



Installation Guide

QAD JIT Sequencing

Overview
Installation
Upgrade
Integration

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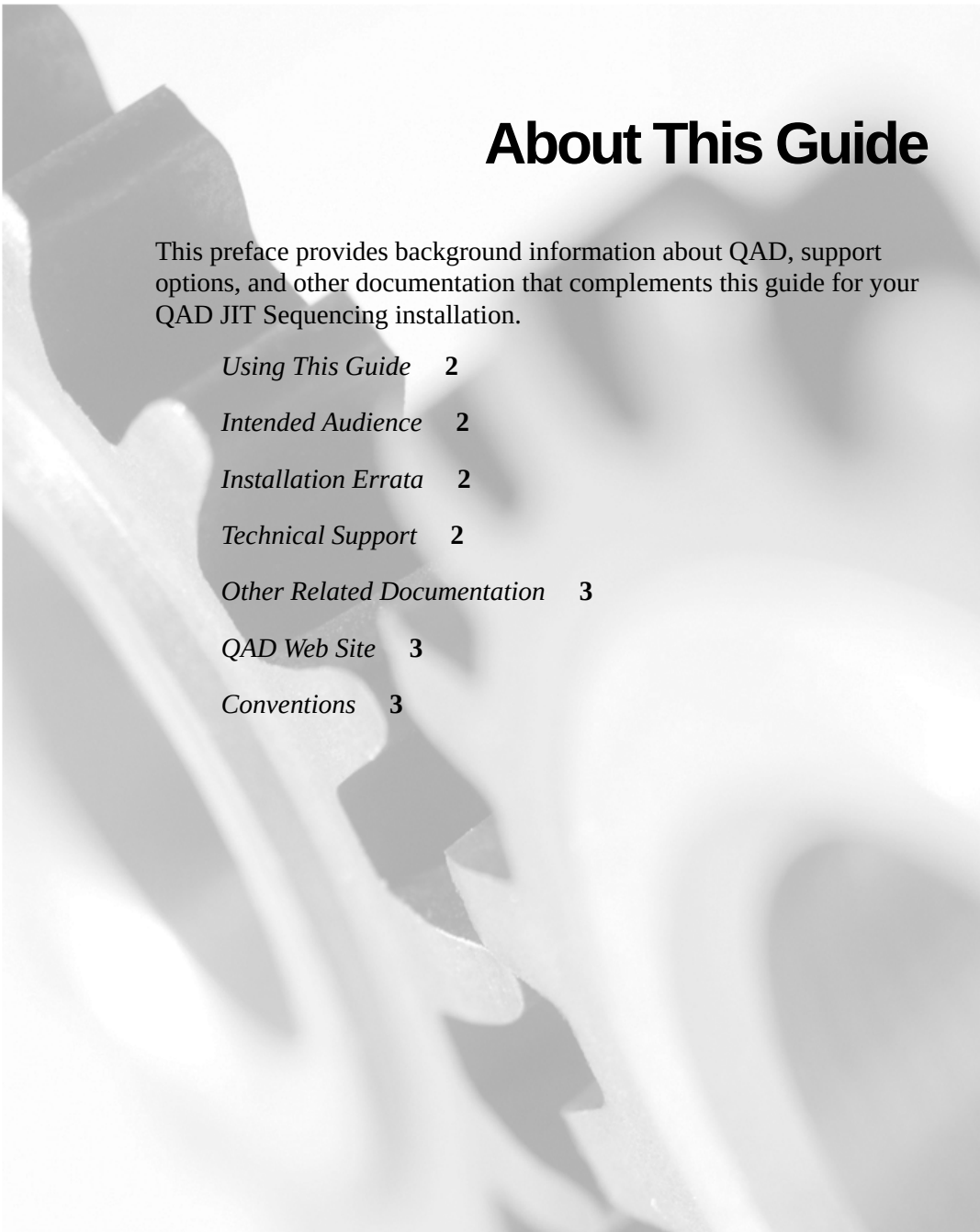
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About This Guide

This preface provides background information about QAD, support options, and other documentation that complements this guide for your QAD JIT Sequencing installation.

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Using This Guide

This guide describes the installation and configuration of QAD JIT Sequencing (JIT/S). The guide includes setup information for supporting software and recommended deployment configurations. JIT/S system administration and application configuration information is not covered.

This guide also includes information about integrating JIT/S with your production QAD ERP application system as well as with external systems such as Manufacturing Execution Systems (MES), programmable logic controllers (PLC), and Automated Storage/Retrieval Systems (AS/RS) if you are using these on your shop floor.

Intended Audience

This document is intended for system administrators with at least three years of experience. This install requires the installation of Progress OpenEdge and a Web server.

Installation Errata

In addition to these instructions, check the QAD Customer Support Web site for errata or updated installation instructions at:

<http://support.qad.com/>

Technical Support

If you encounter difficulties in the use of any QAD product, please contact your regional QAD Support Center or QAD distributor as defined in your maintenance agreement.

Other Related Documentation

- For additional information on setting up, configuring, and using JIT/S, refer to *User Guide: QAD JIT Sequencing*.
- For instructions on the Progress Open AppServer, see the Progress *Open AppServer System Administration Guide*.
- For information about installing, setting up, and using QXtend, see *Technical Reference: QXtend*.
- For information about functions in the QAD ERP application, see the relevant QAD ERP application user guide.

QAD Web Site

The QAD Web site provides a wide variety of information about the company and its products. You can access the Web site at:

<http://www.qad.com>

If you have a QAD Web account, product documentation is available for viewing or downloading at:

<http://support.qad.com/>

Register for a QAD Web account by accessing the Web site and clicking the Accounts link at the top of the screen. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

Most user documentation is available in either portable document format (PDF) downloadable for viewing to your computer, or in hypertext markup language (HTML), viewable in your Web browser. The documents include search tools for locating topics of interest.

The Web site also includes an online solution database to help answer questions about QAD products. Information about training classes and other services is also available.

Conventions

This document uses the conventions listed in the following table.

If you see:	It means:
monospaced text	A command or file name.
<i>italicized monospaced text</i>	A variable name for a value you enter as part of an operating system command; for example, <i>YourCDROMDir</i> .
indented command line	A long command that you enter as one line, although it appears in the text as two lines.
Note	Alerts the reader to exceptions or special conditions.
Important	Alerts the reader to critical information.
Warning	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.

Windows and UNIX Installations

This document supports the installation of JIT/S on both Windows and UNIX platforms. The instructions use Windows GUI screens and Windows file and path conventions. In the few places where the two sets of instructions diverge, the headings and text state explicitly which operating system is the focus of the current set of instructions.

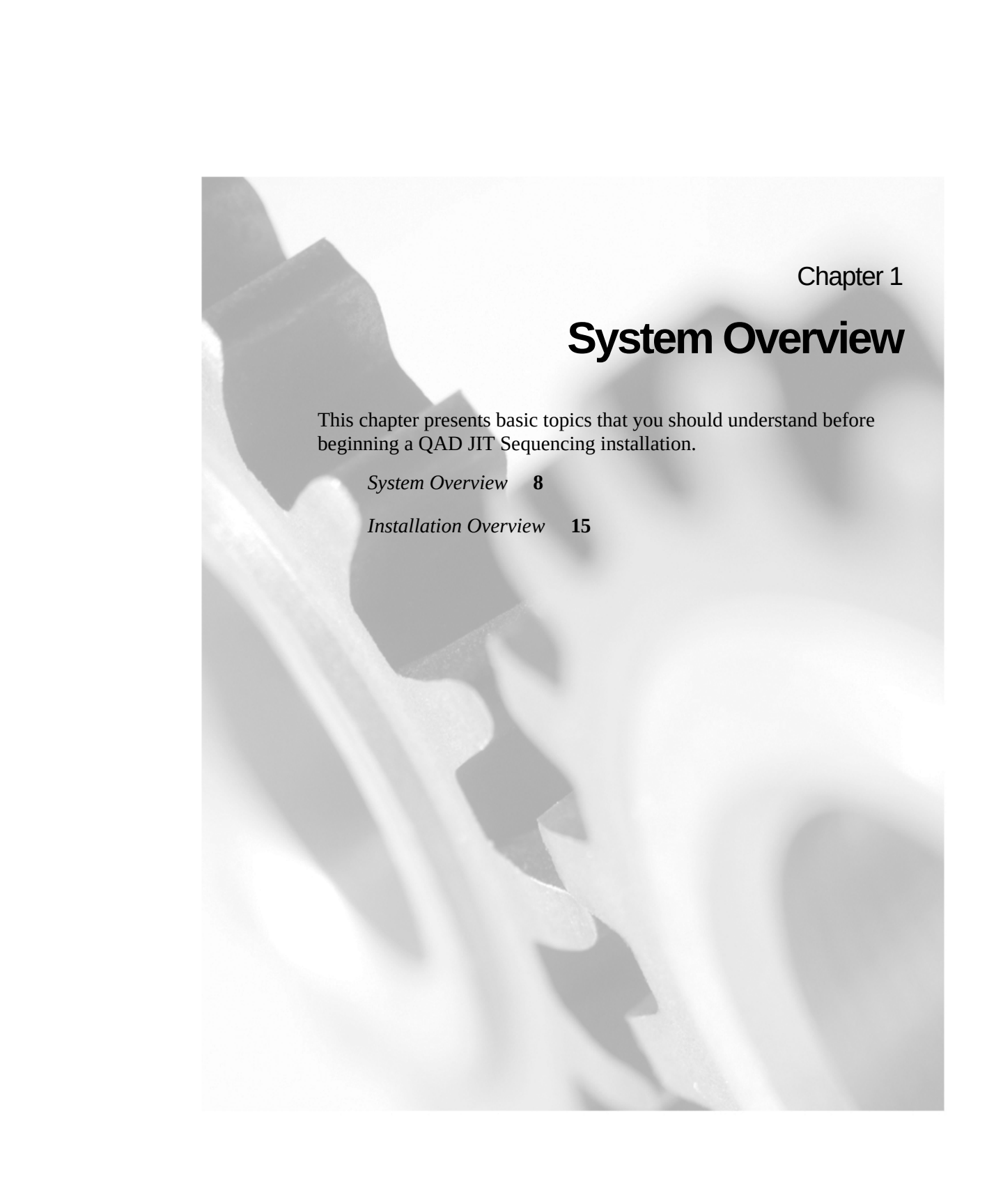
The background of the page is a grayscale photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and motion. The lighting is soft, highlighting the metallic texture and the sharp edges of the gear teeth.

Section 1

Overview

This section contains an overview of the installation and integration of JIT Sequencing.

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The background of the page is a grayscale photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and motion. The lighting is soft, highlighting the metallic texture and the sharp edges of the gear teeth.

Chapter 1

System Overview

This chapter presents basic topics that you should understand before beginning a QAD JIT Sequencing installation.

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System Overview

QAD JIT Sequencing (JIT/S) is a configurable, just-in-time plant scheduling and execution application. JIT/S spans activities from the receipt of customer orders to the shipment of goods. The application processes customer broadcast communications, schedules production, tracks the manufacture of products, and fulfills demand through picking, packing, staging, loading, and shipping of sequenced shipments. JIT/S relies on integration with a QAD ERP application database for tracking inventory, recording financial data, and generating invoices.

JIT/S operates as a set of persistently running modules that communicate with messaging. The modules are written in the Progress rule-based development system, Dynamics. The messages are managed and processed by Message Manager. All reporting is done by exporting browse data to Microsoft Excel or using Crystal Reports.

Note If you are familiar with previous versions of JIT/S, please note that JIT/S now uses the cache database instead of Sonic to manage and process internal communication messages, so Sonic installation is no longer required.

JIT/S Databases

JIT/S uses six databases. The jps database is the main JIT/S application database. Most of the base data and transactional data for JIT/S is stored in jps. The initial database size, when loaded with default data, is about 11 GB. This database will grow significantly over time.

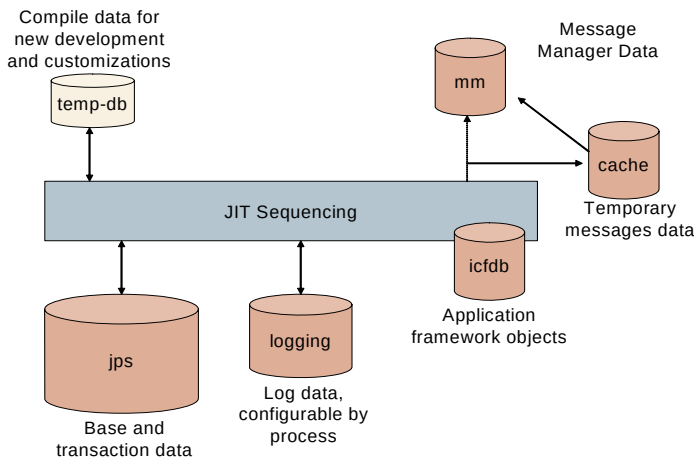


Fig. 1.1
JIT/S Databases

The mm database is used to hold all Message Manager related data. The initial database size, when loaded with default data, is about 17 GB. This database will grow significantly over time.

The cache database is used to hold temporary messages data. The cache database is initially about 8 MB and should not grow over time.

The logging database logs JIT/S background processes and certain error conditions. It is initially about 4 MB and grows significantly over time; all JIT/S background processes send messages to this database. The size of the logging database depends on the logging detail configured for each process.

The icfdb database contains the Progress Dynamics application framework developed for JIT/S. It is about 125 MB and will only grow if new code or customizations are developed. It contains a small segment of data, such as dynamic counters and error messages, that are added or changed as part of the operation of JIT/S, but the database size will not generally change.

The temp-db database contains temporary table definitions that allow dynamic objects to be defined against temporary tables. This database is not required at runtime, but is required for compilation in the event of customizations. The temp-db database is initially about 4 MB and should not grow over time.

Integration With the QAD ERP Application and External Systems

All communication with the QAD ERP application and external systems is handled by the JIT/S Message Manager. In general, all transmissions between JIT/S and other systems have the relevant default data loaded. All that is required for each inbound source, or outbound target, system is a channel to identify the system and how it transfers files—directory drop, Web Service call, or Sonic queue. In addition, a message process must be created to monitor inbound channels.

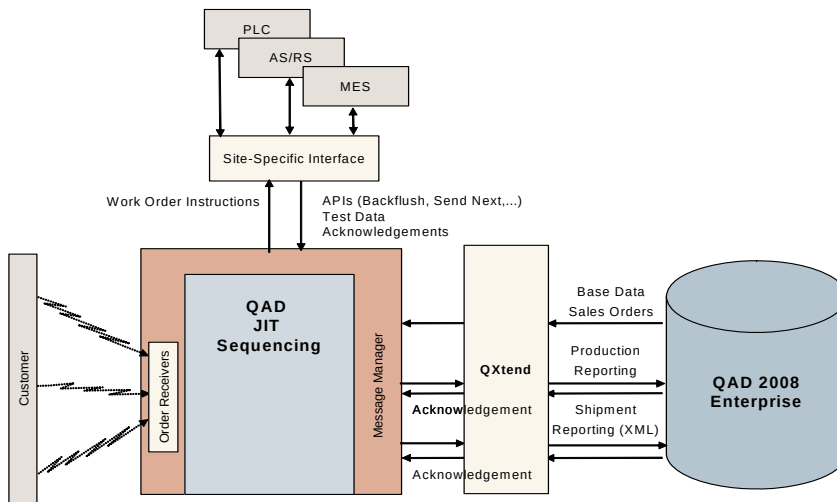
QAD ERP Application Base Data

A predefined set of QAD ERP application base data is required by JIT/S. This base data includes:

- Items
- Customer items
- Customers
- Carriers
- Customer ship-tos
- Docks
- Product structures
- Scheduled sales orders

This data is uploaded to JIT/S during implementation and is synchronized between the two applications through QXtend Outbound. The JIT/S Message Manager pulls the updates in and writes them to the appropriate JIT/S tables.

Fig. 1.2
JIT/S Integration
with QAD 2008
Enterprise



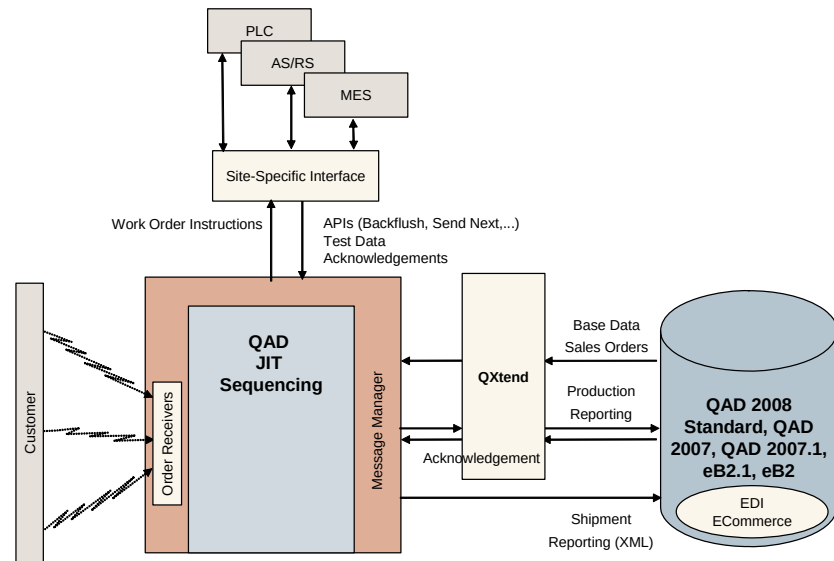
JIT/S Backflush and Shipment Messages

JIT/S sends inventory backflush information and shipment information to the QAD ERP application to create inventory and financial transactions.

When JIT/S is integrated with QAD 2008 Enterprise, both the backflush and shipment information is sent to an instance of QXtend Inbound that then pushes the updates to the QAD ERP application.

When JIT/S is integrated with earlier releases of the QAD ERP application and QAD 2008 Standard, the backflush information is communicated to the QAD ERP application through QXtend Inbound. Shipment information is sent in XML format as a QDOC to EDI eCommerce in the QAD ERP application. The XML is then loaded and transformed by EDI eCommerce to create a QAD ERP application shipper. Confirming the shipper relieves inventory and creates the appropriate GL transactions. An advance ship notice (ASN) is also generated and sent to the customer.

Fig. 1.3
JIT/S Integration
with QAD 2008
Standard and
Earlier Versions of
the QAD ERP
application



External Systems

Integration with external system—Manufacturing Execution Systems (MES), Programmable Logic Controllers (PLC), and Automated Storage/Retrieval Systems (AS/RS)—is all handled through the JIT/S Message Manager. Work order instructions and request orders (RQOR) are sent to an external systems interface and then communicated to the relevant device. External systems may send acknowledgements, update messages, or test data to JIT/S, again through an external systems interface.

Because of the number and variety of potential external systems, part of the implementation of JIT/S must include the creation of an interface to accept JIT/S messages and translate and route them for the specific devices.

External systems can send several work-order related messages to JIT/S:

- backflushWorkOrder
- completeWorkOrder
- sendWorkOrder
- sendNextWorkOrder

- rebuildOrder
- completePackage

In addition, the following test data can be sent:

- checkTestData
- validateTestData

The Integration section of this document discusses the additional setup required to integrate the JIT/S components.

Deployment

In general, JIT/S is implemented at the plant level with the QAD ERP application deployed in one or more centralized locations. Each instance of the QAD ERP application will have an instance of QXtend Inbound to handle incoming production reports from JIT/S. JIT/S and the QAD ERP application are typically installed to separate host machines.

Because QXtend Inbound is accessed through Web service calls, a Web server must also be installed, usually on the QXtend Inbound host.

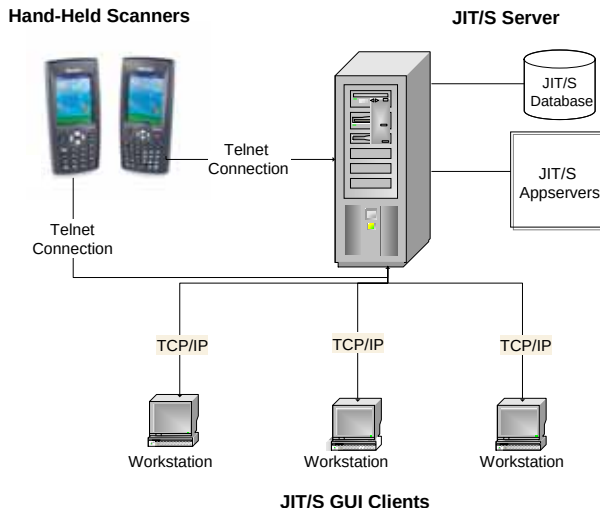
JIT/S Clients

There are two types of JIT/S clients: a runtime client requiring a full Progress installation on the client and the Progress WebClient, which provides the full functionality required for JIT/S clients without the need for a complete Progress install. The WebClient is the preferred client for JIT/S implementations; the runtime client provides a thinner client and may be used to debug issues with the WebClient.

Mobile Devices

JIT/S offers the ability for users to scan in shipping and part labels using mobile computing devices to support shipping and packaging functions. The mobile scanners run a telnet session that connects to your JIT/S server as a Progress client running a character application.

Fig. 1.4
Handheld Scanner
Implementation



In addition, a streamlined Shopping List Workbench (or Picker Workbench) session can be run over handheld devices. The client is built on the JIT/S server, and is connected to as a URL from the device.

Configuration File

A number of JIT/S deployment and configuration settings are maintained in a single configuration file, `config.xml`. Most of the values are updated during the install. Because the file contains useful information and settings relevant to your JIT/S environment, a listing of the settings has been included in Appendix A, “JIT/S Configuration File,” on page 167.

Additional Language Implementation

QAD JIT/S is available in the following languages: English, Spanish, Simplified Chinese, and Japanese.

You can install two languages to a single database—English as the base language and an additional language. English is always the first language installed. Installing a second language requires a separate language CD.

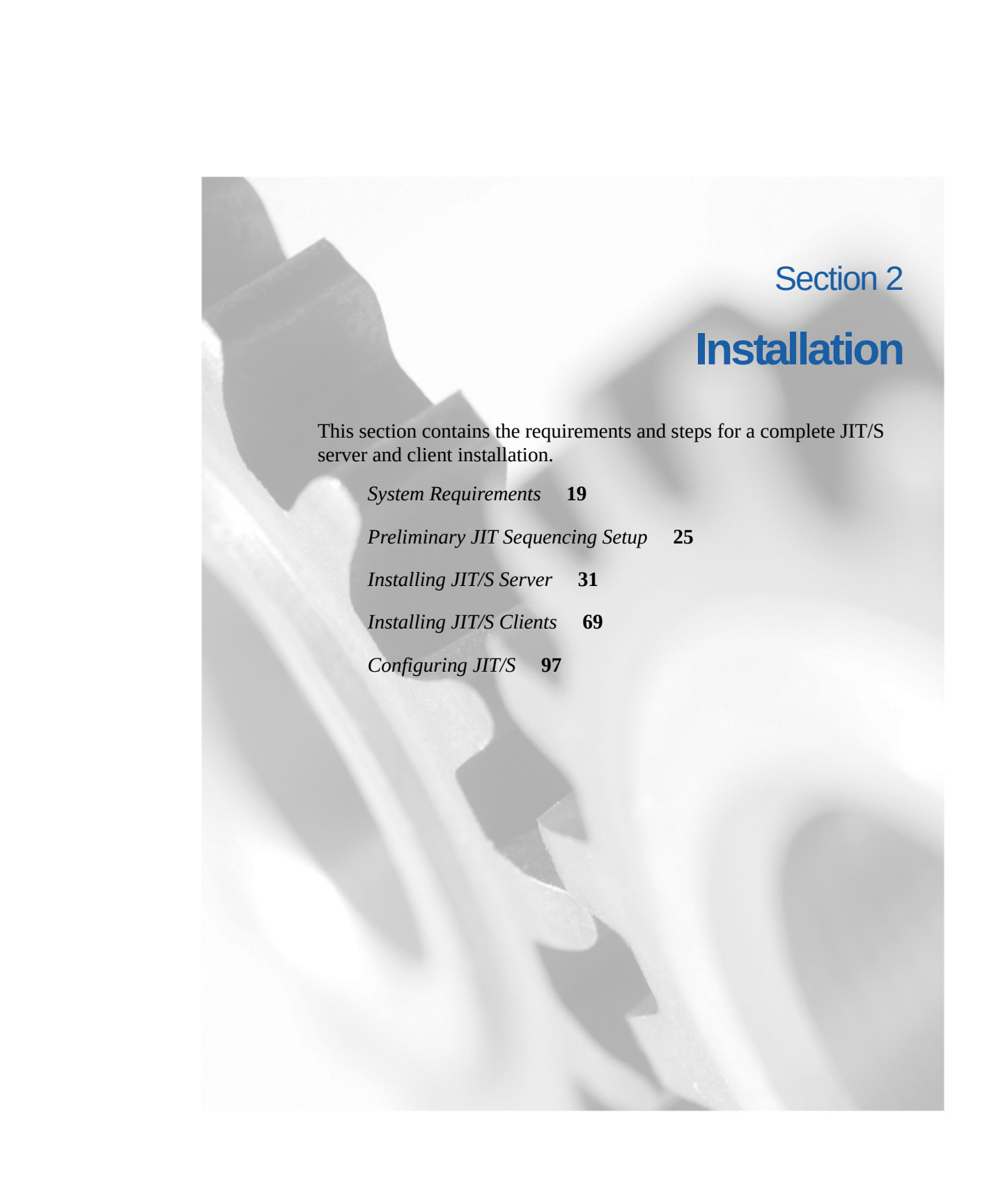
To implement two languages in a single database, you modify the code page of the empty database and load translated labels. Instructions are included in this guide.

Installation Overview

Installing and configuring JIT/S requires numerous prerequisite programs. This guide completes the installation and configuration of the JIT/S application on the JIT/S server and clients. The steps required are:

- 1 Preliminary JIT Sequencing Setup
- 2 Installing JIT/S Server
- 3 Installing JIT/S Clients
- 4 Configuring JIT/S

See Chapter 2, “System Requirements,” on page 19 for additional information on requirements.



Section 2

Installation

This section contains the requirements and steps for a complete JIT/S server and client installation.

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System Requirements

This chapter provides component and version information for a complete JIT/S environment.

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JIT/S WebClient Requirements **21**

QAD ERP Application Server Requirements **22**

Handheld Scanner Requirements **22**

A JIT Sequencing installation consists of JIT/S databases, JIT/S AppServers, JIT/S clients, and a QAD ERP application server. The JIT/S server typically includes the JIT/S application as well as a Progress application server.

JIT/S Server Requirements

The following requirements are solely for the JIT/S components of the installation. See the installation documentation of other applications such as Progress OpenEdge for requirements for these components.

Operating System

The JIT/S server can be deployed on the following operating systems.

- Windows Server 2003 Enterprise Edition
- HP-UX 11.0 or higher

Hardware Requirements

Hardware requirements for the JIT/S server depend largely on specific requirements of the JIT/S implementation. Contact your QAD Support representative to identify your specific implementation requirements and determine the optimal hardware configuration for your environment.

Software Requirements

- Progress OpenEdge from Progress Software Corp., version 10.1B02
Note When you use the version of Java bundled with ia64 Open Edge 10.1B, some stability issues may occur causing AppServer brokers to crash. To avoid this, you can force Progress use the latest stable HP release of Java 1.5 (Java 1.5.0.11 build 07 November 2007) by modifying the `$DLC/bin/java_env` script.
- Microsoft IIS from Microsoft Corp., version 6.0+ on Windows or Apache HTTP Server 2.0+ on Unix

- Crystal Reports from Business Objects, Inc., version 11.0
Note Crystal Reports is required to print reports for build manifests, shopping lists, picklists, bills of lading, and packing slips. The product must be purchased separately from Business Objects.
- Microsoft Excel from Microsoft Corp., if you are planning to import items and attributes from a spreadsheet during system implementation
- To support handheld scanners, Georgia SoftWorks Windows Telnet Server, which can be obtained from:
<http://www.georgiasoftworks.com/>

Optional Application Customization Tools

- Roundtable TSMS from Tugboat Software, version OE10.1B SP2
- AllFusion ERWin Data Modeler from Computer Associates, version 4.1+

JIT/S WebClient Requirements

Operating System

- Windows 2000 4.0 SP5 and higher (UNIX is not supported)

Hardware Requirements

- 6 GB hard drive with 800 MB of free disk space
- 348 MHz or faster Intel Pentium II (or compatible) processor
- 512 MB of RAM minimum
- Ability to display 65,536 or more colors
- Screen resolution not lower than 800 x 600 or higher than 1400 x 1200

Software Requirements

- Internet Explorer 6.x Web browser from Microsoft Corp.
- Microsoft Excel from Microsoft Corp. for exporting browse data

QAD ERP Application Server Requirements

Refer to the QAD ERP application installation guide for hardware requirements.

Software Requirements

For QAD 2008 Enterprise:

- QXtend from QAD Inc., version 1.5

For MFG/PRO eB2 SP4 through SP12, eB2.1 SP1 through SP4, QAD 2007, 2007.1, and QAD 2008 Standard:

- QXtend from QAD Inc., version 1.5
- EDI eCommerce from QAD Inc.

Web Server Requirements

A Web server is required on the QAD ERP application server to support the QXtend application.

- Microsoft IIS from Microsoft Corp., version 6.0+
- Tomcat Application Server from Apache.org, version 4.1.12+
- J2SDK from Sun Microsystems, version 1.4.0+

Handheld Scanner Requirements

Handheld scanners are supported in JIT/S but require additional assistance from QAD Services to implement. These can be any wireless device that supports a telnet session, such as a radio data terminal (RDT) or a PocketPC PDA.

Hardware Requirements

- Intermec wireless scanner or others that support:
 - Telnet client
 - Screen size greater than or equal to 40 x 20

- Inbuilt VT100 or higher keyboard
- Wireless networking using TCP/IP

Software Requirements

- Telnet client software

Preliminary JIT Sequencing Setup

This chapter details the installation and system-level configuration required for various JIT/S prerequisite components.

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<i>Install QXtend</i>	29

Overview

JIT/S requires installation settings for several of the prerequisite components.

Install Microsoft IIS (Windows)

Install Microsoft IIS prior to all other components. Installation of this product is an option during Windows Server installations, such as for the Windows 2003 Server.

Install Apache HTTP Server (Unix)

Install Apache HTTP Server 2.0 or above. Refer to Apache HTTP server version documentation for installation information.

Install Progress RDBMS

- 1 Log in as the Administrator user.
- 2 Install:
 - OE Enterprise RDBMS
 - OE Application Server Basic or OE Application Server Enterprise
 - 4GL Development System
 - Provision Plus
 - Progress Dynamics

Important Do not install Progress to a directory path that contains spaces such as c:\Program Files\Progress. This can cause errors in the JIT/S installation tools.

- 3 Enter the following values when prompted:

Field	Value
Installation Type	Complete
Server Engine	Both 4GL and SQL-92

Field	Value
Web Server Type (Windows only)	Microsoft IIS (ISAPI) and CGI Compatible
Script Directory (Windows only)	<i>Follow Microsoft IIS requirements</i>
Doc Root Directory (Windows only)	<i>Follow Microsoft IIS requirements</i>
Default Language	English - American
Code Page	ISO8859-1 Basic Basic
Date Format	mdy
Number Format	1,234.56 (comma, period)

- 4 Accept the default folder name.

Setup for a Second Language

If you are installing a second language in addition to the English base language:

- 1 Back up `Progress startup.pf` and `Progress empty.db` in the Progress OpenEdge directory.
Note OpenEdge supplies a collection of empty databases in a variety of code pages. These empty databases reside in the *ProgressInstallDir/prolang* directory in subdirectories by locale. For example, the *ProgressInstallDir/prolang/jpn* directory contains empty Japanese databases, and the *ProgressInstallDir/prolang/tur* directory contains empty Turkish databases.
- 2 From the appropriate Progress language-code directory, copy the following files to the top level of the database server Progress directory:
 - The parameter file (extension `.pf`) corresponding to the language you are installing
 - The empty database file (`empty.db`) and associated files
- 3 Edit the following `startup.pf` values to reflect your additional language:

```
-cpinternal ISO8859-1
```

```
-cpstream IS08859-1
-d mdy
-numsep 44
-numdec 46
```

Note See the *OpenEdge Internationalizing Guide* for details.

Update Environment Variables

Prior to the following installs, you must set the following environment variables for your system.

Table 3.1
Environment
Variables

Variable	Path
DLC	Progress install directory
JAVA_HOME	Java install directory
CATALINA_HOME	Tomcat install directory
TOMCAT_HOME	Tomcat install directory

On Windows:

- 1 Access Windows environment variables in Start|Control Panel|System.
- 2 Select the Advanced tab.
- 3 Choose Environment Variables to create or modify the entries.

On UNIX, edit the `etc/profile` and add the following to the end of the file:

```
DLC=ProgressInstallDir
export DLC
JAVA_HOME=JAVAInstallDir
export JAVA_HOME
CATALINA_HOME=TomcatInstallDir
export CATALINA_HOME
TOMCAT_HOME=TomcatInstallDir
export TOMCAT_HOME
```

Install QXtend

Follow the standard installation instructions for QXtend Inbound as detailed in *Technical Reference: QXtend*.

See “Set Up QXtend Inbound” on page 139 for configuration details specific to the JIT/S implementation.

Installing JIT/S Server

This chapter provides steps to install and configure the JIT/S server.

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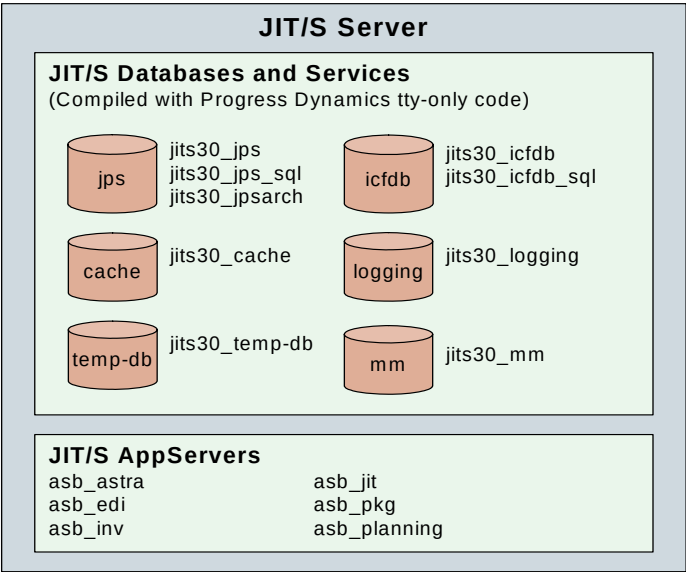
Administration Steps **66**

Load Translated Labels (For Additional Language Only) **67**

Installation Worksheet

JIT/S database server mainly comprises the following components as illustrated below.

Fig. 4.1
JIT/S Server



The following worksheet provides a location to record server names and locations, port numbers, and other settings. Default or recommended values are also provided.

Table 4.1
Configuration
Worksheet

Item	Your Setting	Windows	UNIX
Environment Variables			
DLC		C:\Progress\OpenEdge	/usr/dlc
JAVA_HOME		c:\jdk1.4.2	/usr/bin/jdk1.4.2
CATALINA_HOME		c:\Tomcat	/usr/share/tomcat
TOMCAT_HOME		c:\Tomcat	/usr/share/tomcat
JIT/S Server			
Install Dir		c:\jits_srv	/jits_srv

Table 4.1 — Configuration Worksheet (Page 1 of 3)

Item	Your Setting	Windows	UNIX
Install Log Dir		c:\instlog	/home/mfg/instlog
Web Server (Windows Only)			
Scripts Dir		c:\progress\webserver\script	
HTTP Port		80	
Document Dir		c:\progress\webserver\root	
Progress RDBMS			
Install Dir		C:\Progress\OpenEdge	/usr/dlc
Working Dir		C:\OpenEdge\WRK	/usr/wrk
Server Name			
Server Port			
Progress AppServers and NameServer			
ASTRA		asb_astra	
AST_PORT		18000	
EDI		asb_edl	
EDI_PORT		18001	
INV		asb_inv	
INV_PORT		18002	
JIT		asb_jit	
JIT_PORT		18003	
PKG		asb_pkg	
PKG_PORT		18004	
Planning		asb_planning	
PLANNING_PORT		18005	
QXTEND_PORT		18006	
NameServer		NS1	
NameServer Port		5162	
JIT/S Environment Name			
Environment Name		prodjits, testjits, for example	
ODBC Data Source			
Data Source Name		jps_sql	

Table 4.1 — Configuration Worksheet (Page 2 of 3)

Item	Your Setting	Windows	UNIX
Port/Service Name		jps_sql	
Archive Database Service			
Archive Service Name		jps_arch	
Port/Service Name		jps_arch	

Table 4.1 — Configuration Worksheet (Page 3 of 3)

Install JIT/S Databases

Install JIT/S Database Files

The first step is to mount the JIT/S server media and copy the files to your server. Choose the steps for the media you received. Install JIT/S directly from the CD, or from a copy of the CD on disk; you cannot install it correctly from a mapped drive.

For Windows servers, insert the JIT/S CD in the server CD drive.

For UNIX, mount the CD-ROM using the following command:

```
/etc/mount -F cdfs /dev/dsk/YourCDDevice /cdrom
```

Important If for some reason you are installing the JIT/S database server and the QAD ERP application on the same host, do not install them into the same directory.

- 1 Launch the installation script in the installation directory:

`install.exe` on Windows or `install.ksh` on UNIX

You are prompted to select a product initialization file to use. Choose `jits_database.ini`.

- 2 A welcome screen displays. Press Enter. The license agreement displays.
- 3 Accept the JIT/S software license agreement. Press q to advance to the end of the agreement.
- 4 You are asked to enter the installation log file directory. Accept the default or enter a new location. Later installations look in this location for installation information. If you enter a different log file location, make note of it for later installations.
- 5 The script looks for the `instjits_db.ini` file in this location. If it is not in the directory, the script creates it.
- 6 Enter or confirm the location of the Progress installation directory.
- 7 Enter the directory in which to install the JIT/S database server components.
- 8 If you are installing on Windows, you are asked to enter a name for the MFG/UTIL icons on the Windows Start menu. Confirm the default or enter a new name to continue.
- 9 A summary screen of the selected values displays. Enter y and press Enter to start the load.
- 10 When the installation ends, the location of your installation logs displays.

Overview of the JIT/S Workflows

JIT/S ships with MFG/UTIL, QAD's database and environment administration tool. After completing the install steps in the preceding section:

- On Windows, by default a folder named QAD JIT Sequencing 3.0 appears on your Windows Start|All Programs menu. Under this folder is the MFG/UTIL icon.
- On UNIX, a script called `mfgutil` is created in the JIT/S installation directory.

Note This guide uses screens from the Windows GUI version.

In MFG/UTIL are a series of menu items and workflows required to complete the installation and configuration of JIT/S 3.0. These appear under the Configure menu.

Recovering From Errors

If an error occurs during a workflow step, or if you cancel a step, the typical MFG/UTIL behavior is to exit the workflow and set the status of the step to Error or Canceled. When you restart the workflow, this is the first step run.

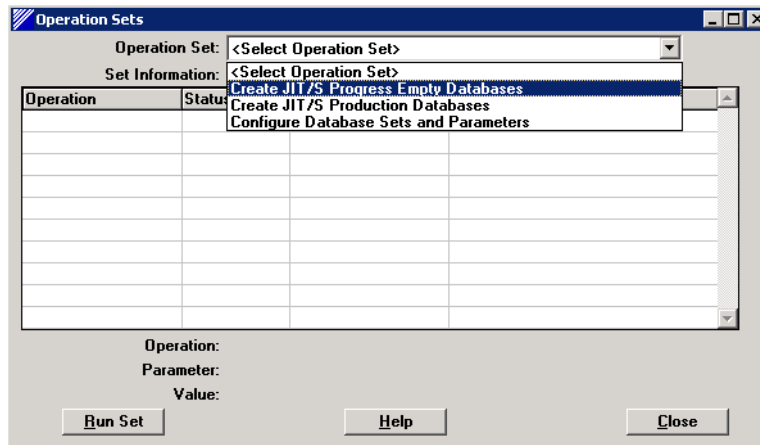
For more involved errors—for example, if incorrect data has been entered and later steps were completed—there are two options:

- The most efficient is to open the workflow .ini files and modify the Status entries back to the point where the incorrect data was entered.
- The alternative is to select Reset JIT/S Guided Setup Files from the Configure menu. You would then rerun the workflow where the initial error was introduced.

Running the Workflows

The MFG/UTIL workflows are accessed under the JIT/S Guided Setup option under the Configure menu. When you launch this program, a workflow selection and status interface displays.

Fig. 4.2
MFG/UTIL
Workflow
Administration
Screen



Clicking the Select Operation Set field drops down the workflow options for JIT/S. Select any workflow to see the steps included in the workflow and the status of each step.

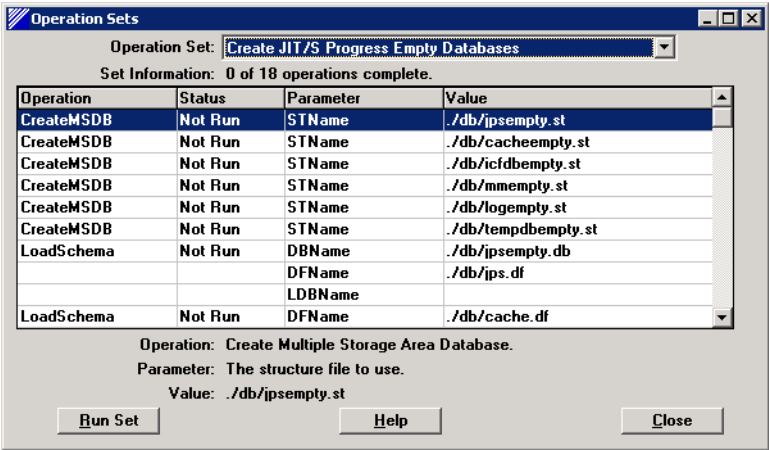


Fig. 4.3
JIT/S Empty
Database Workflow
Steps

Basic workflow data and sequences are maintained in a series of .ini files in the root JIT/S installation directory. These workflows can be edited as text files to correct paths or database names, or to alter workflow status after an error. Each .ini file contains a description of its corresponding workflow.

Create JIT/S Empty Databases

In this section, you create six empty JIT/S databases. You then load the schema into the databases and truncate them. You will cycle through each set of steps—creating, loading, and truncating—for each database. The six databases and the applicable files are listed in Table 4.2.

Database Name	Structure File (.st)	Data Definition File (.df)
jpsemt.db	jpsemt.st	jps.df
cacheempty.db	cacheempty.st	cache.df
icfdbempty.db	icfdbempty.st	icfdb.df
mmempty.db	mmempty.st	mm.df
logempty.db	logempty.st	logging.df
tempdbempty.db	tempdbempty.st	temp-db.df

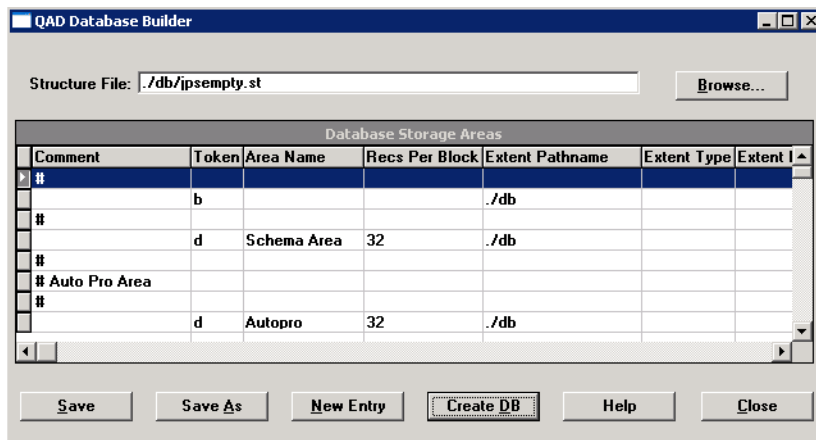
Table 4.2
Empty JIT/S
Databases

Warning Anti-spyware software guards against the running of unauthorized batch (. bat) files. The database creation process requires the use of batch files. Typically, you are prompted to allow a specified batch file to run, or you can temporarily turn off script blocking in the anti-spyware software. Certain anti-spyware products, notably the Microsoft Antispyware (Beta) product, may not manage the enabling of a batch script properly. If the script does not run after you indicate that it should be allowed to, you should terminate the process, and then restart MFG/UTIL and rerun the database creation steps.

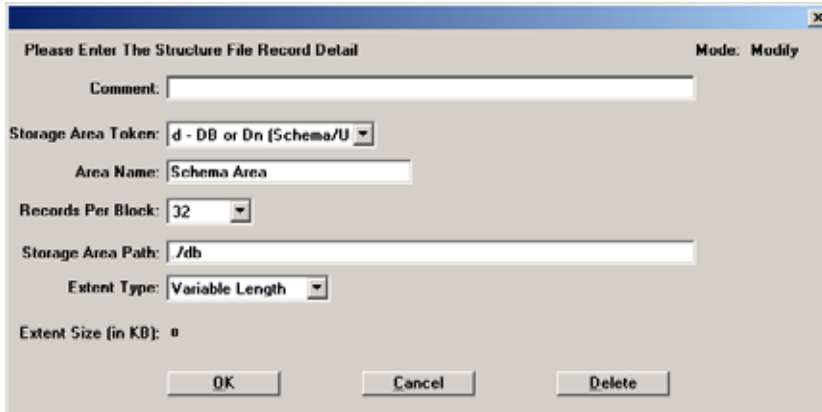
- 1 Launch MFG/UTIL JIT/S Database Server Configuration.
- 2 Select JIT/S Guided Setup from the Configure menu.
- 3 Click Select Operation Set, and choose Create QAD JIT/S Progress Empty Databases.
- 4 Choose Run Set to start the workflow.
- 5 The QAD Database Builder displays for the first empty database, jpsempty.db. The Database Builder lets you modify the paths and database extent sizes as defined in the database structure file, jpsempty.st.

Note See the Progress Database Administration Guide for information on structure files.

Fig. 4.4
QAD Database
Builder for
jpsempty.st



- a To modify any line in the structure file, select the line and press Enter. A structure file editing dialog displays.

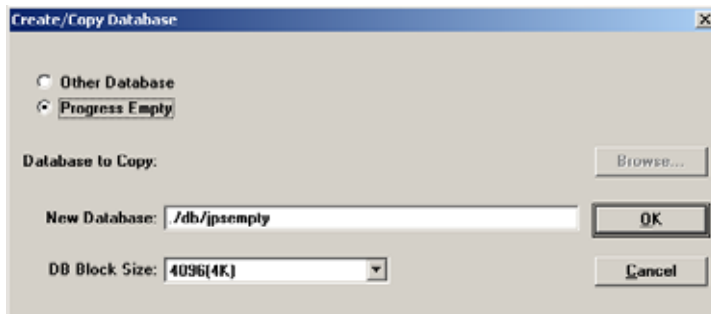


The dialog box is titled "Please Enter The Structure File Record Detail" with a "Mode: Modify" label in the top right corner. It contains several input fields and buttons:

- Comment:** A text input field.
- Storage Area Token:** A dropdown menu showing "d - DB or Dn (Schema/U)".
- Area Name:** A text input field containing "Schema Area".
- Records Per Block:** A dropdown menu showing "32".
- Storage Area Path:** A text input field containing "/db".
- Extent Type:** A dropdown menu showing "Variable Length".
- Extent Size (in KB):** A text input field containing "0".
- At the bottom are three buttons: "OK", "Cancel", and "Delete".

Fig. 4.5
Structure File
Editing Dialog

- b Make your changes and choose OK. You return to the Database Builder. Choose Create DB in the Database Builder to continue.
- 6 In the Create/Copy Database screen, accept the default information as shown, and choose OK.



The dialog box is titled "Create/Copy Database". It contains the following elements:

- Two radio buttons: "Other Database" (unselected) and "Progress Empty" (selected).
- Database to Copy:** A text input field with a "Browse..." button to its right.
- New Database:** A text input field containing "/db/jpsempty".
- DB Block Size:** A dropdown menu showing "4096(4K)".
- At the bottom right are two buttons: "OK" and "Cancel".

Fig. 4.6
Create/Copy
Database Screen for
jpsempty.db

- 7 The Create Database Monitor displays database creation progress. When it finishes, the Close button displays. Choose Close to continue.

Warning If this process hangs, see the anti-spyware warning on page 38.

- 8 The Database Builder screen displays again showing the `jpsempy.st` file. The Close button is selected. Press Enter or click Close to exit.
- 9 You return to the QAD Database Builder with the next database structure file selected. Repeat steps 5 through 8 for each of the remaining databases listed in Table 4.2 on page 37.

Load Schema into Empty Databases

After creating the last database, the workflow connects you to `jpsempy` to load the schema for that database. These steps also repeat for all the other databases.

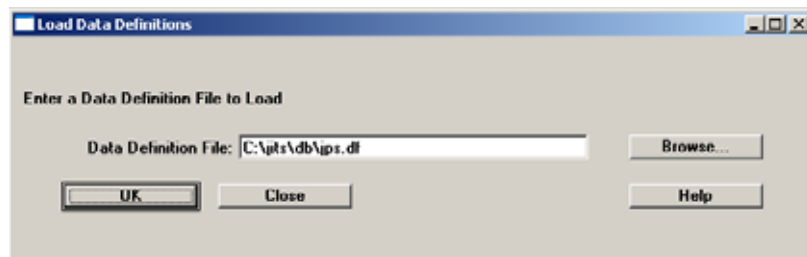
- 10 The Connect Database screen displays containing the correct defaults to connect to the new `jpsempy` database. Choose OK.

Fig. 4.7
Connect Database
Screen for
`jpsempy.db`



- 11 The Load Data Definitions screen displays with the correct defaults. The schema files (`.df`) for the empty databases use the production database names. For example, for `jpsempy` the `jps.df` file is used. Choose OK to continue.

Fig. 4.8
Load Data
Definitions Screen
for `jps.df`



- 12 When the schema load completes, the QAD Log Window displays. Review the load results, and choose Close to continue.

- 13** You return to the Connect Database screen with the next empty database selected. Repeat steps 10 through 12 for each of the remaining databases listed in Table 4.2 on page 37.

Truncate Empty Databases

After loading the schema into the last database, the workflow displays the Truncate BI screen for `jpsempty`. The BI file is the Progress before-image file. Truncating this file after a new database has been created is recommended to force all data, including schema, into the data file structures. You will perform the truncate steps for all the databases.

- 14** The Truncate BI File screen displays. Choose Truncate.

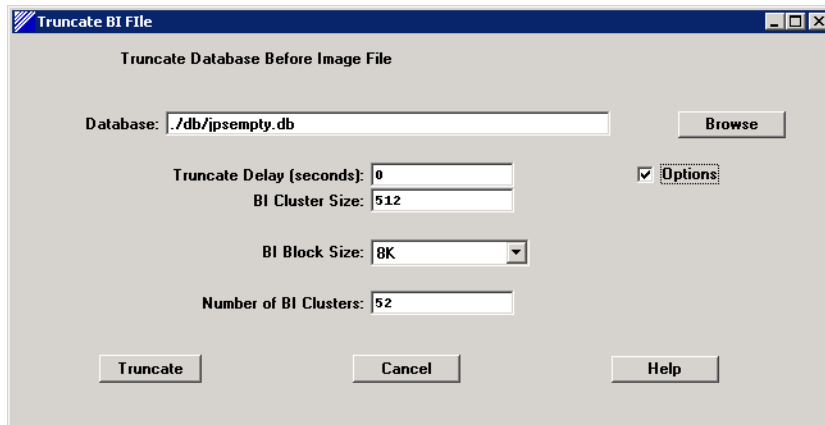


Fig. 4.9
Truncate BI File for
`jpsempty.db`

- 15** The Database Monitor displays, showing where the truncate log is written. Choose Close.
- 16** Repeat these steps for each of the remaining databases shown in Table 4.2 on page 37.

When the truncate has been run for all the remaining databases, you return to the Operation Sets screen. The status on each step in the Empty Database workflow reads Done.

Create JIT/S Production Databases

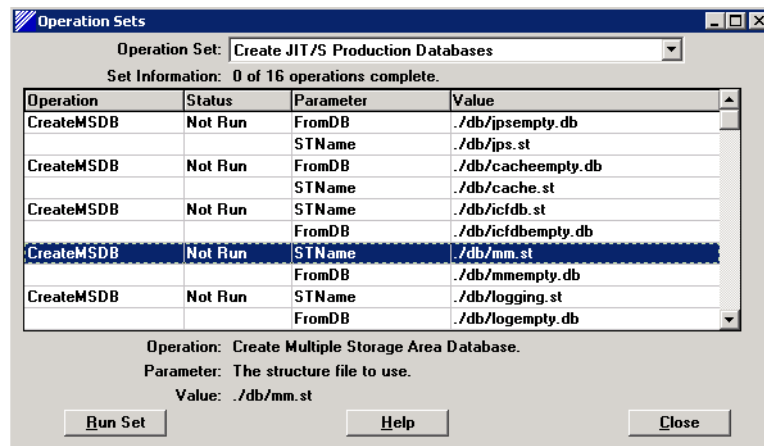
Using the empty databases, you now create the production databases and load the required system data into two of those databases. You then truncate the production databases. The files required are listed in Table 4.3.

Table 4.3
Production
Databases and
Related Files

Production DB Name	Empty DB to Copy	Load Directory
jps.db	jpsempty.db	<i>JITSInstallDir</i> \jps
cache.db	cacheempty.db	<i>JITSInstallDir</i> \cache
icfdb.db	icfdbempty.db	<i>JITSInstallDir</i> \icfdb
mm.db	mmempty.db	<i>JITSInstallDir</i> \mm
logging.db	logempty.db	N/A
temp-db.db	tempdbempty.db	N/A

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose the next workflow, Create JIT/S Production Databases. The workflow steps display.

Fig. 4.10
Production
Database Workflow



- 2 Choose Run Set to start the workflow.
- 3 The QAD Database Builder displays with the jps.st structure file. Choose any line and press Enter to edit the line detail.

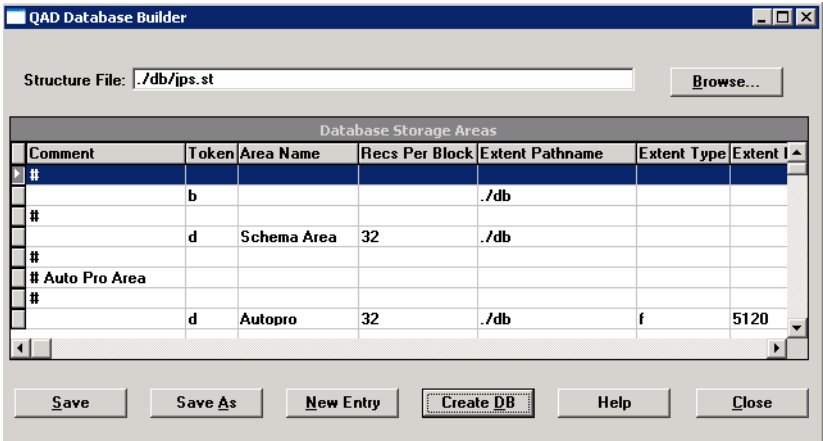


Fig. 4.11
QAD Database
Builder for jps.st

- 4 Choose Create DB to create the database. The Create/Copy Database screen displays. The new production database is created by copying the related empty database as shown in Table 4.3 on page 42. Accept the defaults and choose OK.

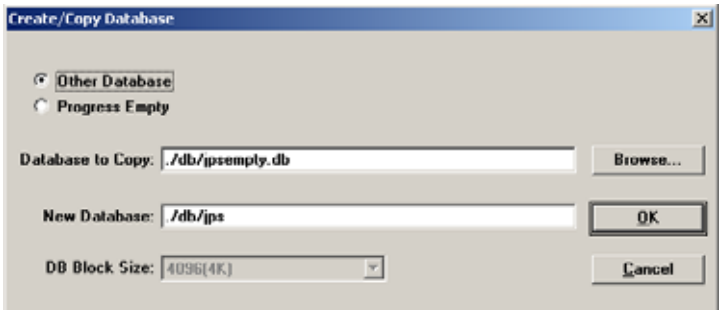


Fig. 4.12
Create/Copy
Database for jps.db

- 5 The QAD Database Monitor displays to show progress and the log file location. Choose Close to continue.
- 6 The QAD Database Builder displays again for jps.st. Choose Close.
- 7 Repeat steps 3 through 6 to create the remaining databases listed in Table 4.3.

Load Data into Production Databases

- 8 The Connect Database screen displays for the new jps.db database. Choose OK.

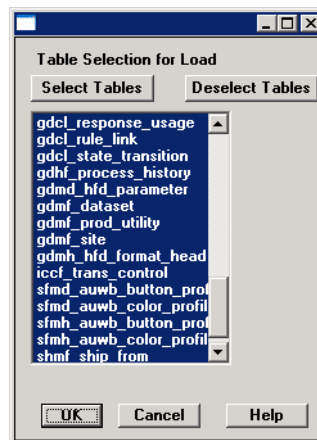
Fig. 4.13
Connect Database
Screen for jps.db



- 9 The next step locates the data files (.d) containing the required system data for the JIT/S application. The Table Selection for Load screen displays.

By default, all the tables are selected. Choose OK to start the load.

Fig. 4.14
Table Selection for
Load Screen for
jps.db



- 10 A processing screen displays. This may display briefly without messages during the load, especially for the icfdb database. When the load is complete, the QAD Log Window displays. Choose Close to continue.
- 11 Repeat steps 8 through 10 for the other remaining databases.

Truncate Production Databases

- 12** The Truncate BI File screen displays. Choose Truncate to complete the creation of the jps database.



Fig. 4.15
Truncate BI File for
jps.db

- 13** The Database Monitor window displays to show progress and the log file location. Choose Close to continue.
- 14** Repeat steps 12 through 13 for the other remaining databases.
- 15** When all steps have been run for all five databases, you return to the Operation Sets screen. The status on each step in the Production Database workflow reads Done.

Configure Database Sets and Parameters

You use MFG/UTIL menus to configure settings for each of the six databases you have created. A database set is an MFG/UTIL grouping of related databases you want to start and stop at the same time.

Three database sets are created: JITS, JITSCOMP, and DYNCOMP.

- JITS is used to create scripts and shortcuts for the runtime JIT/S client. It cannot be used until after a successful compile.
- JITSCOMP is used to compile the JIT/S application code.
- DYNCOMP is used to compile the Progress Dynamics source code so that it can be used on 64-bit systems.

The startup parameters are different for the three database sets.

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose Configure Database Sets and Parameters. The workflow steps display.

Fig. 4.16
Database Set
Configuration

Operation	Status	Parameter	Value
DefineDBSet	Not Run	DBSetName	JITS
JitsDBS	Not Run	DBSetMembers	cache,ips,icfdb,mm,logging,tem
JitsDBMerge	Not Run	DbSet	JITS
JitsWriteService	Not Run	DbSet	JITS

Operation: Define database sets.
Parameter: The database set name.
Value: JITS

Buttons: Run Set, Help, Close

- 2 Choose Run Set to start the workflow. Database Set Maintenance displays.
- 3 Choose Edit Set to verify the startup parameters assigned for the set. The Database Sets screen displays.

Fig. 4.17
Edit Screen for the
JITS Database Set

Database Set Parameters

Set Name: JITS

Set Description: JIT/S Database Set

Start Parameters: N/A

Desktop Start Parameters: -rereadnolock N/A

Active: YES

Edit Set Propath: c:\jits_dbs\patch,c:\jits_dbs\custom,..c:\jits_dbs

Buttons: Edit, OK, Cancel, Help, New, Delete

- 4 You can safely ignore the fields in the screen. Choose OK.

- 5
- In the main set screen with the JITS database set selected, choose a database in the Selected Set Overview panel at the bottom of the screen. Choose Edit DB to verify or modify the settings for the database.

Note The jps database requires three services.

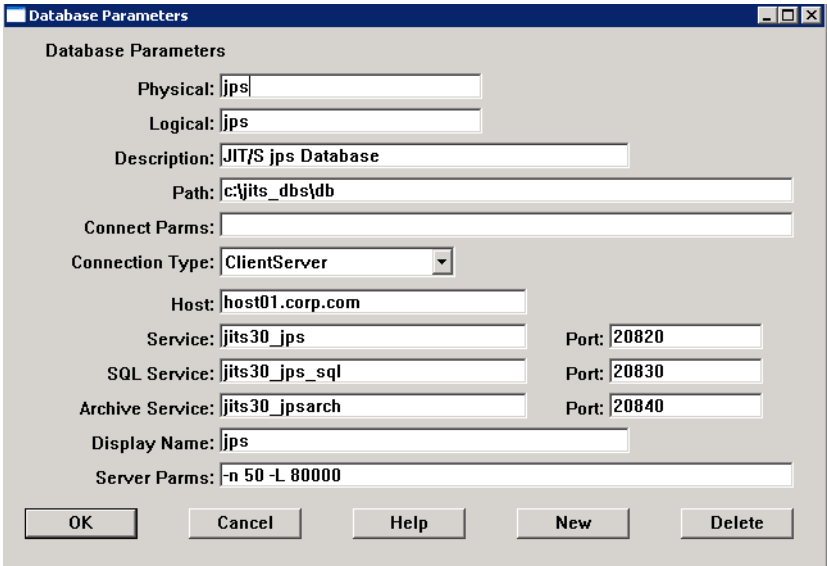
The screenshot shows a 'Database Parameters' dialog box. It contains several input fields: 'Physical' (jps), 'Logical' (jps), 'Description' (JIT/S jps Database), 'Path' (c:\jits_dbs\db), 'Connect Params' (empty), 'Connection Type' (ClientServer), 'Host' (host01.corp.com), 'Service' (jits30_jps), 'Port' (20820), 'SQL Service' (jits30_jps_sql), 'Port' (20830), 'Archive Service' (jits30_jpsarch), 'Port' (20840), 'Display Name' (jps), and 'Server Params' (-n 50 -L 80000). At the bottom are buttons for OK, Cancel, Help, New, and Delete.

Fig. 4.18
Client Database
Parameters for the
jps Database

- 6
- The JIT/S databases must have a client/server connection type. The host and service name must be defined. The host is the machine name where you created the databases; the service names and ports will be written to the Services file and must agree among the three JIT/S database sets. In addition, the service names must be unique; no other service in the Services file can have the same name.

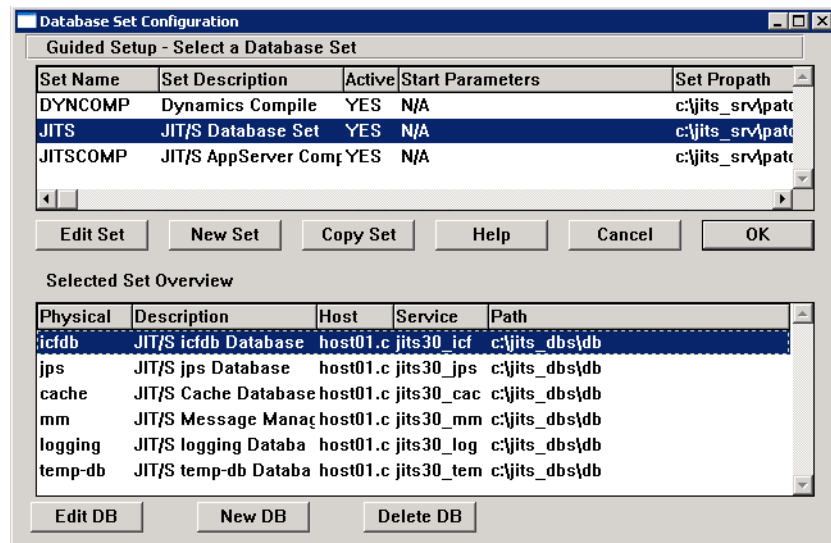
Important The jps database requires three services and ports and the icfdb database requires two services and ports. The services for all the databases are as follows:

Database	Service Name	Suggested Port Number
icfdb	jits30_icfdb	20800
	jits30_icfdb_sql	20810
jps	jits30_jps	20820
	jits30_jps_sql	20830

Database	Service Name	Suggested Port Number
	jits30_jpsarch	20840
cache	jits30_cache	20850
mm	jits30_mm	20860
logging	jits30_logging	20870
temp-db	jits30_temp-db	20880

- 7 Choose OK to save the client database settings.
- 8 Repeat steps 5 through 7 for the remaining databases. The resulting database set should look similar to the following.

Fig. 4.19
Completed JITS
Database Set



- 9 Perform the same configuration steps for the JITCOMP and DYNCOMP database sets.
- 10 Choose OK in the Database Set Maintenance screen to complete the modifications to the database sets.
- 11 The log window displays again, showing the creation of a sample Connection Manager (connmgr.properties) file, jdb.txt, located in the JIT/S install directory.
- 12 The log window displays again, showing the merge of jdb.txt into the Progress connmgr.properties file. Choose Close to continue.

13 This successfully completes the workflow.

If you are installing the database server on Unix, add the service name and port number of each database to the services file `/etc/service`.

Install JIT/S AppServers

Install JIT/S AppServer Files

The first step is to mount the JIT/S server media and copy the files to your server. Choose the steps for the media you received. Install JIT/S directly from the CD, or from a copy of the CD on disk; you cannot install it correctly from a mapped drive.

For Windows servers, insert the JIT/S CD in the server CD drive.

For UNIX, mount the CD-ROM using the following command:

```
/etc/mount -F cdfs /dev/dsk/YourCDDevice /cdrom
```

- 1** Launch the installation script in the installation directory:
`install.exe` on Windows or `install.ksh` on UNIX
 You are prompted to select a product initialization file to use. Choose *jits_server.ini*.
- 2** A welcome screen displays. Press Enter. The license agreement displays.
- 3** Accept the JIT/S software license agreement. Press q to jump to the end of the agreement.
- 4** You are asked to enter the installation log file directory. Accept the default or enter a new location. Later installs look in this location for installation information. If you enter a different log file location, make note of it for later installations.
- 5** The script looks for the `instjits_appsrv.ini` file in this location. If it is not in the directory, the script creates it.
- 6** Enter or confirm the location of the Progress installation directory.

- 7** You are asked where you want JIT/S appserver components installed. If the directory does not exist, you are asked to confirm the creation of the directory.
- 8** If you are installing on Windows, you are asked to enter a name for the MFG/UTIL icons on the Windows Start menu. Confirm the default or enter a new name to continue.
- 9** Enter the directory where the JIT/S databases are installed. If the directory is located on a different machine, it should be mapped to a local drive.
- 10** A summary screen of the selected values displays. Enter y and press Enter to start the load.
- 11** When the installation ends, the location of your installation logs displays.

Set Up JIT/S Environment

The configuration programs require that several environment values are set correctly. These are entered or modified in the following steps.

- 1** Launch MFG/UTIL JIT/S AppServer Configuration.
- 2** In MFG/UTIL, select JIT/S AppServer Guided Setup from the Configure menu.
- 3** Click Select Operation Set, and choose Setup JIT/S Environment.
- 4** Choose Run Set to start the workflow.
- 5** The JIT/S Environment Setup screen displays. Enter or update values to reflect your existing and intended JIT/S environment.

JIT/S Environment Setup

JIT/S Environment Name:

JIT/S AppServer Host Name:

Date Format (DMY or MDY):

ICFDB ODBC Data Source Name:

JPS ODBC Data Source Name:

PROGRESS Dynamics Install Directory:

JIT/S Mail Server Host Name:

Fig. 4.20
JIT/S Environment
Setup Screen

JIT/S Environment Name. This is the name of your JIT/S instance. Enter a value that reflects the use of the environment, such as testjits, prodjits, or devjits.

JIT/S AppServer Host Name. Specify the machine name where you installed your JIT/S AppServer. Include the company domain name; for example, host01.corp.com.

Date Format. Enter the date format for JIT/S. The options are mdy or dmy.

ICFDB ODBC Data Source Name. This is the name used for the ICFDB database ODBC data source required for Crystal Reports. The data source is created later in “Administration Steps” on page 66 using the name you enter here.

JPS ODBC Data Source Name. This is the name used for the JPS database ODBC data source required for Crystal Reports. The data source is created later in “Administration Steps” on page 66 using the name you enter here.

PROGRESS Dynamics Install Directory. By default, this is set to the OpenEdge installation directory. If you are installing the JIT/S Server on a 64-bit platform, you must change this directory to *JITSInstallDir\dyn101b*.

Use the “Installation Worksheet” on page 32 to fill in and record the values entered here.

JIT/S Mail Server Host Name. Specify the machine name where the mail server is installed. See “Install and Configure E-Mail Utility” on page 62.

- 6 Choose OK.
- 7 The JIT/S AppServer Names screen displays. Review or update values and click OK.

Fig. 4.21
JIT/S AppServer
Ports Screen

JIT/S AppServer Names

Name Server used for JIT/S AppServers:
NS1

Name Server Port used for JIT/S Appservers:
5162

ASTRA AppServer Name:
asb_astra

EDI AppServer Name:
asb_edt

INV AppServer Name:
asb_inv

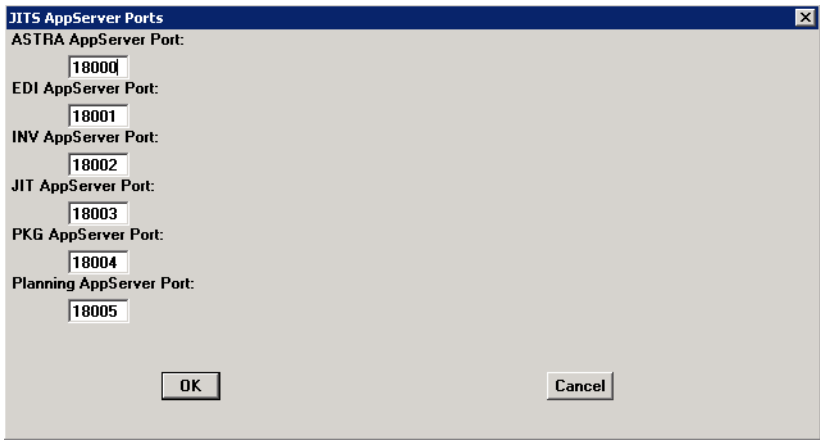
JIT AppServer Name:
asb_jit

PKG AppServer Name:
asb_pkg

Planning AppServer Name:
asb_planning

OK Cancel

- 8 The JIT/S AppServer Ports screen displays. Review or update values and choose OK.



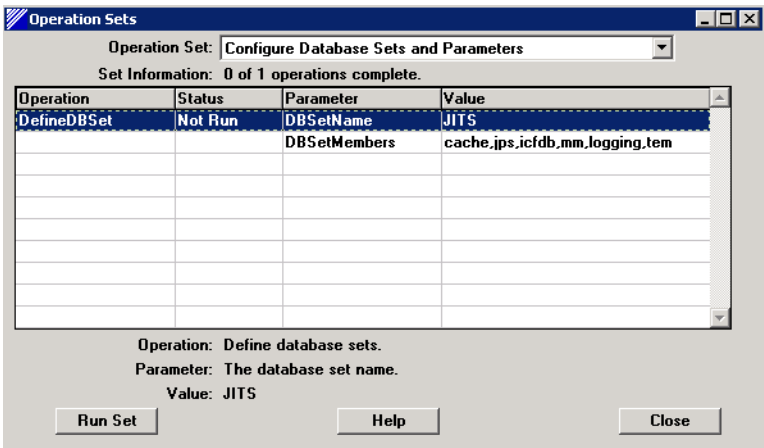
A screenshot of a Windows-style dialog box titled "JITS AppServer Ports". It contains several labels with corresponding text input fields. The labels and their values are: ASTRA AppServer Port: 18000, EDI AppServer Port: 18001, INV AppServer Port: 18002, JIT AppServer Port: 18003, PKG AppServer Port: 18004, and Planning AppServer Port: 18005. At the bottom of the dialog are two buttons: "OK" and "Cancel".

Fig. 4.22
JIT/S AppServer
Ports Screen

- 9 You return to the Operation Sets screen. The status on each step in the Setup JIT/S Environment workflow reads Done.

Configure Database Sets and Parameters

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose Configure Database Sets and Parameters. The workflow steps display.



A screenshot of a Windows-style dialog box titled "Operation Sets". At the top, there is a dropdown menu labeled "Operation Set:" with "Configure Database Sets and Parameters" selected. Below this is a label "Set Information: 0 of 1 operations complete." followed by a table. The table has four columns: "Operation", "Status", "Parameter", and "Value". The first row is highlighted in blue and contains "DefineDBSet", "Not Run", "DBSetName", and "JITS". The second row contains "DBSetMembers" and "cache.jps,icfdb.mm,logging.tem". There are several empty rows below. At the bottom of the dialog, there is a text area with the following text: "Operation: Define database sets.", "Parameter: The database set name.", and "Value: JITS". Below this text are three buttons: "Run Set", "Help", and "Close".

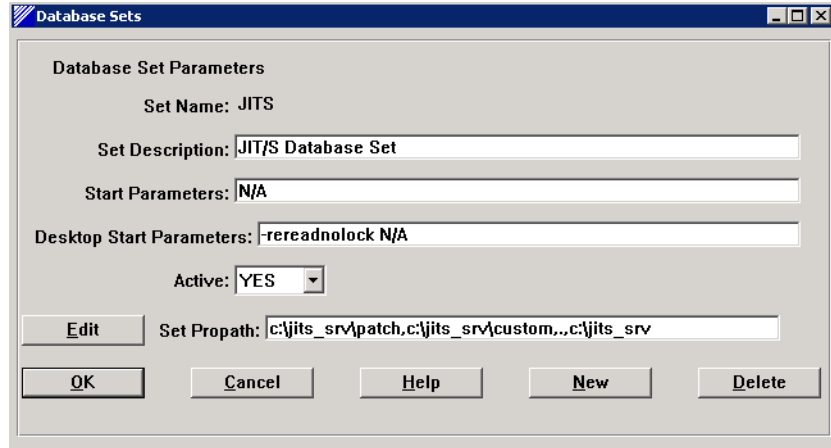
Operation	Status	Parameter	Value
DefineDBSet	Not Run	DBSetName	JITS
		DBSetMembers	cache.jps,icfdb.mm,logging.tem

Fig. 4.23
Database Set
Configuration

- 2 Choose Run Set to start the workflow. Database Set Maintenance displays.

- 3 Choose Edit Set to verify the startup parameters assigned for the set. The Database Sets screen displays.

Fig. 4.24
Edit Screen for the
JITS Database Set



The screenshot shows a Windows-style dialog box titled "Database Sets". Inside, the "Database Set Parameters" section is visible. It contains the following fields and controls:

- Set Name:** JITS
- Set Description:** JITS Database Set
- Start Parameters:** N/A
- Desktop Start Parameters:** -rereadnolock N/A
- Active:** YES (with a dropdown arrow)
- Edit** button (highlighted)
- Set Propath:** c:\jits_srv\patch,c:\jits_srv\custom,..c:\jits_srv
- Buttons at the bottom: **OK**, **Cancel**, **Help**, **New**, and **Delete**.

- 4 You can safely ignore the fields in the screen. Choose OK.
- 5 In the main set screen with the JITS database set selected, choose a database in the Selected Set Overview panel at the bottom of the screen. Choose Edit DB to verify or modify the settings for the database.

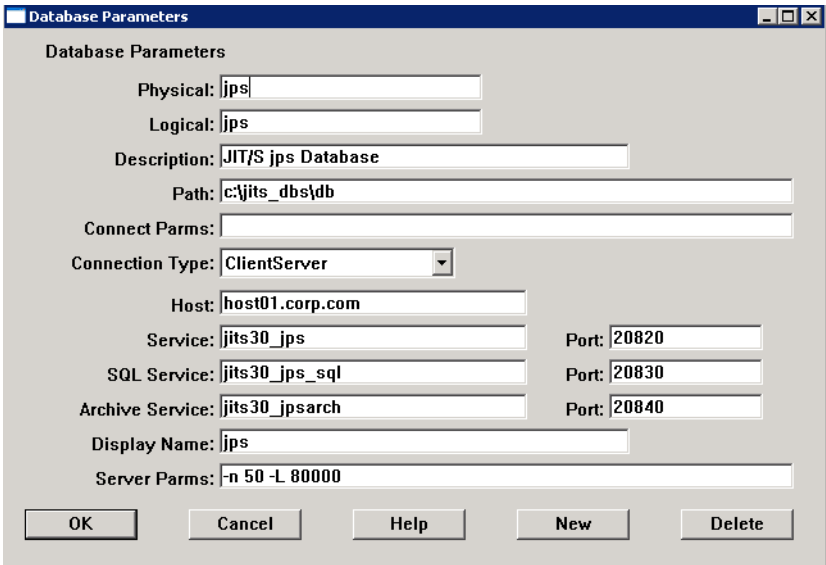


Fig. 4.25
Client Database
Parameters for the
jps Database

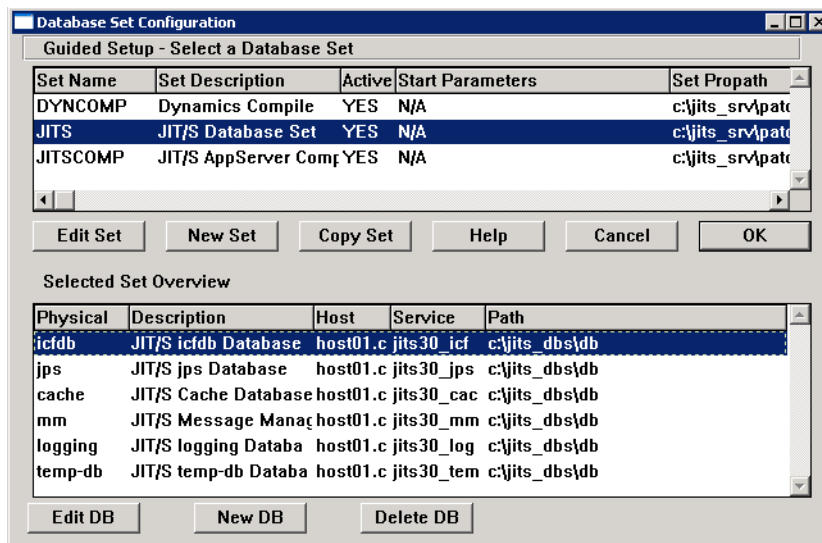
The JIT/S databases must have a client/server connection type. The host and service name must be defined. The host is the machine name where you created the databases. Specify the same service names and ports as you defined for the database on the JIT/S database server.

The default services for all the databases are as follows:

Database	Service Name	Suggested Port Number
icfdb	jits30_icfdb	20800
	jits30_icfdb_sql	20810
jps	jits30_jps	20820
	jits30_jps_sql	20830
	jits30_jpsarch	20840
cache	jits30_cache	20850
mm	jits30_mm	20860
logging	jits30_logging	20870
temp-db	jits30_temp-db	20880

- 6
- Choose OK to save the client database settings.
- 7
- Repeat steps 5 through 7 for the remaining databases. The resulting database set should look similar to the following.

Fig. 4.26
Completed JITS
Database Set



- 8 Perform the same configuration steps for the JITCOMP and DYNCOMP database sets.
- 9 Choose OK in the Database Set Maintenance screen to complete the modifications to the database sets. This successfully completes the workflow.

Compile JIT/S AppServer Code

A full compile of the JIT/S AppServer code is required after installation. Compiling a source file creates an object file with the same name and the .r extension.

Use the following instructions to compile the JIT/S AppServer code with MFG/UTIL.

- 1 In MFG/UTIL, select Configure|JIT/S AppServer Guided Setup. The JIT/S Guided Setup screen displays.
- 2 The workflow steps display. Choose Compile JIT/S AppServer Code from the Operation Set drop-down list. The workflow steps display.

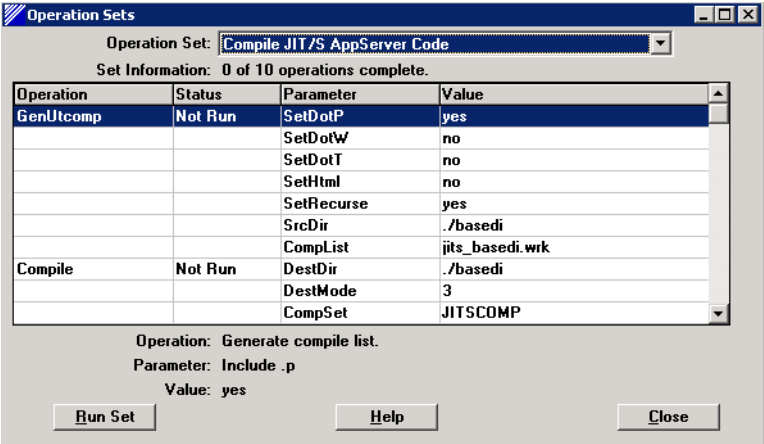


Fig. 4.27
Compile JIT/S
AppServer Code

- 3 Choose Run Set to start the workflow. The Generate Compile List screen displays.

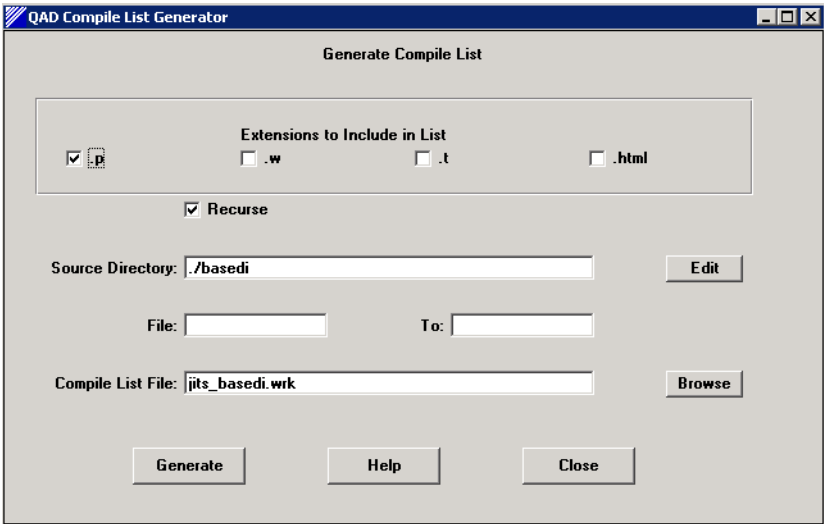
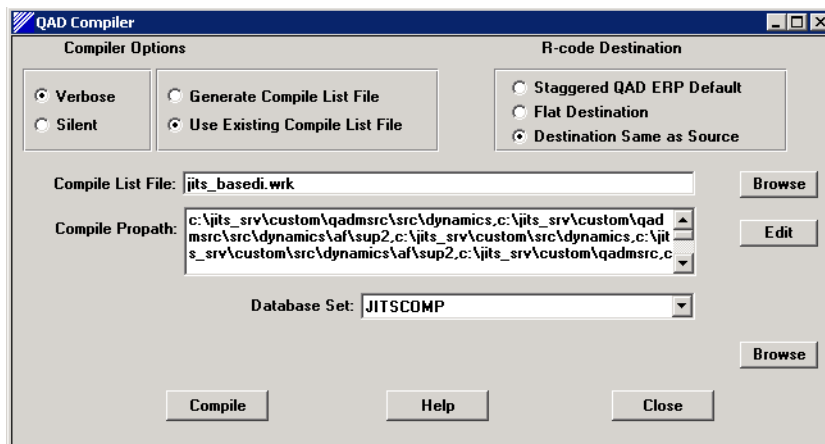


Fig. 4.28
Generate Compile
List

- 4 Choose Generate to generate a list of programs to be compiled under the *basedir* directory.
- 5 A QAD log window displays to indicate the list generation progress. When the list generation ends, choose Close.
- 6 Accept the default compile options and choose Compile.

Fig. 4.29
Compile JIT/S
AppServer Code



- 7 In the compile verification screen, check the compile information. If the compile settings are correct, choose Continue to begin the compile. If the settings are incorrect, choose Back to make changes.

Note If you are compiling code for a non-Western European language, you may have to modify the code page values for the compile. The compile code page values default from the *startup.pf* file located in the Progress directory. See “Setup for a Second Language” on page 27.

- 8 If you selected the Verbose compile option, an Installation Log screen displays during the compile. When the compile ends, choose Close.
- 9 Repeat steps 4 through 8 to compile programs under the basord, jpssrc, qadmsrc and src directories.

Compile Progress Dynamics Code

Use the following instructions to compile the Progress Dynamics code with MFG/UTIL.

- 1 In MFG/UTIL, select Configure|JIT/S AppServer Guided Setup. The JIT/S Guided Setup screen displays.
- 2 The workflow steps display. Choose Compile Progress Dynamics Code from the Operation Set drop-down list.

- 3 Choose Run Set to start the workflow. The Generate Compile List screen displays.

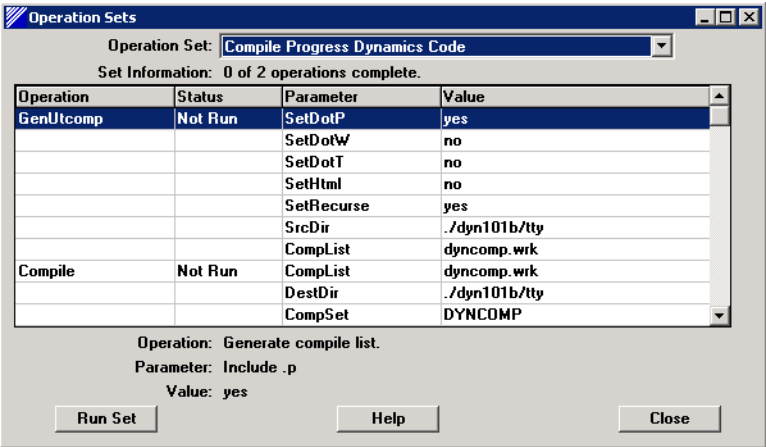


Fig. 4.30
Compile Progress
Dynamics Code

- 4 Choose Generate to generate a list of programs to be compiled under the dyn101b\tty directory.
- 5 A QAD log window displays to indicate the list generation progress. When the list generation ends, choose Close.
- 6 Accept the default compile options and choose Compile.

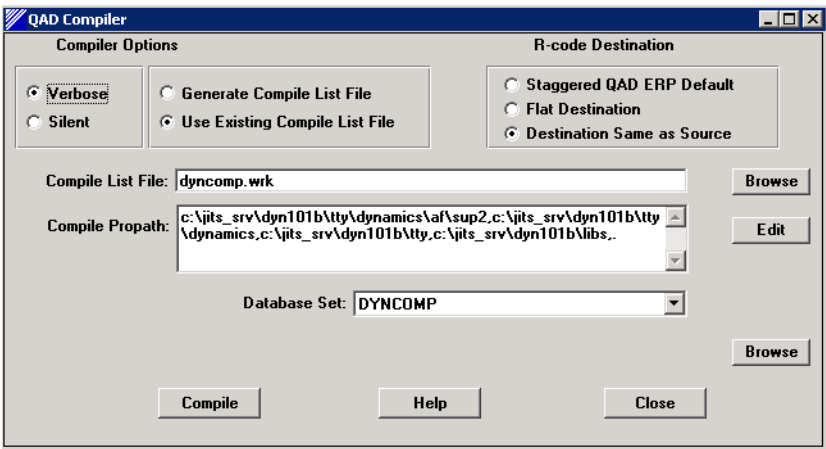


Fig. 4.31
Compile Progress
Dynamics Code
Options

- 7 In the compile verification screen, check the compile information. If the compile settings are correct, choose Continue to begin the compile. If the settings are incorrect, choose Back to make changes.

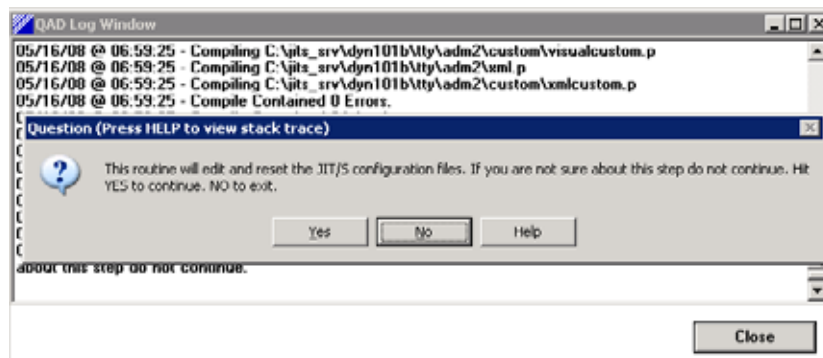
Note If you are compiling code for a non-Western European language, you may have to modify the code page values for the compile. The compile code page values default from the *startup.pf* file located in the Progress directory. See “Setup for a Second Language” on page 27.

- 8 If you selected the Verbose compile option, an Installation Log screen displays during the compile. When the compile ends, choose Close.

Tailor JIT/S Configuration Files

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose Tailor JIT/S Configuration Files.
- 2 The workflow steps display. Choose Run Set to start the workflow. You are asked to confirm the creation of the configuration files. Choose Yes to continue.

Fig. 4.32
Tailoring JIT/S
Configuration Files



- 3 The log window displays showing the files tailored.
- 4 When the tailoring process ends, choose Close to continue. This successfully completes the workflow.

Configure JIT/S AppServer Settings

The final workflow creates and merges a sample Progress AppServer script into the `ubroker.properties` file.

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose Configure JIT/S AppServer Settings. The workflow steps display.
- 2 Choose Run Set to start the workflow. A series of command windows display and close. The log window confirms the creation of the script.

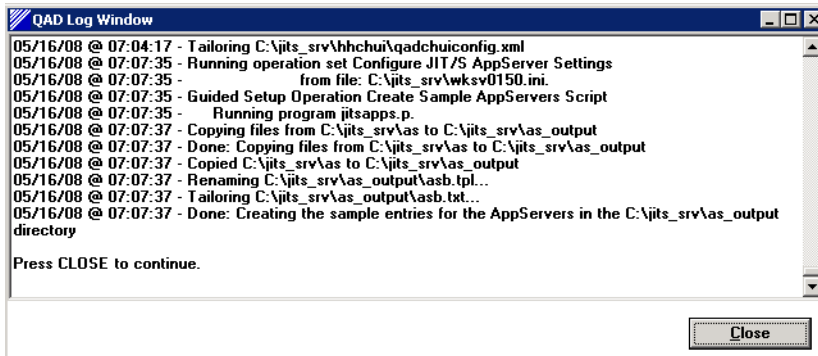


Fig. 4.33
Sample AppServer
Log Window

- 3 Choose Close to continue. The log window displays showing the merge of the sample script into the `ubroker.properties` file.

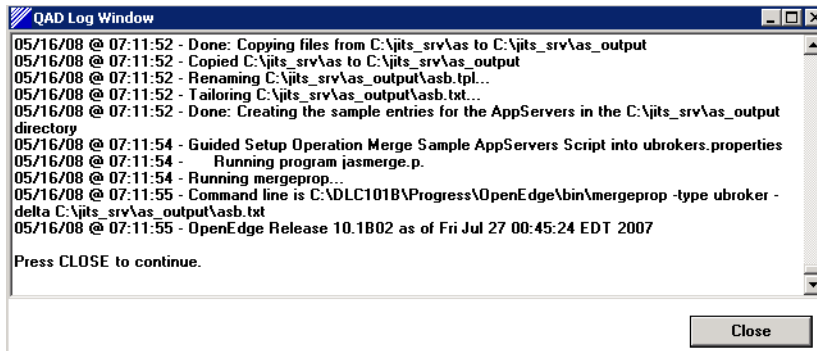


Fig. 4.34
Sample Script
Merge Log
Window

- 4 Choose Close to continue. This successfully completes the workflow.

Install and Configure E-Mail Utility

You need to install and configure a third-party e-mail utility to integrate e-mail capabilities with JIT/S.

Follow these steps to install and configure the wSendmail utility on Windows:

- 1 Download wSendmail from:
<http://support.jgaa.com/index.php?cmd=ShowProduct&ID=521>
- 2 Install wSendmail.
- 3 Open the following file in a text editor:
JITInstallDir/bin/win32/sendmailwin32.bat
- 4 Edit the batch file, replace the existing path in the file with the wSendmail installation directory.
- 5 Modify the SMTP server settings.
- 6 Open the JIT/S *config.xml* file and verify that `<asynchronousQueue><emailCommand>` is set to *JITInstallDir/bin/win32/sendmailwin32.bat*

Follow these steps to install and configure the mailx utility on Unix:

- 1 Download mailx from:
http://sourceforge.net/project/downloading.php?groupname=heirloom&filename=mailx-12.3.tar.bz2&use_mirror=jais
- 2 Use the following commands to install mailx:

```
tar -jxvf mailx-12.3.tar.bz2
cd mailx-12.3
make
```
- 3 Open the following file in a text editor:
JITInstallDir/install/bin/unix/sendmailunix.sh
- 4 Modify the shell file to reflect the current mailx folder; for example, */users/hes/mailx-12.3/mailx*.

- 5 Open the JIT/S config.xml file and verify that `<asynchronousQueue><emailCommand>` is set to `JITSInstallDir/bin/win32/sendmailwin32.bat`

Complete the JIT/S Application Server Install

Verify the JIT/S Databases

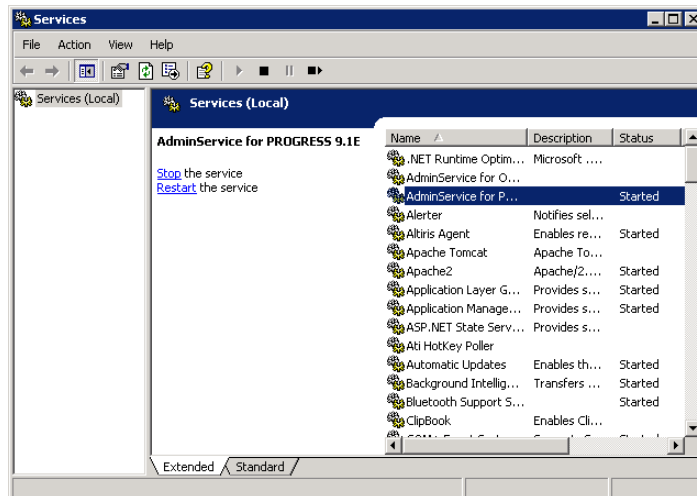
After completing the database setup and application code compile, you must bounce (stop and start) the Progress admin service and verify that the JIT/S databases are running.

Verify the JIT/S Databases in Progress Explorer (Windows)

- 1 Open the Windows Control Panel and select Administrative Tools| Services. The Services window opens.
- 2 Select the Admin Service for your version of Progress, and click Restart.

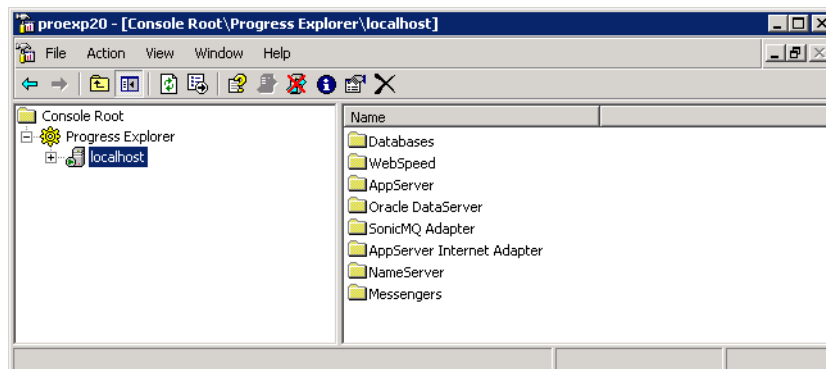
Note If you have multiple versions of Progress on the host machine, make sure all other versions of the Admin Server are stopped. For a long-term solution, see the Progress documentation for setting the different Admin Servers to use separate ports.

Fig. 4.35
Bouncing the
Progress
AdminServer



- 3 Once the service has been restarted, close the Services window.
- 4 Select Start|Progress|Progress Explorer Tool.
- 5 In Progress Explorer, right-click the localhost icon and choose Connect. Log in using the system user initials that default in. The databases are started and the Explorer displays the folders for Progress components on the host.

Fig. 4.36
Progress Explorer
After Initial Log In



- 6 Expand the localhost node and select the Databases folder below it to verify that the databases are running. If not, start the databases.

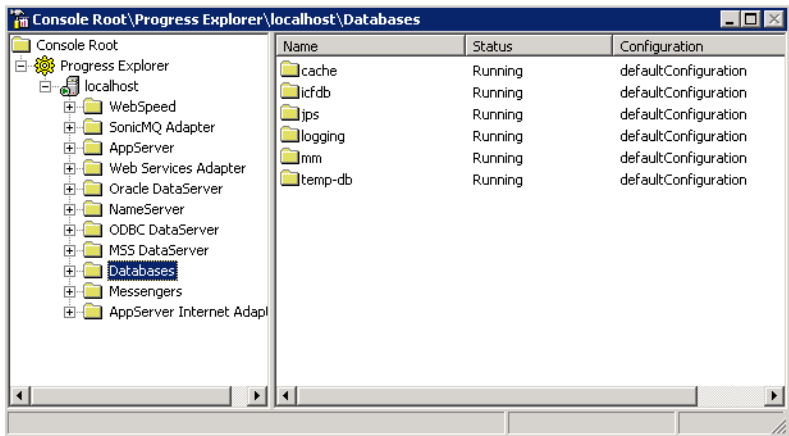


Fig. 4.37
Databases Running
in the Explorer

- 7 Expand the Databases folder, the jps database, the Configuration folder beneath that, and then expand defaultConfiguration. The three jps database services should all appear below it; they should show a status of Running in the right pane.

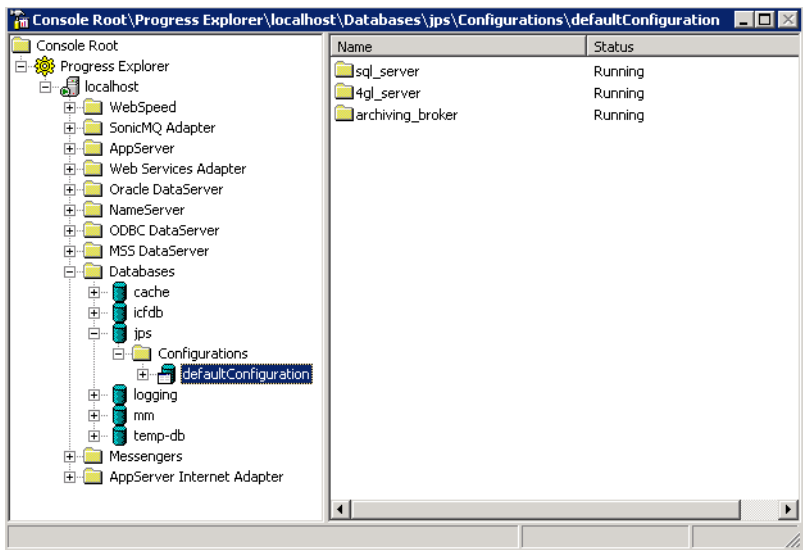


Fig. 4.38
JPS Database
Services

- 8 Exit the Explorer.

Verify the JIT/S Databases Using Commands (UNIX)

On UNIX, use the following Progress commands to bounce the AdminServer, start the AppServers, and check the status of JIT/S databases.

Table 4.4
Progress
Command-Line
Utility Syntax

Task	Command
Stop the AdminServer on UNIX.	<code>proadsv -stop -port port-number</code>
Start the AdminServer on UNIX.	<code>proadsv -start</code>
Start the AdminServer on UNIX using a specified port.	<code>proadsv -port port-number -start</code>
Start a local AppServer.	<code>asbman -name AppServer-name -start</code>
Stop a local AppServer.	<code>asbman -name AppServer-name -stop</code>
Start, stop, and query the Connection Manager for the status of the database db-name.	<code>dbman [-host host-name -port port-number service-name -user user-name] -database db-name [-start -stop -query]</code>

Administration Steps

Following the creation of the JIT/S databases, some basic administration steps are required prior to configuring the application and environment.

Update the Default User

When data is loaded into the various JIT/S databases, many default records are created including a default user—admin—with a blank password. You should change this user’s password immediately to prevent unauthorized access.

Review the information in the chapter on administration in *User Guide: QAD JIT Sequencing*.

Load Translated Labels (For Additional Language Only)

Note Perform this step after you have completed all the other installation and configuration steps in this guide.

When installation and configuration is complete for both the JIT/S server and client, you can log in to JIT/S and load translated labels for the additional language you are implementing.

- 1 Choose Tools|System Data Tools|Load Translation Term. The Load Translated Labels window displays.
- 2 Click Open to locate and select the translated label file (.dat). Unicode-compliant and non-Unicode translated label files are located in the `utf8` and `others` directories on the JIT/S installation CD respectively.
- 3 Click OK to load translated terms from the file. The load process may take a while. Do not interrupt the process.
- 4 When load is complete, a messages displays indicating the load is successful.

Installing JIT/S Clients

This chapter covers the steps to implement a JIT/S client.

Selecting a Client Type **70**

Installing the Runtime Client **71**

Installing the WebClient **84**

Installing Handheld Scanner Clients **94**

Selecting a Client Type

There are two types of JIT/S clients:

- The Progress WebClient, which provides the full functionality required for JIT/S clients without the need for a complete Progress install
- A runtime client requiring a full Progress installation on the client

WebClient

Progress Software provides a simplified Progress runtime environment. This runtime environment is freely downloadable and is shipped on JIT/S media for simplified installation. The WebClient provides the container that Web client applications run in, which removes the need for a full Progress installation on the client machine. The WebClient also allows application updates from the host site. It is a larger client than the runtime, but it is preferred to reduce network traffic between clients and the JIT/S server.

There are two WebClients required: one for the main JIT/S application, the second for the Picker Workbench (PWB)—also known as the Shopping List Workbench.

Runtime Client

The runtime client is a Progress session that lets you run JIT/S without going through the WebClient. This is useful if application updates have been made and a new WebClient has not yet been generated.

For a stable environment, the runtime client does not offer much advantage. It is primarily useful to validate that the application is set up correctly and runs through the AppServers, especially if you are having problems with the WebClient.

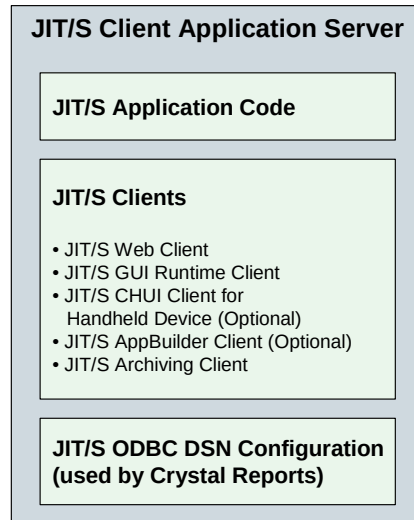


Fig. 5.1
JIT/S Client
Components

Installing the Runtime Client

Install JIT/S Client Files

Insert the JIT/S CD in the CD drive.

- 1 Run `install.exe` in the installation directory.
You are prompted to select a product initialization file to use. Choose *jits_client.ini*.
- 2 A welcome screen displays. Press Enter. The license agreement displays.
- 3 Accept the JIT/S software license agreement. Press q to jump to the end of the agreement.
- 4 You are asked to enter the installation log file directory. Accept the default or enter a new location. Later installs look in this location for installation information. If you enter a different log file location, make note of it for later installations.
- 5 Enter or confirm the location of the Progress installation directory.

- 6 Enter or confirm the name of the host on which the JIT/S databases and AppServers are installed.
- 7 Enter the directory in which to install the JIT/S client components.
- 8 You are asked to enter a name for the MFG/UTIL icons on the Windows Start menu. Confirm the default or enter a new name to continue.
- 9 A summary screen of the selected values displays. Enter y and press Enter to start the load.
- 10 When the installation ends, the location of your installation logs displays.
- 11 Run copybmp.bat under *JITSCClientInstallDir*.

Set Paths for JIT/S and MFG/UTIL

- 1 From the program folder you specified previously, choose MFGUtil JIT/S Client Configuration.
- 2 The MFG/UTIL main screen displays. Choose Configure|Set Paths for JIT/S and MFG/UTIL.
- 3 Verify the path information is correct. Click OK to close the window.

Fig. 5.2
Paths for JIT/S and
MFG/UTIL

The screenshot shows a Windows-style dialog box titled "Set Paths" with a subtitle "Paths for JIT/S and MFG/UTIL". It contains four text input fields, each followed by a "Browse" button:

- Progress Path:** C:\Progress\OpenEdge
- PROPATH:** c:\jits_client\patch;c:\jits_client\custom...;c:\jits_client\ (The text is truncated in the image)
- Default DB Path:** c:\jits_client\ddb
- Browser Path:** (The field is empty)

At the bottom of the dialog are three buttons: "OK", "Help", and "Cancel".

Set Up JIT/S Environment

The configuration programs require that several environment values are set correctly. These are entered or modified in the following steps.

- 1 In MFG/UTIL, select Configure|JIT/S Client Guided Setup.
- 2 Select the Setup JIT/S Environment Operation Set and click Run Set.
- 3 The JIT/S Environment Settings screen displays. Enter or update values to reflect your existing and intended JIT/S environment; then click OK to save the changes.

Fig. 5.3
JIT/S Environment
Setup

JIT/S Environment Name. This is the name of your JIT/S instance. Enter a value that reflects the use of the environment, such as testjits, prodjits, or devjits.

JIT/S AppServer Host Name. Specify the machine name where you installed the JIT/S application server. Include the company domain name; for example, host01.corp.com.

Date Format. Enter the date format for JIT/S. The options are mdy or dmy.

ICFDB ODBC Data Source Name. This is the name used for the ICFDB database ODBC data source required for Crystal Reports. The data source is created later in “Create ODBC Connection Configuration” on page 79 using the name you enter here.

JPS ODBC Data Source Name. This is the name used for the JPS database ODBC data source required for Crystal Reports. The data source is created later in “Create ODBC Connection Configuration” on page 79 using the name you enter here.

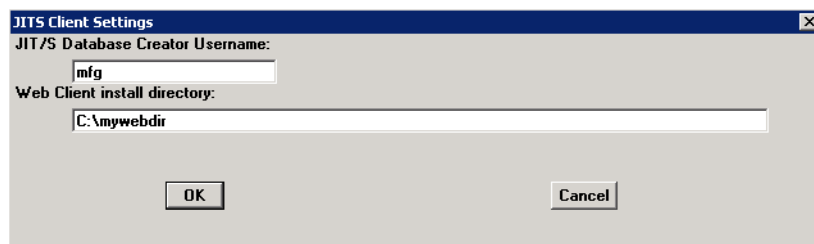
PROGRESS Dynamics Install Directory. By default, this is set to the OpenEdge installation directory. If you are installing the JIT/S Server on a 64-bit platform, you must change this directory to *JITSInstallDir/dyn101b*.

Use the “Installation Worksheet” on page 32 to fill in and record the values entered here.

JIT/S Mail Server Host Name. Specify the machine name where the mail server is installed.

- 4 In the JIT/S Client Settings window, enter or update the JIT/S client settings; then click OK to save the changes.

Fig. 5.4
JIT/S Client
Settings



JIT/S Database Creator Username. Enter the username you used to create the jps and icfdb databases on the JIT/S database server. Unless you created new user IDs for the databases, the username is inherited from the JIT/S database server’s operating system log-in ID.

Web Client Install Directory. Enter the directory where the WebClient will be installed.

- 5 In the JIT/S AppServer Names window, enter or update the values and then click OK to save the changes. Refer to the installation worksheet for these values. Unless you are working with QAD Services on this install, accept the defaults for each of these.

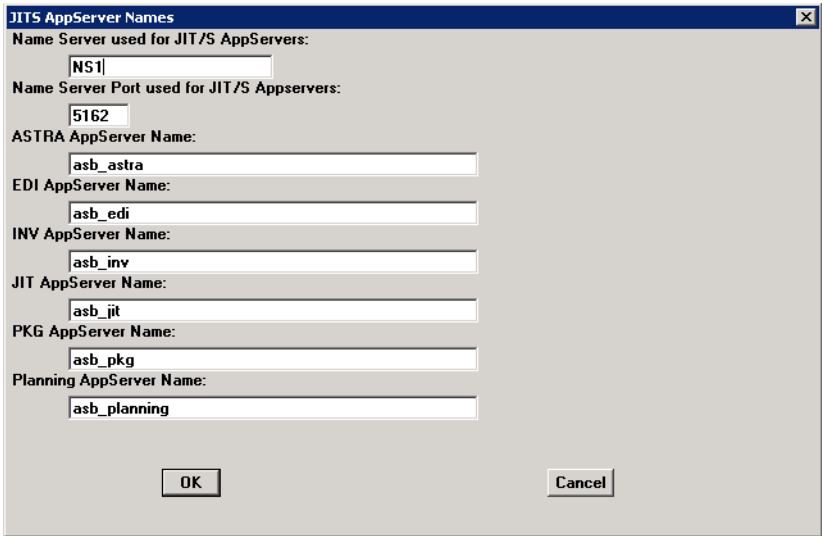


Fig. 5.5
JIT/S AppServer
Names

- 6 The Database Set Configuration window displays.

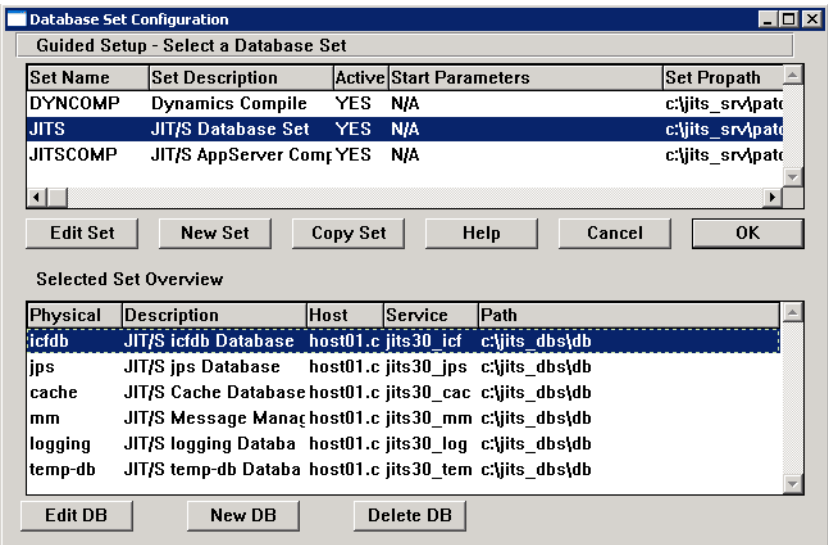


Fig. 5.6
Database Set
Configuration

- 7 Choose Edit Set to verify the startup parameters assigned for the set. The Database Sets screen displays.
- 8 Choose OK to save your changes.
- 9 In the main set screen with the JITS database set selected, choose a database in the Selected Set Overview panel at the bottom of the screen. Choose Edit DB to modify the settings for the database.
- 10 The JIT/S databases must have a client/server connection type. The host and service name must be defined. The host is the machine name where you created the databases; the service names and ports will be written to the Services file and must agree among the three JIT/S database sets. In addition, the service names must be unique; no other service in the Services file can have the same name.

Important The jps database requires three services and ports and the icfdb database requires two services and ports. By default, the services for all the databases are as follows:

Database	Service Name	Suggested Port Number
icfdb	jits30_icfdb	20800
	jits30_icfdb_sql	20810
jps	jits30_jps	20820
	jits30_jps_sql	20830
	jits30_jpsarch	20840
cache	jits30_cache	20850
mm	jits30_mm	20860
logging	jits30_logging	20870
temp-db	jits30_temp-db	20880

- 11 Choose OK to save the client database settings.
- 12 Repeat steps 7 through 11 for the JITSAB and JITSARCH database sets.
- 13 Choose OK in the Database Set Maintenance screen to complete the modifications to the database sets.
- 14 The log window shows that the service file has been updated. Choose Close.

Compile JIT/S Client Code

A full compile of the client code is required after installation. Compiling a source file creates an object file with the same name and the .r extension.

Use the following instructions to compile the JIT/S client code with MFG/UTIL.

- 1 Continue in the MFG/UTIL screen, choose Compile JIT/S Client Code from the Operation Set drop-down list. The workflow steps display.

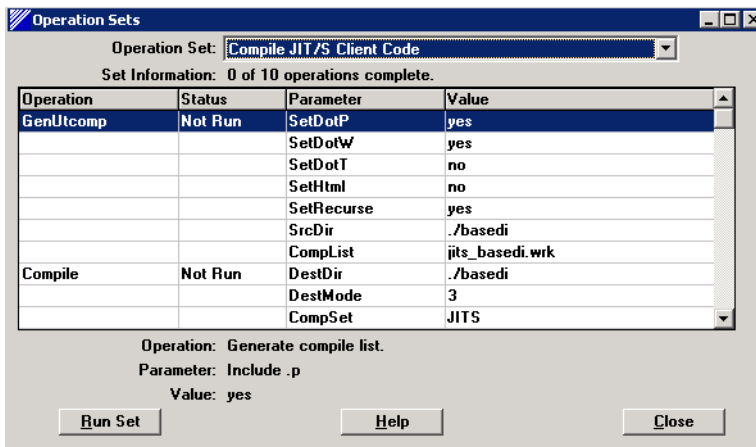
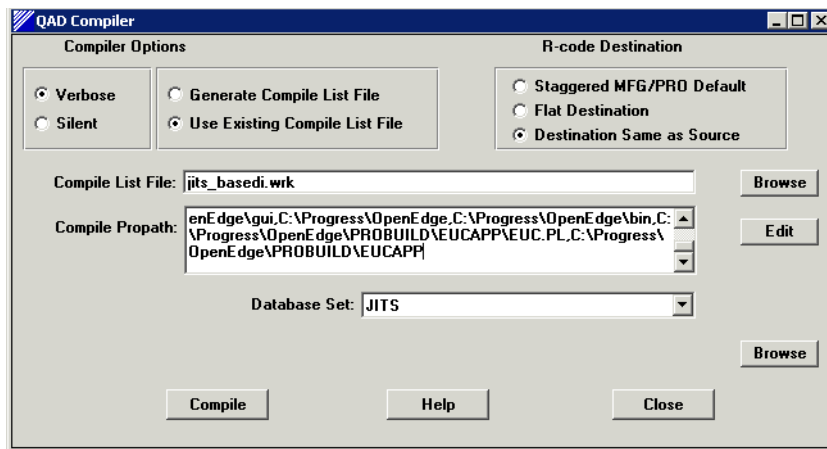


Fig. 5.7
Compile JIT/S
Client Code

- 2 Choose Run Set to start the workflow. The Generate Compile List screen displays.
- 3 Choose Generate to generate a list of programs to be compiled under the *basedi* directory
- 4 Accept the default compile options and choose Compile.

Fig. 5.8
Compile JIT/S
Client Code
Options



- 5 In the compile verification screen, check the compile information. If the compile settings are correct, choose Continue to begin the compile. If the settings are incorrect, choose Back to make changes.

Note If you are compiling code for a non-Western European language, you may have to modify the code page values for the compile. The compile code page values default from the *startup.pf* file located in the Progress directory. See “Setup for a Second Language” on page 27.

- 6 If you selected the Verbose compile option, an Installation Log screen displays during the compile. When the compile ends, choose Close.
- 7 Repeat steps 3 through 6 to compile programs under the basord, jpssrc, and src directories.

Tailor JIT/S Configuration Files for Runtime and WebClient

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose Initialize the JIT/S Configuration Files.
- 2 The workflow steps display. Choose Run Set to start the workflow.
- 3 You are asked to confirm the edit and reset of the configuration files. Choose Yes to continue.

- 4 The log window displays showing the files tailored. Choose Close to continue.
- 5 You are asked to confirm the edit and reset of the JIT/S WebClient configuration files. Choose Yes to continue.
- 6 The log window displays showing the files tailored. Choose Close. This successfully completes the workflow.

Create ODBC Connection Configuration

Select the next workflow to create the ODBC user and connection script.

- 1 Continuing in the Operation Sets screen, select the Operation Set drop-down list and choose the next workflow, Create ODBC Connection Configuration. The workflow steps display.

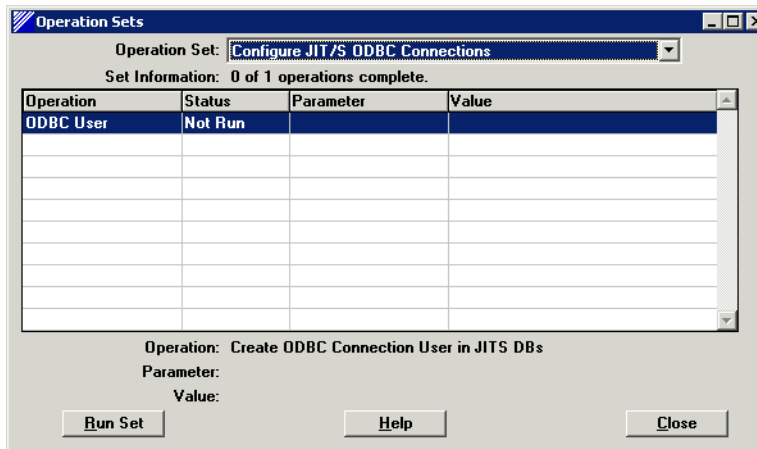
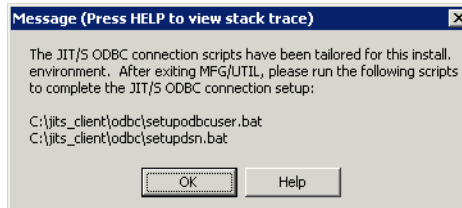


Fig. 5.9
ODBC Connection
Workflow

- 2 Choose Run Set to start the workflow.
- 3 A message displays. Note the instruction and choose OK to continue.

Fig. 5.10
ODBC User Set Up



- 4 Choose Close to continue. This successfully completes the workflow.
- 5 As instructed in the message, exit MFG/UTIL and run the following files to complete the JIT/S ODBC connection setup:

JITSClientInstallDir\odbc\setupdsn.bat

JITSClientInstallDir\odbc\setupodbcuser.bat

Note The server login ID created is the database creator's username.

Compile Code for JIT/S Handheld Clients

- 1 From the Windows Start menu, choose All Programs|QAD JIT Sequencing 3.0|MFGUtil JITS HHClient Configuration (Character).
- 2 The MFG/UTIL main screen displays. From the Configure menu, choose JIT/S HHClient Setup.
- 3 The Compile Code for JIT/S Handheld Clients workflow steps display. Choose Run Set to start the workflow.
- 4 The Generate Compile List screen displays. Choose Generate to generate a list of programs to be compiled under the hhchui directory.

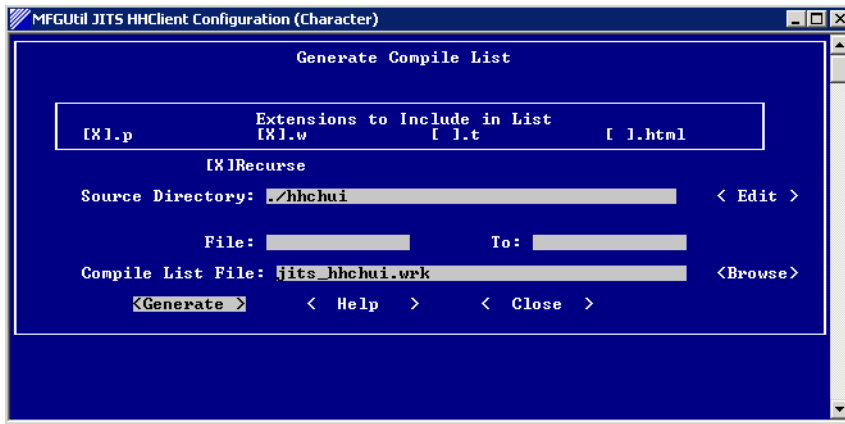


Fig. 5.11
Generate JIT/S
Handheld Client
Compile List

- 5 In the compile verification screen, check the compile information. If the compile settings are correct, choose Continue to begin the compile. If the settings are incorrect, choose Back to make changes.

Note If you are compiling code for a non-Western European language, you may have to modify the code page values for the compile. The compile code page values default from the *startup.pf* file located in the Progress directory. See “Setup for a Second Language” on page 27.

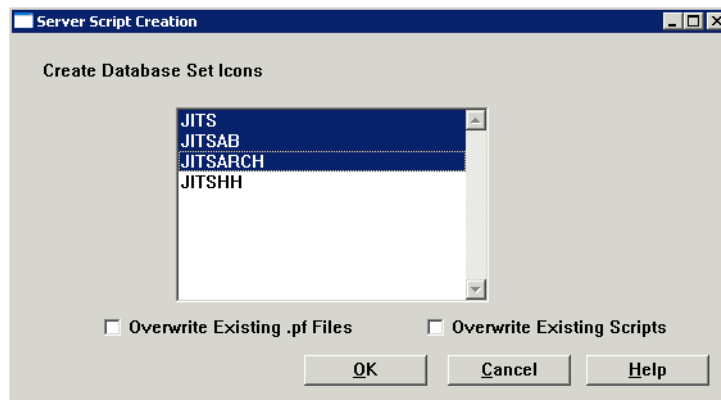
- 6 If you selected the Verbose compile option, an Installation Log screen displays during the compile. When the compile ends, choose Close.

Create JIT/S Startup Shortcuts

In this section, you use MFG/UTIL menus to create client shortcuts for the database sets. Two additional files are created that should be deleted following generation to ensure no one uses them unintentionally following the install.

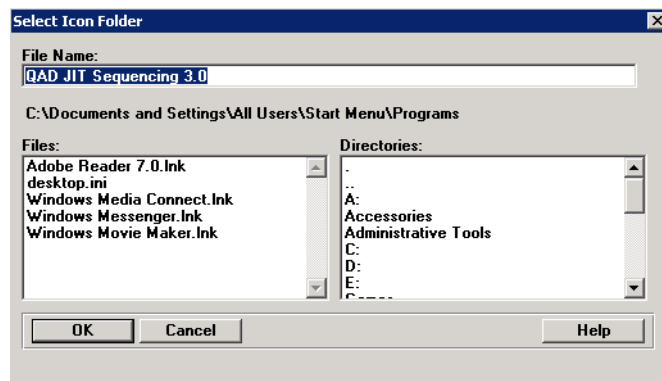
- 1 From the main MFG/UTIL menu, select Scripts|Generate Scripts. The Server Script Creation screen displays.
- 2 Select the JITS, JITSAB, and JITSARCH database sets and choose OK.

Fig. 5.12
Server Script
Creation Screen



- 3 You are prompted to confirm the creation. Choose Yes to continue. The Select Icon Folder screen displays.

Fig. 5.13
Select Icon Folder



- 4 Accept the default, QAD JIT Sequencing 3.0, and choose OK.
- 5 The QAD Log Window displays progress.
- 6 Choose Close in the log window to complete the MFG/UTIL script creation.
- 7 From the Windows Start menu, choose All Programs|QAD JIT Sequencing 3.0|MFGUtil JITS HHClient Configuration (Character).
- 8 The MFG/UTIL main screen displays. From the Scripts menu, choose Generate Scripts.

- 9 In the Create Database Set Icons screen, select the JITSHH database set and choose OK.

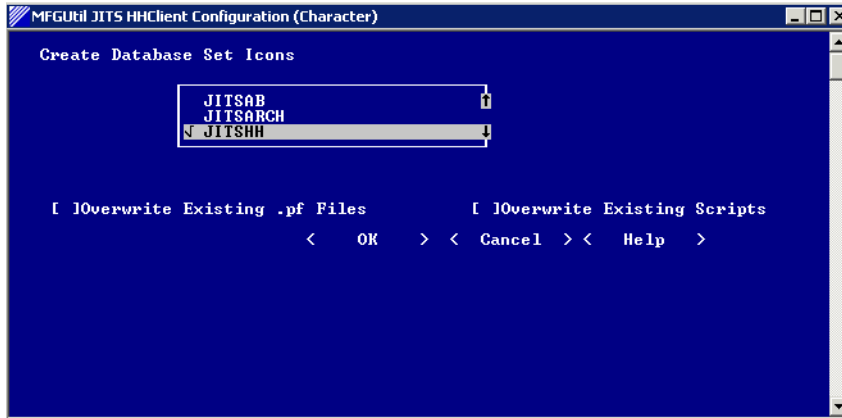


Fig. 5.14
Server Script
Creation Screen

- 10 Accept the default, QAD JIT Sequencing 3.0, and choose OK.
- 11 Choose Close in the log window to complete the MFG/UTIL script creation.

Four shortcut icons are created in the JIT/S program folder, one for the handheld character client and the other three for the JITS, JITSAB, and JITSARCH GUI clients respectively.

The contents of the Start|JIT Sequencing 3.0 folder should now look like Figure 5.15.

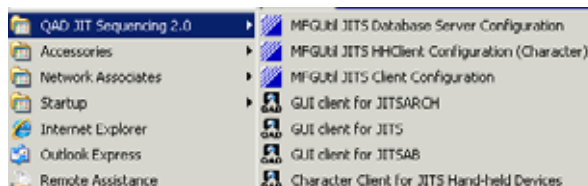


Fig. 5.15
JITS 3.0 Scripts on
the Start Menu

In addition, a .pf file is created for each database set:

- JITS.pf
- JITSAB.pf
- JITSARCH.pf
- JITSHH.pf

The JITSARCH client launches the JIT/S Archive/Delete Workbench. For detailed information on using the Archive/Delete Workbench, see the *User Guide: QAD JIT Sequencing*.

Installing the WebClient

Installing the WebClient requires that Microsoft IIS (Windows) or Apache HTTP Server (Unix) is set up on the JIT/S server.

Generate the WebClient

The following screenshots display sample values; the values for your specific installation will differ. In these steps you first run a batch file to generate the WebClient, then configure the Microsoft IIS Web server on Windows or Apache HTTP server on Unix to serve the WebClient.

- 1 Open a command window and navigate to *JITSCientInstallDir*.

- 2 Run the batch file:

```
webclient_do_jits.bat
```

This process takes 5 to 10 minutes depending on your hardware resources. The batch process:

- Assembles the code in a staging directory
 - Assigns files to the JIT/S WebClient
 - Assigns files to the PWB client
 - Launches the JIT/S WebClient assembler
 - Launches the PWB WebClient assembler
- 3 The WebClient Application Assembler opens. Verify that the configuration file URL is correct. If not, click the Locator button to edit the URL.

Note If the WebClient Application Assembler is not found, you are asked to locate it. Browse for *ProgressInstallDir\bin\prowcappmgr.exe* and run it against that.

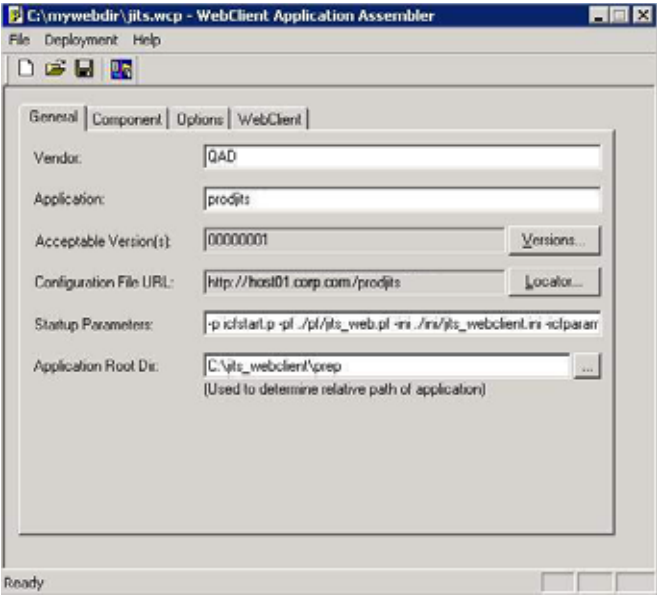


Fig. 5.16
WebClient
Application
Assembler

- 4 Select Generate from the Deployment menu.

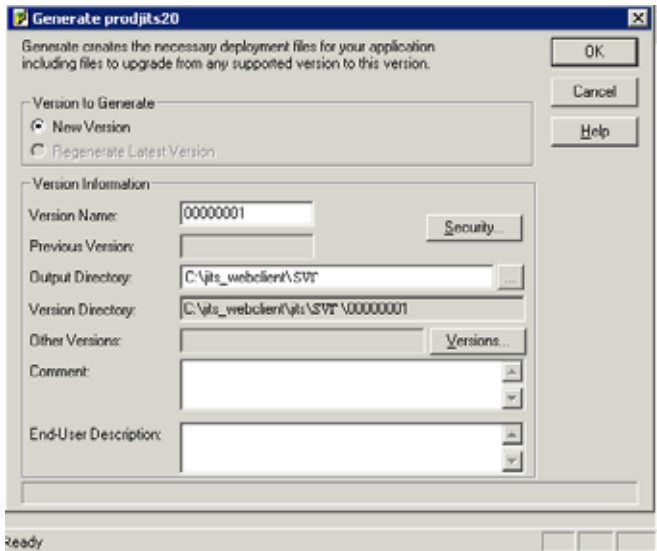


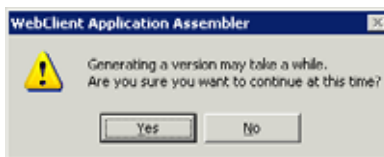
Fig. 5.17
Generate
WebClient Screen

Use the following values and choose OK to continue:

Field	Value
Version Name	00000001
Output Directory	<i>JITSWebClientInstallDir\svr</i>

- 5 The following message displays. Choose Yes to continue. The process will take approximately 20 minutes. Do not interrupt the process.

Fig. 5.18
Continuation
Message



- 6 When the generation is complete, a generation success message displays. Choose OK
- 7 When the client is built, the WebClient Application Assembler displays again. The Acceptable Version(s) field under the General tab displays all the generated versions that are acceptable to run. You can click the Versions button to view details.
- 8 Optionally, create JIT/S WebClient shortcuts.
 - a Under the Options tab, select IntelliStream System Tasks and click the System Tasks Definition button.
 - b In the IntelliStream System Tasks window, click the Shortcuts tab.
 - c To create JIT/S WebClient shortcut in program folder, select Application Shortcut and In Program Folder and specify program folder name and shortcut name; to create JIT/S WebClient shortcut on desktop, select On Desktop and specify the full path to the shortcut icon file name.

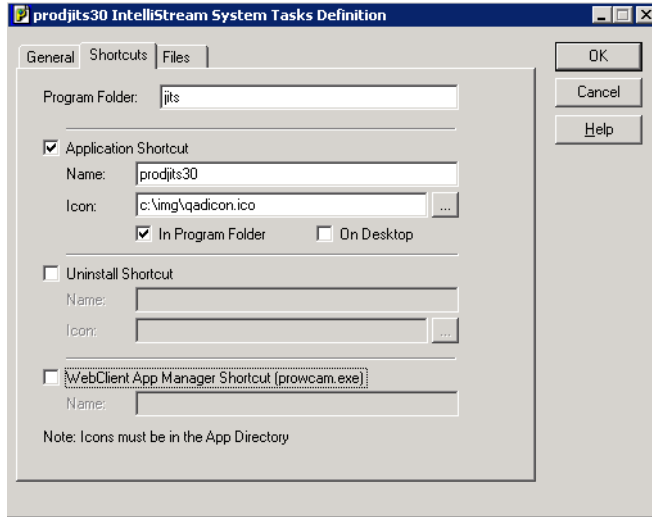


Fig. 5.19
Create JIT/S
WebClient
Shortcuts

d Click OK to save the changes.

9 Choose File|Exit to close the application.

After every build of JIT/S WebClient, you can view the WebClient version information in the Company field of the WebClient log-in screen.



Fig. 5.20
WebClient Log-In
Screen

Generate the PWB WebClient

Follow the same steps for generating the WebClient to generate the PWB WebClient except for the following:

- In step 2, run the batch file `webclient_do_jitspbw.bat`.
- In step 5, use the following values:

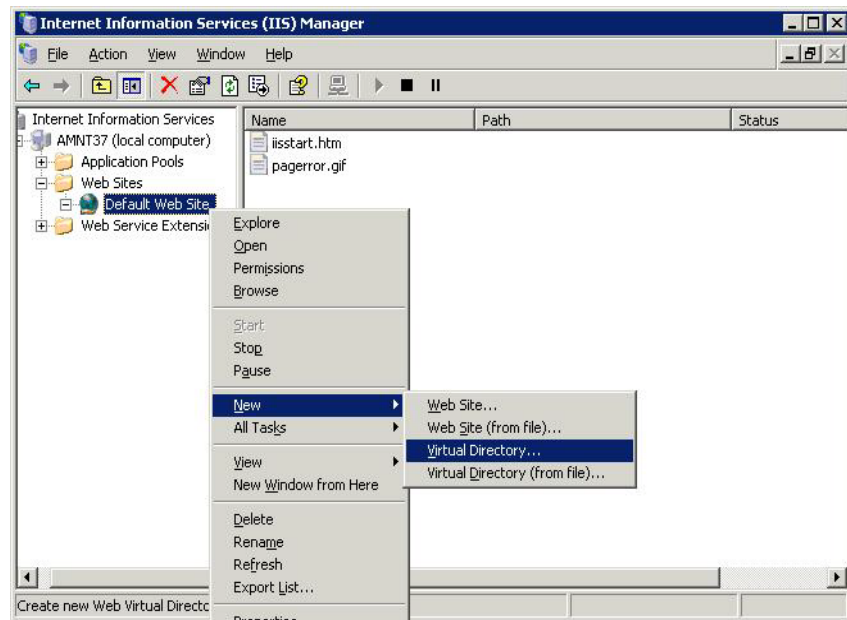
Field	Value
Version Name	00000001
Output Directory	<i>JITSWebClientInstallDir\svrplib</i>

The Picker Workbench client is not typically launched from your PC. You will be able to launch the Picker Workbench client from a handheld device after completing the steps in “Installing Handheld Scanner Clients” on page 94.

Configure Microsoft IIS (Windows)

- 1 From your Windows Start menu, select Control Panel|Administrative Tools|Internet Information Services Manager. The Internet Information Services Manager launches.
- 2 In the left-hand navigation tree, select the host node, then Web Sites, and then Default Web Site. Right-click to display the menu.

Fig. 5.21
Microsoft IIS
Console



- 3 Select Virtual Directory from the New menu. The Virtual Directory Creation Wizard displays. Choose Next to continue.



Fig. 5.22
Virtual Directory
Creation Wizard

- 4 In the Virtual Directory Alias screen, enter the JIT/S environment name that was specified in “Set Up JIT/S Environment” on page 50.

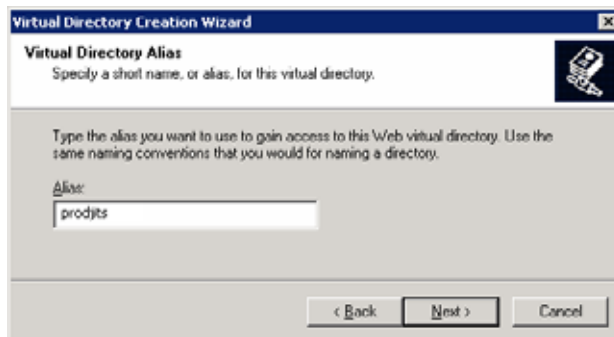
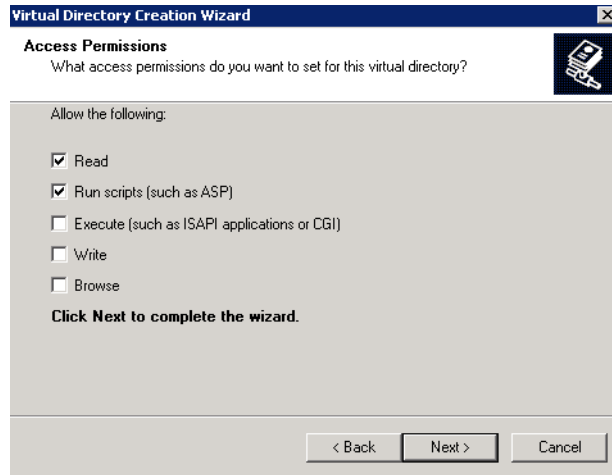


Fig. 5.23
Virtual Directory
Alias Screen

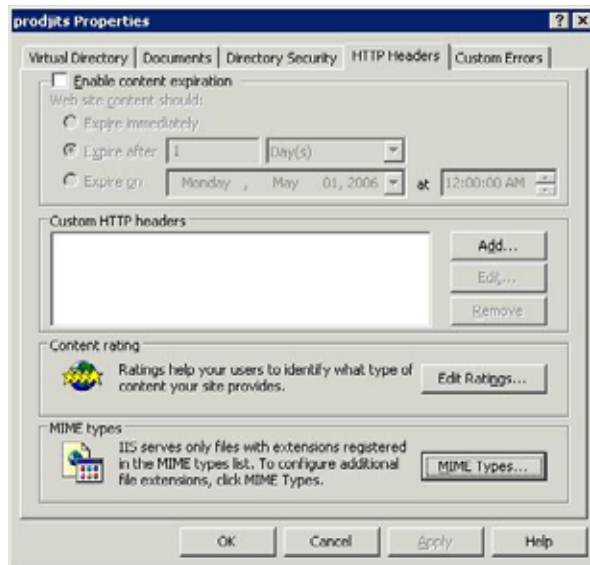
- 5 In the Web Site Content Directory, enter:
`JITSWebClientInstallDir\svr`
Choose Next to continue.
- 6 In the Virtual Directory Access Permissions screen, check the Read and Run scripts options. Choose Next to complete the configuration.

Fig. 5.24
Virtual Directory
Access Permissions



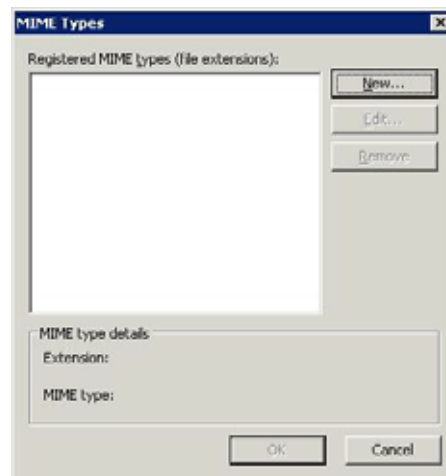
- 7 In the completion screen, choose Finish.
- 8 Set up a MIME type for the Web server to recognize the Web client correctly.
 - a In the left-hand navigation tree, right-click the new JIT/S environment Web site and choose Properties from the menu.
 - b In the JIT/S environment Properties dialog, click the HTTP Headers tab.

Fig. 5.25
HTTP Properties



- c Click the MIME Type button to display the current mime types.

Fig. 5.26
MIME Types



- d Click new to create a new MIME type. Enter .prowcapc in the Extension field and application/binary for the MIME type. Choose OK.

Fig. 5.27
Adding a MIME
Type



- 9 Choose OK again to save your changes.
- 10 Users can now download the WebClient from `http://hostname/JITSEnvironmentName`.
- 11 When the URL opens, the user is prompted to Open or Save. Choose Open. The JIT/S client downloads automatically. A shortcut to launch the client is created on the user's desktop.
- 12 Repeat steps 1 through 11 to create Picker Workbench directory and Web page. In step 4, name the alias `prodjitspwb`.

When the user launches the application in the future, they are prompted to accept any required updates prior to running the client.

The Web Site Content Directory in step 5 is
`JITSWebClientInstallDir\svrpwb`.

Configure Apache HTTP Server (Unix)

- 1 After the JIT/S configuration files are tailored and the WebClient/PWB WebClient version files generated, edit `default.htm` in the version file folder. When you open the JIT/S WebClient, its address correctly points to the Unix server on which Apache is running. The following example is for `prodjits`. Use this as a reference for `prodjitsPWB` as well.

Change:

```
// Reference a prowcapc file to invoke prowcini.exe
// NOTE: MODIFY THIS URL TO POINT TO YOUR .prowcapc FILE.
document.location.href = "http://WindowsHostName/prodjits/
jits.prowcapc";
```

To:

```
// Reference a prowcapc file to invoke prowcini.exe
// NOTE: MODIFY THIS URL TO POINT TO YOUR .prowcapc FILE.
```

```
document.location.href = "http://UnixHostName/prodjits/
jits.prowcapc";
```

- 2 Copy the `svr` and `svrpwb` folders to the Unix system. You have to copy the files to where the current user is authorized to access.
- 3 Set up Apache HTTP Server.

- a Open and edit `ApacheInstallDir/conf/httpd.conf`.

Set `default.htm` as the default page for the Apache server:

```
# DirectoryIndex: sets the file that Apache will serve if a
# directory is requested.
#
<IfModule dir_module>
DirectoryIndex default.htm
</IfModule>
```

- b Set the publish directory and alias for WebClient. `SvrDir` is where you copied the `svr` folder to Unix from Windows.

```
# JIT/S Web Client Directory.
Alias /prodjits SvrDir
<Directory SvrDir>
Options Indexes MultiViews
AllowOverride None
Order allow,deny
Allow from all
</Directory>
```

- c Set the publish directory and alias for PWB WebClient. `SvrPWBDir` is where you copied the `svrpwb` folder to Unix from Windows.

```
# JIT/S Web Client Directory.
##
Alias /prodjits20pwb SvrPWBDir
<Directory SvrPWBDir>
Options Indexes MultiViews
AllowOverride None
Order allow,deny
Allow from all
</Directory>
```

- d Save the changes.

- e Edit `ApacheInstallDir/conf/mime.types`.

Insert the following in the application section of the mime types listing.

```
# MIME type                      Extensions
application/activemessage
```

```

application/andrew-inset      ez
application/applefile
application/atom+xml          atom
application/atomicmail
application/binary             .prowcapc
application/batch-smtp

```

- f** Check whether the Apache server can be accessed.
Use the following command to start and stop Apache.

```

ApacheInstallDir/bin/httpd -k start
ApacheInstallDir/bin/httpd -k graceful -stop

```

- 4** Apache setup is complete. You can now access JIT/S WebClient and PWB WebClient through the following address:

`http://UnixHost/prodjits`

`http://UnixHost/prodjitsPWB`

Where UnixHost can be either the Unix server host name or IP address.

Installing Handheld Scanner Clients

Handheld scanners are supported by JIT/S but require additional site-specific configuration and installation steps beyond the scope of these installation instructions. The following instructions provide a general overview of the requirements and procedures.

In order to integrate scanners into the local area network of a facility, use the TCP/IP communication protocol. Use a telnet connection to the JIT/S server to run the character application on the scanner. Implementing the character client as part of the JIT/S installation requires developing additional scripts for connecting to the telnet server and starting a Progress session.

For Windows platforms, the telnet server must be from Georgia SoftWorks.

The configuration for a session is based on the parameter values in the configuration file, `QADCHUICONFIG.XML`. This file is located in `root\hhchui`. Table 5.1 lists the values.

Field	Values	Description
DateFormat	dmy, mdy	Day-Month-Year or Month-Day-Year
NumericFormat	European, American	Periods or commas as thousands separators
Partition		Name of the AppServer partition, such as JIT or PKG
ConnectionParams		Connection parameters such as host name and port number on which the named server is running
DynamicsServer	yes, no	Yes indicates a partition that runs the Dynamics AppServer

Table 5.1
Configuration
Settings for
handheld Devices

Install Steps

- 1 Install the Progress Character Client to the database server if it has not been already installed.
- 2 Install the CHUI code from the JIT/S media to the database server and compile this against the JIT/S databases.
- 3 Install the telnet server to the database server.
- 4 Configure the startup scripts on the database server.

This can be a very involved process. Refer to the documentation that comes up with the telnet server on how to write and configure startup scripts. The startup script must start the JIT/S CHUI session. This can be done by invoking the `startclient.bat` file.

The `startclient.bat` file has two arguments:

 - Parameter file name
 - `.ini` file name
- 5 Prepare the parameter file as necessary. Update paths and file names to reflect your own installed environment.
- 6 Prepare the `.ini` file as necessary. Update paths and file names to reflect your own installed environment.

- 7 Prepare the telnet client on the handheld device. The process for doing this depends on the kind of machine that is being used. Most handheld devices have a telnet client that you can use to connect to a specific telnet server by specifying the host name and port number.

Configuring JIT/S

This chapter provides steps to configure the JIT/S server and client.

Running the JIT/S Components **98**

Configuring the JIT/S Environment **99**

Compiling the JIT/S Application **100**

Sharing AOWB Images and Instructions **105**

Running Technical Verifications **108**

Running the JIT/S Components

JIT/S database servers and the Progress AppServers are all started together during the host machine boot process. The status of the database servers and AppServers can be verified (or shut down and restarted) in the Progress Explorer or by using command-line utilities as described in “Verify the JIT/S Databases” on page 63.

You can also view the Progress AppServer logs in *JITSInstallDir*\Log for each running service.

Configuring the JIT/S Environment

In this chapter, you initialize JIT/S configuration files, and create the required AppServers. You then compile the application code and can start up the JIT/S application.

Test the ODBC Data Source for Crystal Reports

If you are implementing Crystal Reports, test that the open database connection (ODBC) data source was correctly defined on the host. This sequence of steps assumes the JIT/S database servers are running. You can verify this as described in “Verify the JIT/S Databases” on page 63.

- 1 In the Windows Control Panel, open Administrative Tools. Then open Data Sources (ODBC). The ODBC Data Source Administrator displays.
- 2 Select the System DSN folder tab. The jps_sql data source should appear.

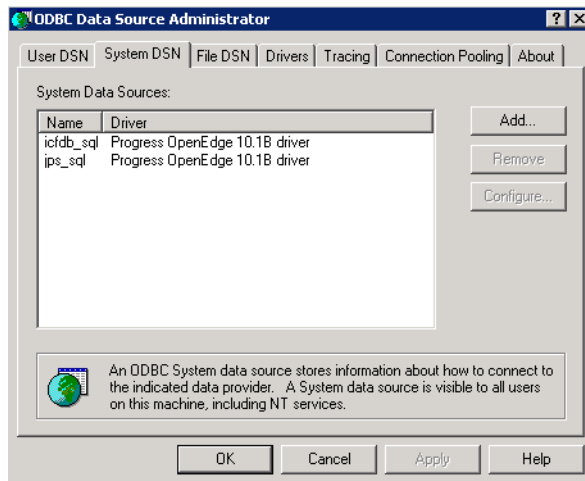
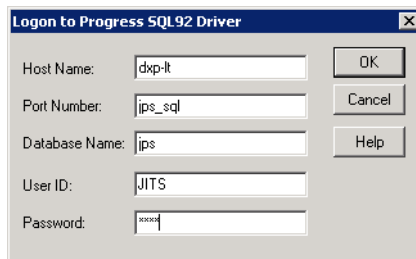


Fig. 6.1
ODBC Data Source
Interface

- 3 Select the jps_sql data source and choose Configure.
- 4 In the driver setup screen, choose Test Connect to verify the connection. The driver logon screen displays.

Fig. 6.2
SQL92 Driver
Logon Screen



- 5 The password is JITS (case sensitive). Choose OK. After a moment, the Connection established message should display.

Fig. 6.3
Connection
Message



Important If this fails, try rebooting and retrying the connection.

- 6 Choose OK to close the connection message.
- 7 Exit the ODBC Data Source Administrator.

Compiling the JIT/S Application

This section describes the required compile steps using the Progress compiler.

- 1 Select Start|All Programs|JIT Sequencing 3.0|GUI Client for JITSAB to start the JITS AppBuilder client. The Application Compiler displays.
- 2 Set both the Save New .r Files and Look in Subdirectories options as shown.

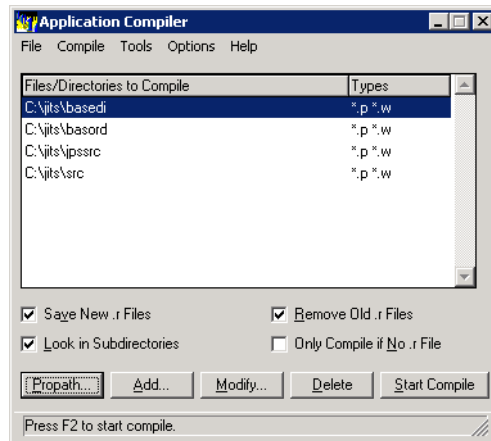


Fig. 6.4
Progress
Application
Compiler

- 3 The Files/Directories to Compile that are required are all included in the default screen. Choose Propath to verify the compile PROPATH.

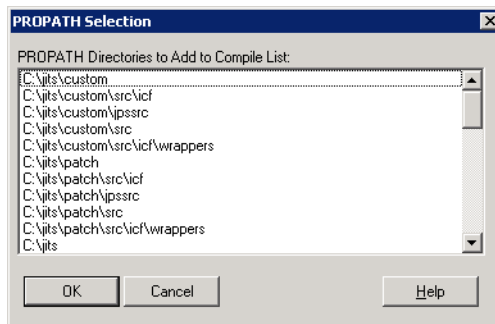
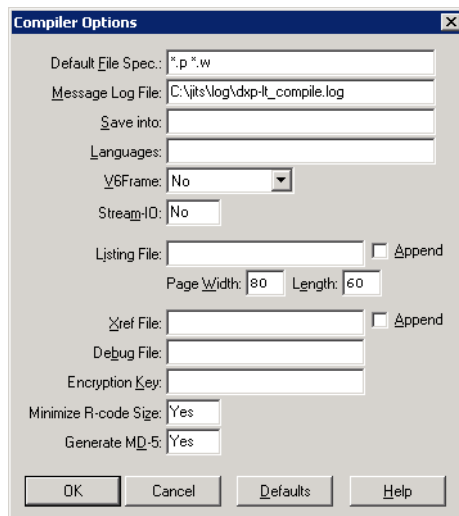


Fig. 6.5
Compile
PROPATH

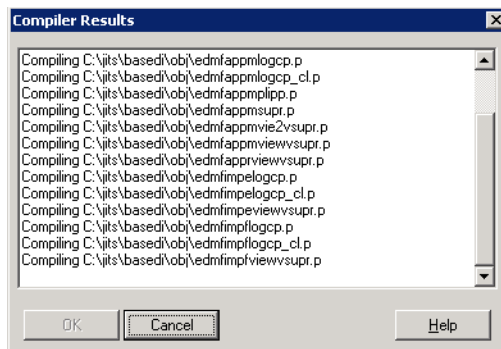
- 4 Choose Compiler from the Options menu. Point the message log to the JIT/S log directory and set both Minimize R-code Size and Generate MD-5 to Yes.

Fig. 6.6
Compiler Options



- 5 Choose OK to save the changes. The Compiler displays.
- 6 Choose Start Compile.
- 7 A log window displays compile progress.

Fig. 6.7
Compile Results



- 8 When the compile is complete, choose OK to close the log window.
- 9 Open the compile log from the *JITSInstallDir*\log directory and check the log for errors.

Important The compile is expected to contain a few warnings.

The warnings are:

More than 1 action code segment used in...

These can safely be ignored.

Obtain Progress Dynamics Site Numbers

Following the compile, go to the Progress Web site and obtain a site number for your Dynamics repository. The Dynamics site number is stored inside two sequence values in the Dynamics repository database: `seq__division` and `seq__reverse`. Progress Dynamics uses this number along with a sequence value to generate a unique record number for every record in the repository database and your application database. Every time a new record is created, Dynamics creates a unique object ID (OID) and stores this value in the newly created record.

A Dynamics site is any environment that contains a copy of the repository. Each of the following environments is treated as an individual site and must have a unique site ID assigned:

- Each individual developer environment
- The central development environment
- Each individual testing environment
- Each deployed production environment

In addition to the site number, you must register each repository at a given site with a unique identification number. This ensures that every record created in the repository is identified with an object ID that is unique across all Progress Dynamics installations. This allows distributed development, Progress Open Source contributions, and data merges without data corruption or collisions.

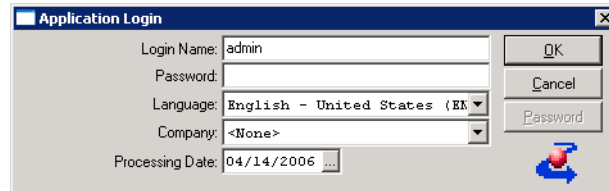
To register for Progress Dynamics site and repository numbers, visit the following Web site:

<http://www.progress.com/dynamics/sitenumber>

After registering your repository numbers, you must assign them to your Dynamics repositories.

- 1 Start the Dynamics AppBuilder using Start|All Programs|JITS 3.0|GUI Client for JITSAB. The login prompt for the icfdb database displays.

Fig. 6.8
Application Login
Screen for the
Progress
AppBuilder



- 2 Enter a valid user and password. User ID admin with a blank password is supplied by default with Progress Dynamics. Choose OK. The AppBuilder displays.

See “Update the Default User” on page 66.

Fig. 6.9
AppBuilder
Interface



- 3 From the AppBuilder select Administration from the Tools menu.
- 4 From the Administration screen select System|Set Number. The Set Site Number screen displays.

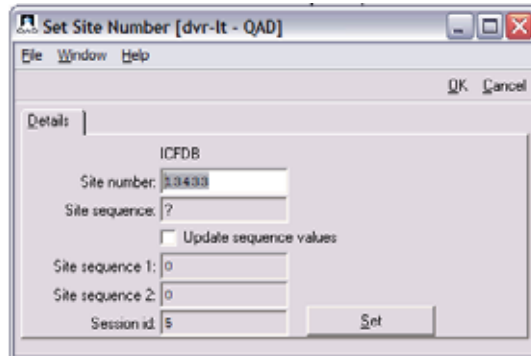


Fig. 6.10
Setting the
Repository Site
Number

5 Choose OK to continue.

For additional information on site and repository numbers see:

- *Progress Dynamics Developer's Guide*, Database Design Principles in Dynamics
- *Roundtable Users Guide*
- White papers covering Progress Dynamics application deployment and source code management located at
http://psdn.progress.com/library/white_papers/dynamicswp/index.ssp

Sharing AOWB Images and Instructions

Images and work instruction files can be displayed in the Assembly Order Workbench (AOWB) to assist users in completing tasks. These files are stored on the server in shared directories that are identified in the system configuration file, `config.xml`.

You must create these directories and ensure that all clients can access them. The directories can be located anywhere on the network; the following steps assume they are located in `JITSInstallDir`.

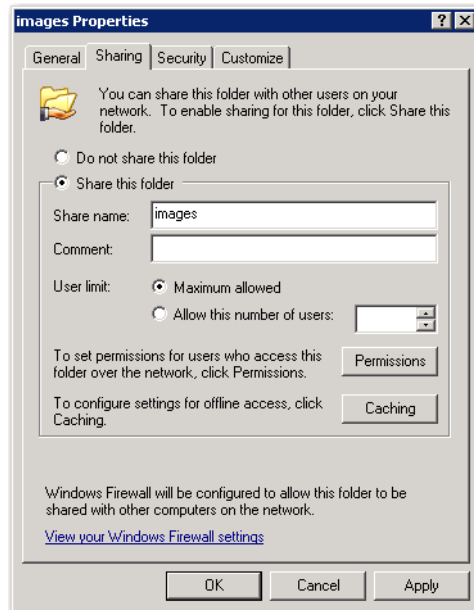
Note When users view these files, they are copied from the server to the client to optimize system performance, and the local copy is displayed from then on. If files are later updated on the server, you must force the client to copy a new version from the server by clearing the cached files stored in:

```
client-root-installation dir\WorkInstructions\
```

In order for users to share AOWB images and work instructions, complete the following steps:

- 1 In the Windows Explorer, select the *JITSInstallDir\images* folder.
- 2 Right-click and select Sharing and Security.
- 3 Click Share this Folder.

Fig. 6.11
Folder Sharing for
the Images Folder



- 4 Choose Permissions.

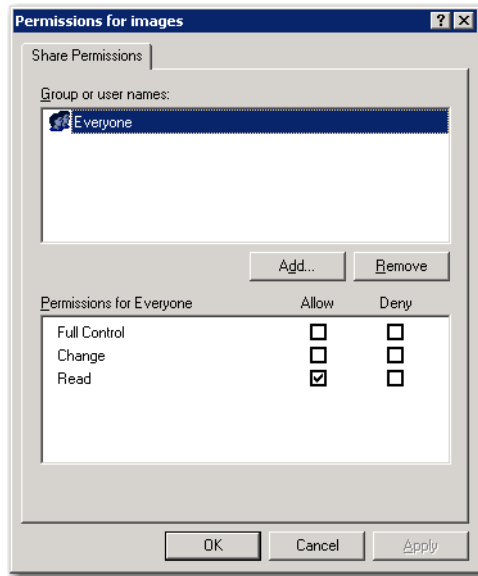


Fig. 6.12
Setting Permissions

- 5 Choose OK to save and exit from both screens.
- 6 Repeat steps 1 through 5 for the *JITInstallDir\workinstructions* folder.
- 7 Access the system configuration file located in:
JITInstallDir\jpssrc\config\config.xml

Update the following two settings in the *assemblyOrderWorkbench* section with the location of the directories you just defined:

```
<assemblyOrderWorkbench>
  <imageDir>\\hostname\imagesDirectoryName</imageDir>
  <workInstructionsDir>\\hostname\workInstructionsDirectoryName</workInstructionsDir>
</assemblyOrderWorkbench>
```

- Replace *imagesDirectoryName* with the *\images* location.
- Replace *workInstructionsDirectoryName* with the *\workinstructions* location.

These two directories are now visible from other clients as:

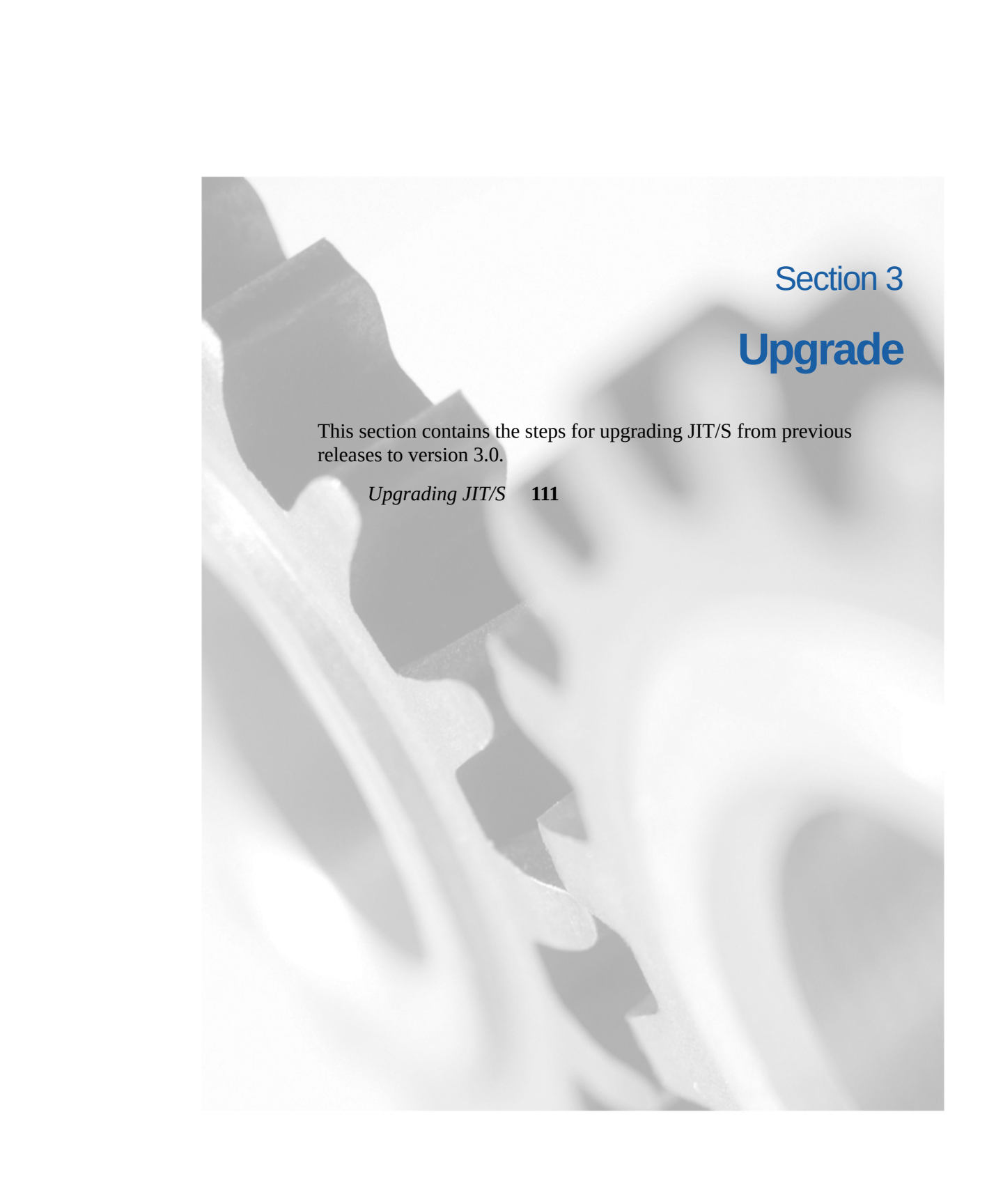
- *\\JITInstallDir\images*
- *\\JITInstallDir\workinstructions*

Running Technical Verifications

In the JIT/S application, use Tools|System Data Tools|Technical Verification to access verification tests for JIT/S processing and services.

Other verifications should not be run at this time. Errors will display.

For additional detail on these tests, see the Tools chapter in *User Guide: QAD JIT Sequencing*.

The background of the page is a grayscale photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned at various angles, creating a sense of depth and mechanical complexity. The lighting is soft, highlighting the metallic texture and the sharp edges of the gear teeth.

Section 3

Upgrade

This section contains the steps for upgrading JIT/S from previous releases to version 3.0.

Upgrading JIT/S **111**

Upgrading JIT/S

This chapter provides steps to upgrade JIT/S.

Planning a JIT/S Conversion **112**

Preparing Source Version Database **112**

Creating Seed Databases **113**

Creating Working Databases **114**

Converting Database **114**

Planning a JIT/S Conversion

Upgrading JIT/S to the latest version may need coordination with your OEM, since it means no orders will be processed during the conversion process.

Disk Space

QAD recommends starting out with disk space for the equivalent of two to three full jps databases—the main JIT/S application database. If you have a 40 GB source version production database, ensure a minimum of 80 to 120 GB before starting the conversion.

Memory Requirements

Memory is crucial to the performance of conversion programs. A minimum of 2 GB is recommended.

Preparing Source Version Database

The steps in this section determine the duration and effectiveness of your database conversion. Each task is aimed at reducing conversion time, saving crucial data, or providing validation references of your pre-conversion environment.

General Preparations

Use this section to perform preliminary data preparation in your source version environment.

- 1 Close out as many orders in JIT/S as possible.
- 2 Send all production reporting and shipping information that requires processing to the QAD ERP application.
- 3 Log out all users from JIT/S.
- 4 In JIT/S, do the following:
 - Stop all processes in Setup|Processes|Process Maintenance.

- Ensure all messages have been sent to Sonic by checking Tools|Logging/Debug Tools|Sonic Cache Viewer.
- 5 Check Sonic for any unprocessed messages, and refresh until they are processed.

Security Settings Backup

It may be necessary to preserve existing JIT/S security settings that are stored in the `icfdb` database so that the settings can be restored after you install a new version of JIT/S.

- 1 Launch AppBuilder against the original JIT/S environment.
- 2 Select Tools|Administration.
- 3 Choose Deployment – Dataset Export.
- 4 Select the following datasets:
 - GSCSC - `gsc_security_control`
 - GSMSS - `gsm_security_structure`
 - GSMUC - `gsm_user_catagory`
 - GSMUS - `gsm_user`
- 5 Click Generate to export the datasets.

Creating Seed Databases

- 1 Install JIT/S 3.0. See “Installation” on page 17.

Note Install your new version of JIT/S to a different directory or on a separate machine, so that the new installation does not conflict with the previous version of JIT/S. For instance, if you installed JIT/S 2.0 to `/jits20`, install the new version to a directory such as `/jits30`.
- 2 The installation brings forth a production JIT/S 3.0 `jps` database and `mm` database. Make a replica of the two production databases as seed databases using the Progress database copy command:

```
prodb JITS30InstallDir/db/jps30seed.db
JITS30InstallDir/db/jps.db

prodb JITS30InstallDir/db/mm30seed.db
JITS30InstallDir/db/mm.db
```

Where *JITS30InstallDir* is the directory in which JIT/S 3.0 is installed.

Creating Working Databases

- 1 Shut down the JIT/S 2.0 production *jps* database by executing the following command in the OE 10.1A Proenv.

```
proshut JITS20InstallDir/db/jps.db
```

Where *JITS20InstallDir* is the directory in which JIT/S 2.0 is installed.

- 2 Back up the JIT/S 2.0 production *jps* database by executing the following command in the OE 10.1A Proenv.

```
probkup JITS20InstallDir/db/jps.db
```

- 3 Truncate the JIT/S 2.0 production *jps* database by executing the following command in the OE 10.1A Proenv.

```
proutil JITS20InstallDir -C truncate bi
```

- 4 Make two copies of the JIT/S 2.0 production *jps* database as working databases (one as *jps*, one as *mm*) in the JIT/S 3.0 database directory. Execute the following commands in the OE 10.1B Proenv.

```
prodb JITS30InstallDir/db/jps30.db  
JITS30InstallDir/db/jps.db
```

```
prodb JITS30InstallDir/db/mm30.db  
JITS30InstallDir/db/jps.db
```

- 5 Apply schema changes using *jps_20_30_delta.df* and *mm_20_30_delta.df* on the two working databases respectively.

Converting Database

You are now ready to execute database conversion.

- Seed databases: The *jps30seed* and *mm30seed* databases, which you prepared in the “Creating Seed Databases” step.
- Working databases: The *jps30* and *mm30* databases, which you prepared in the “Creating Working Databases” step.

The database conversion process runs a Progress program that extracts seed data from the seed databases and dumps the data into the working databases.

New Progress Dynamics Site Number Setup

Use the steps in “Obtain Progress Dynamics Site Numbers” on page 103 to obtain new Progress Dynamics site numbers and assign them to your JIT/S 3.0 Dynamics repositories.

Database Conversion

- 1 Choose Tools|Data Dictionary. The Data Dictionary screen appears.
- 2 Choose Database|Disconnect.
Disconnect all the JIT/S databases except `icfdb`.
- 3 Choose Database|Connect, and connect to the seed databases and working databases you created in previous steps: `jps30seed`, `mm30seed`, `jps30`, and `mm30`.

Note It is recommended that you connect the databases in single-user mode instead of the multi-user mode, which may take considerably more time to complete the conversion.

- 4 Open Procedure Editor and Execute the following command:

```
run newconv/seed_data_convert_20_30.p.
```

You can view log information in `seed_data_convert_20_30.log` in the `WRK` directory.
- 5 Open Procedure Editor and Execute the following command.

```
run newconv/main_convert_20_30.p.
```

You can view log information in `main_convert_20_30.log` in the `WRK` directory.

Restoring Security Settings

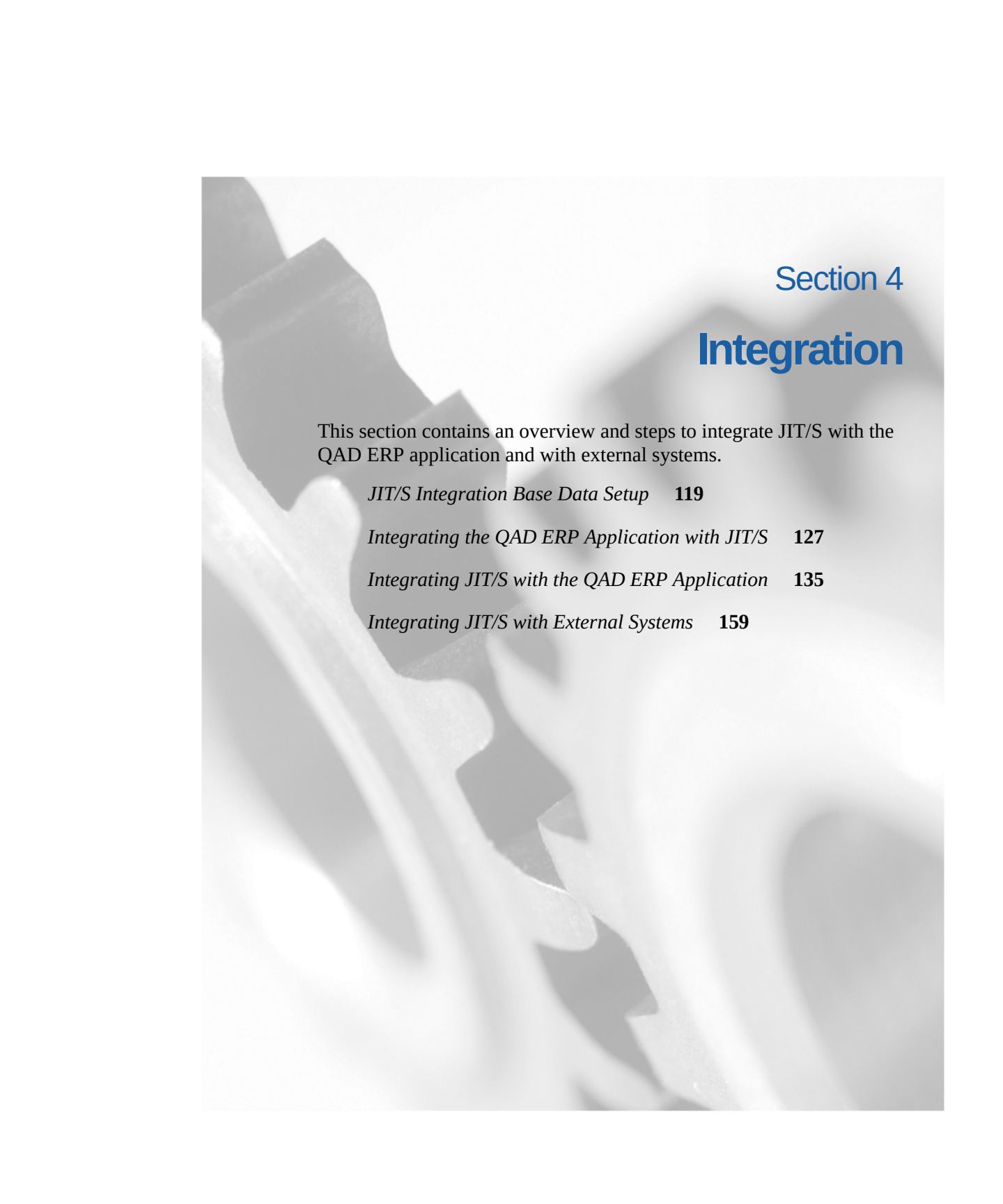
Follow these steps to restore the security settings that you have backed up for a previous JIT/S version.

- 1** Launch AppBuilder against the JIT/S 3.0 environment.
- 2** Select Tools|Administration.
- 3** Choose Deployment – Dataset Import.
- 4** Add the following files that you exported in the “Security Settings Backup” step.
 - gscsc .ado
 - gsmss .ado
 - gsmuc .ado
 - gsmus .ado
- 5** Click Import.

Verify Conversion

After you have finished the conversion, you should run a technical verification test to confirm that JIT/S 3.0 works properly. Do this using Tools|System Data Tools|Technical Verification.

Run all tests one by one and fix any problems you identify.

The background of the page features a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and mechanical complexity. The lighting is soft, highlighting the teeth of the gears and creating subtle shadows.

Section 4

Integration

This section contains an overview and steps to integrate JIT/S with the QAD ERP application and with external systems.

JIT/S Integration Base Data Setup **119**

Integrating the QAD ERP Application with JIT/S **127**

Integrating JIT/S with the QAD ERP Application **135**

Integrating JIT/S with External Systems **159**

JIT/S Integration Base Data Setup

This chapter details the base data setup between the QAD ERP application and JIT/S.

Overview **120**

Item Number Schemes **121**

Synchronize Addresses **123**

Synchronize Product Structures **123**

Synchronize Scheduled Sales Orders **124**

Set QAD ERP Parameters in JIT/S **125**

Overview

The QAD ERP application is typically the primary repository for information about items, addresses, and sales orders. This information is then sent to JIT/S and imported.

Data shared between JIT/S and the QAD ERP application may have different requirements within the two applications. To prevent errors during import, your data setup must be implemented correctly.

You use Message Manager functions in JIT/S to configure the events and messages sent to the QAD ERP application. These functions are described in general in *User Guide: JIT Sequencing*. Since the requirements of individual JIT/S implementations vary, specific details of this setup activity are not covered in this guide.

Table 8.1 summarizes the QAD ERP application base data that is shared with JIT/S.

Table 8.1
Tables
Synchronized
Between
the QAD ERP
Application and
JIT/S

Data Type	Table	Table Description	Updated in the QAD ERP Application
Carrier	ad_mstr ls_mstr	Address Master Address List Master	Carrier Maintenance (2.17.1)
Customer	cm_mstr ad_mstr ls_mstr	Customer Master Address Master Address List Master	Customer Maintenance (2.1.1)
Ship-To	cm_mstr ad_mstr ls_mstr	Customer Master Address Master Address List Master	Customer Ship-To Maintenance (2.1.13)
Dock	cm_mstr ad_mstr ls_mstr	Customer Master Address Master Address List Master	Dock Maintenance (7.3.6)
Item	pt_mstr	Item Master	Item Master Maintenance (1.4.1)
Customer Item	cp_mstr	Customer Item Master	Customer Item Maintenance (1.16)
Product Structure	ps_mstr	Product Structure Master	Product Structure Maintenance (13.5)
Sales Order	so_mstr sod_det	Sales Order Master Sales Order Detail	Scheduled Order Maintenance (7.3.13)

Item Number Schemes

The primary necessity for data compatibility between JIT/S and the QAD ERP application is with item numbers. In the QAD ERP application, an item is uniquely identified by a single item ID. In JIT/S, three components—item ID, revision level, and color code—can be used to identify an item.

Suppliers use a combination of an item ID and either color or revision level or both to uniquely identify items. In other cases, an item is uniquely identified by the ID alone. JIT/S supports either approach to identifying items by providing independent values for item ID, color ID, and revision level.

In the QAD ERP application, however, only the item ID can be defined. If you choose to implement an item numbering scheme that involves multiple components in JIT/S, you must set up item numbers in the QAD ERP application to combine the elements. The integration system can then separate the QAD ERP application number into its components when data is sent to JIT/S. Correspondingly, the elements in JIT/S can be concatenated into a single value when information is sent from JIT/S to the QAD ERP application.

The integration supports three scenarios:

- 1 Only the item ID component is used in both JIT/S and the QAD ERP application. The item ID is either fixed or variable in length. Default values are supplied for color and revision level in JIT/S.
- 2 Three elements are used in JIT/S and are combined as fixed-length segments in the QAD ERP application item number in the following order: item ID, revision level, color.
- 3 Three elements are used in JIT/S but their length is variable in the QAD ERP application and indicated by a delimiter character. The elements are combined in the following order: item ID, revision level, color.

Other scenarios are possible. For example, in JIT/S, you could use only item ID and color or only item ID and revision to identify items. Or your QAD ERP application item numbers could be combined based on item, color, and revision rather than item, revision, color.

By default, all item information is sent to JIT/S as item only, and all item information is sent to the QAD ERP application or other external applications as item only. Setting up a different scenario must be done during implementation by QAD Support Services.

In general, the process requires that you specify your item numbering in four ways for use by various integration components:

- Define settings in the system configuration file, `config.xml`, that determine how JIT/S item-related maintenance screens validate items and how items display on the Assembly Order Workbench. See “JIT/S Configuration File” on page 167 for details.
- Define parameters for the `EDInboundParseItems` rule that the Message Manager uses during import of item-related data from the QAD ERP application.
- Define the Message Manager transformation used when sending production reporting messages to the QAD ERP application.
- If you are integrating JIT/S with QAD 2008 Standard and earlier versions of the QAD ERP application, configure the EDI eCommerce transformation in the QAD ERP application to determine how the item ID, color code, and revision level that JIT/S sends will be interpreted.

Synchronizing Other Item Attributes

A number of codes associated with items are set up in both the QAD ERP application and JIT/S. These include units of measure, item statuses, item types, and commodity codes. You must ensure that the values being imported from items in the QAD ERP application also exist in JIT/S by using JIT/S functions to create them. *User Guide: QAD JIT Sequencing* describes these setup functions in detail.

The QAD ERP application does not have the concept of a product family. However, this data attribute is required for an item in JIT/S. Use the JIT/S function QAD ERP Parameter Maintenance to set a default value appropriate for your system for the product family associated with items imported from the QAD ERP application. See “Set QAD ERP Parameters in JIT/S” on page 125.

JIT/S supports a single site only. To ensure that change documents are created for export to JIT/S only for items associated with the JIT/S site, you can add a filter to the pt_mstr sync profile. Using Synchronization Profile Maintenance (36.8.22.1), set pt_site equal to the JIT/S site code. This ensures that only item records for that site are exported.

Synchronize Addresses

Postal Codes and Country

In JIT/S, every address must have associated postal and country codes. During import of addresses from the QAD ERP application, if a postal code does not exist in JIT/S, it is created. However, the QAD ERP application address must have an associated country code or the import fails. This applies to customers, customer ship-to records, carriers, and docks.

To ensure that only records that contain these values are synchronized, you can modify the synchronization profile and set the ad_zip and ad_country fields to be required on Add. See Table 8.2, “QAD ERP Parameters,” on page 125.

Deleting Carriers and Docks

Because of the way that the deletion of carrier and dock addresses is managed in the QAD ERP application, documents are not published to record the deletion. You must delete these documents manually in JIT/S.

Synchronize Product Structures

In JIT/S, product structures cannot reference the same component multiple times. The QAD ERP application does support this feature through use of the Reference field. Any product structures created in the QAD ERP application that are to be synchronized with JIT/S cannot use the Reference field.

The default start date for product structures imported into JIT/S with a blank start date is specified with a parameter in JIT/S using the QAD ERP application Parameter Maintenance. By default, this is set to 01/01/1950.

In addition, the QAD ERP application does not support the BOM type element. This also must be specified in the QAD ERP application Parameter Maintenance for use during import. See “Set QAD ERP Parameters in JIT/S” on page 125.

Synchronize Scheduled Sales Orders

Single Order per Ship-To Address

In JIT/S, each order processor manages items on one scheduled order for a ship-to address. The order can have multiple lines representing various items the customer receives; but all the lines must be on the same scheduled sales order number.

You should ensure that when you create orders in the QAD ERP application, you create only one order for each ship-to address receiving shipments. If the customer orders additional items, add those items to the existing order rather than creating a new order.

Single-Site and Ship-From Support

JIT/S supports only a single site and ship-from record. To ensure that the import of scheduled sales orders works correctly, the site can only have one ship-from record associated with it in JIT/S.

Shipping Configuration

Each scheduled sales order in JIT/S is associated with a shipping configuration record defined in Shipping Configuration Maintenance. This record is found using the ship-from, ship-to, and customer fields (so_site, so_ship, so_cust) on the QAD ERP application scheduled sales order. You must ensure that a shipping configuration record exists that matches these fields or the sales order import will fail. *User Guide: QAD JIT Sequencing* describes this setup function in detail.

To validate the shipping configuration record, a production method must also be supplied. Since this data element does not exist in the QAD ERP application, a default production method is specified as a parameter (salesOrder.production_method) in JIT/S using QAD ERP Parameter

Maintenance. The default production method is Sequenced, but you can change the default by modifying the parameter. See “Set QAD ERP Parameters in JIT/S” on page 125.

PO Numbers

For scheduled orders, PO numbers are generally only specified at the line level. Each line is uniquely identified by the combination of item, PO number, customer reference, and model year. The line-level PO is stored in JIT/S shipment history and can be printed on bills of lading and packing slips.

You can also specify a purchase order number that applies to the entire order by entering it in the Remarks fields on the scheduled order header. This field is copied to the header purchase order field on the sales order in JIT/S and can be printed on the shipping documents.

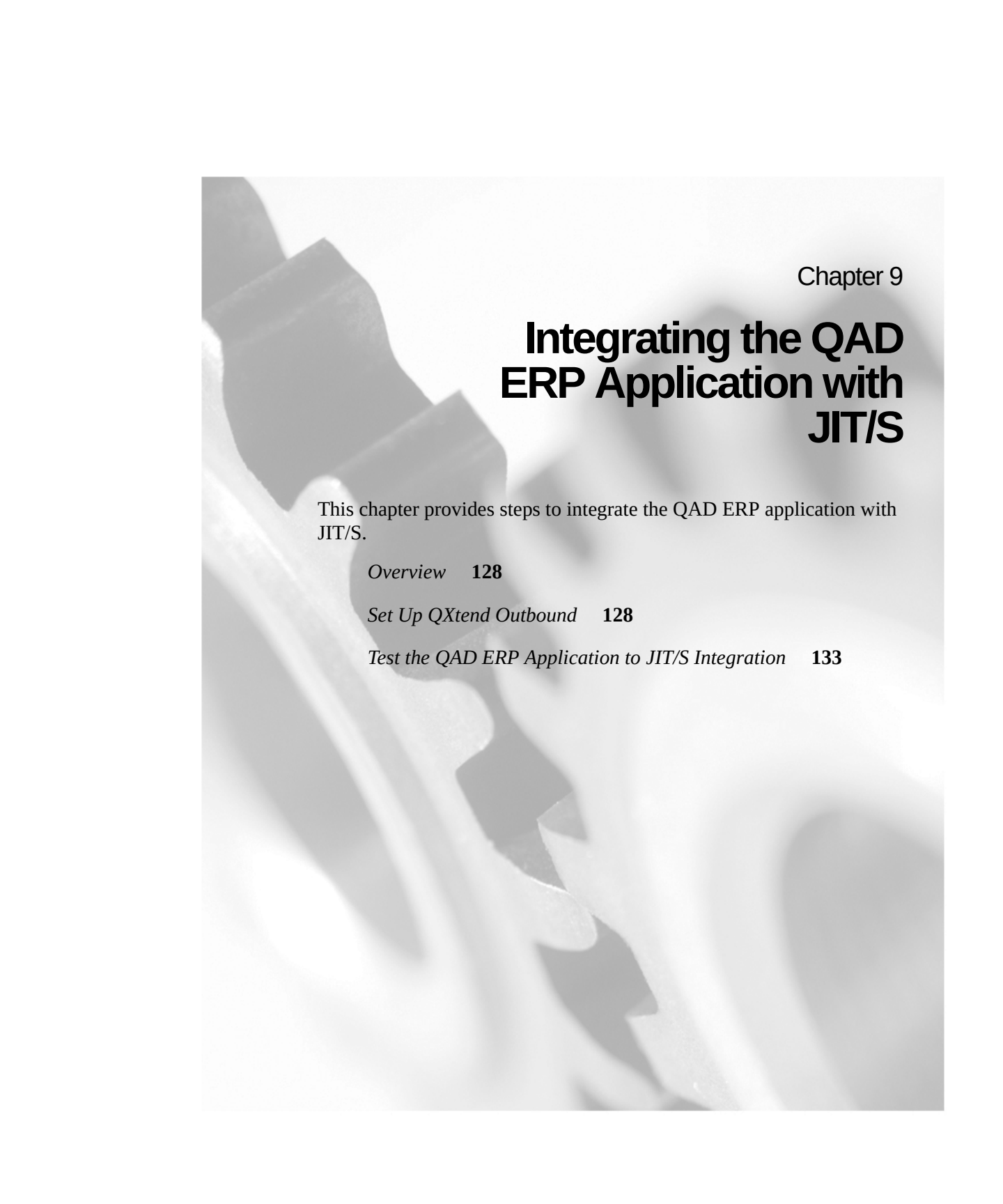
Set QAD ERP Parameters in JIT/S

Several parameters in the JIT/S QAD ERP Parameter Maintenance program are required for the QAD ERP application to JIT/S integration. Table 8.2 lists parameters that are used in integration APIs. See *User Guide: QAD JIT Sequencing* for information on how to use the QAD ERP Parameter Maintenance function.

Parameter	Value	Class Code	Description
domain		QXtendConfig	The QAD ERP application domain that JIT/S communicates with.
username		QXtendConfig	The QAD ERP application log-in username.
password		QXtendConfig	The QAD ERP application log-in password.
dateFormat	yyyy-mm-dd, yyyy-dd-mm, mm-dd-yyyy, dd-mm-yyyy	QXtendConfig	The date format to use when a QDoc is created. The default is yyyy-mm-dd.

Table 8.2
QAD ERP
Parameters

Parameter	Value	Class Code	Description
partAssignmentOption	0, 1, 2, 3	QXtendConfig	Defines the format for ASN item numbers. 0: item number = item number in the QAD ERP application 1: item number = item ID in JIT/S 2. item number = item ID in JIT/S + delimiter + revision level + delimiter + color code ID 3: item number = item ID in JIT/S + revision level + color code ID The default is 1.
partItemLength		QXtendConfig	The length of the item ID.
partRevisionLength		QXtendConfig	The length of the revision level.
partColorLength		QXtendConfig	The length of the color code ID.
partDelimiter		QXtendConfig	The delimiter to use when partAssignmentOption is 2.
asnLength		QXtendConfig	The length of the advanced ship notice (ASN) number.
asnHdrStartingPos		QXtendConfig	The starting position of the advanced ship notice (ASN) header.
asnStartingPosition		QXtendConfig	The starting position of the advanced ship notice (ASN) number.
packSlipNbrStartPos		QXtendConfig	The starting position of the pack slip number.
part.product_family_obj		APIDefaults	The product family code to assign to new items created using APIs.
salesOrder.production_method	Sequenced	APIDefaults	The production method code used when locating shipping configuration records during import of sales order APIs.
billOfMaterial.bom_type_obj		APIDefaults	The bill of material type code to assign to all new BOM records created using API.
billOfMaterial.boms_start_date	01/01/1950	APIDefaults	The default start date to use when a structure record is being added.

The background of the page is a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and mechanical complexity. The lighting is soft, highlighting the teeth of the gears and creating subtle shadows.

Chapter 9

Integrating the QAD ERP Application with JIT/S

This chapter provides steps to integrate the QAD ERP application with JIT/S.

Overview **128**

Set Up QXtend Outbound **128**

Test the QAD ERP Application to JIT/S Integration **133**

Overview

This section provides the steps to integrate the QAD ERP application with JIT/S.

A predefined set of QAD ERP application base data is required by JIT/S. This base data includes:

- Items
- Customer items
- Customers
- Carriers
- Customer ship-tos
- Docks
- Product structures
- Scheduled sales orders

This data is uploaded to JIT/S during implementation and is synchronized between the two applications through QXtend Outbound. The JIT/S Message Manager pulls the updates in and writes them to the appropriate JIT/S tables.

Set Up QXtend Outbound

QXtend Outbound exports user-configurable business objects as XML QDocs out of the QAD ERP application to JIT/S.

This section assumes a standard QXtend Outbound installation.

Import Business Object and Profiles

- 1 Start Tomcat.
- 2 Start QXtend Outbound in a browser:
- 3 Click the Business Objects menu and from the App Type drop-down list, select the source application type that corresponds to the QAD ERP application you are integrating JIT/S with; then click the arrow next to Name to display all available business objects with the Name field left blank.

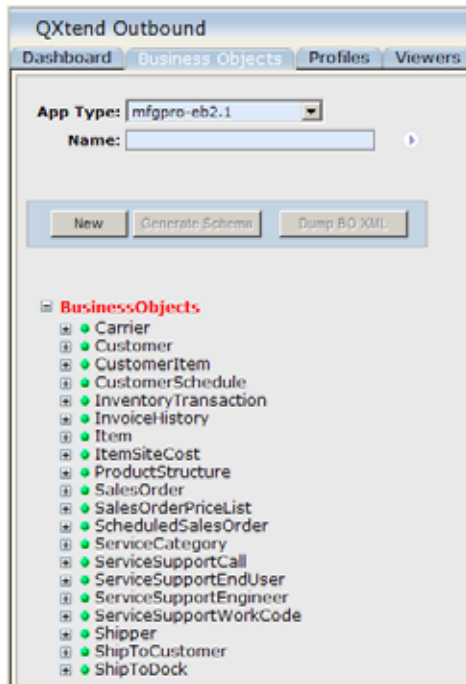


Fig. 9.1
Dump BO XML

- 4 One by one, click the business objects in the Business Objects tree and then click Dump BO XML.
- 5 Rename the QAD business object XML file ShipToDock-Suffix.xml under the *JITSInstallDir/qdoc/QADERPVersion* or *JITSCientInstallDir/qdoc/QADERPVersion* directory to ShipToDock.xml and copy it to the business object directory on the QXtend server:
`QX0srvInstallDir\boXML\QADERPVersion\BusinessObject`
 Where *Suffix* is eb2, eb21, or eb3 corresponding to different versions of QAD ERP applications respectively and *QADERPVersion* is 92 for MFG/PRO eB2, 92b for MFG/PRO eB2.1, QAD 2007, QAD 2007.1, and QAD 2008 Standard, and 93 for QAD 2008 Enterprise.

- 6 Copy the standard QAD profile XML files from the *JITInstallDir/qdoc/QADERPVersion* or *JITClientInstallDir/qdoc/QADERPVersion* directory to their corresponding business object directory on the QXtend server: *QX0srvInstallDir\boXML\QADERPVersion\BusinessObject*. Where *QADERPVersion* is 92 for MFG/PRO eB2, 92b for MFG/PRO eB2.1, QAD 2007, QAD 2007.1, and QAD 2008 Standard, and 93 for QAD 2008 Enterprise.

Table 9.1
Business Object -
Profile Relationship

Business Object	Profile
Carrier	maintainCarrier
Customer	maintainCustomer
CustomerItem	maintainCustPart
Item	maintainPart
ProductStructure	maintainBillOfMaterial
ShipToCustomer	maintainCustShipto
ShipToDock	maintainDock
SalesOrder	maintainSalesOrder
ScheduledSalesOrder	maintainScheduledSO

- 7 Back to QXtend Outbound, click the Configuration menu and then choose Utilities|XML Import.
- 8 In the XML Import screen, type the location of your profile in the XML to Load field and select the Profiles checkbox, and then click Load. When you import the maintainDock profile, select both the Business Objects and Profiles checkboxes.

`<App Type Name>/<Business Object Name>/<Profile Name>`

Refer to Table 9.1, “Business Object - Profile Relationship,” on page 130 to load all the profile XML files you previously copied to the QXtend server.

Fig. 9.2
XML Import

The screenshot shows a dialog box titled "XML Import". It has a text field labeled "XML to Load" containing the path "mfgpro eb2.1/Customer/maintainCustomer". Below this field are two checkboxes: "Business Objects" which is unchecked, and "Profiles" which is checked. At the bottom of the dialog are two buttons: "Load" and "Cancel".

Configure Subscriber Parameters

- 1 Under the Configuration tab, choose Subscribers|FileDrop.
- 2 In the Configuration Parameters screen, choose QDoc 1.0 as the XML syntax.
- 3 In the target directory field, specify the location on the file system where outbound QDocs for JIT/S should be placed. If a full path is not specified, QDocs are placed in the current working directory.

Configuration Parameters

Subscriber Code* (25 Character Max)

Subscriber Description

Source Domain

Source Entity

Allow Superseded ☒

Sending Option

Communication Method

XML Syntax

Target Directory*

Include Soap Envelope ☐

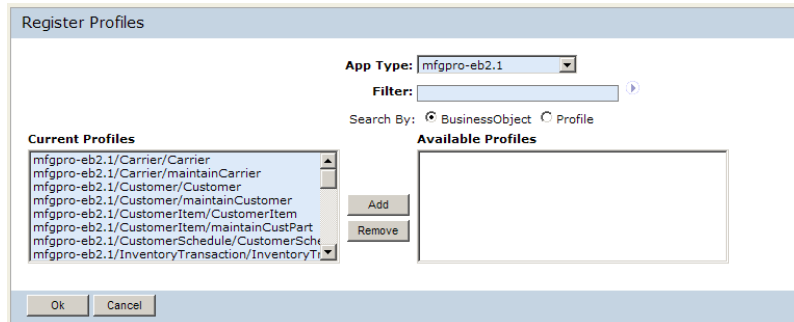
Registered Profiles

Source Application Restriction

Fig. 9.3
FileDrop

- 4 Click Register Profiles. A standard lookup displays, listing available profiles and those currently assigned. Use the Add button to move all the profiles you have imported from the Available Profiles list to the Current Profiles list; then click OK.

Fig. 9.4
Register Profiles



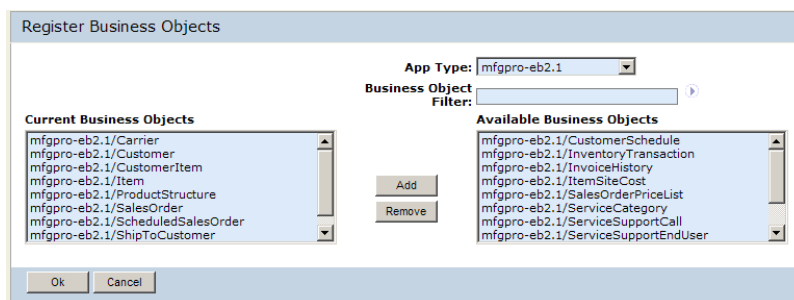
The **Register Profiles** dialog box is shown. It has a title bar with the text "Register Profiles". Inside, there is a section for "App Type" with a dropdown menu set to "mfgpro-eb2.1". Below this is a "Filter:" text box with a right-pointing arrow. A "Search By:" section has two radio buttons: "BusinessObject" (which is selected) and "Profile". The main area is divided into two lists: "Current Profiles" on the left and "Available Profiles" on the right. The "Current Profiles" list contains several entries, including "mfgpro-eb2.1/Carrier/Carrier" and "mfgpro-eb2.1/InventoryTransaction/InventoryTr". Between the two lists are "Add" and "Remove" buttons. At the bottom are "Ok" and "Cancel" buttons.

- 5 Leave all other fields as the default and click Save to save your changes.

Create a Message Publisher

- 1 Under the Configuration tab, choose Message Publisher|MsgPub.
- 2 In the Configuration Parameters screen, click Lookup under the Registered Business Objects box. A standard lookup displays, listing available business objects and those currently assigned. Use the Add button to move all the business objects you have imported from the Available Business Objects list to the Current Business Objects list; then click OK.

Fig. 9.5
Register Business
Objects



The **Register Business Objects** dialog box is shown. It has a title bar with the text "Register Business Objects". Inside, there is a section for "App Type" with a dropdown menu set to "mfgpro-eb2.1". Below this is a "Business Object Filter:" text box with a right-pointing arrow. The main area is divided into two lists: "Current Business Objects" on the left and "Available Business Objects" on the right. The "Current Business Objects" list contains several entries, including "mfgpro-eb2.1/Carrier" and "mfgpro-eb2.1/ShipToCustomer". The "Available Business Objects" list contains several entries, including "mfgpro-eb2.1/InventoryTransaction" and "mfgpro-eb2.1/ServiceSupportEndUser". Between the two lists are "Add" and "Remove" buttons. At the bottom are "Ok" and "Cancel" buttons.

- 3 Leave all other fields as the default and click Save to save your changes.

Test the QAD ERP Application to JIT/S Integration

With all applications up and running, you should now be able to create base data in the QAD ERP application, and see the messages in the queue manager directory, and then in JIT/S.

- 1 Create some test items in the QAD ERP application.
- 2 Go to the QDocs output target directory to verify that the correct outbound QDocs for JIT/S are placed in that location.
- 3 Verify that JIT/S responds to the document.

The background of the page is a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that they appear to be meshing together. The lighting is soft, creating a professional and technical feel.

Chapter 10

Integrating JIT/S with the QAD ERP Application

This chapter discusses the details of setting up and maintaining the integration from JIT/S to the QAD ERP application.

Overview **136**

Set Up QXtend Inbound **139**

*Set Up EDI eCommerce for JIT/S to
the QAD ERP Application* **150**

Overview

This section provides the steps required so that the QAD ERP application can receive information from JIT/S:

- Set up QXtend Inbound and test the integration.
- If you are integrating JIT/S with QAD 2008 Standard and previous versions of the QAD ERP application, set up EDI eCommerce and test the integration.

Two communication methods move events from JIT/S to the QAD ERP application.

When JIT/S is integrated with QAD 2008 Enterprise, both the backflush and shipment information is sent to an instance of QXtend Inbound that then pushes the updates to the QAD ERP application.

When JIT/S is integrated with QAD 2008 Standard and earlier versions of the QAD ERP application:

- JIT/S inventory transactions are communicated to the QAD ERP application using QXtend Inbound in the form of backflush records.
- Shipments are communicated using the EDI eCommerce in the QAD ERP application.

Using QXtend Inbound for JIT/S to the QAD ERP Application

Outbound events created in JIT/S include:

- Scanner application backflushing a single work order
- Building an order on the Assembly Order Workbench
- An API from a PLC system backflushing one or more work orders
- A scheduling rule backflushing all work orders released in the current run of the order schedule
- A package completion rule backflushing all work orders contained in packages that are fully packed.
- A shipment finalization rule backflushing all work orders contained in a shipment
- Manually reporting a work order as Built

These events write data to the Message Manager, which in turn creates one of three QDocs depending on where the data is used in the QAD ERP application.

Name	Where Used	Menu No.	QDoc Created
Advanced Repetitive Backflush	Used for production reporting and scrapping of manufactured parts when milestone reporting is in use.	18.22.13	recordBackflush
Location Transfer	Used for both production reporting and scrapping of purchased parts.	3.4.3	transferInventory
Receipt with Backflush	Used for production reporting of manufactured parts when milestone reporting is not in use.	3.12	receiptsBackwardExploded
Shipment maintain and confirm	Used for shipment reporting.	7.9.8 7.9.5	maintainShipment

Table 10.1
QDocs Created by
Outbound Events in
JIT/S

The QAD ERP application item number to be updated is constructed from the JIT/S item number, revision number, and color code, as set up during system implementation by QAD Support Services.

QXtend Inbound processes the QDoc and loads it into the QAD ERP application. The required inventory transactions are created in the QAD ERP application based on the product structure associated with the parent item.

Using EDI eCommerce for JIT/S to the QAD ERP Application

This communication method only applies to QAD 2008 Standard and earlier versions of the QAD ERP application.

Finalizing a shipment creates an outbound maintainShipment event in JIT/S. This is sent in the form of a QDoc to the EDI eCommerce module in the QAD ERP application. The destination directory where EDI eCommerce polls for new QDocs is set up through Setup|Message Manager|Transmission Group Maintenance.

The maintainShipment QDoc contains information from the bill of lading header and detail records in JIT/S as well as any associated packing slip header and detail records. When EDI eCommerce picks up the maintainShipment document, it converts it into a shipper. When the shipper is confirmed, an advance ship notice (ASN) is generated to the customer.

Prepare Shipment Reporting Data

Set Up Shipper Numbers

The shipper number in the shipment QDoc is generated based on counters set up in JIT/S. This number must also be used for the shipper in the QAD ERP application. To ensure that the shipper number can be received from an external source, you must complete the following setup:

- 1 Shipper numbers in the QAD ERP application are managed through sequences set up with Number Range Maintenance (36.2.21.1).

Fig. 10.1
Number Range
Management
(36.2.2.1)

Nbr	Type	Settings	Control

- 2 Set up a new sequence that does not generate its own numbers:
 - a Specify a sequence ID such as JIT_SHIP.
 - b Enter a target dataset of abs_id.shipper.
 - c Set Internal to No.
 - d Set Allow Discarding to Yes.
 - e Set Allow Voiding to Yes.

Be sure to use only eight digits in the number ranges in the Segment List frame for each of the range values. Even though numbers are not going to be generated using this sequence, system validations occur that use the number ranges.

- 3 After creating this sequence, choose Container/Shipper Control (7.9.24) and enter the new shipper number in the Shipper Sequence ID field.

Verify Base Data

Base data in JIT/S is synchronized with the QAD ERP application through DataSync. Since the data in JIT/S originated in the QAD ERP application, it should be appropriately defined when the shipment data is imported. The following base data is assumed to be set up appropriately:

- The ship-from site specified must be defined in the QAD ERP application Site Maintenance (1.1.13) and have a company address associated with it in Company Address Maintenance (2.12).
- The receiver ID must be defined as a customer in the QAD ERP application Customer Address Maintenance (2.1.1).
- Items being shipped must be defined in the QAD ERP application Item Master Maintenance (1.4.1) and sufficient inventory must exist to fill the quantity shipped.
- A scheduled sales order must be defined in Scheduled Order Maintenance (7.3.13) for the ship-from site and ship-to customer.

Set Up QXtend Inbound

QXtend Inbound accepts backflush and messages from JIT/S and passes these to the QAD ERP application. If JIT/S is integrated with QAD 2008 Enterprise, shipment reporting is also implemented through QXtend Inbound. In this section, you set up the JIT/S to the QAD ERP application components of QXtend Inbound.

This section assumes a standard QXtend Inbound installation.

Add the QAD ERP Application Schema

If you are integrating JIT/S with QAD 2008 Enterprise, you must add QAD 2008 Enterprise schema first.

- 1 Start Tomcat.
- 2 Start QXtend Inbound in a browser:
`http://qxtendhost:8080/JITSWebAppDir`
Where *JITSWebAppDir* is the directory of the JIT/S web application deployed on the server.
- 3 In the QXtend Inbound main screen, click the Configuration menu and choose Schemas|QAD.
- 4 Choose Add at the bottom of the Configuration Administration screen and then choose the appropriate Suspend option if QXI is active.
- 5 The Add Schema screen displays. Enter the following information.

Fig. 10.2
Adding a Schema

The screenshot shows a web-based configuration window titled "Configuration Administration" with a status of "active". Below the title bar is a section labeled "Add ERP3 Schema". The form contains several fields and options:

- XML Syntax:** A dropdown menu set to "Qdoc 1.1".
- Route:** A dropdown menu set to "SI API Adapter".
- Request Path:** A text field containing "maintainShipment-eB2_1.xsd" with a "Browse..." button to its right.
- Response Path:** An empty text field with a "Browse..." button to its right.
- WSDL Path:** An empty text field with a "Browse..." button to its right.
- Procedure:** A text field containing "soshapi.p".
- Method Name:** A text field containing "loadData".
- Options:** Two radio buttons, "Custom" (which is selected) and "Standard".
- Next:** A button at the bottom left of the form.

XML Syntax. Choose QDoc 1.1.

Route. Choose SI API Adapter.

Request Path. Specify the full path to the base request schema that is to be uploaded to the standard or custom schema directory in Tomcat. By default, the standard QDoc file `maintainShipment-eB2_1.xsd` is located under `JITSInstallDir/qdoc/93` or `JITSCientInstallDir/qdoc/93`.

Response Path. Leave this field blank.

WSDL Path. Leave this field blank.

Procedure. Enter soshapi.p.

Method Name. Enter loadData.

Note The method name is case-sensitive.

Custom/Standard. Choose Standard.

- 6 Choose Next.
- 7 In the Add Receiver Support screen, choose Done. The schema is successfully added.

Set Up a QXtend QAD ERP Application Receiver

- 1 In the QXtend Inbound main menu, open the Configuration menu and select Receivers.
- 2 Under the Receivers list, select your QAD ERP application version: eB, eB2, QAD 2008 SE (eB2.1), or QAD 2008 EE.
- 3 Choose Add at the bottom of the Configuration Administration screen and then choose the appropriate Suspend option if QXI is active.
- 4 Enter a receiver name for the QAD ERP application server. In these instructions, the receiver name is eB201.

If the schema is for eB2.1 or later, you can define a list of domain codes for the new receiver. The License Manager will reject any nonfree or charged message/QDoc for an undefined domain. See QAD QXtend Licensing in *Technical Reference Guide: QXtend* for more information on licensing.

Choose Next to continue.



Configuration Administration
Status: active

Add eB2.1 Receiver

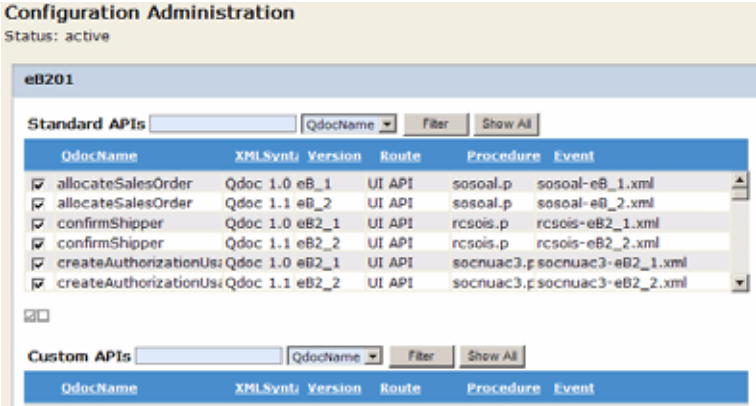
Receiver eB201 Licensed Domains Domain1

Next

Fig. 10.3
Naming a Receiver

- 5 In the Standard APIs frame, use the check box below the list of standard QDoc options to select all.

Fig. 10.4
Receiver API
Selection



- 6 Choose Done to save the receiver. The Receiver Added page displays.

Add an QAD ERP Application Queue

- 1 To add the Queues menu; then choose Functions|Update Queues.
- 2 At the bottom of the queue list, choose Add.
- 3 The Add Queue screen displays. Enter the following:

Fig. 10.5
Add a Queue



Queue Name. You can enter any name here. The final queue name is *queue type.your queue name*. So if you enter JITSqdocqueue here, the queue name becomes qdoc . JITSqdocqueue.

Queue Type. Queue types identify the type of requests on the queue. QXtend contains one queue type, qdoc.

URL. URL is the location of the QXtend Inbound Web Services component. For the QAD ERP application this should be:

`http://localhost:8080/JITSWebAppDir/services/QdocWebService`

- 4 Choose Create. The queue is created with a default configuration. The Edit Configuration page displays to enable you to edit the configuration.

Queue Administration
Status: active

Edit configuration

Configuration for qdoc.JITSqdocqueue

Queue Settings

Queue Type:

XML Syntax:

URL:

Transformation Queue: ☐

Transformation URL:

Add Envelope: ☒

Frequency:

Thread Settings

Initial Size:

Maximum Size:

Web Service Timeout:

Retry Time:

Fig. 10.6
Edit Queue

- 5 Update the fields using the details that follow:

Queue Type. Queue types identify the type of requests on the queue. QXtend contains one queue type, qdoc.

URL. URL is the location of the QXtend Inbound Web Services component. For the QAD ERP application this should be:

`http://localhost:8080/JITSWebAppDir/services/QdocWebService`

Note The capitalization of QdocWebService must match what is shown here.

Transformation Queue. Leave this unselected.

Transformation URL. This can be blank.

Add Envelope. All incoming requests must include a valid SOAP envelope. This must be selected for the QAD ERP application queue.

Frequency. In milliseconds, set the interval at which to poll the queue.

Additional settings are required when Add Envelope is selected in the Edit Configuration screen.

Add Envelope Settings

Sender ID. This identifies the QDoc source application, in this case JIT/S. It is defined as a URL so that future QAD product releases can more easily use Internet-based industry standards for organizational identification.

Uniquely identify the JIT/S sender by adding the sender site designation:

`sender=MFGPROSite`

Where *MFGPROSite* is the JIT/S site defined in the QAD ERP application Site Maintenance.

Receiver ID. This identifies the QDoc recipient—your QAD ERP application installation. At a minimum the Receiver ID must include the receiver parameter set up in “Set Up a QXtend QAD ERP Application Receiver” on page 141.

`receiver=ReceiverName`

Requestor Type. Leave this field blank.

Requestor ID. Leave this field blank.

Requestor Password. Leave this field blank.

- 6 When the queue setup is complete, choose Submit. The message “Queue Config saved successfully” displays.

Restart Tomcat

- 1 Stop and restart Tomcat. Check that the Queue Manager is running correctly by opening the QXtend server page:

`http://qxtendhost:8080/JITSWebAppDir`

The open queues should appear in the top-level menu as shown.

Request	Response	Map Requests	Map Responses	Status
☐ receiptsBackwardExpl	receiptsBackwardExpl			Success
-eB 2-Sample	-eB 2-Sample			

Fig. 10.7
QXtend Inbound
Queue Manager

Set Up an QAD ERP Application Connection Pool

- 1 In the main menu, select the Connections menu and choose Add Connection Pool.
- 2 Choose Add UI API Pool.
- 3 Use the following screen and field descriptions to enter appropriate configuration settings.

Configuration Settings Update	
Host:	coli43.qad.com
Port:	23
Server Startup Script:	login:[netui]Password:[aboolovil\$
Server Startup Password:	*****
Minimum Connections:	1
Maximum Connections:	5
Maximum Failures:	15
Connections Monitor Frequency:	60000
Wait time for Idle Connection:	20000
Max Licensed Agent Retry:	5
Wait time for Licensed Agent:	20000
Connection Timeout:	1800000
Processing Timeout:	600000
Message Timeout:	10000
Processing Message Timeout:	10000
Initializing Timeout:	180000
Stop On Pause:	false
Operating System Win32/NT:	false
Progress Controller Program:	mfwfw01b.p
NT Delay:	500
Connection Setup User ID:	mfg
Connection Setup Password:	*****
Domain (If Applicable):	
Save Cancel	

Fig. 10.8
QAD ERP
Application
Connection Pool
Settings

Accept the defaults except in the following fields:

Pool Name. For consistency, use the receiver name as the pool name; for example, eB201.

Host. This is the host machine where QXtend Inbound is installed.

Port. This is the Progress Name Server port, by default 23.

Server Startup Script. QXtend uses a telnet session to connect to the QAD ERP application server and run the QAD ERP application in the background similar to running Desktop.

Enter the startup script for the telnet session on the server. Specify the telnet server log-in prompts and the responses to these prompts separated with the pipe symbol (|). The standard order is:
loginPrompt|userid|passwordPrompt|password|\$| *startScript*.

Where *userid* and *password* are the user ID and password you enter at the login prompt after you execute the telnet command to connect to the QAD ERP application server, and *startScript* is the Progress script you run to launch the QAD ERP application client login. The script is similar to a Desktop wrap script and normally includes the following:

- PROPATH: Put the Qxtend install directory at the front; for example, \$ROOT/qxtendserver. The files in the qxxrc directory must be compiled so that the script will look for r-code in the us/xx directory in the top-level directory.
- Desktop directory: For example, \$ROOT/dt2/com/mfgpro or \$ROOT/dt2/src
- The QAD ERP application r-code directories

Note The server startup script must be developed prior to configuration. Consult QAD Services personnel on developing the script.

Here is an example of the server startup script:

```
login:|netui|Password:|NetUI|$|exec
/qad/mfgpro/bin/netuiqi -param mfgwrapper=true,apimode=
true
```

Server Startup Password. The password for the telnet session startup script. It is encrypted upon entry. The startup script substitutes the encrypted password for the \$PASSWORD reference.

Minimum Connections. Enter the minimum number of open connections that the Connection Pool Manager should maintain. During startup, the Connection Pool Manager opens this number of connections. As connections are used, it continues to open more so that this number of open connections is maintained, until it reaches the value specified for Maximum Connections.

In general, keep this number as low as effectively possible; for example, 3 on faster systems. On slower systems, increase the number to reduce startup time on new requests.

Maximum Connections. Enter the maximum number of open connections that the system should allow. The Connection Pool Manager will not open any more connections than this.

Maximum Failures. Enter how many times the Connection Pool Manager should attempt to restart an unsuccessful connection. This number is reset when a successful connection is made. You can also reset it by using the Reset Failed Init Count command on the Connection Pool Functions menu.

Connections Monitor Frequency. Enter, in milliseconds, the interval for checking all connections. The default value is 180000 (3 minutes). This monitors all connections in all states and closes those that have timed out.

Wait Time for Idle Connection. When a connection is requested from the Connection Pool Manager, this timeout (in milliseconds) specifies the maximum wait for the connection. The maximum number of connections may have been reached, or new connections may be in the initializing state. The default value is 20000 (20 seconds).

Connection Timeout. Enter, in milliseconds, how long an HTML session can remain inactive before the Connection Pool Manager closes it. The default value is 1800000 (30 minutes).

Processing Timeout. Enter, in milliseconds, how long a connection can be in processing mode. Processing mode indicates a locked or busy screen. The default value is 3600000 (60 minutes). Connection Pool Manager closes locked or busy connections that exceed this.

Message Timeout. Enter the interval, in milliseconds, for Connection Pool Manager to wait for a general messaging reply from the telnet server. The default value is 10000 (10 seconds).

Processing Message Timeout. Enter the interval, in milliseconds, for Connection Pool Manager to wait for a reply from the telnet server when a connection is in processing mode. The default value is 6666 (6.6 seconds).

Initializing Timeout. Enter the interval, in milliseconds, for Connection Pool Manager to wait for a telnet session to successfully initialize. The default value is 180000 (3 minutes).

Stop on Pause. For QXtend Inbound, this should always be set to false. This prevents a transaction from failing when a “Press Spacebar” message is displayed in the target QAD ERP application session.

Operating System Win32/NT. Set this to true if the Progress telnet sessions are executing on a computer with a Windows operating system. Otherwise, set this to false.

Progress Controller Program. Enter `mfww01b.p` for UI API pools.

NT Delay. This can safely be ignored for QXtend connection pools.

Connection Setup User ID. This and the next two entries are the parameters required to connect to the target QAD ERP application instance. Enter the valid QAD ERP application user ID, such as `qxtend`.

Connection Setup Password. Enter the password for the QAD ERP application user ID. The password is encrypted on entry.

Domain. Enter the valid QAD ERP application domain for all MFG/PRO eB2.1 and above implementations.

- 4 Restart the connection pool and view all connections within the new pool. Idle connections should be available.

Connection Pool Manager

Status: active

All: 6 Inactive: 0 Active: 6 Error: 0 Suspended: 0 Closed: 0

Connection Pool

Status	Name	Type	Start	Close
Active	iop93	UIAPI		Close
Active	csu93	UIAPI		Close
Active	JITS_UI	UIAPI		Close
Active	Fin	SIAPI		Close
Active	eb3	UIAPI		Close
Active	testsch93web	UIAPI		Close
Total: 6				Close All

Fig. 10.9
Connection Pool
View

Add a JITS Employee in the QAD ERP Application

The Advanced Repetitive feature in JITS uses the QDoc recordBackflush, which corresponds to the MFGPRO Backflush Transaction (18.22.13). This QDoc has a field <emp>, which is the employee performing the backflush. For JIT/S, this is populated with the name JITS.

- 1
- In an QAD ERP application session, go to Employee Maintenance (2.7.1).
- 2
- Create a new record for Employee JITS.

Employee Address

Employee: JITS

Last Name: [REDACTED]

First Name: [REDACTED]

Address 1: [REDACTED]

Address 2: [REDACTED]

Address 3: [REDACTED]

City: [REDACTED] State: [REDACTED] Post: [REDACTED]

Country: [REDACTED]

Home Phone: [REDACTED] Business Phone: [REDACTED] Ext: [REDACTED]

SSN: [REDACTED] Birth Date: [REDACTED]

Employee Data

Job Title: [REDACTED] Department: [REDACTED]

Date Employed: [REDACTED] Default Project: [REDACTED]

Date Terminated: [REDACTED] Employment Status: [REDACTED]

Fig. 10.10
Employee
Maintenance

- 3
- Exit Employee Maintenance to save the record.

Test the JIT/S to QAD ERP Application Integration Using QXtend

With all applications up and running, you should now be able to create an inventory transaction in JIT/S—scanning a production label, finalizing a package, finalizing a shipment, or executing a manual backflush—and see the events in the QXtend Queue Manager request and transformation queues. You should then be able to see the backflush occur in the QAD ERP application.

Use one of the following programs in the QAD ERP application to view the modified inventory values:

- Inventory Detail by Item Browse (3.2) shows an item's total nettable and non-nettable inventory, sorted by site.
- Inventory Detail by Site Browse (3.3) shows the total quantities on hand by site, sorted by item number.
- Stock Availability Browse (3.17) shows stock availability in a single site or in all sites.

Set Up EDI eCommerce for JIT/S to the QAD ERP Application

Perform these steps only if you are integrating JIT/S with QAD 2008 Standard and earlier versions of the QAD ERP application.

To set up EDI eCommerce in the QAD ERP application, complete the following steps:

- Set up EDI eCommerce.
- Test the integration.

Set Up EDI eCommerce

To process the shipment QDoc, you must complete these steps in EDI eCommerce:

- 1 Load the required transformation map. If you are upgrading, the load will generate expected errors since the previous version of the map is already loaded.
- 2 Define an appropriate EDI subsystem.
- 3 Modify the transformation mapping to accommodate your item numbering scheme.
- 4 Run Subsystem/Exchange Xref Maintenance.
- 5 Set up the JIT/S site as a trading partner.

Load Transformation Map

EDI eCommerce requires a specific transformation map to parse and load the QDoc from JIT/S. You can download this map from the EDI eCommerce portion of the QAD Support Web site.

Note Access to this site requires a QAD Web account.

- 1 Access the following URL:
http://support.qad.com/product_development/tpl/tpldownload.html
- 2 Click the By Trading Partner link and find the QAD JIT/S-QDocs entry. Click XML Inbound eB2 Version 2 JIT/S to the QAD ERP application Shipper Document Transfer map.
- 3 Download the QmaintShip-V02.zip file and save it to a directory on your system accessible from the QAD ERP application.
- 4 Load the QmaintShip map (qmaintship) with Trading Partner Library Load (35.17.7).

Fig. 10.11
Trading Partner
Library Load
(35.17.7)



Specify the file location. In MFG/PRO eB2.1 and above, indicate the domain containing the JIT/S site you are integrating with. Press Go to initiate the load.

This creates the required transformation map, the exchange definition, the QAD ERP application definition, and the implementation definition. It also creates a trading partner ID BCT4Site. Once the map is loaded, you can use it with any trading partner.

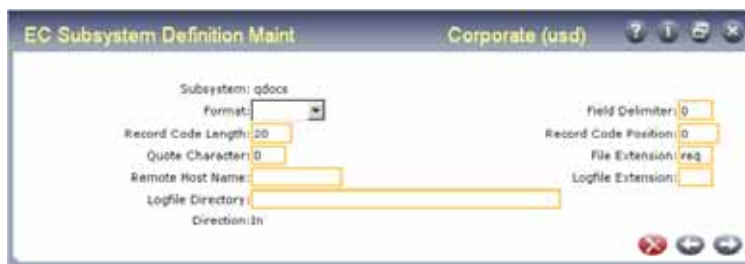
Note If you have loaded previous versions of the map, errors display during load. This is expected and can be ignored.

Define a Subsystem

Define an EDI subsystem using EC Subsystem Definition Maintenance (35.13.1) that accepts the XML format of the QDoc file.

- 1 Choose 35.13.1 from the menu.

Fig. 10.12
EC Subsystem
Definition
Maintenance
(35.13.1)



- 2 Create the header record by specifying the following values:

Subsystem: QDocs

Format: Blank

Record Code Length: 20

File Extension: req

Direction: In

- 3 Press Go to access the next screen.

EC Subsystem Control Records

Seq	Record Name	Requirement	Record Code	Token	Fields
1	maintainShipment	Mandatory	maintainShipment	tp-document-id	☒

Fig. 10.13
EC Subsystem
Definition
Maintenance,
Control Records

- 4 Create a control record with the following values:

Seq: 1

Record Name: maintainShipment

Requirement: Mandatory

Record Code: maintainShipment

Token: tp-document-id

Fields: Yes

- 5 Press Go to access the next screen.

Seq	Field Name	Token	Req	Min	Max	Default Value
1	xmlns		Opt	1	30	
2	version		Opt	1	12	
3	xml:lang		Opt	1	4	
4	xmlns:enc		Opt	1	45	
5	xmlns:rpc		Opt	1	45	
6	xmlns:xsi		Opt	1	45	
7	xmlns:qcom		Opt	1	45	

Fig. 10.14
EC Subsystem
Definition
Maintenance,
Fields

- 6 Define the fields listed in the following table.

Seq	Field Name	Token	Required	Min	Max
1	xmlns		Optional	1	30
2	version		Optional	1	12
3	xml:lang		Optional	1	4
4	xmlns:enc		Optional	1	45
5	xmlns:rpc		Optional	1	45
6	xmlns:xsi		Optional	1	45
7	xmlns:qcom		Optional	1	45

Seq	Field Name	Token	Required	Min	Max
8	transactionId		Optional	1	10
9	logTransaction		Optional	1	5
10	scopeTransaction		Optional	1	5
11	xsi:schemaLocation		Optional	1	10
12	senderID	tp-address,tp-id	Optional	1	35
13	receiverID	tp-site	Optional	1	35

Set Up Cross-Reference Mappings

Use EC Subsystem Exchange Maintenance (35.13.3) to define cross-references between the subsystem you defined for JIT/S and values in the document definition you loaded.

- 1 Choose 35.13.3 from the menu.

Fig. 10.15
EC Subsystem/
Exchange
Maintenance
(35.13.3)



- 2 In the header, specify the following values:
 - Subsystem: QDocs (value in “Define a Subsystem” on page 152)
 - Document: maintainShipment
 - Direction: In
 - Trading Partner:
 - Exchange File Name: maintainShipment
- 3 Press Go to display the detail.



Fig. 10.16
EC Subsystem/
Exchange
Maintenance,
Detail

- 4 Set up the following four exchange records.

Seq	Data Control Code	Break Level	Start Trns	Exchange Record Name
1	BillOfLading	1	No	BillOfLading
2	BillOfLadingDetail	1	No	BillOfLadingDetail
3	PackingSlip	1	No	PackingSlip
4	PackingSlipDetail	1	No	PackingSlipDetail

Set Up a Trading Partner Record

Use Trading Partner Maintenance (35.13.7) to create a record for the JIT/S site. This record is unlike other eCommerce records because in this case, the document is being sent from and to the same site.

Note This is in addition to trading partner BCT4Site that is created by loading the map and should be specific to your needs.

- 1 Choose 35.13.7 from the menu.



Fig. 10.17
Trading Partner
Maintenance
(35.13.7)

- 2 For TP ID, enter a code to identifies the site interacting with your JITS/S system.
- 3 In the Trading Partner Document Records frame, enter the following values:

Field	Value
TP Doc ID	maintainshipment
Direction	In
Document Map	QMaintShip V17Sp2
F (Fields)	Yes

- 4 Press Go to display the TP Location Cross-Reference frame.

Fig. 10.18
Trading Partner
Maintenance,
Location Cross-
Reference

The screenshot shows the 'Trading Partner Maintenance' window for 'Corporate (usd)'. The 'TP ID: JITS' is entered, and the 'Name: JITS Trading Partner' is displayed. Below this is the 'Trading Partner Document Records' section with a table containing the following data:

TP Doc ID	Dir	Document Map	Transmission Group	Token List	T	A	F
maintainship	In	QMaintShip V1.7Sp2			☐	☐	☐

Below the table is the 'TP Location Cross-Reference' section with the following fields:

TP Site	TP Address Reference	Token List Values	Site	MFG Addr	Export
					☐

At the bottom right of the 'TP Location Cross-Reference' section are two buttons: 'Go' and 'Cancel'.

- 5 Enter the following values:

TP Site. Enter the QAD ERP application site that is integrated with your JIT/S system.

TP Address Reference. Specify the company address defined in Company Address Maintenance (2.12) that is associated with the site record that represents the JIT/S site.

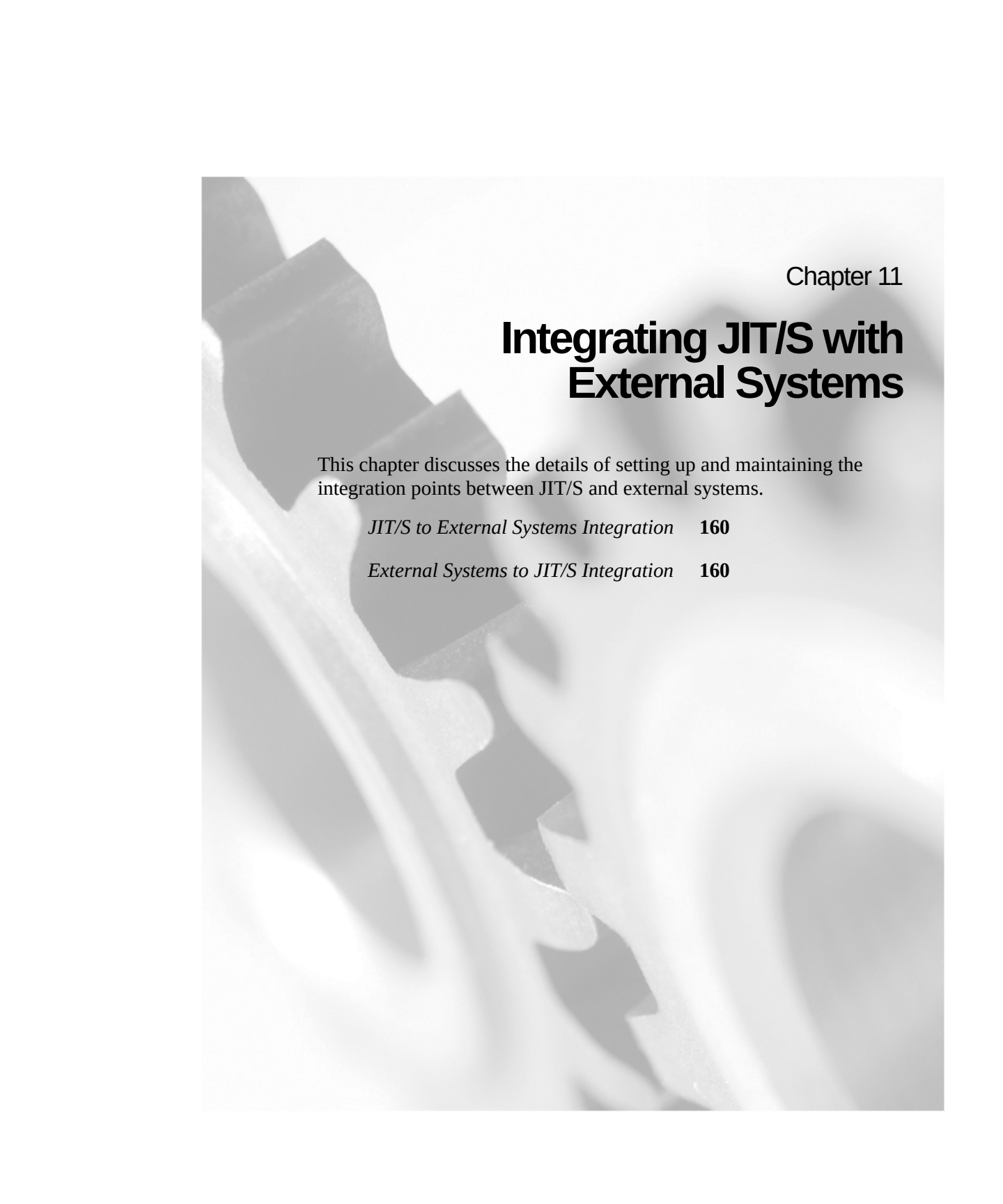
Token List Values. Leave blank.

Site. Enter the same value you specified for TP Site

MFG Addr. Enter the same value you specified for TP Address Reference.

Test the JIT/S to the QAD ERP Application Integration Using EDI

Shipment QDocs are imported in the same way as other EDI documents using Document Import (35.1). The import calls the Shipper Import Gateway (edimshpr.p). The session report indicates if processing of documents was successful. You can view the imported shipper with Pre-Shipper/Shipper Workbench (7.9.2).

The background of the page is a grayscale image of several interlocking gears. The gears are of different sizes and are positioned in a way that they appear to be meshing together. The lighting is soft, creating a sense of depth and texture. The gears are the primary visual element, symbolizing integration and mechanical systems.

Chapter 11

Integrating JIT/S with External Systems

This chapter discusses the details of setting up and maintaining the integration points between JIT/S and external systems.

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External Systems to JIT/S Integration **160**

JIT/S to External Systems Integration

Two messages are sent to external systems:

- `workOrderReleased`, intended for MES/PLC systems
- `requestOrder (RQOR)`, intended for Automatic Storage and Retrieval Systems (ASRS)

These messages can be placed in a directory, in a Sonic queue, or can be sent as a Web Service call. The setup for these messages is already defined in the system; all you need to configure is where you want the message to be sent. This is done by updating the appropriate Transmission Group in Setup|Message Manager|Transmission Group Maintenance.

Set `workOrderReleased` Rule Parameters

The parameter for `workOrderReleased` that you can change is on the `WORDRLSD_PLC` rule, which is available in the `WORDRLSD` rule group. Validate or modify this setting in Setup|Processes|Rule Group Maintenance, Options|Rule Assignment:

`startProduction`. Yes indicates that production has started on the work order. When Yes, the production status of the work order is set to W and the `WORDSTAR` business event is raised.

External Systems to JIT/S Integration

An external system can generate XML documents that can be picked up by JIT/S. The available QDocs are:

`backflushWorkOrder`. Backflushes a specified work order.

`completeWorkOrder`. Sets the status of a specified work order to Built and raises the `WORDFINI` business event.

`sendWorkOrder`. Triggers the `workOrderReleased` API (described in the previous section) for a specified work order.

`sendNextWorkOrder`. Triggers the `workOrderReleased` API for all work orders after a specified point.

`rebuildOrder`. Rebuilds the specified work order.

completePackage. Completes the pre-racked package that contains the specified work orders.

validateTestData. Stores validation test results based on rule groups in JIT/S.

checkTestData. Verifies that the same combination of tests has not been stored for a different serial number during a specified range of days.

The work order APIs in the external system to JIT/S integration each contain a field called `wordId`, which is the work order ID. In the `sendWorkOrder` and `sendNextWorkOrder`, the combination of `wordReleaseOrder` and `asshId` (the shippable AU) can be used to identify a work order instead of `wordId`.

Set Up Message Manager for External Systems

The Message Manager setup for all external systems messages is loaded by default. However, a Channel must be set up to accept incoming files in Setup|Communications|Channel Maintenance.

In addition, the Message Receiver process must be created to monitor the channel in Setup|Processes|Process Maintenance.

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JIT/S Configuration File

This chapter provides detailed descriptions of the settings in the system configuration file `config.xml`.

JIT/S Configuration File **168**

JIT/S Configuration File

The system configuration file (*JITSInstallDir\jpssrc\config\config.xml*) contains important information used to manage your application. Some of these settings are configured during installation, as indicated in the Updated by Install column. Others must be manually defined by editing the *config.xml* file in a text editor. Some settings should not be changed, as noted in the descriptions.

Note The value of configured directories displays in the Description column, not the Default Value column.

Table A.1 JIT/S Configuration File Settings (Page 1 of 7)

	Setting	Updated by Install	Default Value	Description
Base	labelDir	Yes		<i>JITSInstallDir\PrintLabels</i> When labels are printed, label files are first generated to this directory, then to the final print destination.
	labelPauseTime	No	0	When multiple labels are sent to the printer, the system pauses this number of seconds between each label. Some printers require time to load data for printing. This parameter provides control over the load rate, preventing printer overload problems. The default print control program supplied with JIT/S (<i>basgen/prc/print_file.p</i>) references this setting.
	stallTime	No	5	Processes can be stalled in JIT/S. When stalled, the process engine waits to execute the process until the stall time specified in this field.
	printServerDir	No		<i>JITSInstallDir\export</i> Enter the name of a directory in order to use a print server through a shared directory to print labels.
General	ClusterIP	Yes	<i>hostname</i>	Specifies the host name or IP address of the machine that JIT/S processes are running on. This value is used by the <i>.bat</i> file referenced in the processkill setting for stopping non-responding processes in the case of a system failure.

Table A.1 JIT/S Configuration File Settings (Page 2 of 7)

	Setting	Updated by Install	Default Value	Description
Process	config	Yes		<i>JITSInstallDir\jpssrc\config\config.xml</i> Location of the config.xml file on disk.
	pf	Yes		<i>JITSInstallDir\pf</i> Location of the .pf file on disk.
	ini	Yes		<i>JITSInstallDir\ini\prodjits.ini</i> Location of the .ini file on disk.
	workdir	Yes		<i>JITSInstallDir\work</i> The working directory for the processes that are being launched by the process launcher.
	processlog	Yes		<i>JITSInstallDir\log\processid.txt</i> Name and location of the log file of the process launcher. A line is written to this file for each process as it is started, recording the date and time and the ID of the process.
	logdir	Yes		<i>JITSInstallDir\log</i> The directory where processes create log files. Each process can create two files: • <i>processID.log</i> logs information about when the process is started, each time it wakes up and runs the process procedure, and when the process is stopped. • <i>processID_output.log</i> is updated when the process fails and contains the error causing the failure.
	processkill	Yes		<i>JITSInstallDir\killJITSProcesses.bat</i> The location of a .bat file created and updated by JIT/S whenever a process is added or modified in Process Maintenance. This file can be used to stop any hung JIT/S processes in the event of a system failure.

Table A.1 JIT/S Configuration File Settings (Page 3 of 7)

	Setting	Updated by Install	Default Value	Description
Logging	application	No	JITS	Indicates the application creating log messages. The system adds this value to each logging message generated. This approach supports the creation of logging messages from applications other than JIT/S in the centralized logging database by avoiding having the name JIT/S hard coded.
	environment	No	QAD	This setting lets you distinguish between multiple environments such as development and production. - The process launcher adds this value to the process ID when it is stored in the database. For example, if the process ID in the database is <code>__OR52</code> and the environment value in <code>config.xml</code> is <code>DEV</code>, the Windows Task Manager would display <code>__OR52_DEV</code>. - This value also displays as part of the default window title on every window in the application, so users know which environment they are accessing. The window title includes both this setting and the Plant setting.
	plant	Yes	<i>hostname</i>	This setting indicates the physical device where this installation is running. This value displays as part of the default window title on every window in the application, so users know which environment they are accessing. The window title includes both this setting and the environment setting. When messages are written to the logging database, the hostname is also recorded. You can view these messages with Tools Logging/Debug Tools Logging Database Viewer.
	enabled	No	false	Enable or disable all logging to the logging database. Applies only to order receiver and order scheduler processes when the Log parameter is set to True for the process.
	ErrorLogFile	Yes		<i>JITInstallDir</i>\log\JITSError.log When messages are logged to the logging database or this log file with a type of STOPPER, the message description is included. This is currently not used in JIT/S.
	LogDir	Yes		<i>JITInstallDir</i>\log Logging directory used for exceptions and logs created by enabling the process TRACE parameter.

Table A.1 JIT/S Configuration File Settings (Page 4 of 7)

	Setting	Updated by Install	Default Value	Description
JIT	RootDir	Yes		<i>JITSInstallDir\jit</i> The root directory used during order receipt and processing. If a value exists here, the directories specified in Channel Maintenance are considered to be relative to this root. Otherwise, you can enter fully qualified paths in Channel Maintenance. This affects the following directories: • Channel Input Directory • Channel Output Directory • Channel History Directory • Channel Trash Directory • Channel Dump Directory
	LogDir	Yes		<i>JITSInstallDir\log</i> The directory where log files are saved for the order scheduler and order receiver when the process Debug parameter is enabled.
Debug	process	No	No	Enable the logging to a logfile in the logDir. When set to Yes, error messages are written to the process log file as well. The process engine writes its actions to a log file named after the process with the extension .log. If this entry does not exist or the value of the entry is No, no logging is done.
	BUSINESS EVENT	No	Yes	When Yes, a file named BusinessEvent.log is created in the Logging logdir location listing business events as they occur. This setting works in conjunction with Businesseventdetails. Logging business events can be very useful during system implementation for debugging purposes.
	BUSINESS EVENTDETAILS	No	Yes	When Yes, information about each rule executed is included in the BusinessEvent.log.

Table A.1 JIT/S Configuration File Settings (Page 5 of 7)

	Setting	Updated by Install	Default Value	Description
Crystal Reports	dll	No	pdsodbc.dll	This is the name of the dynamic link library (DLL) required by the ODBC driver. You should not change this setting.
	dsn	No	<i>dsn_name</i>	This is the ODBC Data Source Name. ODBC data sources are configured through the Windows control panel where each ODBC configuration setting is identified by a Data Source Name.
	database	No	jps	This is the name of the application database where reports will be generated. You should not change this setting.
	userID	No	JITS	This is the ID of the user login for the DSN used for printing picking lists.
	password	No	JITS	This is the password of the user specified for userID.
	xml_dsn	No	xml_dsn	This is the name of the XML DSN required for formatting picking lists with Crystal Reports. Crystal uses the XML DSN to read the data in the file specified by xmlFile and format it for printing.
	xmlFile	Yes		<i>JITSInstallDir\PickingList\pickingList.xml</i> This is the path to the file containing the picking list data to be read by Crystal Reports and formatted for print.
factoryDashboard	exportMode	No	sonic	This setting is used by FactoryHealthExportPlipp.p to determine where to export data when a Factory Dashboard indicator is set up with export enabled. The value can be: • Sonic places the data on a sonic queue named indicatorData for processing. • File causes the data to be written to a file in QDoc format and placed in the directory specified by exportDir.
	exportDir	No		exportDir specified the location where the exported file is saved when exportMode is file.

Table A.1 JIT/S Configuration File Settings (Page 6 of 7)

	Setting	Updated by Install	Default Value	Description
partDisplayConfig	useColor	No	No	No: JIT/S displays the default color value in all color fields and disables the color fields on all maintenance screens as well as the Add, Delete, and Copy functions in Base Items Color Code Maintenance. The Modify function remains enabled. Colors do not display in Assembly Order Workbench. Yes: You can create color codes in Color Code Maintenance. You must specify a color code when creating items in Item Maintenance. Color codes are displayed in Assembly Order Workbench.
	colorlength	No	3	This is the length for fixed-length color elements. This setting is ignored when usedelimiter is Yes.
	useRevision	No	No	No: JIT/S displays the default revision value in all revision fields and disables the revision fields on all maintenance screens as well as the Add, Delete, and Copy functions in Base Items Revision Level Maintenance. The Modify function remains enabled. Revisions do not display in Assembly Order Workbench. Yes: You can create revision codes in Revision Level Maintenance. You must specify a revision level when creating items in Item Maintenance. Revision levels are displayed in Assembly Order Workbench.
	revisionlength	No	2	This is the length for fixed-length revision level elements. This setting is ignored when usedelimiter is Yes.
	partidlength	No	4	This is the default length for fixed-length item ID elements. This setting is ignored when usedelimiter is Yes.
	usedelimiter	No	No	No: The elements that make up the item number are fixed length. When items are created in Item Maintenance, the system validates lengths of the item elements against the values for partidlength, colorlength, and revisionlength. Yes: The elements that make up the item number are variable length. When items are created in Item Maintenance, the system validates that the sum of all the elements making up the item number is less than or equal to the value of totaldelimitedlength. If only the item ID element is being used, it must be less than or equal to the totaldelimitedlength.

Table A.1 JIT/S Configuration File Settings (Page 7 of 7)

	Setting	Updated by Install	Default Value	Description
partDisplayConfig	totaldelimitedlength	No	18	This is the total delimited length of all elements that make up variable-length items. If you are using only variable-length item IDs, this is the maximum item length.
	defaultcolor	No	–	This is the default value for color ID when useColor is No.
	defaultrevision	No	–	This is the default value for revision level ID when useRevision is No.
	defaultdelimiter	No	–	This is the character that is used to separate item elements when displaying them on the Assembly Order Workbench useColor or useRevision is Yes.
pickingList	exportMode	No	Crystal	This field determines whether picking lists are formatted by Crystal or Excel. If Excel is specified, a value must be specified for template.
	template	No		This is the full path and name of an Excel template file (extension .xlt) that is used for exported picklist data when exportMode is Excel.
assemblyOrderWorkbench	imageDir	No		<i>hostname\images</i> This setting specifies the full path to the default directory for image files. These are specified in Attribute Maintenance Options Attribute Value and displayed in the Assembly Order Workbench.
	workInstructionsDir	No		<i>hostname\workinstructions</i> This setting specifies the full path to the default directory for work instruction file. Specific file names are specified in Assembly Unit Tree Maintenance Options Work Instruction Maintenance and displayed in the Assembly Order Workbench.
packaging	useSpecialPackage Counter	No	No	This field indicates whether you are using a special package counter for package numbers when creating special packages in the Alternative Packaging Workbench. When set to No, the standard package counter is used. If Yes, configure the nonstandard numbering counter in Counter Maintenance and activate this counter in Counter Field Activation for field Special in table PKMFPCG.