BEA eLink

Business Process Option Configuration Guide

Document Edition	Date	Software Version
1.0	January 2000	BEA eLink Business Process Option v1.2

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Preface

This document provides detailed instructions for installing the BEA Business Process Option Servers.

Who Should Read This Document

This document is intended for system administrators responsible for installing and configuring the BEA Business Process Option system.

How This Document Is Organized

The *BEA eLink Business Process Option Configuration Guide* is organized as follows:

- Chapter 1, "Business Process Option Architectural Overview," provides a brief description and graphical representation of the primary Business Process Option components that you will be configuring.

- Chapter 2, "Business Process Option Configuration Overview," describes the files and procedures involved in configuring the eLink Business Process Option application for eLink Platform 1.2.

- Chapter 3, "Configuring the Server Platform Environment," provides instructions for configuring your UNIX shell environment for the Business Process Option application running under BEA eLink Platform 1.2.

- Chapter 4, "Configuring the Business Process Engine," provides instructions for modifying the `eLink_BPO.env` file to configure your Business Process Option Client environment.

- Chapter 5, "Configuring the Business Process Option Servers," provides instructions for modifying the eLink_BPO.cfg file to configure your Business Process Option Server environment.

- Chapter 6, "Creating the eLink Platform Configuration Files," provides instructions for creating the eLink Platform configuration files for the Business Process Option application. This includes specific instructions for using the eLink Platform Configuration utilities to generate these files.

- Appendix A, "Configuration Information Checklist," provides checklists you can use to gather the information you will need to complete the Business Process Option configuration process.

- Appendix B, "Configuration Expert Quick Reference Guide," provides a description of the main windows and navigation procedures for the Configuration Expert and Configuration Data Editor utilities.

- Appendix C, "Sample Configuration Files," provides samples of files the BEA eLink Business Process Option uses to configure the platform environment and the various client and server components.

How to Use This Document

This document, the *BEA eLink Business Process Option Server Configuration Guide*, is provided as a virtual print document in Adobe Acrobat PDF format.

Documentation Conventions

The following documentation conventions are used throughout this document.

Convention	Item
boldface text	Indicates terms defined in the glossary.
Ctrl+Tab	Indicates that you must press two or more keys simultaneously.

Convention	Item
italics	Indicates emphasis or book titles.

`monospace text`	Indicates code samples, commands and their options, data structures and their members, data types, directories, and file names and their extensions. Monospace text also indicates text that you must enter from the keyboard.
	
	Examples:
	
	`#include <iostream.h> void main ( ) the pointer psz`
	
	`chmod u+w *`
	
	`\tux\data\ap`
	
	`.doc`
	
	`tux.doc`
	
	`BITMAP`
	
	`float`

`monospace boldface text`	Identifies significant words in code. *Example*: `void` **`commit`** `( )`
`monospace italic text`	Identifies variables in code. *Example*: `String` *`expr`*
UPPERCASE TEXT	Indicates device names, environment variables, and logical operators. *Example*s: LPT1 SIGNON OR
{ }	Indicates a set of choices in a syntax line. The braces themselves should never be typed.

[ ]	Indicates optional items in a syntax line. The brackets themselves should never be typed.
	
	Example:
	
	`buildobjclient [-v] [-o name ] [-f file-list]...`
	`[-l file-list]...`

Convention	Item
|	Separates mutually exclusive choices in a syntax line. The symbol itself should never be typed.

...	Indicates one of the following in a command line:
	■ That an argument can be repeated several times in a command line
	■ That the statement omits additional optional arguments
	■ That you can enter additional parameters, values, or other information
	The ellipsis itself should never be typed.
	Example:
	`buildobjclient [-v] [-o name ] [-f file-list]...`
	`[-l file-list]...`

. . .	Indicates the omission of items from a code example or from a syntax line. The vertical ellipsis itself should never be typed.

Related Documentation

The following sections list the documentation provided with the eLink software, and other publications related to its technology.

eLink Business Process Option Documentation

The eLink Business Process Option information set consists of the following documents:

BEA eLink Business Process Option User's Guide

BEA eLink Business Process Option Release Notes

BEA eLink Business Process Option Server Installation Guide

BEA eLink Business Process Option Client Installation Guide

BEA eLink Business Process Option Operation and Maintenance Guide

BEA eLink Business Process Option Configuration Guide

Note: The BEA eLink Business Process Option CD set also includes Adobe Acrobat PDF files of all of the online documents. You can use the Adobe Acrobat Reader to print all or a portion of each document.

BEA TUXEDO and eLink Platform Publications

The following BEA publications describe the eLink Platform technology in depth:

TUXEDO System 6 Administration Guide

TUXEDO System 6 Administration Guide to the Web-Based GUI

TUXEDO System 6 Reference Manual

BEA eLink Platform Release and Installation Notes

Configuration Expert Documentation

The BEA eLink Platform 1.2 release provides the following documentation for Configuration Expert utility:

BEA Builder Configuration Expert Online Help

This is an online manual in PDF format, which you can access using the standard Adobe Acrobat Reader. This manual provides additional details and instructions for using Configuration Expert to create and generate the application configuration files for BEA eLink Platform 1.2.

Other Publications

For more information about TUXEDO and eLink Platform technology, refer to the following books:

3-Tier Client/Server at Work (Edwards)

The TUXEDO System (Andrade, Carges, Dywer, Felts)

The BEA eLink Business Process Option incorporates third-party process engine technology. The relevant documentation is directly incorporated within the eLink Business Process Option documentation set. The BEA eLink Business Process Engine CD contains the third-party documentation as an additional reference. Please note that neither the third-party documentation nor the usage it describes are directly supported by BEA Systems, Inc.

Customer Support

If you have any questions about this version of the BEA eLink Business Process Option, or if you have problems installing and running the BEA eLink Business Process Option, contact BEA Customer Support through BEA WebSupport at `www.beasys.com`. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

■ Your name, e-mail address, phone number, and fax number

■ Your company name and company address

■ Your machine type and authorization codes

■ The name and version of the product you are using

■ A description of the problem and the content of pertinent error messages

1 Business Process Option Architectural Overview

This section provides a brief description and graphical overview of the basic Business Process Option components you will be configuring. Topics include:

- Overview

- Business Process Engine Components

- Business Process Option Components

- eLink Platform and Foundation Servers

- Server Groups and Services

Overview

The primary Business Process Option components can be categorized as follows:

Note: The term *Business Process Option* is used in two different contexts — one general and one specific — in this manual. The general term refers to the product as a whole, which includes the entire set of Business Process Engine components and non-Business Process Engine components, such as the Business Process Option Servers. The specific term refers to the subset of non-Business Process Engine components, which are the Business Process Option Servers and Business Process Option Contract Repository.

■ **Business Process Engine Components**

   ● Business Process Engine Client Components:

      ■ Process Design Assistant (PDA)
           Business Interface Window
           Process Design Window

      ■ Business Process Repository

   ● Business Process Engine Servers:

      ■ `IcWorker` (`IcGen` services)

      ■ `IcWorker` (`IcJob` services)

      ■ `IcEvtAct`

      ■ `IcCliMgr` (Client Manager) Server

■ **Business Process Option Components**

   ● Business Process Option Servers

      ■ `eProcRunner`

      ■ `eProcStarter`

      ■ `eTaskAgent`

   ● Business Process Option Contract Repository

- **eLink Platform/TUXEDO Servers**
  - WSL
  - eLinkJSL
  - IREPSVR

Figure 1-1 provides a graphical overview of the Business Process Option components.

Figure 1-1   Business Process Option Architectural Overview
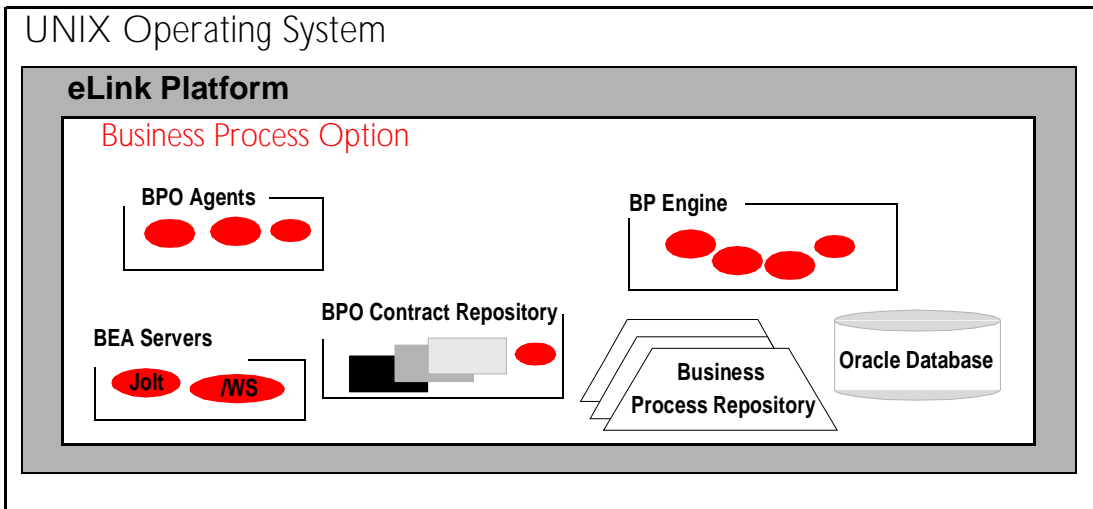
The sections below provide descriptions of primary Business Process Engine and Business Process Option components.

Business Process Engine Components

The Business Process Engine does the following:

■ Provides workflow storage and management facilities

■ Maintains object and state information in the database

■ Provides decision-making services for controlling process flows (task sequencing)

The Business Process Engine consists of four eLink Platform servers, a number of applications, a database, and a repository of documents. Important runtime configuration information is stored in the *<$IC_HOME>*/config directory. Additional platform configuration information is stored in the platform environment file (by default eLink_BPO.env). The Business Process Engine eLink Platform servers are located in the directory *<$IC_HOME>*/tuxapp.

Business Process Engine Client Components

The Business Process Engine Client components consist of the following:

■ Process Design Assistant (PDA)

　● The Business Interface Window

　● The Process Design Window

■ Business Process Repository Database

　● Oracle Database

　● Oracle Transaction Manager (TMS)

These components are described in the following sections.

Process Design Assistant

The main Business Process Engine Client component is the Process Design Assistant (PDA). This component, in turn, comprises the following subcomponents:

■ **Business Interface Window** — The Business Interface Window of the *Process Design Assistant* is the primary interface to the Business Repository database. The contents of the database are displayed in an object tree structure that lists the available modules, the interfaces contained in each module, and so on. You can use the Interface Window to add, modify, or delete the objects in the database. You can also populate the Business Repository database by importing existing Field Manipulation Language (FML) files, or by loading interfaces from text files.

■ **Process Design Window**—You use the Process Design Window to form process flows. You create process flows by using palettes and templates in the Design Pad (subwindow). The process flows you create are displayed as flow diagrams in the Design Pad. The process boxes in the diagrams represent tasks, and the arrows in the diagrams represent dependencies between tasks.

Figure 1-2 illustrates the structure of the Process Design Assistant.

Figure 1-2   Business Process Engine Client Components
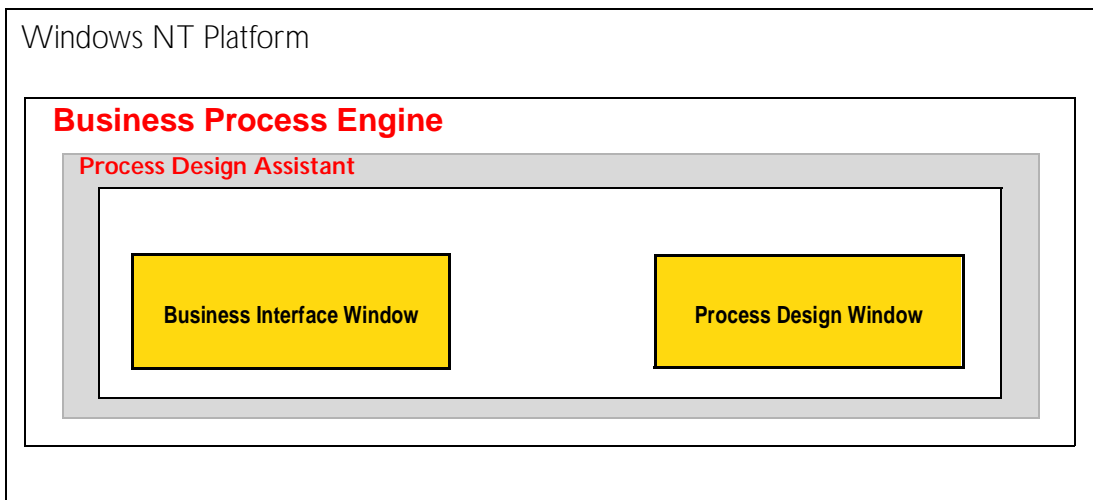
Document Repository

Process flows may have external documents "attached" to them. The Document Repository is where information regarding these attachments is maintained. The data is stored in a directory or set of directories and maintained by the Business Process Engine by way of the IcRepDaemon Server and other Engine applications.

Oracle Database

The Business Process Engine Business Repository requires the presence of the Oracle database. The Business Repository uses the database to store process-related information.

Note: As part of the eLink Business Process Option Server installation, you should have already created your Business Process Engine tablespace and user. If you have not, please refer to the *BEA eLink Business Process Option Server Installation Guide*. Data should only be accessed via the tools provided, never directly.

Oracle Transaction Manager (TMS)

The Oracle transaction manager, or TMS, is included with the Business Process Engine installation, and is located in the directory *<$IC_HOME>*/tuxapp. The executable is IcTMS.

Business Process Engine Servers

The Business Process Engine Servers are as follows:

- IcWorker — IcGen_eLink services

- IcWorker — IcJob_eLink services

- IcEvtAct — Event/Action Daemon Server

- IcCliMgr — Business Process Engine Client Manager

The Business Process Engine Servers are located in the directory $IC_HOME/tuxapp. A descriptions of the servers are provided in the following sections.

IcWorker Servers

The Business Process Option `IcWorker` Servers provide two kinds of services for balancing the system processing load created by client calls to the API:

■ `IcGen` service — The `IcGen` service is intended for processing API calls that require relatively little time and system resources.

■ `IcJob` service — The `IcJob` service is intended for processing API calls that consume more time and system resources.

There are two `IcWorker` Servers, one for each service. Routing Business Process Option API calls to the appropriate service enables calls to be processed in a timely fashion. The corresponding `IcWorker` server then handles the request and returns data to the client as appropriate.

IcEvtAct (Event/Action Daemon) Server

`IcEvtAct` is the Business Process Engine Event/Action Daemon Server. This server handles processing of Business Process Option events (which are distinct from ATMI events). In general, it is not necessary to modify or configure this server.

IcCliMgr (Client Manager) Server

`IcCliMgr` is the Business Process Engine Client Manager Server. The Client Manager handles starting and restarting of long-running daemons. One of these is the `IcEvtSched` daemon which drives the `IcEvtAct` server. As part of the installation, the Business Process Engine Document Repository server is put under Client Manager control. The configuration information for the `IcCliMgr` server is maintained in *<$IC_HOME>*`/config/IcCliMgr.cfg`.

Business Process Option Components

This section describes the basic Business Process Option (non-Engine) components. These are:

- Business Process Option Servers:

- Business Process Option Contract Repository

- ATMI and Business Process Databases

The components are described in the following sections.

Business Process Option Servers

The Business Process Option Servers start processes, execute tasks, and pass information to the processes and tasks via calls to eLink Platform services. They provide access by other applications to the Business Process Engine via the eLink Platform.

The Business Process Option Servers are as follows:

- `eProcRunner`

- `eProcStarter`

- `eTaskAgent`

The servers are located in the directory `<$TUXDIR>/bin`. The following sections describe each of the servers.

eProcRunner

The `eProcRunner` is the Business Process Option Server that starts a Business Process Engine job or process, and waits for the process to complete before returning. The `eProcRunner` will pass data to a process when it starts the process, and return data based upon the outcome of the process.

eProcStarter

The `eProcStarter` is the Business Process Option Server that starts a Business Process Engine job (request) or process, and returns as soon as the process has started. The `eProcStarter` will pass data to a process when it starts the process, but will return to the calling client as soon as the process has been successfully activated.

eTaskAgent

The `eTaskAgent` is the Business Process Option Server that processes Business Process Engine tasks. The `eTaskAgent` obtains tasks ready for processing and calls an eLink Platform service. The service name called is the same as the task name. The `eTaskAgent` passes data to the service as specified by the task attributes, which are defined by parameter expressions. The data received from the service call is then made available to the process, again as stated in the parameter expressions.

eLink Platform and Foundation Servers

The eLink Platform and Foundation Servers provide access for clients to eLink Platform services. A client can be any other eLink Platform application. Clients can request the services of the eLink Platform itself, or the services of any other application server managed by the eLink Platform. These servers are provided as part of your eLink Platform and Foundation installation. The eLink Platform Servers are as follows:

- `WSL`
- `eLinkJSL`
- `IREPSVR`

The eLink Platform Servers are located in the directory `<$TUXDIR>/bin`. The following sections describe each of these servers. For more detailed information, refer to your TUXEDO, eLink Platform, and Foundation documentation.

WSL Server

The `WSL` is the eLink Platform Workstation Listener, and is provided as part of your eLink Platform installation. The `WSL` provides access for clients, known as Workstation Clients, to the services of other eLink Platform application servers. Essentially, `WSL` handles all communication between Workstation Clients and the eLink Platform application servers. In the context of the Business Process Option, `WSL` provides these services for the Business Process Engine Process Design Assistant and various of the Business Process Engine applications.

eLinkJSL Server

The `eLinkJSL` is the eLink Platform JOLT Listener, and is provided as part of your eLink Platform installation. The `eLinkJSL` provides access for clients to the services of other eLink Platform application servers. Essentially, `eLinkJSL` handles all communication between Jolt Clients and the eLink Platform application servers. In the context of the Business Process Option application, `eLinkJSL` provides these services primarily for the Business Process Engine Process Design Assistant.

IREPSVR Server

This is the Business Repository Server. This is provided as part of your eLink Platform/Business Process Option installation. `IREPSVR` provides services for accessing and maintaining the Business Repository. In the context of the Business Process Option application, `IREPSVR` provides these services primarily for the Business Process Engine Process Design Assistant.

Server Groups and Services

The base eLink Platform configuration consists of two server groups: one is the *Transactional Group*, and the other the *Non-transactional Group*. Non-transactional servers do not support the ability to participate in transactions, while transactional servers do provide this function, and are managed by the Oracle XA. A *transaction* is one or more actions, steps, tasks, or other procedures that must occur as an atomic unit. If one step of a transaction fails, all other tasks must be undone (if already completed), such that there is no trace of the tasks ever having occurred. This is referred to as a

rollback. If all tasks for a transaction have been completed successfully, the transaction is *committed* (finalized) and is considered complete. Non-transactional servers do not support the rollback function, and therefore do not support transactions.

The collection of all Business Process Option eLink Platform Servers, their group association, and services are defined in the following sections.

Non-Transactional Group

Table 1-1 summarizes the servers in the Non-Transactional Group.

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Table 1-1 Business Process Option eLink Platform Servers: Non-Transactional Group

Server	Service	Description
WSL	None.	Standard ATMI Workstation Listener
eLinkJSL	None	Standard ATMI Jolt Listener
IcCliMgr	IcCliMgr	Administrative interface to the Daemon Manager, which manages long-running ATMI client applications
IcCliMgr	IcCmChildError	Error reporting interface to the Daemon Manager, which manages long-running ATMI client applications
IREPSVR	hidden system	Contract Repository Server

Oracle Transactional Group

Table 1-2 summarizes the servers in Oracle Transactional Group. This group contains the Business Process Engine transactional servers. These servers are grouped together to enable them to be managed simultaneously through the eLink Platform administration tools `tmstart` and `tmadmin`.

Table 1-2 Business Process Option eLink Platform Servers: Oracle Transactional Group 1

Server	Service	Description
IcEvtAct	IcEA_eLink	Event/Action Daemon processing service
IcWorker	IcGen_eLink	IcGen Worker service
IcWorker	IcJob_eLink	IcJob Worker service
eProcStarter	User defined	Return from service call after creating an active job (job runs asynchronously)
eProcRunner	User defined	Return from service call after job completes
eTaskAgent	IcTaskAgentLoop	Task processing daemon service

2 Business Process Option Configuration Overview

This section provides an overview of the Business Process Option configuration process. Topics include:

- Overview

- Business Process Option Configuration Files

- eLink Platform Configuration Utilities

Overview

Your Business Process Option installation documentation provides instructions for installing the product and testing the Business Process Engine installation. This manual provides instructions for configuring and finetuning your installation for a production environment. This primarily involves creating and/or modifying a set of Business Process Option and eLink Platform configuration files. The following section provides an overview of these files and their context within the configuration.

Business Process Option Configuration Files

To configure your installation for a production environment, you must modify and/or create a number of configuration files. These files are categorized as follows:

- **Server platform (UNIX operating system) environment:**

  - `env.sh` file — Defines and sets environment variables to configure your UNIX shell environment for the Business Process Option Servers running under eLink Platform.

- **Business Process Engine:**

  - `eLink_BPO.env` — Defines and sets environment variables specific to the Business Process Engine.

  - `IcCliMgr.cfg` — This is the Business Process Engine Client Manager configuration file.

  - `IcRepDaemon.config` — This is the Business Process Engine Repository Daemon configuration file.

- **Business Process Option Server configuration:**

  - `eLink_BPO.cfg` — This file contains various parameters for defining and configuring the Business Process Option Servers. Parameters in this file control the interactions between the Business Process Option Servers and the Business Process Engine.

- **eLink Platform configuration:**

  - `<application_name>.ubb` — This is the TUXEDO/eLink Platform configuration file (UBB file). This is the UBB file specific to the Business Process option, and configures the eLink Platform for running the application. You can create and generate this file by using the eLink Platform Configuration Expert utility.

Figure 2-1 illustrates the context of the Business Process Option configuration files.
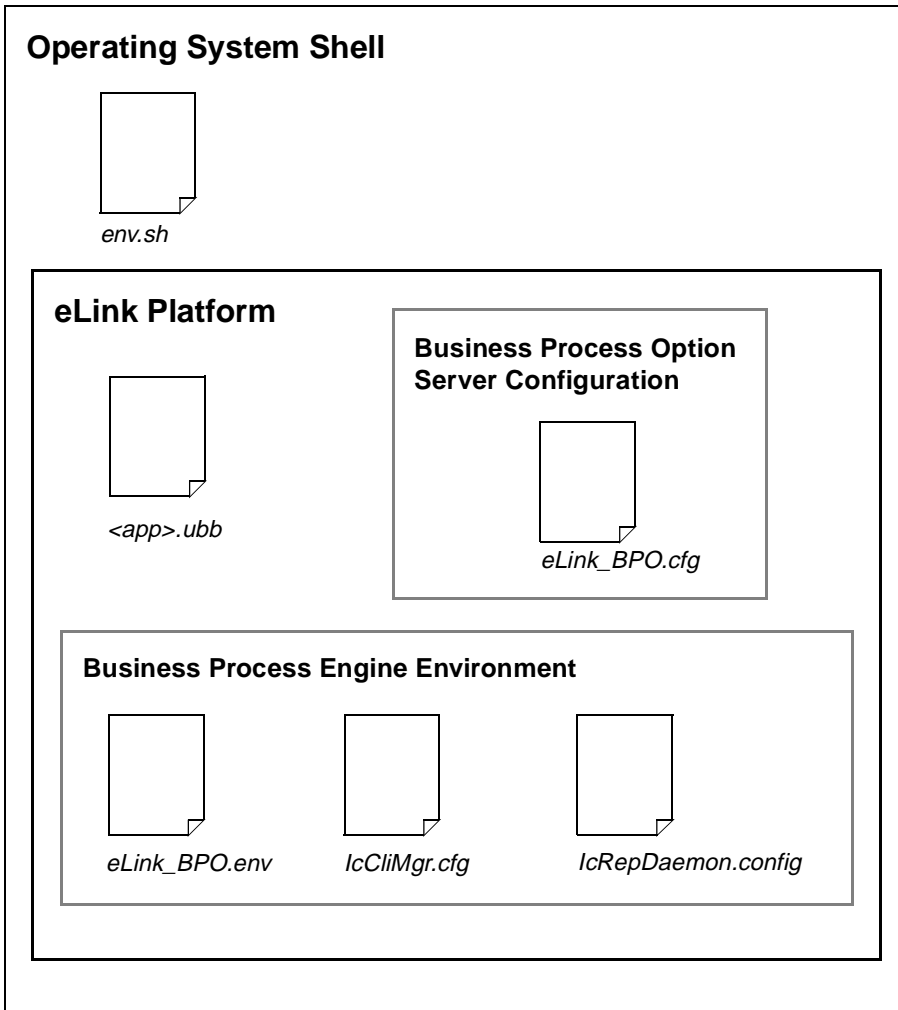
To modify your configuration, you must manually modify the appropriate configuration files. However, to create, generate, and/or modify the eLink Platform UBB (and related) configuration files, you can use the eLink Platform Configuration Expert and Data Editor utilities. These utilities provide a series of screens for entering

your configuration information. You can then use the Configuration Expert Generate Files feature to generate the required TUXEDO/eLink Platform UBB configuration files.

The following section provides a description of the Configuration Expert and Data Editor utilities.

eLink Platform Configuration Utilities

BEA eLink Platform provides two utilities to assist you in configuring the eLink Platform for eLink applications. These are:

■ **Configuration Expert** — This utility automates the process of creating and modifying eLink Platform application configuration files. The Configuration Expert presents a series of screen forms for entering your configuration information. After you have completed the forms, you can use Configuration Expert to generate the required files and place them in the appropriate locations.

  You can also use Configuration Expert to run a system startup test, to ensure that your configuration is correct and functional. During startup, Configuration Expert displays a series of status messages that indicate whether the startup is successful. The status messages may also provide some debugging information for determining the source of any problem.

■ **Configuration Data Editor** — This utility enables you to quickly create and/or modify the Data Configuration file for your Business Process Option Server machine. The Configuration Expert uses this file to create the configuration setup file for generating the BEA eLink Platform configuration files.

Chapter 6, "Creating the eLink Platform Configuration Files," provides detailed instructions for using these utilities to configure the eLink Platform specifically for the Business Process Engine. Appendix B, "Configuration Expert Quick Reference Guide," provides general instructions for starting up and using these utilities.

Note: For additional information on using the Configuration Expert and Configuration Data Editor, refer to the online document *BEA Builder Configuration Expert Online Help* provided in PDF (Acrobat Reader) format with the BEA eLink Platform 1.2 release.

3 Configuring the Server Platform Environment

This section provides instructions for configuring your UNIX shell environment for the Business Process Option Servers running under BEA eLink Platform. This entails editing the variable assignments in the Business Process Option UNIX environment script `env.sh`. This section describes the `env.sh` script in detail and provides instructions for modifying its contents to suit your particular configuration. Topics include:

- The env.sh File

- The env.sh Environment Variables

- Modifying the env.sh File

The env.sh File

In order to function properly, the various Business Process Option components require certain information concerning the operating system environment in which the servers reside. When you installed the Business Process Engine, a script was created that sets the environment variables required for operation of that component. This script file is `env.sh` and is located in the directory `$IC_HOME/config`. As part of the Business Process Option Server installation, this file was additionally enhanced to include environment variables required for the eLink Platform. The updated `env.sh` is placed in the directory `<$TUXDIR>/eLink/BusProc`.

> **Note:** If you modify the configuration for your Business Process Option system or the supporting software (for example, the Oracle database), you must also update the env.sh file to reflect those changes.

A sample env.sh file is provided in Appendix C, "Sample Configuration Files."

The env.sh Environment Variables

The following table describes each of the variables contained in the env.sh file.

Note: You must manually add or edit the following variables and their assignments in the env.sh file:

- TUXCONFIG

- FIELDTBLS32

- FLDTBLDIR32

Warning: The TUXCONFIG environment variable is not provided as part of the installation, because the TUXCONFIG file location is not known or required as part of the installation process. This environment variable *must* be set, however, for the eLink Platform to compile the UBB configuration file and boot the eLink Business Process Option application. The values of the two FML environment variables FIELDTBL32 and FLDTBLDIR32 contain only the data necessary for the Business Process Option Servers to run. They *must* be updated for any other FML definitions that you will use.

env.sh Variable	Description
IC_HOME	This is the eLink Business Process Engine home directory.
IC_CLIENT	This is the eLink Business Process Engine client login string. This string specifies the eLink Business Process Engine user, server, and optionally the user's password, in the format *<username>[/<password>]@<servername>*. IcTuxInstall generates the IC_CLIENT string icdba@*<servername>*; icdba is the default user ID for the eLink Business Process Engine administrative user, and *<servername>* is replaced by your specification for the variable IC_SERVER_NAME. For security reasons, the administrator password is not specified in the generated IC_CLIENT string.
TUXDIR	This is the eLink Platform home directory.

env.sh Variable	Description
TUXCONFIG	This is the explicit location of the binary configuration file for the eLink Platform.
	Note: This environment variable is not provided as part of the installation, because the TUXCONFIG file location is not known or required as part of the installation process. This environment variable *must* be set, however, for the eLink Platform to compile the UBB configuration file and boot the eLink application.

PATH	Contains a list of the directories to be searched to locate executables. The following directories are appended to the setting for this variable:
	`$IC_HOME/bin`
	`$TUXDIR/bin`
	`$ORACLE_HOME/bin`

LANG	This is the NLS language. If it has not already been set, it will be set to C.

NLSPATH	This specifies the directories to be searched for locating message catalogs. The following directory specifications are appended to the setting for this variable:
	`$IC_HOME/data/%L/messages/%N`
	`$IC_HOME/data/messages/%N`
	`$IC_HOME/data/C/messages/%N`

LD_LIBRARY_PATH	**Solaris only**. This is the search path for shared libraries. The following directory specifications are appended to the setting for this variable: `$IC_HOME/lib` − Path for the Business Process Engine shared libraries `$TUXDIR/lib` − Directories in which the platform shared libraries reside `$ORACLE_HOME/lib` − Path for the database shared libraries
SHLIB_PATH	**HP-UX only**. This is the search path for shared libraries. The following directory specifications are appended to the setting for this variable: `$IC_HOME/lib` − Path for the Business Process Engine shared libraries `$TUXDIR/lib` − Directories in which the platform shared libraries reside `$ORACLE_HOME/lib` − Path for the database shared libraries.
ORACLE_HOME	This is the Oracle home directory.
TWO_TASK	Identifies the Oracle instance for SQL*Net. If you have chosen to bypass SQL*Net, TWO_TASK is replaced by ORACLE_SID.

env.sh Variable	Description
FIELDTBLS32	Contains the list of table files required by FML data-dependent routing.
	Note: This variable is provided with only the settings required by the Business Process Option. You must update these to include any other FML definitions that you will be using.
FLDTBLDIR32	This contains the list of table files required by FML.
	Note: This variable is provided with only the settings required by the Business Process Option. You must update these to include any other FML definitions that you will be using.
WSNADDR	Identifies the host machine and port number used by the eLink Platform Workstation Listener (WSL).

Modifying the env.sh File

To alter the env.sh environment variable settings after the installation, do the following:

1. Shut down the Business Process Option system.

2. Edit the env.sh script file, using any plain text editor such as UNIX vi or emacs.

3. Save the newly modified env.sh file.

4. Execute the env.sh script at the UNIX shell prompt, as follows:

   ```
   . ./env.sh
   ```

   You can also add this command to the icadmin .profile file, and then source the .profile file. The .profile file is also sourced upon login.

5. Restart the eLink Business Process Option system.

4 Configuring the Business Process Engine

This section provides instructions for configuring your eLink Platform environment for the Business Process Engine Client and Business Process Engine Server. This process entails editing the variable assignments in the Business Process Engine environment script `eLink_BPO.env`. This section describes this script in detail and provides instructions for modifying its contents to suit your particular configuration. Topics include:

- Overview

- The eLink_BPO.env File

- Configuring the Process Design Assistant (PDA)

- Configuring the Business Repository Server

- Configuring the Client Manager

Overview

In order for the Business Process Engine to function properly within the eLink Platform environment, certain application-specific environment variables must be defined and set. When you installed the Business Process Engine, a script file was created which defines and sets these environment variables. This file is eLink_BPO.env, and resides in the directory *<$TUXDIR>*/eLink/BusProc. However, you may have to modify some of the variable assignments in this file. The following section, "The eLink_BPO.env File," describes the contents of this file and how to modify it to suit your particular configuration. A sample of this file is provided in Appendix C, "Sample Configuration Files."

In addition to modifying the eLink_BPO.env file, you may have to perform some additional coniguration procedures to finetune your installation. These procedures are described in the following sections:

■ Configuring the Process Design Assistant (PDA)

■ Configuring the Business Repository Server

■ Configuring the Client Manager

The next section describes the eLink_BPO.env file.

The eLink_BPO.env File

The configuration file eLink_BPO.env contains runtime configuration parameters used internally by the eLink Business Process Engine server processes. The eLink_BPO.env file is located in the directory *<$TUXDIR>*/eLink/BusProc. This file is used as the default Business Process Engine environment file, and is specified by the ENVFILE parameter setting in the UBB configuration file for your eLink Platform. To use a different file, you must specify the new file name in the ENVFILE parameter setting in the UBB file.

Most of the parameter assignments in the eLink_BPO.env file should not be changed. Table 4-1 indicates which settings should not be changed. It is recommended that you make a working copy of the file in the location specified by the APPDIR setting in the UBB configuration file. If you do modify this file, you must update the FIELDTBLS32 and FLDTBLDIR32 variables in any FML field table files required by other servers running as part of the eLink Platform application.

If you are using an ENVFILE that already exists, you must add the Business Process Engine variables (see all variables with the IC_ prefix in Table 4-1) to this file. You must also add the required FML Field Table files and directories specified in the FIELDTBLS32 and FLDTBLDIR32 variable assignments in the eLink_BPO.env file to those listed in the existing ENVFILE.

Table 4-1 provides a description of the eLink_BPO.env file parameters, and indicates which of these should not be modified.

Table 4-1 eLink_BPO.env File Environment Variables

Variable	Description
IC_SERVER_NAME	This is the name of this eLink Business Process Engine server.
IC_HOST_MACHINE	This is the master host machine for this server.
IC_STATUS_LOG	This is the filename for the eLink Business Process Engine status log. By default, this is $IC_HOME/logs/status.log.
IC_AUDIT_MODE	This is the type of audit logging used by this eLink Business Process Engine server. The audit log tracks most user actions, such as acquiring or completing a task. The possible values for this parameter: IC_EVENT_AUDIT_DATABASE — Specifies that audit records should be written only to the database. This is the default. IC_EVENT_AUDIT_DATABASE_AND_FILE — Specifies that audit records should be written to both the database audit log and the file specified by IC_AUDIT_LOG. Although this option slightly decreases the performance of eLink Business Process Engine, it provides an easily accessible form of the audit log while still maintaining database-enforced integrity.

Table 4-1 eLink_BPO.env File Environment Variables

Variable	Description
IC_AUDIT_LOG	This is the name of the audit log file. Use this only if IC_AUDIT_MODE is set to IC_EVENT_AUDIT_DATABASE_AND_FILE. If it is set to IC_EVENT_AUDIT_DATABASE, you should set IC_AUDIT_LOG to NOT_USED (the default).
IC_RDBMS	Identifies the database system. This must always be ORACLE.
IC_EVENT_POLL_INTERVAL	This is the polling interval, in seconds, for temporal events (for example, overdue tasks). The default of 3600 (one hour) is sufficient for most installations. Because the operations controlled by this parameter perform full-table scans of large tables, decreasing this value is likely to significantly degrade overall performance.
IC_ACTION_POLL_INTERVAL	This is the polling interval, in seconds, for general event processing. This parameter determines how frequently events are processed by the Event-Action Daemon. The default value is 60; you should decrease this value if your system makes extensive use of eLink Business Process Engine actions.

Configuring the Process Design Assistant (PDA)

To configure the Process Design Assistant, you must define the following parameters in the Process Design Assistant Logon window. You can access this window in the PDA by selecting Settings->Logon.

- User name

- User password

- Port number on which the eLinkJSL is listening

- Port number on which the WSL is listening

Warning: **Do not transpose the WSL port number and the eLinkJSL port number.** There is a known problem that will cause the system to become unstable should the two ports be swapped for one another. Be very careful when specifying the port numbers.

- Application password (optional)

  Note: Required only if you are using an Authentication Server.

- Business Process Engine service name suffix

  Note: The default installation specifies `eLink` as the suffix. If you specify a different suffix during the Business Process Engine installation, then you must update the appropriate lines in the `IcTuxConfig` file to reflect the proper suffix. The lines to be updated are as follows:

  ```
  IcGen_eLink
  IcEA_eLink
  IcJob_eLink
  ```

  You must update `IcTuxConfig` files on both the clients and server to reflect this change. These files are in the following locations:

  Client: `<PDA_Base_Install_Dir>`/Txm/config
  Server: `<$IC_HOME>`/config

  In addition, you must change the `eLink` argument for the **-s** option in the `Command Line Options` specification for the following servers:

  ```
  IcEvt
  IcWorker (IcGen)
  IcWorker (IcJob)
  ```

Configuring the Business Repository Server

The configuration file `IcRepDaemon.config` located in the directory
`<$IC_HOME>`/config contains the information relating to logging levels, access, and
repository location. To finetune your configuration, you must modify this file
accordingly. The file itself contains instructional comments concerning its contents
and how to modify the parameter settings; please refer directly to the file for this
information. A listing of this file is provided in Appendix C, "Sample Configuration
Files."

Modifying the Business Repository Server Port Number

The default port on which the Business Process Engine Repository server listens is
9001. This information is stored in the database. If you must modify the port number
after you have installed the Business Process Engine, you must update the database
using the following command:

```
update REPOSITORIES set LOCATION = '<host>:<port>'
```

where `<host>` is the hostname of the computer running the Business Process Engine
and `<port>` is the new port number.

Setting the Time Zone Environment Variable

Ensure that the system-specific time zone environment variable is correctly set before
running the Repository Daemon. In the US, the settings are `PST8PDT`, `MST7MDT`,
`CST6CDT`, and `EST5EDT`. If you do not set the time zone, the default is system-specific.

Warning: The time setting on the client machine(s) must be within 10 minutes of the
setting on the server machine — including the time zone differential on
the client machine. If this is not the case, the client cannot connect to the
server. If this occurs, you can correct it by modifying the time of the client
machine to match that of the Repository Daemon host.

The Repository Daemon uses the high-order bits of the current time as part of the encryption key for tokens. Therefore, the time setting for the client machine(s) must be within 10 minutes of the setting on the server machine — including the client's time zone differential. If this is not the case, the Business Repository Server returns an `Invalid/Expired Keys` error and the Process Design Interface fails to start. This can be a particular problem when communicating across time zones, because the time differential will exceed the acceptable range of 10 minutes, and the client will not be able to connect.

For example, a client running the Process Design Assistant in the Eastern Time Zone could have a local time of 13:05:15 EST,while the server residing in the Pacific Time Zone could have a time of 10:05:15 PST. Under these conditions, the Business Repository Server would run successfully. If both times were set to 10:05:15 and the time zones remained the same, the Business Repository Server would return an `Invalid/Expired Keys` error and the Process Design Interface would fail to start. If this occurs, you can correct it by modifying the time of the client workstation to match that of the Repository Daemon host.

Configuring the Client Manager

The Business Process Engine Client Manager (`IcCliMgr`) is responsible for starting and restarting long-running daemons that are ATMI clients. One such daemon is `IcEvtSched`, which drives the `IcEvtAct` server. As part of the installation, the Business Repository Server is placed under the control of the Client Manager.

The configuration information for the `IcCliMgr` server is maintained in the configuration file `<$IC_HOME>/config/IcCliMgr.cfg`. A listing of this file is included in Appendix C, "Sample Configuration Files."

5 Configuring the Business Process Option Servers

This section provides instructions for configuring the Business Process Option Servers. This entails editing the variable assignments in the Business Process Option configuration file `eLink_BPO.cfg`. This section describes this file in detail and provides instructions for modifying its contents to suit your particular configuration. Topics include:

- Overview

- The eLink_BPO.cfg File

- SERVER Sections

- eLink_BPO.cfg Configuration Parameters

Overview

The Business Process Option Servers — also sometimes referred to as the Business Process Option eLink Platform application servers — are responsible for executing and controlling the eLink Platform ATMI services. ATMI services send input and output data to the applications that are connected and controlled by the eLink Platform.

The Business Process Option Server uses the following eLink Agent Server programs to execute and control ATMI services:

- `eProcStarter`

- `eProcRunner`

- `eTaskAgent`.

Essentially, when you configure the Business Process Option Server, you are in effect configuring these eLink Platform Agent Servers. Therefore, the set of these eLink Agent Server programs, along with the Business Process Server itself, are collectively referred to as the Business Process Option Servers. To configure the servers, you must modify the contents of the configuration file `eLink_BPO.cfg`. The following sections provide a detailed description of this file, and instructions for modifying it to suit your configuration.

The eLink_BPO.cfg File

The Business Process Option Servers are configured and administered through the mechanisms of the following configuration files:

- `eLink_BPO.cfg` — This is the default Business Process Option configuration file. During initialization, each server reads the configuration file specified in the `CLOPT` (Command Line Options) line in the `UBB` configuration file. (Refer to Chapter 6, "Creating the eLink Platform Configuration Files," for instructions on specifying configuration files.) If no file is specified, the server will fail to boot.

- The eLink Platform UBB configuration file — This is the primary TUXEDO/eLink Platform configuration file. A relationship exists between the `eLink_BPO.cfg` file and the UBB configuration file, as illustrated in Figure 5-1. Please refer to your TUXEDO and eLink Platform documentation for a description of and instructions on modifying the UBB configuration file.

The `eLink_BPO.cfg` file is installed in the following location:

    <*$TUXDIR*>/eLink/BusProc/

You should place a working copy of this file in the eLink Platform `APPDIR`.

Note: Any changes to a configuration file section require that the server(s) using that section be shut down and restarted for the changes to take effect. A listing of the default `eLink_BPO.cfg` file is provided in Appendix C.

SERVER Sections

The `eLink_BPO.cfg` file contains at least one *section* for each server, and may contain a separate section for each instance of the servers. The particular section for a server is read when the server is started, as part of the server initialization process.

Sections are demarked by the following headers:

```
[SERVER=<servername>]
```

where `<servername>` is one of `eProcRunner`, `eProcStarter`, or `eTaskAgent`.

By default, the servers search for a `SERVER` section equal to the name of the server executable, minus the path information. You can instruct the server to use a section by another name by using the `-i <section>` option in the `CLOPT` line.

Note: `<section>` must consist only of the section name; do *not* include the entire UBB file section line (for example, use only the `<section>` portion of the line `[SERVER=<section>]`.

Figure 5-1 illustrates the relationship between the server `CLOPT` arguments and the server configuration file, for two instances of the `eProcRunner` server, each using its respective configuration section.

Figure 5-1   Relationship between the UBB and eLink_BPO.cfg Files

eLink_BPO.cfg Configuration Parameters

The relevant section configuration parameters are categorized as follows:

- Business Process Engine Server Login Parameters

- Business Process Option Server Parameters

Business Process Engine Server Login Parameters

The following three parameters are common to each `eLink_BPO.cfg` file section. These specify the login information to be used by the Business Process Option Server for connections to the appropriate Business Process Engine.

- `SERVER` — This is the name of the Business Process Engine Server to which to connect. If you used the default installation, this will be the installation machine name.

- `USER` — This is the Business Process Engine user ID. This must be a user created with the `BpoAddUser` command during the Business Process Option installation procedure.

- `PASSWORD` — This is the password assigned to the Business Process Engine user specified for `USER`, above.

The settings for these parameters are fairly static. These three settings must be present for each server. Specify the Business Process Engine Server machine and login information by replacing the installed defaults with the correct information. These are initially set as follows:

```
SERVER=<systemname>
USER=<icdba>
PASSWORD=<icdba>
```

You *must* modify the assignments for these parameters to the correct settings for your Business Process Engine Server machine; otherwise, attempts by the Business Process Option Server to connect with the Business Process Engine Server will fail.

Business Process Option Server Parameters

The Business Process Option Server parameters are grouped as follows:

- `eProcStarter` parameter:
  - `SERVICE_LIST`

- `eProcRunner` parameters:
  - `SERVICE_LIST`
  - `POLL_INTERVAL`

- `eTaskAgent` parameters:
  - `POLL_INTERVAL`
  - `POLL_COUNT`
  - `COMPLETE_FAILED_TASK`

These are described in the following sections.

eProcStarter Parameters

- `SERVICE_LIST` — This is a comma-separated list of service names to be advertised. Each of the listed service names must have a corresponding template defined. Each of the names in this list must be unique and meet the TUXEDO/eLink Platform service name requirements. Also, because these are advertised services, each name must be unique when compared to the `SERVICE_LIST` for the `eProcRunner` and any other services running in the eLink Platform application.

eProcRunner Parameters

- `SERVICE_LIST` — This is a comma-separated list of service names to be advertised. Each listed service name must have a corresponding template defined. Each name in this list must be unique and meet the TUXEDO/eLink Platform service name requirements. Also, since these are advertised services, each these names must be unique when compared to the `SERVICE_LIST` for the `eProcStarter` and any other services running in the eLink Platform application.

- `POLL_INTERVAL` — The `eProcRunner` server waits for a process to complete before returning to the caller. `POLL_INTERVAL` specifies how often, in tenths of

seconds, the server should sleep between process status queries. Longer times result in less CPU use, but potentially more time between completion of the process and notification to the client. Shorter durations result in more CPU use and possibly earlier notification to the client of process completion.

eTaskAgent Parameters

The following parameters control how often the eTaskAgent looks for ready tasks, the number of ready tasks processed in succession, and what to do should processing for a task fail.

Note: The Business Process Engine controls access to tasks and jobs through user logins. Users must belong to at least one *pool*, which is a group of users. Tasks also must have an assigned pool. Only users in the pool assigned to a particular task may acquire and process the task. The BPO provides the utility BpoAddUser for creating users for the eTaskAgent. BpoAddUser is located in <*$TUXDIR*>/eLink/BusProc. It creates the specified user and places the user in a pool with the same name as the user (after creating the pool). This is important because the eTaskAgent only processes Tasks with a pool name identical to the USER parameter or the "Owner" pool. This allows tasks to be assigned to certain instances of the eTaskAgent.

- POLL_INTERVAL — This specifies the amount of time the server should wait between queries to the Business Process Engine for ready tasks. The time is specified in tenths of seconds. The longer the delay, the less CPU usage consumed by the eTaskAgent when there are no ready tasks; however, it may take proportionately longer for a ready task to be acquired. Conversely, a shorter interval may allow the server to acquire tasks sooner as they become available, but will consume more processing time when no tasks are ready.

- POLL_COUNT — This is the maximum number of ready tasks that should be processed before forcing the daemon to process another ATMI loop. This ensures that the server responds to TUXEDO/eLink Platform commands such as shutdown, etc. If no ready tasks are available, the server will sleep for the POLL_INTERVAL and process another ATMI loop.

- COMPLETE_FAILED_TASK — This specifies that failed tasks should be marked as completed. If this is set to YES, when a service request fails, the eTaskAgent will mark the task as complete and continue, setting error information on the process level attributes. If this is set to NO, then the eTaskAgent will leave the task as acquired and stop any further processing on this path of execution

within the process. Completing failed tasks allows the engine to make decisions regarding error processing, while leaving the task in the acquired state allows for human intervention. The default, should this parameter be unspecified or contain an invalid value, is to complete failed tasks and allow the Business Process Engine to continue processing the job.

6 Creating the eLink Platform Configuration Files

This section provides instructions for creating the eLink Platform configuration files for the Business Process Option application. This includes specific instructions for using the eLink Platform Configuration utilities to generate these files. Topics include:

- Overview

- Step 1: Gather Your Configuration Information

- Step 2: Create a New Data Configuration File

- Step 3: Create a New Configuration Setup File

- Step 4: Configure the Application Properties

- Step 5: Add the Machine to the Configuration Tree

- Step 6: Configure the Machine Properties

- Step 7: Add and Configure the Server Groups

- Step 8: Configure the Servers

- Step 9: Configure the Optional Components

- Step 10: Generate the Configuration Files and Scripts

- Step 11: Testing the Configuration

Overview

BEA eLink Platform provides two utilities to assist you in the configuration process. These are:

- *Configuration Data Editor* — This utility enables you to quickly create and/or modify the Data Configuration file for your Business Process Option Server machine. The Configuration Expert uses this file to create the configuration setup file for generating the BEA eLink Platform configuration files.

- *Configuration Expert* — This utility enables you to create and modify the BEA eLink Platform Business Process Option configuration files without having to manually create and edit these files. You can also use Configuration Expert to perform a test startup of the new configuration.

Appendix B, "Configuration Expert Quick Reference Guide," provides an overview of the main windows and navigation procedures for these utilities.

Note: For more detailed information and instructions on using Configuration Expert, refer to the online document *BEA TUXEDO Builder Configuration Expert* provided in PDF form with the BEA eLink Platform 1.2 release. This document provides instructions for using Configuration Expert to specifically configure the Business Process Option application.

Note: The examples in this section are taken from a UNIX platform installation. If you are running the Configuration Expert under Windows NT, any local paths, such as the output directory, must be specified following the standard DOS convention of `<drive_letter>:\<path>`. Any pathnames you specify for the servers must follow the naming convention of the operating system under which the Business Process Servers are to be running.

The eLink Platform Business Process Option Configuration Files

The Configuration Expert uses the information you specify in the configuration screens to generate the following configuration files:

- `<application_name>.ubb` — This is the eLink Platform UBB file for your new Business Process Option configuration. This file is located in the output directory you specify in the Location field of the Configuration Expert New Configuration screen (see Figure 6-1 in "Step 3: Create a New Configuration Setup File").

- `<application_name>.checklist` — This specifies the tasks to be completed (on each machine) to set up the application.

- `tux_start.sh` — This is the generated startup script for your new eLink Platform and Business Process Option configuration. This file is located in the output directory you specify in the Location field of the Configuration Expert New Configuration screen (see Figure 6-1).

- `tux_stop.sh` — This is the generated shutdown script for your new eLink Platform and Business Process Option configuration. This file is located in the output directory you specify in the Location field of the Configuration Expert New Configuration screen (see Figure 6-1).

- `crtlog.sh` — This is a UNIX script file that creates the device list file for the BEA eLink Platform. This file is located in the output directory you specify in the Location field of the Configuration Expert New Configuration screen (see Figure 6-1).

Overview of Configuration Procedures

The steps involved in creating the BEA eLink Platform configuration files for the Business Process Option are as follows:

Step 1: Gather Your Configuration Information

Step 2: Create a New Data Configuration File

Step 3: Create a New Configuration Setup File

Step 4: Configure the Application Properties

Step 5: Add the Machine to the Configuration Tree

Step 6: Configure the Machine Properties

Step 7: Add and Configure the Server Groups

Step 8: Configure the Servers

Step 9: Configure the Optional Components

Step 10: Generate the Configuration Files and Scripts

Step 11: Testing the Configuration

Detailed instructions for each of these steps are provided in the following sections.

Step 1: Gather Your Configuration Information

Before you begin the configuration process, you can gather the information you will need to complete the configuration. Appendix A, "Configuration Information Checklist," in this manual provides a checklist you can use to complete this step.

Step 2: Create a New Data Configuration File

Before you can create a new configuration, you must create a new Data Configuration file for the server machine(s) you intend to add to the new eLink Platform configuration. This file contains some basic information about the machine(s) and informs the Configuration Expert of the existence of the machine(s).

To create a new Data Configuration file:

1. Start the Configuration Data Editor utility.

   On a UNIX platform:

   Enter the following commands at the operating system prompt:

   ```
   cd <$TUXDIR>/eLink/ConfigExpert/bin
   ./ConfigEditor &
   ```

   On a Windows NT platform:

   Click Start->Programs->BEA eLink->Configuration Expert Setup.

   This displays the Configuration Data Editor startup screen.

   Note: Refer to the section entitled, "Starting the Configuration Data Editor," in Appendix B, "Configuration Expert Quick Reference Guide," for an illustration of the Configuration Data Editor startup screen.

2. Go to the Configuration Data Editor main window.

Choose File->New to display the Configuration Data Editor main window.

Note: Refer to "Starting the Configuration Data Editor," in Appendix B, "Configuration Expert Quick Reference Guide," for an illustration of the Configuration Data Editor main window.

3. Enter your machine information.

Enter the following information in the fields:

- `Name` — This is the name of the machine you are configuring with Configuration Expert. This should be the hostname as it appears on the network. This is an identifier for Configuration Expert only, and should match the name you specify in the `hostname` field.

- `Hostname` — This is the name of the machine on which the Business Process Option Servers will run.

- `Description` — Enter a brief description of the application for which you are configuring this platform (in this case, the Business Process Option).

- `Operating System` — Select the appropriate operating system from the pulldown menu to the right of this field.

- `TUXEDO Directory (TUXDIR)` — Enter the full absolute pathname for the location of your eLink Platform installation.

- `Tuxedo version` — Select Tuxedo 6.5 from the pulldown menu to the right of this field.

4. Add the machine to the Machines list.

After entering all of your machine specification information, click Add. The name of the newly defined machine is added to the Machines list on the left.

Note: Repeat steps 3 and 4 for any other machines that are part of the Business Process Option and eLink Platform installation.

5. Choose File->Save to save your machine specifications.

6. Choose File->Exit to quit the Configuration Data Editor.

Step 3: Create a New Configuration Setup File

After creating a new machine specification with the Data Editor, the next step is to create a new application configuration setup file. This file is not the eLink Platform configuration file you will generate in the final steps of the configuration process. This file simply provides a framework for collecting the information you enter into the Configuration Expert screen forms. When you have completed the configuration and initiate the file generation process, Configuration Expert reads this file and generates the actual eLink Platform configuration files.

To create a new configuration setup file:

1. Start the Configuration Expert utility.

    On a UNIX platform:

    Enter the following commands at the operating system prompt:

    ```
    cd <$TUXDIR>/eLink/ConfigExpert/bin
    ./ConfigExpert &
    ```

    On a Windows NT platform:

    Click Start->Programs->BEA eLink->Configuration Expert.

    This displays the Configuration Expert startup screen.

2. Choose File->New.

    This displays the Create New Configuration window, as illustrated in Figure 6-1.

Figure 6-1   Configuration Expert Create New Configuration Window
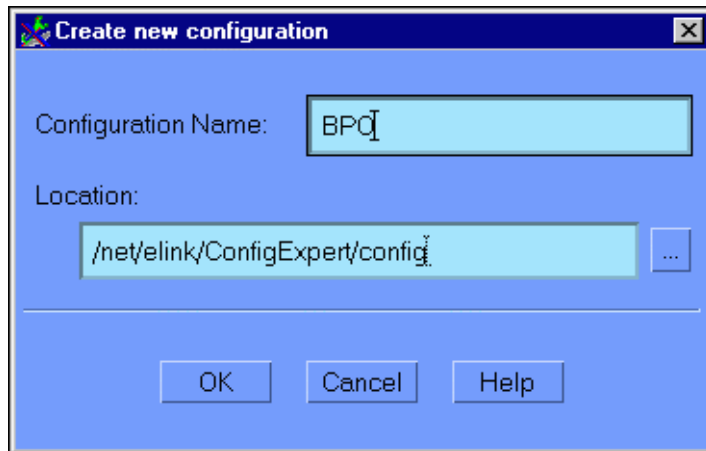
3. Enter the name of your application (in this case, BPO) in the Name field in the Create New Configuration window.

   The Configuration Expert creates a file of this name, with the suffix `.ce`. For example: *BPO.ce.*

4. Enter the location in which you want the new configuration file to reside.

   In the Location field, enter the full absolute pathname for the location in which the new configuration file should be written. Do not include the filename — this specifies the *location* of the file, only. It is recommended that you select the default. To do this, click on the elipsis button (...) to the right of the location field. Select the default. Click OK to submit your selection and go back to the Create New Configuration window.

5. Click OK to submit your specifications and go to the Application Properties (General) window.

   After you click OK to start a new setup file, the Application Properties window displays, with the General tab selected. The next step in creating a new setup file is to configure the Application Properties. The following section provides instructions for this procedure.

Step 4: Configure the Application Properties

The next step is to configure the Application Properties. The Application Properties define such information as the application name, the IPC Key, level of system access, number of services, and location of the server environment files.

To configure the Application Properties:

1. Go to the Application Properties window and select the General tab.

   There are several ways to go to the Application Properties window:

   - If you have just created a new application configuration file using the New Configuration window, click OK in the New Configuration window. This leads directly to the Application Properties window with the General tab selected.

   - From the Configuration Expert main window, select the application in the Current Application panel, then click the Props button to display the Application Properties window with the General tab selected.

   - From the Configuration Expert main window, select the application in the Current Application panel, then choose Edit->Properties to display the Application Properties window with the General tab selected.

   Figure 6-2 illustrates the Application Properties window with the General tab selected.

Figure 6-2   Configuration Expert Application Properties General Window

2. Enter your Application Properties General information.

   The Application Properties (General) window contains the following fields:

   - `Application Name` — This is the eLink Platform application name (in this case, the BEA Business Process Option). This corresponds to the UBB file parameter `DOMAINID`.

   - `IPC Key` — This is the Interprocess Communication Key. This is a unique application identification key that all eLink Platform servers and clients use to identify and communicate with the application. Each eLink Platform application must have a unique IPC Key. The corresponding UBB file parameter is `IPCKEY`. The value must be between 32768 and 262143.

   - `Master Machine` — This is the controlling machine for the eLink Platform application. For single-server configurations, this tab is disabled. (See "Step 6: Configure the Machine Properties.") The corresponding UBB file parameter is `MASTER`.

   - `System Access` — This specifies the access mode to the BEA eLink Platform bulletin board. The corresponding UBB file parameter is `SYSTEM_ACCESS`. Select `FASTPATH` from the drop down menu to the right of this field. The corresponding UBB file parameter is `SYSTEM_ACCESS`.

- `Maximum # of Services` — This is the size of the Services table in the BEA eLink Platform bulletin board, and is the maximum number of services that may be advertised by all servers running in the application. The corresponding UBB file parameter is `MAXSERVICES`. The default is 500; the range is 1 to 32768.

3. Enter your Application Properties Environment information.

   Click on the Environment tab to display the Application Properties (Environment) window, as illustrated in Figure 6-3.

Figure 6-3 Configuration Expert Application Properties Environment Window
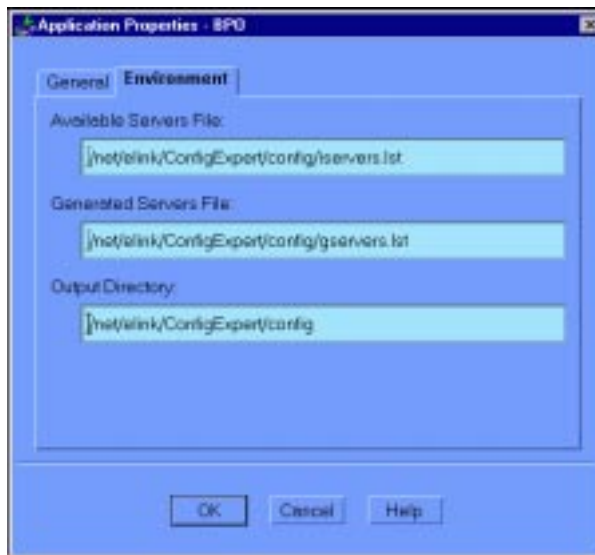
- `Available Servers File` — This is the location in which the `iservers.lst` file resides. This is the list of available servers; this list is updated whenever you use the Create button to add new servers. There is no corresponding UBB file parameter.

- `Generated Servers File` — This is the location in which the `gservers.lst` file resides. By default, this file, which is provided as part of this release, resides in the `<TUXDIR>/eLink/ConfigExpert/Config` directory. Enter the full absolute pathname for this location. There is no corresponding UBB file parameter.

● `Output Directory` — This is the directory to which the Configuration Expert output files should be written. The default is `$TUXDIR/ConfigExpert/config`. There is no corresponding UBB file parameter.

4. Submit your Application Properties information and go to the main window.

Click OK to submit your Application Properties information and go to the Configuration Expert main window, as illustrated in Figure 6-4.

Figure 6-4   Configuration Expert Main Window

5. Save your new configuration setup file.

Although you have created a new configuration setup file, it does not yet exist on disk. Choose File->Save to save the new configuration setup file. Each time you choose File->Save at any step in the configuration process, the current configuration information is written to this file.

To save your new configuration specifications, click Save, or choose File->Save or File->Save As. If you choose File->Save As, this displays the Save Application Configuration window, as illustrated in Figure 6-5.

Figure 6-5   Configuration Expert Save Application Configuration Window

Select the directory to which the configuration should be saved, specify a filename, and click OK.

Step 5: Add the Machine to the Configuration Tree

In "Step 2: Create a New Data Configuration File," you defined your server machine and application, and made their existence known to the Configuration Expert. This added the machine to the Available Machines list, but did not add it to the configuration itself. In this step, you add the Business Process Option Server machine to the new configuration by adding it to the configuration tree (left panel in the main window) and thereby make it available for configuration.

To add a machine to the configuration tree:

1. Go to the Configuration Expert main window.

   After completing "Step 4: Configure the Application Properties," click OK in the Application Properties window to go to the Configuration Expert main window. The main window displays the machine and application information you specified in the previous steps.

2. Select the machine from the Available Machines list.

   The Configuration Expert main window contains two panels:

   - The Available Machines list (on the right hand side)

   - The Current Application configuration tree (on the left hand side)

   Select a machine from the Available Machines list in the left panel.

3. Click Add to display the Machine Properties (General) window.

   Click Add to add the selected machine to the Current Application panel on the left. This action also brings up the Machine Properties (General) window for configuring the properties of the machine you just added. You can proceed to the next step to configure the machine you just added, or click OK in the Machine Properties (General) window to configure the machine at another time. You can then repeat the process for "Step 5: Add the Machine to the Configuration Tree" and continue adding as many machines as you want to configure. Each machine must be configured individually, however. Generally, it is easier to proceed to "Step 6: Configure the Machine Properties" and configure each machine as you add it, before adding another machine. However, this is not mandatory.

Step 6: Configure the Machine Properties

When you clicked Add in "Step 5: Add the Machine to the Configuration Tree," the Machine Properties window automatically displayed, with the General tab already selected. At this point, you can elect to click OK in this window to add the machine to the configuration tree, and then add additional machines before proceding to "Step 6: Configure the Machine Properties." Generally, it is more convenient to configure each machine as you add it, before adding additional machines to the configuration tree. To do so, you must repeat "Step 5: Add the Machine to the Configuration Tree" and "Step 6: Configure the Machine Properties" for each machine you want to add and configure.

Note: You can also go to the Machine Properties (General) window by selecting the machine you want to configure from the configuration tree (left panel of the main window) and then either clicking the Props button or by selecting Edit->Properties. If you elected to add multiple machines in "Step 5: Add the Machine to the Configuration Tree," you will need to use one of these methods to get to the appropriate Machine Properties

To configure the machine properties for the selected machine, click on the tab for each category of properties in the Machine Properties window, and enter your information into the appropriate fields. There are three categories of machine properties:

■ `General` — This contains some information concerning the machine name, application directory, environment setup file, and the prefix to be used in naming ULOG files. This is the first Machine Properties window

■ `Limits` — This specifies the maximum number of Native and WS clients allowed for this machine.

■ `Network` — This defines the listener ports, user ID, and group ID.

To configure the machine properties:

1. Go to the Machine Properties (General) window.

   When you click Add in "Step 5: Add the Machine to the Configuration Tree," the Machine Properties (General) window automatically displays. You can also go to this window by selecting a machine in the configuration tree (left panel), and then either clicking the Props button, or choosing Edit->Properties. Figure 6-6 illustrates the Machine Properties window with the General tab selected.

Figure 6-6   Configuration Expert Machine Properties General Window

2. Enter your general properties information for the selected machine.

   The Machine Properties (General) window contains the following fields:

   - `Logical Machine ID` — This is the name of the machine you specified using the Data Editor in "Step 2: Create a New Data Configuration File," above. The corresponding UBB file parameter is `LMID`.

   - `Application Directory` — This is the directory to be used as the application working directory by the eLink Platform. Enter the full absolute pathname for the location in which the application servers are located. The corresponding UBB file parameter is `APPDIR`.

   - `Environment File` — This is the environment file containing the environment variable assignments for all BEA eLink Platform applications on this machine. Enter the full absolute pathname and filename for the `eLink_BPO.env` file.There is no default for this field. The corresponding UBB file parameter is `ENVFILE`.

   - `ULOG File Prefix` — This is the location and filename for the user log file generated by the eLink Platform. This file is typically referred to as the `ULOG` file. The final portion of this entry should be a filename, typically

ULOG. The eLink Platform will append the suffix `.<current_date>` to the filename. If you do not specify a pathname, the file is placed in the directory `<APPDIR>`. The corresponding UBB file parameter is ULOGPFX.

3. Enter your Machine Properties Limits information.

   Click on the Limits tab to display the Machine Properties (Limits) window, as illustrated in Figure 6-7.

Figure 6-7   Configuration Expert Machine Properties Limits Window
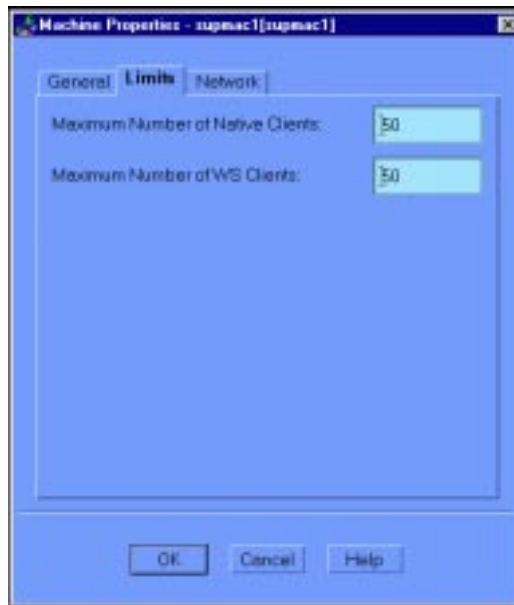
This window contains the following fields:

- `Maximum Number of Native Clients` — This is the maximum number of Native Clients that you can assign to this machine. The range is 1 to 32767. You can accept the default, which is 50. The corresponding UBB file parameter is MAXACCESSERS.

- `Maximum Number of WS Clients` — This is the maximum number of Workstation clients you can assign to this machine. The range is 0 to 32767. You can accept the default, which is 50. The corresponding UBB file parameter is MAXWSCLIENTS.

4. Enter your Machine Properties Network information (optional).

Click on the Network tab to display the Machine Properties (Network) window, as illustrated in Figure 6-8.

Figure 6-8 Configuration Expert Machine Properties Network Window

Note: For the standard Business Process Option configuration,which uses only a single machine, it is not necessary to define any Machine Properties Network parameters. Accept the defaults for these parameters.

This window contains the following fields:

- `BRIDGE Listener Port` — This is the TCP/IP port number to be used by the `BRIDGE` process. The corresponding UBB file parameter is `BRIDGE`.

- `TListen Listener Port` — This is the TCP/IP port number to be used by the `tlisten` process. The corresponding UBB file parameter is `NLSADDR`.

- `USER ID` — This is the specific USER ID of the BEA eLink Platform administrator on that machine. The corresponding UBB file parameter is `UID`.

- ■ GROUP ID — This is the specific GROUP ID of the BEA eLink Platform administrator on that machine. The corresponding UBB file parameter is GID.

5. Submit your Machine Properties information.

    After you enter all of the appropriate information, click OK to submit your specifications.

Note: It is recommended that you save your configuration setup file after completing each step, as the information will not be saved automatically. Choose File->Save to save the current file.

Step 7: Add and Configure the Server Groups

The next step is to add the server groups to the configuration and configure each group. You can add and configure one group at a time, or add all of the groups at once, and then configure each group. Each group must be configured individually.

A *group* is a collection of eLink Platform Servers. Grouping servers facilitates server management by enabling eLink Platform operations (for example, boot or shutdown) to be executed unilaterally across a group.

To add and configure the server groups:

1. Go to the Configure Groups window.

   Choose Go->Groups. You can also click the Right Arrow key next to the Step # status message to go to the next configuration step (in this case, Configure Groups). Figure 6-9 illustrates the Configure Groups window.

Figure 6-9   Configuration Expert Configure Groups Window
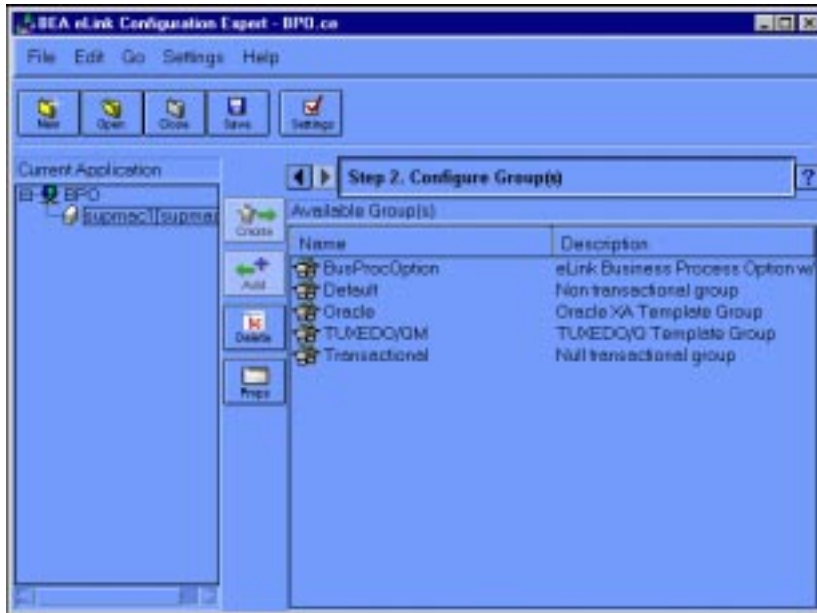
2. Add the required groups to the configuration.

   Select the group in the Available Groups list, and then click Add. The group name should now appear in the Current Application configuration tree in the left frame.

   Add the following groups to the Current Application configuration tree:

   - `Default` Group

   - `BusProcOption` Group

Note: You can customize the list of available server groups by editing the Resource Manager template file. For more information on this procedure, refer to the *BEA TUXEDO Builder Configuration Expert* online document which is provided on your BEA eLink Platform installation CD-ROM. This document is in PDF form and is readable with Adobe Acrobat Reader.

3. Change the name of the `Default` group to `SYSGRP`.

Select the `Default` Group in the Current Application configuration tree, and click the Props button (or choose Edit->Properties). This displays the Group Properties (General) window, as illustrated in Figure 6-10.

Figure 6-10   Configuration Expert Group Properties General Window

Change the contents of the Group Name field to SYSGRP.

Note: The Transactions tab is greyed out for this group; you need not enter any transaction information for the group SYSGRP.

4. Click OK to submit the new group name.

5. Change the name of the `BusProcOption` group to `BPOGRP`.

   Follow the same procedure as you did to change the name of the `Default` group.

6. Click OK to submit the new group name.

Note: It is recommended that you save your configuration setup file after completing each step, as the information will not be saved automatically. Choose File->Save to save the current file.

Step 8: Configure the Servers

The next step is to add and configure the servers. The `gservers.lst` file defines all servers required by the application. However, if you want to use additional servers — for example, the server `mathserv` for the `MATHAPP` sample application — you will need to add those in addition to the servers defined in this procedure. The servers you add are appended to the `iservers.lst` file.

To configure the servers:

1. Go to the Configure Servers window.

   Choose Go->Servers to display the Configure Servers window. You can also click the Right Arrow key next to the Step # status message to go to the next configuration step (in this case, Configure Servers). Figure 6-11 illustrates the Configure Servers window.

Figure 6-11   Configuration Expert Configure Servers Window

2. Add the `IcCliMgr` server to the group `SYSGRP`.

To add the server, do the following:

a. Select the group SYSGRP from the Current Application configuration tree on the left. This displays the servers available to that group.

b. Select the IcCliMgr server from the Available Servers list, and click ADD.

The IcCliMgr server should now be listed in the Current Applications frame, under the group SYSGRP.

3. Configure the General Properties for the IcCliMgr server.

The IcCliMgr server manages the startup and shutdown of certain Business Process Engine services, such as the Repository Daemon.

To configure the general properties for the IcCliMgr server, do the following:

a. Select IcCliMgr from the Current Applications list, and click Props. (You can also choose Edit->Properties, or simply double-click on the server name in the Current Applications list). This displays the Server Properties window with the General tab selected, as illustrated in Figure 6-12.

Figure 6-12   Configuration Expert Server Properties General Window
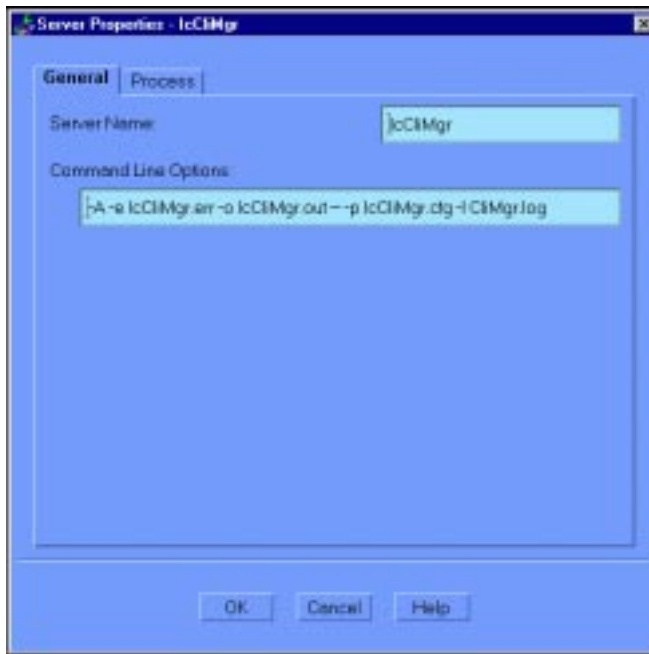
This window contains the following fields:

- `Server Name` — This is the fully qualified path to the eLink Platform Server executable. If you do not specify the path, it is assumed that the file resides in the *<APPDIR>*.

- `Command Line Options` — These are the default server command line options that are to be used for automatic startup of the server. The corresponding UBB file parameter is `CLOPT`.

b. Modify the server name field so that it is quoted and contains the fully qualifed path to the executable. For example:

```
"/work1/ic/tuxapp/IcCliMgr"
```

c. Change the location of the logs (optional).

You can optionally change the location of the log files generated by the server. To do so, add the full pathname before both of the `.err` and `.out` entries in the `Command Line Options` field. For example:

> **Note:** A backslash indicates that the command should be written in one continuous line; the backslash is not part of the actual command line.

Before:

```
-A -e IcCliMgr.err -o IcCliMgr.out --\
-b IcCliMgr.cfg -I IcCliMgr.log
```

After:

```
-A -e /bpo/logs/IcCliMgr.err -o /bpo/logs/IcCliMgr.out --\
-b IcCliMgr.cfg -I /bpo/logs/IcCliMgr.log
```

Warning: This entry consists of two parts: the eLink Platform/TUXEDO-specific options, and the server-specific options. These two portions are separated by two minus sign characters (**--**). The minus signs must be included in your specification. For information on the platform-specific options, refer to your eLink Platform and TUXEDO UBB file documentation.

4. Configure the Process Properties for the IcCliMgr server.

   Click on the Process tab in the Server Properties window. This displays the Server Properties (Processes) window, as illustrated in Figure 6-13.

Figure 6-13   Configuration Expert Server Properties Process Window

This window contains the following fields:

- `Minimum # of Processes` — This specifies the minimum number of server instances to be automatically started when the server is booted. A blank field defaults to 1. The corresponding UBB file parameter is `MIN`.

- `Maximum # of Processes` — This specifies the maximum number of server instances that can be booted at any given time. A blank field defaults to 1. The corresponding UBB file parameter is `MAX`.

- `Restartable` — This specifies whether the server is restartable. The default is `No` (checkbox unchecked). Select `Yes` (checkbox checked) for all servers. The corresponding UBB file parameter is `RESTART`.

Note: The following four parameters support the automatic spawning/decaying of servers through the mechanism of the `-p` eLink Platform/TUXEDO `CLOPT` parameter. Given the following:

```
Grow pool when queue depth over = A
Seconds to wait before growth parameter = B
```

```
Shrink pool when queue depth under = C
Seconds to wait before shrinking = D
```

Then the CLOPT line should contain the following:

```
-p A,B: C,D
```

- `Grow pool when queue depth over` — Specifies the maximum number of messages before spawning a new server. During runtime, if the number of messages is met or exceeded for a time set by the `Seconds to wait before growth` parameter, a new server is spawned.

- `Seconds to wait before growth parameter` — Specifies the time in seconds allowed to elapse before the server pool is expanded.

- `Shrink pool when queue depth under` — Specifies the minimum number of messages before deactivating a server. During runtime, if the number of messages is below this value by the time specified by the `Seconds to wait before shrinking` parameter, a server is deactivated.

- `Seconds to wait before shrinking` — Specifies the time in seconds allowed to elapse before the server pool is reduced.

5. Enter `1` as the `Minimum # of Processes`.

6. Enter `1` as the `Maximum # of Processes`.

7. Submit the modified `IcCliMgr` server configuration information.

   Click OK to submit your modifications and return to the Server Configuration window.

8. Add the `BPOGRP` servers.

   Add each of the following servers to the `BPOGRP` group, in the oder listed.

   - `IcEvtAct` — This advertises the Business Process Engine Event/Action Daemon processing services.

   - `IcWorker` — (First of two `IcWorker` servers) This advertises the IcGen_eLink services.

   - `IcWorker` — (Second of two `IcWorker` servers)This advertises the IcJob_eLink services.

   Note: Add two instances of the `IcWorker` server.

- `eProcRunner` — This is the Business Process Option Server that starts a Business Process Engine job or process, and waits for the process to complete before returning.

- `eProcStarter` — This is the Business Process Option Server that starts a Business Process Engine job or process, and returns as soon as the process has started.

- `eTaskAgent` — This is the Business Process Option Server that processes Business Process Engine tasks.

- Define the `BPOGRP` server properties.

For each of the BPOGRP servers, do the following:

a. Select the server from the Current Applications list, and click Props. (You can also choose Edit->Properties, or simply double-click on the server name in the Current Applications list). This displays the Server Properties (General) window, as illustrated in Figure 6-12.

b. Modify the server name field so that it is quoted and contains the fully qualifed path to the executable. For example:

```
"/work1/ic/tuxapp/IcCliMgr"
```

Note: You need not specify an explicit pathname for the `eProcRunner`, `eProcStarter` and `eTaskAgent` servers. However, you must specify the full path to the `eLink_BPO.cfg file` for each in the `Command Line Options` field.

c. Change the location of the `IcWorker` server log files.

To change the log file locations, add the full pathname before each of the `.err` and `.out` entries in the `Command Line Options` field. For example:

Note: A backslash indicates that the command should be written in one continuous line; the backslash is not part of the actual command line.

For the first `IcWorker` server entry:

```
-A -e /bpo/logs/IcWorker.err -o /bpo/logs/IcWorker.out --\
-b IcWorker.cfg -I /bpo/logs/GenWorker.log
```

For the second `IcWorker` server entry:

```
-A -e /bpo/logs/IcWorker.err -o /bpo/logs/IcWorker.out --\
-b IcWorker.cfg -I /bpo/logs/IcJobWorker.log
```

9. Configure the Process Properties for each server.

    Click on the Process tab in the Server Properties window. This displays the Server Properties (Processes) window, as illustrated in Figure 6-13. The following table provides the Process settings for each server. You can accept the default settings for all fields except those indicated in the table.

    Note: For all servers, check the `Restartable` checkbox.

Server Name	Min. # Processes	Max. # Processes
IcEvtAct	1	1
IcWorker (IcGen)	3	3
IcWorker (IcJob)	1	1
eProcRunner	1	1
eProcStarter	1	1
eTaskAgent	1	1

Warning: The default installation uses `eLink` as the Business Process Engine service name suffix. If you change this for any reason during the installation of the Business Process Engine, you must update `IcTuxConfig` files on both the client machine(s) and server machine(s) to reflect this change. These files are in the following locations:

Client: *<PDA_Base_Install_Dir>*/Txm/config
Server: *<$IC_HOME>*/config

In addition, you must change the `eLink` argument for the **-s** option in the `Command Line Options` specification for the following servers:

```
IcEvt
IcWorker (IcGen)
IcWorker (IcJob)
```

Note: It is recommended that you save your configuration setup file after completing each step, as the information will not be saved automatically. Choose File->Save to save the current file.

Step 9: Configure the Optional Components

The next step is to add and configure the optional components. The optional components are eLink Platform utility servers or add-ons, such as communication gateways. For the Business Process Option, you must add and configure the following components:

■ WSL

■ eLinkJSL

■ IREPSVR

To add and configure these components:

1. Go to the Configure Optional Components window.

   Choose Go->Options to go to the Configure Optional Components window. You can also click the Right Arrow key next to the Step # status message to go to the next configuration step (in this case, Configure Optional Components). Figure 6-14 illustrates the Configure Optional Components window, which comes up with the WS tab selected.

Figure 6-14   Configuration Expert Configuring Optional Components Window
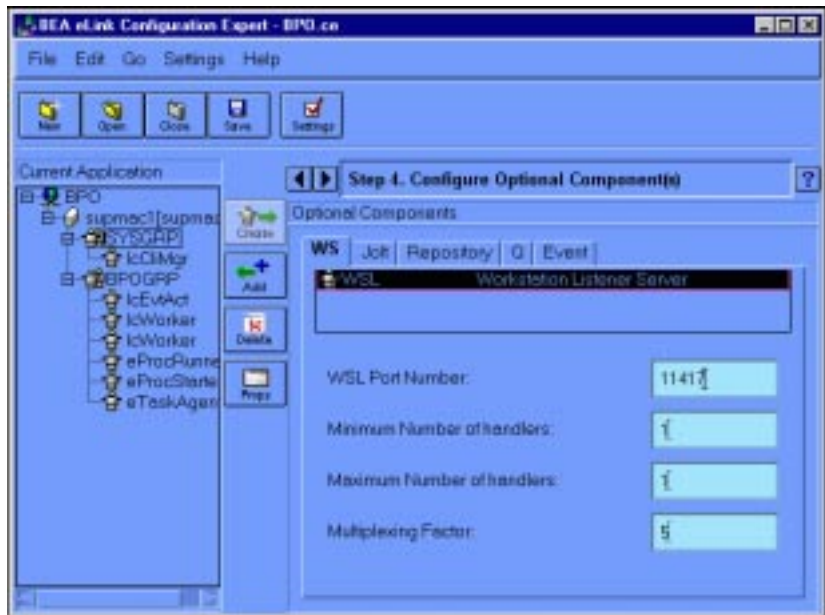
2. Add the WSL component.

   The Configuring Optional Components (WSL) window contains the following fields:

   • WSL Port Number — This specifies the port number for the Workstation Listener. Enter a port number of 11417. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL Server.

   • Minimum Number of Handlers — This specifies the minimum number of Workstation handlers, or WSH, that are started when the application is booted You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL Server.

   • Maximum Number of Handlers — This specifies the maximum number of Workstation handlers that can be started. You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL Server.

- `Multiplexing Factor` — This specifies the maximum number of clients per WSH. You can accept the default for this configuration. The contents of this field are added to the UBB file `CLOPT` parameter contents for the WSL Server.

Enter your WSL component specifications and click Add.

3. Add the `eLinkJSL` component.

   To add the `eLinkJSL` component, do the following:

   a. Click the Jolt tab to display the Configuring Optional Components (Jolt) window, as illustrated in Figure 6-15.

Figure 6-15   Configuration Expert Configure Optional Components Jolt Window

   b. Select `eLinkJSL`.

      This displays the Configure Optional Components (Jolt JSL) window, as illustrated in Figure 6-16.

Figure 6-16 Configure Optional Components Jolt JSL Window

This window contains the following fields:

- `eLinkJSL Port Number` — This is the port number assigned to the `eLinkJSL`. Enter a port number of 11400. The contents of this field are added to the UBB file `CLOPT` parameter contents for the eLinkJSL Server.

- `Minimum Number of Handlers` — This specifies the minimum number of Jolt handlers, or JSH, that are started when the application is booted. You can accept the default for this configuration. The contents of this field are added to the UBB file `CLOPT` parameter contents for the eLinkJSL Server.

- `Maximum Number of Handlers` — This specifies the maximum number of JSH that can be started. You can accept the default for this configuration. The contents of this field are added to the UBB file `CLOPT` parameter contents for the eLinkJSL Server.

- `Multiplexing Factor` — This specifies the maximum number of clients per JSH. You can accept the default for this configuration. The contents of this field are added to the UBB file `CLOPT` parameter contents for the eLinkJSL Server.

c. Enter your `eLinkJSL` component specifications and click Add.

4. Add the `IREPSVR` component.

To add the `IREPSVR` component, do the following:

a. Click the Repository tab to display the Configuring Optional Components (Repository) window, as illustrated in Figure 6-17.

Figure 6-17 Configuration Expert Configure Optional Components Repository Window

b. Select `IREPSVR`.

This displays the Configure Optional Components (Repository IREPSVR) window, as illustrated in Figure 6-18.

Figure 6-18   Configure Optional Components Repository IREPSVR Window

This window contains the following fields:

- `Read-Only Access to Repository Checkbox` — If selected, this specifies read only access to the repository file. Make sure this is `UNSELECTED` so that there is write access to the file. The contents of this field are added to the UBB file `CLOPT` parameter contents for the `IREPSVR`.

- `Repository File` — This specifies the location of the BEA eLink Platform Repository file. This is the file in which the Business Process Option Process Design Assistant stores information. This file must be accessible by the `IREPSVR`, which usually means it must be local to the `IREPSVR` machine. When you installed the Business Process Option, an empty repository file was created and stored in the directory `<$TUXDIR>`/udataobj.

   c.   Enter your `IREPSVR` component specifications and click Add.

5.   Save the entire configuration file.

   Choose File->Save to save the current file.

The configuration process is now complete. The next step is to generate the configuration files and scripts, as described in the next section.

Step 10: Generate the Configuration Files and Scripts

After entering all of your configuration information and saving your configuration setup file, you can generate the configuration files and scripts. The Configuration Expert reads the contents of your setup file to generate these files. If you modify the contents of your setup file at any time, you must consequently regenerate the configuration files and scripts for these changes to occur in the configuration.

To generate the configuration files and scripts:

1. Choose Go->Startup.

   This displays the Generate & Startup window, as illustrated in .

Figure 6-19   Configuration Expert Generate & Startup Window
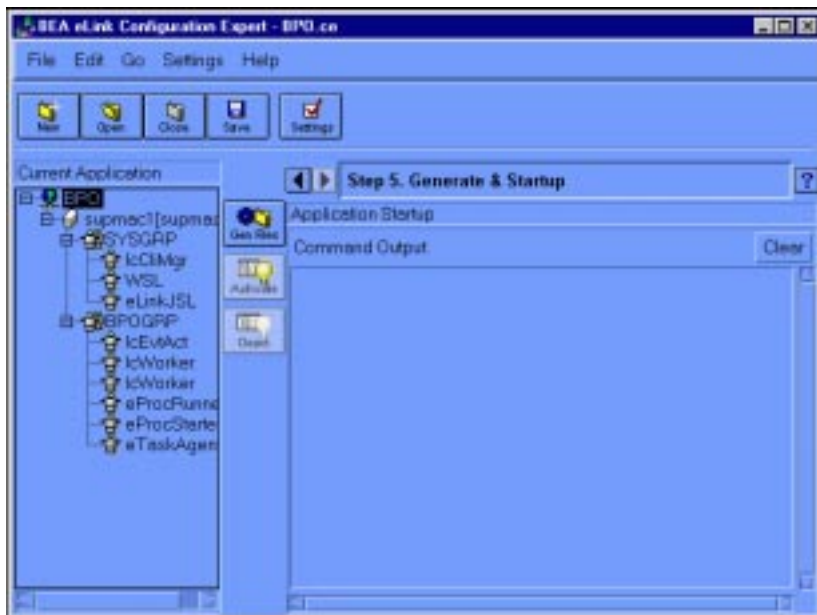
2. Click the Gen Files button.

This will produce an output listing in the Command Output frame on the left of the Generate & Startup window, as illustrated in Figure 6-20.

Figure 6-20 Configuration Expert Generate Files Output
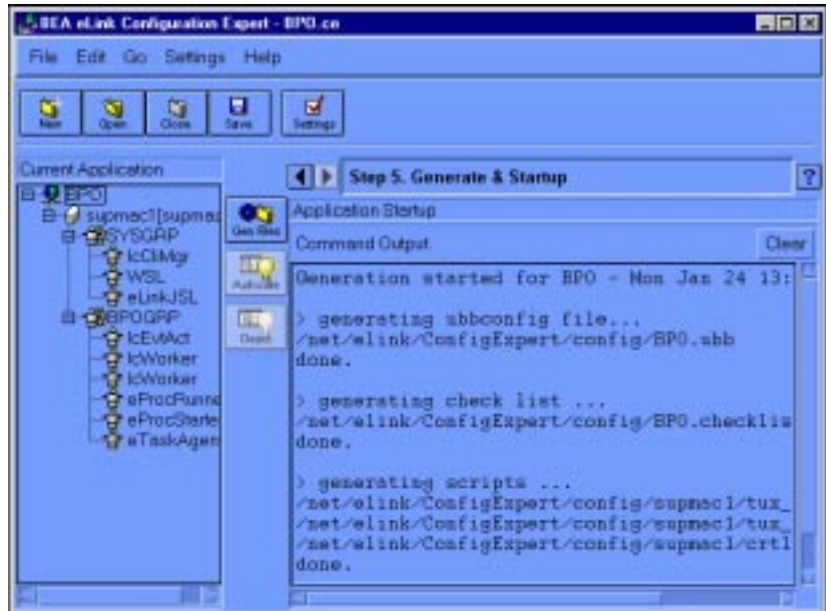
The following files should be generated:

- `<application_name>`.ubb
- `<application_name>`.checklist
- `tux_start.sh`
- `tux_stop.sh`
- `crtlog.sh`

For a description of each of these files, refer to "The eLink Platform Business Process Option Configuration Files," in the "Overview" section of this chapter.

Note: You can move or copy the generated files into the working eLink Platform application directory ($APPDIR, which in this case is the Business Process Option installation directory).

3. Save your settings.

The Business Process Option configuration process is now complete. The next step is to test the new configuration. Instructions for this step are provided in the next section.

Step 11: Testing the Configuration

To test your new configuration, you can use the Configuration Expert Activate feature to perform a preliminary startup of the system. Use one of the following methods:

- Use the Activate button in the Configuration Expert `Step 5: Generate a Startup` window:

    a. Go to the Configuration Expert main window.

    b. Use the Right Arrow button to the left of the Step status line. Click the Right Arrow until the Step status message `Step 5: Generate a Startup` displays, as illustrated in Figure 6-21.

Figure 6-21   Configuration Expert Step 5: Generate a Startup Window
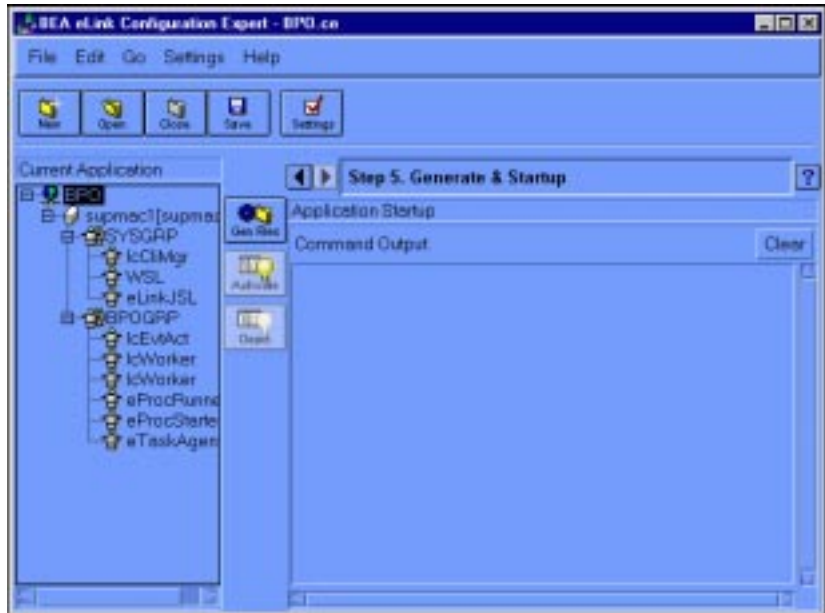
c. Click the Activate button to initiate a startup.

■ Choose Go->Startup->Activate.

When the system is started, a series of status and/or error messages are displayed in the Command Output panel in the right half of the main window. You can use the output in this panel to assist in finetuning or debugging your new configuration.

A Configuration Information Checklist

This section provides checklists you can use to gather the information you will need to complete the Business Process Option configuration process. Topics include:

- Overview

- eLink Platform Environment Configuration (env.sh File)

- Client Environment Configuration (eLink_BPO.env File)

- Server Environment Configuration

- Data Configuration File

- Configuration Setup File

- Application Properties Configuration

- Machine Properties

- Server Properties Configuration

- Optional Components Configuration

Overview

This appendix contains the following checklists for gathering your configuration information:

- eLink Platform Environment Configuration (env.sh File)

- Client Environment Configuration (eLink_BPO.env File)

- Server Environment Configuration

- Data Configuration File

- Configuration Setup File

- Application Properties Configuration

  - Application Properties (General)

  - Application Properties (Environment)

- Machine Properties

  - Machine Properties (General)

  - Machine Properties (Limits)

  - Machine Properties — (Network)

- Server Properties Configuration

  - Server Properties (General)

  - Server Properties (Process)

- Optional Components Configuration

  - WSL Component Configuration

  - eLinkJSL Component Configuration

  - IREPSVR Component Configuration

Note: Groups configuration does not require any additional information, so no checklist has been provided. For more information on configuring Groups, please refer to the online document *BEA TUXEDO Builder Configuration Expert* provided in PDF form with the BEA eLink Platform 1.2 release.

These checklists are provided in the following sections.

eLink Platform Environment Configuration (env.sh File)

This section provides a checklist for the information you will need to complete the configuration procedures outlined in Chapter 3, "Configuring the Server Platform Environment."

Note: You must manually add the following variables and their assignments to the env.sh file:

- TUXCONFIG

- FIELDTBLS32

- FLDTBLDIR32

Warning: The TUXCONFIG environment variable is not provided as part of the installation, because the TUXCONFIG file location is not known or required as part of the installation process. This environment variable *must* be set, however, for the eLink Platform to compile the UBB configuration file and boot the eLink Business Process Option application.

Table A-1 eLink Platform Environment Configuration Checklist

Environment Variable	Description	Assigned Value
IC_HOME	This is the eLink Business Process Engine home directory.	
IC_CLIENT	This is the eLink Business Process Engine client login string. This string specifies the eLink Business Process Engine user, server, and optionally the user's password, in the format *username*[*/password*]*@servername*.	
TUXDIR	This is the eLink Platform home directory.	
TUXCONFIG	This is the explicit location of the binary configuration file for the eLink Platform. **Note:** You must manually add this variable to the env.sh file.	
PATH	Contains a list of the directories to be searched to locate executables.	
LANG	This is the NLS language. The default is C.	
NLSPATH	Directories to be searched for locating message catalogs.	
LD_LIBRARY_PATH	**Solaris only**. This is the search path for shared libraries.	
SHLIB_PATH	**HP-UX only**. This is the search path for shared libraries.	
ORACLE_HOME	This is the Oracle home directory.	

Table A-1 eLink Platform Environment Configuration Checklist

Environment Variable	Description	Assigned Value
TWO_TASK or ORACLE_SID	Identifies the Oracle instance for SQL*Net.	
FIELDTBLS32	Contains the list of table files required by FML data-dependent routing. **Note:** You must manually add this variable and its assignment to the env.sh file. **Note:** Add eLink_BPO.f32 or the equivalent if you added these fields to an existing field table file.	
FLDTBLDIR32	This contains the list of table files required by FML. **Note:** You must manually add this variable and its assignment to the env.sh file. **Note:** Add the directory containing the modified eLink_BPO.f32 file for site-specific FML field numbers.	
WSNADDR	This identifies the host machine and port number used by the eLink Platform workstation listener (WSL).	

Client Environment Configuration (eLink_BPO.env File)

Table A-2 Client Environment Configuration Checklist

Variable	Description	Assigned Value
IC_SERVER_NAME	This is the name of this eLink Business Process Engine server.	
IC_HOST_MACHINE	This is the master host machine for this server.	
IC_STATUS_LOG	This is the filename for the eLink Business Process Engine status log. **Default:** `$IC_HOME/logs/status.log`.	

IC_AUDIT_MODE	This is the type of audit logging used by this eLink Business Process Engine server. The possible values for this parameter:
	`IC_EVENT_AUDIT_DATABASE`
	`IC_EVENT_AUDIT_DATABASE_AND_FILE`	

IC_AUDIT_LOG	This is the name of the audit log file. Use this only if `IC_AUDIT_MODE` is set to `IC_EVENT_AUDIT_DATABASE_AND_FILE`. If it is set to `IC_EVENT_AUDIT_DATABASE`, set `IC_AUDIT_LOGS` to `NOT_USED` (the default).	
IC_RDBMS	This identifies the database system. This must always be `ORACLE`.	`Oracle`
IC_EVENT_POLL_INTERVAL	This is the polling interval, in seconds, for temporal events (e.g., overdue tasks). **Default:** 3600 (one hour)	

Variable	Description	Assigned Value
IC_ACTION_POLL_INTERVAL	This is the polling interval, in seconds, for general event processing. **Default:** 60	
FIELDTBLS32	This contains a list of the FML field definition files available to the eLink Platform.	
FLDTBLDIR32	This specifies the location of the FML field definition files specified in FIELDTBLS32.	

Server Environment Configuration

This section provides checklists for configuring the Business Process Engine and Business Process Option Servers.

eLink_BPO.cfg File

This section contains a set of checklists for configuring the `eLink_BPO.cfg` file parameters for each server.

Business Process Engine Server Login Parameters

The following three parameters are common to each `eLink_BPO.cfg` file section. These specify the login information to be used by the Business Process Option Server for connections to the appropriate instance of the Business Process Engine.

Table A-3 Business Process Engine Server Login Parameters Checklist

Variable	Description	Assigned Value
SERVER	This is the name of the Business Process Engine Server to which to connect.	
USER	Business Process Engine `userid`. This must be a user created with the `BpoAddUser` command during installation.	
PASSWORD	This is the password assigned to the Business Process Engine user specified for *USER*, above.	

eProcStarter Parameters

Table A-4 eProcStarter Parameters Checklist

Variable	Description	
`SERVICE_LIST`	This is a comma-separated list of service names to be advertised. Each must have a corresponding template defined. Each must be unique and meet eLink Platform service name requirements. Each must be unique when compared to the `SERVICE_LIST` for `eProcRunner` and any other services running in the eLink Platform application.	

eProcRunner

Table A-5 eProcRunner Parameters Checklist

Variable	Description	Assigned Value
`SERVICE_LIST`	This is a comma-separated list of service names to be advertised. Each must have a corresponding template defined. Each must be unique and meet eLink Platform service name requirements. Each must be unique when compared to the `SERVICE_LIST` for `eProcStarter` and any other services running in the eLink Platform application.	
`POLL_INTERVAL`	Specifies how often, in tenths of seconds, the server should sleep between process status queries.	

eTaskAgent

Table A-6 eTaskAgent Parameters Checklist

Variable	Description	Assigned Value
POLL_INTERVAL	This specifies the amount of time in tenths of seconds the server should wait between queries to the Business Process Engine for ready tasks.	
POLL_COUNT	This is the maximum number of ready tasks that should be processed before forcing the daemon to process another ATMI loop.	
COMPLETE_FAILED_TASK	If the service request fails, marks the task as complete and continue (setting error information on the process level attributes).	

Data Configuration File

This section provides a checklist for the information you will need to complete "Step 2: Create a New Data Configuration File," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-7 Data Configuration File Checklist

Field	Description	Default	Assigned Value
Name	Name of the machine you are configuring with Configuration Expert. This should be the hostname as it appears on the network. This is an identifier for Configuration Expert only, and should match the name you specify in the hostname field.	None.	
Hostname	Name of the machine on which the Business Process Option Servers will run.	None.	
Description	Description of the application for which you are configuring this platform.	None.	
Operating System	Select the appropriate operating system from the pulldown menu to the right of this field.	None.	
TUXEDO Directory (*$TUXDIR*)	Full absolute pathname for the location of your eLink Platform installation.	None.	
Tuxedo version	The eLink Platform/Tuxedo version on this installation.	TUXEDO 6.3	TUXEDO 6.5

Configuration Setup File

This section provides a checklist for the information you need to complete "Step 3: Create a New Configuration Setup File," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-8 Configuration Setup File Configuration Checklist

Field	Description	Assigned Value
Name	Name of the application you are configuring.	
Location	Full absolute pathname for the location in which the new Configuration Setup file is to reside. **Default:** TUXDIR/eLink/ConfigExpert/config	Select the default.

Application Properties Configuration

This section provides a set of checklists for the information you need to complete "Step 4: Configure the Application Properties," in Chapter 6, "Creating the eLink Platform Configuration Files." The checklists are as follows:

- Application Properties (General) Configuration Checklist

- Application Properties (Environment) Configuration Checklist

These are provided in the following subsections.

Application Properties (General)

This section provides a checklist for the information you will need to configure the General Application Properties for "Step 4: Configure the Application Properties," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-9 Application Properties (General) Checklist

Field	Description	Default	Assigned Value
Application Name	eLink Platform application name. This corresponds to the UBB file parameter DOMAINID.	None.	
IPC Key	Interprocess Communication Key. Each eLink Platform application must have a unique IPC Key. The corresponding UBB file parameter is IPCKEY. The value must be between 32768 and 262143.	None.	

Table A-9 Application Properties (General) Checklist

Field	Description	Default	Assigned Value
Master Machine	This is the controlling machine for the eLink Platform application. For single-server configurations, this should be the same as that specified for the Logical Machine Name and Hostname in the Machine Properties General window. The corresponding UBB file parameter is MASTER.	None.	
System Access	Specifies the access mode to the BEA eLink Platform bulletin board. The corresponding UBB file parameter is SYSTEM_ACCESS. The corresponding UBB file parameter is SYSTEM_ACCESS.	FASTPATH	FASTPATH
Maximum # of Services	Size of the Services table in the BEA eLink Platform bulletin board, and is the maximum number of services that may be advertised by all servers running in the application. The corresponding UBB file parameter is MAXSERVICES. Range is 1 to 32768.	500	

Application Properties (Environment)

This section provides a checklist for the information you will need to configure the Environment Application Properties for "Step 4: Configure the Application Properties," in Chapter 6, "Creating the eLink Platform Configuration Files."

Note: A backslash denotes continuation of the current line. The backslash is not part of the field entry.

Table A-10 Application Properties (Environment) Checklist

Field	**Description**	**Default**	**Assigned Value**
`Available Servers File`	This is the location in which the `iservers.lst` file resides. There is no corresponding UBB file parameter.	`<$TUXDIR>/eLink/\` `ConfigExpert/Config/\` `iservers.lst`	
`Generated Servers File`	This is the location in which the `gservers.lst` file resides. Enter the full absolute pathname for this location. There is no corresponding UBB file parameter.	`<$TUXDIR>/eLink/\` `ConfigExpert/Config.`	
`Output Directory`	Directory to which the Configuration Expert output files should be written. There is no corresponding UBB file parameter.	`<$TUXDIR>/eLink/\` `ConfigExpert/Config.`	

Machine Properties

This section provides a checklist for the information you need to complete "Step 6: Configure the Machine Properties," in Chapter 6, "Creating the eLink Platform Configuration Files."

There are three categories of machine properties:

- `General` — This contains some information concerning the machine name, application directory, environment setup file, and the prefix to be used in naming ULOG files.

- `Limits` — This specifies the maximum number of native and WS clients allowed for this machine.

- `Network` — This defines the listener ports, user ID, and group ID.

Machine Properties (General)

This section provides a checklist for the information you need to configure the General Machine Properties for "Step 6: Configure the Machine Properties," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-11 Machine Properties (General) Checklist

Field	Description	Default	Assigned Value
Logical Machine ID	Name of the machine you specified using the Data Editor. The corresponding UBB file parameter is LMID.	None.	
Applicatio n Directory	Directory to be used as the application working directory by the eLink Platform. Enter the full absolute pathname for the location in which the application servers are located. The corresponding UBB file parameter is APPDIR.	None.	
Environmen t File	This is the environment file containing the environment variable assignments for all BEA eLink Platform applications on this machine. Enter the full absolute pathname and filename for the eLink_BPO.cfg file. The corresponding UBB file parameter is ENVFILE.	None.	
ULOG File Prefix	Location and filename for the user log file generated by the eLink Platform. The final portion of this entry should be a filename, typically ULOG. The corresponding UBB file parameter is ULOGPFX.	*<$APPDIR>*	

Machine Properties (Limits)

This section provides a checklist for the information you will need to configure the Limits Machine Properties for "Step 6: Configure the Machine Properties," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-12 Machine Properties (Limits) Checklist

Field	Description	Default	Assigned Value
Maximum Number of Native Clients	Maximum number of native clients that you can assign to this machine. The range is 1 to 32767. You can accept the default, which is 50. The corresponding UBB file parameter is MAXACCESSERS.	50	
Maximum Number of WS Clients	This is the maximum number of Workstation Clients you can assign to this machine. The range is 0 to 32767. You can accept the default, which is 50. The corresponding UBB file parameter is MAXWSCLIENTS.	50	

Machine Properties — (Network)

This section provides a checklist for the information you need to configure the Network Machine Properties for "Step 6: Configure the Machine Properties," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-13 Machine Properties (Network) Checklist

Field	Description	Default	Assigned Value
BRIDGE Listener Port	TCP/IP port number to be used by the BRIDGE process. The corresponding UBB file parameter is BRIDGE.	50001	
TListen Listener Port	TCP/IP port number to be used by the tlisten process. The corresponding UBB file parameter is NLSADDR.	5000	
USER ID	Specific USER ID of the BEA eLink Platform administrator on that machine. The corresponding UBB file parameter is UID.	None.	
GROUP ID	Specific GROUP ID of the BEA eLink Platform administrator on that machine. The corresponding UBB file parameter is GID.	None.	

Server Properties Configuration

This section provides the checklists for the information you need to complete "Step 8: Configure the Servers," in Chapter 6, "Creating the eLink Platform Configuration Files."

Note: The `gservers.lst` file defines all of the servers required by the application. However, if you want to use additional servers — for example, the server `mathserv` for the MATHAPP sample application — you need to add those to the configuration. The servers you add are appended to the `iservers.lst` file.

Server Properties (General)

This section provides a checklist for the information you need to configure the General Server Properties for "Step 8: Configure the Servers," in Chapter 6, "Creating the eLink Platform Configuration Files."

The General Server Properties consist of the following fields for each server being configured:

- `Server Name` – This is the fully qualified path to the eLink Platform Server executable. If you do not specify the path, it is assumed that the file resides in the `<APPDIR>`. Please refer to Chapter 6, "Creating the eLink Platform Configuration Files," for detailed instructions on completing this field.

- `Command Line Options` – These are the default server command line options that are to be used for automatic startup of the server. The corresponding UBB file parameter is `CLOPT`.

In the following table, you can note the Command Line Option entry you want to assign for each server. Please refer to Chapter 6, "Creating the eLink Platform Configuration Files," for detailed instructions on completing this field.

Table A-14 Server Properties (General) Checklist

Server Name	Command Line Option Assignment
`IcCliMgr`	
`IcEvtAct`	
`IcWorker (IcGen)`	
`IcWorker (IcJob)`	
`eProcRunner`	
`eProcStarter`	
`eTaskAgent`	

Server Properties (Process)

This section provides checklists for the information you need to configure the Server Process Properties for "Step 8: Configure the Servers," in Chapter 6, "Creating the eLink Platform Configuration Files."

> **Note:** For all servers, select the `Restartable` checkbox.

Minimum/Maximum Number of Server Processes

The following table lists the assignments you should enter for the `Minimum # of Processes` and `Maximum # of Processes` fields in the Server Properties — Process screen for each server.

Table A-15 Minimum/Maximum Server Processes Checklist

Server Name	Min. # Processes	Max. # Processes
IcCliMgr	1	1
IcEvtAct	1	1
IcWorker (IcGen)	3	3
IcWorker (IcJob)	1	1
eProcRunner	1	1
eProcStarter	1	1
eTaskAgent	1	1

Server Processes Configuration Checklist

The following is a checklist for the information you need to configure the Server Process Properties for each server in "Step 8: Configure the Servers," in Chapter 6, "Creating the eLink Platform Configuration Files." You must configure the Processes Properties for each server separately. You can make copies of this checklist to gather the information you will need for each specific server.

Table A-16 Server Processes Configuration Checklist

Field	Description	Default	Assigned Value
Minimum # of Processes	This specifies the minimum number of server instances to be automatically started when the server is booted. The corresponding UBB file parameter is MIN.	See Table A-15	See Table A-15
Maximum # of Processes	This specifies the maximum number of server instances that can be booted at any given time. The corresponding UBB file parameter is MAX.	See Table A-15	See Table A-15
Restartable	This specifies whether the server is restartable. The default is No (checkbox unchecked). The corresponding UBB file parameter is RESTART.	No (unchecked)	Yes (checked)
Grow pool when queue depth over	During runtime, if the number of messages is met or exceeded for a time set by the Seconds to wait before growth parameter, a new server is spawned. This is also an argument for the -p option in the CLOPT line of the UBB file.	None.	

Table A-16 Server Processes Configuration Checklist

Field	Description	Default	Assigned Value
Seconds to wait before growth parameter	Specifies the time in seconds allowed to elapse before the server pool is expanded. This is also an argument for the -p option in the CLOPT line of the UBB file.	None.	
Shrink pool when queue depth under	During runtime, if the number of messages is below this value by the time specified by the Seconds to wait before shrinking parameter, a server is deactivated. This is also an argument for the -p option in the CLOPT line of the UBB file.	None.	
Seconds to wait before shrinking	Specifies the time in seconds allowed to elapse before the server pool is reduced. This is also an argument for the -p option in the CLOPT line of the UBB file.	None.	

Optional Components Configuration

This section provides a checklist for the information you need to complete "Step 9: Configure the Optional Components," in Chapter 6, "Creating the eLink Platform Configuration Files."

For the Business Process Option, you must add and configure the following components:

- WSL
- eLinkJSL
- IREPSVR

WSL Component Configuration

This section provides a checklist for the information you need to configure the WSL component for "Step 9: Configure the Optional Components," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-17 WSL Component Configuration Checklist

Field	Description	Default	Assigned Value
WSL Port Number	This specifies the port number for the Workstation Listener. Enter a port number of 11417. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL server.	6001	11417

Table A-17 WSL Component Configuration Checklist

Field	Description	Default	Assigned Value
Minimum Number of Handlers	This specifies the minimum number of Workstation handlers, or WSH, that are started when the application is booted You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL Server.	1	
Maximum Number of Handlers	This specifies the maximum number of Workstation handlers that can be started. You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL Server.	1	
Multiplexing Factor	This specifies the maximum number of clients per WSH. You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the WSL Server.	5	

eLinkJSL Component Configuration

This section provides a checklist for the information you will need to configure the eLinkJSL component for "Step 9: Configure the Optional Components," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-18 eLinkJSL Component Configuration Checklist

Field	Description	Default	Assigned Value
eLinkJSL Port Number	This is the port number assigned to the eLinkJSL. Enter a port number of 11400. The contents of this field are added to the UBB file CLOPT parameter contents for the eLinkJSL Server.	7001	11400
Minimum Number of Handlers	This specifies the minimum number of Jolt handlers, or JSH, that are started when the application is booted. You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the eLinkJSL Server.	1	
Maximum Number of Handlers	This specifies the maximum number of JSH that can be started. You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the eLinkJSL Server.	1	

Table A-18 eLinkJSL Component Configuration Checklist

Field	Description	Default	Assigned Value
Multiplexing Factor	This specifies the maximum number of clients per JSH. You can accept the default for this configuration. The contents of this field are added to the UBB file CLOPT parameter contents for the eLinkJSL Server.	5	

IREPSVR Component Configuration

This section provides a checklist for the information you will need to configure the IREPSVR component for "Step 9: Configure the Optional Components," in Chapter 6, "Creating the eLink Platform Configuration Files."

Table A-19 IREPSVR Component Configuration Checklist

Field	Description	Default	Assigned Value
Read-Only Access to Repository Checkbox	If selected, this specifies read only access to the repository file. Make sure this is unselected so that there is write access to the file. The contents of this field are added to the UBB file CLOPT parameter contents for the IREPSVR.	Read-Only	Unselected
Repository File	This specifies the location of the BEA eLink Platform Repository file. An empty repository file exists in *<$TUXDIR>*/udataobj.	*<$TUXDIR>*/udataobj	

B Configuration Expert Quick Reference Guide

This section provides a quick reference guide to the main windows and navigation procedures for the Configuration Expert and Configuration Data Editor utilities. Topics include:

■ Overview

■ Starting the Configuration Data Editor

■ Configuration Data Editor Navigation Guide

■ Starting the Configuration Expert

■ Configuration Expert Navigation Guide

Overview

BEA eLink Platform provides two utilities to assist you in the configuration process. These are:

■ **Configuration Expert** — This utility automates the process of creating and modifying eLink Platform application configuration files. This utility enables you to build and generate Business Process Option configuration files without having to manually write and edit these complex files. The Configuration Expert presents you with a series of screen forms for entering your configuration information. After you complete the forms, Configuration Expert generates the required files and places them in the appropriate locations.

You can also use Configuration Expert to run a system startup test, to ensure that your configuration is correct and functional. During the startup process, Configuration Expert displays a series of status messages which enable you to determine whether the startup has been successful, and if unsuccessful, to assist you in determining the source of the problem.

■ **Configuration Data Editor** — This utility enables you to quickly create and/or modify the Data Configuration file for your Business Process Option Server machine. The Configuration Expert uses this file to create the configuration setup file for generating the BEA eLink Platform configuration files.

Note: For additional information on using the Configuration Expert and Configuration Data Editor, refer to the online document *BEA Builder Configuration Expert Online Help* provided in PDF (Acrobat Reader) format with the BEA eLink Platform 1.2 release.

Starting the Configuration Data Editor

The Configuration Data Editor provides a quick and simple method for "creating" a new machine — that is, creating a new data configuration file for a machine, thus making it accessible and configurable by the Configuration Expert.

To start the Configuration Data Editor utility, use one of the following commands, depending on the operating system on which the utility is running:

■ On a UNIX platform:

```
cd <TUXDIR>/Config
./ConfigEditor &
```

■ On a Windows NT platform:

Click Start->Programs->BEA eLink->Configuration Expert Setup.

This displays the Configuration Data Editor startup screen, as illustrated in Figure B-1.

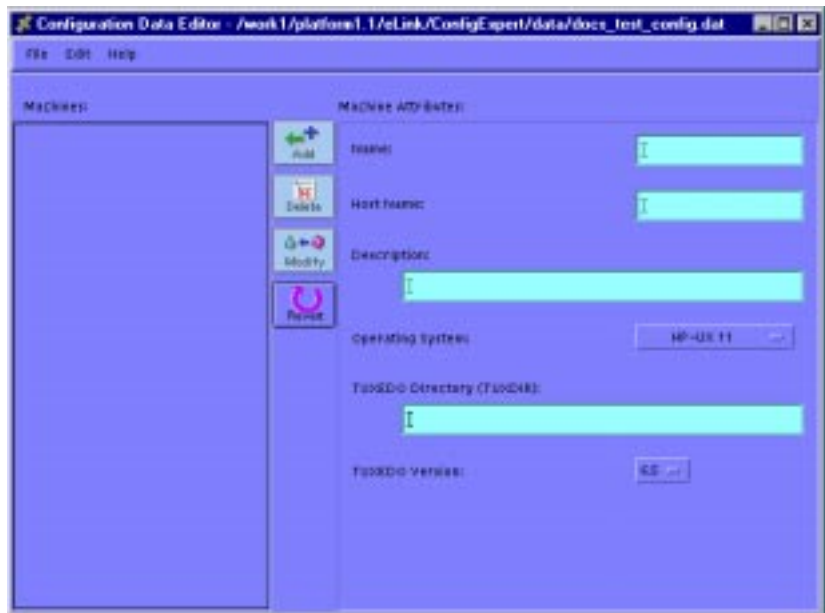**Figure B-1   Configuration Data Editor Startup Screen**

Configuration Data Editor Navigation Guide

To go to the Configuration Data Editor main window, select File->New. Figure B-2 illustrates the Configuration Data Editor main window.

Figure B-2   Configuration Data Editor Main Window (adding a machine)

This window contains the following elements:

- *Main Window Menu bar* — This contains the following standard elements:

  - *File* — Open, Close, and Save a Data Configuration file.

  - *Edit* — Edit a Data Configuration file.

- *Quick Access Buttons* —

  - *Add* — This corresponds to Edit->Add. This adds the current machine configuration information to the Machines panel on the left.

  - *Delete* — This corresponds to Edit->Delete. This deletes the selected item from the Machines panel on the left.

  - *Modify* — This corresponds to Edit->Modify. This updates the configuration to reflect any changes made to the machine data.

  - *Revert* — This corresponds to Edit->Revert. This undoes the changes made by the last Edit->Modify command.

- *Machines* — (panel on left) This displays the list of machines current included in the Configuration Data file.

- *Machine Attributes* — (panel on right) This provides several fields for defining the machine you want to add to the current Configuration Data file.

For additional information on using the Configuration Data Editor, refer to the online document *BEA Builder Configuration Expert Online Help* provided in PDF (Acrobat Reader) format with the BEA eLink Platform 1.2 release.

Starting the Configuration Expert

The executable for starting Configuration Expert resides in the following location:

`<TUXDIR>/eLink/ConfigExpert/bin`

To start Configuration Expert, use on of the following commands, depending on the operating system on which the utility is running:

- On a UNIX platform:

  `cd <TUXDIR>/Config`

  `./ConfigExpert &`

- On a Windows NT platform:

  Click Start->Programs->BEA eLink->Configuration Expert.

This displays the Configuration Expert startup screen as illustrated in .

Figure B-3   Configuration Expert Startup Screen

To go to the Configuration Expert main window, you must either create a new configuration setup file or open an existing one. To open an existing file, choose File->Open and then choose the file from the Open Configuration File window.

Configuration Expert Navigation Guide

To navigate through the configuration process, you can use the menus and buttons provided in the Configuration Expert main window. All other screens appear as child windows, leaving the main window available on your screen. Figure B-4 illustrates the Configuration Expert Main window.

Figure B-4   Configuration Expert Main Window

The Configuration Expert main window contains the following elements:

■ *Main Window Menubar* — The main window menubar contains the following
items:

● *File* — This menu contains the standard elements, as follows:

New — Create a new configuration file.

Open — Open an existing file.

Close — Close the current file.

Save — Save the current file.

Save As — Save and rename the current file.

Exit — Exit Configuration Expert.

● *Edit* — This menu contains the following elements:

Properties — Select the item you want to configure, and then select
Edit->Properties to go to the appropriate configuration screen.

- *Go* — This is the main navigation menu, which leads to most of the top-level configuration screens. This menu contains the following elements:

  Next — Go to the next configuration step. This corresponds to the Right Arrow button next to the Step status message line.

  Machines — Go to the Configure Machines screen, with the General tab selected.

  Groups — Go to the Configure Groups screen.

  Servers — Go to the Configure Servers screen.

  Options — Go to the Configure Optional Components screen.

  Startup — This provides a submenu, containing the elements Activate (perform a system startup for the current application) and Deactivate (perform a shutdown for the current application).

- *Settings* — This provides access to the Configuration Expert settings screens. These screens enable you to specify settings for the Configuration Expert itself, in terms of how it handles and displays the screens and input information.

  General — This enables you to specify a Configuration Data file to be used by the Configuration Expert to create the new configuration.

  Objects — This enables you to specify how Configuration Expert should handle and configure specific types of objects.

  Output — This enables you to specify whether the Configuration Expert should generate the scripts for `tlisten` and `TLOG`.

- *Quick Access Buttons* — The following buttons are provided for quick access to Menubar commands:

  - *New* — This corresponds to the menubar selection File->New.

  - *Open* — This corresponds to the menubar selection File->Open.

  - *Close* — This corresponds to the menubar selection File->Close.

  - *Save* — This corresponds to the menubar selection File->Save.

  - *Settings* — This corresponds to the menubar selection Settings->General.

  - *Add* — This corresponds to the menubar selection Edit->Add.

  - *Delete* — This corresponds to the menubar selection Edit->Delete.

- *Props* — This corresponds to the menubar selection Edit->Properties.

■ *Available Machines* — This panel (on the right side of the main window) contains a list of the machines currently available for adding to the current configuration. For a machine to be included in this list, you must have created a Data Configuration file for the machine, using the Configuration Expert Data Editor.

■ *Steps to Follow status line and access arrows* — This status line indicates which configuration step you are currently performing, which in turn indicates which element contents are currently displayed in the main window. The Step status line resides just above the Available Machines panel. To the left of the status line are left and right arrow keys, for navigating forward and backward through the steps, respectively.

■ *The Current Application configuration tree* — This is a topological map or list of the configuration for the current application. The topology includes the application name, the machines, servers and optional components included in the configuration.

Note: For more detailed information on Configuration Expert, refer to the online document *BEA Builder Configuration Expert Online Help* provided in PDF (Acrobat Reader) format with the BEA eLink Platform 1.2 release.

APPENDIX

C Sample Configuration Files

This section provides provides listings of each of the sample Business Process Option configuration files included with this release. Topics in this section include:

- Overview

- eLink_BPO.env

- eLink_BPO.cfg

- env.sh

- IcCliMgr.cfg

- IcRepDaemon.config

Overview

The BEA eLink Business Process Option uses a number of files to configure the platform environment, and the various client and server components. These files are as follows:

- eLink_BPO.env — This contains the eLink Platform environment variable settings.

- eLink_BPO.cfg — This contains the parameters for configuring the Business Process Option servers.

■ env.sh — This is a UNIX shell script that sets the environment variables used by the eLink Platform environment.

■ IcCliMgr.cfg — This contains the parameters for configuring the Business Process Engine Client Manager.

■ IcRepDaemon.config — This contains the parameters for configuring the Business Process Engine Daemons.

The following configuration files are samples from an installation on an HP-UX 11 machine (supmac1) prior to any configuration. The BEA eLink Platform was installed in the *$TUXDIR* directory, which on this machine is set to /work1/test/platform. The Business Process Engine was installed in the *$IC_HOME* directory, which is set to /work1/test/bpe on this machine.

eLink_BPO.env

The file eLink_BPO.env contains the parameters for configuring the Business Process Engine. The following listing is a sample eLink_BPO.env file.

```
FIELDTBLS32=tuxfield.tbl,eafield.tbl,cmfields.tbl,tuxqfield.tbl,t
padm,irep.f32,jrep.f16,jwsladmin.f32
FLDTBLDIR32=/work1/test/bpe/config:/work1/platform/udataobj
IC_SERVER_NAME=supmac1
IC_HOST_MACHINE=supmac1.beasys.com
IC_STATUS_LOG=/work1/test/bpe/logs/status.log
IC_AUDIT_MODE=IC_EVENT_AUDIT_DATABASE
IC_AUDIT_LOG=NOT_USED
IC_RDBMS=ORACLE
IC_EVENT_POLL_INTERVAL=3600
IC_ACTION_POLL_INTERVAL=60
IC_ACTION_RPC_RETRY_INTERVAL=10800
IC_ACTION_RPC_TIMEOUT=60
```

eLink_BPO.cfg

The file eLink_BPO.cfg file contains the parameters for configuring the Business Process Option servers. The following listing is a sample eLink_BPO.cfg file.

```
# Sample eLink Platform Option configuration file.
# Modify to suit your site's requirements.
# NOTE: the following SERVER key (enclosed in square brackets)
# identifies a particular eLink Agent server program for which
# the following parameters will apply.

[SERVER=eProcStarter]

# NOTE: unlike the above key, the following SERVER parameter
# tells that eLink Agent to which host's Business Process Engine
# it will connect.

SERVER=systemname
USER=icdba
PASSWORD=icdba

# Comma separated list of ATMI service names used to control which
# process flows will be advertised as services.
# NOTE: ensure that the eProcStarter and eProcRunner
# service lists do not contain any of the same services.

SERVICE_LIST=svcname1,svcname2

# NOTE: the following SERVER key (enclosed in square brackets)
# identifies a particular eLink Agent server program for which
# the following parameters will apply.

[SERVER=eProcRunner]

# NOTE: unlike the above key, the following SERVER parameter
# tells that eLink Agent to which host's Business Process Engine
# it will connect.

SERVER=systemname
USER=icdba
PASSWORD=icdba

# Comma separated list of ATMI service names used to control which
# process flows will be advertised as services.
# NOTE: ensure that the eProcStarter and eProcRunner
# service lists do not contain any of the same services.
```

```
SERVICE_LIST=svcname3,svcname4

# Specifies, in tenths of seconds, the poll interval
# for checking job completion

POLL_INTERVAL=5

# NOTE: the following SERVER key (enclosed in square brackets)
# identifies a particular eLink Agent server program for which
# the following parameters will apply.

[SERVER=eTaskAgent]

# NOTE: unlike the above key, the following SERVER parameter
# tells that eLink Agent to which host's Business Process Engine
# it will connect.

SERVER=systemname
USER=icdba
PASSWORD=icdba

# Specifies, in tenths of seconds, the poll interval when scanning
# for ready tasks.

POLL_INTERVAL=50

# The maximum number of ready tasks to process before forcing the
# server to repeat the ATMI service loop (default is 5).

POLL_COUNT=5
```

env.sh

The env.sh file is a UNIX shell script that sets the environment variables used by the eLink Platform environment. The following listing is a sample env.sh file.

```
#  E N V . S H
#  InConcert Administrator Environment for SH/KSH/BASH
#  Fri Dec  3 11:55:07 PST 1999
#  Include this file into an sh/ksh/bash environment using
#  the "." command.

LANG="${LANG-C}"
IC_HOME="/work1/test/bpe"
TUXDIR="/work1/test/platform"
PATH="${PATH:+$PATH:}$IC_HOME/bin:$TUXDIR/bin"
NLSPATH="${NLSPATH:+$NLSPATH:}$IC_HOME/data/%L/messages/%N:$IC_HO
ME/data/messages/%N:$IC_HOME/data/C/messages/%N"
SHLIB_PATH="${SHLIB_PATH:+$SHLIB_PATH:}$IC_HOME/lib:$TUXDIR/lib"
IC_CLIENT="${IC_CLIENT-icdba@supmac1}"
FIELDTBLS32="tuxfield.tbl,eafield.tbl,cmfields.tbl,tuxqfield.tbl,
tpadm"
FLDTBLDIR32="$IC_HOME/config:$TUXDIR/udataobj"
WSNADDR="//supmac1.beasys.com:11420"
ORACLE_HOME="/work1/oracle/app/oracle/product/8.0.4"
ORACLE_SID="jose"
PATH="${PATH:+$PATH:}$ORACLE_HOME/bin"
SHLIB_PATH="${SHLIB_PATH:+$SHLIB_PATH:}$ORACLE_HOME/lib"
export LANG IC_HOME TUXDIR PATH NLSPATH SHLIB_PATH IC_CLIENT
TUXCONFIG FIELDTBLS32 FLDTBLDIR32 WSNADDR ORACLE_HOME ORACLE_SID
PATH SHLIB_PATH
```

IcCliMgr.cfg

The `IcCliMgr.cfg` file contains the parameters for configuring the Business Process Engine Client Manager. The following listing is a sample `IcCliMgr.cfg` file.

```
#  IcCliMgr.cfg (from template IcCliMgr.cfg.tpl)
#  Each entry is separated by a line consisting of at least two
#  dashes. Note about secure environments: The programs managed by
#  the IcCliMgr are TUXEDO clients.  As a result, they have to do
#  tpinit authentication using the standard authentication
#  callback.  Since these applications are not interactive, the
#  IC_TUXEDO_APPLICATION_PASSWORD, IC_TUXEDO_USER_NAME, and
#  IC_TUXEDO_USER_PASSWORD environment variables will have to be
#  specified, either in the envfile or directory in the envs
#  parameter.

#  An entry for the IcEvtSched daemon is mandatory.

NAME=IcEvtSched
DIR=/work1/test/bpe
PROGRAM=tuxapp/IcEvtSched
ENVFILE=/work1/test/bpe/config/IcEnvFile
ARGS: IcEA_eLink

#  The entry for the IcRepDaemon is only required when running
#  authenticated- mode repositories.  Warning: if run from IcCliMgr
#  it will run as icadmin.
#NAME=IcRepDaemon
#DIR=/work1/test/bpe
#PROGRAM=bin/IcRepDaemon
#ARGS: -climgr
#ENVS: IC_HOME=/work1/test/bpe

#  Complete list of possible keywords, defaults in [].

#ID=number    To use a fixed client id (must be unique) [next in
#seq] NAME=identifierName of client (must be unique). [tail of
#PROGRAM]

#GROUP=identifierName of client group (non-unique).  [same as NAME]

#DIR=path     Directory in which to run the program. [.]

#PROGRAM=path The program to run (REQUIRED).

#ARGS: arglistWhitespace-separated, can be continued by indenting
```

```
#                             subsequent lines.  Can use '', "", or
#                             {} for quoting.  Braces nest. [empty
#                             list]

#INPUT=path   Standard input to program. [/dev/null]

#OUTPUT=path  Standard out of program. [/dev/null]

#ERROR=path   Standard error of program. [dup of OUTPUT]

#ENVFILE=path Environment file.  Uses standard IcCliMgr env syntax.

#                             [none]

#ENVS: envlistWhitespace-separated, can be continued by indenting
#                             subsequent lines.  Can use '', "", or
#                             {} for quoting the value part.  Braces
#                             nest. [empty]

#

#                 The following syntax applies equally to the
#                 envlist and the envfile contents.

#      VAR=valueset var to value

#      VAR:=valueprepend value to var, separated by : if necessary

#      VAR=:valueappend value to var, separated by : if necessary

#      VAR=-valueset var to value only if not already set

#      VAR@           unset var
#  The following are the restart parameters.  They are per-client.
#  Each client can run multiple concurrent copies if the boot
#  parameter is greater than one.  Whenever a process dies or the
#  system is booted, the client manager attempts to start as many
#  copies as necessary until the number running matches the boot
#  count.  Whenever the system is booted for the first time or a
#  process dies after a period of successful operation, a grace
#  period begins.  If a process dies during the grace period, a
#  retry is attempted up the maximum number of retries and/or the
#  flux limit is exceeded.  When the flux limit is exceeded, the
#  client manager will try again when the grace period expires.  If
#  the process dies outside of the grace period, it is considered
#  a restart rather than a retry.

#NCONC=number Maximum number of concurrent processes. [unlimited]

#MAXST=number Total maximum that can be started. [unlimited]
```

```
#RSTRT=number Total maximum number of restarts. [unlimited]

#RETRY=number Total maximum number of retries. [unlimited]

#GRACE=number Retry grace period, in seconds. [3600]

#BOOT=number  Number of processes to boot. [1]

#HIST=number  Number of process history entries to keep. [20]

#FLUX=number  Number of retries permitted with same grace period.
[3]
```

IcRepDaemon.config

The `IcRepDaemon.config` file contains the parameters for configuring the Business Process Engine Daemons. The following listing is a sample `IcRepDaemon.config` file.

```
#  IcRepDaemon.config

#  SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE

#  This file must be edited and the various sections uncommented as

#  needed. Anything in <angle-brackets> should be replaced!

#  Section 1.  REPOSITORY SERVER CONFIGURATION

#  Recommended Items

#  SERVER-PATH

#  PORT

#  The SERVER-PATH should point to the IcRepServer executable, which

#  usually resides in $IC_HOME/bin.  Defaults to
#  $IC_HOME/bin/IcRepServer.

#  The PORT line should specify the TCP port number associated with
#  the repository in the database, as specified in the second half
#  of the repository 'LOCATION' property.  This item, or the -port
#  command line switch, must be specified.

SERVER-PATH=/work1/test/bpe/bin/IcRepServer
PORT=9010

#  Optional Items

#  USER-ID

#  The USER-ID line specifies what user IcRepDaemon runs as.  If it
#  is not running as this user or cannot change to this user,
#  IcRepDaemon will exit.

USER-ID=inst

#  LOG-FILE
```

```
# The LOG-FILE entry can be set to a file or the keyword 'SYSLOG'.
# If 'SYSLOG' is used, then accesses are logged using the syslog
# systemlogging facility.  Note that log records of varying
# priority are generated, with different verbosity.  If a file is
# used, the LOG-LEVEL configuration entry controls how much is
# logged.  If SYSLOG is used, then syslog's standard configuration
# file (usually /etc/syslog.conf) is used to control how records
# are processed.

# Uncomment only one in each group

LOG-FILE=/work1/test/logs/repserver.log

#LOG-FILE=SYSLOG
#LOG-LEVEL=warng
#LOG-LEVEL=emerg
#LOG-LEVEL=alert
#LOG-LEVEL=critc
#LOG-LEVEL=error
#LOG-LEVEL=warng
#LOG-LEVEL=note
#LOG-LEVEL=info
#LOG-LEVEL=debug

# Section 2.  REPOSITORY ACCESS PERMISSIONS

# Optional Repeating Items

# VALID-DIR

# Uncomment and repeat for each directory you wish to access.  If
# not specified, the IcRepServer can potentially access all files
# accessible on the server host.

VALID-DIR=/work1/test/repository

#VALID-DIR=<path-to-rep2>

# VALID-HOST

# Uncomment and repeat for each host name, domain name, or host
# group. If not specified, any host can request repository server
# transfers.

# Currently, the following forms are supported:

#     VALID-HOST=hostnameA specific host name
#     VALID-HOST=domain-nameA specific DNS domain name
#     VALID-HOST=IP-addressA specific IP address (dotted-quad
#     notation) VALID-HOST=IP-wildcardA group of IP addressed with
#     some quads
```

```
#                               replaced by '*'

#      VALID-HOST=ALLAll hosts on the internet

#VALID-HOST=myhost
#VALID-HOST=MyCompany.COM
#VALID-HOST=10.0.0.51
#VALID-HOST=192.5.105.*
#VALID-HOST=ALL
```