

PeopleSoft®

EnterpriseOne B73.3.1
Interoperability
PeopleBook

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OneWorld Interoperability Guide

The OneWorld Interoperability guide consists of the following sections:

- Overview
- Interoperability Technologies
- OneWorld Interoperability Models
- Detailed Tasks for OneWorld APIs
- Detailed Tasks for OneWorld Operations
- Detailed Tasks for Custom Programming
- Interoperability Tools
- Appendix A: Interoperability Features Created by J.D. Edwards
- Appendix B: Interface Tables

Refer to the online Interoperability Interface Tables for more information.

- Appendix C: Open Database Access



OneWorld Acronyms

The following is a list of acronyms that are commonly used in OneWorld and may appear in this guide.

API	Application Programming Interface
APPL	Application
BDA	Business View Design Aid
BSFN	Business Function
BSVW	Business View
COM	Component Object Model
CORBA	Common Object Request Broker Architecture
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
FDA	Form Design Aid
IDL	Interface Definition Language
NER	Named Event Rules

ODBC	Open Database Connectivity
OCM	Object Configuration Manager
OL	Object Librarian
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

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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 functionality 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, sharing critical business information. Interoperability options become the “glue” between systems and applications.

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

J.D. Edwards interoperability strategy includes wide-ranging APIs (both industry standard and OneWorld-based), object standards, interoperability processware solutions, and other methods.

The following sections describe:

- OneWorld interoperability features
- The types of interoperability available in OneWorld
- The technologies used to provide interoperability
- The interoperability models that are supported by OneWorld



OneWorld Interoperability Support

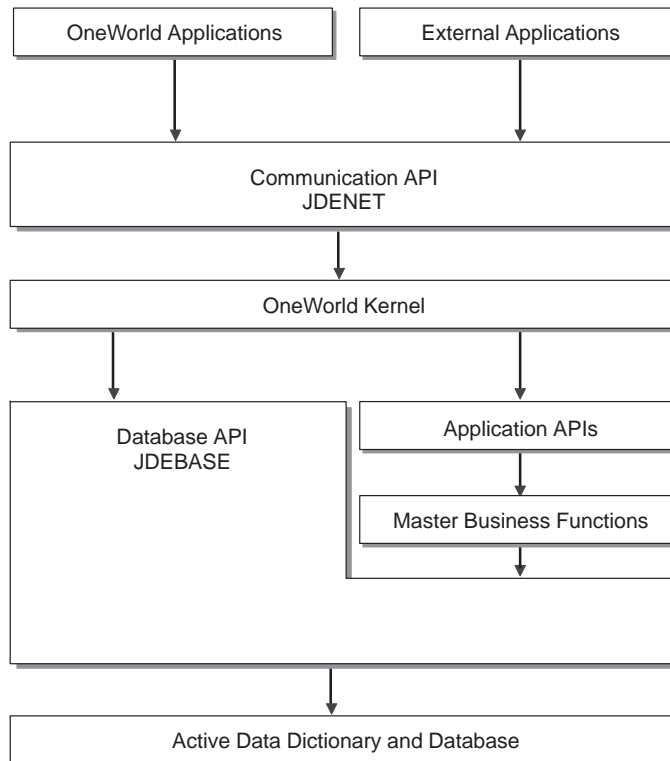
Full interoperability between different systems makes the flow of data between systems seamless to the user. J.D. Edwards provides a framework to mask the complexity of interoperability with external systems, and to simplify interfacing with third-party packages.

OneWorld's component framework allows you to access environments and pass requests and their associated parameters. This framework includes business function wrappers that provide a single point of access to major and minor business functions. It also includes Master Business Function (MBF) wrappers that provide discrete Interface Definition Language (IDL) and parameter objects for each Master Business Function.

OneWorld's interoperability strategy includes wide-ranging APIs (both industry standard and OneWorld based), object standards, interoperability engines, and other methods used to meet 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 OneWorld - 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 OneWorld. You can use industry standard methods if the existing or new technologies support them. Or, by using the same APIs that OneWorld uses internally, you gain all the benefits of this enterprise-ready architecture for the other applications you connect to OneWorld. Also, you will benefit from our ongoing upgrades and improvements to that architecture.
- Manageability. OneWorld is designed to make the interoperability process easily manageable.

The following graphic illustrates how OneWorld and third-party applications interact through the use of APIs, OneWorld kernels, and the Active Data Dictionary.



Middleware

In a client/server environment, applications must communicate across different platforms. These platforms can have different communication protocols, database management systems, and operating systems. For clients to talk to servers, and servers to talk to other servers, some mechanism must exist that can bridge multiple protocol and multiple vendor issues. This mechanism is a layer of software called middleware, which resides between the operating system and the business applications. It is important to have an application architecture that is based on a single, consistent middleware strategy.

J.D. Edwards provides the following types of middleware:

JDENet Communication Middleware

Performs connections from workstation to server and server to server, and sends messages for distributed requests. JDENet is a peer-to-peer, message-based, socket-based, multiprocess communications middleware solution.

JDEBase Database Middleware

Provides platform-independent APIs for multidatabase access. These APIs are used in two ways:

- By OneWorld applications that dynamically generate platform-specific SQL, depending on the data source request.
- As open APIs for writing advanced C business functions

JDEBase also provides workstation-to-server and server-to-server database access. To accomplish this, OneWorld is integrated with a variety of third-party database drivers.

OneWorld Database APIs

To access OneWorld data, you can use JDEBase, OneWorld's database middleware API that abstracts the underlying database APIs. JDEBase contains the same set of APIs that OneWorld developers use to build OneWorld applications.

These APIs allow you to develop applications without having to know and interpret the various versions of SQL used by different DBMSs. JDEBase translates requests for OneWorld data into database-specific Structured Query Language (SQL) statements. By using the JDEBase APIs, you can build a non-OneWorld program that can work with a OneWorld database.

OneWorld Active Data Dictionary

OneWorld has a repository of data item definitions called the Active Data Dictionary (ADD). It acts as the central repository of item definitions and contains such things as decimal placement and default values for table fields. The ADD assigns column and row descriptions to the various OneWorld tables, and it stores context-sensitive help definitions.

When a third-party application reads or writes information into the OneWorld tables, the ADD must be accessed for attribute definition and verification. As such, J.D. Edwards provides access to the ADD to third-party applications.

Master Business Functions

These reusable objects, created by the OneWorld tools, include logic used to execute transactions and other system functions. Third-party applications can use OneWorld master business functions for full OneWorld functionality, data validation, security, and integrity. When calling OneWorld functionality from a third-party application, J.D. Edwards recommends that you use the master business functions to maintain consistency and integrity of the OneWorld environment.

Other Industry Standard Support

OneWorld supports industry standard interoperability functions, such as:

- Object Linking and Embedding (OLE) for exchange of different data types
- Dynamic Data Exchange (DDE) for static and dynamic links across applications
- SQL for storage and retrieval of data from and across relational databases
- Spec 1170 for portability across various operating systems
- Extended Messaging API (MAPI) for message exchange across differing mail and groupware applications
- Binary Large Object Type (BLOB) for media object attachments within OneWorld applications
- Transmission Control Protocol/Internet Protocol (TCP/IP) for data communication
- Java for Internet and intranet support
- Electronic Data Interchange for using the OneWorld Universal Batch Engine to fully integrate transaction-oriented files in three primary formats — X.12, ANSI, and EDIFACT.

Proprietary Support

OneWorld also supports several proprietary interoperability functions, such as:

- COM
- MQ-Series
- SAP IDOC

Additional OneWorld Interoperability Options

To offer additional interoperability options, OneWorld provides the following:

- Z Files. OneWorld includes support for importing and exporting Z data files (World or OneWorld tables that are used for batch posting of transactions) from external applications.
- Table Conversion. OneWorld has a table conversion utility you can use to gather, format, export, and import enterprise data.

Types of Interoperability

J.D. Edwards provides both batch and interactive interoperability.

Batch

The following batch interoperability features are available:

- Electronic Data Interchange (EDI)
- Interoperability Interface Tables
- Table Conversion

These processes involve bulk information movement.

Interactive

J.D. Edwards provides interactive support using the following technologies:

Native OneWorld APIs

APIs are routines that perform predefined tasks. OneWorld APIs make it easier for third-party applications to interact with OneWorld. OneWorld APIs are functions provided to manipulate OneWorld data types, provide common functionality, and access the database.

The published OneWorld APIs for OneWorld's communication middleware, allow third-party applications to access OneWorld functionality just as OneWorld applications do. These APIs provide the security and load balancing capabilities inherent in OneWorld.

Component Object Model (COM) and Distributed Component Object Model (DCOM)

COM is well-supported in the Win32 world. It is Microsoft's stated direction for components and application interoperability (OLE is built on COM). In order to maximize client-side, or NT-server based interoperability, COM is a requirement.

COM plays an important role in providing logic and data sharing among disparate applications.

DCOM enables software components to communicate directly over multiple network transports, including Internet protocols such as HTTP.

MQ-Series (Message queue services)

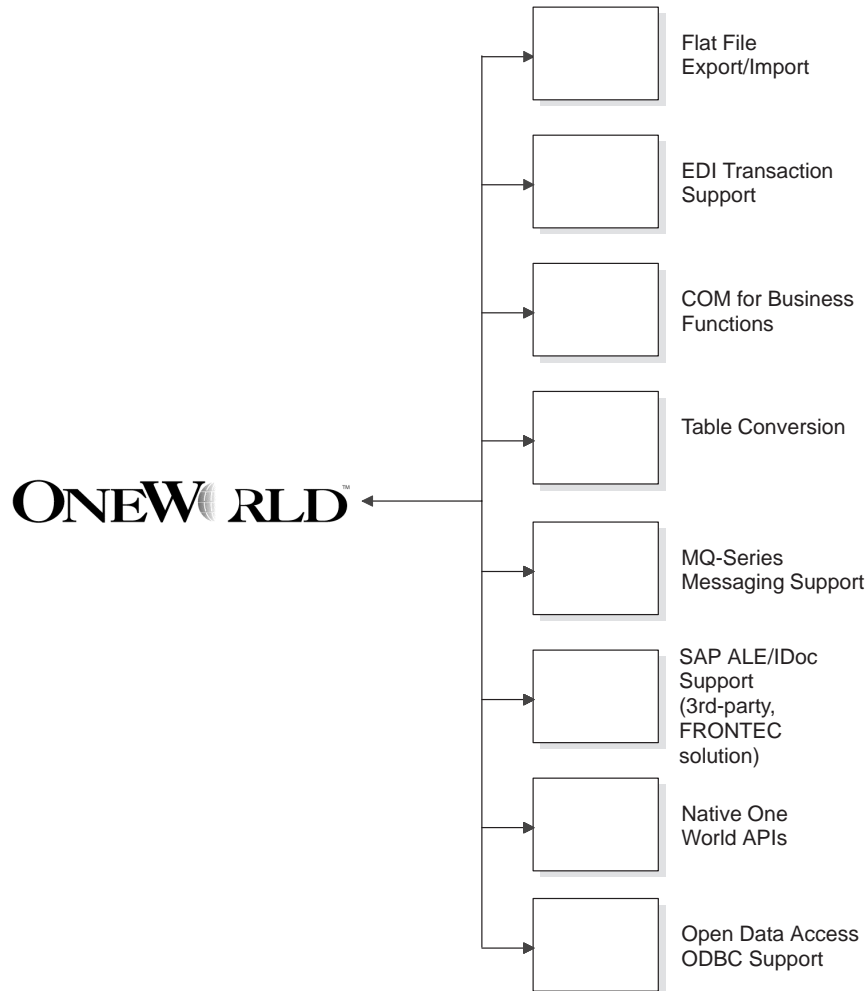
MQ-Series transports message-based application requests across more than 25 different platforms. Similar to OneWorld's JDENET middleware, MQ-Series handles message queuing, message delivery, and transaction monitoring. MQ-Series is a perfect complement to JDENET for sharing logic and information between OneWorld and third-party applications.

J.D. Edwards has partnered with FRONTEC for an integration of the AMTrix message broker product for MQ-Series and SAP interoperability support.

**SAP ALE/IDoc/BAPI
(Application Linking
Embedding and
Intermediate Document**

SAP's ALE (Application Linking and Embedding) and IDoc (Intermediate Document) features give OneWorld the ability to share logic and data requests with SAP R/3. This is a third-party solution through FRONTEC.

Together, these elements provide a comprehensive and cohesive interoperability solution through OneWorld. In addition to the methods indicated below you can also use OneWorld Table Conversion for table-to-table conversions.



Models

There are several interoperability models available for OneWorld. These models are based on a combination of interoperability objectives and processing modes.

The two main objectives to interoperability are:

- Transferring information into OneWorld
- Retrieving information from OneWorld

You can use one of the following processing modes to transfer information into or out of OneWorld:

Synchronous	Synchronous processing implies that you are making a real-time direct call to OneWorld objects. You establish a connection to OneWorld and make direct calls to OneWorld APIs or business functions. The OneWorld object does its work while your calling program waits. Results are immediately available upon completion of the call. Synchronous processing is typically used in interactive applications that require immediate user feedback.
Asynchronous	Asynchronous processing allows an application to submit transactions or requests to another application one at a time. However, during asynchronous processing, the requests are queued and processed without directly connecting to the calling program. An application can submit a request and immediately continue processing without waiting for a result. Results are returned through a separate process when the transaction is complete. Asynchronous processing is typically used when real time feedback is not required, but fairly rapid turnaround on a per transaction basis is still important.
Batch	Batch processing saves transactions over a period of time. A periodic process processes the entire group at once. Batch processing is typically used for large groups of transactions that must be transferred from one system to another daily or monthly.

The available processing modes and the interoperability objectives combine to provide the following interoperability models for OneWorld (inbound refers to transactions into OneWorld and outbound refers to transactions from OneWorld):

- Inbound synchronous

This model uses a master business function that can be called interactively from a third-party application to perform synchronous updates to the J.D. Edwards master or transaction file. The calling program should process any error messages.

- Inbound asynchronous

This model uses an inbound processor batch process that can be automatically activated through the J.D. Edwards subsystem for near real-time processing and to update the J.D. Edwards master or transaction file. Both flat files (ASCII text files) and database files (Z files) in the J.D. Edwards specified format can be supported. The batch process calls the same master business function used by inbound synchronous processing. Error messages are written to the Employee Work Center in the form of action messages. A revision application can be used to correct incoming entries as necessary.

- Inbound batch

This model is identical to inbound asynchronous, except no subsystem processing exists. You must also initiate the inbound processor batch process to update the J.D. Edwards master or transaction file with the external data.

- Outbound synchronous

This model allows you to communicate directly with OneWorld objects in a bidirectional real time mode. You can use a OneWorld business function or API to request information to be returned while you wait. Any return information or feedback is immediately available upon completion of the call.

- Outbound asynchronous

This model uses a master business function that updates the J.D. Edwards master or transaction file and writes a record to a database file (Z file), which can then be processed by an outbound processor batch process automatically activated through the J.D. Edwards subsystem in an asynchronous, or near real-time mode.

- Outbound batch

This model uses an extraction batch process that reads the J.D. Edwards master or transaction file and writes records to a database file (Z file). You use data selection as the only means to specify what records to select for processing.

This guide includes the following sections:

- Technologies
- Models
- Detailed Tasks for Native OneWorld APIs
- Detailed Tasks for OneWorld Operations
- Detailed Tasks for Custom Programming
- Additional Information

- Interoperability Tools
- Interoperability Features Created by J.D. Edwards
- Interoperability Interface Table Information
- Open Database Access

Technologies



Interoperability Technologies

J.D Edwards allows you to use multiple technologies to implement interoperability features, including:

- OneWorld APIs
- COM
- Flat Files
- Electronic Data Interchange (EDI)
- ODBC
- E-Commerce APIs



Understanding OneWorld APIs

APIs are routines that perform predefined tasks. OneWorld APIs make it easier for third-party applications to interact with OneWorld. These APIs are functions provided to manipulate OneWorld data types, provide common functionality, and provide database access. There are several categories of APIs, including the Common Library APIs and J.D. Edwards Database (JDEBASE) APIs.

Programs using OneWorld APIs are flexible for the following reasons:

- No code modifications are required to upgrade
- When a J.D. Edwards data structure changes, source modifications are minimal to nonexistent
- Common functionality provided through the APIs is less prone to error

When the code in an API changes, typically, business functions simply have to be recompiled and relinked.

Common Library APIs

The Common Library APIs consist of APIs that are specific to J.D. Edwards functionality, such as determining whether foreign currency is enabled, manipulating the date format, retrieving link list information, and retrieving math numeric and date information. You can use these APIs for setting up data for calling APIs and modifying data after API calls. Some of the more commonly used categories of APIs include MATH_NUMERIC, JDEDATE, and LINKLIST.

OneWorld-Specific Data Types

OneWorld provides two main data types that are used to create business functions: MATH_NUMERIC and JDEDATE. These data types may change so it is critical that the Common Library APIs provided by OneWorld are used to manipulate variables for these data types.

MATH_NUMERIC Data Type

The MATH_NUMERIC data type is used exclusively to represent all numeric values in OneWorld. The values of all numeric fields on a form or batch process are communicated to business functions in the form of pointers to MATH_NUMERIC data structures. MATH_NUMERIC is used as a data dictionary data type.

JDEDATE Data Type

The JDEDATE data type is used exclusively to represent all dates in OneWorld. The values of all date fields on a form or batch process are communicated to business functions in the form of pointers to JDEDATE data structures. JDEDATE is used as a data dictionary data type.

Understanding the Component Object Model

Component Object Model (COM) allows developers to build systems by assembling reusable components from different vendors. COM provides logic and data sharing among disparate applications. Using COM, OneWorld exposes all Master and Major Business Functions through the Interface Definition Language (IDL) standard.

With COM, OneWorld can pass logic and data requests to other applications via COM wrappers. These wrappers provide common interoperability methods across dissimilar systems. A wrapper is attached to each Master and Major Business Function and provides stubs for third-party applications to access.

Understanding Flat Files

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

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	Anytown	5551234
Last	First	Addr	City	Phone

← database record

This 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 same data in a character-delimited format would look like this:

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

Understanding Electronic Commerce APIs

Electronic commerce combines the strengths of networking technologies, new programming languages, and software applications to improve business process execution throughout a supply chain. Using electronic commerce technologies, you can streamline the way you initiate and complete transactions between you and others, including your customers, your employees, or your partners. Electronic commerce allows you to

- Simplify the way customers place orders with your company
- Eliminate paperwork by processing transactions electronically
- Lower transaction costs by compressing sales cycles and eliminating many of the costs inherent in other forms of transaction processing
- Provide real-time customer, partner, and employee interaction by improving the information and knowledge transfer between and among the people and organizations in your supply chain.

Electronic commerce is a means to extend business processes to include suppliers, customers, and employees in a fully-integrated supply chain. It can yield shorter cycle times, more efficient inventory management, and better knowledge sharing throughout your extended enterprise. To see these benefits you need an integrated enterprise application system that you can extend and customize for your supply chain, while still maintaining enterprise information integrity.

OneWorld includes features for enterprise resource planning that enable you to use electronic commerce for the following business interactions:

- Business to business - planning, processing, and tracking information across your supply chain
- Business to consumer - connecting your company with your customers
- Business to employee - exchanging information and automating key business processes

J.D. Edwards provides the OneWorld Electronic Commerce Access APIs to help you provide Electronic Commerce functionality in your applications.

Understanding Electronic Data Interchange

Electronic Data Interchange (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.

EDI is a crucial part of business to business commerce. 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 who use EDI have their own translator software package to convert the data from the EDI Standard format to their computer system's format. Companies that exchange EDI data are called trading partners.

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.

Benefits

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

- Shorter fulfillment cycle
- Reduced errors
- Increased information integrity through reduced manual data entry
- Reduced clerical work for the manual manipulation of documentation
- Increased competitiveness in the marketplace
- Improved delivery of goods and services
- Decreased time in generating payments and invoices
- Decreased time in recording receipts of payment

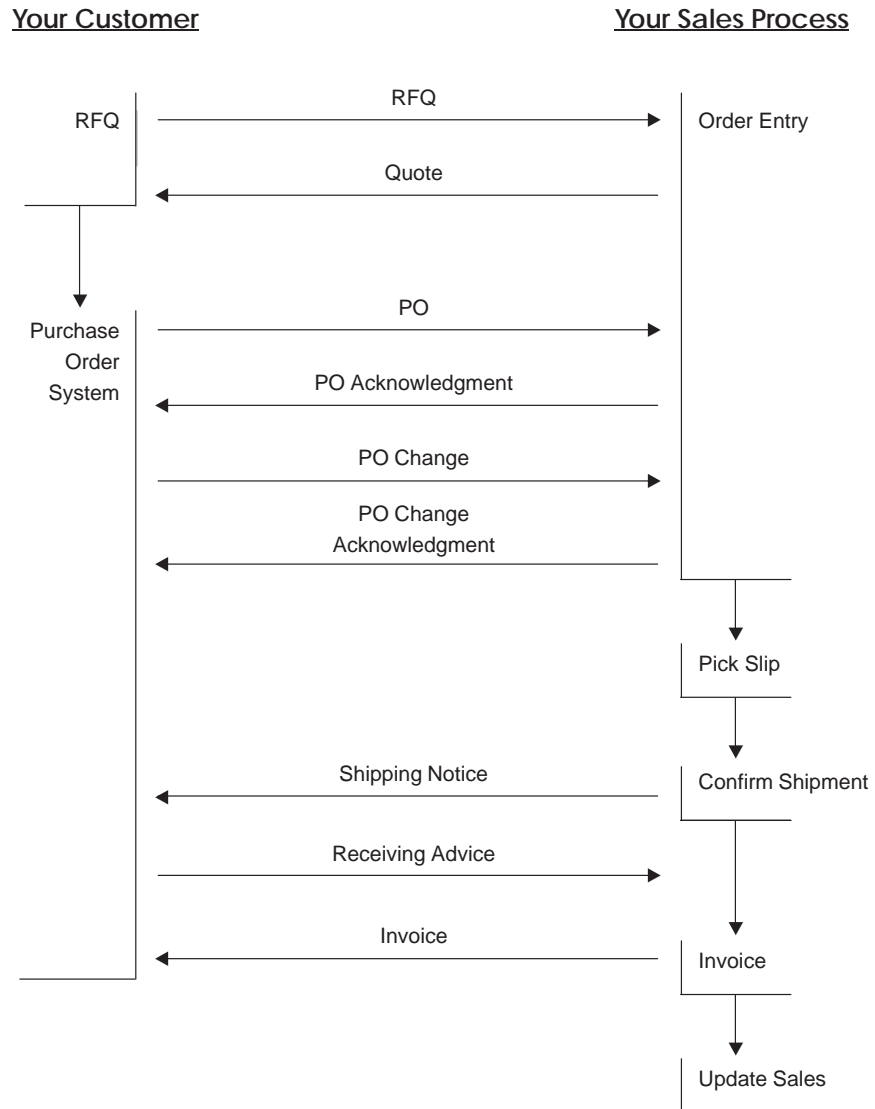
System Integration

The J.D. Edwards Data Interface for Electronic Data Interchange system integrates with the following J.D. Edwards systems to enable data exchange with your trading partner:

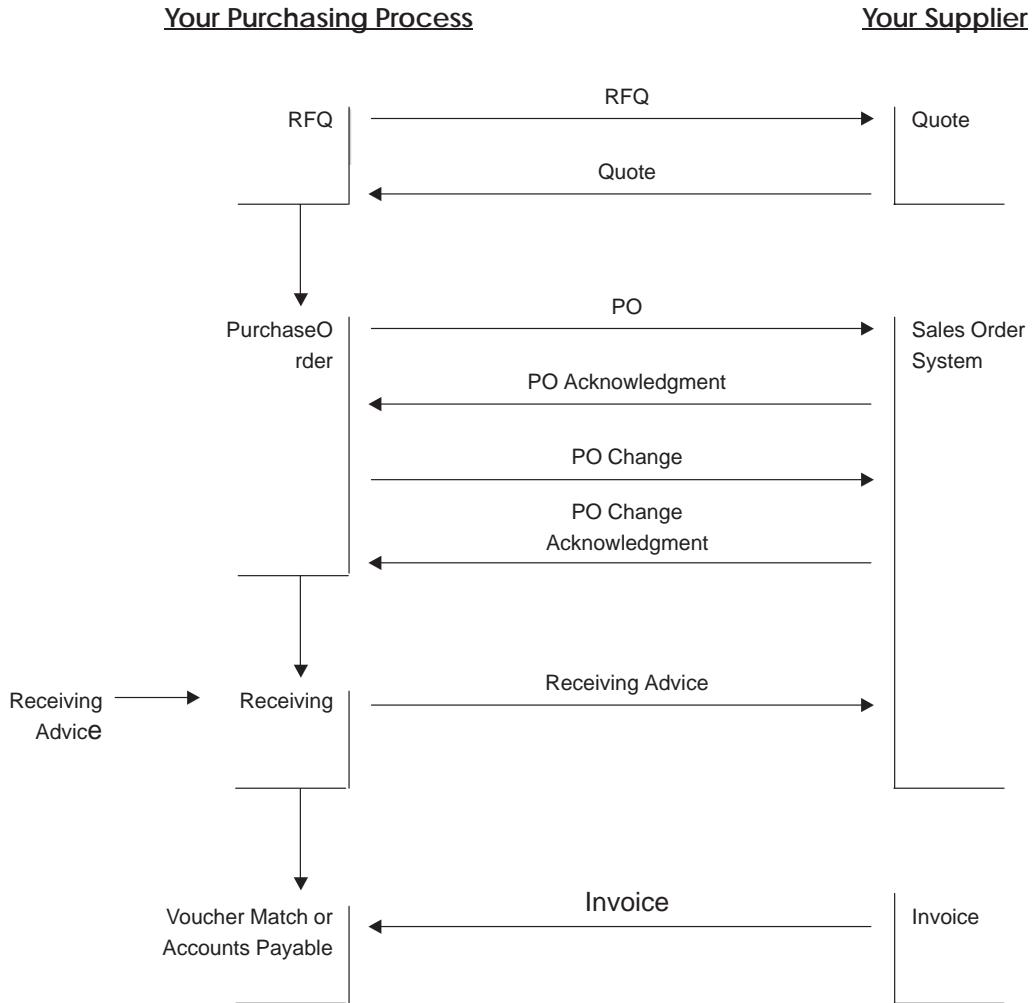
- Sales Order Management
- Procurement
- Inventory Management
- Accounts Payable
- Accounts Receivable

J.D. Edwards Environment

The following graphic is an overview of the typical J.D. Edwards EDI sales order processing environment. This graphic depicts some of the typical exchanges of information between trading partners for sales order processing that can benefit from an EDI implementation.



The following graphic shows some typical exchanges of information between trading partners for procurement processing that can benefit from EDI implementation.



See Also

- The Data Interface for Electronic Data Interchange Guide*

Understanding ODBC

Using Database APIs

OneWorld supports multiple databases, which means that a OneWorld application can access data from a number of databases. Database APIs provide the following:

- A standard interface to multiple database management systems
- The ability to perform complex database operations with a minimal knowledge of SQL
- Memory management for passing data to and from databases
- Runtime creation and execution of SQL statements
- Improved flexibility over embedded SQL
- Improved method of developing applications in a client/server environment
- Standard return codes from function calls

Standards and Portability

The following standards impact the development of relational database systems:

- ANSI (American National Standards Institute) standard
- X/OPEN (European body) standard
- ISO (International Standards Institute) SQL standard

Ideally, industry standards allow users to interact identically with different relational database systems. Each major vendor supports industry standards but also offers extensions to enhance the functionality of the SQL language. Vendors also frequently release upgrades and new versions of their products.

These extensions and upgrades affect portability. Applications need a standard interface to databases despite the differences between database vendors. When vendors provide a new release, the impact on existing applications needs to be minimal. To solve portability issues, many organizations use standard database interfaces called open database connectivity (ODBC).

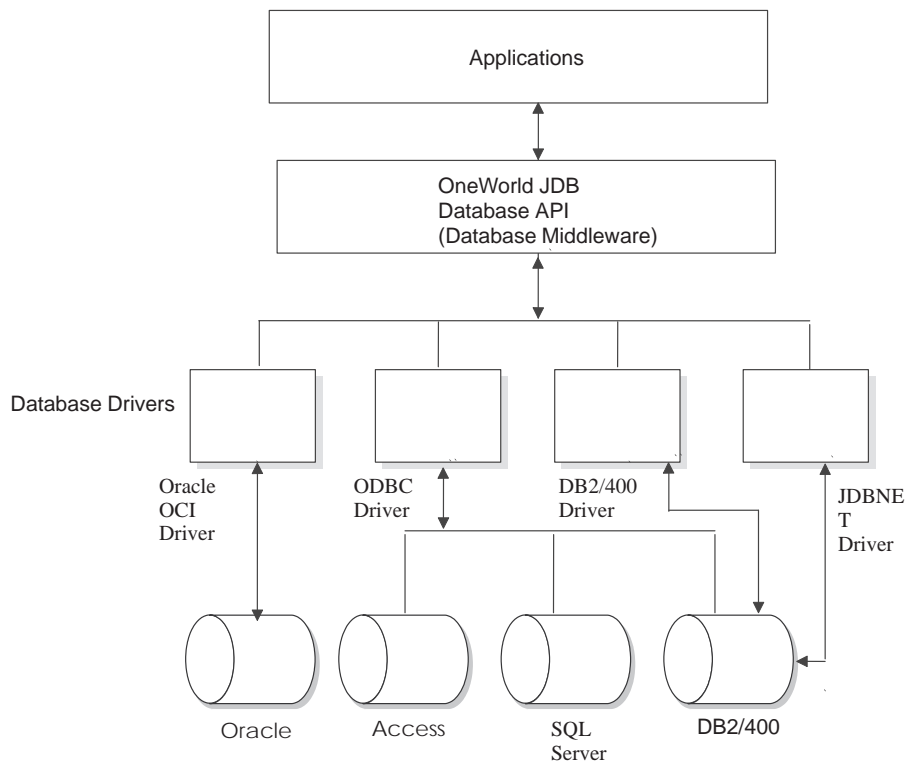
J.D. Edwards Open Database Connectivity (ODBC)

J.D. Edwards ODBC is designed to provide a single access method to multiple relational database management systems. This allows you to use a single set of functions to interface with different types of databases. You can develop and compile applications without having to know what type of database the application will be using. Database drivers allow the J.D. Edwards ODBC interface to communicate with a specific database system.

A database driver is an application that processes the API request, communicates with the database and returns the result to the API. The driver also handles the input/output (I/O) buffers to the database. This allows a programmer to write an application to communicate with a generic data source. The database driver processes the API request and communicates with the proper data source. The application does not need to be recompiled to work with other databases. If the application needs to perform the same operation with another database, a new driver is loaded.

A driver manager handles all application requests to the J.D. Edwards database function call. The driver manager processes the request or passes it to an appropriate driver.

The following diagram illustrates how OneWorld uses database APIs.



Some concepts regarding how OneWorld uses database APIs include:

- OneWorld applications access data from heterogeneous databases
- JDB uses the JDB API to interface between OneWorld applications and multiple databases
- OneWorld applications and business functions use the JDB API to dynamically generate platform specific SQL statements
- JDB also supports functionality such as replication and cross data source joins

Standard JDEBASE API Categories

Categories	What it Does
Control Level	Provides initialization and termination level functions for the database connection
Request Level	Provides functions for performing database transactions. The request level functions: Connects to and disconnects from tables and Business Views in the database Performs data manipulation operations of select, insert, update, and delete Retrieves data with fetch commands
Column Level	Performs and modifies information for columns and tables
Global Table/Column Specifications	Provides functionality for creating and manipulating column specifications

Control and request level APIs are used to develop and test business functions.

Connecting to a Database

To perform a request, the driver manager and database driver must manage the information for the development environment, each application connection, and each SQL statement. The pointers that return this information to the application are called handles. The APIs must include these handles in each function call.

Handles used by the development environment include:

Handle	What it Does
HENV	The environment handle contains information related to the current database connection and valid connection handles. Every application connecting to the database must have an environment handle. This handle is required to connect to a data source.

HUSER	The user handle contains information related to a specific connection. Each user handle has an associated environment handle with it. A connection handle is required to connect to a data source. If you are using transaction processing, initializing huser indicates the beginning of a transaction.
HREQUEST	The request handle contains information related to a specific request to a data source. An application must have a request handle before executing a SQL statement. Each request handle is associated with a user handle.

Understanding Database Communication Steps

Several APIs are used to perform the following steps for database communication:

- Initialize communication with the database
- Establish a connection to the specific data to access
- Execute statements on the database
- Release the connection to the database
- Terminate communication with the database

API Level	Communication Handles	API Name
Control level (application or test driver)	Environment handle	JDB_InitEnv
Control level (application or test driver)	User handle (created)	JDB_InitUser
Request level (business function)	User handle (retrieved)	JDB_InitBhvr
	Request handle	JDB_OpenTable
	Request handle	JDB_FetchKeyed()
	Request handle	JDB_CloseTable
	User handle	JDB_FreeBhvr
Control level (application or test driver)	User handle	JDB_FreeUser
Control level (application or test driver)	Environment handle	JDB_FreeEnv

Open Database Access

The J.D. Edwards OneWorld Open Data Access ODBC driver (ODA) is a version 2.5 forward compliant, read-only driver. ODA can be used by some front-end Windows Query and Reporting tools to access the J.D. Edwards OneWorld database. ODA sits between the front-end Query/Reporting tools and the OneWorld configured ODBC drivers. For more information about using ODA refer to *Appendix C*.

Models



OneWorld Interoperability Models

This section describes the available OneWorld interoperability models. It includes a conceptual discussion of each model followed by high-level steps for implementation. These steps serve as a task checklist and include an explanation of how the tasks fit together. Details for performing each step are included in the Detailed Tasks section. The detailed tasks are grouped into the following categories:

- Detailed Tasks for OneWorld Native APIs
- Detailed Tasks for OneWorld Operations
- Detailed Tasks for Custom Programming

You can also use a specific technology with the OneWorld interoperability models. There are specific tasks you complete for each model and technology combination. There are guidelines you can follow to help you determine which model and technology combination to use. You can implement:

- Synchronous transactions into OneWorld
- Asynchronous transactions into OneWorld
- Batch transactions into OneWorld
- Synchronous transactions from OneWorld
- Asynchronous transactions from OneWorld
- Batch transactions from OneWorld

Each chapter in this section includes:

- A diagram of the model for a specific transaction type
- Generic steps to implement the transaction

Processing Modes

There are several available processing modes you can use for transactions into and from OneWorld. The following information describes these modes to help you decide which one best suits your needs.



Synchronous

Synchronous processing implies that you are making a real-time direct call to OneWorld objects. You establish a connection to OneWorld and make calls directly to OneWorld APIs or business functions. The OneWorld object performs its tasks while your calling program waits. Results are immediately available upon completion of the call. You typically use this method for interactive applications requiring immediate user feedback.

Asynchronous

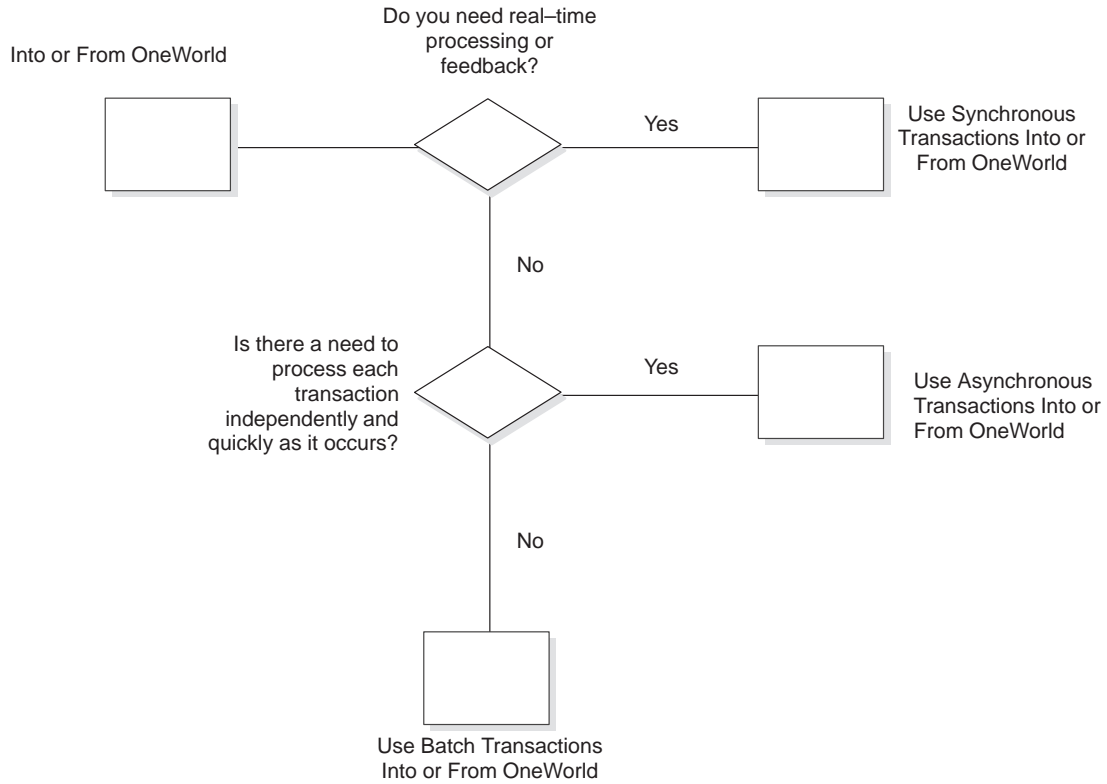
Asynchronous processing allows an application to submit transactions or requests to another application one at a time, but the requests are queued up and processed in the background environment without being directly connected with the calling program. This allows an application to submit a request and immediately continue processing without waiting for a result. Results are returned through a separate process when the transaction is complete. You typically use this method when real-time feedback is not required, although fast transaction response time is still important.

Batch

Batch processing allows you to save transactions over a period of time and then run a periodic process that processes the entire group of transactions at once. You typically use this method for large groups of transactions that must be transferred from one system to another on a periodic basis. Batch processes are often started from a menu.

Choosing a Processing Mode

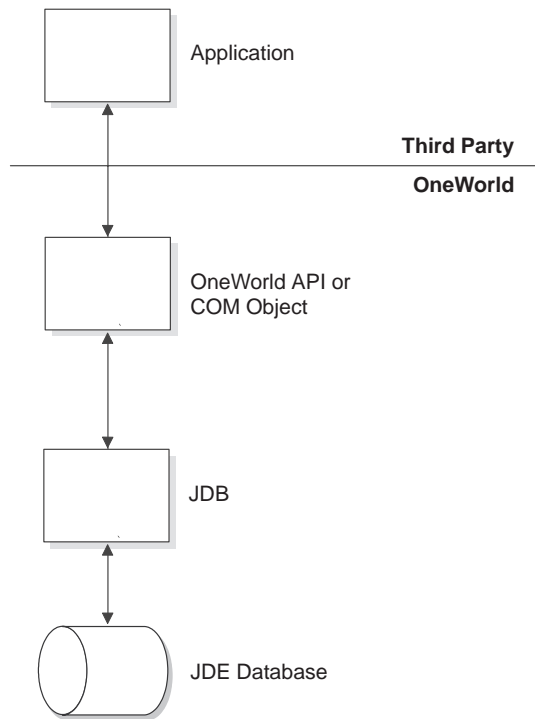
The following illustration shows a decision flowchart to help you choose a processing mode for transactions into and from OneWorld.



Implementing Synchronous Transactions Into OneWorld

Synchronous transactions into OneWorld allow you to communicate directly with OneWorld objects in a bidirectional real-time mode. You can use an application to call a OneWorld business function or API and the requested processing is done while you wait. Any return information or feedback is immediately available upon completion of the call.

The following diagram illustrates this model.



The general steps necessary to implement this model follow. These steps should be implemented in the order listed.

Detailed Tasks Using Native APIs

1. Connect to OneWorld.

Connecting to OneWorld establishes a communication link between your application and the OneWorld environment. OneWorld APIs become available for your use and all OneWorld security features are enforced.

2. Call OneWorld Business Functions.

Once the connection has been established, you may make as many direct calls to OneWorld APIs as is needed to process your transactions. Refer to the Online APIs and the *Development Tools Guide* for more information about OneWorld APIs.

3. Disconnect from OneWorld.

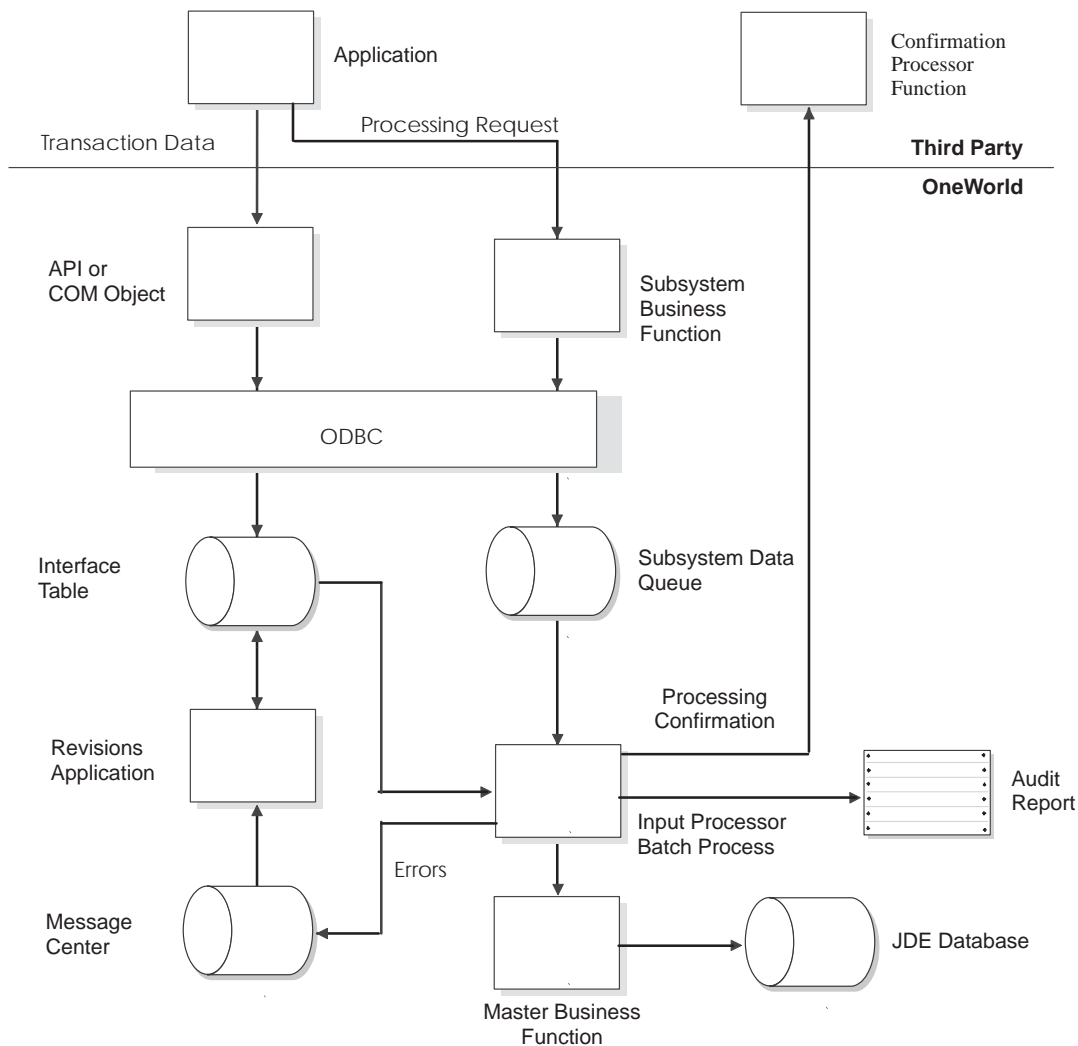
After you make the necessary calls to process your transactions, you must disconnect from OneWorld. This frees resources and prevents further processing with that particular connection.

Some OneWorld APIs may have more parameters than you need. You can create your own simplified interface layer over these APIs.

Implementing Asynchronous Transactions Into OneWorld

Asynchronous transactions into OneWorld allow you to send transactions into OneWorld one at a time without having to wait for completion before you continue processing. You place a transaction in an input table and place a processing request in a queue. A OneWorld background process handles the transaction as it comes up in the queue. When processing is complete, OneWorld calls the function specified in the request to notify you of the status of your process.

The following diagram illustrates this model.



The general steps necessary to implement this model follow. These steps should be implemented in the order listed.

Detailed Tasks Using Native APIs

1. Connect to OneWorld.

Connecting to OneWorld establishes a communication link between your application and the OneWorld environment. OneWorld APIs become available for your use and all OneWorld security features are enforced.

2. Add Records to Interface Tables.

Writing your transaction to the appropriate OneWorld interoperability interface table, makes it available to the OneWorld system for processing.

3. Place an entry in the subsystem data queue.

Place your request for processing in a queue with similar requests. The information you include in the request tells OneWorld the type of transaction and the specific key within the input table so that OneWorld can find it.

You can request confirmation of the inbound transaction by providing the name and library of a custom function to process the confirmation. When processing of the transaction is complete, OneWorld calls the custom function and sends it a flag indicating success or failure.

4. Disconnect from OneWorld.

After you make the necessary calls to process your transactions, you must disconnect from OneWorld. This frees resources and prevents further processing with that particular connection.

5. Process the inbound transaction confirmation.

This step is optional. If you request confirmation, you must write a function that you name, but write to an interface that J.D. Edwards specifies. OneWorld calls this function when the transaction completes. The transaction key from the interface table and a flag that indicates whether the transaction was successful are passed to the function. 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:

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.

Detailed Tasks for OneWorld Operations

1. Run the Subsystem Job from a OneWorld Menu.

In order for the system to respond to transactions one at a time as they come in, you must run a batch process specific to that transaction in subsystem mode. When you place an entry into the subsystem data queue, the batch process starts and processes the transaction.

2. Check for Errors.

When errors occur during inbound processing, they are recorded on the Processor Audit Trail Report and a message is sent to the Employee Work Center. 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 can resubmit individual corrected transactions for immediate processing or you can correct all transaction errors and then resubmit them all at once in batch process.

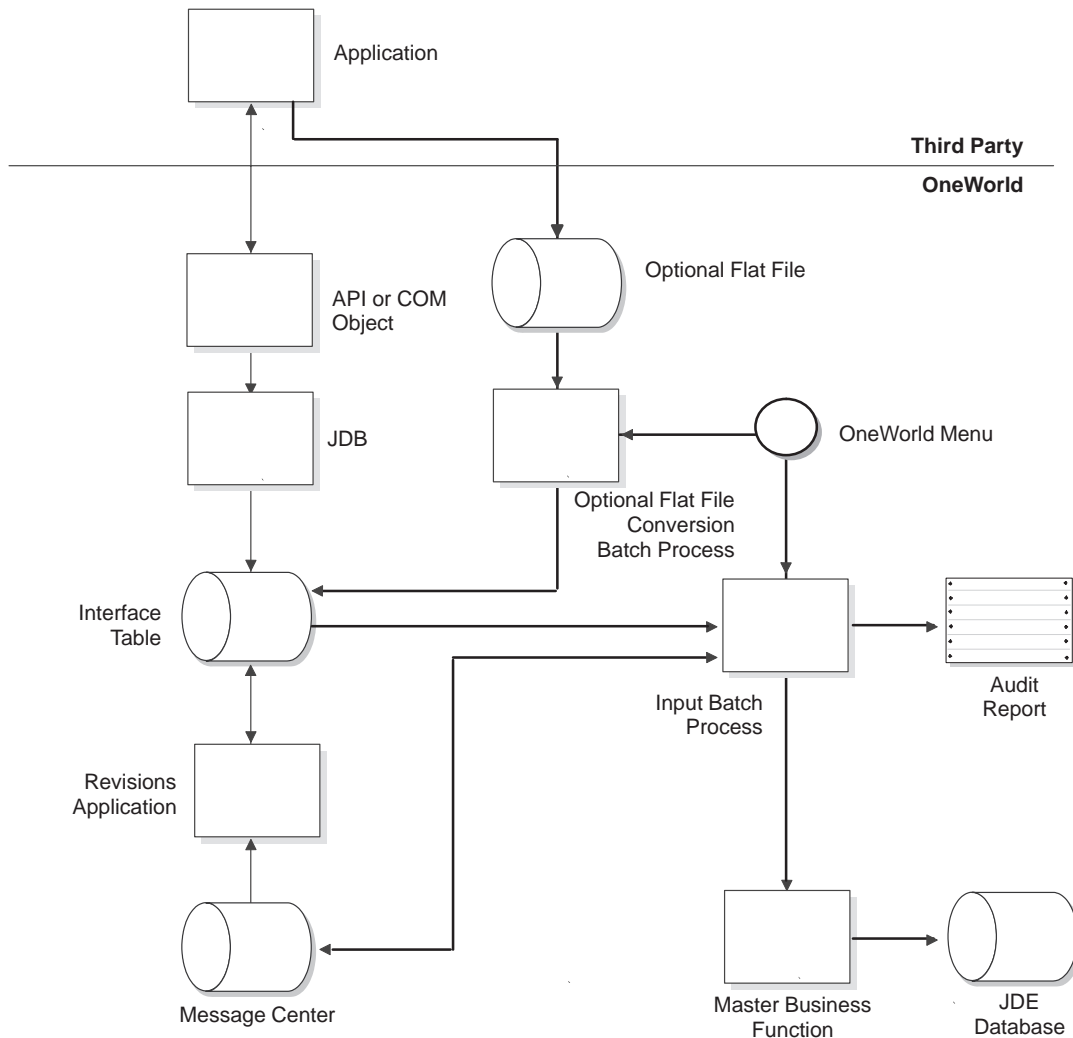
3. Use the Revisions Application.

The revisions application is used to add, delete, edit, and review transactions in the interface tables. For example, if there was an error while processing inbound transactions, you can use this application to correct the record in error.

Implementing Batch Transactions Into OneWorld

Batch transactions into OneWorld allow you to place a large number of transactions into an interface table and process them all at once in batch mode. You initiate the process through the OneWorld menu driver. Errors are placed on an audit report and are also sent to the OneWorld message center. A revisions application allows you to make corrections to the interface table.

The following diagram illustrates this model.



The general steps necessary to implement this model follow. These steps should be implemented in the order listed.

Detailed Tasks Using Native APIs

1. Connect to OneWorld.

Connecting to OneWorld establishes a communication link between your application and the OneWorld environment. OneWorld APIs become available for your use and all OneWorld security features are enforced.

2. Add Records to Interface Tables.

By writing your transaction to the appropriate OneWorld interoperability input table, you make it available to the OneWorld system for processing.

See Additional Options that follow.

3. Disconnect from OneWorld.

After you make the necessary calls to process your transactions, you must disconnect from OneWorld. This frees resources and prevents further processing with that particular connection.

Detailed Tasks Using OneWorld Operations

1. Run the batch input processor from a OneWorld menu.

You run the batch input processor to process the batches of transactions you have placed in the input tables and update the OneWorld transaction tables.

2. Check for Errors.

When errors occur during inbound processing, they are recorded on the Processor Audit Trail Report and a message is sent to the Employee Work Center. 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 can 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.

3. Use the Revisions Application.

The revisions application is used to add, delete, edit, and review transactions in the interface tables. For example, if an error occurs while processing inbound transactions, you can use the revision application to correct the record in error.

Additional Options

You can use a comma delimited flat file for your transactions into OneWorld. To do so, replace steps 1, 2, and 3 in *Detailed Tasks Using Native APIs* above with the following steps:

1. Create a flat file.

Create a flat file in appropriate file format and use a name that correctly matches the transaction type you are using.

2. Run a table conversion.

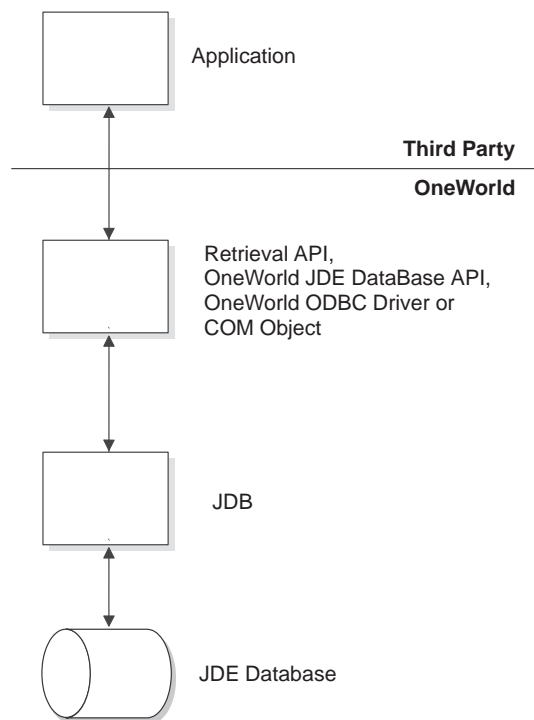
Run a table conversion to convert your flat file into the format that OneWorld expects and then place it in the appropriate interface table.

For more information about using flat files refer to the detailed task, *Importing from Flat Files*, in the Detailed Tasks for OneWorld Operations.

Implementing Synchronous Transactions From OneWorld

Synchronous transactions from OneWorld allow you to communicate directly with OneWorld objects in a bidirectional real-time mode. You can call a OneWorld business function or API to request information to be returned while you wait. Any return information or feedback is immediately available upon completion of the call.

The following diagram illustrates this model.



The general steps necessary to implement this model follow. These steps should be implemented in the order listed.

Detailed Tasks Using Native APIs

1. Connect to OneWorld.

Connecting to OneWorld establishes a communication link between your application and the OneWorld environment. OneWorld APIs become available for your use and all OneWorld security features are enforced.

2. Call OneWorld Business Functions.

After you are connected to OneWorld, you can make direct calls to OneWorld APIs to retrieve your information. OneWorld retrieval APIs usually do some calculations or interpretation of the database for you. Use the online OneWorld APIs to determine which APIs to use and to obtain any API-specific instructions.

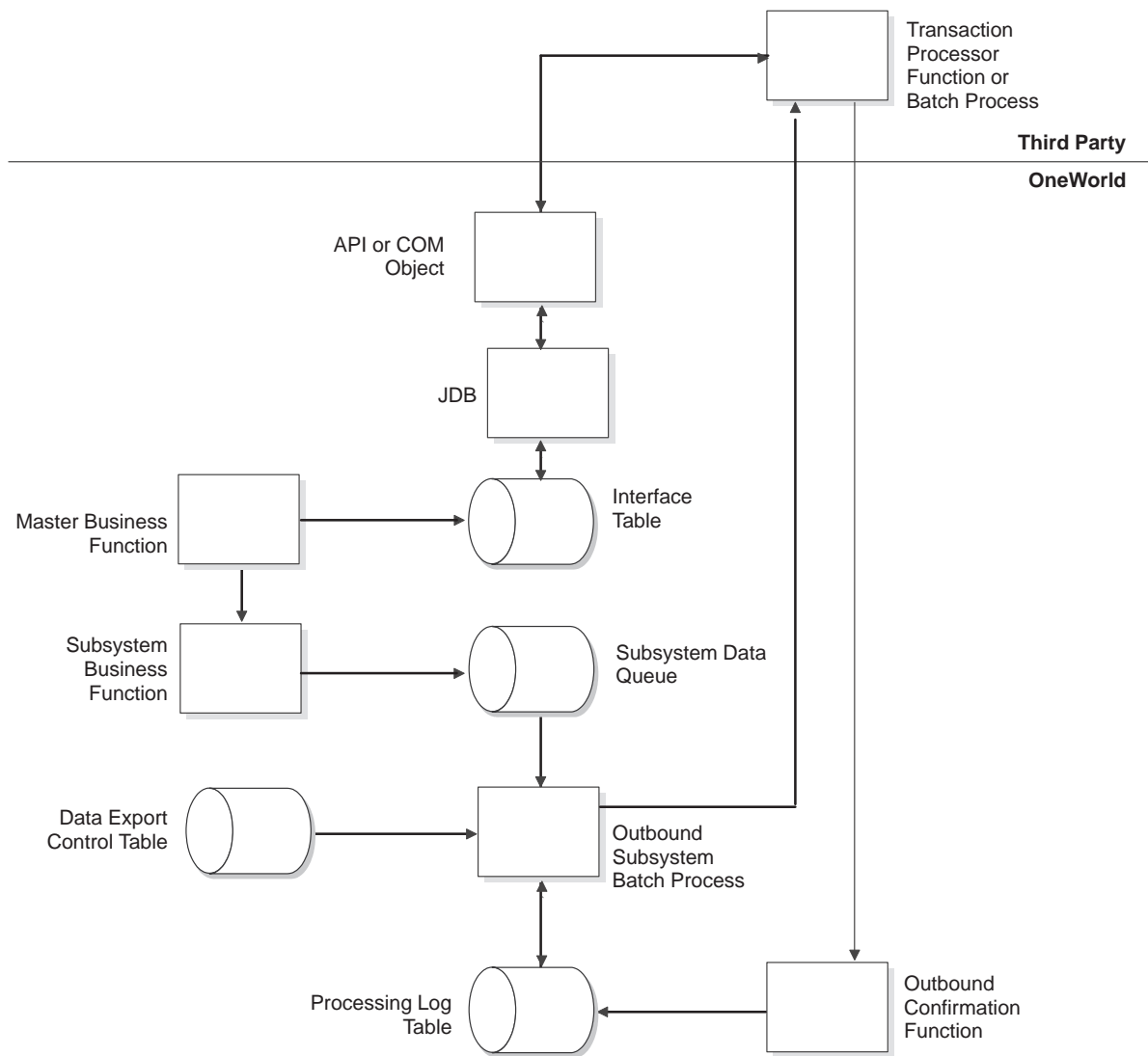
3. Disconnect from OneWorld.

After you make the necessary calls to process your transactions, you must disconnect from OneWorld. This frees resources and prevents further processing with that particular connection.

Implementing Asynchronous Transactions from OneWorld

Asynchronous transactions from OneWorld allow you to receive certain types of OneWorld transactions as they occur. You designate which transactions you want and, when these transactions occur, they are logged to an output table. You are notified individually for each requested transaction when it is available for processing. Each transaction is kept in persistent storage until you notify OneWorld that you are done with it.

The following diagram illustrates this model.



The general steps necessary to implement this model follow. These steps should be implemented in the order listed.

Detailed Tasks Using OneWorld Operations

1. Enable outbound transaction processing.

The creation of outbound transactions is controlled through processing options associated with the master business functions that control updates to a given table. You must set the appropriate processing option to enable the outbound process for a given transaction type. This process tells the system that the particular transaction type needs to go somewhere, but it does not designate where.

2. Subscribe to the outbound transaction.

If you require that a given transaction type goes to one or more third-party applications, you can associate a given transaction type with each of its individual destinations. You make an entry into the data export control table for each destination. The suggested technique is to 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 you can retrieve it.

3. Run the Subsystem Job from a OneWorld Menu.

This subsystem job creates an entry in the Processing Log tables for each record in the Data Export Control table that subscribes to the specific transaction. It then launches the transaction processor function or batch process, which processes the entry in the interface table. This subsystem job is generic because it does not directly update the transaction specific interface tables.

4. Call OneWorld completion confirmation API.

You notify OneWorld when you have completed processing a transaction. OneWorld then marks the processing log entry for that transaction as complete so that the transaction can be purged. The transaction remains in persistent storage so that it can be reprocessed as needed until you purge it. You should use the steps for the Into OneWorld Synchronous methods to call this API.

5. Check for Errors.

When errors occur during processing, they are recorded on the Processor Audit Trail Report and a message is sent to the Employee Work Center. 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 can 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.

6. Use the Revisions Application.

Revisions applications are used to add, delete, edit, and review transactions in the interface tables. For example, if an error occurs while processing inbound transactions, you can use the revision application to correct the record in error.

Detailed Tasks Using Custom Programming

1. Process the outbound transaction.

This is the function you identified in step 2 of the Detailed Tasks Using OneWorld Operations. You can write and deliver this function outside of OneWorld, but it must conform to the interface J.D. Edwards defines. You write this function specifically to handle a given transaction type. You can name it what you want, but it must reside on the same server where the subsystem job is running. The input parameters include the key for the transaction in the OneWorld interface table. Your function then retrieves the transaction and does whatever is necessary with it. You should use the steps for the From OneWorld Synchronous method to do the retrieval.

You can also use this function to:

- Update third party tables with J.D. Edwards table information.

You use the key for the transaction in the OneWorld interface table to retrieve the transaction and pass the information to a third-party API.

You can also call the OneWorld Completion Confirmation API when processing is finished.

- Store the table information so you can use it for future processing.

You use the key for the transaction in the OneWorld interface table to retrieve the transaction and update a temporary table with the information.

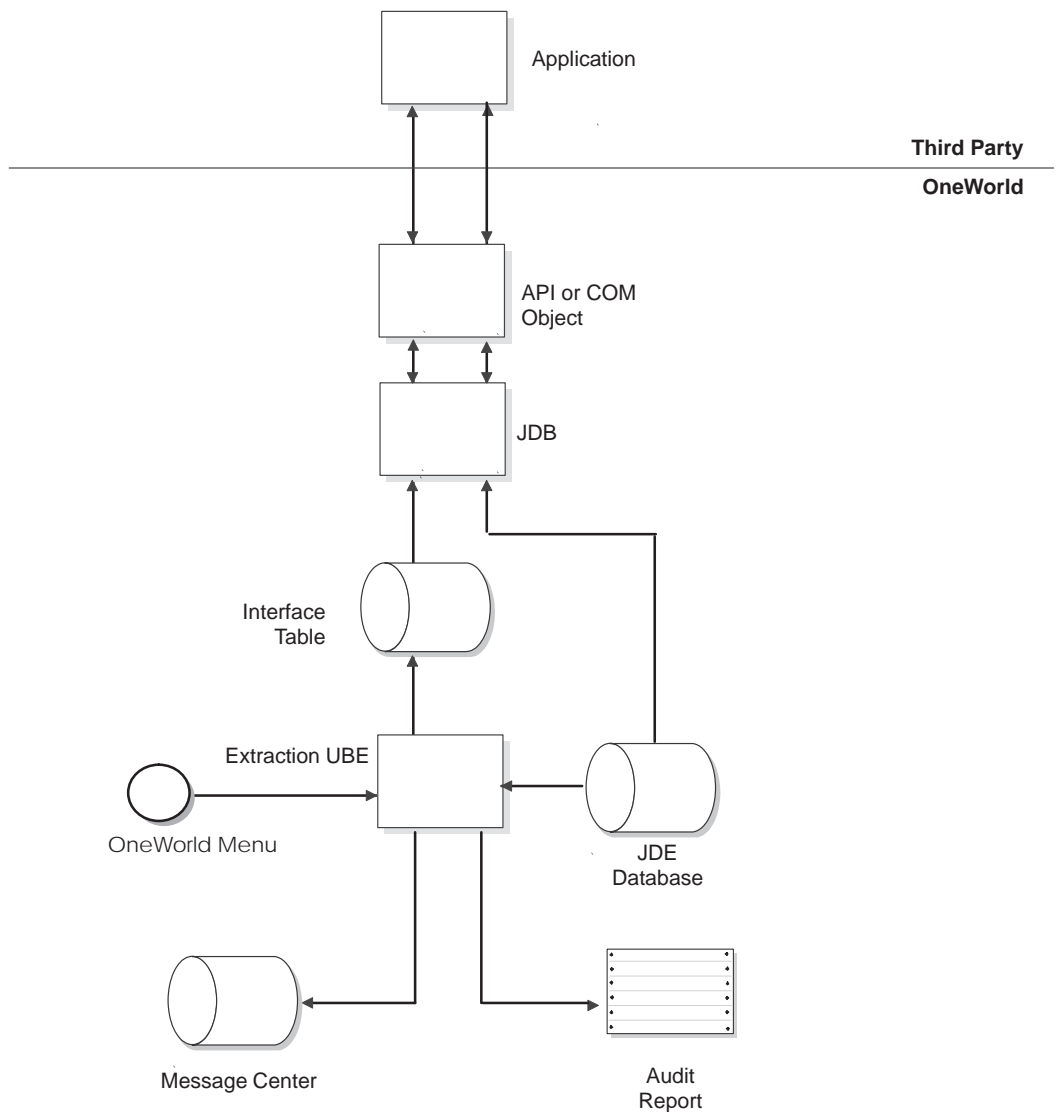
You can then process the data at a later time by using third-party APIs.

You can call the OneWorld Completion Confirmation API when processing is finished.

Implementing Batch Transactions From OneWorld

Batch transactions out of OneWorld allow you to place a large number of transactions into an interface table and process them all at once in batch mode. You initiate the process through the OneWorld menu driver. Errors are placed on an audit report and are also sent to the OneWorld message center.

The following diagram illustrates this model.



The general steps necessary to implement this model follow. These steps should be implemented in the order listed.

Detailed Tasks Using OneWorld Operations

1. Run the Extraction Processor from a OneWorld Menu.

The batch extraction processor is used to load the interface tables with data from the permanent OneWorld tables.

Detailed Tasks Using Native APIs

1. Connect to OneWorld.

Connecting to OneWorld establishes a communication link between your application and the OneWorld environment. OneWorld APIs become available for your use and all OneWorld security features are enforced.

2. Retrieve Records from Interface Tables.

The records in the interface table are available for the custom application or batch process to process.

3. Disconnect from OneWorld.

After you make the necessary calls to process your transactions, you must disconnect from OneWorld. This frees resources and prevents further processing with that particular connection.

Additional Options

The model for Implementing Batch Transactions from OneWorld assumes that some form of data manipulation occurs during the batch extraction process. You can extract data directly from permanent OneWorld tables using the same database APIs that you would use to extract data from the interface tables. Instead of opening, retrieving, and closing an interface table, you can perform the same operations on a permanent OneWorld table.

Detailed Tasks for OneWorld APIs



Detailed Tasks for OneWorld APIs

The interoperability tasks you need to perform are based on the method of access you choose to use. You may use any of the following:

- Connect to OneWorld
- Disconnect from OneWorld
- Add Records to Interface Tables
- Retrieve Records from Interface Tables
- Call OneWorld Business Functions
- Call the OneWorld Completion Confirmation API
- Place an Entry in the Subsystem Data Queue



Connect to OneWorld

The first step in the interoperability process is for two computers to communicate with one another.

Two OneWorld APIs must be called to initiate a OneWorld session:

- JDB_InitEnvOvr
- JDB_InitUser

Both of these APIs must be called before any other OneWorld APIs are called.

When you use these APIs, you may also need to use the following handles:

HENV	The environment handle contains information related to the current database connection and valid connection handles. Every application connecting to the database must have an environment handle. This handle is required to connect to a data source.
HUSER	The user handle contains information related to a specific connection. Each user handle has an associated environment handle with it. A connection handle is required to connect to a data source.
HREQUEST	The request handle contains information related to a specific request to a data source. An application must have a request handle before executing a SQL statement. Each request handle is associated with a user handle.

JDB_InitEnvOvr

The JDB_InitEnvOvr API is used to start an instance of OneWorld. This API should only be called once in the executable. With this API, the JDB_FreeEnv API must also be called at termination of the executable.

Syntax

```
JDEDB_RESULT JDB_InitEnvOvr(HENV *hEnv, char *szEnv, char *szUser, char *szPwd)
```

Parameters

hEnv	Valid handle or NULL. Handle used for other APIs.
szEnv	Name of the environment to initialize.
szUser	OneWorld user name.
szPwd	OneWorld user password.

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_InitUser

The JDB_InitUser API initializes a user in OneWorld. A user in this instance is usually an application and is a method of grouping database requests together. Requests are identified with the application that initiated them. Once a user has been registered for an environment handle it cannot be changed.

Syntax

```
JDEDB_RESULT JDB_InitUser(HENV hEnv, HUSER *hUser, char *szApp,  
JDEDB_COMMIT nCommitMode);
```

Parameters

hEnv	Valid environment handle.
hUser	NULL or valid user handle.
szApp	Valid string pointer of active application
nCommitMode	JDEDB_COMMIT_AUTO if transactions are to be committed automatically. JDEDB_COMMIT_MANUAL if transactions are to be committed manually.

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

Example

```
/* Declaration of environment variables */
HENV hEnv = NULL;
HUSER hUser = NULL;
JDEDB_RESULT rcode;
char szEnv[11] = "P733ASD1";
char szUser[11] = "UserID";
char szPwd[11] = "Password";

/* Initialize Environment Handle */
if ((rcode = JDB_InitEnvOvr(&hEnv, szEnv, szUser, szPwd)) != JDEDB_PASSED)
{
    printf("JDB_InitEnvOvr failed.\n");
    return (0);
}

/* Initialize User */
if ((rcode = JDB_InitUser(hEnv, &hUser, NULL, JDEDB_COMMIT_AUTO)) != JDEDB_PASSED)
{
    printf("JDB_InitUser failed\n");
    return (0);
}
```


Disconnect from OneWorld

Once you finish your communications between two machines, you must disconnect them.

Two OneWorld APIs must be called to end a OneWorld Session:

- JDB_FreeUser
- JDB_FreeEnv

JDB_FreeUser

You use the JDB_FreeUser API to free a user and all related requests. This API must be called for every JDB_InitUser performed.

Syntax

```
JDEDB_RESULT JDB_FreeUser(HUSER hUser);
```

Parameters

hUser	Valid user handle.
-------	--------------------

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_FreeEnv

JDB_FreeEnv is used to free the environment. It frees the environment handle that was initialized by JDB_InitEnv. This function must only be called by executables.

Syntax

```
JDEDB_RESULT JDB_FreeEnv (HENV hEnv);
```

Parameters

hEnv	Valid handle obtained through JDB_InitEnv.
------	--------------------------------------------

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

Example

```
/* Free user when done processing before freeing the environment */
if (hUser)
{
    if ((rcode = JDB_FreeUser(hUser) != JDEDB_PASSED)
    {
        printf("JDB_FreeUser failed\n");
        return (0);
    }
}

/* Free Environment Handle */
if (hEnv)
{
    if ((rcode = JDB_FreeEnv(hEnv) != JDEDB_PASSED)
    {
        printf("JDB_FreeEnv failed\n");
        return (0);
    }
}
```

Add Records to Interface Tables

Three APIs must be called to insert a record into the transaction-specific interface table:

- JDB_OpenTable
- JDB_InsertTable
- JDB_CloseTable

JDB_OpenTable

JDB_OpenTable opens a table and readies it for input/output processing. This API must be called prior to any other table operations. It initializes the request handle to be associated with each table processing operation.

Syntax

```
JDEDB_RESULT JDB_OpenTable(HUSER hUser, ID idTable, ID idIndex, LPID lpColSelect, unsigned short nNumCols, char * szOverrideDS, HREQUEST * hRequest);
```

Parameters

hUser	Valid user handle.
idTable	Valid table ID of table to be processed.
idIndex	This is the ID of the index to prepare for processing. The index used can be changed after a table has been requested. If zero, the primary index will be used.
lpColSelect	A pointer to an array of column IDs or NULL. These are the columns that will be used. Performance is enhanced if only the required columns are asked for. If all columns are required, then NULL can be passed. The columns must be in sequential order starting from the first column.
nNumCols	Number of columns required or zero. If all columns are required then pass zero.
szOverrideDS	Datasource name. This value overrides the location of the table indicated by the OCM Object Map.
hRequest	NULL or request handle.

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_InsertTable

JDB_InsertTable adds new rows to a specific table.

Syntax

```
JDEDB_RESULT JDB_InsertTable (HREQUEST hRequest, ID idTable, ID idInstance, void * lpStruct);
```

Parameters

hRequest	NULL or request handle.
idTable	Valid table ID of table to be processed.
idInstance	The instance ID of the table. Used if joins, otherwise pass zero.
lpStruct	A pointer to structure or NULL. If no structure is to be used then pass NULL. This structure contains the data to be inserted into the table.

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_CloseTable

JDB_CloseTable releases or frees a request obtained through JDE_OpenTable. A request cannot be used after it has been freed.

Syntax

```
JDEDB_RESULT JDB_CloseTable(HREQUEST hRequest);
```

Parameters

hRequest	Valid request handle.
----------	-----------------------

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

Example

This following example contains hard-coded values for illustration purposes.

```

/* Declaration of variables */

HREQUEST hRequest = NULL;
HENV hEnv = NULL;
HUSER hUser = NULL;
NID idTable = NID_F0101Z2;
ID idIndex = ID_F0101Z2_USERID__BATCHNUMBER;
F0101Z2 dsStructToInsert;
JDEDB_RESULT rcode;

/* Open Z table for processing. All columns will be used. */
if ((rcode = JDB_OpenTable(hUser, idTable, idIndex, NULL, (int)0, NULL, &hRequest)) !=
    JDEDB_PASSED)
{
    printf("JDB_OpenTable failed\n");
    return (0);
}

/* Fill in the structure containing data you wish to insert */
strncpy(dsStructToInsert.szedus, "AA1234567", sizeof(dsStructToInsert.szedus));
strncpy(dsStructToInsert.szedbt, "123456789", sizeof(dsStructToInsert.szedbt));
strncpy(dsStructToInsert.szedtn, "000001", sizeof(dsStructToInsert.szedtn));
ParseNumericString(&dsStructToInsert.szedln, "1");
strncpy(dsStructToInsert.sztytn, "JDEAB", sizeof(dsStructToInsert.sztytn));
dsStructToInsert.szdrin = '1';
dsStructToInsert.szedsp = 'N';
strncpy(dsStructToInsert.sztnac, "A", sizeof(dsStructToInsert.sztnac));
strncpy(dsStructToInsert.szalky, "EmployeeName", sizeof(dsStructToInsert.szalky));
strncpy(dsStructToInsert.sztax, "987654321", sizeof(dsStructToInsert.sztax));
strncpy(dsStructToInsert.szat1, "E", sizeof(dsStructToInsert.szat1));
strncpy(dsStructToInsert.szalph, "Employee Name", sizeof(dsStructToInsert.szalph));

/* Insert row into table */

if ((rcode = JDB_InsertTable(hRequest, idTable, 0, &dsStructToInsert)) != JDEDB_PASSED)
{
    printf("JDB_InsertTable failed\n");
    return (0);
}

/* Free the table processing request handle ,hRequest, which was initialized by JDB_OpenTable */
if ((rcode = JDB_CloseTable(hRequest)) != JDEDB_PASSED)
{
    printf("JDB_CloseTable failed\n");
    return (0);
}

```


Retrieve Records from Interface Tables

There are several database APIs that can be used to retrieve records from the transaction-specific interface tables:

- JDB_OpenTable
- JDB_SelectAll
- JDB_Fetch
- JDB_CloseTable

For information regarding the other database APIs, please refer to the Online APIs.

JDB_OpenTable

JDB_OpenTable opens a table and readies it for input/output processing. This API must be called prior to any other table operations. It initializes the request handle associated with each table processing operation.

Syntax

```
JDEDB_RESULT JDB_OpenTable(HUSER hUser, ID idTable, ID idIndex, LPID lpColSelect, unsigned short nNumCols, char * szOverrideDS, HREQUEST * hRequest);
```

Parameters

hUser	Valid user handle.
idTable	Valid table ID of table to process.
idIndex	The ID of the index to ready for processing. The index used can be changed after a table has been requested. If zero, the primary index is used.
lpColSelect	A pointer to an array of column IDs or NULL. These are the columns that will be used. Performance is enhanced if only the required columns are asked for. If all columns are required, then NULL can be passed. The columns must be in sequential order starting from the first column.
nNumCols	Number of columns required or zero. If all columns are required then pass zero.
szOverrideDS	Datasource name. This overrides the location of the table indicated by the Object Map.
hRequest	NULL or request handle.

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_SelectAll

JDB_SelectAll performs a select on a table without a WHERE clause. This causes all records to be selected.

Syntax

```
JDEDB_RESULT JDB_SelectAll(HREQUEST hRequest);
```

Parameters

hRequest	Valid request handle.
----------	-----------------------

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_Fetch

The JDB_Fetch API fetches results of a select. Results are fetched in order.

Syntax

```
JDEDB_RESULT JDB_Fetch(HREQUEST hRequest, void * lpStruct, int nNotUsed);
```

Parameters

hRequest	Valid request handle.
lpStruct	A pointer to results structure or NULL. If no structure is to be used then pass NULL.
nNotUsed	NULL. Currently not in use.

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

JDB_CloseTable

JDB_CloseTable frees a request obtained through an JDE_OpenTable. A request cannot be used after it has been freed.

Syntax

```
JDEDB_RESULT JDB_CloseTable(HREQUEST hRequest);
```

Parameters

hRequest	Valid request handle.
----------	-----------------------

Return Value

Returns JDEDB_PASSED if the API succeeds. Returns JDEDB_FAILED if the API fails.

Example

This example contains hard-coded values for illustration purposes.

```
/* Declaration of variables */
HREQUEST hRequest = NULL;
HENV hEnv = NULL;
HUSER hUser = NULL;
NID idTable = NID_F0101Z2;
ID idIndex = ID_F0101Z2_USERID__BATCHNUMBER;
F0101Z2 dsStructToInsert;
JDEDB_RESULT rcode;
int nNotUsed = 0;

/* Open Z table for processing. All columns will be used. */
if ((rcode = JDB_OpenTable(hUser, idTable, idIndex, NULL, (int)0, NULL, &hRequest)) !=
    JDEDB_PASSED)
{
    printf("JDB_OpenTable failed\n");
    return (0);
}

/* Select all of the records from the table */
if ((rcode = JDB_SelectAll(hRequest)) == JDEDB_PASSED)
{
    while((rcode = JDB_Fetch(hRequest, &dsStructToInsert, nNotUsed)) == JDEDB_PASSED)
    {
        /* Process the fetched records */
    }
}
else
{
    printf("JDB_SelectAll failed\n");
    return (0);
}

/* Free the table processing request handle ,hRequest, which was initialized by JDB_OpenTable */
if ((rcode = JDB_CloseTable(hRequest)) != JDEDB_PASSED)
{
    printf("JDB_CloseTable failed\n");
    return (0);
}
```

Call OneWorld Business Functions

OneWorld business functions cannot be called directly from a third-party program. They must be called using the `jdeCallObject` API. Several steps must be taken for `jdeCallObject` to function correctly. This chapter describes how to:

- Initialize the necessary variables
- Call OneWorld business functions using `jdeCallObject`
- Receive errors generated by the business function

For more information regarding OneWorld business functions, see *OneWorld Business Functions* in the Additional Information section of this guide and *Business Functions* in the *Development Tools* guide.

The OneWorld error handling APIs were designed for internal use. They are discussed here to provide you with a means to retrieve application errors while calling Master Business Functions. The structure and functionality of these APIs may change with newer releases of OneWorld. Use these APIs with caution and retest your programs after upgrading to newer releases of OneWorld. The error handling APIs are denoted with double asterisks (**).

Variable Initialization

The `jdeCallObject` API requires two data structures:

- `lpBhvrCom`
- `lpVoid`

<code>lpBhvrCom</code>	A pointer to a data structure used for communication with business functions. Includes an environment handle.
<code>lpVoid</code>	A pointer to a void data structure currently used for error processing. Will be used for security in the future.

Members of these structures must be initialized using the OneWorld `jdeCreateBusinessFunctionParms` API. The memory allocated by these members must be de-allocated at the end of the program. The OneWorld API `jdeFreeBusinessFunctionParms` API performs this task.

jdeCreateBusinessFunctionParms

jdeCreateBusinessFunctionParms initializes members of lpBhvrCom and lpVoid to be used in external calls to business functions.

Syntax

```
BOOL jdeCreateBusinessFunctionParms(HUSER hUser, LPBHVRCOM * lpBhvrCom, LPVOID * lpVoid)
```

Parameters

Parameter	Notes	Usage
hUser	Valid user handle.	Required
lpBhvrCom	Standard lpBhvrCom.	Required
lpVoid	Standard lpVoid.	Required

Return Value

Returns TRUE if the variables were successfully initialized, otherwise returns FALSE.

jdeFreeBusinessFunctionParms

JdeFreeBusinessFunctionParms de-allocates memory used by members of lpBhvrCom and lpVoid that was allocated in the jdeCreateBusinessFunctionParms API.

Syntax

```
void jdeFreeBusinessFunctionParms(lpBhvrCom, lpVoid)
```

Parameters

Parameter	Notes	Usage
lpBhvrCom	Standard lpBhvrCom.	Required
lpVoid	Standard lpVoid.	Required

Return Value

Nothing.

jdeErrorInitializeEx**

jdeErrorInitializeEx allocates memory and initializes an error-related member of lpVoid.

To prepare for error handling, two more members of the lpVoid structure must be initialized. The first member can be initialized using the jdeErrorInitializeEx API. The memory allocated by this API must be de-allocated at the end of the program by the jdeTerminateEx API.

Syntax

LPJDEERROR_FORMHDR jdeErrorInitializeEx()

Parameters

None.

Return Value

Returns a LPJDEERROR_FORMHDR object, a member of lpVoid.

jdeErrorTerminateEx**

JdeErrorTerminateEx de-allocates memory previously allocated by jdeErrorInitializeEx.

Syntax

void jdeErrorTerminateEx (LPJDEERROR_FORMHDR lpHdr)

Parameters

Parameter	Notes	Usage
lpHdr	lpHdr initialized in jdeErrorInitializeEx.	Required

Return Value

Nothing.

jdeAlloc

Allocates a variable sized block of memory from a memory pool.

The other member of lpVoid needs to be initialized manually, using the jdeAlloc API. This memory needs to be de-allocated using the jdeFree API.

Syntax

```
Void *jdeAlloc(void * pMemory, unsigned long ulSize, unsigned int nFlags);
```

Parameters

pMemory	Memory pool to allocate from. In most cases will be COMMON_POOL.	Required
ulSize	Specifies the number of bytes to be allocated.	Required
nFlags	Specifies the characteristics of the allocated memory.	Required

Return Value

If the function succeeds, the return value is a void pointer to the allocated memory. If the function fails, jdeShutdown is called to close the application.

Additional Notes

The possible values for the parameter “nFlags” are as follows:

MEM_DEFAULT	The allocated memory is not initialized.
MEM_ZEROINIT	The allocated memory is initialized to NULL.
MEM_RESIZEABLE	Space is reserved above the allocated memory to expedite reallocation. Use only when the need to reallocate the memory is anticipated. This can affect performance.

jdeFree

The jdeFree API frees memory previously allocated from a memory pool.

Syntax

```
unsigned int jdeFree (void *pMemory);
```

Parameters

pMemory	Points to the memory to be freed. (Previously allocated by jdeAlloc or subsequently reallocated by jdeReAlloc.)	Required
---------	-----------------------------------------------------------------------------------------------------------------	----------

Return Value

If the function succeeds, the return value is non-zero. If the function fails, the return value is zero.

jdeCallObject

You can use JdeCallObject to call master, major, and minor business functions without having to manually build them into the project. Business functions have data structures associated with them, and these must be passed to them through jdeCallObject. The data structures are stored in header files, and must be included in your program. For example, the Address Book MBF Name is N0100041. The header file for this MBF is N0100041.h.

Syntax

```
ID jdeCallObject (char* szFunctionName, LPFNBHVR lpFnBhvr, LPBHVRCOM lpBhvrCom, void* lpVoidInfo, void* lpDS, CALLMAP* lpErrorMap, int nNumMap, char* szLibName, char* szExeLocation, int nFlags);
```

Parameters

Parameter	Notes	Usage
szFunctionName	The literal name of the function placed within double quotes.	Required
lpFnBhvr	Obsolete parameter.	Pass NULL
lpBhvrCom	Standard lpBhvrCom.	Required
lpVoidInfo	Standard lpVoid.	Required
lpDS	Pointer to the data structure of the called business function.	Required
lpErrorMap	Pointer to the call address of the CALLMAP array.	Optional – used for second level messaging.
nnumMap	The #define variable describing the number of indices used in the CALLMAP array.	Optional – used for second level messaging.
szLibName	Future Use.	Required
szExeLocation	Future Use.	Required
nflags	Error/Warning suppress.	Optional

Return Value

Returns 0 for success, 1 for warnings, and 2 for errors.

Application Error Retrieval

When application errors occur during a call to a business function, they are stored in a linked list. OneWorld APIs provide a means for retrieving these errors.

jdeErrorGetCountEx**

Returns the total number of errors and warnings. The second and the third parameters are pointers to the number of errors and warnings.

Syntax

int jdeErrorGetCountEx (LPBHVRCOM lpBhvrCom, LPINT lpiErrorCount, LPINT lpiWarningCount, LPVOID lpVoid)

Parameters

Parameter	Notes	Usage
lpBhvrCom	Standard lpBhvrCom.	Required
lpiErrorCount	Pointer to number of errors.	Required
lpiWarningCount	Pointer to number of warnings.	Required
lpVoid	Standard lpVoid.	Required

Return Value

Returns the number of errors plus the number of warnings.

jdeErrorSetToFirstEx**

Initializes the error list pointer to the beginning of the list.

Syntax

void jdeErrorSetToFirstEx (LPBHVRCOM lpBhvrCom, LPVOID lpVoid)

Parameters

Parameter	Notes	Usage
lpBhvrCom	Standard lpBhvrCom	Required
lpVoid	Standard lpVoid.	Required

Return Value

Nothing.

jdeErrorGetNextDDItemNameInfoEx**

Retrieves the next error in the error list.

Syntax

LPJDEERROR_RECORD jdeErrorGetNextDDItemNameInfoEx (LPBHVRCOM lpBhvrCom, LPVOID lpVoid)

Parameters

Parameter	Notes	Usage
lpBhvrCom	Standard lpBhvrCom.	Required
lpVoid	Standard lpVoid.	Required

Return Value

Returns a JDEERROR_RECORD data structure:

```

struct tagJDEERROR_RECORD
{
    HWND          hwndCtrl;
    int           iGridCol;
    int           iGridRow;
    ERROR_EVENT_KEY zEventKey;
    JDE_ERR_LEVEL iErrorLevel;
    LPSTR         lpszShortDesc;
    NID           szDict;
    int           iNumExtParams;
    LPSTR         *lpIpszParams;
    char          szBFDesc[BLC_MAXLEN_FCNAME + 1];
    LPSTR         lpszSubText;
    char          szFileName[(MAXLEN_PATHNAME +
        MAXLEN_FILENAME + MAXLEN_EXTNAME) * 2];
    int           iLineNo;
    BOOL          bSoundBeep;
    BOOL          bAddToList;
}
    
```

hwndCtrl	Handle to the current window.	Not Applicable
iGridCol	Grid column if error occurred on OneWorld form.	Not Applicable
iGridRow	Grid row if error occurred on OneWorld form.	Not Applicable
zEventKey		Not Applicable
iErrorLevel	1 - Error, 2 - Warning, 3 - Informational Message	
lpszShortDesc	Description of error.	
szDict	Data dictionary ID of the error message.	
iNumExtParams		Not Applicable
*lpIpszParams		Not Applicable
szBFDesc		Not Applicable
lpszSubText		
szFileName	Source file of error message.	
iLineNo	Line number of error message in source file.	
bSoundBeep	True - Sound Beep, False - Do not Sound Beep	
bAddToList	True - Add Error to List, False - Do not Add to List	

Example

This example illustrates how to use `jdeCallObject` to call the Address Book master business function. This example also illustrates the variable initialization and error handling routines. Values for the master business function data structure have been hard-coded for illustration purposes.

```
#include <n0100041.h>

HUSER                hUser          = NULL;
ID                   idResult;
int                  j                = 0;
INT                  NumErrors       = 0;
INT                  NumWarnings    = 0;
LPJDEERROR_RECORD   ErrorRec;
DSD0100041          dsAddressBookStruct;

// jdeCallObject variables

LPCG_BHVR            lpVoid          = NULL;
LPVOID               lpDS           = NULL;
LPBHVRCOM            lpBhvrCom      = NULL;
ERROR_EVENT_KEY      EventKeyLocal;

// Set up the lpBhvrCom amd lpVoid objects.

jdeCreateBusinessFunctionParms(hUser, &lpBhvrCom,(LPVOID*) &lpVoid);
lpVoid->lpHdr = jdeErrorInitializeEx();
lpVoid->lpErrorEventKey = (LPERROR_EVENT_KEY) jdeAlloc(COMMON_POOL,
    sizeof(ERROR_EVENT_KEY), MEM_ZEROINIT | MEM_FIXED);
lpVoid->lpHdr->nCurDisplayed = -1;
lpBhvrCom->lpObj->lpFormHdr = lpVoid->lpHdr;
EventKeyLocal.hwndCtrl = NULL;
EventKeyLocal.iGridCol = 0;
EventKeyLocal.iGridRow = 0;
EventKeyLocal.wEvent = 1;
lpBhvrCom->lpEventKey = (LPVOID)&EventKeyLocal;
```

```
//Initialize Address Book data structure

memset((void *) &dsAddressBookStruct, (int) '\0', sizeof(DSD0100041));

dsAddressBookStruct.cActionCode = 'A';
dsAddressBookStruct.cUpdateMasterFile = '1';
strncpy(dsAddressBookStruct.szLongAddressNumber, "EmployeeName",
        sizeof(dsAddressBookStruct.szLongAddressNumber));
strncpy(dsAddressBookStruct.szTaxId, "987654321", sizeof(dsAddressBookStruct.szTaxId));
strncpy(dsAddressBookStruct.szSearchType, "", sizeof(dsAddressBookStruct.szSearchType));
strncpy(dsAddressBookStruct.szAlphaName, "Employee Name",
        sizeof(dsAddressBookStruct.szAlphaName));

idResult = jdeCallObject("AddressBookMasterMBF", NULL, lpBhvrCom, lpVoid,
        (void *)&dsAddressBookStruct, (void *)NULL, (int)0, (char *)NULL, (char *)NULL, (int)0);

// Does the call have errors?

if (jdeErrorGetCountEx(lpBhvrCom, &NumErrors, &NumWarnings, lpVoid) > 0)
{
    jdeErrorSetToFirstEx(lpBhvrCom, lpVoid);
    while (ErrorRec = jdeErrorGetNextDDItemNameInfoEx(lpBhvrCom, lpVoid))
    {
        // Process Errors here
    }
}

// Free memory used by lpBhvrCom and lpVoid

jdeFree(((LPCG_BHVR)lpVoid)->lpErrorEventKey);
jdeErrorTerminateEx(((LPCG_BHVR)lpVoid)->lpHdr);
jdeFreeBusinessFunctionParms(lpBhvrCom, lpVoid);
```


Call the OneWorld Completion Confirmation API

Vendor-specific batch processes and functions in the Asynchronous Model call the OneWorld Completion Confirmation API each time they successfully process a record in the interface table. If the vendor-specific batch process or function failed in some way, it does not call this function. When this API is called, the associated record in the Processing Log Table is updated with a 'Y' in the Successfully Processed (EDSP) field.

When you call the OneWorld Completion Confirmation API from a batch process, call it in the same way you would call a business function. The example at the end of this chapter illustrates how to call this API from a third-party function.

InteropOutboundConfirmationFunc

InteropOutboundConfirmationFunc updates the corresponding record in the Processing Log Table with a 'Y' in the Successfully Processed (EDSP) field.

Syntax

ID InteropOutboundConfirmationFunc (LPBHVRCOM lpBhvrCom, LPVOID lpVoid, LPDSD0000195B lpDS);

Parameters

lpBhvrCom	Standard lpBhvrCom.
lpVoid	Standard lpVoid.
lpDS	Pointer to the data structure of this API.

Return Value

Returns ER_SUCCESS if the API succeeds. Returns ER_ERROR if the API fails.

Data Structure

The data structure for this API is as follows:

Data Item	Description	Required	I/O
EDUS	User ID - 11 Characters	Y	I
EDBT	Batch Number - 16 Characters	Y	I
EDTN	Transaction Number - 23 Characters	Y	I
EDLN	Line Number - Double	Y	I

TYTN	Transaction Type - 9 Characters	Y	I
DCTO	Document Type - 3 Characters	Y	I
SEQ	Sequence Number - Double	N	I
ERR1	Error Encountered - 1 Character	N	O

Example: Vendor Function

This example contains hard-coded values for illustration purposes.

```

/* Declaration of variables */

LPBHVRCOM lpBhvrCom = NULL;
LPVOID lpVoid = NULL;
ID rcode = ER_SUCCESS;
DSD0000195B dsOutboundConfStruct;

/* Fill in the structure containing data you wish to insert */
strncpy(dsOutboundConfStruct.szUserId, "AA1234567", sizeof(dsOutboundConfStruct.szUserId));
strncpy(dsOutboundConfStruct.szBatchNumber, "123456789",
        sizeof(dsOutboundConfStruct.szBatchNumber));
strncpy(dsOutboundConfStruct.szTransactionNumber, "000001",
        sizeof(dsOutboundConfStruct.szTransactionNumber));
ParseNumericString(&dsOutboundConfStruct.dLineNumber, "1");
strncpy(dsOutboundConfStruct.szTransactionType, "JDEAB",
        sizeof(dsOutboundConfStruct.szTransactionType));
strncpy(dsOutboundConfStruct.szOrderType, " ", sizeof(dsOutboundConfStruct.szOrderType));

/* Call Confirmation API */

if ((rcode = InteropOutboundConfirmationFunc (lpBhvrCom, lpVoid, lpDS) != ER_SUCCESS)
    {
    printf("Outbound Confirmation API call failed\n");
    return (0);
    }
    
```

Place an Entry in the Subsystem Data Queue

Subsystem jobs are continuous jobs that process records from a data queue and run until you request an end to the job. Subsystem jobs read records one at a time for a subsystem table, retrieve information from the particular record, and run a configurable processing engine for each record. At the end of the records, instead of ending the job, subsystem jobs wait for a specific period and then retrieve the information for each record once again. For each subsystem job, there can be multiple records in the subsystem table.

You start a subsystem job as you would a regular batch job. Unlike batch jobs, subsystem jobs can only run on a server.

Before processing, OneWorld makes sure that limits for the subsystem job on the particular server have not been exceeded. If exceeded, the configurable processing engine will not process the subsystem job.

To add a record to the subsystem table, you use the `jdeCallObject` API. For more information regarding this API, see *Calling OneWorld Business Functions* in the Detailed Tasks for OneWorld APIs section in this guide.

See Also

- The *System Administration Guide* for more information about subsystem jobs.

Inbound Transaction Subsystem Data Structure

When you use `jdeCallObject`, you call the `AddInboundTransToSubsystemQueue` business function. This business function is a generic function that writes a record to the subsystem data queue to specify a batch process that must be activated in the subsystem. The data structure to be used in `jdeCallObject` is included in the header file `b0000176.h`.


```
typedef struct tagDSD0000176A
{
    char          szUBENAME[11];
    char          szVersion[11];
    char          szUserId[11];
    char          szBatchNumber[16];
    char          szTransactionNumber[23];
    MATH_NUMERIC mnLineNumber;
    Char          cSuppressErrorMessage;
    char          szFunctionName[51];
    char          szFunctionLibrary[257];
} DSD0000176A, *LPDSD0000176A;
```

SzUBENAME	Subsystem UBE Name.
SzVersion	Subsystem UBE Version.
SzUserId	User ID.
SzBatchNumber	Batch Number.
SzTransactionNumber	Transaction Number.
MnLineNumber	Line Number.
C SuppressErrorMessage	Suppress Error Messages Flag.
SzFunctionName	Confirmation Function Name (Optional).
SzFunctionLibrary	Confirmation Function Library (Optional).

The Batch Number, Transaction Number, and Line Number are the values from the record that were entered into the Interface Table.

Requesting Inbound Transaction Confirmation

You can request an inbound transaction confirmation when records are placed in the subsystem data queue. This confirmation notifies the third party if the inbound transaction is successful. A custom function must be provided to process the confirmation. To request the inbound confirmation, populate the subsystem data structure members SzFunctionName and SzFunctionLibrary with the name of the custom function and the full name of the library containing the function, including the path. For more information about the Confirmation Function, see *Processing the Inbound Transaction Confirmation*.

Example

This example contains hard-coded values for illustration purposes.

```
#include <b0000176.h>

DSD0000176A dsSubsystemStruct;

memset((void *)&dsSubsystemStruct, (int)('\0'), sizeof(DSD0000176A));

strncpy(dsSubsystemStruct.szUBENAME, (const char *) "R01010Z",
        sizeof(dsSubsystemStruct.szUBENAME));
strncpy(dsSubsystemStruct.szVersion, (const char *) "ZJDE0002", sizeof(dsSubsystemStruct.szVersion));
dsSubsystemStruct.cSuppressErrorMessage = '0';
strncpy(dsSubsystemStruct.szUserId, (const char *) "AA1234567", sizeof(dsSubsystemStruct.szUserId));
strncpy(dsSubsystemStruct.szBatchNumber, (const char *) "123456789",
        sizeof(dsSubsystemStruct.szBatchNumber));
strncpy(dsSubsystemStruct.szTransactionNumber, (const char *) "000001",
        sizeof(dsSubsystemStruct.szTransactionNumber));
ParseNumericString(&dsSubsystemStruct.mnLineNumber, "1");
strncpy(dsSubsystemStruct.szFunctionName, (const char *) "InboundConfirm",
        sizeof(dsSubsystemStruct.szFunctionName));
strncpy(dsSubsystemStruct.szFunctionLibrary, (const char *) "confirm.dll",
        sizeof(dsSubsystemStruct.szFunctionLibrary));

rcode = jdeCallObject("AddInboundTransToSubsystemQueue", NULL, lpBhvrCom, lpVoid,
                    (LPVOID) &dsSubsystemStruct, (CALLMAP *)NULL, (int)0, (char *)NULL, (char *)NULL,
                    (int)0);

if (rcode == 0)
{
    printf("Success\n");
}

if (rcode == 1)
{
    printf("Warning\n");
}

if (rcode == 2)
{
    printf("Error\n");
}
```


Detailed Tasks for OneWorld Operations



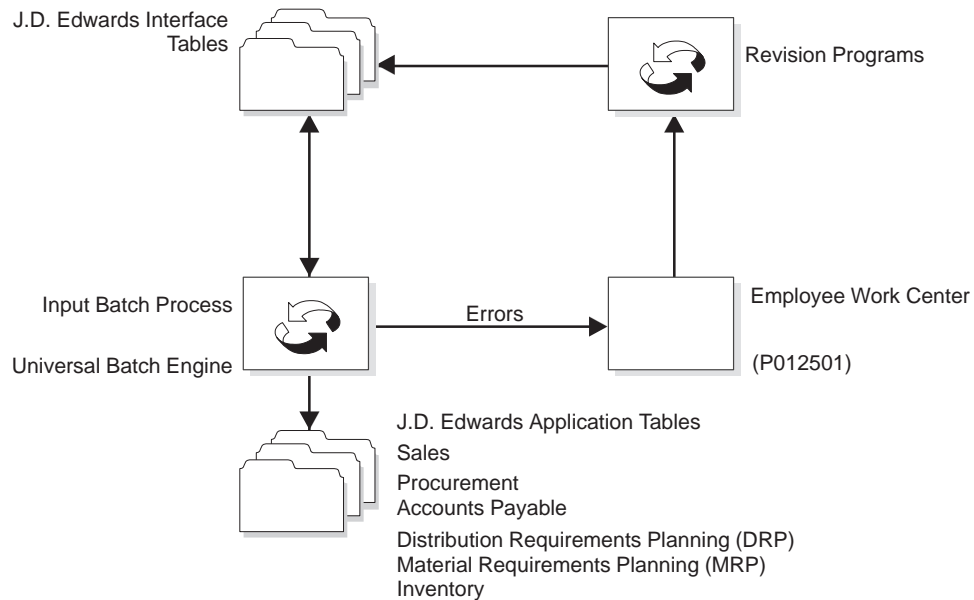
Detailed Tasks for OneWorld Operations

The interoperability tasks you need to perform are based on the method of access you choose to use. The following tasks are the standard OneWorld setup or operational procedures that you may use:

- Run an Input Batch Process
- Run an Extraction Batch Process
- Run a Subsystem Job from a OneWorld Menu
- Enable Outbound Transaction Processing
- Subscribe to the Outbound Transaction
- Check for Errors
- Use the Revisions Application
- Import from Flat Files



Run an Input Batch Process



To update J.D. Edwards applications, run the Input Batch Process. The Input Batch Process access report contains information specific to each transaction type supported by J.D. Edwards.

The Input Batch Process uses the data in the interface tables to update the appropriate J.D. Edwards application tables. For example, when you receive a purchase order from a third-party application, the Input Batch Process for customer orders updates the sales application and creates a sales order based on the data from the purchase order.

When you choose Input Batch Process, the program displays a version list of report features. You can use an existing report feature version, change an existing report feature version, or add a report feature version. When using a report feature version, you can change the processing options and data selection for that version to fit your needs.

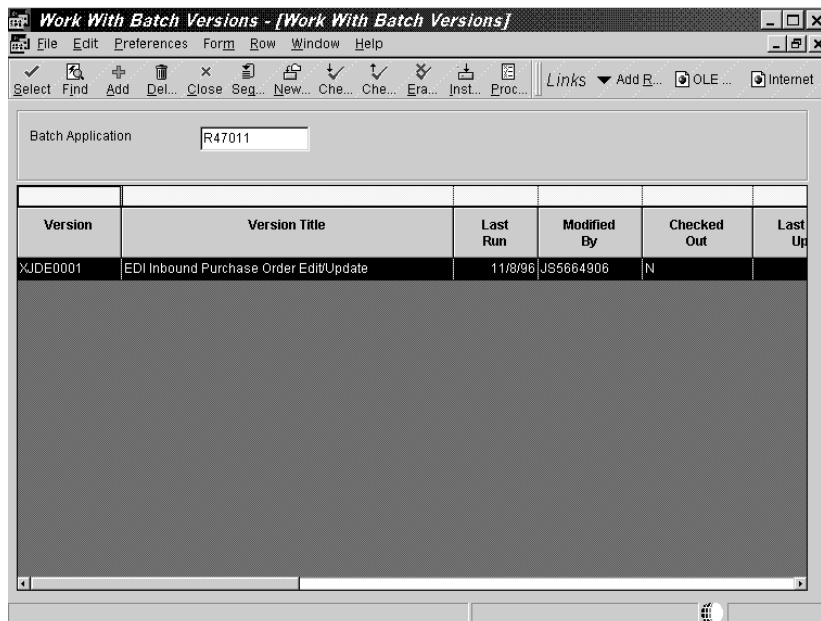
If the Input Batch Process encounters errors while moving the data from the interface tables to the application programs, it sends error messages to the Employee Work Center on the Workflow Management menu (G02).

When the Input Batch Process program finishes, it generates an audit report that lists the transactions that were processed, totals for the number of processed transactions, and errors that occurred during processing.

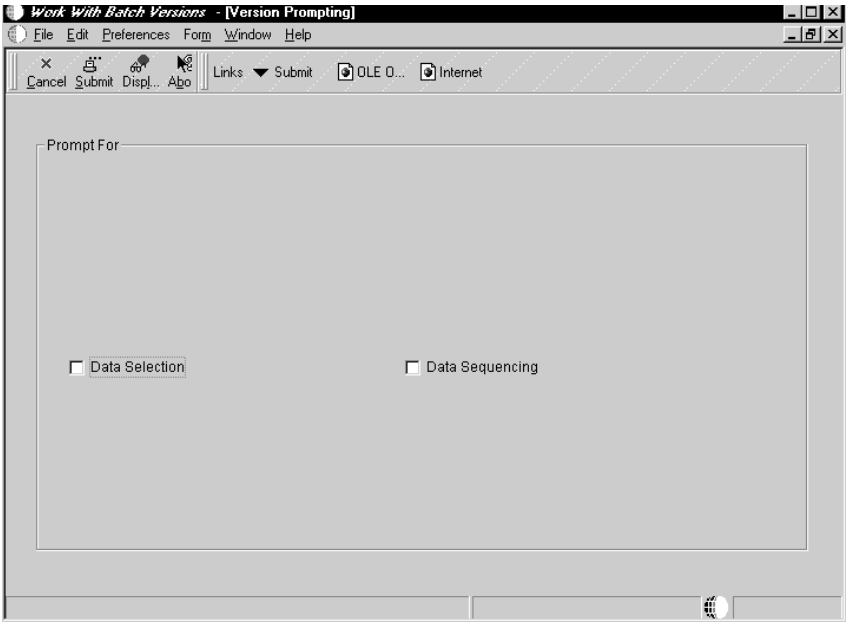
► To run an input batch process

Start the Input Batch Process for the transaction type of Import. See *Appendix B* for a list of Input Batch processes.

On Work With Batch Versions



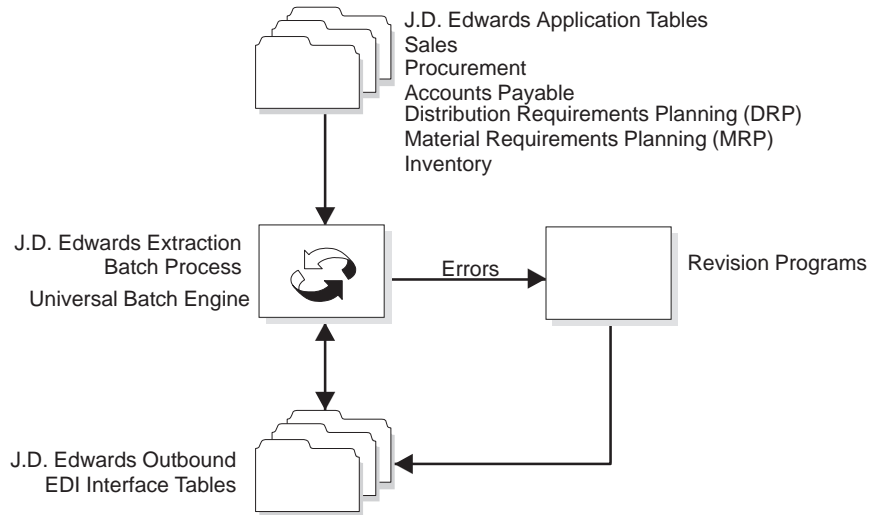
1. Review the processing options to determine how the data is processed by the Inbound Edit/Update program.
2. Choose the version you want to run and click Select.



- 3. On Version Prompting, click any of the following to review the report feature options:
 - Data Selection
 - Data Sequencing
- 4. Click the Submit button.

Field	Explanation
Data Selection	Check box to change data selection before report is submitted or previewed.
Data Sequencing	Check box to change data sequencing before report is submitted or previewed.

Run an Extraction Batch Process



To begin, you must copy the records from your J.D. Edwards application tables to the J.D. Edwards outbound interface tables. To copy the records, use the Extraction Batch Process that is specifically set up for the type of document you are sending.

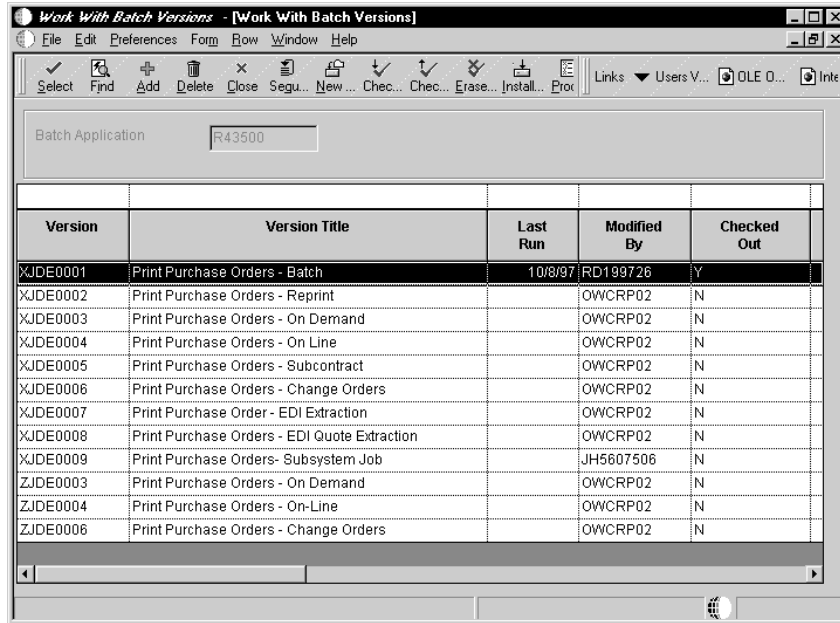
The Extraction Batch Process displays a version list of report features. You can run an existing version, change an existing version, or add a version. You can also change the processing options and data selection options for that version to fit your needs.

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.

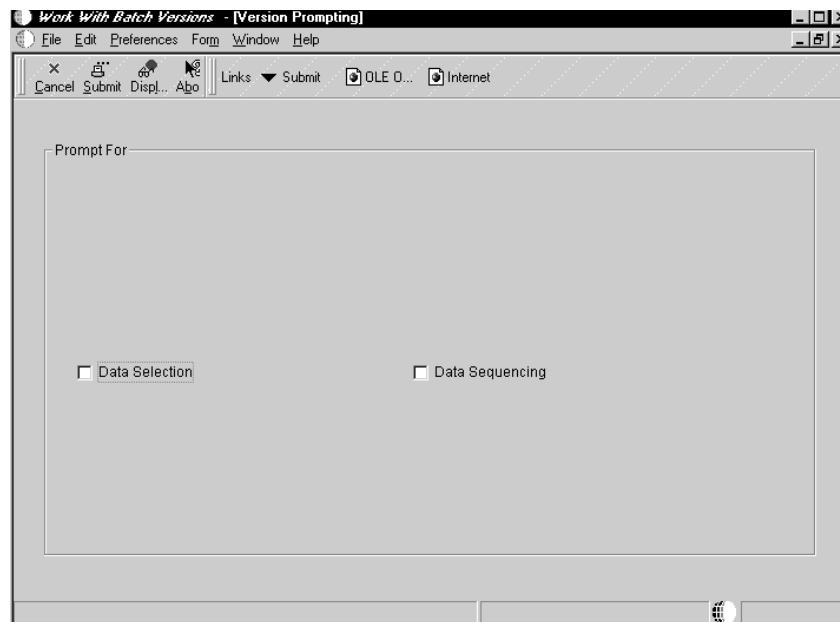
► To run an Extraction Batch Process

Start the Extraction Batch Process for the transaction type you want to export. See *Appendix B* for a list of Extraction Batch Processes.

On Work With Batch Versions



1. Choose the version you want to run and 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.

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 also generates an audit report that lists which documents completed successfully.

Field	Explanation
Data Selection	Check box to change data selection before report is submitted or previewed.
Data Sequencing	Check box to change data sequencing before report is submitted or previewed.

Run a Subsystem Job from a OneWorld Menu

Subsystem jobs are continuous jobs that process records from a data queue. This type of job runs until you request an end to the job. Subsystem jobs read records one at a time for a subsystem table, retrieve information from the particular record, and run a configurable processing engine for each record. At the end of the records, instead of ending the job, subsystem jobs wait for a specific period and then retrieve the information for each record once again. For each subsystem job, there can be multiple records in the subsystem table.

You start a subsystem job as you would a regular batch job. There is no difference between running a subsystem job and running a batch job.

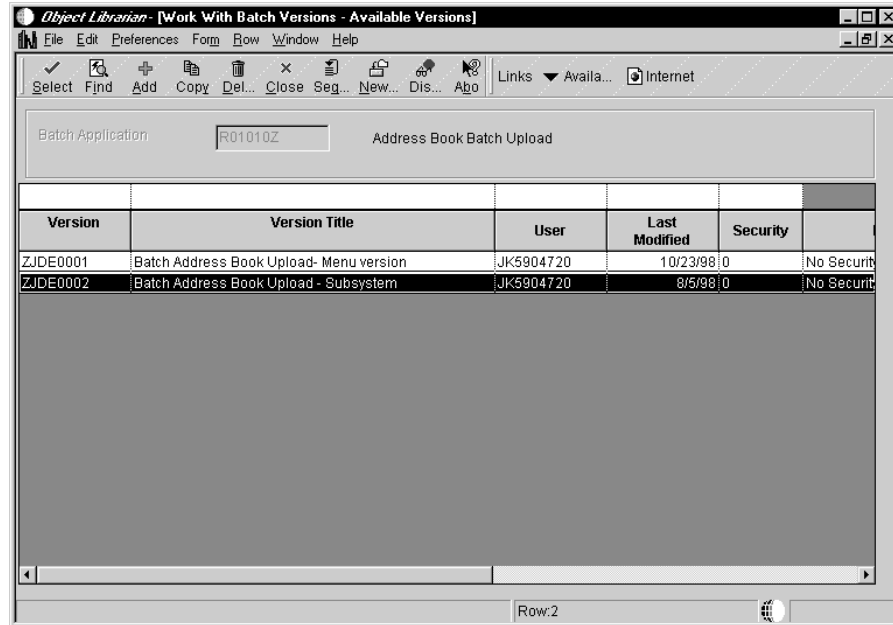
Before processing, OneWorld makes sure that limits for the subsystem job on the particular server have not been exceeded. If these limits are exceeded, the configurable processing engine will not process the subsystem job.

► To run a subsystem job

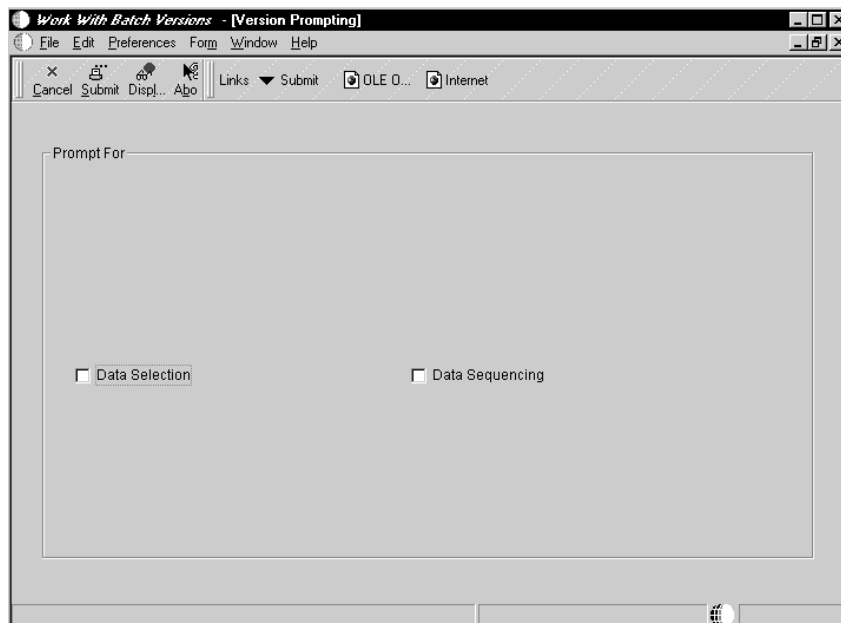
Start either the Inbound Processor batch process for the transaction type you wish to import or the Interoperability Generic Outbound Subsystem batch process (R00460). See *Appendix B* for a list of Input Process batch processes.

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

On Work With Batch Versions – Available Versions



1. Choose the subsystem version you want to run and click Select.



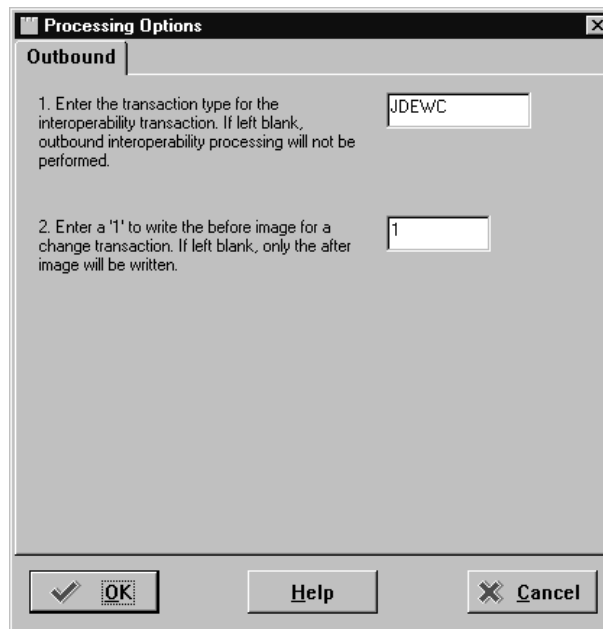
2. On Version Prompting, click any of the following to review the report feature options:
 - Data Selection
 - Data Sequencing
3. Click the Submit button.

Enable Outbound Transaction Processing

All outbound master business functions used 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 set to “1”, before and after images of the transaction are written to the interface table. If this is not set, then only an after image is written.

► To enable outbound transaction processing

1. Right-click the application that contains the processing options for the transaction’s master business function. See *Appendix B* for a list of these applications.
2. Choose Prompt for Values from the menu.



The screenshot shows a dialog box titled "Processing Options" with a tab labeled "Outbound". The dialog contains two input fields with instructions:

- Field 1: "1. Enter the transaction type for the interoperability transaction. If left blank, outbound interoperability processing will not be performed." The input field contains the text "JDEWC".
- Field 2: "2. Enter a '1' to write the before image for a change transaction. If left blank, only the after image will be written." The input field contains the text "1".

At the bottom of the dialog, there are three buttons: "OK" (with a checkmark icon), "Help", and "Cancel" (with an 'X' icon).

3. Click either 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.
5. Click OK.

Subscribe to Outbound Transactions

Subscribing to outbound transactions involves using the following:

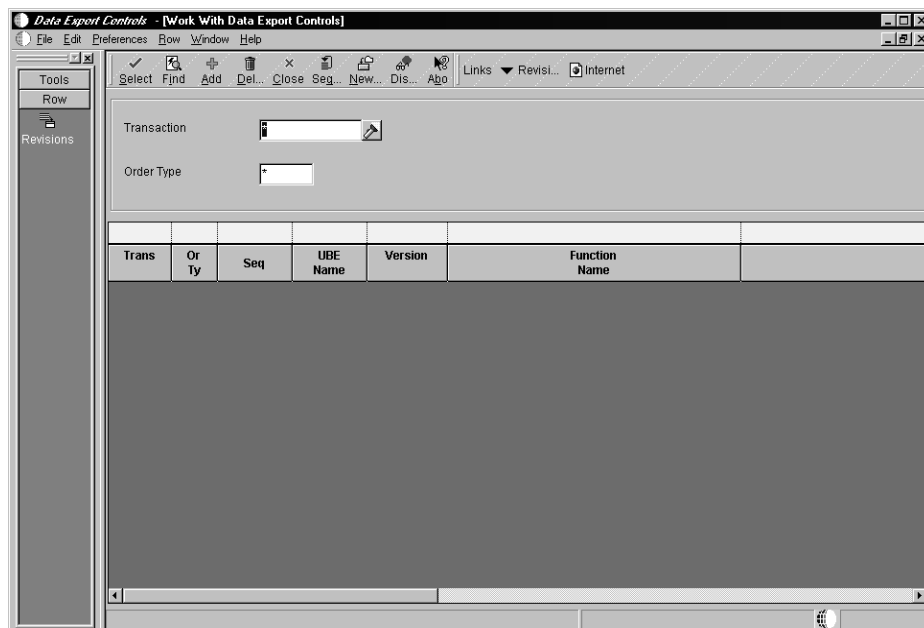
- Data Export Control Table
- Processing Log Table

Using the Data Export Control Table

The flow of outbound data to third parties is controlled through the Data Export Controls application. For each transaction type and order type, one or more records can be defined with different batch process names and versions, or function names and libraries. This allows for the subscription of multiple vendor-specific objects for an interoperability transaction. Records in this table determine the vendor-specific objects to call from the Outbound Subsystem batch process (R00460) or Outbound Scheduler batch process (R00461) for each transaction processed by the batch process.

► To use the Data Export Control Table

On Work With Data Export Controls



1. Click Add.
2. Complete the following fields:
 - Transaction Type
 - Order Type
3. For each detail row, enter the following:
 - Either a batch process Name and Version, or a Function Name and Library.

Only one set can be entered.

- Enter a '1' in the Execute for Add column if you want the vendor-specific object to be launched for an add/insert.

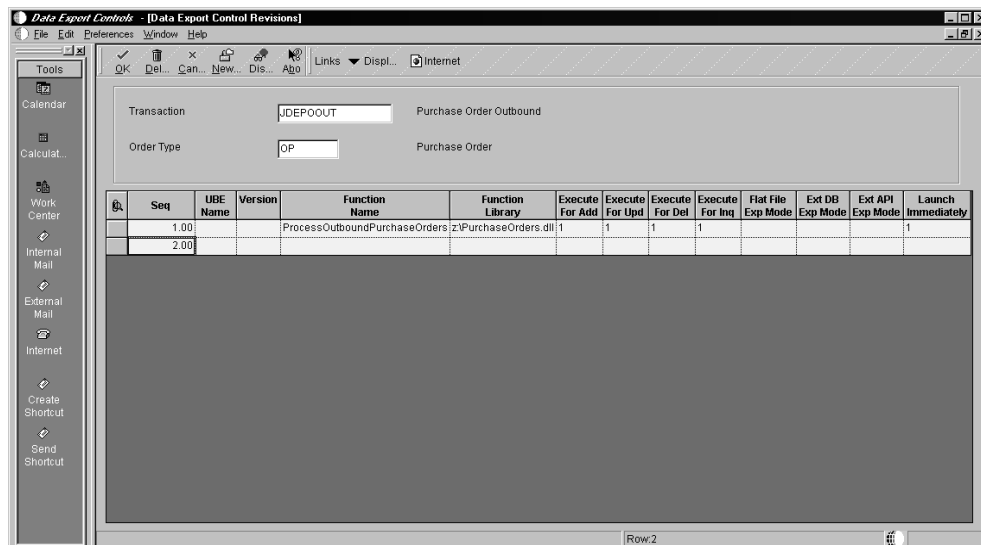
Make the same decision for update, delete, and inquiry and put a '1' in the appropriate column.

- Enter a '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.

In B733, the Export Mode columns are not used.

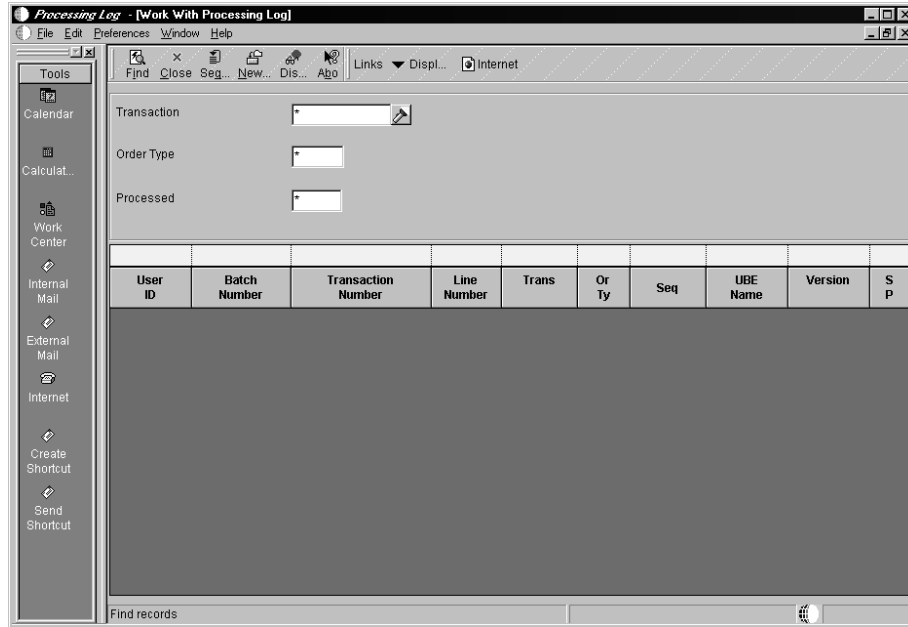
4. The Sequence Number automatically increments for each line.



Processing Log Table

You use the Processing Log application (P0046) to determine whether a vendor-specific object processed the interoperability transaction correctly. The Processing Log table contains the keys to the interoperability transaction; the transaction type, order type, and sequence number from the Data Export Control table; the batch process and version from the Data Export Control table if these columns were filled in; and a successfully processed column. A vendor-specific record is sequentially created in this table for every transaction processed by the Outbound Subsystem batch process. For example, if three vendors have subscribed to a transaction using Data Export Controls, three records are created in the Processing Log table 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.

Data in the Processing Log table cannot be changed from this application. There is no way to change data in this table through OneWorld applications.

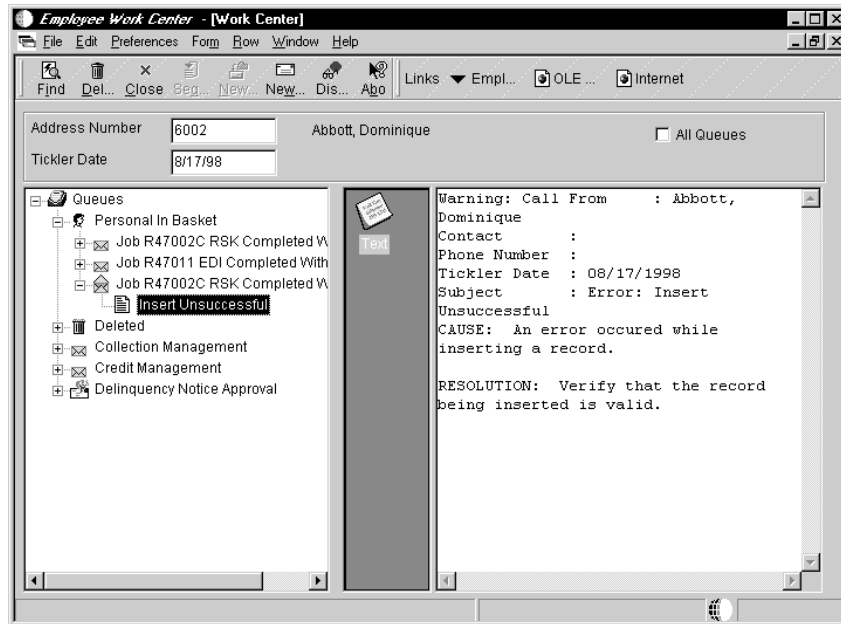


Check for Errors

You can check for errors that occur when running Inbound, Extraction, and Flat File Processing.

Inbound Flat File Processing

If the flat file was not successfully processed, check the Employee Work Center and Status Inquiry programs to determine if any errors have occurred when running the Flat File Conversion program (R47002C). See the *OneWorld Foundation Guide* for the process on checking the Employee Work Center for errors.



In the example above, an “Insert Unsuccessful” error message was generated due to a record already existing in the interface files with duplicate keys.

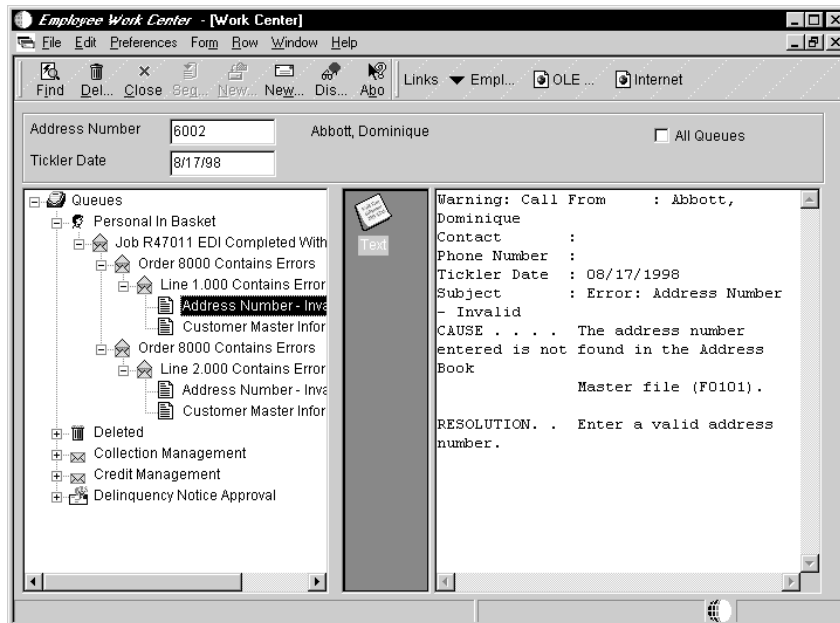
If the flat file was not successfully processed, correct the error condition, and run the Flat File Conversion program again.

Inbound and Extraction Batch Processing

To determine if an error occurred while running an inbound or extraction batch process, review the Batch Processor Audit Report.

R47011 J.D. Edwards & Company							8/17/05 15:35:58
EDI Inbound Purchase Order Edit/Cre							Page - 1
Line Contains	EditDocNo/ Type /Co	Line	Sold T/	Item Number	Quantity	Extended	
Errors Y/N	Order No / Type /Co	Number	Ship To	Description		Amount	
Y	8000 SZ 00000	1.000	4242 Capital System	WAGON	20		
	SO 00001		51765				
Y	8000 SZ 00000	2.000	4242 Capital System	230	15		
	SO 00001		51765				

If a “Y” appears in the left-hand column of the report, an error condition occurred during processing. Access the Employee Work Center for detailed error messages.



In the example above, an error condition occurred while running the Inbound Processor due to the fact that the customer number being processed did not exist in the Address Book. Ensure that each Sold-To-and Ship-To address is properly set up in the Address Book and in the Customer Master.

Some error messages might contain a shortcut, which appears as a OneWorld icon in the middle column of the Employee Work Center. When you click this shortcut, the system invokes the Revisions Application, where you can view the record in error and make any necessary changes to that record. After correcting all of the records, you can resubmit the batch processor to process the remaining records.

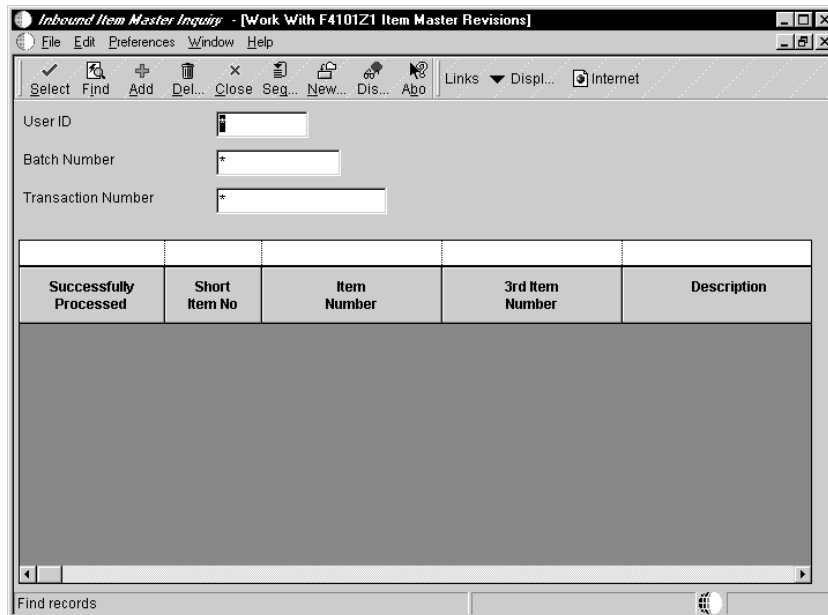
Use a Revisions Application

Revisions applications are 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 using. You can use the revisions application to correct the record in error, if there was an error while processing inbound transactions. You then run the transaction process again, continuing to make corrections and rerun the transaction process until the program completes without errors. When deleting records, the revisions application calls the appropriate purge named event rule to delete records. See *Appendix B* in this guide for a list of the revisions applications.

► To review and revise inbound transactions

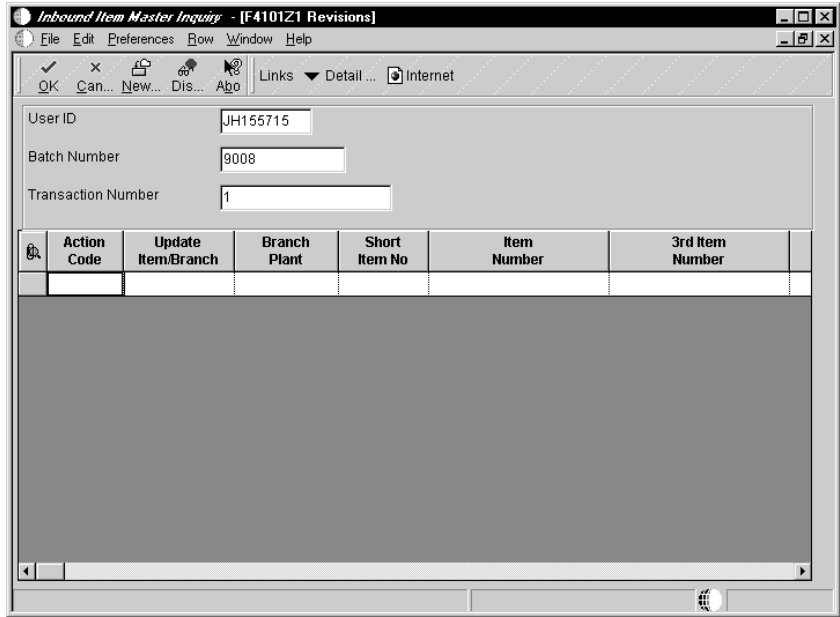
From the Interoperability menu choose the Revisions Application you wish to use.

On the Revisions Application you wish to use (for example, Work With Item Master Revisions)



1. To limit the search to specific transactions, complete the following fields:
 - User ID
 - Batch Number

- Transaction Number
2. Click Find.
 3. Choose the transaction to review and revise and click Select.

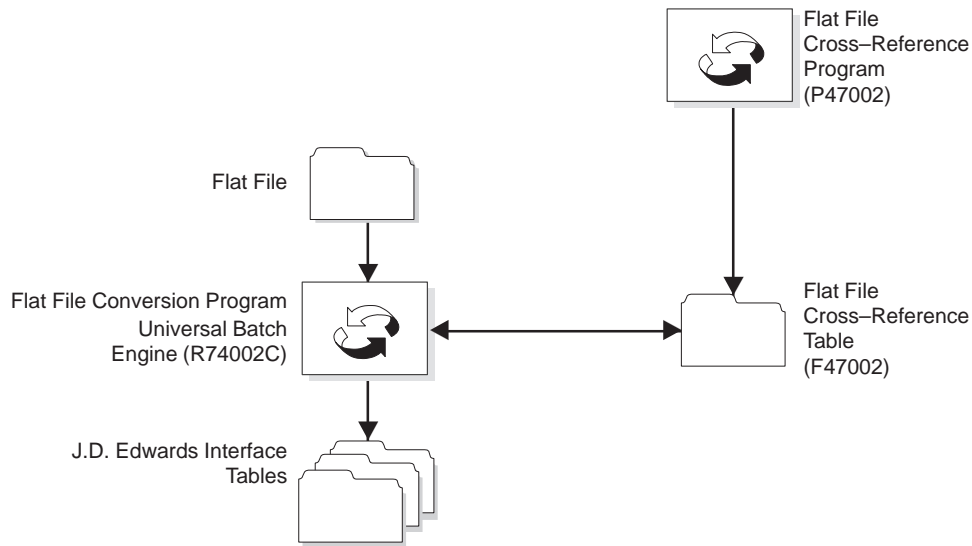


4. On Revisions, review and revise as needed, and click OK.
5. If applicable, choose Detail Revisions from the Row menu to review or change additional detail information, and click OK when finished.

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.

Field	Explanation
User ID	The source of the transaction. This can be a user ID, a workstation, the address of an external system, a node on a network, and so on. This field helps identify both the transaction and its point of origin.
Batch Number	The number assigned to the batch. During batch processing, the system assigns a new batch number to the J.D. Edwards transactions for each control (user) batch number it finds.
Transaction Number	This is the number that an Electronic Data Interchange (EDI) transmitter assigns to a transaction. In a non-EDI environment, you can assign any number that is meaningful to you to identify a transaction within a batch. It can be the same as a J.D. Edwards document number.

Import from Flat Files



You use a flat file conversion program to import flat files into J.D. Edwards interface tables. The user can create a separate version of the Inbound Flat File Conversion program (R47002C) for each interface table. The Conversion program recognizes both the flat file it is reading from and the record types (record type user defined code table (00/RD)) within the flat file. Each flat file contains records of differing lengths based on the interface table record they correspond to. The Conversion program uses the Flat File Cross Reference table (F47002) to convert the flat file into the interface tables. The Flat File Cross Reference table indicates to the Conversion program which flat file to read from based on the transaction type you are receiving.

The Conversion program reads each record in the flat file and maps the record data into each field of the interface tables based on the text qualifiers and field delimiters specified in the flat file.

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, it withholds the data in error and continues conversion processing. If the data is successfully converted, the Conversion program automatically runs the Inbound Processor batch process for that interface table, if you set the processing options in the Conversion program to do so. For more information about error checking, see *Checking for Errors*.

You can use the OneWorld Inbound Processor to process the data once it is in the interface tables. If the Conversion program successfully converts all data into the interface tables, it automatically deletes the flat file after the conversion.

Setup Requirements for Flat File Conversion

If you use a flat file conversion, every field in the interface tables must be written to, even if the field is blank. For EDI, the translator software programs do this. The translator software used for EDI must be able to create a flat file, create fields, and put in delimiters. The default text qualifier is a double quote (“ ”) and the default field delimiter is a comma (.). However, any field delimiter and text qualifier may be used as long as they do not interfere with the interpretation of the fields. Use the processing options on the Conversion program to define what text qualifiers and field delimiters you will use.

If you are receiving documents with decimal numbers, you must use a place holder (such as a period) to indicate the position of the decimal. You define the place holder in the User Preference table (see the *OneWorld Foundation Guide* for more information).

The first field value in a flat file record indicates the record type. In other words, the first field value indicates to the Conversion program which interface tables to insert the record. Record type values are defined and stored by the record type user defined code table (00/RD).

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 that the columns must appear in the same order as in the table.

Suppose a record in the header table looked like the following:

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

► **To import from flat files**

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

On Work With Batch Versions

The screenshot shows a window titled "Work With Batch Versions - [Work With Batch Versions]". The window has a menu bar (File, Edit, Preferences, Form, Row, Window, Help) and a toolbar with various icons. Below the toolbar, there is a "Batch Application" field containing "R47002C" and the text "Inbound Flat File Conversion". The main area is a table with the following columns: Version, Version Title, User, Last Modified, and Security.

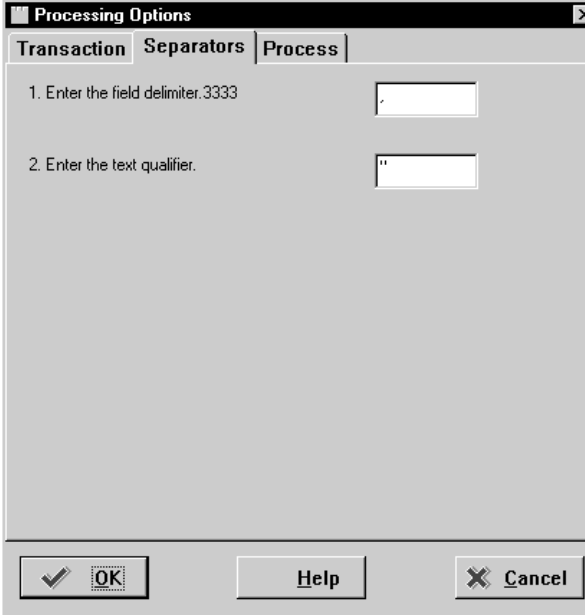
Version	Version Title	User	Last Modified	Security
XJDE0001	Inbound EDI Purchase Order Flat File Conversion	AC277173		0
XJDE0002	Inbound EDI Product Activity Flat File Conversion	TI5521702		0
XJDE0003	Inbound Receipt Routing Data	TI5521702		0
XJDE0004	Inbound Hours and Quantities Data	TI5521702		0
XJDE0005	Inbound Item Master Data	TI5521702		0
XJDE0006	Inbound Cycle Count Master Data	TI5521702		0
XJDE0007	Inbound Receipts Data	TI5521702		0
XJDE0008	Inbound Work Order Data	TI5521702		0
XJDE0009	Inbound Messages Data	TI5521702		0
XJDE0010	Inbound Super Backflush Data	TI5521702		0
XJDE0011	Inbound Completions Data	TI5521702		0
XJDE0012	Inbound Inventory Issues Data	TI5521702		0
XJDE0013	Inbound Employee Master Data	TI5521702		0
XJDE0014	Inbound Asset Master/Eq Tag Transaction Data	RA5237023	8/3/98	0

At the bottom of the window, it says "Row:4".

1. Choose the program version that you want to use.
2. From the Row menu, choose Processing Options.

The screenshot shows a dialog box titled "Processing Options". It has three tabs: "Transaction", "Separators", and "Process". The "Transaction" tab is selected. The dialog contains the text "1. Enter the transaction to process." followed by a text input field containing "JDEPOIN". At the bottom, there are three buttons: "OK", "Help", and "Cancel".

3. Click the Transaction tab and enter the transaction type that you are importing, for example, "JDEPOIN."
4. Click the Separators tab and enter the field delimiter character and the text qualifier character your system uses to identify fields and text.

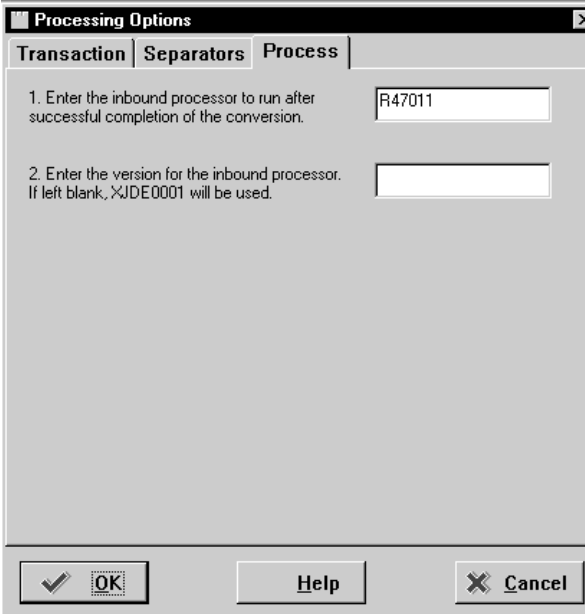


The screenshot shows the 'Processing Options' dialog box with the 'Separators' tab selected. The dialog has three tabs: 'Transaction', 'Separators', and 'Process'. The 'Separators' tab contains two numbered instructions with corresponding input fields:

- 1. Enter the field delimiter.3333
- 2. Enter the text qualifier.

At the bottom of the dialog are three buttons: 'OK' (with a checkmark icon), 'Help', and 'Cancel' (with an 'X' icon).

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.



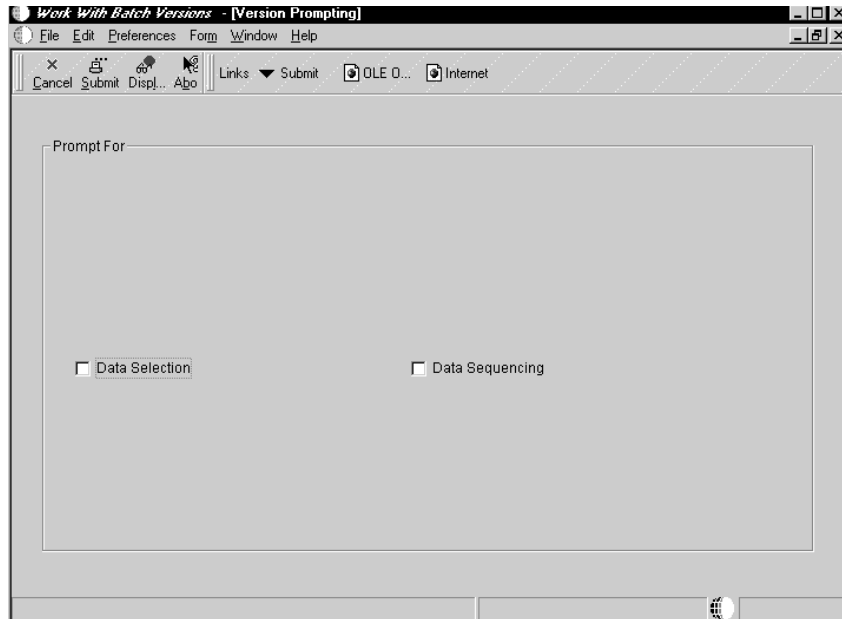
The screenshot shows the 'Processing Options' dialog box with the 'Process' tab selected. The dialog has three tabs: 'Transaction', 'Separators', and 'Process'. The 'Process' tab contains two numbered instructions with corresponding input fields:

- 1. Enter the inbound processor to run after successful completion of the conversion.
- 2. Enter the version for the inbound processor. If left blank, XJDE0001 will be used.

At the bottom of the dialog are three buttons: 'OK' (with a checkmark icon), 'Help', and 'Cancel' (with an 'X' icon).

6. Click OK.

7. On Work With Batch Versions, click Select.



8. On Version Prompting, click any of the following to review the report feature options:
 - Data Selection
 - Data Sequencing
9. Click the Submit button.

Detailed Tasks for Custom Programming



Detailed Tasks for Custom Programming

The interoperability tasks you need to perform are based on the method of access you choose to use. You may need to use custom programming to:

- Process Outbound Transactions
- Process Inbound Transaction Confirmation



Process Outbound Transactions

After outbound records are written to the interface tables, they must be processed by either a third-party function or a OneWorld batch process. The function or batch process can be written to your specifications, but it must accept the input parameters defined below. When the function or batch process has finished processing and is successful, it calls the Interoperability Outbound Confirmation Function API. This API marks the processing log record as successfully processed. This API can either be called from the third-party function, the outbound batch process, or it can be called from another object in the third-party's system process. See *Call OneWorld Completion Confirmation API* for more details.

Vendor-Specific Outbound Batch Processes

The purpose of the vendor-specific outbound batch process is to process unedited transaction table records in a batch mode, either in a batch-of-one or in true batch mode. The batch process is called by the generic outbound subsystem batch process, 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
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

Vendor-Specific Outbound Functions

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

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 OneWorld, 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

Process Inbound Transaction Confirmation

You can provide a confirmation function to alert a third party that a transaction has been processed. The confirmation function also provides notification about whether the transaction processed successfully. 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 character

The first four parameters are the key to the processed transaction. The last parameter is a success/fail flag. The library containing the function must be located on the same server that processes the inbound records.

To request inbound transaction confirmation, the name of the function and the 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. See *Placing Entries in the Subsystem Data Queue* for more details on this data structure.

After the subsystem batch process finishes processing the transaction, it calls the inbound confirmation function, passing the key to the processed transaction and the notification about whether the transaction was successfully processed. The third party must decide how the confirmation function uses this information.

Additional Information



Additional Information

There is additional information that is useful for you to know in order to complete some tasks. The following topics provide additional information:

- Formatting Data
- Using Scheduler
- Using OneWorld Business Functions



Formatting Data

When data is sent from external systems into OneWorld, either through the Interface Table or by directly calling the master business functions, it must be formatted into OneWorld data types. There are two main data types provided by OneWorld:

- MATH_NUMERIC
- JDEDATE

It is possible that these data types may change. For that reason, it is critical that you use the Common Library APIs provided by OneWorld to manipulate variables of these data types.

MATH_NUMERIC Data Type

There are no numeric values stored within the OneWorld database. Numeric values are stored as a MATH_NUMERIC data type. A MATH_NUMERIC is a structure that contains all the required information to execute mathematical operations on a stored value. This data type allows the attributes of a number to be stored directly with the value, providing greater flexibility when formatting the number for display.

```
Struct tagMATH_NUMERIC
{
    char    String [MAXLEN_MATH_NUMERIC + 1];
    char    Sign;
    char    EditCode;
    short   nlength;
    short   nLength;
    WORD    wFlags;
    char    szCurrency [4];
    short   nCurrencyDecimals;
    short   nPrecision;
};

typedef struct tagMATH_NUMERIC NATH_NUMERIC, FAR *LPMATH_NUMERIC;
```

MATH_NUMERIC Element	Description
String	The digits without separators
Sign	A minus sign indicates the number is negative, otherwise the value is 0x00.
EditCode	The data dictionary edit code used to format the number for display.
nDecimalPosition	The number of digits from the right to place the decimal.

nLength	The number of digits in the String.
wFlags	Processing flags.
szCurrency	The currency code.
nCurrencyDecimals	The number of currency decimals.
nPrecision	The data dictionary size.

MATH_NUMERIC APIs from the Common Library

Following are commonly used OneWorld MATH_NUMERIC APIs:

DoubleToMathNumeric	Copies the numeric value of a variable of type double to a variable of type math numeric.
FormatMathNumeric	Formats a JDE MATH_NUMERIC into a fully formatted string, ready for output.
IncrementMathNumeric	Increments or decrements a referenced MATH_NUMERIC by one.
IntToMathNumeric	Converts an integer to a MATH_NUMERIC.
LongToMathNumeric	Converts a long to a MATH_NUMERIC.
MathAdd	Adds parameter two to parameter three and returns the sum in parameter one. All parameters are MATH_NUMERIC data types.
MathCompare	Returns a "1" if parameter one is greater than parameter two; returns a "-1" if parameter two is greater than parameter one. Both parameters are MATH_NUMERIC data types.
MathCompareAbsolute	Same as MathCompare, except that it will compare the absolute value of the parameters, for example, -123 would be greater than +100.
MathCopy	Copies the value of a source MATH_NUMERIC value (parameter two) to a destination MATH_NUMERIC value (parameter one).
MathDivide	Divides parameter three by parameter four and places the quotient in parameter one. The remainder is placed in parameter two. All parameters are MATH_NUMERIC data types.
MathMultiply	Multiplies parameter two by parameter three and places the result into parameter one. All parameters are MATH_NUMERIC data types.
MathNumericToDouble	The function copies the numeric value of a variable of type math numeric to a variable of type double.
MathNumericToInt	Converts a MATH_NUMERIC into an integer (int). For example, when you pass in 1.9, it is treated as one.
MathNumericToLong	Converts a MATH_NUMERIC to a long (Checks that MATH_NUMERIC does not have decimals).
MathRound	Rounds a MATH_NUMERIC passed in parameter two to the specified number of digits passed in parameter three. The result is returned in parameter one.
MathStringToLong	Translate a number string into a long number. The value is passed as a return code.
MathSubtract	Subtracts parameter three from parameter two and places the result into parameter one. All parameters are MATH_NUMERIC data types.
MathZeroTest	Returns an int 0 if the string portion of the struct is equal to zero, and the length is one.
ParseNumericString	Formats a numeric string into the MATH_NUMERIC format.
ReverseMathNumeric	Reverses the sign on a MATH_NUMERIC.
ZeroMathNumeric	Sets a MATH_NUMERIC to zero.

JDEDATE Data Type

All dates in the OneWorld database are stored in a JDEDATE structure to allow the greatest flexibility for formatting the dates.

```
Struct tagJDEDATE
{
    short   nYear;
    short   nMonth;
    short   nDay;
};

typedef struct tagJDEDATE JDEDATE, FAR *LPJDEDATE;
```

JDEDATE Element	Description
nYear	The year. (four digits)
nMonth	The month.
nDay	The day.

JDEDATE APIs from the Common Library

AdvanceDate	Takes in a date in JDEDATE form, a number of months, a number of days and returns the advanced (decremented) date in JDEDATE form.
AdvanceOneDay	Advances the day in Gregorian form by one day.
AdvanceOneMonth	Advances the month in Gregorian form by one month.
CalcN	Takes in a Gregorian date and calculates a long integer to represent that date as an offset from 01/01/0000.
DateDifference	Returns a long integer value that is the difference between two dates.
DayOfTheWeek	Returns the day of the week based upon the N value of a date.
DecrementOneDay	Decrements the day in Gregorian form by one day.
DecrementOneMonth	Decrements the month in Gregorian form by one month.
DeformatDate	Changes a date string into the JDEDATE format.
DerefN	Takes in a long integer that represents a date as an offset from 01/01/0000 and calculate its corresponding Gregorian date.
FormatDate	Formats an internal JDEDATE into a formatted string.
IsJDEDATENull	Tests whether a JDEDATE is NULL.
IsLeapYear	Determines if the year is a leap year, based upon a Gregorian date.
JDEDATEToCentury	Gets the century from a JDEDATE and returns it in a Math_Numeric.
JDEDATEToCenturyAndYear	Gets the year and century from a JDEDATE and returns them in Math_Numeric fields.
JDEDATEToday	Formats a JDEDATE with today's date.
JDEDATEToYear	Gets the year from a JDEDATE and returns it in a Math_Numeric.
NumberOfDays	Finds the number of days in a month based upon a Gregorian date.

Strings and Characters

Strings and Characters in OneWorld do not require special data types or APIs for manipulation. They may be initialized and set to a value using the standard functions provided by programming languages. OneWorld string sizes allow for a null terminator. For example, if the string size is 11, there is enough space for ten characters and a null terminator.

Unused Structure Members

When you directly call master business functions or add records to interface tables, unused members of the data structures may be left as NULL. The JDEBASE APIs will translate the NULL values into zero for MATH_NUMERIC and JDEDATE fields and blanks for string and character fields.

Special Circumstances

Certain OneWorld fields require special formatting prior to adding them to the interface tables or master business function data structures. Two commonly used fields are MCU and KCOO. MCU is a right-justified string, padded with leading blanks. KCOO is a right-justified string padded with leading zeros. Use the OneWorld Data Dictionary to check for other fields that may require special formatting.

Using Scheduler

You might want to run subsystem jobs that take up a great deal of machine resources or that require users to be signed off of the software after normal working hours. You might also want the flexibility of running jobs at scheduled intervals during the day.

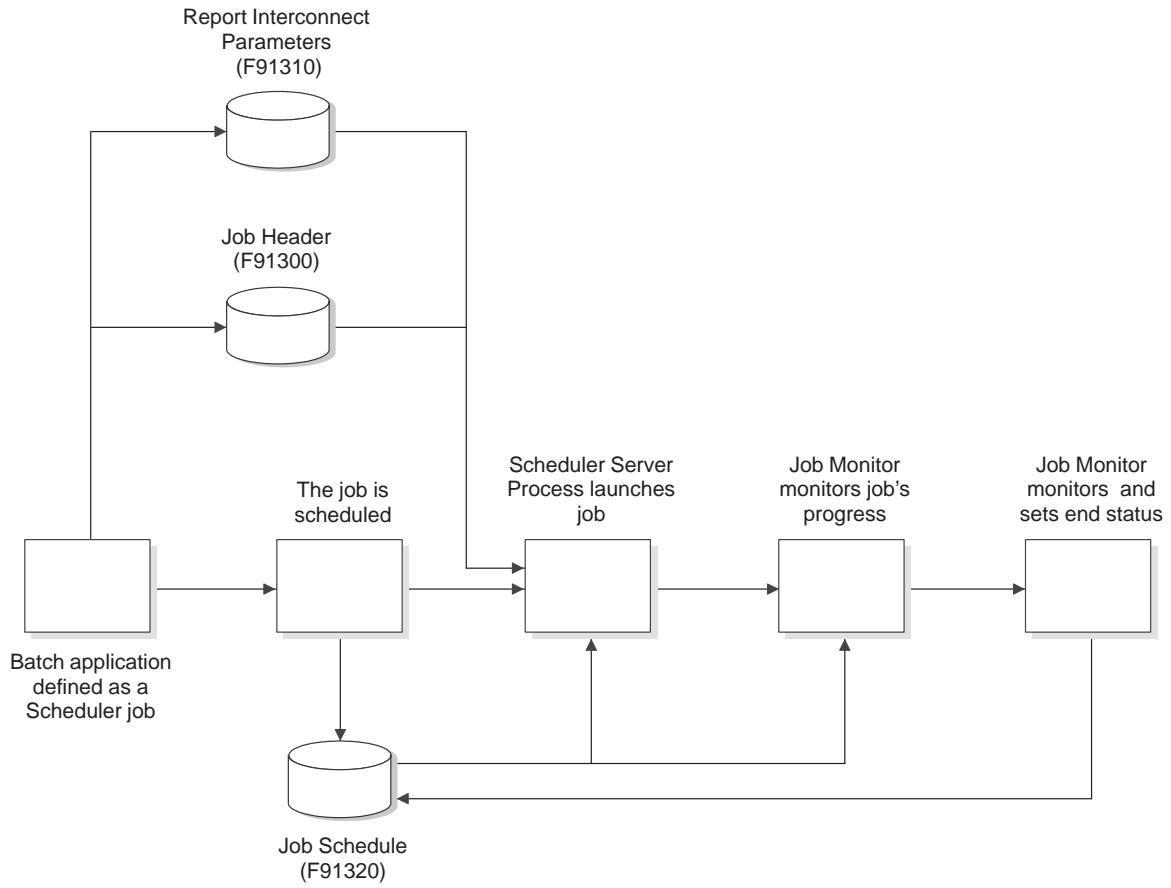
OneWord Scheduler allows you to schedule subsystem jobs to run after hours or throughout the day, if necessary. This ability to run jobs at specific times allows you to run jobs without impacting the next day's schedule. You can schedule jobs based on day, day of year, time, job completion, day of period, and day of week. You can also set up Scheduler to restart a job in the event of a job failure.

You can even specify on which server you want the job to run and in which time zone, whether it is in your city or in some other country. Scheduler uses a modified version of Universal Time Coordinate (UTC) time, which counts the number of minutes, not seconds.

After the job is scheduled, Scheduler writes records to the Job Schedule table (F91320), indicating each time that the job will be launched. As the job runs, the Job Monitor monitors the job's progress.

When the job ends, the Job Monitor sets an end status to the job and updates the job's record in the Job Schedule table (F91320) to indicate that the job either ended successfully or in error.

The following graphic illustrates the scheduling process. When you define a scheduled job, the parameters of that job are stored in the Job Master table (F91300).



See Also

- *Scheduler* in the *System Administration Guide* for more information about scheduling jobs

Using OneWorld Business Functions

OneWorld business functions perform specific tasks, such as Journal Entry Transactions, Calculating Depreciation, and Sales Order Transactions. When performing synchronous calls to OneWorld, business functions are called to accomplish that task.

There are 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 may call several regular business functions to perform those tasks.

See the *Development Tools Guide* for more information about OneWorld business functions.

Master Business Functions

J.D. Edwards provides master business functions to allow calling programs to process certain predefined transactions. A master business function encapsulates the required logic, enforces data integrity, and insulates the calling programs from the database structures. There are two different kinds of master business functions:

- Transaction master business functions
- Master file master business functions

Master business functions are typically used for multiline business transactions, such as Journal Entries or Purchase Orders. These master business functions are called transaction master business functions.

Certain master files also require master business function support due to their complexity, importance, or the need for maintenance from external parties. The requirements for maintaining master files are different than for multiline business transactions. These master business functions are called master file master business functions. Address Book and Item Master are examples of master files requiring this support.

Transaction Master Business Functions

Transaction Master Business Functions provide a common set of functions that contain all of the necessary defaulting and editing for a transaction file. Records are dependent on each other. They contain logic that ensures the integrity of the transaction being

inserted, updated, or deleted from the database. Logic is broken up by event flow. A memory cache is used to hold records being processed.

The following components are typically used for a transaction master business function:

Begin Doc	Called when all header information has been entered. Creates an initial header in cache if one has not already been created, and may also include defaulting, editing, and processing options.
Edit Line	Called when all line information has been entered for a single line. Creates cache for detail information if it is not already created.
Edit Doc	Called when ready to commit the transaction. Processes any last document edits and verifies that all records are valid to commit.
End Doc	Called when you need to commit the transaction. Processes all records in the header and detail cache, and performs I/O and deletes caches through a call to Clear Cache.
Clear Cache	Called when you are ready to delete all cache records. Deletes header and detail cache records.

Not all transaction master business functions contain each of these components. Refer to the online APIs and the *Business Function Standards* Guide for more information.

Master File Master Business Functions

Master file master business functions can be used instead of table I/O for interoperability. This allows you to perform updates to related tables using the business function instead of table event rules. Multiple records are not used, instead all edits and actions are performed with one call.

In their basic form, master file master business functions have the following characteristics:

Single call	Generally, you should be able to make one call to a master business function to edit and add, update, or delete a master file record. An edit-only option should also be available.
Single data structure	The fields required to make the request and provide all the necessary values should be in one data structure. The data fields should correspond directly with columns in the associated master file.
No cache	Because each master file record is independent of the others, there is no need to complicate matters with caching. The information provided with each call and the current condition of the database should always give the master business function all the necessary information it needs to perform the requested function.
Normal error handling	As with other master business functions, they must be capable of executing in both the interactive and batch environment. Therefore, it must be left to the calling program to determine the mechanism for delivering errors.
Inquiry feature	To allow external systems to be totally insulated from the J.D. Edwards database, an inquiry feature is included. This allows an external system to use the same interface to access descriptive information about a master file key as it uses to maintain it.

Interoperability Tools



Interoperability Tools

This section describes the different tools available in OneWorld to help you implement interoperability.

- COM Generator



Using the COM Generator

The COM Generation tool, GenCOM, provides third-party developers access to OneWorld business functions through Microsoft's Interprocess communications middleware known as COM (Component Object Model).

COM

COM is a binary interoperability specification and communication convention for software components.

Since most independent software components are also self-contained, they are frequently called objects or servers as well. This is why COM is frequently compared to other interoperability mechanisms for software in general.

Being a binary specification, COM is inherently programming language independent. Unlike software libraries or DLLs which are compiled to specific language or linkage conventions, COM based software components are created ready to work with any COM client. For example, a Visual C++ application can use COM objects created in Visual Basic, or a VBScript within an intranet web page to control a COM object written in MicroFocus COBOL.

OneWorld COM Objects

A OneWorld business function is a logical collection of C functions and their associated data structures grouped together to produce a unit of work. OneWorld COM objects are effectively wrappers around these business functions and data structures.

The interface provided by the COM wrappers has a one-to-one correspondence with the OneWorld business functions. For example, if within a OneWorld library there exists a business function "B550001" and within this business function there exist two C functions named "foo1" and "foo2" with data structures for each function named "DS1" and "DS2", the corresponding OneWorld COM Object would be:

```
Interface IDS1
{
...
}

Interface IDS2
{
...
}

Interface IB550001
{
    HRESULT foo1 (IDS1 * param, IConnector* conn, long accessNumber);
    HRESULT foo2 (IDS2 * param, IConnector* conn, long accessNumber);
}
Their associated program IDs (ProgID) would be:

IDS1          – “jdeDS1.jdeDS1.1”
IDS2          – “jdeDS2.jdeDS2.1”
IB550001     – “jdeB550001.jdeB550001.1”
```

COM Generation Tool Users

You can run the COM Generation Tool to expose objects through COM. In a development environment, developers may run the COM Generation tool. In a production environment, a OneWorld system administrator should run the COM Generation Tool.

Running the COM Generation Tool (GenCOM)

You run the COM Generation Tool from the command line. There are several options available for generation. The COM Generation Tool is located in <install>\system\bin32\gencom.exe.

Syntax

```
gencom [options] [libraries]
```

Example

```
gencom /Cat 1 /UserID Devuser1 /Password Devuser1 /Environment ADEVHP02  
CAEC
```

```

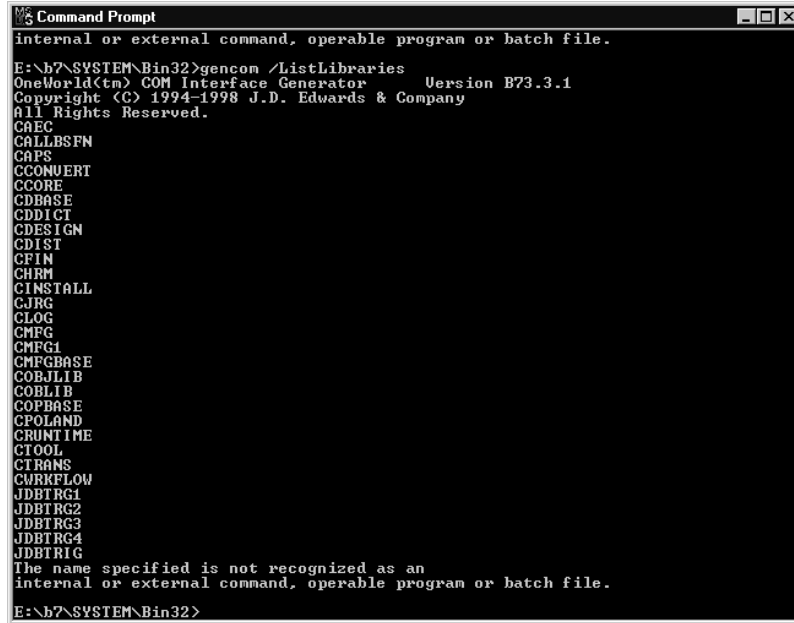
MS Command Prompt
E:\b7\SYSTEM\Bin32>gencom /?
Usage: GenCOM [options] [libraries]
options:
/?                Display this help information
/C++ <option>    Pass <option> to the C++ compiler
/Cat <category>  Generate only <category> function wrappers
/CL <file>       Use <file> as the C++ compiler
/EnvironmentID <env> Use <env> to log into OneWorld
/ErrFile <file>  Use <file> to record all error messages
/MIDL <option>   Pass <option> to the MIDL compiler
/MTL <file>     Use <file> as the MIDL compiler
/ListLibraries   List the libraries in f9860
/MsgFile <file> Use <file> to record all messages
/NoBSFNs        Generate wrappers for parametersets only
/Out <path>     Use <path> for all output files
/Password <password> Use <password> to log into OneWorld
/TempOut <path>  Use <path> for all temporary files
/UserId <userid> Use <userid> to log into OneWorld
category:
1 - Master Business Functions
2 - Major Business Functions
3 - Minor Business Functions
- - Uncategorized Business Functions
Example:
GenCOM /Cat 1 /Cat 2 CAEC
generates wrappers for all category 1 and 2 business functions in
the CAEC library
E:\b7\SYSTEM\Bin32>

```

Options

/?	Provides the user with a list of the options available for generation, as shown above.
/C++ <option>	Provides GenCOM with the compiler options you wish to use in the generation of the COM servers.
/Cat <category>	Tells GenCOM to generate wrappers based on the following categories: <ul style="list-style-type: none"> • Master Business Functions • Major Business Functions • Minor Business Functions • Uncategorized Business Functions
/CL <file>	Tells GenCOM what compiler (.exe) to use for compilation.
/Cmd *	Processes code generation commands from the console. Refer to <i>Scripting With GenCOM</i> for more information.
/Cmd <filename>	Processes code generation commands from <filename>. Refer to <i>Scripting With GenCOM</i> for more information.

<code>/Debug</code>	Build debug information (.pdb and .bsc files) into the libraries so that the Visual Studio debugger can access source information.
<code>/EnvironmentID <env></code>	Provides GenCOM with the environment in which you wish to log into OneWorld with.
<code>/ErrFile <file></code>	Provides GenCOM with the filename to log errors produced by GenCOM during the generation process, for example, “errors.log”.
<code>/MIDL</code>	Provides GenCOM with the MIDL compiler options you wish to use in the generation of the COM servers.
<code>/MTL <file></code>	Tells GenCOM what MIDL compiler (.exe) to use for compilation.
<code>/ListLibraries</code>	List all the available libraries that you can run GenCOM against.
<code>/MsgFile <file></code>	Provides GenCOM with the filename to log messages produced by GenCOM during the generation process, for example, “messages.log”.
<code>/NoBSFN</code>	Tells GenCOM not to create wrappers for business functions. This option is for generating parameter sets only.
<code>/NoDebug</code>	Optimize libraries for space using the /O1 Visual C++ compiler option.
<code>/Out <path></code>	Provides GenCOM with the directory (path) in which to place the output files, for example “C:\winnt\system32”.
<code>/Password <password></code>	Provides GenCOM with the password in which you wish to log into OneWorld with.
<code>/TempOut <path></code>	Provides GenCOM with the directory (path) in which to place temporary files needed for the build process, for example, “C:\temp”.
<code>/UserID <userid></code>	Provides GenCOM with the username in which you wish to log into OneWorld with.



```

MS Command Prompt
internal or external command, operable program or batch file.
E:\b7\SYSTEM\Bin32>gencon /ListLibraries
OneWorld(tm) COM Interface Generator      Version B73.3.1
Copyright (C) 1994-1998 J.D. Edwards & Company
All Rights Reserved.
CAEC
CALLBSFN
CAPS
CCONUERT
CCORE
CDBASE
CDDICT
CDESIGN
CDIST
CFIN
CHR
CINSTALL
CJRG
CLOG
CMFG
CMFG1
CMFGBASE
COBJLIB
COBLIB
COPBASE
CPOLAND
CRUNIME
CTOOL
CTRANS
CWRKFLOW
JDBTRG1
JDBTRG2
JDBTRG3
JDBTRG4
JDBTRIG
The name specified is not recognized as an
internal or external command, operable program or batch file.
E:\b7\SYSTEM\Bin32>

```

Scripting With GenCOM

GenCOM has an advanced feature called GenCOM script that allows you to script code generation activities. When the /Cmd option is supplied to GenCOM, commands from the specified script file are processed to generate code.

GenCOM scripts have a simple syntax:

comments begin with # and proceed to the end of line

whitespace is ignored

login

importlib CAEC

build

GenCOM scripts support the following commands:

- build
- call
- define
- define!
- exit
- help

- import
- importlib
- interface
- library
- login
- logout
- opt
- rename
- say
- sub
- system

Build Command

The build command tells GenCOM to generate code for all defined interfaces and build the appropriate libraries.

When the build command is complete, the interface definitions are released. Using the build command again only generates code for interfaces defined after the last build command.

Syntax

```
build
```

Call Command

The call command tells GenCOM to evaluate a subroutine with the given parameters. Parameters appear within the subroutine in order as special macros named %1%, %2%,

Syntax

```
call sub [param [...]]
```

Example

```
login
```

```
call GenerateLib CAEC
```

```
call GenerateLib CALLBSFN
```

build

logout

Define Command

The define command tells GenCOM to optionally define a macro expansion. The *value* is expanded first, then stored as the expansion of macro *name*. If *name* already has an expansion, GenCOM ignores this command.

Syntax

```
define name value
```

Example

```
define val1 This is a test
```

```
define val2 %val1%!
```

```
define val2 This is ignored
```

```
say %val2%
```

generates the output

```
This is a test
```

Define! Command

The define! command tells GenCOM to define a macro expansion. The *value* is expanded first, then stored as the expansion of macro *name*. If *name* already has an expansion, GenCOM replaces the current expansion with the new expansion.

Syntax

```
define name value
```

Example

```
define val1 This is a test
```

```
define val2 %val1%!
```

```
define! val2 This is not ignored
```

```
say %val2%
```

generates the output

This is not ignored

Exit Command

The exit command tells GenCOM to exit the current subroutine or command file.

Syntax

```
exit
```

Help Command

The help command requests help information from GenCOM on all available commands. Syntax information and a brief description are presented for each command. If *command* is specified, only help for *command* is shown.

Syntax

```
help [command]
```

Import Command

The import command tells GenCOM to retrieve the specification of a function or group of business functions from the OneWorld database and add them to the current interface definition. If only the *business-function* name is specified, all functions from the specified *business-function* are retrieved and added to the current interface definition. If a *function* name is specified, only that function is retrieved and added to the current interface definition.

The alias option allows you to rename the function within the interface definition. The implementation still uses the original name when invoking the business function; however, the function is exposed as *name* through the interface.

Syntax

```
import business-function [function [alias name]]
```

Example

```
library General
```

```
interface ReleaseMgmt
```

```
# Load GetReleaseAndVersion from B9800890; call it GetRV in
```

```
# ReleaseMgmt

import B9800890 GetReleaseAndVersion alias GetRV

# Load all functions from B000042

import B000042
```

Importlib Command

The `importlib` command tells GenCOM to import all business functions from the specified OneWorld library, such as CAEC or CALLBSFN, into the current library definition. Each business function group in OneWorld results in the definition of an interface with the same name as the business function group and exposes as methods the functions within that group.

The *category* parameters allow the user to restrict the import to one or more specific categories (1, 2, 3 and -; see the `/Cat` command line option).

Syntax

```
importlib library [category [...]]
```

Example

```
library JDECOMInterfaceCAECCat1

# Load all category 1 functions from CAEC

importlib CAEC 1

build
```

Interface Command

The `interface` command tells GenCOM to begin the definition of an interface. All business functions retrieved using subsequent `import` commands become members of this interface.

The *prog-id* and *vi-prog-id* allow the user to specify the ProgID and version-independent ProgID of the interface.

Syntax

```
interface interface [ProgID prog-id] [vi-prog-id]
```

Example

```
interface ReleaseMgmt ProgID SOA.ReleaseMgmt.5 SOA.ReleaseMgmt
import B9800890 GetReleaseAndVersion
```

Library Command

The library command tells GenCOM that subsequent interface and import commands will generate definitions that belong in the library (DLL) named *name*. If the *parameterset* tag is also supplied, the library is used solely for *parameterset* definitions.

Note: When the library command without the *parameterset* tag is evaluated, *parametersets* for subsequent interface and import commands appear in that library until a library command with the *parameterset* tag is evaluated.

Syntax

```
library name [parameterset]
```

Example

```
library Lib1
library Lib1Params parameterset
# Parametersets for CALLBSFN go in Lib1Params, but the
# business function interfaces go in Lib1
importlib CALLBSFN 2 3
```

Login Command

The login command tells GenCOM to log into OneWorld. If *user*, *password*, and *environment* are not specified, the user is prompted for the information.

Syntax

```
login [user password environment]
```

Example

```
login me mypassword demo
```

Logout Command

The logout command tells GenCOM to log out of OneWorld.

Syntax

```
logout
```

Opt Command

The opt command tells GenCOM to set the value of a GenCOM command line parameter. The *option* parameter should not begin with the usual “?”. The *value* parameter does not undergo macro expansion.

Syntax

```
opt option value
```

Example

```
# Do not generate business function interfaces, only  
# parameterset interfaces  
opt NoBSFNs
```

Rename Command

The rename command tells GenCOM to rename an interface or a method within an interface. If a method is renamed, the correct business function is still called to build the implementation, but the method is exposed through the interface with a different name.

Syntax

```
rename interface new  
rename interface method new
```

Example

```
library Lib1  
importlib CALLBSFN  
rename B000042 BatchControl
```



```
rename BatchControl FSOpenBatch Open
```

```
rename BatchControl FSCloseBatch Close
```

Say Command

The say command tells GenCOM to display *message* on the console.

Syntax

```
say message
```

Example

```
say This is a test (%OwRelease%)
```

generate the output

```
This is a test (B733)
```

Sub Command

The sub command creates a subroutine definition. The call command may be used to invoke the subroutine. Parameters passed to the subroutine are as special macros named %1%, %2%,

Syntax

```
sub name
```

```
  commands
```

```
end
```

Example

```
sub GenerateLibrary
```

```
  define source %1%
```

```
  # Create a library of all category 1 business functions in source
```

```
  opt BSFNs
```

```
  library JDECOMInterface%source%Cat1
```

```
  importlib %source% 1
```

```
# Create a library of all category 2 business functions in source
opt NoBSFNs

library JDECOMInterface%source%Cat2

importlib %source% 2

# Create a library of all category 3 business functions in source

library JDECOMInterface%source%Cat3

importlib %source% 3

system del /q c:\temp\*.*

build

# Move the libraries to a staging area

system mkdir d:\build

system mkdir d:\build\Cat1

system mkdir d:\build\Cat2

system mkdir d:\build\Cat3

system move JDECOMInterface%source%Cat1.* d:\build\Cat1

system move JDECOMInterface%source%Cat2.* d:\build\Cat2

system move JDECOMInterface%source%Cat3.* d:\build\Cat3

end

call GenerateLibrary CAEC
```

System Command

The system command tells GenCOM to evaluate *command* in the shell.

Syntax

```
system command
```

Example

```
say This is a test
```

generates the output

This is a test

Using the COM Generation Tool (GenCOM) Output

The output for GenCOM produces fully functional COM servers based on the library in which you select to generate to wrappers. However, because you are interacting with the OneWorld system, you must follow all of the procedures (security and installation) to gain access to the system.

You must have a fully licensed copy of OneWorld properly installed on the target machine. You must also logon to the OneWorld environment. For the logon process, you must use the jdeCOMConnector interface.

The following example demonstrates how to use a generated COM business function wrapper:

Visual Basic

```
Dim WithEvents jdeB550001 As <GeneratedLib>.B550001
Dim ds1 As <GeneratedLib>.DS1
Dim conn As New Connector

Private Sub VBFoo()
Dim LoginHandle As Long
On Error GoTo ErrorHandler
LoginHandle = conn.Login("Devuser1", "Devuser1", "ADEVHPO2")
Set jdeInterface = conn.CreateBusinessObject("jdeB550001.jdeB550001.1", LoginHandle)
Set ds1 = conn.CreateBusinessObject("jdeDS1.jdeDS1.1", LoginHandle)
jdeB550001.Foo1 ds1, conn, LoginHandle
Exit Sub
ErrorHandler:
MsgBox Err.Description
End Sub
```

Visual C++

```
#import "jdeCOMConnector2.tlb" nonamespace
#import "<generatedLib>.tlb" nonamespace

void main()
{
    // Intialize COM Libraries
    CoInitialize();

    // Create a connector Object
    IConnector * conn= NULL;
    HRESULT hr = CoCreateInstance(CLSID_Connector,NULL,CLSCTX_LOCAL_SERVER
                                ,IID_IConnector,(void**)&conn);

    if(hr != S_OK)
        AfxMessageBox("Failed to make Connection");
}
```

```

// Login to the environment
long referencenumber = 0;
HRESULT hr = 0;
if(conn)
{
    try
    {
        hr = conn->Login("Devuser1","Devuser1","ADEVHPO2",
            & referencenumber);
        if(hr == S_OK)
            AfxMessageBox("Logon to OneWorld successful");
        else
            AfxMessageBox("Failed to Logon to OneWorld");
    }
    catch(...)
    {
        AfxMessageBox("Failed to Logon to OneWorld");
    }
}

IDispatch* myDispatch = NULL;
IB550001* myInterface = NULL;
IDS1* myDS = NULL;
if(conn)
{
    conn->CreateBusinessObject("jdeB550001.jdeB550001.1",referencenumber,&myDis-
patch);
    if(myDispatch)
    {
        myDispatch->QueryInterface(CLSID_B550001,&myInterface);
        myDispatch->Release();
        myDispatch= NULL;
    }
    conn->CreateBusinessObject("jdeDS1.jdeDS1.1",referencenumber,&myDispatch);
    if(myDispatch)
        myDispatch->QueryInterface(CLSID_DS1,&myDS);
    if(myInterface || myDS)
    {
        hr = myInterface->Foo1(myDS, conn, referencenumber);
        if(hr == S_OK)
            //Success
            AfxMessageBox("Successful");
        else
            AfxMessageBox("Failed")
        myInterface->Release();
        myDS->Release();
    }
}
}

```

The code above creates the connector object and uses it to create a J.D. Edwards business function and its associated ParameterSet. It then calls a method, "Foo1", on the business object with the ParameterSet, the connector, and the access code returned by the act of logging on to the connector.

Installation Information

Because the GenCOM application produces interfaces based on the package currently installed on the machine, installation plans must be made on a site-by-site basis. The DLLs produced are business function release dependent and can only be installed on machines with the identical packages available.

The GenCOM output is COM servers in the form of DLLs. You can use these to create an interface with the OneWorld system. You should not assume that a client has installed these servers as part of the standard OneWorld installation. You should provide a full installation of any of the servers your applications require.

J.D. Edwards also provides a OneWorld a COM generation tutorial. The tutorial is a step-by-step study on how to build an application and goes through the install issues for a Visual Basic application. If you are developing with a different software package, please consult the documentation for that product.

Appendices



Appendix A - Interoperability Features Created by J.D. Edwards

J.D. Edwards has used some of the technologies and models described in this guide to create interoperability features. The information in this appendix describes one method you can use. This method uses flat files, database files, and master business functions.

These predefined features make it easier for third parties to interface with OneWorld. You can use similar procedures to create your own interoperability features. You can use the following interoperability features and standards to shorten design time, provide consistency, and provide easier maintenance. This section provides information and standards for the following features:

- Transactions Into and From OneWorld
- Transactions Into OneWorld
- Transactions From OneWorld

Transactions Into OneWorld

There are three different supported entry points into the J.D. Edwards system using this method:

- flat file (ASCII text file)
- database table
- Master Business Function (MBF) interactive call

The format of all data being imported from external systems must be presented in the J.D. Edwards defined format for the chosen mode of interface.

Inbound Through a Flat File

An external source creates a flat file in the J.D. Edwards specified format for the transaction or master file. The flat file format uses standard delimiters for different data elements.



Unedited inbound data in the flat file is converted into records in J.D. Edwards database tables (unedited transaction tables). Conversion of the flat file data into J.D. Edwards database table records may be performed using existing flat file to database conversion utilities or by running an inbound conversion batch process. A generic business function within the batch process maps the flat file into the database tables.

The unedited transactions tables are processed by an Inbound Processor batch process to call the appropriate Master Business Function to update the J.D. Edwards live data.

If required, a preprocessor business function can be run from the Inbound Processor batch process to establish key information matching the unedited transaction record to the original application record, for example, a key to a cash receipt or purchase receipt.

If the master business function returns errors for the transaction, the appropriate record is flagged on the audit report and errors are sent to the message center in the form of action messages. These action messages, when invoked, call a revision application that allows modification of the unedited transaction data directly.

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

Inbound Transactions to Unedited Transaction tables

Inbound transactions may be written directly to the unedited transaction tables that are already in a database format. The unedited transaction tables are processed by an Inbound Processor batch process to call the appropriate Master Business Function to update the J.D. Edwards live data.

Optionally, the Inbound Processor batch process may be run in a subsystem. The key information written to the unedited transaction table is added to the subsystem data queue. This triggers the Inbound Processor batch process that processes that specific key.

A user supplied confirmation function can be executed after the processor batch process completes. The purpose of the confirmation function is to alert the third party that a transaction that they sent into the J.D. Edwards system has been processed. They are also notified whether the transaction was processed successfully. These confirmation functions are specific to a process and thus are only given the keys to the transactions (EDUS, EDBT, EDTN, EDLN) and the successfully processed flag. The third party must decide what the confirmation function actually does with this information. These vendor-specific interoperability inbound confirmation functions are called from the Inbound Processor batch program's through the Call Vendor-Specific Function - Inbound business function. The confirmation functions are written by third parties to their own specifications are most likely written outside of OneWorld. However, they use a J.D. Edwards defined data structure.

If required, a preprocessor will run from the Inbound Processor batch process to establish key information matching the unedited transaction record to the original application record and so on, for example, the key to a cash receipt or purchase receipt.

If the master business function returns errors for the transaction, the appropriate record is flagged on the audit report and errors are sent to the message center in the form of action messages. These action messages, when invoked, call a revision application that allows modification of the unedited transaction data directly.

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

Inbound Directly to Master Business Function

Inbound transactions may be passed directly to the J.D. Edwards master business function for processing. No data is stored in the unedited transactions tables.

The master business function is called directly through support from JDENET. Certain J.D. Edwards internal APIs must be used to call the master business function directly. The master business function updates the live data if no errors are found.

Messages are added to the messages linked list in the event of errors. It is the responsibility of the calling program to handle these exceptions

Transactions From OneWorld

Transactions that need to be exported to external systems are processed in a manner similar to the inbound transactions, except in reverse. The logic to determine whether a transaction needs to be interfaced to another system is set up in a separate table, the Data Export Control table. In that event, the master business function will handle logging all adds, changes, and deletes to the J.D. Edwards live data to the unedited transaction tables.

Data is formatted to the specifications of the connecting system, be that through the use of a flat file, a third-party database or an external API call. This exportation will be done by vendor-specific batch processes.

Common Pieces of the Outbound Process

An application or batch process enters data and calls a master business function to update the J.D. Edwards database.

Master business function (EditLine) determines whether an interface to an external system is applicable by checking the value of a processing option that contains a transaction type. If the processing option is not blank, the master business function will be interfacing to an external system.

During the EndDoc processing when the transaction is being written to the J.D. Edwards database, records are also written to the unedited transaction tables. For inquiries, additions, and deletions of a J.D. Edwards database record, one record is written to an unedited transaction table. For changes to a J.D. Edwards database record, two records can be written to an unedited transaction table. These records contain an

image of the database record before the change and an image of the database record after the change. A processing option determines whether the before image record is written.

After a transaction has been written, a key is sent from the master business function process to the subsystem data queue to trigger processing of a newly added record in the unedited transaction table. The subsystem data queue will launch an outbound subsystem batch process. A generic outbound subsystem batch process handles all outbound transactions.

The outbound subsystem batch process reads records from the Data Export Control table to determine the vendor-specific business function or batch process to run. The vendor-specific business function must be written to J.D. Edwards specifications relative to the data structure and the vendor defines its name and location within the Data Export Table. A vendor-specific batch process can also be defined in the Data Export table. The outbound subsystem batch process recognizes whether a function or batch process has been requested. A processing log record is written for tracking purposes. If the function method is requested, the specified function is called real-time within the subsystem batch process. If the batch process method is requested, it calls the batch process only if the delayed option is not specified. To complete the processing for the delayed option, the user must set up the appropriate batch process in OneWorld Scheduler to process the correct records in the processing log table as often as required.

Knowledge of pending outbound transactions is retained in persistent storage until the third party overtly indicates to J.D. Edwards that they have successfully processed the transaction. J.D. Edwards provides an outbound confirmation function that the third party must use to confirm success. This applies to both the batch process and function methods. The third party can process real-time or defer to any downstream process. When the third party completes their process, they need to call this outbound confirmation function to let J.D. Edwards know that we can update the transaction as successful and make it eligible for purging.

The outbound subsystem batch process tracks the transactions processed, the vendor-specific functions and batch processes that are run, and whether the functions and batch processes were successful. This information is stored in the Processing Log table. If all vendor-specific batch processes were successful, the records in the unedited transaction tables for the transaction are updated as successfully processed.

The Processing Log Table contains a foreign key back to the data Export Control table. This enhances the recovery capabilities in that a program can look at a process control record and by looking back at the associated data export control record, can know what would be required to reprocess it.

WorldSoftware Coexistence

When a client is running OneWorld in coexistence mode, transactions may be entered either through a OneWorld application or a WorldSoftware program. For data exporting to external systems to work in this configuration, WorldSoftware programs need to write to the unedited transaction tables.

This is handled by database triggers written for the AS/400 database in RPG-ILE. These triggers test to determine whether data needs to be exported. When it does, they write to the unedited transaction tables.

Net Change Considerations

Changing a 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.

To handle net change in this manner there are some considerations:

- When a record is inserted to a 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 allows a table column to have a value of NULL, which can be assigned to a Master Business Function data structure parameter.
- Currently the OneWorld Tool Set initializes data structures to blanks when a form is initialized. A system function is needed whereby a data structure can be initialized to NULL. This would allow net change logic to be used in event rules and named event rules by permitting them to initialize a data structure to NULL.
- You can initialize controls and variables to assign a value of NULL. This allows event rules and named event rules to assign NULL to controls and variables before passing the values to a Master Business Function data structure.

Information Structure

Information used in the Interoperability module can be divided into master file maintenance and transaction processing. The file layouts of these files can be found in the online documentation. The following information is available.

- Master Files
- Data Export Control

This table contains records that specify the vendor-specific functions, batch processes, and batch versions to run for a transaction and document type combination. It also contains information on which types of records (adds, updates, etc.) are added to the unedited transaction tables.

- Flat File Cross-Reference Table

This table contains cross-reference information about a transaction. This information will be flat file name, direction of transaction, application tables used by the transaction, and the record types of the application tables.

- Transaction Files
- Processing Log

This table contains information on whether vendor-specific functions and batch processes processed a transaction successfully.

Creating Transactions Into and From OneWorld

This chapter defines the standards that are common to creating both inbound and outbound transactions, including standards for the following:

- Transaction name
- Unedited transaction tables
- Revision application
- Purge named event rules and batch processes
- Subsystem business function

Transaction Name

The transaction name must be defined in User Defined Code 00/TT in the Pristine environment. The name starts 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

Unedited Transaction Tables

Each transaction has its own set of tables, except when an existing set of tables meets the needs of the transaction. “Meeting the needs of the transaction” means that the existing set of tables contains all of the required fields for the new transaction. These existing tables must follow interoperability standards. They should be Z1 tables for interoperability, not EDI tables.

One set of tables is used by both the inbound and the outbound directions of an internal transaction within a system. 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 tables under this standard.

Use the following guidelines to determine the based-on table:

- Inbound is based on the application table that is updated with data from the unedited transaction table

- Outbound is based on the application table that has data extracted from it into the unedited transaction table

If the unedited transaction 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 unedited transaction table would be based on the F4211 table.

The unedited transaction table is named after the based-on table with “Z1” as the suffix. For example, if the application table is F4211, the unedited transaction table would be F4211Z1. Subsequent transaction tables based on the same application table will have Z2, Z3, and so on as the suffix.

If the unedited transaction table exceeds 250 columns or has a record length greater than 1968, an additional transaction table is needed for the remaining columns. Columns in the additional transaction table should contain infrequently used data. The additional transaction table is named after the primary transaction table with a letter, starting with A, after the Z1 suffix. For example, if the primary unedited transaction table is 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 key structure above.

The following tables show an example of the use of Line Number for net change processing, where UB stands for the image of the record before the update and UA stands for the image of the record after the update. (Note: Ignoring table layout standards).

Header Table

User ID	Batch Number	Transaction Number	Line Number	Action	Order Number
TI	77	100	1	UB	2000
TI	77	100	2	UA	2000

Detail Table

User ID	Batch Number	Transaction Number	Line Number	Action	Order Number	Order Line
TI	77	100	1	UB	2000	1
TI	77	100	2	UA	2000	1
TI	77	100	3	UB	2000	2
TI	77	100	4	UA	2000	2

The end of the table has columns that 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 transaction 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/match transaction 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.

Revision Application

This application is used to correct data and to add new transaction records. The application will call the purge NER to do deletions of records. The name is based on the detail unedited transaction table.

For example, if the tables for Sales Order Entry were F4201Z1 and F4211Z1, the application would be called P4211Z1.

Purge Batch Process and Named Event Rules

The purge batch process should have one or two sections. The number of sections depends on the unedited transaction 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 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.

Subsystem Business Function

There are two generic subsystem business functions *Add Inbound Transaction To Subsystem Queue* (B0000176) for inbound and *Add Transaction To Subsystem Queue* (B0000176) for outbound transactions. These functions write a record to the subsystem data queue to specify a batch process that needs to be awakened in the subsystem.

The 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 inbound transaction is the batch process name (OBNM), version (VERS), user ID (EDUS), batch number (EDBT), transaction number (EDTN), line number (EDLN), suppress error message (EV01), confirmation function name (FCNN), and confirmation function library (FCNL).

The data structure for the outbound transaction will be line number (EDLN), transaction type (TYTN), document type (DCTO, and action code (TNAC).

Creating Transactions Into OneWorld

This chapter contains information specific to creating inbound transactions. It refers to common standards for creating inbound and outbound transactions. It includes information about the following topics:

- Inbound processor batch process
- Inbound conversion batch process
- Inbound flat file

Refer to Transactions Into and From OneWorld for more information about these standards.

Creating an Inbound Transaction

To create an inbound transaction complete the following steps:

1. Name your transaction.

Refer to Creating Transactions Into and From OneWorld for more information about these standards.

2. Create the inbound unedited transaction tables.

Refer to Creating Transactions Into and From OneWorld for more information about these standards.

3. Create a revision application.

Refer to Creating Transactions Into and From OneWorld for more information about these standards.

4. Create an inbound processor batch program.

This batch process calls a master business function to edit data and update application tables. It might need modifications for Source of Data and Change Logic.

Errors are sent to the Message Center.

An audit report listing transactions in error and a single line stating the total number of transactions that were successfully processed.

The batch process can have a processing option for an automatic purge.

The batch process may need preprocessors to match transaction records to application records.

The data structure of the batch process, which gets populated by the subsystem, will be user ID (EDUS), batch number (EDBT), transaction number (EDTN), line number (EDLN), function name (FCNN), and function library (FCNL).

If a function name and a function library were passed into the data structure through the subsystem, call the Inbound Vendor-Specific Confirmation Function (B0000192).

The batch process should have a version that is called from the menu and a version that is called through the subsystem.

The name of the batch process is based on the detail unedited transaction table with the letter I (for Inbound) as a suffix. For example, if the tables for Sales Order Entry were F4201Z1 and F4211Z1 the batch process would be called R4211Z1I.

5. Create a purge batch process and named event rule over the inbound unedited transaction tables. Refer to Transactions Into and From OneWorld.
6. Create a new version of the inbound conversion batch process (R47002C) for your transaction.

There is one batch process, R47002C.

Each transaction needs its own version of the batch process.

New transactions must be added to UDC 00/TT.

7. Add transaction to Flat File Cross Reference Table.

Add your transaction and its unedited transaction tables to the Flat File Cross Reference Table *(F47002) in the pristine environment. You can use P47002 to do this. When you create the flat file, leave it blank so that it can be overwritten with data.

Inbound Flat File

The first field in a flat file record is the record type, which has a value determined by the record type UDC 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

The format of the record in the flat file must follow the format of the 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 in the table.

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

Name	Address	City	Zip
Joe	<Blank>	Denver	80237

The “record” in the flat file would look like the following. Notice the “1” that corresponds to a header record type and the blank space that corresponds to the <Blank> in the Address column.

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

Any field delimiter and separator may be used as long as they do not interfere with the interpretation of the fields.

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

If you are using a PC, you must be able to map a drive on the PC to the location of the flat file.

Creating Transactions from OneWorld

This chapter contains information about creating outbound transactions. It refers to common standards for creating transactions into and from OneWorld. It includes information about the following topics:

- Master business function (EndDoc)
- Outbound purge batch process
- Flat file cross reference

To create a transaction from OneWorld, complete the following tasks:

1. Name your transaction.

Refer to *Creating Transactions Into and From OneWorld* for more information about these standards.

2. Create the outbound unedited transaction tables.

Refer to *Creating Transactions Into and From OneWorld* for more information about these standards.

3. Create a revision application.

Refer to *Creating Transactions Into and From OneWorld* for more information about these standards.

4. Modify your Master Business Function EndDoc module.

EndDoc updates application tables.

EndDoc writes records to the unedited transaction tables based on the Transaction Type processing option.

The unedited transaction table has the key structure User ID (EDUS), Batch Number (EDBT), Transaction Number (EDTN), and Line Number (EDLN), which is populated by the master business function.

EDUS is the user ID for the user calling the MBF.

EDBT is the batch number populated by *EDI Batch Number, Get Next Number* (B4700060).

EDTN is the transaction number normally populated by *Get Next Transaction Number* (B0000175) unless the transaction needs another type of unique identifier in this key.

EDLN is the line number sequentially assigned by the MBF.

You must add two processing options to the template that your master business function uses. The tab for the Transaction Type processing option is called “Interop”.

- The first processing option is to control the launching of the generic outbound subsystem batch process and to determine the transaction type written to the unedited transaction table. The processing option reads: “1. Enter the transaction type for the interoperability transaction. If left blank, the outbound interoperability processing will not be performed.”
- The second processing option is to control the writing of the before image record. The processing option reads: “2. Enter a '1' to write the before image for a change transaction.” If left blank, only the after image will be written.

Before and after images of application records are written to the unedited transaction tables by EndDoc. Writing the before image is a performance hit, use processing option 2 to control whether the before image will be written. The after image will always be written for a change to the application table record.

EndDoc calls the subsystem business function *Add Transaction to Subsystem Queue* (B0000176) to write keys to the subsystem data queue. This triggers the processing of the transaction that was added to the unedited transaction tables. This will only happen if the interoperability processing option 1 is set to 1 to immediately launch the outbound batch process and write the keys of the outbound table.

5. Create a purge batch process and named event rule.

Each outbound purge batch process will purge a specific set of outbound interoperability tables. This batch process is run to keep the database tables to a manageable size. The batch process will be run from a menu selection and will have data processing to only select the records that have been successfully processed. The batch process will have two modes determined by the number of tables for the transaction (one table or two tables):

- Detail-only purge

In a detail-only purge over one transaction table, the detail record is selected only if it is marked as processed, which is data selection for Successfully Processed equal to “Y”. If it is, the processing log table (F0046) is checked through the business function F0046, Check Interoperability Processing Log Record Status (N0000181) to see if all F0046 records corresponding to the detail record have been marked as

processed or have been bypassed. If this is true, the batch process deletes the detail record through its corresponding purge NER then calls F0046 Purge Interoperability Processing Log (N0000181) to delete the processing log records.

- Hierarchical purge

The hierarchical purge selects header records marked as processed. Next the processing log is checked through the business function, F0046 Check Interoperability Processing Log Record Status (N0000181), to make sure the corresponding records are all marked as processed or bypassed. If this is true, the F0046 purge interoperability processing log (N0000181) business function is called to delete the processing log records corresponding to the header record. Then another section retrieves the detail records and the F0046 Purge Interoperability Processing Log (N0000181) business function is called to delete the processing log records corresponding to each detail record. Then the corresponding purge NER is called to delete the header record and corresponding detail records.

6. Add transaction to flat file cross reference table

Add your transaction and its unedited transaction table to the flat file cross reference table (F47002) in the pristine environment. You can use P47002 to do this.

Task Summary for J.D. Edwards Interoperability Features

If you use the methods described in this section, the following table illustrates the steps you use for each of the interoperability models.

Task	IS	IA	IB	FS	FA	FB
Create a master business function.	X	X	X		X	
Determine a name for your transaction.		X	X		X	X
Create interface tables.		X	X		X	X
Create a revision application over the interface table.		X	X			
Create an inbound processor UBE over the interface table.		X	X			
Create a new version of the inbound conversion UBE (R47002C) for your transaction. (This is used for flat file conversions.)		X	X			
Add your transaction and interface tables to the Flat File Cross Reference Table (F47002) in the pristine environment.		X	X		X	
Include logic in your MBF to log changes.					X	
Create a retrieval API or business function.				X		
Create a Purge UBE and NER over the interface table.		X	X		X	X
Document the interface table format.		X	X		X	X

IS Into OneWorld Synchronous

IA Into OneWorld Asynchronous

IB Into OneWorld Batch

FS From OneWorld Synchronous

FA From OneWorld Asynchronous

FB From OneWorld Batch

Appendix B – Interoperability Interface Table Information

	Z-Table(s)	Input Subsystem Batch Process	Input Processor Batch Process	Extraction Batch Process	Revisions Application	Purge Batch Process
Financials						
Address Book	F0101Z2	R01010Z – ZJDE0002	R01010Z – ZJDE0001		P0101Z1	R0101Z1P
Customer Master	F0301Z21	R03010Z – ZJDE0002	R03010Z – ZJDE0001		P0301Z1	R0101Z1P
Supplier Master	F0401Z1	R04010Z – ZJDE0002	R04010Z – ZJDE0001		P0401Z1	R0101Z1P
A/R Invoice	F03B11Z1, F0911Z1, F0911Z1T	R03B11Z1I	R03B11Z1I – ZJDE0001	N/A	P03B11Z1	R03B11Z1P
A/P Invoice	F0411Z1, F0911Z1	R04110Z – ZJDE0002	R04110Z – ZJDE0001	N/A	P0411Z1	R0411Z1P
Payment Order with Remittance	F0413Z1, F0414Z1	N/A	N/A		P0413Z1	R0413Z1
Journal Entry	F0911Z1, F0911Z1T	R09110Z – ZJDE0005	R09110Z – ZJDE0002		P0911Z1	R0911Z1P
Fixed Asset Master	F1201Z1, F1217Z1	R1201Z1I – XJDE0002	R1201Z1I – XJDE0001	R1201Z1X	P1201Z1	R1201Z1P
Account Balance	F0902Z1	N/A		N/A	P0902Z1	R0902ZP
Batch Cash Receipts	F03B13Z1	N/A	R03B13Z1I – ZJDE0001	N/A		
HRM						
Payroll Time Entry	F06116Z1	R05116Z1I	R05116Z1I – ZJDE0001	N/A	P05116Z1	R05116Z1P
Distribution						
Purchase Order	F4301Z1, F4311Z1	R4311Z1I – XJDE0002	R4311Z1I – XJDE0001		P4311Z1	R4301Z1P
Outbound Purchase Receipts	F43121Z1	N/A	N/A		P43121Z1	R43121Z1P
Receipt Routing	F43092Z1	R43092Z1I – XJDE0002	R43092Z1I – ZJDE0001		P43092Z1	R43092Z1P
Outbound Sales Order	F4201Z1, F4211Z1, F49211Z1	N/A	N/A		P4211Z1	R4211Z1P
Outbound Shipment Confirmation	F4201Z1, F4211Z1, F49211Z1	N/A	N/A		P4211Z1	R4211Z1P
Logistics						
Cycle Counts	F4141Z1	R4141Z1I	R4141Z1I – ZJDE0001	N/A	P4141Z1	R4141Z1P
Item Master	F4101Z1, F4101Z1A	R4101Z1I	R4101Z1I – ZJDE0001		P4101Z1	
Item Cost	F4105Z1	N/A	R4105Z1I – XJDE0001		P4105Z1	R4105Z1P
Warehouse Confirmations (Suggestions)	F4611Z1	R4611Z1I	R4611Z1I – ZJDE0001		P4611Z1	R4611Z1P



Interoperability

Manufacturing Work Order Header	F4801Z1	Use Work Order Completions	Use Work Order Completions	R4101Z1O	P4801Z1	R4801Z1P
Work Order Parts List	F3111Z1	Use Planning Messages	Use Planning Messages		P4801Z1	R3111Z1P
Work Order Routing	F3112Z1	Use Planning Messages	Use Planning Messages	R4801Z2X	P4801Z1	R3112Z1P
Work Order Employee Time Entry	F3112Z1	R3112Z1I – XJDE0002	R3112Z1I – XJDE0001		P3112Z1	R3112Z1I
Work Order Inventory Issues	F3111Z1	R31113Z1I – ZJDE0002	R31113Z1I – ZJDE0001		P3111Z1	R3111Z1P
Work Order Completions	F4801Z1	R31114Z1I – XJDE0002	R31114Z1I – XJDE0001		P4801Z1	R4801Z1P
Super Backflush	F3112Z1	R31123Z1I	R31123Z1I – ZJDE0001		P3112Z1	R3112Z1P
Bill of Material	F3002Z1	R3002Z1I – ZJDE0002	R3002Z1I – ZJDE0001		P3002Z1	R3002Z1P
Routing Master	F3003Z1	R3003Z1I – ZJDE0002	R3003Z1I – ZJDE0001		P3003Z1	R3003Z1P
Work Center Master	F30006Z1	R30006Z1I – ZJDE0002	R30006Z1I – ZJDE0001		P30006Z1	R30006Z1P
Work Day Calendar	F0007Z1	R0007Z1I – XJDE0002	R0007Z1I – XJDE0001		P0007Z1	R0007Z1P
Planning Messages	F3411Z1	R3411Z1I – ZJDE0002	R3411Z1I – ZJDE0001		P3411Z1	R3411Z1P
Detail Forecast	F3460Z1	R3460Z1I – XJDE0002	R3460Z1I – XJDE0001		P3460Z1	R3460Z1P
Kanban Transactions	F30161Z1	R30161Z1I – XJDE0002	R30161Z1I – XJDE0001	N/A	P30161Z1	R30161Z1P



Appendix C - Open Data Access

The J.D. Edwards OneWorld Open Data Access ODBC driver (ODA) is a version 2.5 or higher compliant, read-only driver. ODA can be used by front-end Windows Query and Reporting tools, such as Microsoft Query or Microsoft Access, to access the J.D. Edwards OneWorld database. ODA sits between the front-end Query/Reporting tools and the OneWorld configured ODBC drivers.

The J.D. Edwards OneWorld 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, 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 tool.

This section includes information about:

- Adding an ODA data source
- Working with ODA
- ODA Error Messages

Hardware and Software Requirements

To use the J.D. Edwards OneWorld Open Data Access Driver you must meet several hardware and software requirements.

Hardware Requirements

To use the J.D. Edwards OneWorld Open Data Access Driver, you must have:

- An IBM-compatible personal computer
- A 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 J.D. Edwards OneWorld Open Data Access driver, you must have:

- J.D. Edwards OneWorld version B732 or later.
- The J.D. Edwards OneWorld Open Data Access driver (JDEOWODA.dll).
- The 32-bit ODBC Driver Manager, version 3.0 or later (ODBC32.dll). Note that this file is included with the ODBC Database Drivers.
- Microsoft Windows 95 or later, or Windows NT 4.0 or later.

The use of this ODBC driver by 16-bit applications on Windows 95 is not supported.

ODBC Component Files

The J.D. Edwards OneWorld installation installs the components required by ODBC Database Drivers. You may also find the following additional files.

Driver	File Name
ODA Driver	JDEOWODA.DLL
ODA Driver Help	JDEOWODA.HLP
Release Notes	README.TXT

Open Data Access Driver Architecture

The J.D. Edwards Open Data Access ODBC driver architecture has five components:

- Application – Front-end Query/Reporting tool that calls the JDE ODBC driver to access data from the JDE database.
- Manager – Load and unloads drivers on behalf of an application. Processes ODBC calls or passes them to the driver.
- J.D. Edwards OneWorld Open Data Access Driver – Passes some of the ODBC requests directly to the vendor's ODBC driver. If J.D. Edwards OneWorld 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 Open Data Access ODBC driver may 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 – Consists of the data the user wants to access and its associated operating system, DBMS, and network platform.

Adding an ODA Data Source

Although the ODA driver is automatically registered as part of the OneWorld installation process, you may 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. To add a data source, complete the following steps:

1. Double-click the Control Panel icon. On Control Panel, double-click the ODBC icon.
2. On User Data Sources dialog box, click Add.
3. On Add Data Source, select the J.D. Edwards OneWorld 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 click OK.
 - Data Source Name - specify the name that you want to call the J.D. Edwards OneWorld Open Data Access driver. (You must add a driver for each J.D. Edwards OneWorld database that you need to access).
 - Description - specify the description of the driver that you are adding. (Note the Description entry cannot exceed 79 characters.)
5. 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.
6. 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 OneWorld tables.

- Business Views Only - Use this option to view only J.D. Edwards OneWorld business views.
- Tables and Business Views - Use this option to view both J.D. Edwards OneWorld tables and J.D. Edwards OneWorld business views.

Adding 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, select the J.D. Edwards OneWorld 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 OneWorld Open Data Access driver. (You must add a driver for each J.D. Edwards OneWorld database that you need to access).
 - 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 OneWorld tables.
 - Business Views Only - Use this option to view only J.D. Edwards OneWorld business views.

- Tables and Business Views - Use this option to view both J.D. Edwards OneWorld tables and J.D. Edwards OneWorld business views.

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 systemwide service, which can then gain access to the data source even if no user is logged onto the machine.

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, select the J.D. Edwards OneWorld 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 OneWorld Open Data Access driver. (You must add a driver for each J.D. Edwards OneWorld database that you need to access).
 - 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 OneWorld tables.

- Business Views Only - Use this option to view only J.D. Edwards OneWorld business views.
- Tables and Business Views - Use this option to view both J.D. Edwards OneWorld tables and J.D. Edwards OneWorld business views.

Modifying 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 click OK.
 - Data Source Name - specify the name that you want to call the J.D. Edwards OneWorld Open Data Access driver. (You must add a driver for each J.D. Edwards OneWorld database that you need to access).
 - Description - specify the description of the driver that you are adding. (Note the Description entry cannot exceed 79 characters.)
5. 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.
6. 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 OneWorld tables.
 - Business Views Only - Use this option to view only J.D. Edwards OneWorld business views.

- Tables and Business Views - Use this option to view both J.D. Edwards OneWorld tables and J.D. Edwards OneWorld business views.

Deleting 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.

Working with ODA

Once the ODA driver is properly installed and an ODBC data source is established, you can use the ODA driver's functionality.

There are several features you can use with J.D. Edwards ODA that are specific to J.D. Edwards.

Long Names

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 OneWorld object name in the SELECT statement.

Note: This option may 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 OneWorld column name. For example, you can use either of the following statements to retrieve information from the F0101 Address Book Master table:

- `SELECT ABAN8 from F0101`
- `SELECT AddressNumber from "Address Book Master"`

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 allows you to use a duration or other date calculations in both the select (result data), where and having clauses, and order by.

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 upon 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 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, for example, a Where clause.

Before selected columns are returned, the J.D. Edwards OneWorld 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.

Security

Column Security

When column security is active, any references to restricted columns causes an error to be returned when the SELECT statement is examined. This includes the use of * (asterisk - selecting all columns) in the select clause, as defined by the SQL-92 standards. This means that you will receive an error if you are not authorized to all the columns in the table.

Row Security

When row security is active, the statement is modified to include the appropriate where clause for filtering out secured rows. This means that 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 (UDC) are enabled, you see the associated description instead of the internal code when the column data is returned. This processing only affects 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 OneWorld 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.

Example

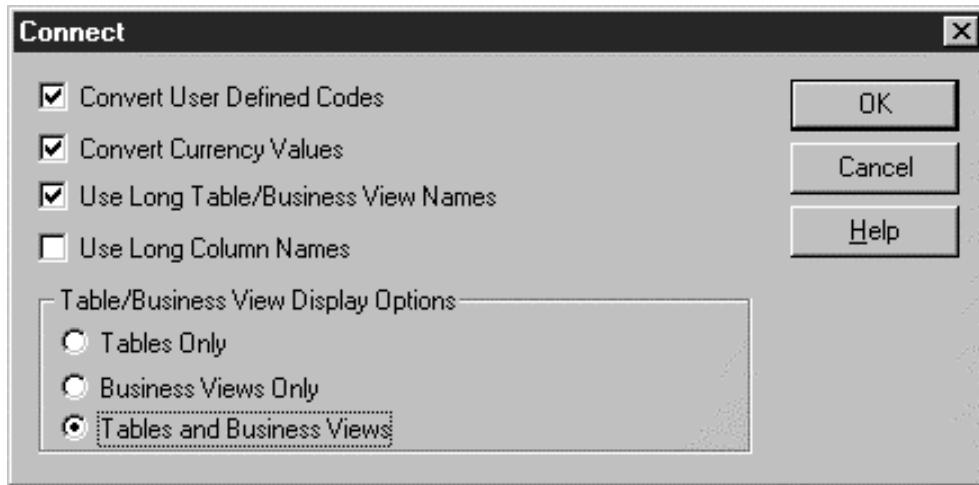
The following example illustrates how you can use Microsoft Excel 97 to create and run a query. To do this complete the following steps:

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, OneWorld Local or OneWorld 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 selecting <New Data Source> and following the procedures for setting up a data source.

When you choose the ODA data source you may need to logon to OneWorld to use the ODA driver. Once you logon, you will not see OneWorld Explorer because it is only activated so that the ODA driver can check security and environment mappings.

The Excel Query Wizard then displays a list of available tables in the OneWorld data source. Expanding any one 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 to something understandable you can use table F9202. Select 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.

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 OneWorld 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 may 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 OneWorld 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][ODBC J.D. Edwards Driver]MESSAGE TEXT
```

Configuration Request Error

This error may 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.

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 may need to create a default data source.

Unable to Allocate Memory

The J.D. Edwards OneWorld Open Data Access driver was not able to allocate enough memory to continue. You must close down some open 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 OneWorld 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 OneWorld Environment

The driver could not establish a connection to the J.D. Edwards OneWorld 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 OneWorld 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 OneWorld 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 OneWorld 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 OneWorld 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 OneWorld 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 OneWorld 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 OneWorld Open Data Access driver was unable to locate the table or business view in the OneWorld database or could not get information pertaining to the table or business view.

Server Connection Failed

The J. D. Edwards OneWorld 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 OneWorld 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 OneWorld Open Data Access driver.

Glossary

Glossary

AAI. See automatic accounting instruction.

action message. With OneWorld, users can receive messages (system-generated or user-generated) that have shortcuts to OneWorld 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. This is a central feature of the OneWorld workflow strategy. Action messages can originate either from OneWorld or from a third-party e-mail system.

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++.

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.

applet. A small application, such as a utility program or a limited-function spreadsheet. It 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 OneWorld, 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 OneWorld applications using the OneWorld 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 OneWorld 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.

BSTR. See binary string.

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-OneWorld 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. Encapsulated, reusable business logic created using through event rules rather than C programming. Contrast with embedded event rule. See also event rule.

business view. Used by OneWorld 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). A OneWorld 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 OneWorld 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.

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.

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 OneWorld 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 OneWorld logic.

DCE. See distributed computing environment.

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 OneWorld 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.

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.

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 OneWorld 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 OneWorld 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.

ERP. See enterprise resource planning.

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 a OneWorld 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:

- 1 Embedded event rules.

2 Business function 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:

- 1 Search, view, and select multiple records in a detail area.
- 2 Delete records.
- 3 Exit to another form.
- 4 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 OneWorld's 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. A OneWorld application might contain multiple forms. In Microsoft Windows terminology, a form is known as a dialog box.

Form Design Aid (FDA). The OneWorld 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 OneWorld:

- 1 Find/browse.
- 2 Fix/inspect.
- 3 Header detail.
- 4 Headerless detail.
- 5 Message.
- 6 Parent/child.
- 7 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. It 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 OneWorld 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 OneWorld interactive and batch applications. Much more than a development environment, however, the OneWorld 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 up delivery of the 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.

jde.ini. J.D. Edwards file (or member for AS/400) that provides the runtime settings required for OneWorld initialization. Specific versions of the file/member must reside on every machine running OneWorld. This includes workstations and servers.

JDEBASE Database Middleware. J.D. Edwards proprietary database middleware package that provides two primary benefits:

1. Platform-independent APIs for multidatabase access. These APIs are used in two ways:
 - a. By the interactive and batch engines to dynamically generate platform-specific SQL, depending on the datasource request.
 - b. As open APIs for advanced C business function writing. These APIs are then used by the engines to dynamically generate platform-specific SQL.
2. Client-to-server and server-to-server database access. To accomplish this OneWorld 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 OneWorld. 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 OneWorld supported platforms.

job queue. A group of jobs waiting to be batch processed. See also batch processing.

just in time installation (JITI). OneWorld's method of dynamically replicating objects from the central object location to a workstation.

just in time replication (JITR). OneWorld's method of replicating data to individual workstations. OneWorld 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 its primary window or to the entire system. A modal dialog box must be closed by the user before the application continues.

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.

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.

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 OneWorld purposes, an object is a reusable entity that is based on software specifications created by the OneWorld toolset. See also object librarian.

object configuration manager (OCM).

OneWorld’s 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. It provides check-out and check-in capabilities for developers, and it controls the creation, modification, and use of OneWorld Objects. The Object Librarian supports multiple environments (such as production and development) and allows objects to be easily moved from one environment to another.

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-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.

OneWorld. A combined suite of comprehensive, mission-critical business applications and an embedded toolset for configuring those applications to unique business and technology requirements. OneWorld 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.

OneWorld application. Interactive or batch processes that execute the business functionality of OneWorld. They consist of reusable business functions and associated data that are platform independent and can be dynamically configured across a TCP/IP network.

OneWorld 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.

OneWorld process. Allows OneWorld clients and servers to handle processing requests and execute transactions. A client runs one process, and servers can have multiple instances. OneWorld 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.

OneWorld Web development computer. A standard OneWorld 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.

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. OneWorld 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 its 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:

1. Central Objects.

2. 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.

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.

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 OneWorld methods for replicating data to individual workstations. Such machines are set up as Pull Subscribers using OneWorld’s 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.

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 OneWorld 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, and 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 OneWorld. The path code indicates 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 furnishing 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 a OneWorld object. Each object has its own specification, or name, which is used to build applications.

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.

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 OneWorld. 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 OneWorld, 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). A OneWorld 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 a OneWorld database trigger, you must first determine which event will activate the trigger. Then, use Event Rules Design to create the trigger. Although OneWorld allows event rules to be attached to application events, this functionality is application specific. Table event rules provide embedded logic at the table level.

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.

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.

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. OneWorld also has three visual assist triggers: calculator, calendar and search form.

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 locator (URL). Names the address of a document on the Internet or an intranet. The following is an example of URL: <http://www.jdedwards.com>. This is J.D. Edwards Internet address.

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.

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 OneWorld 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.

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 OneWorld running (in order to replicate data).

worldwide 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, OneWorld 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, OneWorld 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.

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