. ERP has a table conversion utility that you can use to gather, format, export, and import enterprise data. The table conversion tool allows you to transfer and copy data, and to delete records from tables. Table conversion allows you to use a non-J.D. Edwards table to process, call direct business functions, and give an output.

See Also

- *Table Conversions Overview* and other topics in the *Table Conversion Guide* for more information about table conversions

Output Stream Access (OSA) UBEs

If you have set up an OSA interface, you can pass ERP data to another software program for processing and formatting. OSA can use its own set of commands or it can use an XML library.

See Also

- *Output Stream Access* in the *Enterprise Report Writing Guide* for information about using OSA for processing ERP data in another software program

Advanced Planning Agent (APAg)/Integration

The J.D. Edwards Advanced Planning Agent (APAg) is a tool for batch extracting, transforming, and loading enterprise data. APAg supports access to data sources in the form of relational databases, flat file format, and other data or message encoding such as XML. APAg also moves data from one place to another and initiates tasks related to the movement of the data.

See Also

- *APAg Integrates Your System* and other topics in the *Advanced Planning Agent 3_3_3 User Guide* for information about the APAg tool

Open Data Access (ODA)

The J.D. Edwards Open Data Access (ODA) ODBC driver is a version 2.5 or higher compliant, read-only driver. ODA can be used by front-end Windows Query and Reporting tools to access the J.D. Edwards ERP database. The front-end tools that are supported include the following:

- Microsoft Query
- Microsoft Access
- Microsoft Excel
- ODBCTEST
- Crystal Report
- Microsoft Analysis Service (not certified)

ODA sits between the front-end Query/Reporting tools and the ERP-configured ODBC drivers.

The ERP database contains object and column names, specific data types and security rules that must be converted or applied so that the data is presented correctly. The specific data types and rules include decimal shifting, Julian date, currency, media object, security, and user defined codes. In some instances, ODA modifies the SQL SELECT statement, as well as the data, so that it appears correctly within the chosen tool.

Hardware and Software Requirements

To use ODA, you must meet the following hardware and software requirements.

Hardware Requirements

- IBM-compatible personal computer
- Hard disk with 6 MB of free disk space
- At least 16 MB of random access memory (RAM)

Software Requirements

To access data with the ODA driver, your system must meet the minimum technical requirements (MTR) for ERP. MTRs are updated for each release and are available online. You must also meet the following software requirements:

- J.D. Edwards ERP
- The J.D. Edwards Open Data Access driver (JDEOWODA.dll)
- The 32-bit ODBC Driver Manager, version 3.0 or later (ODBC32.dll) (this file is included with the ODBC Database Drivers)
- Microsoft Windows 95 or later, or Windows NT 4.0 or later

The use of the ODA ODBC driver by 16-bit applications on Windows 95 is not supported.

ODBC Component Files

The J.D. Edwards installation installs the components required by ODBC database drivers. You might also find the following additional files:

Driver	File Name
ODA Driver	JDEOWODA.DLL
ODA Driver Help	JDEOWODA.HLP
Release Notes	README.TXT

Note

For ERP 9.0, OLEDB is a new driver for SQL Server. However, OLEDB data source is not supported for ODA. If you are using ODA with SQL Server, use ODBC to set up your data source.

Open Data Access Driver Architecture

The J.D. Edwards ODA ODBC driver architecture has five components:

- Application

  Front-end Query/Reporting tool that calls the ODA driver to access data from the J.D. Edwards database.

- Manager

  Loads and unloads drivers on behalf of an application. Processes ODBC calls or passes them to the ODA driver.

- J.D. Edwards ODA Driver

  Passes some of the ODBC requests directly to the vendor's ODBC driver. If ERP-specific data types are used, then the SQL SELECT statement is modified before sending it to the vendor's ODBC driver. After the data is returned from the vendor's ODBC driver, the J.D. Edwards ODA ODBC driver might need to manipulate the data so that it is displayed correctly in the application.

- Vendor Driver

  Processes ODBC function calls and submits SQL requests to the specific data source. If necessary, the driver modifies an application's request so that the request conforms to the syntax supported by the associated DBMS.

- Data Source

  The data that you want to access as well as the operating system, DBMS, and network platform for the data.

Adding an ODA Data Source

Although the ODA driver is automatically registered as part of the installation process, you might need to add a data source. You can also add a file data source or a system data source, modify a data source, or delete a data source if needed. You might also need to check the currency value check box when you configure the ODA driver so that you can view currency data in the correct format.

If you use Oracle, you must create another ODBC DSN, named OneWorld ODA Ora, so that you can access Oracle Data source through ODA. Specific information for doing this is included in the online release notes.

► To add a data source

1. Double-click the Control Panel icon. On Control Panel, double-click the ODBC icon.
2. On the User Data Sources dialog box, click Add.
3. On Add Data Source, choose the J.D. Edwards Open Data Access driver from the Installed ODBC Drivers list and click Finish.
4. On Configure Data Source, enter the following information to set up the data source and then click OK.
   - Data Source Name

     Specify the name that you want to call the J.D. Edwards Open Data Access driver.

   - Description

     Specify the description of the driver that you are adding. The Description entry cannot exceed 79 characters.

5. On the Connect form, turn on one or more of the following options:
   - Convert User Defined Codes

     Choose this option to return the associated description of the user defined field instead of the user defined code. The associated description is more descriptive because it is a text description instead of a code that is used for the user defined code. The default value is to display the associated description instead of the user defined code.

   - Convert Currency Values

     Choose this option to convert currency fields to the correct values.

   - Use Long Table/Business View Names

     Choose this option to view long table/view names.

   - Use Long Column Names

     Choose this option to view long column names.

6. On the Connect form, turn on one or more of the following Table/Business View Display Options:
   - Tables Only

Choose this option to view only J.D. Edwards ERP tables.

- Business Views Only

  Choose this option to view only J.D. Edwards ERP business views.

- Tables and Business Views

  Choose this option to view both J.D. Edwards ERP tables and J.D. Edwards ERP business views.

7. To customize the list of functions that are enabled in ODA, click Advanced.

   Advanced configuration is optional. If you choose not to customize the list of functions enabled in ODA, a default list of settings is used.

Adding a File Data Source

You can also add a file data source.

► To add a file data source

1. Double-click the Control Panel icon. On Control Panel, double-click the ODBC icon.
2. On User Data Sources click the DSN tab.
3. On File Data Sources, click Add.
4. On Add Data Source, choose the J.D. Edwards Open Data Access driver from the Installed ODBC Drivers list and click Finish.
5. On Configure Data Source, enter the following information to set up the data source and click OK.
   - Data Source Name

     Specify the name that you want to call the J.D. Edwards Open Data Access driver.

   - Description

     Specify the description of the driver that you are adding. The Description entry cannot exceed 79 characters.

6. On the Connect form, turn on one or more of the following options:
   - Convert User Defined Codes

     Choose this option to return the associated description of the user defined field instead of the user defined code. The associated description is more descriptive because it is a text description instead of a code that is used for the user defined code. The default value is to display the associated description instead of the user defined code.

   - Convert Currency Values

     Choose this option to convert currency fields to the correct values.

   - Use Long Table/Business View Names

     Choose this option to view long table/view names.

- Use Long Column Names

  Choose this option to view long column names.

7. On the Connect form, turn on one or more of the following Table/Business View Display Options:

   - Tables Only

     Choose this option to view only J.D. Edwards tables.

   - Business Views Only

     Choose this option to view only J.D. Edwards business views.

   - Tables and Business Views

     Choose this option to view both J.D. Edwards tables and J.D. Edwards business views.

8. To customize the list of functions that are enabled in ODA, click Advanced.

   Advanced configuration is optional. If you choose not to customize the list of functions enabled in ODA, a default list of settings is used.

Adding a System Data Source

A data source can be set up with a system data source name (DSN) that can be used by more than one user on the same machine. The system DSN can also be used by a system-wide service, which can then gain access to the data source even if no user is logged on to the machine.

► To add a system data source

1. Double-click the Control Panel icon. On Control Panel, double-click the ODBC icon.
2. On Data Sources, click the System DSN tab, and then click Add.
3. On System Data Sources, click Add.
4. On Add Data Source, choose the J.D. Edwards Open Data Access driver from the Installed ODBC Drivers list and click Finish.
5. On Configure Data Source, enter the following information to set up the data source and click OK.

   - Data Source Name - specify the name that you want to call the J.D. Edwards Open Data Access driver.
   - Description - specify the description of the driver that you are adding. (Note the Description entry cannot exceed 79 characters.)

6. On the Connect form, enable one or more of the following options:

   - Convert User Defined Codes - Use this option to return the associated description of the user defined field instead of the user defined code. The associated description is more descriptive, because it is a text description instead of a code that is used for the user defined code. The default is to display the associated description instead of the user defined code.

- Convert Currency Values - Use this option to convert currency fields to the correct values.
- Use Long Table/Business View Names - Use this option to view long table/view names.
- Use Long Column Names - Use this option to view long column names.

7. On the Connect form, enable one or more of the following Table/Business View Display Options
   - Tables Only - Use this option to view only J.D. Edwards ERP tables.
   - Business Views Only - Use this option to view only J.D. Edwards ERP business views.
   - Tables and Business Views - Use this option to view both J.D. Edwards ERP tables and J.D. Edwards ERP business views.
8. To customize the list of functions that are enabled in ODA, click Advanced.

   Advanced configuration is optional. If you choose not to customize the list of functions enabled in ODA, a default list of settings is used.

Modifying a Data Source

You can also modify a data source.

► **To modify a data source**

1. Double-click the Control Panel icon. On Control Panel, double-click the ODBC icon.
2. On User Data Sources, File Data Sources, or System Data Sources, choose a data source from the available list.
3. Click Configure.
4. On Configure Data Source, enter the following information to set up the data source and then click OK.
   - Data Source Name

     Specify the name that you want to call the J.D. Edwards Open Data Access driver.

   - Description

     Specify the description of the driver that you are adding. The Description entry cannot exceed 79 characters.

5. On the Connect form, turn on one or more of the following options:
   - Convert User Defined Codes

     Choose this option to return the associated description of the user defined field instead of the user defined code. The associated description is more descriptive, because it is a text description instead of a code that is used for the user defined code. The default is to display the associated description instead of the user defined code.

   - Convert Currency Values

Choose this option to convert currency fields to the correct values.

- Use Long Table/Business View Names

  Choose this option to view long table/view names.

- Use Long Column Names

  Choose this option to view long column names.

6. On the Connect form, turn on one or more of the following Table/Business View Display Options:
   - Tables Only

     Choose this option to view only J.D. Edwards ERP tables.

   - Business Views Only

     Choose this option to view only J.D. Edwards ERP business views.

   - Tables and Business Views

     Choose this option to view both J.D. Edwards ERP tables and J.D. Edwards ERP business views.

7. To customize the list of functions that are enabled in ODA, click Advanced.

   The Advanced configuration is optional. If you choose not to customize the list of functions enabled in ODA, a default list of settings is used.

Deleting a Data Source

You can delete a data source.

► To delete a data source

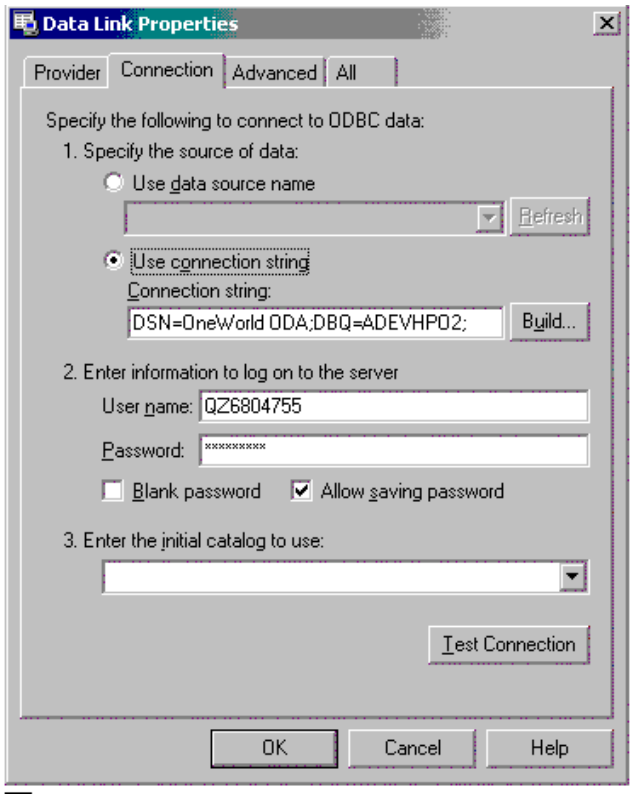
1. Double-click the Control Panel icon. On Control Panel, double-click the ODBC icon.
2. On User Data Sources, File Data Sources, or System Data Sources, choose the data source you want to delete from the Data Sources list.
3. Click Remove, and then click Yes to confirm the deletion.

Using Keywords in the Connection String

You can use C programming language to write database applications that directly invokes SQL APIs supported by ODA, such as SQLDriverConnect and SQLBrowseConnect. The following table lists keywords that you use in the connection string when you write your own database applications:

Key	Value	Description	Input Connection String	Output Connection String
CONVERTUDC	YIN (default to N)	Convert UDC or not	Optional. If not in the connection string, load from INI/registry settings (ERP ODA DSN settings)	From the input string or INI/registry settings
CONVERTCURRENCY	YIN (default to N)	Convert currency or not		
SHIFTDECIMALS	YIN (default to Y)	Use decimal shift or not		
CONVERTJULIANDATES	YIN (default to Y)	Convert Julian dates or not		
DISPLAYOPTIONS	0|1|2 (no default)	Display TBLE, BSFN or both		
LONGTABLENAMES	YIN (default to Y)	Use long names for tables or not		
LONGCOLUMNNAMES	YIN (default to Y)	Use long names for columns or not		
UID	<string>	User ID	Required by JDEDriverConnect (SQL_DRIVER_NOPROMPT)	The same as the input if not overwritten by OW login
PWD	<string>	Password		
ENVIRONMENT	<string>	Environment		
DBQ	<string>	The same as the ENVIRONMENT	Work as ENVIRONMENT, if ENVIRONMENT not specified	Removed if ENVIRONMENT exist
DSN	<string>	Data source	Optional. Default to “DEFAULT” if invalid	Overwritten by login

If you use the Microsoft Analysis Service tool, you can use connection string keywords to create a new data source. The following illustration shows how to use a connection string keyword in the Microsoft Analysis Service tool:



Working with ODA

Once the ODA driver is properly installed and an ODBC data source is established, you can use the functionality of the ODA driver. When a SQL connection is established, the environment of the current connection is stored in the system as the database name. SQLGetInfo can access this value later or it can be used for future connections.

You can use the following J.D. Edwards-specific features with J.D. Edwards ODA:

Long Table and Business View Names

Long table and business view names allow you to see a descriptive name when you view an object list. You can use either the descriptive names or the original J.D. Edwards object name in the SELECT statement.

Note

This option might not be available for all third-party products (for example, ShowCase STRATEGY products prior to the 2.0 release or Crystal Reports) because the long names contain special characters that are not handled correctly by these tools.

Long Column Names

Long column names allow you to see a descriptive name when viewing any columns list. You can still use either the descriptive names or the original J.D. Edwards column name. For example, you can use either of the following statements to retrieve information from the Address Book Master table (F0101):

- SELECT ABAN8 from the Address Book Master table (F0101)
- SELECT AddressNumber from the Address Book Master table (F0101)

Julian Date

Julian date modifies all references to Julian date columns to convert the date to an SQL-92 standard date. The J.D. Edwards Julian date is converted to a standard date value that can be used in date calculations. This feature allows you to use duration or other date calculations in both the SELECT (result data), WHERE, and HAVING clauses and the ORDER BY clause.

The SQL SELECT statement is modified to before a data calculation to convert the J.D. Edwards Julian date column to a standard date. The modification to the SQL SELECT statement is based on the data source that is being accessed because of driver differences in handling date calculations. If the original column value is zero, the date conversion will result in a date value of 1899-12-31. To remove these values, the following condition should be added to the WHERE clause in the SELECT statement where DATECOL is the J.D. Edwards Julian date column:

```
"DATECOL <> {d `1899-12-31'}"
```

Decimal Shifting

All references to decimal shifted columns are modified to shift the decimal point to cause the result data to be correct. This feature allows SQL statements containing complex expressions, aggregates, and filtering to run and return accurate results.

The SQL SELECT statement is modified to divide the column by the appropriate number of decimal places so that the data is returned correctly and to make “compare operators” work for filtering.

Currency

Currency columns are limited to single-column references in the selected columns list. Returned data is converted using the standard J.D. Edwards currency conversion routines. All other references to the currency column in the SQL statement are passed through to the native driver. You must understand how the currency column is used to make effective use of filtering.

Before selected columns are returned, the J.D. Edwards Open Data Access driver converts any currency columns to the correct value. Currency columns used in the WHERE or HAVING clause are processed based on the nonconverted currency value. Currency columns in the GROUP BY or ORDER BY clause are grouped and sorted by the nonconverted currency value.

Media Object

The Media object column, TXVC, in the Media Objects (F00165) storage is limited to single-column references in the selected columns list. ODA returns media data in plain text or rich text format (RTF) and truncates other binary data, such as an image. The size limitation of the text or RTF is 30,000 characters, and text will be truncated when it reaches this limitation.

Column Security

When column security is active, any reference to restricted columns causes an error to be returned when the SELECT statement is examined, including the use of * (asterisk—selecting all columns) in the select clause, as defined by the SQL-92 standards. You will receive an error if you are not authorized for all of the columns in the table.

Row Security

When row security is active, the statement is modified to include the appropriate WHERE clause for filtering secured rows. You will only see rows that you are authorized to access along with getting accurate results using aggregate functions—for example, SUM or AVG.

User Defined Codes

When user defined codes (UDCs) are enabled, you see the associated description instead of the internal code when the column data is returned. This processing affects only the returned data and has no effect on the other parts of the Select statement—for example, Where, Order By. This is an optional setting that can be configured when you set up the driver.

Before the UDC is returned to you, the J.D. Edwards Open Data Access driver converts the code to the associated description. The UDC columns used in the WHERE or HAVING clause are selected based on the nonconverted code and the UDC columns referenced in the GROUP BY and ORDER BY clause are grouped and sorted by the nonconverted code.

Running a Query Using Microsoft Excel

You can use Microsoft Excel to create and run a query.

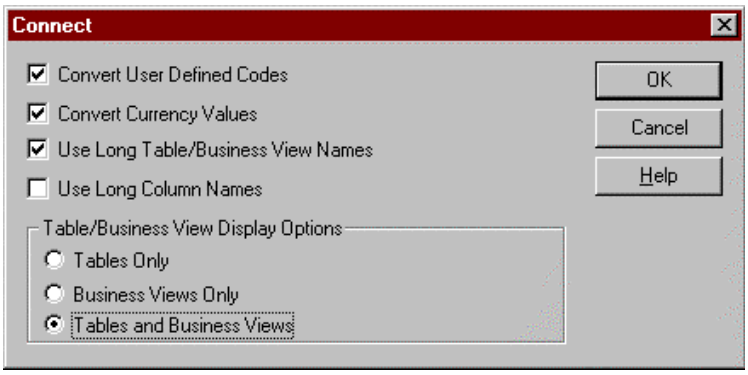
► To run a query using Microsoft Excel:

1. Choose Get External Data from the Data menu.
2. Choose Create New Query.
3. On the Databases tab, choose the appropriate data source (for example, ERP Local or ERP ODA).

   Because Excel uses file data sources, the ODA data source you set up in the 32-bit ODBC Administrator will not appear on the list of databases. You should create a File-type Data Source by choosing <New Data Source> and following the procedures for setting up a data source.

   When you choose the ODA data source, you might need to log on to ERP to use the ODA driver. Once you log on, you will not see the Solution Explorer because it is only activated so that the ODA driver can check security and environment mappings.

   The Excel Query Wizard will display a list of available tables in the ERP data source. Expanding any table name shows the available columns or fields in each table. If you are using the ODA driver, you will see long descriptions of each field (for example, DateUpdated). If not, you will see the alpha codes for the fields (for example ABUPMJ).



4. To translate field/column names from the J.D. Edwards alpha codes, use table F9202. Choose all rows and sort (on FRDTAI) to create a cross-reference.

   The first two letters of all J.D. Edwards column names are the application code, and the remaining letters are in this table as a suffix.

5. Finish building your query with Query Wizard and save the query.
6. You can then run your query and review it in Excel or MS Query.

   After you run a query from Excel, if you ask to see the results in MS Query, you get the results back quickly because it selects a page at a time. If you are working with a large result set, you should close ERP and any applications that take up a lot of memory so that you can navigate through the records faster. If you ask for the query to be returned directly to a spreadsheet instead of into MS Query, it might be a long time before you see any rows because Excel does not show a page at a time.

To verify the outcome of each query, you should run each one first using the non-ODA ERP data source and then use the ODA data source and compare the results.

ODA Error Messages

Following is a list of the errors that you can receive from the J.D. Edwards Open Data Access driver. The messages are placed in the ODBC error message queue where the application can retrieve them using the standard ODBC error mechanism. The J.D. Edwards messages look like the following:

[J.D. Edwards][OneWorldODA Driver]MESSAGE TEXT

Configuration Request Error

This error might occur when you add a new data source if you do not provide enough information for the driver and it cannot show a configuration dialog.

You must either pass enough information to the driver or allow the driver to prompt for more information.

Option Value Changed

This is an informational message that occurs when you attempt to set a connection or statement option to a value that the driver does not accept. The driver then changes the

value to an acceptable default and uses this message to let you know that the value has changed.

The J.D. Edwards Open Data Access driver changes values in the following areas.

- Setting the rowset size to a value other than one. The driver currently only supports single row rowsets.
- Setting the login time out to a value other than zero. The driver currently only supports zero in this option, which means, time out disabled.

Data Source Name Is Not Valid

The data source you entered is not a valid ODBC data source name. This error occurs when you are adding a new data source or configuring an existing data source. You must enter a name that follows the ODBC data source naming convention.

Data Source Does Not Exist

This error occurs when you attempt to use a data source that does not exist. You must enter the name of an existing data source. If you get this error when you attempt to connect to a data source, you might need to create a default data source.

Unable to Allocate Memory

The J.D. Edwards Open Data Access driver was not able to allocate enough memory to continue. You must close some applications and try the operation again. Make sure that you meet the minimum system requirements.

Invalid Type of Request

You attempted to use a configuration option that is unknown to the driver. The driver supports the following options when configuring data sources.

- Adding a data source
- Configuring a data source
- Removing a data source

Data Truncated

The conversion of column data resulted in a truncation of the value. You should allocate more room for the column data to avoid this informational message.

Syntax Error or Access Violation

The statement contained a syntax error and no further information is available.

Unable to Display Connection Dialog

The driver encountered an error when attempting to display the connection dialog.

Cross System Joins Not Supported

This error occurs in one of two situations:

- You referenced tables that are contained on multiple systems in the ERP environment. The J.D. Edwards Open Data Access driver currently supports tables referenced on a single system.

- You referenced a business view that contains multiple tables that reside on multiple systems.

You must make sure that you are referencing tables on a single system or a business view that contains tables on a single system.

Unable to Connect to the ERP Environment

The driver could not establish a connection to the J.D. Edwards ERP environment. This connection is required before a successful connection can be made to this driver.

Internal Data Conversion Error

The driver encountered an unknown error during data conversion.

Internal Execution Error

The driver experienced an unexpected error during a statement execution.

User Defined Code Columns Can Only Be in Simple Column References

A user attempted to use a User Defined Code column in a complex expression. The J.D. Edwards Open Data Access driver only allows such columns to be simple references.

Currency Columns Can Only Be in Simple Column References

A user attempted to use a Currency column in a complex expression. The J.D. Edwards Open Data Access driver only allows such columns to be simple references.

Media Object Columns Can Only Be in Simple Column References

A user attempted to use a Media Object column in a complex expression. The J.D. Edwards Open Data Access driver only allows such columns to be simple references.

Column Security Violation

You attempted to use a column you are not authorized to use. You must remove references to those columns that are secured.

Invalid Cursor State

You attempted an operation that was not valid for the state that the driver is in, for example:

- You attempted to bind a column prior to preparing or executing a statement.
- You attempted to execute a statement while there are pending results.
- You attempted to get data from the driver prior to preparing or executing a statement.
- You attempted to prepare a statement while there are pending results.

Invalid Column Number

You attempted to access a column that was not part of the statements results.

Driver Does Not Support the Requested Conversion

An attempt was made to convert a column to a data type that is not supported by the J.D. Edwards Open Data Access driver.

Invalid Date/Time String

An attempt to convert a character column to a date, time, or timestamp value failed because the character column did not contain a valid format.

Invalid Numeric String

An attempt to convert a character column to a numeric value failed because the character column did not contain a valid numeric value.

Numeric Value Out of Range

An attempt to convert a column to a numeric value failed because the output data type could not accommodate the value in the column. You should use the default data type or choose a data type that can accommodate the column value.

Data Returned for One or More Columns was Truncated

An attempt to convert a column to a numeric value caused a truncation of decimal digits. The output data type could not accommodate the value in the column. You should use the default data type or choose a data type that can accommodate the column value.

The Data Cannot be Converted

An attempt to convert a column value failed because the input type could not be converted to output type. You should use the default data type.

Statement Must Be a SELECT

The J.D. Edwards Open Data Access driver is read-only and allows only SELECT statements.

Attempt to Fetch Before the First Row

An attempt was made to fetch before the beginning of results. The attempt resulted in the first rowset being fetched.

Option Value Changed

An attempt was made to set a connection, statement or scroll options to a value that was not allowed. The J.D. Edwards Open Data Access driver substituted a similar value.

Fractional Truncation

An attempt to convert a column to a numeric value succeeded with a loss of fractional digits because the output data type could not accommodate the value in the column. You should use the default data type or choose a data type that can accommodate the column value.

Driver Not Capable

An attempt was made to set a connection, statement, or scroll option that the driver does not allow.

Multiple Business Views Referenced

An attempt was made to reference more than one business view in a single SELECT statement. The J.D. Edwards Open Data Access driver restricts the SELECT statement to contain only one business view.

Unable to Open Table or Business View

The J.D. Edwards Open Data Access driver was unable to locate the table or business view in the ERP database or could not get information pertaining to the table or business view.

Server Connection Failed

The J.D. Edwards Open Data Access driver was unable to establish a connection to the server referenced by the tables or business view in the SELECT statement.

Business View Contains Invalid Join

The Business View definition contains a join condition that could not be processed by the J.D. Edwards Open Data Access driver.

Business View Contains Unsupported UNION Operator

The Business View definition contains the UNION operator that could not be processed by the J.D. Edwards Open Data Access driver.

XML Format Examples (All Parameters)

The following examples are used for specific formats.

Example: Inbound Sales Order XML Format (All Parameters)

This example illustrates an inbound XML format with all of the parameters.

```
"<?xml version='1.0' ?>
<jdeRequest type='callmethod' user='userid' pwd='password' environment='environment'
>
<callMethod name=' GetLocalComputerId' app='NetCommerce' runOnError='no'>
<params>
<param name=' szMachineKey'id='m2' >< /param>
<params>
    <callMethod>
<callMethod name=' F4211FSBeginDoc' app='NetCommerce' runOnError='no'>
<params>
  <param name='mnCMJobNumber` id='j1`></param>
<param name='cCMDocAction' >A</param>
<param name='cCMProcessEdits' <1>/param>
<param name='szCMComputerID' idref='c2' >< /param>
<param name='cCMErrorConditions' >value< /param>
<param name='cCMUpdateWriteToWF' >value< /param>
   <param name='szCMProgramID' >value< /param>
   <param name='szCMVersion' >value< /param>
<param name='szOrderCo' <value< /param>
<param name='mnOrderNo' >value< /param>
<param name='szOrderType' >value< /param>
<param name='szBusinessUnit' >value< /param>
<param name='szOriginalOrderCo' >value< /param>
<param name='szOriginalOrderNo' >value< /param>
<param name='szOriginalOrderType' >value< /param>
```

```
<param name='mnAddressNumber' >value< /param>
<param name='mnShipToNo' >value< /param>
<param name='jdRequestedDate' >value< /param>
<param name='jdOrderDate' >value< /param>
  <param name='jdPromisedDate' >value< /param>
<param name='jdCancelDate' >value< /param>
<param name='szReference' >value< /param>
<param name='szDeliveryInstructions1' >value< /param>
  <param name='szDeliveryInstructions2' >value< /param>
<param name='szPrintMesg' >value< /param>
  <param name='szPaymentTerm' >value< /param>
<param name='cPaymentInstrument' >value< /param>
  <param name='szAdjustmentSchedule' >value< /param>
  <param name='mnTradeDiscount' >value< /param>
  <param name='szTaxExplanationCode' >value< /param>
  <param name='szTaxArea' >value< /param>
  <param name='szCertificate' >value< /param>
  <param name='cAssociatedText' >value< /param>
  <param name='szHoldOrdersCode' >value< /param>
<param name='cPricePickListYN' >value< /param>
<param name='mnInvoiceCopies' >value< /param>
<param name='mnBuyerNumber'>value</param>
<param name='mnCarrier' >value</param>
<param name='szRouteCode' >value</param>
<param name='szStopCode' >value</param>
<param name='szZoneNumber' >value</param>
<param name='szFreightHandlingCode' >value</param>
<param name='cApplyFreightYN' >value</param>
<param name='mnCommissionCode1' >value</param>
<param name='mnCommissionRate1' >value</param>
<param name='mnCommissionCode2' >value</param>
```

<param name='mnCommissionRate2' >value</param>
<param name='szWeightDisplayUOM' >value</param>
<param name='szVolumeDisplayUOM' >value</param>
<param name='szAuthorizationNo' >value</param>
<param name='szCreditBankAcctNo' >value</param>
<param name='jdCreditBankExpiredDate' >value</param>
<param name='cMode' >value</param>
<param name='szCurrencyCode' >value</param>
<param name='mnExchangeRate' >value</param>
<param name='szOrderedBy' >value</param>
<param name='szOrderTakenBy' >value</param>
<param name='szUserReservedCode' >value</param>
<param name='jdUserReservedDate' >value</param>
<param name='mnUserReservedAmnt' >value</param>
<param name='mnUserReservedNo' >value</param>
<param name='szUserReservedRef' >value</param>
<param name='jdDateUpdated' >value</param>
<param name='szUserID' >value</param>
<param name='szWKBaseCurrency' >value</param>
<param name='cWKAdvancedPricingYN' >value</param>
<param name='szWKCreditMesg' >value</param>
<param name='szWKTempCreditMesg' >value</param>
<param name='cWKInvalidSalesOrderNo' >value</param>
<param name='cWKSourceOfData' >blank</param>
<param name='cWKProcMode' >blank</param>
<param name='mnWKSuppressProcess' >0</param>
<param name='mnSODDocNo' >value</param>
<param name='szSODDocType' >value</param>
<param name='szSODOrderCo' >value</param>
<param name='mnTriangulationRateFrom' >value</param>
<param name='mnTriangulationRateTo' >value</param>

```
  <param name='cCurrencyConversionMethod' >value</param>
  <param name='cRetrieveOrderNo' >value</param>
  <param name='szPricingGroup' >value</param>
<param name='cCommitInvInED' >value</param>
<param name='cSpotRateAllowed' >value</param>
<param name='cGenericChar2_EV02' >value</param>
  <param name='szGenericString1_DL01' >value</param>
<param name='szGenericString2_DL02' >value</param>
<param name='mnGenericMathNumeric1_MATH01' >value</param>
<param name='mnGenericMathNumeric2_MATH02' >value</param>
<param name='szLongAddressNumberShipto' >value</param>
  <param name='szLongAddressNumber' >value</param>
  <param name='mnProcessID' >value</param>
<param name='mnTransactionID' >value</param>
</params>
<onError abort='yes'>\
<callMethod name=' F4211ClearWorkFile'app='NetCommerce' runOnError='yes'>
<params>
  <param name='mnJobNo` idref='j1`></param>
<param name='szComputerID' idref='c2' >< /param>
 <param name='mnFromLineNo' >value</param>
<param name='mnThruLineNo' >value</param>
<param name='cClearHeaderWF' >value</param>
<param name='cClearDetailWF' >value</param>
<param name='szProgramID' >value</param>
<param name='mnWKRelatedOrderProcess' >value</param>
<param name='szCMVersion' >value</param>
<param name='cGenericChar1_EV01' >value</param>
<param name='szGenericString1_DL01' >value</param>
    <param name='mnSODRelatedJobNumber' >value</param>
<param name='mnProcessID' >value</param>
```

```
<param name='mnTransactionID' >value</param>
</params>
</callMethod>
</onError>
</callMethod>
<callMethod name=' F4211FSEditLine'app='NetCommerce' runOnError='yes'>
<params>
<param name='mnCMJobNo ` idref='j1`></param>
<param name='cCMLineAction' >value</param>
<param name='cCMProcessEdits ' >value</param>
<param name='cCMWriteToWFFlag ' >value</param>
<param name='cCMRecdWrittenToWF ' >value</param>
<param name='szCMComputerID' idref='c2' >< /param>
<param name='cCMErrorConditions' >value</param>
<param name='szOrderCo' >value</param>
<param name='mnOrderNo' >value</param>
<param name='szOrderType' >value</param>
<param name='mnLineNo' >value</param>
<param name='szBusinessUnit' >value</param>
<param name='mnShipToNo' >value</param>
<param name='jdRequestedDate' >value</param>
<param name='jdPromisedDate' >value</param>
<param name='jdCancelDate' >value</param>
<param name='jdPromisedDlvryDate' >value</param>
<param name='szItemNo' >value</param>
<param name='szLocation'>value</param>
<param name='szLotNo' >value</param>
<param name='szDescription1' >value</param>
<param name='szDescription2' >value</param>
<param name='szLineType' >value</param>
<param name='szLastStatus' >value</param>
```

<param name='szNextStatus' >value</param>
<param name='mnQtyOrdered' >value</param>
<param name='mnQtyShipped' >value</param>
<param name='mnQtyBackordered' >value</param>
<param name='mnQtyCanceled' >value</param>
<param name='mnExtendedPrice' >value</param>
<param name='mnExtendedCost' >value</param>
<param name='szPrintMesg' >value</param>
<param name='cPaymentInstrument' >value</param>
<param name='szAdjustmentSchedule' >value</param>
<param name='cSalesTaxableYN' >value</param>
<param name='cAssociatedText' >value</param>
<param name='szTransactionUOM' >value</param>
<param name='szPricingUOM' >value</param>
<param name='mnItemWeight' >value</param>
<param name='szWeightUOM' >value</param>
<param name='mnForeignUnitPrice >value</param>
<param name='mnForeignExtPrice' >value</param>
<param name='mnForeignUnitCost' >value</param>
<param name='mnForeignExtCost' >value</param>
<param name='szPricingCategoryLevel' >value</param>
<param name='mnDiscountFactor' >value</param>
<param name='mnCMLineNo' >value</param>
<param name='szCMProgramID' >value</param>
<param name='szCMVersion' >value</param>
<param name='mnSupplierNo' >value</param>
<param name='szRelatedKitItemNo' >value</param>
<param name='mnKitMasterLineNo' >value</param>
<param name='mnComponentLineNo' >value</param>
<param name='mnRelatedKitComponent' >value</param>
<param name='mnNoOfCpntPerParent' >value</param>

<param name='cOverridePrice' >value</param>
<param name='cOverrideCost' >value</param>
<param name='szUserID' >value</param>
<param name='jdDateUpdated' >value</param>
<param name='mnWKOrderTotal' >value</param>
<param name='mnWKForeignOrderTotal' >value</param>
<param name='mnWKTotalCost' >value</param>
<param name='mnWKForeignTotalCost' >value</param>
<param name='cWKProcessingType' >value</param>
<param name='cWKSourceOfData' >value</param>
<param name='cWKCheckAvailability' >value</param>
<param name='mnLastLineNoAssigned' >value</param>
<param name='cStockingType' >value</param>
<param name='szOriginalOrderKeyCo' >value</param>
<param name='szOriginalOrderNo' >value</param>
<param name='szOriginalOrderType' >value</param>
<param name='mnOriginalOrderLineNo' >value</param>
<param name='cParentItmMethdOfPriceCalcn' >value</param>
<param name='szLandedCost' >value</param>
<param name='mnWKSuppressProcess' >value</param>
<param name='mnShortItemNo' >value</param>
<param name='mnWKRelatedOrderProcess' >value</param>
<param name='mnSODLineNo' >value</param>
<param name='mnPriceAdjRevLevel' >value</param>
<param name='szSalesOrderFlags' >value</param>
<param name='mnSODDocNo' >value</param>
<param name='szSODDocType' >value</param>
<param name='szSODOrderCo' >value</param>
<param name='szTransferOrderToBranch' >value</param>
<param name='mnDomesticDetachedAdj' >value</param>
<param name='mnForeignDetachedAdj' >value</param>

<param name='mnSODWFLineNo' >value</param>
<param name='szGeneric2CharString' >value</param>
<param name='mnTOEPOExchangeRate' >value</param>
<param name='szTOEPOCurrencyCode' >value</param>
<param name='mnDRPKeyId' >value</param>
<param name='mnSoldToCust' >value</param>
<param name='szF4201BranchPlant' >value</param>
<param name='szSoldToCurrencyCode' >value</param>
<param name='cConsolidationFlag' >value</param>
<param name='jdPriceEffectiveDate' >value</param>
<param name='mnWOWFLineNo' >value</param>
<param name='mnLineNoIncrement' >value</param>
<param name='mnParentWFLineNo' >value</param>
<param name='cStatusInWarehouse' >value</param>
<param name='cBypassCommitments' >value</param>
<param name='szProductSource' >value</param>
<param name='szProductSourceType' >value</param>
<param name='mnSequenceNumber' >value</param>
<param name='szAgreementNumber' >value</param>
<param name='mnAgreementSupplement' >value</param>
<param name='mnAgreementsFound' >value</param>
<param name='szModeOfTransport' >value</param>
<param name='szDutyStatus' >value</param>
<param name='szLineofBusiness' >value</param>
<param name='jdPromisedShip' >value</param>
<param name='szEndUse' >value</param>
<param name='mnTOEPOExchangeRate' >value</param>
<param name='szPriceCode1' >value</param>
<param name='szPriceCode2' >value</param>
<param name='szPriceCode3' >value</param>
<param name='szItemFlashMessage' >value</param>

```
<param name='szCompanyKeyRelated' >value</param>
<param name='szRelatedPoSoNumber >value</param>
<param name='szRelatedOrderType >value</param>
<param name='mnRelatedPoSoLineNo>value</param>
<param name='cGenericChar3 >value</param>
<param name='mnProfitMargin >value</param>
<param name='mnQuantityAvailable >value</param>
<param name='cRequestScheduleFlag >value</param>
<param name='cOrderProcessType >value</param>
<param name='cGenericChar2 >value</param>
<param name='mnSODRelatedJobNumber >value</param>
<param name='szGenericString >value</param>
<param name='mnCarrier >value</param>
<param name='szGenericString2_DL02 >value</param>
<param name='mnGenericMathNumeric1_MATH01 >value</param>
<param name='mnGenericMathNumeric2_MATH02 >value</param>
<param name='mnItemVolume_ITVL >value</param>
<param name='szVolumeUOM_VLUM >value</param>
<param name='szRevenueBusinessUnit >value</param>
<param name='szCustomerPO_VR01 >value</param>
<param name='szReference2Vendor_VR02 >value</param>
<param name='mnProcessID >value</param>
<param name='mnTransactionID >value</param>
</params >
<onError abort='no'>\
  </onError >
</callMethod >
<callMethod name=' F4211FSEndDoc'app='NetCommerce' runOnError='no'>
<params>
<param name='mnCMJobNo ` idref='j1`></param>
<param name='mnSalesOrderNo' >value</param>
```

<param name='szCMComputerID' idref='c2' >< /param>
<param name='cCMErrorCondition' >value</param>
<param name='szOrderType' >value</param>
<param name='szKeyCompany' >value</param>
<param name='mnOrderTotal' >value</param>
<param name='mnForeignOrderTotal' >value</param>
<param name='szBaseCurrencyCode' >value</param>
<param name='szProgramID' >value</param>
<param name='szWorkstationID' >value</param>
<param name='szCMProgramID' >value</param>
<param name='szCMVersion' >value</param>
<param name='mnTimeOfDay' >value</param>
<param name='mnTotalCost' >value</param>
<param name='mnForeignTotalCost' >value</param>
<param name='cSuppressRlvBlnktFlag' >value</param>
<param name='cWKSkipProcOptions' >value</param>
<param name='mnWKRelatedOrderProcess' >value</param>
<param name='cCMUseWorkFiles' >value</param>
<param name='mnEDIDocNo' >value</param>
<param name='szEDIKeyCo' >value</param>
<param name='szEDIDocType' >value</param>
<param name='cCMProcessEdits' >value</param>
<param name='cGenericChar2' >value</param>
<param name='mnSODRelatedJobNumber' >value</param>
<param name='cGenericChar1_EV01' >value</param>
<param name='mnGenericMathNumeric2_MATH02' >value</param>
<param name='szGenericString1_DL01' >value</param>
<param name='szGenericString2_DL02' >value</param>
<param name='mnProcessID' >value</param>
<param name='mnTransactionID' >value</param>
<params/>

```
<onError abort='no'>\
<callMethod name=' F4211ClearWorkFile'app='NetCommerce'
runOnError='yes'>
<params>
  <param name='mnJobNo` idref='j1`></param>
<param name='szComputerID' idref='c2' >< /param>
 <param name='mnFromLineNo' >value</param>
<param name='mnThruLineNo' >value</param>
<param name='cClearHeaderWF' >value</param>
<param name='cClearDetailWF' >value</param>
<param name='szProgramID' >value</param>
<param name='mnWKRelatedOrderProcess' >value</param>
<param name='szCMVersion' >value</param>
<param name='cGenericChar1_EV01' >value</param>
<param name='szGenericString1_DL01' >value</param>
     <param name='mnSODRelatedJobNumber' >value</param>
<param name='mnProcessID' >value</param>
<param name='mnTransactionID' >value</param>
</params>
</callMethod>
</onError>
</callMethod>
<returnParams version='value' messagetype='messsage name"failure Destination='queuename'
successDestination='queuename>
<param name='long description' idref='value'/param>
</returnParams>
<onError>
<callMethod name=' F4211ClearWorkFile'app='NetCommerce'
runOnError='yes'>
<params>
  <param name='mnJobNo` idref='j1`></param>
```

```
<param name='szComputerID' idref='c2' >< /param>
 <param name='mnFromLineNo' >value</param>
<param name='mnThruLineNo' >value</param>
<param name='cClearHeaderWF' >value</param>
<param name='cClearDetailWF' >value</param>
<param name='szProgramID' >value</param>
<param name='mnWKRelatedOrderProcess' >value</param>
<param name='szCMVersion' >value</param>
<param name='cGenericChar1_EV01' >value</param>
<param name='szGenericString1_DL01' >value</param>
    <param name='mnSODRelatedJobNumber' >value</param>
<param name='mnProcessID' >value</param>
<param name='mnTransactionID' >value</param>
</params>
</callMethod>
</onError>
</jdeRequest>
```

Example: Outbound Customer Create XML Request and Response Format (All Parameters)

The following examples, both as request and response, illustrate the outbound XML format with all of the parameters.

```
This format will return all columns for the customer master (F0101Z2)
<?xml version='1.0' ?>
  <jdeRequest type='trans' user='user' pwd='password' environment='environment' session=' ` sessio
nidle='300'>
 <transaction action='transactionInfo' type='JDEAB'>
 <key>
  <column name='EdiUserId'>value</column>
  <column name='EdiBatchNumber'>value</column>
  <column name='EdiTransactNumber'>value</column>
        </key>
 </transaction>
 </jdeRequest>
```

```
<?xml version='1.0' encoding='utf-8' ?>
<jdeResponse type='trans' user='user' session='session'   environment='env'>
        <transaction type='JDEAB' action='transactionInfo'>
                <returnCode code='0'>XML Request OK</returnCode>
        <key>
    <column name='EdiUserId'></column>
      <column name='EdiBatchNumber'></column>
     </key>
     <table name='F0101Z2' type='detail'>
        <column name='EdiUserId'></column>
     <column name='EdiBatchNumber'></column>
     <column name='EdiTransactNumber'></column>
     <column name='EdiLineNumber'></column>
     <column name='EdiDocumentType'></column>
   <column name='TypeTransaction'></column>
   <column name='EdiTranslationFormat'></column>
  <column name='EdiTransmissionDate'></column>
  <column name='DirectionIndicator'></column>
  <column name='EdiDetailLinesProcess'></column>
  <column name='EdiSuccessfullyProcess'></column>
  <column name='TradingPartnerId'></column>
  <column name='TransactionAction'></column>
  <column name='AddressNumber'></column>
  <column name='AlternateAddressKey'></column>
  <column name='TaxId'></column>
  <column name='NameAlpha'></column>
  <column name='DescripCompressed'></column>
  <column name='CostCenter'></column>
  <column name='StandardIndustryCode'></column>
  <column name='LanguagePreference'>< /column>
  <column name='AddressType1'></column>
  <column name='CreditMessage'></column>
  <column name='PersonCorporationCode'></column>
  <column name='AddressType2'></column>
  <column name='AddressType3'></column>
  <column name='AddressType4'></column>
  <column name='AddressTypeReceivables'></column>
  <column name='AddressType5'></column>
  <column name='AddressTypePayables'></column>
  <column name='AddTypeCode4Purch'></column>
```

```
  <column name='MiscCode3'></column>
  <column name='AddressTypeEmployee'></column>
  <column name='SubledgerInactiveCode'></column>
  <column name='DateBeginningEffective'></column>
  <column name='AddressNumber1st'></column>
  <column name='AddressNumber2nd'></column>
  <column name='AddressNumber3rd'></column>
  <column name='AddressNumber4th'></column>
  <column name='AddressNumber6th'></column>
  <column name='AddressNumber5th'></column>
  <column name='ReportCodeAddBook001'></column>
  <column name='ReportCodeAddBook002'></column>
  <column name='ReportCodeAddBook003'></column>
  <column name='ReportCodeAddBook004'></column>
  <column name='ReportCodeAddBook005'></column>
  <column name='ReportCodeAddBook006'></column>
  <column name='ReportCodeAddBook007'></column>
  <column name='ReportCodeAddBook008'></column>
  <column name='ReportCodeAddBook009'></column>
  <column name='ReportCodeAddBook010'></column>
  <column name='ReportCodeAddBook011'></column>
<column name='ReportCodeAddBook012'></column>
<column name='ReportCodeAddBook013'></column>
<column name='ReportCodeAddBook014'></column>
<column name='ReportCodeAddBook015'></column>
<column name='ReportCodeAddBook016'></column>
<column name='ReportCodeAddBook017'></column>
<column name='ReportCodeAddBook018'></column>
<column name='ReportCodeAddBook019'></column>
<column name='ReportCodeAddBook020'></column>
<column name='CategoryCodeAddressBook2'></column>
<column name='CategoryCodeAddressBk22'></column>
<column name='CategoryCodeAddressBk23'></column>
<column name='CategoryCodeAddressBk24'></column>
<column name='CategoryCodeAddressBk25'></column>
<column name='CategoryCodeAddressBk26'></column>
<column name='CategoryCodeAddressBk27'></column>
<column name='CategoryCodeAddressBk28'></column>
<column name='CategoryCodeAddressBk29'></column>
<column name='CategoryCodeAddressBk30'></column>
```

```
<column name='GlBankAccount'></column>
<column name='TimeScheduledIn'></column>
<column name='DateScheduledIn'></column>
<column name='ActionMessageControl'></column>
<column name='NameRemark'></column>
<column name='CertificateTaxExempt'></column>
<column name='TaxId2'></column>
<column name='Kanjialpha'></column>
<column name='UserReservedCode'></column>
<column name='UserReservedDate'></column>
<column name='UserReservedAmount'></column>
<column name='UserReservedNumber'></column>
<column name='UserReservedReference'></column>
<column name='NameMailing'></column>
<column name='SecondaryMailingName'></column>
<column name='AddressLine1'></column>
<column name='AddressLine2'></column>
<column name='AddressLine3'></column>
<column name='AddressLine4'></column>
<column name='ZipCodePostal'></column>
<column name='City'></column>
<column name='Country'></column>
<column name='State'></column>
<column name='CountyAddress'></column>
<column name='PhoneAreaCode1'></column>
<column name='PhoneNumber'></column>
<column name='PhoneNumberTyp1'></column>
<column name='PhoneAreaCode2'></column>
<column name='PhoneNumber1'></column>
<column name='PhoneNumberTyp2'></column>
<column name='TransactionOriginator'></column>
<column name='UserId'></column>
<column name='ProgramId'></column>
<column name='WorkStationId'></column>
<column name='DateUpdated'></column>
<column name='TimeOfDay'></column>
<column name='TimeLastUpdated'></column>
      </table>
        </transaction>
</jdeResponse>
```

XML Format Examples (Default Values)

The following examples are used for specific formats.

Example: Inbound Sales Order XML Format

This example uses the ERP default values. This example omits the parameters that an external entity chooses not to fill.

```
<?xml version="1.0" encoding="utf-8" ?>
- <jdeRequest type="callmethod" user="JDE" pwd="JDE" environment="PRD733">
- <callMethod name="GetLocalComputerId" app="NetComm" runOnError="no">
- <params>
<param name="szMachineKey" id="m2" />
</params>
<onError abort="yes" />
</callMethod>
- <callMethod name="F4211FSBeginDoc" app="NetComm" runOnError="no">
- <params>
<param name="mnCMJobNumber" id="j1" />
<param name="cCMDocAction">A</param>
<param name="cCMProcessEdits">1</param>
<param name="szCMComputerID" idref="c2" />
<param name="cCMUpdateWriteToWF">2</param>
<param name="szCMProgramID">NetComm</param>
<param name="szCMVersion">ZJDE0001</param>
<param name="szOrderType">SO</param>
<param name="szBusinessUnit">M30</param>
<param name="mnAddressNumber">4242</param>
<param name="jdOrderDate">2000/01/21</param>
<param name="szReference">10261</param>
<param name="cApplyFreightYN">Y</param>
<param name="szCurrencyCode">CAD</param>
<param name="cWKSourceOfData" />
<param name="cWKProcMode" />
<param name="mnWKSuppressProcess">0</param>
</params>
- <onError abort="yes">
```

```
- <callMethod name="F4211ClearWorkFile" app="NetComm" runOnEr
ror="yes">
- <params>
  <param name="mnJobNo" idref="j1" />
  <param name="szComputerID" idref="c2" />
  <param name="mnFromLineNo">0</param>
  <param name="mnThruLineNo">0</param>
  <param name="cClearHeaderWF">2</param>
  <param name="cClearDetailWF">2</param>
  <param name="szProgramID">NetComm</param>
  <param name="szCMVersion">ZJDE0001</param>
  </params>
  </callMethod>
  </onError>
  </callMethod>
- <callMethod name="F4211FSEditLine" app="NetComm" runOnError="yes">
- <params>
  <param name="mnCMJobNo" idref="j1" />
  <param name="cCMLineAction">A</param>
  <param name="cCMProcessEdits">1</param>
  <param name="cCMWriteToWFFlag">2</param>
  <param name="szCMComputerID" idref="c2" />
  <param name="szItemNo">1001</param>
  <param name="mnQtyOrdered">1</param>
  <param name="cSalesTaxableYN">N</param>
  <param name="szTransactionUOM">EA</param>
  <param name="szCMProgramID">NetComm</param>
  <param name="szCMVersion">ZJDE0001</param>
  <param name="cWKSourceOfData" />
  </params>
  <onError abort="no" />
  </callMethod>
- <callMethod name="F4211FSEditLine" app="NetComm" runOnError="yes">
- <params>
  <param name="mnCMJobNo" idref="j1" />
  <param name="cCMLineAction">A</param>
  <param name="cCMProcessEdits">1</param>
  <param name="cCMWriteToWFFlag">2</param>
  <param name="szCMComputerID" idref="c2" />
  <param name="szItemNo">1001</param>
  <param name="mnQtyOrdered">10</param>
  <param name="cSalesTaxableYN">N</param>
  <param name="szTransactionUOM">EA</param>
  <param name="szCMProgramID">NetComm</param>
  <param name="szCMVersion">ZJDE0001</param>
  <param name="cWKSourceOfData" />
  </params>
  <onError abort="no" />
```

```
 </callMethod>
- <callMethod name="F4211FSEndDoc" app="NetComm" runOnError="no">
- <params>
  <param name="mnCMJobNo" idref="j1" />
  <param name="szCMComputerID" idref="c2" />
  <param name="szCMProgramID">NetComm</param>
  <param name="szCMVersion">ZJDE0001</param>
  <param name="cCMUseWorkFiles">2</param>
  </params>
- <onError abort="no">
- <callMethod name="F4211ClearWorkFile" app="NetComm" runOnEr
ror="yes">
- <params>
  <param name="mnJobNo" idref="j1" />
  <param name="szComputerID" idref="c2" />
  <param name="mnFromLineNo">0</param>
  <param name="mnThruLineNo">0</param>
  <param name="cClearHeaderWF">2</param>
  <param name="cClearDetailWF">2</param>
  <param name="szProgramID">NetComm</param>
  <param name="szCMVersion">ZJDE0001</param>
  </params>
  </callMethod>
  </onError>
  </callMethod>
  <returnParams failureDestination="ERROR.Q" successDestination="SUCCESS.Q" ru
nOnError="yes" />
- <onError abort="yes">
- <callMethod name="F4211ClearWorkFile" app="NetComm" runOnError="yes">
- <params>
  <param name="mnJobNo" idref="j1" />
  <param name="szComputerID" idref="c2" />
  <param name="mnFromLineNo">0</param>
  <param name="mnThruLineNo">0</param>
  <param name="cClearHeaderWF">2</param>
  <param name="cClearDetailWF">2</param>
  <param name="szProgramID">NetComm</param>
  <param name="szCMVersion">ZJDE0001</param>
  </params>
  </callMethod>
  </onError>
  </jdeRequest>
```

XML Format Examples (Events)

The following examples are XML samples for Z and real-time events.

Example: Z Events XML Format

The following example illustrates a Z file event XML document.

```
<?xml version='1.0' encoding='utf-8' ?>
<jdeResponse type='trans' user='JDE' environment='XDEVNIS2'>
  <transaction type='JDESC' action='transactionInfo'>
    <returnCode code='0'>XML Request OK</returnCode>
    <key>
      <EdiUserId>KW6803955</EdiUserId>
      <EdiBatchNumber>16319</EdiBatchNumber>
      <EdiTransactNumber>106053</EdiTransactNumber>
    </key>
    <F4201Z1 type='header'>
      <EdiUserId>KW6803955</EdiUserId>
      <EdiBatchNumber>16319</EdiBatchNumber>
      <EdiTransactNumber>106053</EdiTransactNumber>
      <EdiLineNumber>1.000</EdiLineNumber>
      <EdiDocumentType>SO</EdiDocumentType>
      <TypeTransaction>JDESC</TypeTransaction>
      <EdiTranslationFormat> </EdiTranslationFormat>
      <EdiTransmissionDate></EdiTransmissionDate>
      <DirectionIndicator>2</DirectionIndicator>
      <EdiDetailLinesProcess>0</EdiDetailLinesProcess>
      <EdiSuccessfullyProcess>Y</EdiSuccessfullyProcess>
      <TradingPartnerId> </TradingPartnerId>
      <TransactionAction>UA</TransactionAction>
      <CompanyKeyOrderNo>00200</CompanyKeyOrderNo>
      <DocumentOrderInvoiceE>6559</DocumentOrderInvoiceE>
      <OrderType>SO</OrderType>
      <OrderSuffix>000</OrderSuffix>
```

<CostCenter> M30</CostCenter>
<Company>00200</Company>
<CompanyKeyOriginal> </CompanyKeyOriginal>
<OriginalPoSoNumber> </OriginalPoSoNumber>
<OriginalOrderType> </OriginalOrderType>
<CompanyKeyRelated> </CompanyKeyRelated>
<RelatedPoSoNumber> </RelatedPoSoNumber>
<RelatedOrderType> </RelatedOrderType>
<AddressNumber>4242</AddressNumber>
<AddressNumberShipTo>4242</AddressNumberShipTo>
<AddressNumberParent>4242</AddressNumberParent>
<DateRequestedJulian>2005/05/05</DateRequestedJulian>
<DateTransactionJulian>2005/05/05</DateTransactionJulian>
<PromisedDeliveryDate>2005/05/05</PromisedDeliveryDate>
<DateOriginalPromisde>2005/05/05</DateOriginalPromisde>
<ActualDeliveryDate></ActualDeliveryDate>
<CancelDate></CancelDate>
<DatePriceEffectiveDate>2005/05/05</DatePriceEffectiveDate>
<DatePromisedPickJu>2005/05/05</DatePromisedPickJu>
<DatePromisedShipJu></DatePromisedShipJu>
<Reference1> </Reference1>
<Reference2Vendor> </Reference2Vendor>
<DeliveryInstructLine1> </DeliveryInstructLine1>
<DeliveryInstructLine2> </DeliveryInstructLine2>
<PrintMessage1> </PrintMessage1>
<PaymentTermsCode01> </PaymentTermsCode01>
<PaymentInstrumentA> </PaymentInstrumentA>

<PriceAdjustmentScheduleN> </PriceAdjustmentScheduleN>
<PricingGroup>PREFER</PricingGroup>
<DiscountTrade>.000</DiscountTrade>
<PercentRetainage1>.000</PercentRetainage1>
<TaxArea1>DEN</TaxArea1>
<TaxExplanationCode1>S</TaxExplanationCode1>
<CertificateTaxExempt> </CertificateTaxExempt>
<AssociatedText> </AssociatedText>
<PriorityProcessing>0</PriorityProcessing>
<BackordersAllowedYN>Y</BackordersAllowedYN>
<SubstitutesAllowedYN>Y</SubstitutesAllowedYN>
<HoldOrdersCode> </HoldOrdersCode>
<PricePickListYN>Y</PricePickListYN>
<InvoiceCopies>0</InvoiceCopies>
<NatureOfTransaction> </NatureOfTransaction>
<BuyerNumber>0</BuyerNumber>
<Carrier>0</Carrier>
<ModeOfTransport> </ModeOfTransport>
<ConditionsOfTransport> </ConditionsOfTransport>
<RouteCode> </RouteCode>
<StopCode> </StopCode>
<ZoneNumber> </ZoneNumber>
<ContainerID> </ContainerID>
<FreightHandlingCode> </FreightHandlingCode>
<ApplyFreightYN>Y</ApplyFreightYN>
<ApplyFreight> </ApplyFreight>
<FreightCalculatedYN> </FreightCalculatedYN>

<MergeOrdersYN> </MergeOrdersYN>
<CommissionCode1>6001</CommissionCode1>
<RateCommission1>5.000</RateCommission1>
<CommissionCode2>0</CommissionCode2>
<RateCommission2>.000</RateCommission2>
<ReasonCode> </ReasonCode>
<PostQuantities> </PostQuantities>
<AmountOrderGross>134.97</AmountOrderGross>
<AmountTotalCost>.00</AmountTotalCost>
<UnitOfMeasureWhtDisp> </UnitOfMeasureWhtDisp>
<UnitOfMeasureVolDisp> </UnitOfMeasureVolDisp>
<AuthorizationNoCredit> </AuthorizationNoCredit>
<AcctNoCrBank> </AcctNoCrBank>
<DateExpired></DateExpired>
<SubledgerInactiveCode> </SubledgerInactiveCode>
<CorrespondenceMethod> </CorrespondenceMethod>
<CurrencyMode>F</CurrencyMode>
<CurrencyCodeFrom>BEF</CurrencyCodeFrom>
<CurrencyConverRateOv>33.8180588</CurrencyConverRateOv>
<LanguagePreference>E</LanguagePreference>
<AmountForeignOpen>4564.42</AmountForeignOpen>
<AmountForeignTotalC>.00</AmountForeignTotalC>
<OrderedBy> </OrderedBy>
<OrderTakenBy> </OrderTakenBy>
<UserReservedCode> </UserReservedCode>
<UserReservedDate></UserReservedDate>
<UserReservedAmount>.00</UserReservedAmount>

```
    <UserReservedNumber>0</UserReservedNumber>
    <UserReservedReference> </UserReservedReference>
    <UserId>KW6803955</UserId>
    <ProgramId> </ProgramId>
    <WorkStationId>STI5</WorkStationId>
    <DateUpdated>2000/08/22</DateUpdated>
    <TimeOfDay>134435</TimeOfDay>
  </F4201Z1>
  <F4211Z1 type='detail'>
    <EdiUserId>KW6803955</EdiUserId>
    <EdiBatchNumber>16319</EdiBatchNumber>
    <EdiTransactNumber>106053</EdiTransactNumber>
    <EdiLineNumber>1.000</EdiLineNumber>
    <EdiDocumentType>SO</EdiDocumentType>
    <TypeTransaction>JDESC</TypeTransaction>
    <EdiTranslationFormat> </EdiTranslationFormat>
    <EdiTransmissionDate></EdiTransmissionDate>
    <DirectionIndicator>2</DirectionIndicator>
    <EdiDetailLinesProcess>0</EdiDetailLinesProcess>
    <EdiSuccessfullyProcess>N</EdiSuccessfullyProcess>
    <TradingPartnerId> </TradingPartnerId>
    <TransactionAction>UA</TransactionAction>
    <CompanyKeyOrderNo>00200</CompanyKeyOrderNo>
    <DocumentOrderInvoiceE>6559</DocumentOrderInvoiceE>
    <OrderType>SO</OrderType>
    <LineNumber>1.000</LineNumber>
    <OrderSuffix>000</OrderSuffix>
```

<CostCenter>   M30</CostCenter>
<Company>00200</Company>
<CompanyKeyOriginal> </CompanyKeyOriginal>
<OriginalPoSoNumber> </OriginalPoSoNumber>
<OriginalOrderType> </OriginalOrderType>
<OriginalLineNumber>.000</OriginalLineNumber>
<CompanyKeyRelated> </CompanyKeyRelated>
<RelatedPoSoNumber> </RelatedPoSoNumber>
<RelatedOrderType> </RelatedOrderType>
<RelatedPoSoLineNo>.000</RelatedPoSoLineNo>
<ContractNumberDistributi> </ContractNumberDistributi>
<ContractSupplementDistri>0</ContractSupplementDistri>
<ContractBalancesUpdatedY> </ContractBalancesUpdatedY>
<AddressNumber>4242</AddressNumber>
<AddressNumberShipTo>4242</AddressNumberShipTo>
<AddressNumberParent>4242</AddressNumberParent>
<DateRequestedJulian>2005/05/05</DateRequestedJulian>
<DateTransactionJulian>2005/05/05</DateTransactionJulian>
<PromisedDeliveryDate>2005/05/05</PromisedDeliveryDate>
<DateOriginalPromisde>2005/05/05</DateOriginalPromisde>
<ActualDeliveryDate></ActualDeliveryDate>
<DateInvoiceJulian></DateInvoiceJulian>
<CancelDate></CancelDate>
<DtForGLAndVouch1></DtForGLAndVouch1>
<DateReleaseJulian>2005/05/05</DateReleaseJulian>
<DatePriceEffectiveDate>2005/05/05</DatePriceEffectiveDate>
<DatePromisedPickJu>2005/05/05</DatePromisedPickJu>

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```

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    <UserId>KW6803955</UserId>
    <ProgramId>XMLtest</ProgramId>
    <WorkStationId>STI5</WorkStationId>
    <DateUpdated>2000/08/22</DateUpdated>
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  <F49211Z1 type='additionalHeader'>
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```

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      <DateUpdated>2000/08/22</DateUpdated>
      <TimeOfDay>134435</TimeOfDay>
    </F49211Z1>
  </transaction>
</jdeResponse>
```

Example: Real-Time Events Template

The following provides an example of the real-time events template. The example template might not correspond to the exact event that your application uses. Your event might include values that are not in the example template.

```
//The event must be described in the jdeResponse type element. The attribute
type is always "realTimeEvent". The attributes for user and environment
always correspond to the username and environment that generated the event.

<?xml version="1.0" encoding="utf-8" ?>
<jdeResponse type="realTimeEvent" user="" session="28980548.1019684006"
     environment="">
<event>
<header>

//Code for the header information follows. <eventVersion> is always 1.0,
<type> corresponds to the event type, <application> corresponds to the
application that created the event, and <version> to the version of the
application. The <sessionID> is unique for every event. The <scope> is the
value of the argument scope that was sent to the real-time event API during
creation of the event. The <codepage> element is for encoding of the
elements; in the sample utf-8 is used. The remaining header elements are
self-explanatory.

 <eventVersion>1.0</eventVersion>
 <type>RTSOOUT</type>
 <user />
 <application />
 <version />
 <sessionID />
```

```
 <environment />
 <host />
 <sequenceID />
 <date />
 <time />
 <scope />
 <codepage>utf-8</codepage>
 </header>

//The body contains details that describe one data structure for each
element. The body contains the date of creation, the name of the file that
is creating the data structure, time of creation, and the DSTMPL name of the
ERP data structure. Type is type of partial event (added as an argument to
jdeIEO-_EventAdd), executionOrder increases in the real generated event from
1 to elementCount, and parameterCount is the number of fields in the data
structure. In the following example code, there are three data structures:
D34A1050C, D4202150C, and D4202150B. Each data structure is followed by
detail elements. When you create an event, the element value is the value of
the field, for example: <szNameAlpha type="String">ABC</szNameAlpha >

<body elementCount="3">
<detail date="" name="" time="" type="" DSTMPL="D34A1050C"
     executionOrder="" parameterCount="25">
 <szNameAlpha type="String" />
 <mnParentAddressNumber type="Double" />
 <szSecondItemNumber type="String" />
 <szThirdItemNumber type="String" />
 <cPriorityProcessing type="Character" />
 <cBackOrdersAllowed type="Character" />
 <cOrderShippedFlag type="Character" />
 <cTransferDirectShipFlag type="Character" />
 <cCommitted type="Character" />
 <mnDaysBeforeExpiration type="Double" />
 <szPurchaseCategoryCode1 type="String" />
 <szPurchaseCategoryCode2 type="String" />
 <szPurchaseCategoryCode3 type="String" />
 <szPurchaseCategoryCode4 type="String" />
 <szRelatedOrderNumber type="String" />
 <szRelatedOrderType type="String" />
 <szRelatedOrderKeyCompany type="String" />
 <szPlanningUnitOfMeasure type="String" />
 <mnPlanningQuantity type="Double" />
 <cAPSFlag type="Character" />
 <cAPSSupplyDemandFlag type="Character" />
 <jdDateUpdated type="Date" />
 <mnTimeUpdated type="Double" />
 <szShipComplete type="String" />
 <mnRelatedOrderLineNumber type="Double" />
 </detail>
<detail date="" name="" time="" type="" DSTMPL="D4202150C"
     executionOrder="" parameterCount="94">
 <cOrderAction type="Character" />
 <szOrderType type="String" />
 <szOrderCompany type="String" />
 <mnLineNumber type="Double" />
```

```
<szDetailBranchPlant type="String" />
<mnShipToAddressNumber type="Double" />
<jdTransactionDate type="Date" />
<jdRequestedDate type="Date" />
<jdScheduledPickDate type="Date" />
<jdPromisedShipDate type="Date" />
<jdPromisedDeliveryDate type="Date" />
<jdCancelDate type="Date" />
<jdPriceEffectiveDate type="Date" />
<mnQuantityOrdered type="Double" />
<mnQuantityShipped type="Double" />
<mnQuantityBackOrdered type="Double" />
<mnQuantityCanceled type="Double" />
<szTransactionUnitOfMeasure type="String" />
<mnUnitPrice type="Double" />
<mnExtendedPrice type="Double" />
<mnForeignUnitPrice type="Double" />
<mnForeignExtPrice type="Double" />
<cPriceOverrideCode type="Character" />
<cTaxableYN type="Character" />
<szPriceAdjustmentSchedule type="String" />
<mnDiscountPercentage type="Double" />
<szPaymentTerms type="String" />
<cPaymentInstrument type="Character" />
<szCurrencyCode type="String" />
<szItemNumber type="String" />
<mnShortItemNumber type="Double" />
<szDescriptionLine1 type="String" />
<szDescriptionLine2 type="String" />
<szLineType type="String" />
<szLastStatus type="String" />
<szNextStatus type="String" />
<szLocation type="String" />
<szLot type="String" />
<szLineofBusiness type="String" />
<szEndUse type="String" />
<szDutyStatus type="String" />
<szPrintMessage1 type="String" />
<szFreightHandlingCode type="String" />
<mnItemWeight type="Double" />
<szWeightUnitOfMeasure type="String" />
<szModeOfTransport type="String" />
<mnCarrier type="Double" />
<szSubledger type="String" />
<cSubledgerType type="Character" />
<szPriceCode1 type="String" />
<szPriceCode2 type="String" />
<szPriceCode3 type="String" />
<szSalesReportingCode1 type="String" />
<szSalesReportingCode2 type="String" />
<szSalesReportingCode3 type="String" />
<szSalesReportingCode4 type="String" />
<szSalesReportingCode5 type="String" />
<szOriginalPoSoNumber type="String" />
<szOriginalOrderType type="String" />
```

```
 <szOriginalOrderCompany type="String" />
 <mnOriginalOrderLineNumber type="Double" />
 <jdDateUpdated type="Date" />
 <mnTimeOfDay type="Double" />
 <mnPickSlipNumber type="Double" />
 <mnInvoiceDocNumber type="Double" />
 <szInvoiceDocType type="String" />
 <szInvoceDocCompany type="String" />
 <szUserReservedCode type="String" />
 <jdUserReservedDate type="Date" />
 <mnUserReservedNumber type="Double" />
 <mnUserReservedAmount type="Double" />
 <szUserReservedReference type="String" />
 <mnUnitCost type="Double" />
 <mnExtendedCost type="Double" />
 <mnForeignUnitCost type="Double" />
 <mnForeignExtCost type="Double" />
 <mnOrderNumber type="Double" />
 <szSupplierReference type="String" />
 <jdOriginalPromisdDate type="Date" />
 <mnAdjustmentRevisionLevel type="Double" />
 <mnLastIndex type="Double" />
 <szRelatedPoSoNumber type="String" />
 <szRelatedOrderType type="String" />
 <szRelatedOrderCompany type="String" />
 <mnRelatedPoSoLineNo type="Double" />
 <szPricingUnitOfMeasure type="String" />
 <szTaxArea type="String" />
 <szTaxExplanationCode type="String" />
 <szPartnerItemNo type="String" />
 <szCatalogItem type="String" />
 <szUPCNumber type="String" />
 <szShipToDescriptive type="String" />
 <szSoldToDescriptive type="String" />
 <szProductItem type="String" />
 </detail>
<detail date="" name="" time="" type="" DSTMPL="D4202150B"
     executionOrder="" parameterCount="66">
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 <mnOrderNumber type="Double" />
 <szOrderType type="String" />
 <szOrderCompany type="String" />
 <szHeaderBranchPlant type="String" />
 <szCompany type="String" />
 <szOriginalPoSoNumber type="String" />
 <szOrderedBy type="String" />
 <szOrderTakenBy type="String" />
 <mnSoldToAddressNumber type="Double" />
 <szSoldToNameMailing type="String" />
 <szSoldToAddressLine1 type="String" />
 <szSoldToAddressLine2 type="String" />
 <szSoldToAddressLine3 type="String" />
 <szSoldToAddressLine4 type="String" />
 <szSoldToZipCode type="String" />
 <szSoldToCity type="String" />
```

```
 <szSoldToCounty type="String" />
 <szSoldToState type="String" />
 <szSoldToCountry type="String" />
 <mnShipToAddressNumber type="Double" />
 <szShipToNameMailing type="String" />
 <szShipToAddressLine1 type="String" />
 <szShipToAddressLine2 type="String" />
 <szShipToAddressLine3 type="String" />
 <szShipToAddressLine4 type="String" />
 <szShipToZipCode type="String" />
 <szShipToCity type="String" />
 <szShipToCounty type="String" />
 <szShipToState type="String" />
 <szShipToCountry type="String" />
 <jdTransactionDate type="Date" />
 <jdRequestedDate type="Date" />
 <jdCancelDate type="Date" />
 <szReference type="String" />
 <szDeliveryInstructLine1 type="String" />
 <szDeliveryInstructLine2 type="String" />
 <szPrintMessage type="String" />
 <szFreightHandlingCode type="String" />
 <mnCommissionCode1 type="Double" />
 <mnCommissionCode2 type="Double" />
 <mnRateCommission1 type="Double" />
 <mnRateCommission2 type="Double" />
 <mnDiscountTrade type="Double" />
 <szPaymentTerms type="String" />
 <cPaymentInstrument type="Character" />
 <szCurrencyCode type="String" />
 <mnCurrencyConverRate type="Double" />
 <szTaxArea type="String" />
 <szTaxExplanationCode type="String" />
 <mnOrderTotal type="Double" />
 <mnForeignOrderTotal type="Double" />
 <szUserReservedCode type="String" />
 <jdUserReservedDate type="Date" />
<mnUserReservedAmount type="Double" />
<mnUserReservedNumber type="Double" />
<szUserReservedReference type="String" />
<szHoldCode type="String" />
<cQuoteFlag type="Character" />
<jdScheduledPickDate type="Date" />
<jdPromisedShipDate type="Date" />
<jdOriginalPromisdDate type="Date" />
<cCurrencyMode type="Character" />
<szShipToDescriptive type="String" />
<szSoldToDescriptive type="String" />
<cPublishToXPIxFlag type="Character" />
 </detail>
 </body>
 </event>
 </jdeResponse>
```

The following table shows the mapping between ERP types and events:

CHAR	Character
STRING	String
MATH_numeric	Double
JDEDATE	Dat"
SHORT	Int
INT	Int
USHORT	Int
LONG	Long
ULONG	Long
ID	"Long
ID2	Long
BOOL	BOOL

Glossary

AAI. See automatic accounting instruction.

action message. With ERP, users can receive messages (system-generated or user-generated) that have shortcuts to ERP forms, applications, and appropriate data. For example, if the general ledger post sends an action error message to a user, that user can access the journal entry (or entries) in error directly from the message. A central feature of the workflow strategy. Action messages can originate either from ERP or from a third-party e-mail system.

activator. In the Solution Explorer, a parent task with sequentially arranged child tasks that are automated with a director.

ActiveX. A computing technology, based on object linking and embedding, that enables Java applet-style functionality for Web browsers as well as other applications. (Java is limited to Web browsers at this time.) The ActiveX equivalent of a Java applet is an ActiveX control. These controls bring computational, communications, and data manipulation power to programs that can "contain" them. For example, certain Web browsers, Microsoft Office programs, and anything developed with Visual Basic or Visual C++.

advance. A change in the status of a project in the Object Management Workbench. When you advance a project, the status change might trigger other actions and conditions such as moving objects from one server to another or preventing the checkout of project objects.

alphanumeric character. A combination of letters, numbers, and symbols used to represent data. Contrast with numeric character and special character.

API. See application programming interface.

APPL. See application.

applet. A small application, such as a utility program or a limited-function spreadsheet, that is generally associated with the programming language Java, and in this context refers to Internet-enabled applications that can be passed from a Web browser residing on a workstation.

application. In the computer industry, the same as an executable file. In ERP, an interactive or batch application is a DLL that contains programming for a set of related forms that can be run from a menu to perform a business task such as Accounts Payable and Sales Order Processing. Also known as system.

application developer. A programmer who develops ERP applications using the ERP toolset.

application programming interface (API). A software function call that can be made from a program to access functionality provided by another program.

application workspace. The area on a workstation display in which all related forms within an application appear.

audit trail. The detailed, verifiable history of a processed transaction. The history consists of the original documents, transaction entries, and posting of records, and usually concludes with a report.

automatic accounting instruction (AAI). A code that refers to an account in the chart of accounts. AAIs define rules for programs that automatically generate journal entries, including interfaces between Accounts Payable, Accounts Receivable, Financial Reporting,

General Accounting systems. Each system that interfaces with the General Accounting system has AAIs. For example, AAIs can direct the General Ledger Post program to post a debit to a specific expense account and a credit to a specific accounts payable account.

batch header. The information that identifies and controls a batch of transactions or records.

batch job. A task or group of tasks you submit for processing that the system treats as a single unit during processing, for example, printing reports and purging files. The computer system performs a batch job with little or no user interaction.

batch processing. A method by which the system selects jobs from the job queue, processes them, and sends output to the outqueue. Contrast with interactive processing.

batch server. A server on which ERP batch processing requests (also called UBEs) are run instead of on a client, an application server, or an enterprise server. A batch server typically does not contain a database nor does it run interactive applications.

batch type. A code assigned to a batch job that designates to which J.D. Edwards system the associated transactions pertain, thus controlling which records are selected for processing. For example, the Post General Journal program selects for posting only unposted transaction batches with a batch type of O.

batch-of-one immediate. A transaction method that allows a client application to perform work on a client workstation, then submit the work all at once to a server application for further processing. As a batch process is running on the server, the client application can continue performing other tasks. See also direct connect, store and forward.

BDA. See Business View Design Aid.

binary string (BSTR). A length prefixed string used by OLE automation data manipulation functions. Binary Strings are wide, double-byte (Unicode) strings on 32-bit Windows platforms.

Boolean Logic Operand. In J.D. Edwards reporting programs, the parameter of the Relationship field. The Boolean logic operand instructs the system to compare certain records or parameters. Available options are:

EQ Equal To.
LT Less Than.
LE Less Than or Equal To.
GT Greater Than.
GE Greater Than or Equal To.
NE Not Equal To.
NL Not Less Than.
NG Not Greater Than.

browser. A client application that translates information sent by the World Wide Web. A client must use a browser to receive, manipulate, and display World Wide Web information on the desktop. Also known as a Web browser.

BSFN. See business function.

BSTR. See binary string.

BSVW. See business view.

business function. An encapsulated set of business rules and logic that can normally be reused by multiple applications. Business functions can execute a transaction or a subset of a transaction (check inventory, issue work orders, and so on). Business functions also

contain the APIs that allow them to be called from a form, a database trigger, or a non-ERP application. Business functions can be combined with other business functions, forms, event rules, and other components to make up an application. Business functions can be created through event rules or third-generation languages, such as C. Examples of business functions include Credit Check and Item Availability.

business function event rule. See named event rule.

business view. Used by ERP applications to access data from database tables. A business view is a means for selecting specific columns from one or more tables whose data will be used in an application or report. It does not select specific rows and does not contain any physical data. It is strictly a view through which data can be handled.

Business View Design Aid (BDA). An ERP GUI tool for creating, modifying, copying, and printing business views. The tool uses a graphical user interface.

category code. In user defined codes, a temporary title for an undefined category. For example, if you are adding a code that designates different sales regions, you could change category code 4 to Sales Region, and define E (East), W (West), N (North), and S (South) as the valid codes. Sometimes referred to as reporting codes.

central objects. Objects that reside in a central location and consist of two parts: the central objects data source and central C components. The central objects data source contains ERP specifications, which are stored in a relational database. Central C components contain business function source, header, object, library, and DLL files and are usually stored in directories on the deployment server. Together they make up central objects.

check-in location. The directory structure location for the package and its set of replicated objects. This is usually \\deploymentserver\release\path_code\package\ packagename. The sub-directories under this path are where the central C components (source, include, object, library, and DLL file) for business functions are stored.

child. See parent/child form.

client/server. A relationship between processes running on separate machines. The server process is a provider of software services. The client is a consumer of those services. In essence, client/server provides a clean separation of function based on the idea of service. A server can service many clients at the same time and regulate their access to shared resources. There is a many-to-one relationship between clients and a server, respectively. Clients always initiate the dialog by requesting a service. Servers passively wait for requests from clients.

CNC. See configurable network computing.

component. In the Portal, an encapsulated object that appears inside a workspace. Portal components

configurable client engine. Allows user flexibility at the interface level. Users can easily move columns, set tabs for different data views, and size grids according to their needs. The configurable client engine also enables the incorporation of Web browsers in addition to the Windows 95- and Windows NT-based interfaces.

configurable network computing. An application architecture that allows interactive and batch applications, composed of a single code base, to run across a TCP/IP network of multiple server platforms and SQL databases. The applications consist of reusable business functions and associated data that can be configured across the network dynamically. The overall objective for businesses is to provide a future-proof environment that enables them to change organizational structures, business processes, and technologies independently of each other.

constants. Parameters or codes that you set and the system uses to standardize information processing by associated programs. Some examples of constants are: validating bills of material online and including fixed labor overhead in costing.

control. Any data entry point allowing the user to interact with an application. For example, check boxes, pull-down lists, hyper-buttons, entry fields, and similar features are controls.

core. The central and foundation systems of J.D. Edwards software, including General Accounting, Accounts Payable, Accounts Receivable, Address Book, Financial Reporting, Financial Modeling and Allocations, and Back Office.

CRP. Conference Room Pilot.

custom gridlines. A grid row that does not come from the database, for example, totals. To display a total in a grid, sum the values and insert a custom gridline to display the total. Use the system function Insert Grid Row Buffer to accomplish this.

data dictionary. The method for storing and managing data item definitions and specifications. J.D. Edwards has an active data dictionary, which means it is accessed at runtime.

data mart. Department-level decision support databases. They usually draw their data from an enterprise data warehouse that serves as a source of consolidated and reconciled data from around the organization. Data marts can be either relational or multidimensional databases.

data replication. In a replicated environment, multiple copies of data are maintained on multiple machines. There must be a single source that "owns" the data. This ensures that the latest copy of data can be applied to a primary place and then replicated as appropriate. This is in contrast to a simple copying of data, where the copy is not maintained from a central location, but exists independently of the source.

data source. A specific instance of a database management system running on a computer. Data source management is accomplished through Object Configuration Manager (OCM) and Object Map (OM).

data structure. A group of data items that can be used for passing information between objects, for example, between two forms, between forms and business functions, or between reports and business functions.

data warehouse. A database used for reconciling and consolidating data from multiple databases before it is distributed to data marts for department-level decision support queries and reports. The data warehouse is generally a large relational database residing on a dedicated server between operational databases and the data marts.

data warehousing. Essentially, data warehousing involves off-loading operational data sources to target databases that will be used exclusively for decision support (reports and queries). There are a range of decision support environments, including duplicated database, enhanced analysis databases, and enterprise data warehouses.

database. A continuously updated collection of all information a system uses and stores. Databases make it possible to create, store, index, and cross-reference information online.

database driver. Software that connects an application to a specific database management system.

database server. A server that stores data. A database server does not have ERP logic.

DCE. See distributed computing environment.

DD. See data dictionary.

default. A code, number, or parameter value that is assumed when none is specified.

detail. The specific pieces of information and data that make up a record or transaction. Contrast with summary.

detail area. A control that is found in ERP applications and functions similarly to a spreadsheet grid for viewing, adding, or updating many rows of data at one time.

direct connect. A transaction method in which a client application communicates interactively and directly with a server application. See also batch-of-one immediate, store and forward.

director. An interactive utility that guides a user through the steps of a process to complete a task.

distributed computing environment (DCE). A set of integrated software services that allows software running on multiple computers to perform in a manner that is seamless and transparent to the end-users. DCE provides security, directory, time, remote procedure calls, and files across computers running on a network.

DLL. See dynamic link library.

DS. See data structure.

DSTR. See data structure.

duplicated database. A decision support database that contains a straightforward copy of operational data. The advantages involve improved performance for both operational and reporting environments. See also enhanced analysis database, enterprise data warehouse.

dynamic link library (DLL). A set of program modules that are designed to be invoked from executable files when the executable files are run, without having to be linked to the executable files. They typically contain commonly used functions.

dynamic partitioning. The ability to dynamically distribute logic or data to multiple tiers in a client/server architecture.

embedded event rule. An event rule that is specific to a particular table or application. Examples include form-to-form calls, hiding a field based on a processing option value, and calling a business function. Contrast with business function event rule. See also event rule.

employee work center. This is a central location for sending and receiving all ERP messages (system and user generated) regardless of the originating application or user. Each user has a mailbox that contains workflow and other messages, including Active Messages. With respect to workflow, the Message Center is MAPI compliant and supports drag and drop work reassignment, escalation, forward and reply, and workflow monitoring. All messages from the message center can be viewed through ERP messages or Microsoft Exchange.

encapsulation. The ability to confine access to and manipulation of data within an object to the procedures that contribute to the definition of that object.

enhanced analysis database. A database containing a subset of operational data. The data on the enhanced analysis database performs calculations and provides summary data to speed generation of reports and query response times. This solution is appropriate when external data must be added to source data, or when historical data is necessary for trend analysis or regulatory reporting. See also duplicated database, enterprise data warehouse.

enterprise data warehouse. A complex solution that involves data from many areas of the enterprise. This environment requires a large relational database (the data warehouse) that is a central repository of enterprise data, which is clean, reconciled, and consolidated. From this repository, data marts retrieve data to provide department-level decisions. See also duplicated database, enhanced analysis database.

enterprise server. A database server and logic server. See database server. Also referred to as host.

ER. See event rule.

ERP. A combined suite of comprehensive, mission-critical business applications and an embedded toolset for configuring those applications to unique business and technology requirements. ERP is built on the Configurable Network Computing technology- J.D. Edwards' own application architecture, which extends client/server functionality to new levels of configurability, adaptability, and stability.

ERP application. Interactive or batch processes that execute the business functionality of ERP. They consist of reusable business functions and associated data that are platform independent and can be dynamically configured across a TCP/IP network.

ERP object. A reusable piece of code that is used to build applications. Object types include tables, forms, business functions, data dictionary items, batch processes, business views, event rules, versions, data structures, and media objects. See also object.

ERP process. Allows ERP clients and servers to handle processing requests and execute transactions. A client runs one process, and servers can have multiple instances. ERP processes can also be dedicated to specific tasks (for example, workflow messages and data replication) to ensure that critical processes don't have to wait if the server is particularly busy.

ERP Web development computer. A standard ERP Windows developer computer with the additional components installed:

- JFC (0.5.1)
- Generator Package with Generator.Java and JDECOM.dll
- R2 with interpretive and application controls/form

event. An action that occurs when an interactive or batch application is running. Example events are tabbing out of an edit control, clicking a push button, initializing a form, or performing a page break on a report. The GUI operating system uses miniprograms to manage user activities within a form. Additional logic can be attached to these miniprograms and used to give greater functionality to any event within an ERP application or report using event rules.

event rule. Used to create complex business logic without the difficult syntax that comes with many programming languages. These logic statements can be attached to applications or database events and are executed when the defined event occurs, such as entering a form, selecting a menu bar option, page breaking on a report, or selecting a record. An event rule can validate data, send a message to a user, call a business function, as well as many other actions. There are two types of event rules:

Embedded event rules.

Named event rules.

executable file. A computer program that can be run from the computer's operating system. Equivalent terms are "application" and "program."

exit. 1) To interrupt or leave a computer program by pressing a specific key or a sequence of keys. 2) An option or function key displayed on a form that allows you to access another form.

facility. 1) A separate entity within a business for which you want to track costs. For example, a facility might be a warehouse location, job, project, work center, or branch/plant. Sometimes referred to as a business unit. 2) In Home Builder and ECS, a facility is a collection of computer language statements or programs that provide a specialized function throughout a system or throughout all integrated systems. For example, DREAM Writer and FASTR are facilities.

FDA. See Form Design Aid.

find/browse. A type of form used to:

Search, view, and select multiple records in a detail area.
Delete records.
Exit to another form.
Serve as an entry point for most applications.

firewall. A set of technologies that allows an enterprise to test, filter, and route all incoming messages. Firewalls are used to keep an enterprise secure.

fix/inspect. A type of form used to view, add, or modify existing records. A fix/inspect form has no detail area.

form. An element of the ERP graphical user interface that contains controls by which a user can interact with an application. Forms allow the user to input, select, and view information. An ERP application might contain multiple forms. In Microsoft Windows terminology, a form is known as a dialog box.

Form Design Aid (FDA). The ERP GUI development tool for building interactive applications and forms.

form interconnection. Allows one form to access and pass data to another form. Form interconnections can be attached to any event; however, they are normally used when a button is clicked.

form type. The following form types are available in ERP:

Find/browse

Fix/inspect

Header detail

Headerless detail

Message

Parent/child

Search/select

fourth generation language (4GL). A programming language that focuses on what you need to do and then determines how to do it. Structured Query Language is an example of a 4GL.

graphical user interface (GUI). A computer interface that is graphically based as opposed to being character based. An example of a character-based interface is that of the AS/400. An example of a GUI is Microsoft Windows. Graphically based interfaces allow pictures and other graphic images to be used in order to give people clues on how to operate the computer.

grid. See detail area.

GUI. See graphical user interface.

header. Information at the beginning of a table or form. This information is used to identify or provide control information for the group of records that follows.

header/detail. A type of form used to add, modify, or delete records from two different tables. The tables usually have a parent/child relationship.

headerless detail. A type of form used to work with multiple records in a detail area. The detail area is capable of receiving input.

hidden selections. Menu selections you cannot see until you enter HS in a menu's Selection field. Although you cannot see these selections, they are available from any menu. They include such items as Display Submitted Jobs (33), Display User Job Queue (42), and Display User Print Queue (43). The Hidden Selections window displays three categories of selections: user tools, operator tools, and programmer tools.

host. In the centralized computer model, a large timesharing computer system that terminals communicate with and rely on for processing. In contrasts with client/server in that those users work at computers that perform much of their own processing and access servers that provide services such as file management, security, and printer management.

HTML. See hypertext markup language.

hypertext markup language. A markup language used to specify the logical structure of a document rather than the physical layout. Specifying logical structure makes any HTML document platform independent. You can view an HTML document on any desktop capable of supporting a browser. HTML can include active links to other HTML documents anywhere on the Internet or on intranet sites.

index. Represents both an ordering of values and a uniqueness of values that provide efficient access to data in rows of a table. An index is made up of one or more columns in the table.

inheritance. The ability of a class to receive all or parts of the data and procedure definitions from a parent class. Inheritance enhances development through the reuse of classes and their related code.

install system code. See system code.

integrated toolset. Unique to ERP is an industrial-strength toolset embedded in the already comprehensive business applications. This toolset is the same toolset used by J.D. Edwards to build ERP interactive and batch applications. Much more than a development environment, however, the ERP integrated toolset handles reporting and other batch processes, change management, and basic data warehousing facilities.

interactive processing. Processing actions that occur in response to commands you enter directly into the system. During interactive processing, you are in direct communication with the system, and it might prompt you for additional information while processing your request. See also online. Contrast with batch processing.

interface. A link between two or more computer systems that allows these systems to send information to and receive information from one another.

Internet. The worldwide constellation of servers, applications, and information available to a desktop client through a phone line or other type of remote access.

interoperability. The ability of different computer systems, networks, operating systems, and applications to work together and share information.

intranet. A small version of the Internet usually confined to one company or organization. An intranet uses the functionality of the Internet and places it at the disposal of a single enterprise.

IP. A connection-less communication protocol that by itself provides a datagram service. Datagrams are self-contained packets of information that are forwarded by routers based on their address and the routing table information contained in the routers. Every node on a TCP/IP network requires an address that identifies both a network and a local host or node on the network. In most cases the network administrator sets up these addresses when installing new workstations. In some cases, however, it is possible for a workstation, when booting up, to query a server for a dynamically assigned address.

IServer Service. Developed by J.D. Edwards, this Internet server service resides on the Web server and is used to speed the delivery of Java class files from the database to the client.

ISO 9000. A series of standards established by the International Organization for Standardization, designed as a measure of product and service quality.

J.D. Edwards Database. See JDEBASE Database Middleware.

Java. An Internet executable language that, like C, is designed to be highly portable across platforms. This programming language was developed by Sun Microsystems. Applets, or Java applications, can be accessed from a web browser and executed at the client, provided that the operating system or browser is Java-enabled. (Java is often described as a scaled-down C++). Java applications are platform independent.

Java Database Connectivity (JDBC). The standard way to access Java databases, set by Sun Microsystems. This standard allows you to use any JDBC driver database.

JavaScript. A scripting language related to Java. Unlike Java, however, JavaScript is not an object-oriented language and it is not compiled.

jde.ini. J.D. Edwards file (or member for AS/400) that provides the runtime settings required for ERP initialization. Specific versions of the file/member must reside on every machine running ERP. This includes workstations and servers.

JDEBASE Database Middleware. J.D. Edwards proprietary database middleware package that provides two primary benefits:

- Platform-independent APIs for multiple database access. These APIs are used in two ways:

  By the interactive and batch engines to dynamically generate platform-specific SQL, depending on the datasource request.

  As open APIs for advanced C business function writing. These APIs are then used by the engines to dynamically generate platform-specific SQL.

- Client-to-server and server-to-server database access. To accomplish this, ERP is integrated with a variety of third-party database drivers, such as Client Access 400 and open database connectivity (ODBC).

JDECallObject. An application programming interface used by business functions to invoke other business functions.

JDENET. J.D. Edwards proprietary middleware software. JDENET is a messaging software package.

JDENET communications middleware. J.D. Edwards proprietary communications middleware package for ERP. It is a peer-to-peer, message-based, socket based, multiprocess communications middleware solution. It handles client-to-server and server-to-server communications for all ERP supported platforms.

job queue. A group of jobs waiting to be batch processed. See also batch processing.

just in time installation (JITI). The ERP method of dynamically replicating objects from the central object location to a workstation.

just in time replication (JITR). The ERP method of replicating data to individual workstations. ERP replicates new records (inserts) only at the time the user needs the data. Changes, deletes, and updates must be replicated using Pull Replication.

KEY. A column or combination of columns that identify one or more records in a database table.

leading zeros. A series of zeros that certain facilities in J.D. Edwards systems place in front of a value you enter. This normally occurs when you enter a value that is smaller than the specified length of the field. For example, if you enter 4567 in a field that accommodates eight numbers, the facility places four zeros in front of the four numbers you enter. The result appears as: 00004567.

level of detail. 1) The degree of difficulty of a menu in J.D. Edwards software. The levels of detail for menus are as follows:

A Major Product Directories

B Product Groups

1 Basic Operations

2 Intermediate Operations

3 Advanced Operations

4 Computer Operations

5 Programmers

6 Advanced Programmers (also known as menu levels)

2) The degree to which account information in the General Accounting system is summarized. The highest level of detail is 1 (least detailed) and the lowest level of detail is 9 (most detailed).

MAPI. See Messaging Application Programming Interface.

master table. A database table used to store data and information that is permanent and necessary to the system's operation. Master tables might contain data such as paid tax amounts, supplier names, addresses, employee information, and job information.

menu. A menu that displays numbered selections. Each of these selections represents a program or another menu. To access a selection from a menu, type the selection number and then press Enter.

menu levels. See level of detail.

menu masking. A security feature of J.D. Edwards systems that lets you prevent individual users from accessing specified menus or menu selections. The system does not display the menus or menu selections to unauthorized users.

Messaging Application Programming Interface (MAPI). An architecture that defines the components of a messaging system and how they behave. It also defines the interface between the messaging system and the components.

middleware. A general term that covers all the distributed software needed to support interactions between clients and servers. Think of it as the software that's in the middle of the client/server system or the "glue" that lets the client obtain a service from a server.

modal. A restrictive or limiting interaction created by a given condition of operation. Modal often describes a secondary window that restricts a user's interaction with other windows. A secondary window can be modal with respect to it's primary window or to the entire system. A modal dialog box must be closed by the user before the application continues.

mode. In reference to forms in ERP, mode has two meanings:

An operational qualifier that governs how the form interacts with tables and business views. ERP form modes are: add, copy, and update.

An arbitrary setting that aids in organizing form generation for different environments. For example, you might set forms generated for a Windows environment to mode 1 and forms generated for a Web environment to mode 2.

modeless. Not restricting or limiting interaction. Modeless often describes a secondary window that does not restrict a user's interaction with other windows. A modeless dialog box stays on the screen and is available for use at any time but also permits other user activities.

multitier architecture. A client/server architecture that allows multiple levels of processing. A tier defines the number of computers that can be used to complete some defined task.

named event rule. Encapsulated, reusable business logic created using through event rules rather than C programming. Contrast with embedded event rule. See also event rule.

NER. See named event rule.

network computer. As opposed to the personal computer, the network computer offers (in theory) lower cost of purchase and ownership and less complexity. Basically, it is a scaled-down PC (very little memory or disk space) that can be used to access network-based applications (Java applets, ActiveX controls) via a network browser.

network computing. Often referred to as the next phase of computing after client/server. While its exact definition remains obscure, it generally encompasses issues such as transparent access to computing resources, browser-style front-ends, platform independence, and other similar concepts.

next numbers. A feature you use to control the automatic numbering of such items as new G/L accounts, vouchers, and addresses. It lets you specify a numbering system and provides a method to increment numbers to reduce transposition and typing errors.

non-object librarian object. An object that is not managed by the object librarian.

numeric character. Digits 0 through 9 that are used to represent data. Contrast with alphanumeric characters.

object. A self-sufficient entity that contains data as well as the structures and functions used to manipulate the data. For ERP purposes, an object is a reusable entity that is based on software specifications created by the ERP toolset. See also object librarian.

object configuration manager (OCM). The ERP Object Request Broker and the control center for the runtime environment. It keeps track of the runtime locations for business functions, data, and batch applications. When one of these objects is called, the Object Configuration Manager directs access to it using defaults and overrides for a given environment and user.

object embedding. When an object is embedded in another document, an association is maintained between the object and the application that created it; however, any changes made to the object are also only kept in the compound document. See also object linking.

object librarian. A repository of all versions, applications, and business functions reusable in building applications. You access these objects with the Object Management Workbench.

object librarian object. An object managed by the object librarian.

object linking. When an object is linked to another document, a reference is created with the file the object is stored in, as well as with the application that created it. When the object is modified, either from the compound document or directly through the file it is saved in, the change is reflected in that application as well as anywhere it has been linked. See also object embedding.

object linking and embedding (OLE). A way to integrate objects from diverse applications, such as graphics, charts, spreadsheets, text, or an audio clip from a sound program. See also object embedding, object linking.

object management workbench (OMW). An application that provides check-out and check-in capabilities for developers, and aids in the creation, modification, and use of ERP Objects. The OMW supports multiple environments (such as production and development).

object-based technology (OBT). A technology that supports some of the main principles of object-oriented technology: classes, polymorphism, inheritance, or encapsulation.

object-oriented technology (OOT). Brings software development past procedural programming into a world of reusable programming that simplifies development of applications. Object orientation is based on the following principles: classes, polymorphism, inheritance, and encapsulation.

OCM. See object configuration manager.

ODBC. See open database connectivity.

OLE. See object linking and embedding.

OMW. Object Management Workbench.

online. Computer functions over which the system has continuous control. Users are online with the system when working with J.D. Edwards system provided forms.

open database connectivity (ODBC). Defines a standard interface for different technologies to process data between applications and different data sources. The ODBC interface is made up of a set of function calls, methods of connectivity, and representation of data types that define access to data sources.

open systems interconnection (OSI). The OSI model was developed by the International Standards Organization (ISO) in the early 1980s. It defines protocols and standards for the interconnection of computers and network equipment.

operand. See Boolean Logic Operand.

output. Information that the computer transfers from internal storage to an external device, such as a printer or a computer form.

output queue. See print queue.

package. ERP objects are installed to workstations in packages from the deployment server. A package can be compared to a bill of material or kit that indicates the necessary objects for that workstation and where on the deployment server the install program can find them. It is a point-in-time "snap shot" of the central objects on the deployment server.

package location. The directory structure location for the package and it's set of replicated objects. This is usually \\deployment server\release\path_code\package\ package name. The sub-directories under this path are where the replicated objects for the package will be placed. This is also referred to as where the package is built or stored.

parameter. A number, code, or character string you specify in association with a command or program. The computer uses parameters as additional input or to control the actions of the command or program.

parent/child form. A type of form that presents parent/child relationships in an application on one form. The left portion of the form presents a tree view that displays a visual representation of a parent/child relationship. The right portion of the form displays a detail area in browse mode. The detail area displays the records for the child item in the tree. The parent/child form supports drag and drop functionality.

partitioning. A technique for distributing data to local and remote sites to place data closer to the users who access. Portions of data can be copied to different database management systems.

path code. A pointer to a specific set of objects. A path code is used to locate:

7. Central Objects
8. Replicated Objects

platform independence. A benefit of open systems and Configurable Network Computing. Applications that are composed of a single code base can be run across a TCP/IP network consisting of various server platforms and SQL databases.

polymorphism. A principle of object-oriented technology in which a single mnemonic name can be used to perform similar operations on software objects of different types.

portability. Allows the same application to run on different operating systems and hardware platforms.

portal. A configurable Web object that provides information and links to the Web. Portals can be used as home pages and are typically used in conjunction with a Web browser.

primary key. A column or combination of columns that uniquely identifies each row in a table.

print queue. A list of tables, such as reports, that you have submitted to be written to an output device, such as a printer. The computer spools the tables until it writes them. After the computer writes the table, the system removes the table identifier from the list.

processing option. A feature of the J.D. Edwards reporting system that allows you to supply parameters to direct the functions of a program. For example, processing options allow you to specify defaults for certain form displays, control the format in which information prints on reports, change how a form displays information, and enter beginning dates.

program temporary fix (PTF). A representation of changes to J.D. Edwards software that your organization receives on magnetic tapes or diskettes.

project. An Object Management Workbench object used to organize objects in development.

published table. Also called a "Master" table, this is the central copy to be replicated to other machines. Resides on the "Publisher" machine. The Data Replication Publisher Table (F98DRPUB) identifies all of the Published Tables and their associated Publishers in the enterprise.

publisher. The server that is responsible for the Published Table. The Data Replication Publisher Table (F98DRPUB) identifies all of the Published Tables and their associated Publishers in the enterprise.

pull replication. One of the ERP methods for replicating data to individual workstations. Such machines are set up as Pull Subscribers using the ERP data replication tools. The only time Pull Subscribers are notified of changes, updates, and deletions is when they request such information. The request is in the form of a message that is sent, usually at startup, from the Pull Subscriber to the server machine that stores the Data Replication Pending Change Notification table (F98DRPCN).

purge. The process of removing records or data from a system table.

QBE. See query by example.

query by example (QBE). Located at the top of a detail area, it is used to search for data to be displayed in the detail area.

redundancy. Storing exact copies of data in multiple databases.

regenerable. Source code for ERP business functions can be regenerated from specifications (business function names). Regeneration occurs whenever an application is recompiled, either for a new platform or when new functionality is added.

relationship. Links tables together and facilitates joining business views for use in an application or report. Relationships are created based on indexes.

release/release update. A release contains major new functionality; a release update contains an accumulation of fixes and performance enhancements but no new functionality.

replicated object. A copy or replicated set of the central objects must reside on each client and server that run ERP. The path code indicates the directory the directory where these objects are located.

run. To cause the computer system to perform a routine, process a batch of transactions, or carry out computer program instructions.

SAR. See software action request.

scalability. Allows software, architecture, network, or hardware growth that will support software as it grows in size or resource requirements. The ability to reach higher levels of performance by adding microprocessors.

search/select. A type of form used to search for a value and return it to the calling field.

selection. Found on J.D. Edwards menus, selections represent functions that you can access from a menu. To make a selection, type the associated number in the Selection field and press Enter.

server. Provides the essential functions for furnishings services to network users (or clients) and provides management functions for network administrators. Some of these functions are storage of user programs and data and management functions for the file systems. It may not be possible for one server to support all users with the required services. Some examples of dedicated servers that handle specific tasks are backup and archive servers, application and database servers.

servlet. Servlets provide a Java-based solution used to address the problems currently associated with doing server-side programming, including inextensible scripting solutions. Servlets are objects that conform to a specific interface that can be plugged into a Java-based server. Servlets are to the server-side what applets are to the client-side.

software. The operating system and application programs that tell the computer how and what tasks to perform.

software action request (SAR). An entry in the AS/400 database used for requesting modifications to J.D. Edwards software.

special character. A symbol used to represent data. Some examples are *, &, #, and /. Contrast with alphanumeric character and numeric character.

specifications. A complete description of an ERP object. Each object has its own specification, or name, which is used to build applications.

Specs. See specifications.

spool. The function by which the system stores generated output to await printing and processing.

spooled table. A holding file for output data waiting to be printed or input data waiting to be processed.

SQL. See structured query language.

static text. Short, descriptive text that appears next to a control variable or field. When the variable or field is enabled, the static text is black; when the variable or field is disabled, the static text is gray.

store and forward. A transaction method that allows a client application to perform work and, at a later time, complete that work by connecting to a server application. This often involves uploading data residing on a client to a server.

structured query language (SQL). A fourth generation language used as an industry standard for relational database access. It can be used to create databases and to retrieve, add, modify, or delete data from databases. SQL is not a complete programming language because it does not contain control flow logic.

subfile. See detail.

submit. See run.

subscriber. The server that is responsible for the replicated copy of a Published Table. Such servers are identified in the Subscriber Table.

subscriber table. The Subscriber Table (F98DRSUB), which is stored on the Publisher Server with the Data Replication Publisher Table (F98DRPUB) identifies all of the Subscriber machines for each Published Table.

subsystem job. Within ERP, subsystem jobs are batch processes that continually run independently of, but asynchronously with, ERP applications.

summary. The presentation of data or information in a cumulative or totaled manner in which most of the details have been removed. Many of the J.D. Edwards systems offer forms and reports that are summaries of the information stored in certain tables. Contrast with detail.

system. See application.

System Code. System codes are a numerical representation of J.D. Edwards and customer systems. For example, 01 is the system code for Address Book. System codes 55 through 59 are reserved for customer development by customers. Use system codes to categorize within ERP. For example, when establishing user defined codes (UDCs), you must include the system code the best categorizes it. When naming objects such as applications, tables, and menus, the second and third characters in the object's name is the system code for that object. For example, G04 is the main menu for Accounts Payable, and 04 is its system code.

system function. A program module, provided by ERP, available to applications and reports for further processing.

table. A two-dimensional entity made up of rows and columns. All physical data in a database are stored in tables. A row in a table contains a record of related information. An example would be a record in an Employee table containing the Name, Address, Phone Number, Age, and Salary of an employee. Name is an example of a column in the employee table.

table design aid (TDA). An ERP GUI tool for creating, modifying, copying, and printing database tables.

table event rules. Use table event rules to attach database triggers (or programs) that automatically run whenever an action occurs against the table. An action against a table is referred to as an event. When you create an ERP database trigger, you must first determine which event will activate the trigger. Then, use Event Rules Design to create the trigger. Although ERP allows event rules to be attached to application events, this functionality is application specific. Table event rules provide embedded logic at the table level.

TAM. Table Access Management.

TBLE. See table.

TC. Table conversion.

TCP/IP. Transmission Control Protocol/Internet Protocol. The original TCP protocol was developed as a way to interconnect networks using many different types of transmission methods. TCP provides a way to establish a connection between end systems for the reliable delivery of messages and data.

TCP/IP services port. Used by a particular server application to provide whatever service the server is designed to provide. The port number must be readily known so that an application programmer can request it by name.

TDA. See table design aid.

TER. See table event rules.

Terminal Identification. The workstation ID number. Terminal number of a specific terminal or IBM user ID of a particular person for whom this is a valid profile. Header Field: Use the Skip to Terminal/User ID field in the upper portion of the form as an inquiry field in which you can enter the number of a terminal or the IBM user ID of a specific person whose profile you want the system to display at the top of the list. When you first access this form, the system

automatically enters the user ID of the person signed on to the system. Detail Field: The Terminal/User ID field in the lower portion of the form contains the user ID of the person whose profile appears on the same line. A code identifying the user or terminal for which you accessed this window.

third generation language (3GL). A programming language that requires detailed information about how to complete a task. Examples of 3GLs are COBOL, C, Pascal and FORTRAN.

token. A referent to an object used to determine ownership of that object and to prevent non-owners from checking the object out in Object Management Workbench. An object holds its own token until the object is checked out, at which time the object passes its token to the project in which the object is placed.

trigger. Allow you to attach default processing to a data item in the data dictionary. When that data item is used on an application or report, the trigger is invoked by an event associated with the data item. ERP also has three visual assist triggers: calculator, calendar, and search form.

UBE. Universal batch engine.

UDC Edit Control. Use a User-Defined Code (UDC) Edit Control for a field that accepts only specific values defined in a UDC table. Associate a UDC edit control with a database item or dictionary item. The visual assist Flashlight automatically appears adjacent to the UDC edit control field. When you click on the visual assist Flashlight, the attached search and select form displays valid values for the field. To create a UDC Edit Control, you must:

- Associate the data item with a specific UDC table in the Data Dictionary.
- Create a search and select form for displaying valid values from the UDC table.

uniform resource identifier (URI). A character string that references an Internet object by name or location. A URL is a type of URI.

uniform resource locator (URL). Names the address (location) of a document on the Internet or an intranet. A URL includes the document's protocol and server name. The path to the document might be included as well. The following is an example of a URL: http://www.jdedwards.com. This is J.D. Edwards Internet address.

URI. See uniform resource identifier.

URL. See uniform resource locator.

user defined code (type). The identifier for a table of codes with a meaning you define for the system, such as ST for the Search Type codes table in Address Book. J.D. Edwards systems provide a number of these tables and allow you to create and define tables of your own. User defined codes were formerly known as descriptive titles.

user defined codes (UDC). Codes within software that users can define, relate to code descriptions, and assign valid values. Sometimes user defined codes are referred to as a generic code table. Examples of such codes are unit-of-measure codes, state names, and employee type codes.

UTB. Universal Table Browser.

valid codes. The allowed codes, amounts, or types of data that you can enter in a field. The system verifies the information you enter against the list of valid codes.

visual assist. Forms that can be invoked from a control to assist the user in determining what data belongs in the control.

vocabulary overrides. A feature you can use to override field, row, or column title text on forms and reports.

wchar_t. Internal type of a wide character. Used for writing portable programs for international markets.

Web client. Any workstation that contains an Internet browser. The Web client communicates with the Web server for ERP data.

Web server. Any workstation that contains the IServer service, SQL server, Java menus and applications, and Internet middleware. The Web server receives data from the Web client, and passes the request to the enterprise server. When the enterprise server processes the information, it sends it back to the Web server, and the Web server sends it back to the Web client.

WF. See workflow.

window. See form.

workflow. According to the Workflow Management Coalition, workflow means "the automation of a business process, in whole or part, during which documents, information, or tasks are passed from one participant to another for action, according to a set of procedural rules..”

workgroup server. A remote database server usually containing subsets of data replicated from a master database server. This server does not performance an application or batch processing. It may or may not have ERP running (in order to replicate data).

workspace. The main section of the Portal. A user might have access to several workspaces, each one configured differently and containing its own components.

World Wide Web. A part of the Internet that can transmit text, graphics, audio, and video. The World Wide Web allows clients to launch local or remote applications.

z file. For store and forward (network disconnected) user, ERP store and forward applications perform edits on static data and other critical information that must be valid to process an order. After the initial edits are complete, ERP stores the transactions in work tables on the workstation. These work table are called Z files. When a network connection is established, Z files are uploaded to the enterprise server and the transactions are edited again by a master business function. The master business function will then update the records in your transaction files.