BEA Tuxedo®

Installing the BEA Tuxedo System

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About This Document

This document explains how to install the BEA Tuxedo system software on both Windows and UNIX systems. The BEA Tuxedo system is a framework for distributed online transaction processing applications.

This document covers the following topics:

- Chapter 1, “Preparing to Install the BEA Tuxedo System,” covers what you need to know and do before installing BEA Tuxedo.
- Chapter 2, “Installing BEA Tuxedo Using GUI-Mode Installation,” describes how to install the BEA Tuxedo software on Windows and UNIX systems using a graphical user interface.
- Chapter 3, “Installing BEA Tuxedo on UNIX Systems Using Console-Mode Installation,” discusses how to install BEA Tuxedo on UNIX systems using a text-based interface.
- Chapter 4, “Installing BEA Tuxedo Using Silent Installation,” describes how to install BEA Tuxedo without user intervention by using a template file during the installation process.
- Chapter 5, “Upgrading the BEA Tuxedo System to Release 8.1,” provides procedures for upgrading your BEA Tuxedo or BEA WebLogic Enterprise application to BEA Tuxedo 8.1 using both simple and hot upgrade procedures.
- Chapter 6, “Performing Post-Installation Tasks,” describes what the directory structure looks like after the installation is finished, how to configure the installation, how to verify the installation, and how to uninstall the BEA Tuxedo software.
- Chapter 7, “Starting the BEA Tuxedo Administration Console,” provides the system requirements for the Console, describes how to set up the environment, and explains how to start and exit the Console.

- Appendix A, “BEA Tuxedo 8.1 Platform Data Sheets,” provides platform-specific information for the platforms on which the BEA Tuxedo 8.1 system software is supported.
- Appendix B, “BEA Jolt 8.1 Overview and Installation Information,” provides an overview of BEA Jolt 8.1 and presents the prerequisites and preparatory information for installing the BEA Jolt 8.1 software components.
- Appendix C, “File and Database Management and Disk Space Allocation,” describes BEA Tuxedo file and database management and provides guidelines for allocating disk space for a BEA Tuxedo application.
- Appendix D, “IPC Resource Configuration on a UNIX System,” describes the interprocess communication (IPC) parameters on a UNIX system and provides guidelines for configuring them.

What You Need to Know

This document is written for system administrators or application developers who are installing the BEA Tuxedo software. It is assumed that readers have a general understanding of the Windows and UNIX operating systems and the workstation platforms on which the BEA Tuxedo system runs.

e-docs Web Site

BEA product documentation is available on the BEA corporate Web site. From the BEA Home page, click on Product Documentation or go directly to the “e-docs” Product Documentation page at `http://e-docs.bea.com`.

How to Print the Document

You can print a copy of this document from a Web browser, one file at a time, by using the File—>Print option on your Web browser.

A PDF version of this document is available on the BEA Tuxedo documentation Home page on the e-docs Web site (and also on the documentation CD). You can open the PDF in Adobe Acrobat Reader and print the entire document (or a portion of it) in book format. To access the PDFs, open the BEA Tuxedo documentation Home page, click the PDF files button and select the document you want to print.

If you do not have the Adobe Acrobat Reader, you can get it for free from the Adobe Web site at `http://www.adobe.com`.

Related Information

The following BEA Tuxedo documents contain information that is relevant to the BEA Tuxedo installation document:

- *BEA Tuxedo Product Overview*
- *BEA Tuxedo Interoperability*
- *Using BEA Tuxedo ATMI on Windows*

For more information about ATMI, CORBA, transaction processing, distributed object computing, C++ programming, and Java programming, see *Bibliography*.

Contact Us!

Your feedback on the BEA Tuxedo documentation is important to us. Send us e-mail at docsupport@bea.com if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the BEA Tuxedo documentation.

In your e-mail message, please indicate that you are using the documentation for the BEA Tuxedo 8.1 release.

If you have any questions about this version of BEA Tuxedo, or if you have problems installing and running BEA Tuxedo, contact BEA Customer Support through BEA WebSupport at http://www.bea.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

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 filenames 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.

CHAPTER

1 Preparing to Install the BEA Tuxedo System

The following sections provide information that you need to know before installing the BEA Tuxedo product software:

- BEA Installation Program
- BEA Tuxedo Distribution Methods
- BEA Tuxedo Software Components
- LLE and SSL Levels of Encryption
- Hardware and Software Prerequisites
- Interprocess Communication Resources Configuration
- BEA Home Directory
- Installation Road Map

BEA Installation Program

The BEA Tuxedo software is distributed as an installer file, which also contains a copy of the BEA Installation program. The BEA Installation program is the BEA standard tool for installing the BEA Tuxedo software on Windows or UNIX systems (machines).

The BEA Installation program supports three installation methods:

- Graphical user interface (GUI) mode installation, described in "Installing BEA Tuxedo Using GUI-Mode Installation" on page 2-1.
- Console-mode installation (UNIX systems only), described in "Installing BEA Tuxedo on UNIX Systems Using Console-Mode Installation" on page 3-1.
- Silent installation, described in "Installing BEA Tuxedo Using Silent Installation" on page 4-1.

You can use any of these methods to install the BEA Tuxedo product software.

BEA Tuxedo Distribution Methods

BEA Tuxedo is distributed on both the Web and CD-ROM.

Web Distribution of BEA Tuxedo

An evaluation copy of BEA Tuxedo is available for download from the BEA corporate Web site at `http://commerce.bea.com/downloads/tuxedo.jsp#tuxedo`. When downloading BEA Tuxedo, you must also download an evaluation license, which allows you to use the BEA Tuxedo software for a 30-day trial period. Anytime during the 30-day trial period you may purchase a non-expiring license for your BEA Tuxedo product by calling or e-mailing BEA Customer Support. For BEA Customer Support contact information, go to `http://www.bea.com/support/contact_cs.html`.

Platform-specific installer files for the BEA Tuxedo product software are available for download from the BEA corporate Web site.

CD-ROM Distribution of BEA Tuxedo

If you purchased BEA Tuxedo from your local sales representative, you will find the following items in the BEA Tuxedo product box:

- Two CD-ROMs:
  - BEA Tuxedo product software CD—also includes the BEA Jolt and BEA SNMP Agent product software
  - BEA Tuxedo Online Documentation CD—includes the same online documentation accessible at `http://edocs.bea.com/index.html`
- The following printed documents:
  - "Read-Me-First" card containing an overview of the product box content
  - "Customer Support Quick Reference and Other Important Information" card
  - "BEA Software License and Limited Warranty" pamphlet
  - *BEA Tuxedo Release Notes*
  - *BEA Tuxedo Product Overview*
  - *Installing the BEA Tuxedo System* (this document)

Shortly after purchasing BEA Tuxedo on CD-ROM, you will receive a non-expiring BEA Tuxedo product license via e-mail.

BEA Tuxedo Software Components

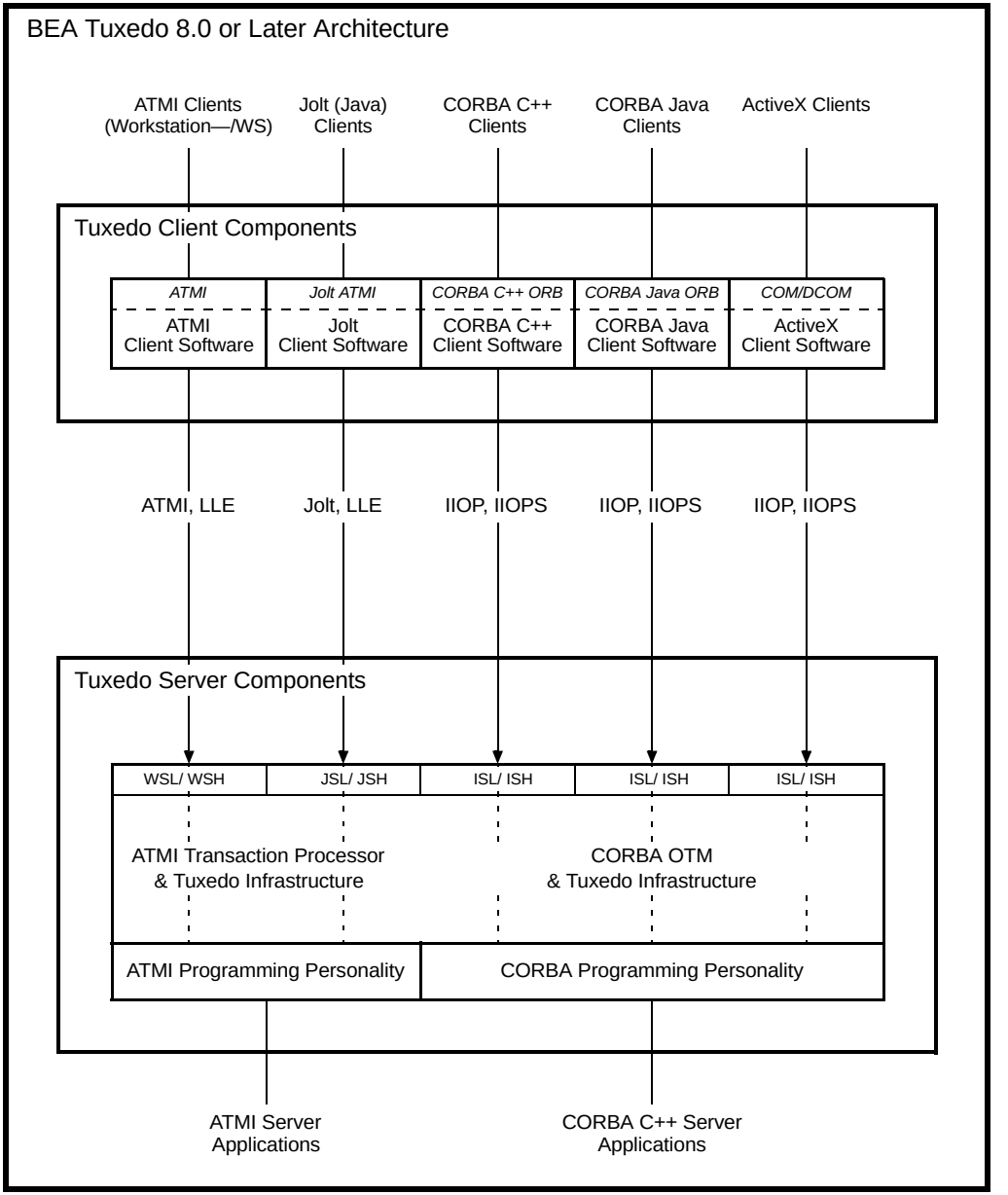
Included with the BEA Tuxedo 8.1 software distribution is the BEA Jolt product software, which enables Java clients to call BEA Tuxedo services, and the BEA SNMP Agent product software, which enables BEA Tuxedo applications to be managed from a centralized enterprise management console.

The BEA Tuxedo 8.1 distribution contains the following components:

- Server components:
  - BEA Application-to-Transaction Monitor Interface (ATMI) server software
  - BEA Common Object Request Broker Architecture (CORBA) C++ server software
  - BEA Jolt 8.1 server software
  - BEA SNMP Agent 8.1 software
  - BEA Tuxedo Administration Console software
  - Link-Level Encryption (LLE) and Secure Sockets Layer (SSL) encryption software
- Client components:
  - BEA ATMI Workstation (/WS) client software
  - BEA CORBA C++ client software—includes the C++ client Object Request Broker (ORB) and the environmental objects
  - BEA CORBA Java client software—includes the BEA-branded Java client ORB and the environmental objects
  - BEA Jolt 8.1 client software
  - ActiveX client software for Windows systems—includes the environmental objects and the BEA Application Builder GUI
  - LLE and SSL encryption software

The following figure presents a high-level view of the BEA Tuxedo client and server components.

Figure 1-1 BEA Tuxedo Client and Server Components



For descriptions of terms such as *remote client*, *native client*, *LLE*, and *SSL*, see "Client and Server Components" in *BEA Tuxedo Product Overview*.

LLE and SSL Levels of Encryption

LLE and SSL are available with two levels of encryption: 56-bit and 128-bit. Licenses for the 128-bit client versions of LLE and SSL are available in the United States and Canada. With proper authorization, customers outside the United States and Canada may also acquire licenses with 128-bit encryption enabled.

A 30-day evaluation license comes only with 56-bit encryption enabled, whereas a non-expiring license may be purchased with either 56-bit or 128-bit encryption enabled. For information about purchasing licenses, contact BEA Sales at `http://www.bea.com/contact/sales1.shtml`.

Hardware and Software Prerequisites

The BEA Tuxedo software must be installed on each server machine that will participate in a BEA Tuxedo application, also known as a Tuxedo domain. A Tuxedo application is a business software program, built upon the Tuxedo system, that is defined and controlled by a single configuration file known as the `UBBCONFIG` file. The Tuxedo configuration file is described in reference page `UBBCONFIG(5)` in *BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes Reference*.

A Tuxedo application consists of many Tuxedo system processes, one or more application client processes, one or more application server processes, and one or more computer machines connected over a network. In a multi-machine Tuxedo application running different releases of the BEA Tuxedo software, the *master machine*—designated via the `MASTER` parameter in the `RESOURCES` section of the `UBBCONFIG` file—must run the highest release of the BEA Tuxedo software in the application. For more information about Tuxedo applications, see "Domains" in *BEA Tuxedo Product Overview*.

Note: BEA advises against trying to share the BEA Tuxedo system executables across remote filesystems; this practice has proven to be unreliable in the past.

System Requirements

The system requirements for BEA Tuxedo 8.1 are given in the following table.

Component	Requirement
Platform*	Any platform identified in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.
Hard disk drive	As stated in the data sheet for the target platform in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For additional information about disk space requirements, see "File and Database Management and Disk Space Allocation" on page C-1.
Memory	As stated in the data sheet for the target platform in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.

* Microsoft Windows 98 and XP systems support only the BEA Tuxedo client components.

For BEA Jolt installation preparatory information, see "BEA Jolt 8.1 Overview and Installation Information" on page B-1. No installation preparation is required for BEA SNMP Agent.

Note: Before installing BEA Tuxedo software on a UNIX system, BEA recommends that you repartition your hard disk device in accordance to "File and Database Management and Disk Space Allocation" on page C-1.

Temporary Storage Space Requirements

The BEA Installation program uses a temporary directory in which it extracts the files from the archive that are needed to install BEA Tuxedo on the target system. During the installation process, your temporary directory must contain sufficient space to accommodate the compressed Java Runtime Environment (JRE) bundled with the installer and an uncompressed copy of the JRE that is expanded into the temporary

directory. The installation program moves the JRE from the temporary directory to the *BEA Home directory* at the end of the installation process. For information about the BEA Home directory, see "BEA Home Directory" on page 1-10.

The amount of temporary storage space needed depends upon the target platform, as stated in the data sheets in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. The amount of temporary storage space varies from a minimum of 14 MB on some platforms to a minimum of 135 MB on others.

By default, the installation program uses the temporary directories shown in the following table.

Platform	Directory
Windows	Directory referenced by the `TMP` system variable
UNIX	`/tmp`

To ensure there is adequate temporary space, you may want to allocate an alternate directory for use as a temporary directory for the installation. To do so, perform the appropriate step in the following table before starting the BEA Installation program.

On This Platform . . .	Perform This Step . . .
Windows	Set the `TMP` system variable to a directory of your choice.
UNIX	Enter the following command at the shell prompt: `export IATEMPDIR=`*`tmpdirname`* Replace *`tmpdirname`* with the name of a temporary directory of your choice.

Interprocess Communication Resources Configuration

Interprocess communication (IPC) is a capability supported by the Windows and UNIX operating systems that allows one process to communicate with another process. The processes can be running on the same computer or on different computers connected through a network.

On a Windows 2000 system, the BEA Tuxedo system provides an IPC service called the BEA ProcMGR (Process Manager), which facilitates interprocess communications. You use the BEA ProcMGR service to adjust the IPC parameters and maximize the performance of a BEA Tuxedo application.

On a UNIX system, you use methods native to the UNIX system to adjust the IPC parameters and maximize the performance of a BEA Tuxedo application. Since most UNIX systems are shipped with default values that are too low for a BEA Tuxedo application, you need to adjust the IPC parameters, using the methods given in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For the recommended IPC values, see "IPC Resource Configuration on a UNIX System" on page D-1.

After installing the BEA Tuxedo software and creating an application configuration file (`UBBCONFIG` file), you use the `tmloadcf(1)` command to calculate and print a list of the minimum IPC resources needed to support the application. If your BEA Tuxedo application is distributed, the minimum IPC resources must be available on every machine participating in the application. For more information about calculating IPC resources using the `tmloadcf(1)` command, see "Performing Post-Installation Tasks" on page 6-1.

Note: Before installing BEA Tuxedo software on a UNIX system, BEA recommends that you adjust the IPC parameters on the target machine in accordance to "IPC Resource Configuration on a UNIX System" on page D-1.

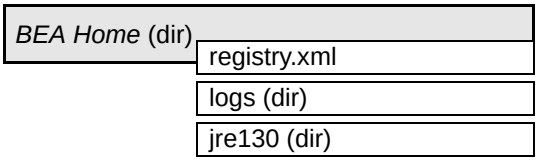
BEA Home Directory

When you install BEA Tuxedo, you are prompted to specify a BEA Home directory. The BEA Home directory is a repository for common files that are used by multiple BEA products installed on the same machine. For this reason, the BEA Home directory can be considered a "central support directory" for the BEA products installed on your system.

The files in the BEA Home directory are essential to ensuring that the BEA software operates correctly on your system. These files perform the following types of functions:

- Ensure that licensing works correctly for the installed BEA products
- Facilitate checking of cross-product dependencies during installation
- Facilitate service pack installation

The structure of the BEA Home directory created by the BEA Tuxedo 8.1 installer program is shown in the following illustration.



Choosing a BEA Home Directory

During the installation of BEA Tuxedo 8.1, you are prompted to choose an existing BEA Home directory or specify a path for a new BEA Home directory. If you choose to create a new directory, the BEA Tuxedo installer program automatically creates the directory for you.

Upon choosing a BEA Home directory, you are prompted to choose a BEA product directory for your BEA Tuxedo installation. You may choose to create your BEA product directory under the BEA Home directory, but there is no requirement to do so.

Understanding the Functions of the BEA Home Directory

The files and directories in a BEA Home directory created by the BEA Tuxedo installer are described in the following table.

Component	Description
`registry.xml` file	An XML registry file that contains a persistent record of all BEA products installed on the target system for this BEA Home directory. The registry contains product-related information, such as version level, service pack level, and product installation directory.
`logs` directory	A directory containing a BEA Home location file and a history file of installation and uninstallation for this BEA Home directory. For more information on these files, see the "Understanding the BEA Tuxedo Shortcuts on a Windows System" on page 2-11.
`jre130` directory	A directory containing the 1.3 version of the Java Runtime Environment (JRE). JRE 1.3 provides the Java Virtual Machine, or JVM, required by the BEA Tuxedo installation program. This version of the JRE is included in the BEA Tuxedo 8.1 distribution. It is automatically installed in the BEA Home directory when you install BEA Tuxedo. **Note:** The JRE cannot be used for development. To develop BEA Tuxedo Java client applications, you must ensure that the Java Development Kit (JDK) is installed on your system.

Creating More Than One BEA Home Directory

Although it is possible to create more than one BEA Home directory, BEA recommends that you avoid doing so. In almost all situations, a single BEA Home directory is sufficient. There may be circumstances, however, in which you prefer to maintain separate development and production environments, each containing a

separate product stack. With two directories, you can update your development environment (in a BEA Home directory) without modifying the production environment until you are ready to do so.

Installation Road Map

You are now ready to begin your installation. To install BEA Tuxedo 8.1, see one of the following sections:

- "Installing BEA Tuxedo Using GUI-Mode Installation" on page 2-1
- "Installing BEA Tuxedo on UNIX Systems Using Console-Mode Installation" on page 3-1
- "Installing BEA Tuxedo Using Silent Installation" on page 4-1

If you are upgrading from BEA WebLogic Enterprise or BEA Tuxedo 8.0 or earlier software, see "Upgrading the BEA Tuxedo System to Release 8.1" on page 5-1.

CHAPTER

2 Installing BEA Tuxedo Using GUI-Mode Installation

The following sections describe how to install BEA Tuxedo using graphical user interface (GUI) mode installation on both Windows and UNIX systems:

- What Is GUI-Mode Installation?
- Before You Start
- Starting GUI-Mode Installation on a Windows System
- Starting GUI-Mode Installation on a UNIX System
- Running GUI-Mode Installation
- Assigning File Ownership on a UNIX System
- Understanding the BEA Tuxedo Shortcuts on a Windows System
- Understanding the BEA Administration Program on a Windows System
- Reviewing the Windows 2000 Registry Content
- What Do I Do Next?

What Is GUI-Mode Installation?

The graphical user interface mode installation is the graphics-based method of executing the BEA Installation program. It can be run on both Windows and UNIX systems.

To run GUI-mode installation, the console attached to the machine on which you are installing the software must support a Java-based GUI. All consoles for Windows systems support Java-based GUIs, but not all consoles for UNIX systems do.

Note: To install BEA Tuxedo on a UNIX system with a non-graphics console, see "Installing BEA Tuxedo on UNIX Systems Using Console-Mode Installation" on page 3-1.

Before You Start

If you are upgrading from BEA WebLogic Enterprise or BEA Tuxedo 8.0 or earlier software, see "Upgrading the BEA Tuxedo System to Release 8.1" on page 5-1 and follow the instructions given there. Then return here to continue your BEA Tuxedo installation.

On a Windows machine that has the BEA WebLogic Enterprise software or an older version of the BEA Tuxedo software installed, a window named "Previous Version Detected!" will display at the very beginning of the BEA Tuxedo installation. This window contains a message that encourages you to exit the installation program and remove the older software before installing BEA Tuxedo 8.1.

If you choose to remove the older software, refer to "Upgrading the BEA Tuxedo System to Release 8.1" on page 5-1, follow the instructions to remove the older software from your machine, and then restart the installation.

If you choose *not* to remove the older software, install the BEA Tuxedo 8.1 software to a different directory than the directory in which the BEA WebLogic Enterprise software or the older version of the BEA Tuxedo software is installed.

Starting GUI-Mode Installation on a Windows System

To start the GUI-mode installation process on a Windows system, follow these steps:

1. Select a Windows system that meets the hardware and software requirements described in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.

   The Windows 98 and XP systems support only BEA Tuxedo client components.

2. Log in to the Windows system as the `Administrator` or as a member of the `Administrator` group.

   You need administrative privileges to install BEA Tuxedo server components on a Windows system. If you are going to install only BEA Tuxedo client components, you do not need administrative privileges.

3. Ensure that you have enough free space for the BEA Tuxedo installation.

   For disk space requirements, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For important disk space allocation information, see "File and Database Management and Disk Space Allocation" on page C-1.

4. If installing BEA Tuxedo by downloading from the BEA Web site:

   a. Go to `http://commerce.bea.com/downloads/tuxedo.jsp#tuxedo` and download the BEA Tuxedo 8.1 installation file specific to your platform, including the 30-day evaluation license file needed to complete the BEA Tuxedo installation.

   b. Go to the directory where you downloaded the BEA Tuxedo installer and double-click the installer filename to start the installation.

5. If installing BEA Tuxedo from the product software CD:

   Insert the BEA Tuxedo 8.1 product software CD into the CD-ROM drive. The Windows autorun feature automatically starts the installation.

To bypass the autorun feature, press and hold the Shift key for approximately 10 seconds while inserting the CD into the CD-ROM drive. You can then start the installation manually by double-clicking the CD-ROM icon.

6. Proceed to "Running GUI-Mode Installation" on page 2-5.

Starting GUI-Mode Installation on a UNIX System

To start the GUI-mode installation process on a UNIX system, follow these steps:

1. Select a UNIX system that meets the hardware and software requirements described in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.
2. Log in to the UNIX system as the BEA Tuxedo administrator.
3. Ensure that you have enough free space for the BEA Tuxedo installation.

   For disk space requirements, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For important disk space allocation information, see "File and Database Management and Disk Space Allocation" on page C-1.
4. If installing BEA Tuxedo by downloading from the BEA Web site:

   a. Go to `http://commerce.bea.com/downloads/tuxedo.jsp#tuxedo` and download the BEA Tuxedo 8.1 installation file specific to your platform, including the 30-day evaluation license file needed to complete the BEA Tuxedo installation.

   b. Go to the directory where you downloaded the installer and invoke the installation procedure by entering the following command:

      prompt> `sh` *`filename`*`.bin`

      where *`filename`* is the name of the BEA Tuxedo installer file.
5. If installing BEA Tuxedo from the product software CD:

   a. Mount the CD-ROM as a filesystem and insert the BEA Tuxedo CD-ROM into the CD-ROM drive.

b. Go to the top-level directory of the mounted CD-ROM.

c. Invoke the installation procedure by entering the following command:

prompt> `sh` *`filename`*`.bin`

where *`filename`* is the name of the BEA Tuxedo installer file specific to your platform.

6. Proceed to "Running GUI-Mode Installation" on page 2-5.

Running GUI-Mode Installation

The BEA Tuxedo installer program is currently available in English and Japanese. By checking the value of a certain language-related environment variable on the target platform, the installer program automatically determines (1) the language displayed during the installation and (2) the language-specific message catalog installed during the installation. If the language-related environment variable is not set or is set to a value unknown to the installer program, both the language displayed and the message catalog installed default to English.

The BEA Tuxedo installer program prompts you to enter specific information about your system and configuration. For instructions on responding to the prompts during installation, see the following table.

In This Window . . .	Perform the Following Action . . .
Introduction	Click Next to proceed with the installation. You may cancel the installation at any time by clicking Exit.
License Agreement	Read the BEA Software License Agreement and indicate your acceptance of the terms of the agreement by selecting Yes. The default is No. To continue with the installation, you must accept the terms of the license agreement and then click Next.

In This Window . . .	Perform the Following Action . . .
Choose Install Set	Select one of six install sets to be installed on your system: ■ Full Install (the default)—all Tuxedo server and client software components ■ Server Install—Tuxedo server software components only ■ Full Client Install—Tuxedo client software components only ■ Jolt Client Install—Jolt client software components only ■ ATMI (/WS) Client Install—Tuxedo ATMI client software components only ■ CORBA Client Install—Tuxedo CORBA client software components only For a detailed list of software component for each install set, see “Install Sets” on page A-9. On a Windows 98 or XP system, select Full Client Install, Jolt Client Install, ATMI (/WS) Client Install, or CORBA Client Install from the installation menu. A Windows 98 or XP system cannot be used as a BEA Tuxedo server machine. Select an install set and then click Next to launch the Choose BEA Home Directory window—your selection includes the appropriate encryption software for Link-Level Encryption (LLE) and/or Secure Sockets Layer (SSL). Or select an install set and then click Customize to launch the Customize Install window.

In This Window . . .	Perform the Following Action . . .
Customize Install	Select (add) or deselect (clear) one or more software components from the selected install set, or choose one of the other five install sets or Custom Set from the drop-down list menu and customize its software components. For a description of the JRLY component, see "Jolt Internet Relay" on page B-6. Observe the following software component mappings: ■ *Server*—contains ATMI server software; CORBA C++ server software; BEA Jolt server software; BEA SNMP Agent software, and BEA Tuxedo Administration Console software ■ *ATMI (/WS) Client*—contains BEA ATMI Workstation (/WS) client software ■ *CORBA Client*—contains BEA CORBA C++ client software (C++ client ORB) including environmental objects; and CORBA Java client software (BEA-branded Java client ORB) including environmental objects ■ *ActiveX Client (Windows only)*—contains BEA ActiveX client software for Windows systems, including environmental objects and the BEA Application Builder ■ *Jolt JRLY*—contains BEA Jolt Relay software ■ *Jolt Client*—contains BEA Jolt client software After selecting or deselecting one or more software components from the selected install set, click Next to continue with the installation. The appropriate encryption software for LLE and/or SSL is automatically included.
Choose BEA Home Directory	Specify the BEA Home directory that will serve as the central support directory for all BEA products installed on the target system. If you already have a BEA Home directory on your system, you can select that directory (recommended) or create a new BEA Home directory. If you choose to create a new directory, the BEA Tuxedo installer program automatically creates the directory for you. For details about the BEA Home directory, see "BEA Home Directory" on page 1-10. Choose a BEA Home directory and then click Next to continue with the installation.

In This Window . . .	Perform the Following Action . . .
Choose Product Directory	Specify the directory in which you want to install the BEA Tuxedo software. You may select the default product directory (`tuxedo8.1`) or create a new product directory. If you choose to create a new directory, the BEA Tuxedo installer automatically creates the directory for you. Choose a product directory and then click Install to start the BEA Tuxedo software installation.
Installing . . .	No user input is required here. The installation program is installing BEA Tuxedo in the user-specified product directory. It is normal for the installation progress bar to stop for a fairly long time, especially at the end. The BEA Tuxedo installer is still working when this occurs.
Create Tlisten Password	Enter a `tlisten` password of your choice. Your password must be a string of alphanumeric characters in clear-text format that is no more than 80 characters in length. You use this password to log in to the BEA Tuxedo Administration Console. BEA Tuxedo uses the `tlisten` password to protect the local machine from administrative requests and operations that are *not* authorized. Whenever administrative communications arrive on the local machine through `tlisten(1)` or `wlisten(1)` gateway processes, BEA Tuxedo authenticates them by means of the `tlisten` password. Enter and re-enter a `tlisten` password and then click Next to continue.
SSL Installation Choice	This window appears only if you have installed CORBA server and/or client software components. BEA Tuxedo provides a Lightweight Directory Access Protocol (LDAP) based certificate retrieval mechanism that supports certificate-based authentication when using SSL. The BEA Tuxedo certificate retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server. Choose whether or not you want to install SSL support. If you intend to use SSL encryption in your application, select Yes and then click Next to launch the LDAP Configuration window. If you do *not* intend to use SSL encryption in your application, select No and then click Next to launch the License Installation Choice window.

In This Window . . .	Perform the Following Action . . .
LDAP Configuration	Enter the following LDAP configuration information and then click Next to continue: ■ Fully qualified domain name of the LDAP server (for example, `pcwiz.mydomain.com`) ■ Port number through which the local machine communicates with the LDAP server (for example, `389`) ■ Distinguished name of the base object for search in the LDAP server (for example, `o=beasys.com`) ■ LDAP filter file (*`tux_prod_dir`*`/udataobj/security/bea_ldap_filter.dat` by default, where *`tux_prod_dir`* represents the product directory in which you installed the BEA Tuxedo software)
License Installation Choice	Choose whether or not you want to install the BEA Tuxedo product license now. To install the license now, select Yes and then click Next to launch the License File Browser window. To install the license later, select No and then click Next to launch the Install Complete window. For instructions on installing the product license manually, see "Installing the Product License After You Install BEA Tuxedo" on page 6-8.

In This Window . . .	Perform the Following Action . . .
Choose License Location Directory	Read the following important information, specify the location of the license file on your machine, and then click Next to continue. ■ There are three types of licenses for the BEA Tuxedo product: a 30-day evaluation license, a development license, and a production license. (When a 30-day evaluation license expires, a customer may decide to buy the BEA Tuxedo product, thus upgrading the evaluation license to a development or production license.) All licenses come with 56-bit encryption enabled by default. Licenses with 128-bit encryption enabled are available but require a separate authorization procedure. ■ After acquiring your license, which is packaged as a file named `lic.txt`, you copy the license file to the machine targeted to receive the BEA Tuxedo installation. After you specify the location of the `lic.txt` file during the installation, the BEA Tuxedo installer copies the `lic.txt` file to the *`tux_prod_dir`*`/udataobj` directory, where *`tux_prod_dir`* represents the product directory in which you installed the BEA Tuxedo software.
Install Complete	Click Done to exit the installation program.

Congratulations! Your installation of the BEA Tuxedo software is complete!

Assigning File Ownership on a UNIX System

If you installed the BEA Tuxedo software on a UNIX system, BEA strongly recommends that you create a separate user account for the BEA Tuxedo administrator and give ownership of the BEA Tuxedo files to that account. To change ownership of the BEA Tuxedo software on a UNIX machine, enter the following command:

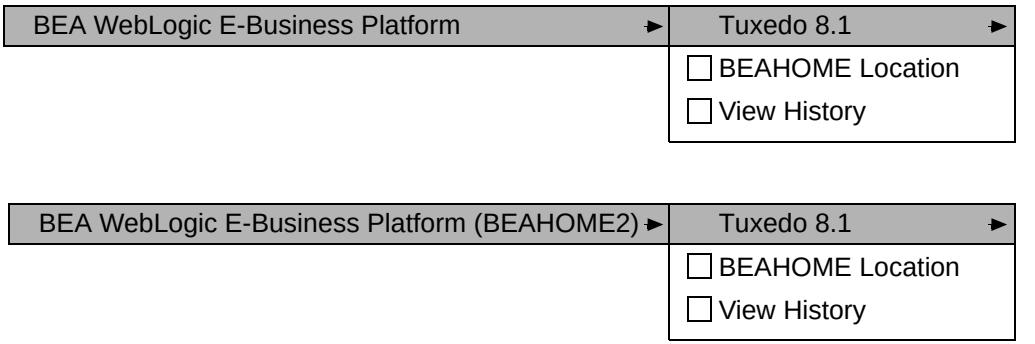
```
chown -R adm_account full_path_of_tux_prod_dir
chgrp -R adm_group full_path_of_tux_prod_dir
```

Replace *adm_account* with the BEA Tuxedo administrator account, replace *adm_group* with the BEA Tuxedo administrator group ID, and replace *full_path_of_tux_prod_dir* with the full pathname of the product directory in which you installed the BEA Tuxedo software.

Understanding the BEA Tuxedo Shortcuts on a Windows System

When installing the BEA Tuxedo software on a Windows system, the installer program automatically uses BEA WebLogic E-Business Platform as the parent folder for BEA Tuxedo. As additional BEA Home directories are added to the system, the installer program continues to create new BEA WebLogic E-Business Platform folders using the convention shown in the following figure.

Figure 2-1 Tracking Multiple BEA Home Directories on the Same Windows System



Each BEA Home directory has an associated BEA WebLogic E-Business Platform folder. Each BEA WebLogic E-Business Platform folder contains one or more BEA product folders (see note) and two files: BEAHOME Location and View History.

Note: Because a BEA Home directory may be the home directory for a BEA Tuxedo installation, a BEA WebLogic Server installation, or other BEA product installations, a BEA WebLogic E-Business Platform folder may contain multiple BEA product folders.

For a given BEA Home directory and BEA WebLogic E-Business Platform folder, the BEAHOME file contains the pathname of the BEA Home directory, and the View History file contains a history of installation and uninstallation for the BEA Home directory. Double-clicking the text icon associated with either file displays its content. The BEAHOME and history files contain information extracted from the `logs/log.txt` file located in the BEA Home directory.

The Tuxedo 8.1 folder (Start → Programs → BEA WebLogic E-Business Platform → Tuxedo 8.1) contains the following shortcuts:

- *AppBuilder*—appears only if you installed ActiveX clients. Choosing AppBuilder enables you to launch the BEA Application Builder development tool, which is a GUI application program used to create ActiveX clients. For more information about Application Builder, see *CORBA ActiveX Online Help* .
- *bealic*—appears even if you did install the BEA Tuxedo product license during the installation. Choosing bealic enables you to install the product license (`lic.txt` file) after the installation. For more information about installing the license file, see “Installing the Product License After You Install BEA Tuxedo” on page 6-8.
- *uninstall*—choosing uninstall enables you to uninstall the BEA Tuxedo 8.1 software. For more information about uninstalling BEA Tuxedo, see “Uninstalling BEA Tuxedo” on page 6-37.

Understanding the BEA Administration Program on a Windows System

In addition to the BEA Tuxedo Administration Console, the BEA Tuxedo 8.1 software for Windows provides a BEA Administration program and two Windows services (Tlisten and BEA procMGR) for configuring the BEA Tuxedo system on a Windows 2000 system. Only if the installation included BEA Tuxedo server components will these additional administration tools be installed on the Windows 2000 system.

After you have installed or upgraded the BEA Tuxedo software on your Windows 2000 system, you can use the BEA Administration window to perform the following tasks:

- Access other machines on the network on which the BEA Tuxedo system is installed
- Set and modify environment variables for the BEA Tuxedo system
- Direct BEA Tuxedo system messages to the Windows 2000 Event Log
- Configure BEA Tuxedo `tlisten(1)` processes to start automatically
- Tune interprocess communication (IPC) resources to maximize BEA Tuxedo system performance

For instructions on performing these tasks, see “Configuring BEA Tuxedo ATMI for Windows 2000” on page 2-1 in *Using BEA Tuxedo ATMI on Windows*.

Reviewing the Windows 2000 Registry Content

The Windows 2000 Registry is the repository for all hardware, software, and application configuration settings for the Windows 2000 system. During the BEA Tuxedo installation, the installer program writes general installation information as well as IPC Resource values to the Registry. The structure of the Registry relevant to BEA Tuxedo is as follows.

```
HKEY_LOCAL_MACHINE\Software\BEA Systems\Tuxedo\8.1\...
```

- `Developer`
- `Environment`
- `Security`

To view this structure, choose Start →Run to launch the Run dialog box, enter `regEdt32`, and click OK to launch the Registry Editor window.

Developer Key

The Developer key stores product information, including the major and minor version numbers of the release, and user and company names.

Environment Key

The Environment key stores the locations referenced by the BEA Tuxedo environment variables set on your Windows 2000 system. It also stores other values such as IPC resource settings.

Security Key

The Security key holds the access permissions for BEA Tuxedo processes and services. The following permissions are mandatory:

- Any user who runs `tlisten(1)` must have read access permissions.
- The account under which the BEA ProcMGR service is running must have read access permissions.

BEA recommends that the `Administrator` have full control permissions.

What Do I Do Next?

To configure your BEA Tuxedo software and verify that your software is installed correctly, see “Performing Post-Installation Tasks” on page 6-1.

CHAPTER

3 Installing BEA Tuxedo on UNIX Systems Using Console-Mode Installation

The following sections describe how to install BEA Tuxedo using console-mode installation:

- What Is Console-Mode Installation?
- Before You Start
- Starting Console-Mode Installation
- Running Console-Mode Installation
- What Do I Do Next?

What Is Console-Mode Installation?

Console-mode installation is the text-based method of executing the BEA Installation program. It can be run only on UNIX systems and is intended for UNIX systems with non-graphics consoles. Console-mode installation offers the same capabilities as graphics-based installation except that no customizing of install sets is possible with console-mode installation.

Before You Start

If you are upgrading from BEA WebLogic Enterprise or BEA Tuxedo 8.0 or earlier software, see "Upgrading the BEA Tuxedo System to Release 8.1" on page 5-1 and follow the instructions given there. Then return here to continue your BEA Tuxedo installation.

Starting Console-Mode Installation

To start the console-mode installation process, follow these steps:

1. Select a UNIX system that meets the hardware and software requirements described in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.
2. Log in to the UNIX system as the BEA Tuxedo administrator.
3. Ensure that you have enough free space for the BEA Tuxedo installation.

   For disk space requirements, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For important disk space allocation information, see "File and Database Management and Disk Space Allocation" on page C-1.
4. If installing BEA Tuxedo by downloading from the BEA Web site:

a. Go to http://commerce.bea.com/downloads/tuxedo.jsp#tuxedo and download the BEA Tuxedo 8.1 installation file specific to your platform, including the 30-day evaluation license file needed to complete the BEA Tuxedo installation.

b. Go to the directory where you downloaded the installer and invoke the installation procedure by entering the following command:

prompt> `sh filename.bin -i console`

where *filename* is the name of the BEA Tuxedo installer file.

5. If installing BEA Tuxedo from the product software CD:

a. Mount the CD-ROM as a filesystem and insert the BEA Tuxedo CD-ROM into the CD-ROM drive.

b. Go to the top-level directory of the mounted CD-ROM.

c. Invoke the installation procedure by entering the following command:

prompt> `sh filename.bin -i console`

where *filename* is the name of the BEA Tuxedo installer file specific to your platform.

6. Proceed to “Running Console-Mode Installation” on page 3-3.

Running Console-Mode Installation

To complete the console-mode installation process, which is currently available in English and Japanese, respond to the prompts in each section by entering the number associated with your choice or by pressing Enter to accept the default. To exit the installation process, enter `quit` in response to any prompt. To review or change your selection, enter `back` at the prompt.

In This Section . . .	Perform the Following Action . . .

Choose Locale	Choose a language by entering the number associated with that language. Your choice determines both the language displayed during the installation and the language-specific message catalog installed during the installation.
	
	`==========`
	
	`Choose Locale...`
	
	`->1- English`
	`2- Japanese`
	
	`CHOOSE LOCALE BY NUMBER:`
	
	`==========`
	
	For example, if you want Japanese, enter 2 at the `CHOOSE LOCALE BY NUMBER` prompt. The default is English.

Introduction	Press Enter to continue with the installation process.

License Agreement	Read the BEA Software License Agreement and indicate your acceptance or rejection of the terms of the agreement by entering `Y` or `N`, respectively, at the prompt. To review the entire agreement, you must press Enter several times. To proceed with the installation, you must enter `Y` to indicate your agreement with the terms of the license. If you enter `N`, the following warning appears:
	
	`Warning:`
	`If you do not accept the licensing terms you will not be allowed to continue with the install.`
	
	`DO YOU AGREE WITH THE TERMS OF THE LICENSE? (Y/N):`
	
	If you enter `N`, the installation process terminates.

In This Section . . .	Perform the Following Action . . .

Choose Install Set	Select the install set that you want installed on your system. The following choices appear:
	
	`==========`
	
	`Choose Install Set`
	`----------`
	`Please Choose the Install Set to be installed by this installer.`
	
	`->1- Full Install`
	`2- Server Install`
	`3- Full Client Install`
	`4- Jolt Client Install`
	`5- ATMI (/WS) Client Install`
	`6- CORBA Client Install`
	
	`ENTER THE NUMBER FOR THE INSTALL SET, OR <ENTER> TO ACCEPT THE DEFAULT:`
	
	`==========`
	
	For a list of software component for each install set, see “Install Sets” on page A-9.
	
	On a Windows 98 or XP system, enter `3`, `4`, `5`, or `6`. A Windows 98 or XP system cannot be used as a BEA Tuxedo server machine.
	
	Your selection includes the appropriate encryption software for Link-Level Encryption (LLE) and/or Secure Sockets Layer (SSL).

In This Section . . .	Perform the Following Action . . .

Choose BEA Home Directory	Specify the BEA Home directory that will serve as the central support directory for all BEA products installed on the target system. If you already have a BEA Home directory on your system, you can select that directory (recommended) or create a new BEA Home directory. If you choose to create a new directory, the BEA Tuxedo installer program will automatically create the directory for you. For details about the BEA Home directory, see "BEA Home Directory" on page 1-10.
	
	Enter `1` to create a new BEA Home directory or, if you already have a BEA Home directory on your system, enter `2` to select an existing BEA Home directory. Be sure to use the full pathname when specifying a new BEA Home directory.
	
	For example:
	
	`==========`
	`Choose BEA Home Directory`
	`----------`
	`1- Create a New BEA Home`
	`2- Use Existing BEA Home`
	`Enter a number: 2`
	`1- /home3/bea`
	`2- /home2/beahome`
	`Existing BEA Home: 1`
	`==========`
	
	In this example, we enter `2` to display the BEA Home directories that have already been created on this system. At the `Existing BEA Home` prompt, we enter `1` to specify `/home3/bea` as the BEA Home directory for this installation. Make sure that you enter the number associated with the BEA Home directory instead of the directory name.

In This Section . . .	Perform the Following Action . . .

Choose Product Directory	Specify the directory in which you want to install the BEA Tuxedo software. You may select the default product directory (`tuxedo8.1`) or create a new product directory. If you choose to create a new directory, the BEA Tuxedo installer will automatically create the directory for you.
	The initial default installs the product directory under the BEA Home directory you specified in the previous section. To accept this default, enter `2` at the prompt.
	The choices displayed in this section are as follows:
	`==========`
	`Choose Product Directory`
	`----------`
	`1- Modify Current Selection (/home3/bea/tuxedo8.1)`
	`2- Use Current Selection (/home3/bea/tuxedo8.1)`
	`Enter a number:`
	`==========`
	■ Enter `1` to select an alternate directory. The following text appears:
	`Specify Product Installation Directory:`
	Specify a product directory using its full pathname. For example:
	`/home3/mytux8.1`.
	When you press Enter, your modified selection appears as the default.
	`1- Modify Current Selection (/home3/mytux8.1)`
	`2- Use Current Selection (/home3/mytux8.1)`
	`Enter a number:`
	■ Enter `2` to accept the current selection.
	If you enter `2` at the initial prompt, you accept the default product directory (`/home3/bea/tuxedo8.1` in this example).

Installing . . .	No user input is required here. The installation program is installing BEA Tuxedo in the user-specified product directory. It is normal for the installation progress bar to stop for a fairly long time, especially at the end. The BEA Tuxedo installer is still working when this occurs.
Create Tlisten Password	Enter a `tlisten` password of your choice. Your password must be a string of alphanumeric characters in clear-text format that is no more than 80 characters in length. You use this password to log in to the BEA Tuxedo Administration Console. BEA Tuxedo uses the `tlisten` password to protect the local machine from administrative requests and operations that are *not* authorized. Whenever administrative communications arrive on the local machine through `tlisten(1)` or `wlisten(1)` gateway processes, BEA Tuxedo authenticates them by means of the `tlisten` password.

In This Section . . .	Perform the Following Action . . .

Enter Your LDAP Settings for SSL Support	This section appears only if you have installed CORBA server and/or client software components. BEA Tuxedo provides a Lightweight Directory Access Protocol (LDAP) based certificate retrieval mechanism that supports certificate-based authentication when using SSL. The BEA Tuxedo certificate retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
	
	`==========`
	
	`Enter Your LDAP Settings for CORBA SSL Support`
	`----------`
	`1- Enter LDAP Configuration Information`
	`2- Do Not Enter LDAP Configuration Information`
	`Enter a number:`
	
	`==========`
	
	Choose whether or not you want to enter LDAP configuration information. If you intend to use SSL encryption in your application, enter `1` and then enter the following LDAP configuration information:
	■ Fully qualified domain name of the LDAP server
	■ Port number through which the local machine communicates with the LDAP server
	■ Distinguished name of the base object for search in the LDAP server
	■ LDAP filter file location
	For example:
	
	`==========`
	
	`Enter Your LDAP Settings for CORBA SSL Support`
	`----------`
	`1- Enter LDAP Configuration Information`
	`2- Do Not Enter LDAP Configuration Information`
	`Enter a number: 1`
	
	`LDAP Service Name: pcwiz.beasys.com`
	`LDAP PortID: 389`
	`LDAP BaseObject: o=beasys.com`
	`LDAP Filter File Location: /home3/bea/tuxedo8.1/`
	`udataobj/security/bea_ldap_filter.dat`
	
	`==========`
	
	To *not* enter LDAP information, enter `2` to proceed to the next section.

In This Section . . .	Perform the Following Action . . .

License Selection Option	Choose whether or not you want to install the BEA Tuxedo product license now. To install the license now, read the following important information, enter `1`, and then specify the location of the license file on your machine.
	■ There are three types of licenses for the BEA Tuxedo product: a 30-day evaluation license, a development license, and a production license. (When a 30-day evaluation license expires, a customer may decide to buy the BEA Tuxedo product, thus upgrading the evaluation license to a development or production license.) All licenses come with 56-bit encryption enabled by default. Licenses with 128-bit encryption enabled are available but require a separate authorization procedure.
	■ After acquiring your license, which is packaged as a file named `lic.txt`, you copy the license file to the machine targeted to receive the BEA Tuxedo installation. After you specify the location of the `lic.txt` file during the installation, the BEA Tuxedo installer copies the `lic.txt` file to the *`tux_prod_dir`*`/udataobj` directory, where *`tux_prod_dir`* represents the product directory in which you installed the BEA Tuxedo software.
	The actual wording in the License Selection Option section differs between a Tuxedo server installation (Full Install, Server Install) and a client only installation. The following example applies to a Tuxedo server installation:
	`==========`
	`License Selection Option`
	`----------`
	`1- Copy License File Now`
	`2- Copy License File Later`
	`Enter a number: 1`
	`Specify a Path to your License File: /home3/lic.txt`
	`==========`
	To install the license later, select `2` to proceed to the next section. For instructions on installing the product license manually, see “Installing the Product License After You Install BEA Tuxedo” on page 6-8.

Install Complete	Press Enter to exit the installation program.

Congratulations! Your installation of the BEA Tuxedo software is complete!

What Do I Do Next?

To prepare for the post-installation tasks, see “Assigning File Ownership on a UNIX System” on page 2-10. To configure your BEA Tuxedo software and verify that your software is installed correctly, see “Performing Post-Installation Tasks” on page 6-1.

CHAPTER

4 Installing BEA Tuxedo Using Silent Installation

The following sections describe how to install BEA Tuxedo using silent installation on both Windows and UNIX systems:

- What Is Silent Installation?
- Before You Start
- Using Silent Installation: Main Steps
- Creating a Template File
- Invoking the Silent Installation Process on a Windows System
- Invoking the Silent Installation Process on a UNIX System
- Windows Template File
- UNIX Template File
- What Do I Do Next?

What Is Silent Installation?

Silent installation reads the settings for your configuration from a text file that you create prior to beginning the installation. Manual intervention is not necessary during the installation process. Silent installation works on both Windows and UNIX systems.

Silent installation is a way of setting installation configurations only once and then using those configurations to duplicate the installation on many machines.

Note: Using silent installation implies your consent to the BEA License Agreement. You neither see a copy of the BEA Software License Agreement nor have any means to accept the terms of the agreement.

Before You Start

If you are upgrading from BEA WebLogic Enterprise or BEA Tuxedo 8.0 or earlier software, see "Upgrading the BEA Tuxedo System to Release 8.1" on page 5-1 and follow the instructions given there. Then return here to continue your BEA Tuxedo installation.

Using Silent Installation: Main Steps

The silent installation process has two primary steps:

1. Create a template file that contains the configuration settings, such as BEA Home directory, product directory, and install set appropriate for your installation.

   For the detailed procedure, see "Creating a Template File" on page 4-3. Two sample template files are provided in "Windows Template File" on page 4-9 and "UNIX Template File" on page 4-12.

2. Invoke the installation process using the values specified in the template files.

   For the detailed procedure, see "Invoking the Silent Installation Process on a Windows System" on page 4-6 and "Invoking the Silent Installation Process on a UNIX System" on page 4-8.

Creating a Template File

To create a template file for use in the silent installation process, follow these steps:

1. Display the template file specific to your platform. The following templates are available in:
   - Windows template file content at "Windows Template File" on page 4-9.
   - UNIX template file content at "UNIX Template File" on page 4-12.
2. Copy the contents of the template file and save it as a text file named `installer.properties`.
3. In the `installer.properties` file, modify the values for the keywords shown in the following table to create your desired configuration.

Table 4-1 The installer.properties File

For This Keyword . . .	Enter the Following Value . . .
`INSTALLER_UI=`	The mode of installation. The default is `silent`; do not modify this value.
`USER_LOCALE=`	A language code determining the language-specific message catalog installed during the installation. Besides `en` (the default) for English, you can set this value to `ja` (or `ja_JP`) for Japanese.
`BEAHOME=`	The full pathname of the BEA Home directory of your choice. For details about the BEA Home directory, see "BEA Home Directory" on page 1-10.
`USER_INSTALL_DIR=`	The full pathname of the product directory of your choice.

Table 4-1 The installer.properties File (Continued)

For This Keyword . . .	Enter the Following Value . . .
`C_ldapName=`	The fully qualified domain name of the Lightweight Directory Access Protocol (LDAP) server of your choice; for example, `pcwiz.mydomain.com`. (See Note at end of table.)
`C_ldapPortID=`	The port number through which the local machine communicates with the LDAP server; for example, `389`.* (See Note at end of table.)
`C_ldapBaseObj=`	The distinguished name of the base object for search in the LDAP server; for example, `o=beasys.com`. (See Note at end of table.)
`C_ldapFiltFile=`	The full pathname of the LDAP filter file on your machine; for example, `C:\bea\tuxedo8.1\udataobj\security\bea_ldap_filter.dat`. (See Note at end of table.)
`C_tlistenPassword=`	A `tlisten` password of your choice. The password must be a string of alphanumeric characters in clear-text format that is no more than 80 characters in length. You will be prompted to enter this password when logging in to the BEA Tuxedo Administration Console.
`USER_LIC_FILE=`	The full pathname of the BEA Tuxedo 8.1 license file on your machine; pathname must end with `lic.txt`.

Table 4-1 The installer.properties File (Continued)

For This Keyword . . .	Enter the Following Value . . .
`CHOSEN_INSTALL_SET=`	The chosen installation set. You must set this value to one of the following options: **Note:** The valid options are case sensitive and should be coded exactly as defined below for proper installation. If a valid option is not used, a faulty installation results. ■ `Full Install` for a full installation, ■ `Server Install` for server-only installation, ■ `Full Client Install` for full client installation, ■ `ATMI (WS) Client Install` for ATMI-client-only (/WS) installation, ■ `CORBA Client` for CORBA-client-only installation, or ■ `Jolt Client Install` for Jolt-client-only installation No customizing of install sets is possible with silent-mode installation. For a description of install sets, see "Install Sets" on page A-9.

`BEAHOMES_NEW (Windows only)`	The list of BEA home directories of the various BEA products installed on the machine. Prepend any new BEA home directories. Use a semicolon to separate entries. The list of existing BEA home directories are available in the `BEAHOMELIST` registry entry or from the file:
	`C:\bea\beahomelist`
	For example, given the following registry entry, `c:\bea\tux\80;c:\tux`
	if you set the `BEAHOME` keyword in the template file to:
	`BEAHOME=D:\\bea\\tux\\80`:
	then you would also set `BEAHOMES_NEW=D:\\bea\\tux\\80;c:\\bea\\tux\\80;c:\\tux`
	Note: Backslashes must be escaped.

Note: Keywords `C_ldapName`, `C_ldapPortID`, `C_ldapBaseObj`, and `C_ldapFiltFile` are optional. Include these keywords and their values only if you install CORBA server and/or client software components on your machine and you want to use Secure Sockets Layer (SSL) encryption. Otherwise, comment these lines out by preceding them with hash marks (#).

In the template files, comment lines are preceded by hash marks (#). The installer program does not read any line beginning with a hash mark.

Invoking the Silent Installation Process on a Windows System

Installing the software using silent installation takes the same amount of time as a standard installation. During silent installation, an initial installation program window appears briefly, indicating that the installation has started.

To invoke the silent installation process on a Windows system, follow these steps:

1. Select a Windows system that meets the hardware and software requirements described in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.

   The Windows 98 or XP system supports only BEA Tuxedo client components.

2. Log in to the Windows system as the `Administrator` or as a member of the `Administrator` group.

   You need administrative privileges to install BEA Tuxedo server components on a Windows system. If you are going to install only BEA Tuxedo client components, you do not need administrative privileges.

3. Ensure that you have enough free space for the BEA Tuxedo installation.

   For disk space requirements, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For important disk space allocation information, see "File and Database Management and Disk Space Allocation" on page C-1.

4. If installing BEA Tuxedo by downloading from the BEA Web site:

   a. Open a command-line shell.

b. Go to `http://commerce.bea.com/downloads/tuxedo.jsp#tuxedo` and download the BEA Tuxedo 8.1 installation file specific to your platform, including the 30-day evaluation license file needed to complete the BEA Tuxedo installation.

c. Go to the directory where you downloaded the installer and invoke the installation procedure by entering the following command:

prompt> *`filename`*`.exe -f` *`path`*`\installer.properties`

where *`filename`* is the name of the BEA Tuxedo installer file, and *`path`* is the full or relative pathname of the `installer.properties` file.

Note: If a file named `installer.properties` is present in the same directory as the installer (for example, `tuxedo81_win.exe`), it will be supplied automatically in silent mode. However, if `installer.properties` is in a different directory, you may use the `-f` command line option to specify the properties file. For example, *`filename.exe`* `-f` *`path`*`\installer.properties`

5. If installing BEA Tuxedo from the CD-ROM:

a. While pressing and holding the Shift key, insert the BEA Tuxedo CD-ROM into the CD-ROM drive. Hold the Shift key for approximately 10 seconds to bypass the autorun feature.

b. Open a command-line shell.

c. Go to the top-level directory of the mounted CD-ROM.

d. Invoke the installation procedure by entering the following command:

prompt> *`filename`*`.exe -f` *`path`*`\installer.properties`

where *`filename`* is the name of the BEA Tuxedo installer file specific to your platform, and *`path`* is the full or relative pathname of the `installer.properties` file.

6. To verify that the software installed successfully, see “Performing Post-Installation Tasks” on page 6-1.

Invoking the Silent Installation Process on a UNIX System

Installing the software using silent installation takes the same amount of time as a standard installation. During silent installation, a startup message appears followed by an "Installing . . ." message, indicating that the installation has started.

To invoke the silent installation process on a UNIX system, follow these steps:

1. Select a UNIX system that meets the hardware and software requirements described in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.
2. Log in to the UNIX system as the BEA Tuxedo administrator.
3. Ensure that you have enough free space for the BEA Tuxedo installation.

   For disk space requirements, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. For important disk space allocation information, see "File and Database Management and Disk Space Allocation" on page C-1.
4. If installing BEA Tuxedo by downloading from the BEA Web site:
   a. Go to `http://commerce.bea.com/downloads/tuxedo.jsp#tuxedo` and download the BEA Tuxedo 8.1 installation file specific to your platform, including the 30-day evaluation license file needed to complete the BEA Tuxedo installation.
   b. Go to the directory where you downloaded the installer and invoke the installation procedure by entering the following command:

      prompt> `sh` *`filename`*`.bin -f` *`path`*`/installer.properties`

      where *`filename`* is the name of the BEA Tuxedo installer file, and *`path`* is the full or relative pathname of the `installer.properties` file.

      Note: If a file named `installer.properties` is present in the same directory as the installer (for example, `tuxedo81_sol.exe`), it will be supplied automatically in silent mode. However, if `installer.properties` is in a different directory, you may use the `-f` command line option to specify the properties file. For example, *`filename.exe`* `-f` *`path/`*`installer.properties`

5. If installing BEA Tuxedo from the CD-ROM:

   a. Mount the CD-ROM as a filesystem and insert the BEA Tuxedo CD-ROM into the CD-ROM drive.

   b. Go to the top-level directory of the mounted CD-ROM.

   c. Invoke the installation procedure by entering the following command:

      prompt> `sh filename.bin -f path/installer.properties`

      where *`filename`* is the name of the BEA Tuxedo installer file specific to your platform, and *`path`* is the full or relative pathname of the `installer.properties` file.

6. To verify that the software installed successfully, see "Performing Post-Installation Tasks" on page 6-1.

Windows Template File

This sample Windows template file applies to a silent installation of BEA Tuxedo 8.1.

```
################################################
### Silent Installation Properties File
################################################
INSTALLER_UI=silent
################################################
### Locale
################################################
USER_LOCALE=en
################################################
### BEA Home Directory
### NOTE: backslashes must be escaped.
################################################
BEAHOME=C:\\bea
################################################
### Product Installation Directory
################################################
USER_INSTALL_DIR=C:\\bea\\tuxedo8.1
################################################
### LDAP Service Name
################################################
### C_ldapName=pcwiz.mydomain.com
```

```
################################################
### LDAP PortID
################################################
### C_ldapPortID=389
################################################
### LDAP BaseObject
################################################
### C_ldapBaseObj="o=beasys.com"
################################################
### LDAP Filter File Location
################################################
C_ldapFiltFile=C:\\bea\\tuxedo8.1\\udataobj\\security\\bea_ldap_f
ilter.dat
################################################
### Default Listen Port, User Can Run
### BEA Tuxedo 8.1 Administration in
### Control Panel to Change to Another Port
################################################
C_serverListenPort=3050
################################################
### Tlisten Password
################################################
C_tlistenPassword=abcd1234
################################################
### User License File
################################################
USER_LIC_FILE=C:\\myfiles\\lic.txt
################################################
### Valid Install Sets, select one:
###
### CHOSEN_INSTALL_SET=Full Install
### CHOSEN_INSTALL_SET=Server Install
### CHOSEN_INSTALL_SET=Full Client Install
### CHOSEN_INSTALL_SET=ATMI (WS) Client Install
### CHOSEN_INSTALL_SET=CORBA Client Install
### CHOSEN_INSTALL_SET=Jolt Client Install
################################################
CHOSEN_INSTALL_SET=Full Install
################################################
### List of BEA Home Directories
################################################
BEAHOMES_NEW=C:\\bea
```

Post Release Windows Platform Template File

The following post-release Windows platforms use a slightly modified silent install template:

- Microsoft Windows 2003 Server (32-bit) on Pentium
- Microsoft Windows 2003 Server (64-bit) on Itanium

Please note the following example:

```
################################################
### Silent Installation Properties File
################################################
INSTALLER_UI=silent
################################################
### BEA Home Directory
### NOTE: backslashes must be escaped.
################################################
BEAHOME=C:\\home\\user\\bea
################################################
### Product Installation Directory
################################################
USER_INSTALL_DIR=C:\\home\\user\\bea\\tuxedo8.1
################################################
### LDAP PortID
################################################
LDAP_PORTID=389
################################################
### LDAP Host Name
################################################
LDAP_HOSTNAME=pcwiz.mydomain.com
################################################
### LDAP BaseObject
################################################
LDAP_BASE_OBJECT="o=beasys.com"
################################################
### LDAP Filter File Location
################################################
LDAP_FILTER_FILE=C:\\home\\user\\bea\\tuxedo8.1\\udataobj\\securi
ty\\bea_ldap_filter.dat
################################################
### Default Listen Port, User Can Run
### BEA Tuxedo 9.1 Administration in
### Control Panel to Change to Another Port
################################################
TLISTEN_PORT=1357
```

```
################################################
### Tlisten Password
################################################
TLISTEN_PASSWORD=luckluck
################################################
### User License File
################################################
USER_LIC_FILE=C:\\home\\user\\lic.txt
################################################
### Valid Install Sets, select one:
###
### CHOSEN_INSTALL_SET=Full Install
### CHOSEN_INSTALL_SET=Server Install
### CHOSEN_INSTALL_SET=Full Client Install
### CHOSEN_INSTALL_SET=ATMI Client Install
### CHOSEN_INSTALL_SET=CORBA Client Install
### CHOSEN_INSTALL_SET=Jolt Client Install
################################################
CHOSEN_INSTALL_SET=Full Install
```

UNIX Template File

This sample UNIX template file applies to a silent installation of BEA Tuxedo 8.1.

```
################################################
### Silent Installation Properties File
################################################
INSTALLER_UI=silent
################################################
### Locale
################################################
USER_LOCALE=en
################################################
### BEA Home Directory
################################################
BEAHOME=/home/rsmith/bea
################################################
### Product Installation Directory
################################################
USER_INSTALL_DIR=/home/rsmith/bea/tuxedo8.1
################################################
### LDAP Service Name
################################################
### C_ldapName=pcwiz.mydomain.com
```

```
################################################
### LDAP PortID
################################################
### C_ldapPortID=389
################################################
### LDAP BaseObject
################################################
### C_ldapBaseObj="o=beasys.com"
################################################
### LDAP Filter File Location
################################################
### C_ldapFiltFile=/home/rsmith/bea/tuxedo8.1/udataobj/security/
  bea_ldap_filter.dat
################################################
### Default Listen Port
################################################
C_serverListenPort=3050
################################################
### Tlisten Password
################################################
C_tlistenPassword=abcd1234
################################################
### User License File
################################################
USER_LIC_FILE=/home/rsmith/lic.txt
################################################
### Default Install Set
################################################
### Valid Install Sets, select one:
###
### CHOSEN_INSTALL_SET=Full Install
### CHOSEN_INSTALL_SET=Server Install
### CHOSEN_INSTALL_SET=Full Client Install
### CHOSEN_INSTALL_SET=ATMI (WS) Client Install
### CHOSEN_INSTALL_SET=CORBA Client Install
### CHOSEN_INSTALL_SET=Jolt Client Install
################################################
CHOSEN_INSTALL_SET=Full Install
```

Post Release UNIX Platform Template File

The following post-release UNIX platforms use a slightly modified silent install template:

- Red Hat Linux Advanced Server 3.0 (64-Bit) on Itanium 2

- Solaris 10 (32-bit) on x86 (64-bit AMD64)
- SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium

Please note the following example:

```
################################################
### Silent Installation Properties File
################################################
INSTALLER_UI=silent
################################################
### BEA Home Directory
################################################
BEAHOME=/home/user/bea
################################################
### Product Installation Directory
################################################
USER_INSTALL_DIR=/home/user/bea/tuxedo8.1
################################################
### LDAP PortID
################################################
LDAP_PORTID=389
################################################
### LDAP Host Name
################################################
LDAP_HOSTNAME=pcwiz.mydomain.com
################################################
### LDAP BaseObject
################################################
LDAP_BASE_OBJECT="o=beasys.com"
################################################
### LDAP Filter File Location
################################################
LDAP_FILTER_FILE=/home/user/bea/tuxedo8.1/udataobj/security/bea_l
dap_filter.dat
################################################
### Default Listen Port
################################################
TLISTEN_PORT=1357
################################################
### Tlisten Password
################################################
TLISTEN_PASSWORD=luckluck
################################################
### User License File
################################################
USER_LIC_FILE=/home/user/lic.txt
################################################
### Valid Install Sets, select one:
```

```
###
### CHOSEN_INSTALL_SET=Full Install
### CHOSEN_INSTALL_SET=Server Install
### CHOSEN_INSTALL_SET=Full Client Install
### CHOSEN_INSTALL_SET=ATMI Client Install
### CHOSEN_INSTALL_SET=CORBA Client Install
### CHOSEN_INSTALL_SET=Jolt Client Install
################################################
CHOSEN_INSTALL_SET=Full Install
```

What Do I Do Next?

To prepare for the post-installation tasks, read the following sections:

- “Assigning File Ownership on a UNIX System” on page 2-10
- “Understanding the BEA Tuxedo Shortcuts on a Windows System” on page 2-11
- “Understanding the BEA Administration Program on a Windows System” on page 2-13
- “Reviewing the Windows 2000 Registry Content” on page 2-14

To configure your BEA Tuxedo software and verify that your software is installed correctly, see “Performing Post-Installation Tasks” on page 6-1.

CHAPTER

5 Upgrading the BEA Tuxedo System to Release 8.1

The following sections provide procedures for upgrading your BEA Tuxedo or BEA WebLogic Enterprise application to BEA Tuxedo 8.1 using simple and hot upgrade procedures:

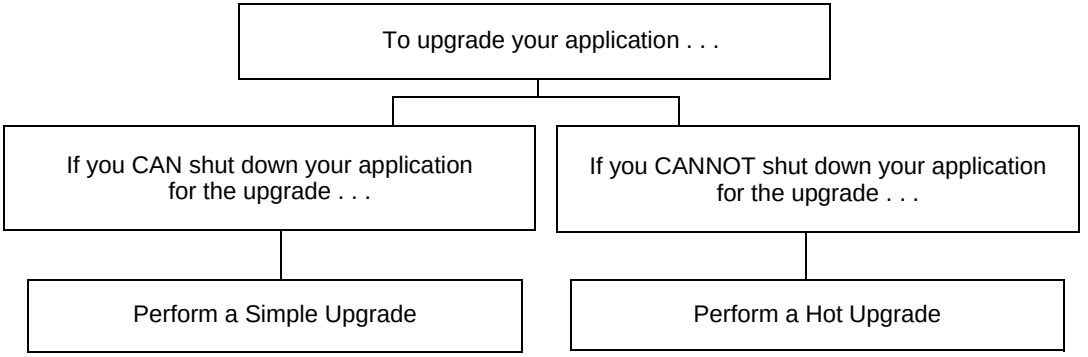
- Preparing Your Machine for an Upgrade
- Selecting an Upgrade Procedure
- Backing Up Files
- Performing a Simple Upgrade
- Performing Additional Upgrade Steps for Windows 2000
- Performing a Hot Upgrade
- Rebuilding an Application
- Installing BEA Jolt 8.1 with BEA WebLogic Server

Preparing Your Machine for an Upgrade

Before you install the BEA Tuxedo 8.1 software on a machine, make sure that the required version of the operating system and the compiler have been installed. For operating system and compiler requirements for each supported platform, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.

Selecting an Upgrade Procedure

If you are installing BEA Tuxedo 8.1 on a platform that contains an earlier release of BEA Tuxedo software or the BEA WebLogic Enterprise software, be sure to read the following procedures carefully.



If you can shut down your application for the upgrade, then shut down your application and perform a simple upgrade. For instructions on performing a simple upgrade, see "Performing a Simple Upgrade" on page 5-4.

If you cannot shut down your application for the upgrade, you can perform a hot upgrade for any of the following software products to BEA Tuxedo 8.1 without having to shut down your enterprise:

- Versions 6.5, 7.1, or 8.0 of BEA Tuxedo
- Version 5.1 of WebLogic Enterprise

You can add the BEA Tuxedo 8.1 software to existing BEA Tuxedo or BEA WebLogic Enterprise domains without shutting down the existing applications, and you can add new BEA Tuxedo 8.1 application servers to those domains without shutting down the existing applications. For instructions on performing a hot upgrade, see "Performing a Hot Upgrade" on page 5-6.

Backing Up Files

There are certain files that you need to back up prior to the installation and then restore after the installation is complete. Any modifications that you made to these files will be overwritten when the new BEA Tuxedo software is installed.

To avoid having to modify these files again, follow these steps:

1. Back up the `RM` file to a temporary location. The `RM` file contains database vendor-specific settings that are used by commands such as `buildtms` and `buildXAJS`. It is located in the *`tux_prod_dir`*`/udataobj` directory, where *`tux_prod_dir`* is the directory in which you installed the BEA Tuxedo or BEA WebLogic Enterprise software.
2. Back up the `tuxwsvr.ini` and `webgui.ini` files to a temporary location. These files contain customized initialization settings for the BEA Tuxedo Administration Console server and GUI. The `tuxwsvr.ini` file is located in the *`tux_prod_dir`*`/udataobj` directory, and the `webgui.ini` file is located in the *`tux_prod_dir`*`/udataobj/webgui` directory.
3. Back up the `CATNAMES`, `jrepository`, and `jrly.config` files. The `CATNAMES` file is located in the *`tux_prod_dir`*`/locale` directory. The `jrepository` and `jrly.config` files are located in the *`tux_prod_dir`*`/udataobj/jolt` directory structure.
4. Move any files that you or your coworkers added to the *`tux_prod_dir`* directory to a temporary location.
5. After the installation is complete, restore these files to their original locations.

Performing a Simple Upgrade

A simple upgrade consists of the following basic steps:

1. Shut down the application.
2. Back up files as described in "Backing Up Files" on page 5-3.
3. Update the text version of the configuration file on the `MASTER` machine by running the `tmunloadcf(1)` command.
4. Back up the old binary version of the configuration file.
5. If upgrading a BEA Tuxedo 8.0 machine, uninstall the BEA Tuxedo system software as described in "Uninstalling BEA Tuxedo" on page 6-37.
6. If upgrading a Windows 2000 machine running BEA WebLogic Enterprise or BEA Tuxedo 7.1 or earlier software, perform the additional steps specified in "Performing Additional Upgrade Steps for Windows 2000" on page 5-5.
7. Install the BEA Tuxedo 8.1 software on at least the `MASTER` and backup `MASTER` machines.
8. Reload the text version of the configuration file by running `tmloadcf(1)` on the `MASTER` machine.
9. If necessary, recompile and relink your application programs.
10. Reboot the application.
11. As time permits, shut down and upgrade the other machines in your configuration.

Performing Additional Upgrade Steps for Windows 2000

For a Windows 2000 machine running BEA WebLogic Enterprise or BEA Tuxedo 7.1 or earlier software, perform the following additional steps before installing the BEA Tuxedo 8.1 software to ensure that you are starting with a clean system.

1. Stop the Tuxedo TListen and BEA procMGR services. From the Start menu, click Start → Programs → Administrative Services → Services. The Services window appears.

   Note: The Tuxedo BEA procMGR service is called IPC Helper in BEA Tuxedo 6.5 or BEA WebLogic Enterprise 5.1.

2. Scroll to the entry for the TListen service, select it, and then click the Stop button. The Status value should change from Started to a blank entry. Then scroll to the BEA procMGR (or IPC Helper) service, select it, and click the Stop button. In some cases, you may see an error; however, the service's Status value should change from Started to a blank entry. Click the Close button.

3. Run the Windows Add/Remove program to remove the prior BEA Tuxedo or BEA WebLogic Enterprise software version. From the Start menu, choose Start → Settings → Control Panel → Add/Remove Programs. The Add/Remove Programs Properties window appears.

4. Scroll to the entry for the prior BEA Tuxedo or BEA WebLogic Enterprise software, select it, and click the Add/Remove button.

   Note: If you have both the C++ and Java components of WebLogic Enterprise 4.2 installed on your machine, you must remove the Java software *before* removing the C++ software.

5. In response to the prompt, confirm that you want to uninstall the software. After the program finishes, the Remove Programs From Your Computer window appears.

6. If the uninstall program was not able to remove all directories (usually because the files were added after the original installation), you can click the Details button to find out which directories remain on your system. If the files in the directories contain changes that you made, such as a modified sample file, move the modified files to a temporary location.
7. Reboot your system after the uninstall completes.

Performing a Hot Upgrade

Before performing a hot upgrade, back up files as described in "Backing Up Files" on page 5-3.

During the hot upgrade, you must shut down the `MASTER` and backup `MASTER` machines *serially*. The remainder of the configuration is unaffected.

Pre-Upgrade Notes

Once you have finished migrating the `MASTER` to BEA Tuxedo 8.1 (via a hot upgrade), you will not be able to migrate it back to the acting backup until you have upgraded the backup to BEA Tuxedo 8.1. In other words, migrating the `MASTER` is an irreversible procedure; once you have completed it, you cannot change the `MASTER` back to the release of the BEA Tuxedo software on which it was running previously.

When you run `tmadmin(1)` on a BEA Tuxedo 8.1 machine with an old-release `MASTER`, the `UPGRADE` file shown in "Hot-Upgrade Example" on page 5-8 must reside in the current directory. To make sure that the files are in the current directory, you might, for example, run `tmadmin` from the Tuxedo application directory: `%APPDIR%` (Windows)/ `$APPDIR` (UNIX) directory.

During migration, keep in mind the following guidelines regarding the BEA Tuxedo data storage areas:

- You will be instructed to remove the old `TUXCONFIG` file. The `TUXCONFIG` file is propagated automatically when the backup machine is run; therefore, you do not need to do anything.

- Create the TLOG when you load the software. If you already have a TLOG, remove it.
- Do not do anything with application queue spaces and queues.
- If you have a Domains configuration (`BDMCONFIG`) file, leave it as is.

To minimize downtime, BEA recommends installing BEA Tuxedo 8.1 on the `MASTER` machine and backup `MASTER`, and rebuilding all clients and servers in the directory on each machine that is defined by `%APPDIR%`/ `$APPDIR`, in parallel with the directory in which the old-release clients and servers were created. In other words, both an old-release application and a BEA Tuxedo 8.1 application should be available on each machine. *This advice is not a requirement, but a recommendation.*

The BEA Tuxedo software supports device list path entries of up to 256 bytes in length (in previous releases the limit was 64 bytes in length.) Queue Spaces, TLOG files, and other configuration files originally created with an earlier version of BEA Tuxedo are understood and supported with this release. However, such device lists originally created with BEA Tuxedo 8.0 or earlier are restricted to 64-byte path names. Therefore, if the administrator wants to add a new extent using a path name greater than 64 bytes in length to a queue space in the future and such queue space is empty when the upgrade is performed, the administrator may want to create the queue space device list and the queue space at the time of the hot upgrade. Many applications need to preserve queue spaces across an upgrade and will not be able to recreate them. Furthermore, most applications will not need to add queue space extent in the future or will be able to do so using path names no longer than the ones they are currently using. *This queue space recreation is completely optional and mentioned for completeness.*

Hot-Upgrade Procedure

This section provides an overview of the tasks for a “hot upgrade.”

1. Make sure your environment is set up as follows:
   - The configuration must have a backup `MASTER` machine.
   - The `MODEL` option in the configuration must be set to `MP`.
   - The `MIGRATE` option in the configuration must be set.
2. If upgrading a BEA Tuxedo 8.0 machine, uninstall the BEA Tuxedo system software as specified in “Uninstalling BEA Tuxedo” on page 6-37.

3. If upgrading a Windows 2000 machine running BEA WebLogic Enterprise or BEA Tuxedo 7.1 or earlier software, perform the additional steps specified in "Performing Additional Upgrade Steps for Windows 2000" on page 5-5.
4. Shut down the backup `MASTER` machine.
5. Install the BEA Tuxedo 8.1 software on the backup `MASTER` machine and reboot the backup machine.
6. Migrate the `MASTER` machine running the old release to the backup `MASTER` machine running BEA Tuxedo 8.1.
7. Shut down the machine that is now acting as the backup `MASTER`.
8. Install BEA Tuxedo 8.1 on the old `MASTER`.
9. Using BEA Tuxedo 8.1, reboot the machine that you shut down in step 7.

For more information about hot upgrades, refer to the following section, "Hot-Upgrade Example."

Hot-Upgrade Example

The following example describes a sample scenario for a hot upgrade and the sequence of steps to perform the hot upgrade.

Suppose you have the following on a UNIX platform:

- A machine called `MACH1` that is configured as the `MASTER` and that runs an old release
  - A corresponding application directory called `$APPDIR1`
  - A corresponding configuration file called `$TUXCONFIG1`
- A machine called `MACH2` that is configured as the backup
  - A corresponding application directory called `$APPDIR2`
  - A corresponding configuration file called `$TUXCONFIG2`

Refer to the following instruction sequence to perform a hot upgrade for your application.

```
MACH1> tmshutdown -B MACH2 -l MACH2
MACH1> Run tmconfig to reset the APPDIR, TUXCONFIG, TUXDIR for MACH2
       MACH2> Kill tlisten process
       MACH2> Load System 8.1 if it is not already loaded
       MACH2> cd $APPDIR2
       MACH2> rm $TUXCONFIG2
       MACH2> >UPGRADE    # Indicator that upgrade being done
       MACH2> Reset PATH, LD_LIBRARY_PATH, TUXCONFIG, APPDIR
       MACH2> Rebuild clients and servers, create TLOG
       MACH2> Start System 8.1 tlisten
MACH1> >UPGRADE    # Indicator that upgrade being done
MACH1> tmboot -B MACH2 -l MACH2
       MACH2> tmadmin
              master
              y
              psr
              q
       MACH2> tmshutdown -B MACH1 -l MACH1
       MACH2> Run tmconfig to reset the APPDIR, TUXCONFIG, TUXDIR for MACH1
MACH1> Kill tlisten process
MACH1> Load System 8.1 if it is not already loaded
MACH1> cd $APPDIR1
MACH1> rm $TUXCONFIG1
MACH1> Reset PATH, LD_LIBRARY_PATH, TUXCONFIG, APPDIR
MACH1> Rebuild clients and servers, create TLOG
```

```
MACH1> Start System 8.1 tlisten

MACH1> rm UPGRADE  # Remove indicator that upgrade being done

       MACH2> rm UPGRADE  # Remove indicator that upgrade being done

       MACH2> tmboot -B MACH1 -l MACH1
```

Note: If you are performing the upgrade illustrated in the previous example on a Windows 2000 platform, be sure to stop the Tuxedo BEA procMGR (called IPC Helper in BEA Tuxedo 6.5 or BEA WebLogic Enterprise 5.1) service after stopping the `tlisten` process and to start the BEA procMGR service before starting the `tlisten` process.

Rebuilding an Application

Now that you have successfully installed the BEA Tuxedo software, you need to rebuild all application clients and servers that you want to execute on a system upgraded to BEA Tuxedo 8.1. You should also remove any old `TUXCONFIG` files and reload them using the newly installed `tmloadcf(1)`.

If your BEA Tuxedo system applications are distributed, the `MASTER` and backup `MASTER` machines must run the highest release of the BEA Tuxedo software of any machines in the configuration. Other machines, including Workstation clients, may continue to use executables from an earlier release. For example, even if your `MASTER` and backup `MASTER` machines are running BEA Tuxedo 8.1, BEA Tuxedo 6.5 or later may still be used on other machines.

There is one important exception to the “highest release” rule. If you wish to install BEA Tuxedo 8.1 only on Workstation clients, and you do not want to upgrade any of your BEA Tuxedo system server machines to BEA Tuxedo 8.1, you may do so. In other words, with any release level beginning with BEA Tuxedo 6.5, Workstation clients may be intermixed freely in a configuration in which the `MASTER` machines is running BEA Tuxedo 6.5 or later.

Installing BEA Jolt 8.1 with BEA WebLogic Server

This section provides supplementary installation instructions for customers using BEA Jolt 8.1 with BEA WebLogic Server 6.0 or 7.0 and BEA Tuxedo 6.5, 7.1, 8.0, or 8.1. You can install the Jolt client personality software known as "BEA Jolt for BEA WebLogic Server" or "WebLogic Connectivity for BEA Tuxedo" on a BEA WebLogic Server 6.0 or 7.0 machine in one of two ways:

1. By downloading the Jolt client personality software from the BEA corporate Web site to the target BEA WebLogic Server machine.
2. By copying the Jolt client personality software from a BEA Tuxedo 8.1 machine to the target BEA WebLogic Server machine. Of course, if the BEA Tuxedo 8.1 machine and the target BEA WebLogic Server machine are the same machine, you need only include the Jolt client library class files in your `CLASSPATH` variable setting.

The following table describes how to use the first method to install the "BEA Jolt for BEA WebLogic Server" client software on a BEA WebLogic Server 7.0 machine.

On this platform . . .	Complete this procedure . . .
Windows	1. Go to `http://commerce.bea.com/downloads/weblogic_server.jsp` and download the "Jolt Java Client 8.1" `.zip` file specific to your platform. 2. Go to the directory where you downloaded the `.zip` file and unzip the file.
UNIX	1. Go to `http://commerce.bea.com/downloads/weblogic_server.jsp` and download the "Jolt Java Client 8.1" `.tar` file specific to your platform. 2. Go to the directory where you downloaded the `.tar` file and unpack the file by entering the following command: prompt> `tar -xvf` *`filename`*`.tar` where *`filename`* is the name of the "Jolt Java Client 8.1" `.tar` file.

The "BEA Jolt for BEA WebLogic Server" client software consists of three JAR files: `jolt.jar`, `joltjse.jar`, and `joltwls.jar`. Include these files in your `CLASSPATH` variable setting.

For instructions on configuring the Jolt connection pool on BEA WebLogic Server, see *Using BEA Jolt with BEA WebLogic Server*.

CHAPTER

6 Performing Post-Installation Tasks

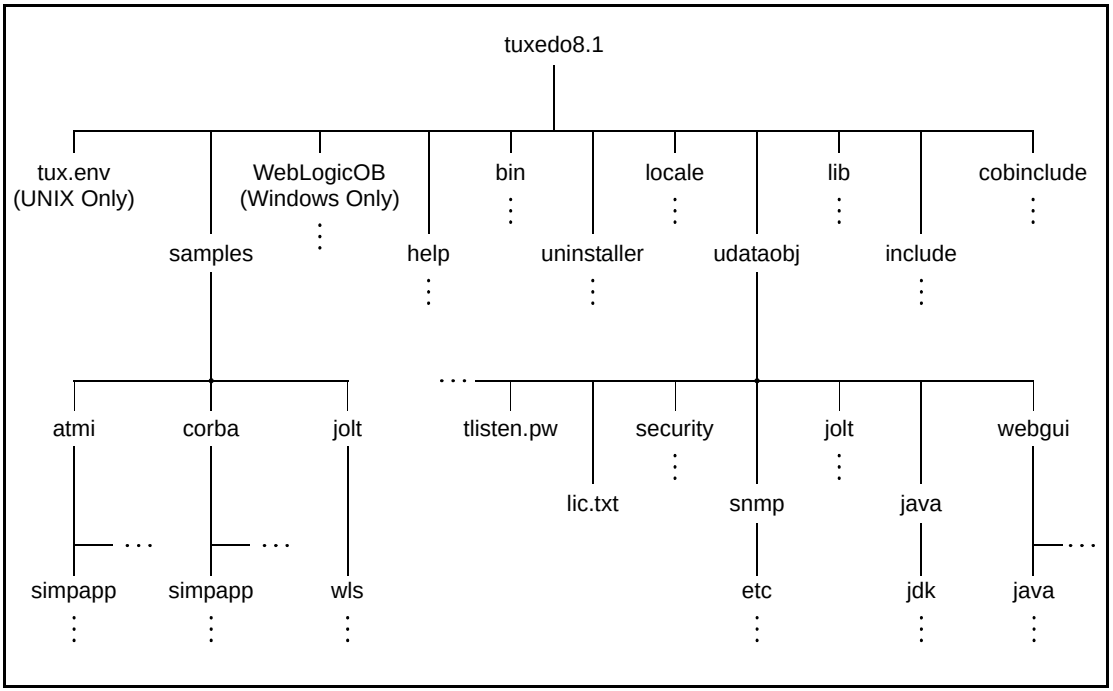
The following sections describe the tasks you perform after installing BEA Tuxedo:

- Understanding the BEA Tuxedo Directory Structure
- Understanding the BEA Tuxedo Architecture
- Installing the Product License After You Install BEA Tuxedo
- Using the Registry to Further Restrict Access on a Windows System
- Setting Up Your Environment
- Starting the tlisten Process
- Editing a UBBCONFIG File
- Using the TYPE Parameter in UBBCONFIG
- Checking IPC Requirements
- Creating the Universal Device List and the Transaction Log
- Running simpapp to Verify Your Installation
- Running buildtms and buildXAJS for BEA Tuxedo Applications That Use XA Resource Managers
- Uninstalling BEA Tuxedo
- Reinstalling BEA Tuxedo

Understanding the BEA Tuxedo Directory Structure

During the BEA Tuxedo software installation, the installer program creates the following directory structure for a *full installation*. A full installation contains all the BEA Tuxedo server and client software components plus the Link-Level Encryption (LLE) and Secure Sockets Layer (SSL) encryption software packages.

Figure 6-1 BEA Tuxedo 8.1 Directory Structure



The product directory shown here, `tuxedo8.1`, is the default for BEA Tuxedo 8.1. The default name can be changed during installation.

The top-level directories and files of the BEA Tuxedo directory structure are briefly described in the following table.

Directory Name	Description
`samples`	Contains sample code and resources designed to help you learn how to develop your own applications using BEA Tuxedo. The samples directory contains the following subdirectories: ■ `atmi` A collection of simple applications that demonstrate the many features of the BEA Tuxedo Application-to-Transaction Monitor Interface (ATMI) server software. ■ `corba` A collection of simple applications that demonstrate the many features of the BEA Tuxedo Common Object Request Broker Architecture (CORBA) C++ server software. ■ `jolt` A collection of simple applications that demonstrate the many features of the BEA Jolt server software.
`help`	Contains online help files for the BEA Tuxedo Administration Console.
`bin`	Contains Tuxedo, Jolt, and SNMP Agent executable programs.
`uninstaller`	Contains code required to uninstall the BEA Tuxedo software.
`locale`	Contains subdirectories to support the localization of system messages. `C` subdirectory contains message catalogs for the default locale (U.S. English).
`cobinclude`	Contains copylib entries for use in COBOL programs.

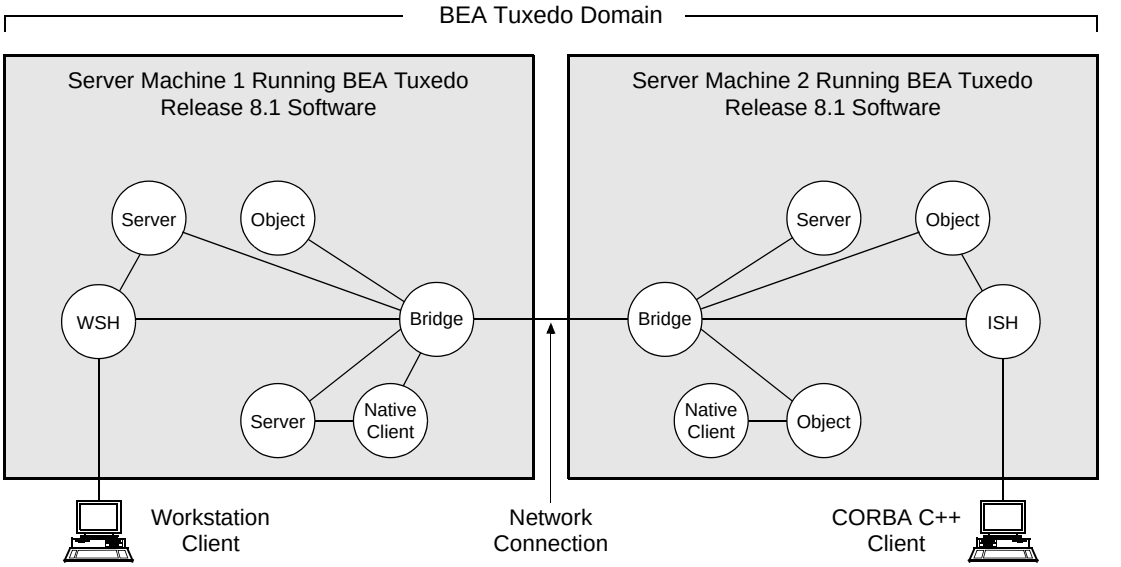
Directory Name	Description
`lib`	Contains compiled object files, including dynamic shared libraries (for platforms on which BEA Tuxedo uses dynamic shared libraries) and other object files needed to build BEA Tuxedo clients and servers.
`include`	Contains C and C++ language header files, as well as OMG IDL files. Includes subdirectories `unicode` and `xercesc`; may include subdirectory `rpc`, depending on the platform.
`udataobj`	Contains other directories and files required by BEA Tuxedo. The udataobj directory contains the following subdirectories and files: ■ `security` Contains the default Lightweight Directory Access Protocol (LDAP) filter file (`bea_ldap_filter.dat`) and LLE-related and SSL-related encryption files. ■ `jolt` Contains the files for the BEA Jolt software components that you selected to install. ■ `snmp` Contains the `etc` directory, which in turn contains the SNMP Agent configuration files, MIB files, and other miscellaneous files. ■ `java` Contains the classes and Java archive files needed to run Java applications. ■ `webgui` Contains the Java and image files for the BEA Tuxedo Administration Console. ■ `lic.txt` (file) Contains the BEA Tuxedo product license. The `lic.txt` file is present only if you installed your license during the installation. ■ `tlisten.pw` (file) Contains the `tlisten` administrative password that you entered during the installation.

Directory Name	Description
WebLogicOB	Windows systems only: Contains the ActiveX client component files and the BEA Application Builder development tool, which is a GUI application program used to create ActiveX clients.
tux.env (file)	UNIX systems only: Contains BEA Tuxedo environment variables for UNIX installations and serves as a model for setting those variables.

Understanding the BEA Tuxedo Architecture

The following figure shows a BEA Tuxedo *domain*, which is the basis of the BEA Tuxedo architecture.

Figure 6-2 Simplified View of BEA Tuxedo Architecture



A Tuxedo domain, also known as a Tuxedo application, is a business software program, built upon the Tuxedo system, that is defined and controlled by a single configuration file—the `UBBCONFIG` file. A Tuxedo domain consists of many system processes, one or more application client processes, one or more application server processes, and one or more computer machines connected over a network.

Other important terms and concepts that you need to know about BEA Tuxedo before performing post-installation checks are briefly described in the following sections:

- UBBCONFIG File
- MASTER Machine
- TUXCONFIG File
- TUXCONFIG Environment Variable
- TUXDIR Environment Variable

There is no need to fully understand these terms now; rather, use the sections as a reference. As you come upon these terms during the post-installation procedures, refer back to these sections to understand exactly what these terms mean.

UBBCONFIG File

Each Tuxedo domain is controlled by a configuration file in which installation-dependent parameters are defined. The text version of the configuration file is referred to as `UBBCONFIG`, although the configuration file may have any name, as long as the content of the file conforms to the format described in reference page `UBBCONFIG(5)` in *BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes Reference*.

The `UBBCONFIG` file for a Tuxedo domain contains all the information necessary to boot the application, such as lists of its resources, machines, groups, servers, available services, and so on. It consists of nine sections, five of which are required for all configurations: `RESOURCES`, `MACHINES`, `GROUPS`, `SERVERS`, and `SERVICES`.

MASTER Machine

The MASTER machine, or MASTER node, for a Tuxedo domain contains the domain's UBBCONFIG file, and is designated as the MASTER machine in the RESOURCES section of the UBBCONFIG file. Starting, stopping, and administering a Tuxedo domain is done through the MASTER machine.

In a multi-machine Tuxedo domain running different releases of the Tuxedo system software, the MASTER machine must run the highest release of the Tuxedo system software in the domain.

TUXCONFIG File

The TUXCONFIG file is a binary version of the UBBCONFIG file. It is created by running the tmloadcf(1) command, which parses UBBCONFIG and loads the binary TUXCONFIG file to the location referenced by the TUXCONFIG environment variable. As with UBBCONFIG, the TUXCONFIG file may be given any name.

The MASTER machine for a Tuxedo domain contains the master copy of the TUXCONFIG file. Copies of the TUXCONFIG file are propagated to all other server machines—referred to as non-MASTER machines—in a Tuxedo domain whenever the Tuxedo system is booted on the MASTER machine.

TUXCONFIG Environment Variable

The TUXCONFIG environment variable defines the location on the MASTER machine where the tmloadcf(1) command loads the binary TUXCONFIG file. It must be set to an absolute pathname ending with the device or system file where TUXCONFIG is to be loaded.

The TUXCONFIG pathname value is designated in the MACHINES section of the UBBCONFIG file. It is specified for the MASTER machine *and* for every other server machine in the Tuxedo domain. When copies of the binary TUXCONFIG file are propagated to non-MASTER machines during system boot, the copies are stored on the non-MASTER machines according to the TUXCONFIG pathname values.

TUXDIR Environment Variable

The TUXDIR environment variable defines the product installation directory of the BEA Tuxedo software on the MASTER machine. It must be set to an absolute pathname ending with the name of the product installation directory.

The TUXDIR pathname value is designated in the MACHINES section of the UBBCONFIG file. It is specified for the MASTER machine *and* for every other server machine in the Tuxedo domain.

Installing the Product License After You Install BEA Tuxedo

If you chose not to install your product license when you installed the BEA Tuxedo software, you can install the license now using the procedures given in this section. Until you install a license, you cannot boot any of the BEA Tuxedo system servers.

A sample license appears in the following listing.

Listing 6-1 Sample Product License File for BEA Tuxedo 8.1

```
# BEA License File
#
# This file contains license tokens to enable BEA Tuxedo and
# optional components.
# Each License begins with a “[section name]” and ends with
# a “SIGNATURE=” line.
#
# New license sections should be appended to this file, and the
# old section, if present, should be deleted.
#
# WARNING: Altering parameters within a section will invalidate
# the license. This is a violation of BEA Systems licensing
# agreement, and may also disable Tuxedo or optional components.
# For Technical Support and to obtain a license, call 888-BEA-SUPT
# (888-232-7878) or 408-570-8070
```

```
[BEA TUXEDO]
VERSION=8.1
LICENSEE=BEA Systems
SERIAL=101999651
ORDERID=Internal
USERS=200000
TYPE=SDK
DEVELOPERS=100000
EXPIRATION=2001-04-28
SIGNATURE=TXmtx+AhQdJgr3sjjznBqRB7SP9Jgr3UzAKctjz+e6RmsFSAhUAhStj
   znBQdL9n=

[LINK ENCRYPTION]
VERSION=8.1
LICENSEE=BEA Systems
SERIAL=101999651
ORDERID=Internal
USERS=200000
TYPE=SDK
DEVELOPERS=100000
STRENGTH=56
EXPIRATION=2001-12-31
SIGNATURE=TX0CFHkaBpKpAlXGEtQqi+/jJvMo1VB9AhUAUAkizwsgYefRwQJDNTF
   0205b1ik=

[SSL ENCRYPTION]
VERSION=8.1
LICENSEE=BEA Systems
SERIAL=101999651
ORDERID=Internal
USERS=200000
TYPE=SDK
DEVELOPERS=100000
STRENGTH=56
EXPIRATION=2001-12-31
SIGNATURE=TX0CiqA5FCAXJFXUEGvAki+gL+i09eRep9hYdshS/8a70MIJQChUAk9
   zIAhUIH4=

[PK ENCRYPTION]
VERSION=8.1
LICENSEE=BEA Systems
SERIAL=101999651
ORDERID=Internal
USERS=200000
TYPE=SDK
DEVELOPERS=100000
STRENGTH=56
EXPIRATION=2001-12-31
```

```
SIGNATURE=TXmtx+AhQdJgr3sjjznBqRB7SP9Jgr3UzAKctjz+e6RmsFSAhUAhStj
   znBQdL9n=

[PK SIGNATURE]
VERSION=8.1
LICENSEE=BEA Systems
SERIAL=101999651
ORDERID=Internal
USERS=200000
TYPE=SDK
DEVELOPERS=100000
STRENGTH=56
EXPIRATION=2001-12-31
SIGNATURE=TX0CFHkaBpKpAlXGEtQqi+/jJvtt1VB9AhUAUAkizwsgYefRwQJDNTF
   0205b1ik=

[BEA JOLT]
VERSION=8.1
LICENSEE=BEA Systems
SERIAL=101999651
ORDERID=Internal
EXPIRATION=2001-12-31
SIGNATURE=TX0CFHkaBpKpAlXGEtQqi+/jJvMo1VB9AhUAUzxizwsgYefRwQJDNTF
   0205b1ik=
```

BEA SNMP Agent, which is included in the BEA Tuxedo 8.1 distribution, is considered part of the Tuxedo 8.1 product. As such, the only product license required for BEA SNMP Agent is a valid BEA Tuxedo 8.1 license on the host Windows or UNIX system.

Licenses come with 56-bit encryption enabled by default. Licenses with 128-bit encryption enabled are available but require a separate authorization procedure. For information about purchasing licenses, contact BEA Sales at `http://www.bea.com/contact/sales1.shtml`.

You acquire a license in one of two ways: from the BEA Web site when you download an evaluation copy of the BEA Tuxedo product, or via e-mail when you buy the BEA Tuxedo product. A license is packaged in a file named `lic.txt`.

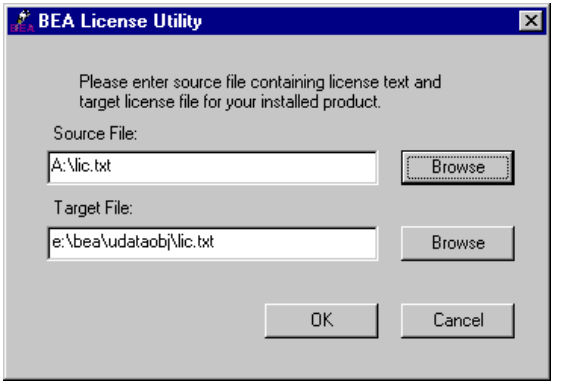
License files from previous BEA Tuxedo releases are not valid for BEA Tuxedo 8.1. If you later add additional BEA Tuxedo Security capabilities or BEA Jolt, you append those license files to the BEA Tuxedo 8.1 license file.

Note: Save a copy of your `lic.txt` file in a safe place outside the BEA Tuxedo distribution. Although no one else can use your license file, you should save this information in a place protected from either malicious or innocent tampering by others.

Installing the Product License on a Windows System

To install your BEA Tuxedo product license on a Windows system, follow these steps:

1. Transfer the license file `lic.txt` to your machine.
2. Choose Start → Programs → BEA WebLogic E-Business Platform → Tuxedo 8.1 → bealic to launch the BEA License Utility window.



3. Enter the drive and location of the `lic.txt` file and click OK. The BEA license utility installs `lic.txt` in the *`tux_prod_dir`*`\udataobj` directory, where *`tux_prod_dir`* represents the product directory in which you installed the BEA Tuxedo software.

As an alternative to using the BEA license utility to install your product license, you may manually copy `lic.txt` to the *`tux_prod_dir`*`\udataobj` directory.

Installing the Product License on a UNIX System

To install your BEA Tuxedo product license on a UNIX system, follow these steps:

1. Transfer the license file `lic.txt` to your machine.
2. Copy `lic.txt` to the *`tux_prod_dir`*`/udataobj` directory, where *`tux_prod_dir`* represents the product directory in which you installed the BEA Tuxedo software.

Using the Registry to Further Restrict Access on a Windows System

BEA Tuxedo-provided client programs are run directly by users with the users' own permissions. In addition, users running native clients (that is, clients running on the same machine on which the server program is running) have access to the `UBBCONFIG` file and interprocess communication (IPC) mechanisms such as the *bulletin board* (a reserved piece of shared memory in which parameters governing the application and statistics about the application are stored).

To gain access to the BEA Tuxedo functionality, native clients join a BEA Tuxedo application using the identity of the application administrator (`tpsysadm`). However, because `tpsysadm` is a trusted user, this setting causes the BEA Tuxedo system to bypass the user authentication process.

To prevent this lapse in security on your Windows 2000 server machine, follow these steps:

1. Choose Start → Run to launch the Run dialog box, enter `regEdt32`, and click OK to launch the Registry Editor window.
2. Select `HKEY_LOCAL_MACHINE` →`Software` →`BEA Systems` → `Tuxedo` → `8.1`.
3. Select `SECURITY` → `Permissions`.
4. Disable control for `Everyone` and allow access only to users with administrative privileges.

Setting Up Your Environment

You need to set several environment variables before using BEA Tuxedo to build and run BEA Tuxedo applications. The following tables list and define many of those environment variables.

Table 6-1 BEA Tuxedo Core Environment Variables

Environment Variable	Value
TUXDIR	Absolute pathname of the product directory in which you installed the BEA Tuxedo software on this machine. TUXDIR must be set on both server and client-only machines.
APPDIR	Absolute pathname of the application directory in which application and administrative servers will be booted on this server machine. APPDIR may be set to more than one application directory.
TUXCONFIG	Absolute pathname of the device or system file where the binary TUXCONFIG file is found on this server machine. The TUXCONFIG file is created by running the tmloadcf(1) command on the UBBCONFIG configuration file.
WEBJAVADIR	Absolute pathname of the Java and image files for the BEA Tuxedo Administration Console on this server machine.

Table 6-2 BEA Tuxedo Client-Only Environment Variables

Environment Variable	Value
WSENVFILE	Tuxedo ATMI Workstation (/WS) client: Name of the file in which all environment variables are set for this workstation. There is no default for this variable.
TOBJADDR	Tuxedo remote CORBA client: Address of the Tuxedo server machine's listener; must match exactly (including case) the host and port specified for the server machine in the UBBCONFIG file.

Table 6-3 COBOL Environment Variables

Environment Variable	Value
COBCPY	Directories that contain a set of the COBOL COPY files to be used by the compiler.
COBOPT	Arguments that you may want to use on the compile command line.

Table 6-4 Java Environment Variables

Environment Variable	Value
JAVA_HOME	Absolute pathname of the Java Development Kit (JDK) 1.3 installation directory on this machine; needed to build and run Java applications on this machine.*
JDKDIR	Set to JAVA_HOME value.
CLASSPATH	Absolute pathnames to classes and Java archive files on this machine; needed to run Java applications on this machine.

* The BEA Tuxedo 8.1 distribution does not include a JDK.

Setting Environment Variables on a Windows System

On a Windows 2000 server machine, you need to set the following environment variables to set up your environment:

```
set TUXDIR=pathname_of_BEA_Tuxedo_product_directory
set APPDIR=pathname_of_BEA_Tuxedo_application_directory
set TUXCONFIG=pathname_of_TUXCONFIG_file
set WEBJAVADIR=%TUXDIR%\udataobj\webgui\java
set PATH=%APPDIR%;%TUXDIR%\bin;\bin;%PATH%
```

Examples of TUXDIR, APPDIR, and TUXCONFIG are:

```
TUXDIR=C:\bea\tuxedo8.1

APPDIR=C:\home\me\simpapp

TUXCONFIG=%APPDIR%\tuxconfig
```

The TUXDIR, APPDIR, and TUXCONFIG environment variables must match the values of the TUXDIR, APPDIR, and TUXCONFIG parameters in the MACHINES section of the UBBCONFIG file. As an alternative to setting environment variables from a command-line shell, use the Environment page of the BEA Administration program, described in "Setting and Modifying Environment Variables" on page 2-5 in *Using BEA Tuxedo ATMI on Windows*.

Windows 2000 accesses the required dynamically loadable library files through its PATH variable setting. Specifically, Windows 2000 searches for dynamically loadable library files in the following order:

1. The directory from which the BEA Tuxedo application was loaded
2. The current directory
3. The Windows system directory (for example, C:\Win2000\System32)
4. The Windows directory (for example, C:\Win2000)
5. The directories listed in the PATH environment variable

For more information about setting environment variables, see "Setting and Modifying Environment Variables" on page 2-5 in *Using BEA Tuxedo ATMI on Windows*.

Setting Environment Variables on a UNIX System

On a UNIX server machine, set and export the following environment variables to set up your environment:

TUXDIR=*pathname_of_BEA_Tuxedo_product_directory*
APPDIR=*pathname_of_BEA_Tuxedo_application_directory*
TUXCONFIG=*pathname_of_TUXCONFIG_file*

```
WEBJAVADIR=$TUXDIR/udataobj/webgui/java
```

```
PATH=$APPDIR:$TUXDIR/bin:/bin:$PATH
```

```
LD_LIBRARY_PATH=$APPDIR:$TUXDIR/lib:/lib:/usr/lib:$LD_LIBRARY_PATH
```

Note: For HP-UX systems only, use `SHLIB_PATH` instead of `LD_LIBRARY_PATH`.

```
export TUXDIR APPDIR TUXCONFIG WEBJAVADIR PATH LD_LIBRARY_PATH
```

Examples of `TUXDIR`, `APPDIR`, and `TUXCONFIG` are:

```
TUXDIR=/home/bea/tuxedo8.1
APPDIR=/home/me/simpapp
TUXCONFIG=$APPDIR/tuxconfig
```

The `TUXDIR`, `APPDIR`, and `TUXCONFIG` environment variables must match the values of the `TUXDIR`, `APPDIR`, and `TUXCONFIG` parameters in the `MACHINES` section of the `UBBCONFIG` file. A Bourne shell script named `tux.env`, located in the BEA Tuxedo product directory, serves as a model for setting these and other environment variables on a UNIX system.

Starting the tlisten Process

You, as the application administrator, must start a `tlisten` process on each machine of a networked BEA Tuxedo application before the application is booted. The `tlisten` process enables you and the BEA Tuxedo software running on the `MASTER` machine to start, shut down, and administer BEA Tuxedo processes running on the non-`MASTER` machines. For example, `tmboot(1)` can start BEA Tuxedo system servers on the non-`MASTER` machines. Generally, one `tlisten` process is required for each BEA Tuxedo application running on a server machine.

In addition to the installer program starting a `tlisten` process on port 3050 during the installation of BEA Tuxedo, a `tlisten` process may be started . . .

On This Machine . . .	By This Administrator . . .	Using This Method . . .
Windows 2000 server	BEA Tuxedo application administrator	Listener page of the BEA Administration program; for details, see "Configuring tlisten Processes to Start Automatically" on page 2-10 in *Using BEA Tuxedo ATMI on Windows*
		Manually starting a `tlisten` process from a command-line shell
UNIX server	UNIX system administrator	As part of a UNIX initialization (boot) script
	BEA Tuxedo application administrator	As a `cron` job
		Manually starting a `tlisten` process from a command-line shell

tlisten Invocation

In all cases, the same basic syntax is used to invoke `tlisten`.

```
%TUXDIR%\bin\tlisten -l nlsaddr [-u appuid] (Windows)
$TUXDIR/bin/tlisten [-d devname] -l nlsaddr [-u appuid] (UNIX)
```

The `-l` option is required. The argument to `-l` must match the value of the `NLSADDR` parameter in the `NETWORK` section of the `UBBCONFIG` file. For information on determining the value of `NLSADDR`, see reference page `UBBCONFIG(5)` in *BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes Reference*.

The value of *`devname`* is the device name of the network provider; for example, Starlan. If the `tlisten` process is operating with Sockets, the `-d` option is not needed.

The value of *`appuid`* is the user identifier (UID), or login name, of the BEA Tuxedo application administrator. It must match the value of the `UID` parameter in the `RESOURCES` section of the `UBBCONFIG` file.

Note: To obtain the UID on a UNIX system, run the `id` command.

On a UNIX machine, use the `-u` *`appuid`* option when the command is part of an installation script run by user `root` to run the `tlisten` process with the effective UID of the owner of the BEA Tuxedo software installation on this machine. If `tlisten` is started by the BEA Tuxedo application administrator, either as a `cron` job or manually, the `-u` option is unnecessary since the job is already owned by the correct account.

For more information about the `tlisten` command, see reference page `tlisten(1)` in *BEA Tuxedo Command Reference*. For details on starting the `tlisten` process on a Windows 2000 server machine, see "Configuring tlisten Processes to Start Automatically" on page 2-10 in *Using BEA Tuxedo ATMI on Windows*.

tlisten Password

BEA Tuxedo uses the administrative password that you specified during the installation to protect the machine on which BEA Tuxedo is installed from administrative requests and operations (such as `tmboot(1)`) that are not authorized. Whenever administrative communications arrive on this machine through `tlisten(1)` or `wlisten(1)` gateway processes, BEA Tuxedo authenticates them by means of the password.

A `tlisten` password must be a string of alphanumeric characters in clear-text format. It may contain no more than 80 characters.

A common password is required for two machines in a BEA Tuxedo application to communicate successfully. For this reason, you must use the same password whenever you install BEA Tuxedo on multiple machines for a single application. If during the BEA Tuxedo installation process you use a different password for one machine, you must add that password to the `tlisten.pw` file on each machine with which you want that machine to communicate.

For these reasons, you may have more than one administrative password in your `tlisten.pw` file. A single password file may contain no more than 20 passwords, with one password per line. You can use a simple text editor to add passwords to the `tlisten.pw` file.

Editing a UBBCONFIG File

Each BEA Tuxedo application is controlled by a configuration file in which installation-dependent parameters are defined. In the BEA Tuxedo documentation, this file is referred to as UBBCONFIG, but you can give your configuration file any name you like as long as the content of the file conforms to the format described in reference page UBBCONFIG(5) in *BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes Reference*. Typical configuration filenames begin with the string ubb, followed by a mnemonic string, such as simple in the filename ubbsimple.

As an example, consider ubbsimple, the UBBCONFIG file for the rudimentary ATMI-based simpapp application delivered with the BEA Tuxedo installation. On a Windows system, this application is found in the directory %TUXDIR%\samples\atmi\simpapp; on a UNIX system, it is found in the directory $TUXDIR/samples/atmi/simpapp.

The following sample listing shows ubbsimple. The examples in the sample listing have been modified from the ubbsimple file delivered on a Windows or UNIX system to include example pathname values for both Windows and UNIX systems.

Listing 6-2 ubbsimple for the ATMI-based simpapp Application

```
#ident "@(#)apps:simpapp/ubbsimple   $Revision: 1.3 $

#Skeleton UBBCONFIG file for the Tuxedo Simple Application.
#Replace the <bracketed> items with the appropriate values.

*RESOURCES
IPCKEY          <Replace with a valid IPC Key>

#Example:
#IPCKEY         123456

DOMAINID        simpapp
MASTER          simple
MAXACCESSERS    10
MAXSERVERS      5
MAXSERVICES     10
MODEL           SHM
LDBAL           N
```

```
 *MACHINES
 DEFAULT:
                APPDIR="<Replace with the current directory pathname>"
                TUXCONFIG="<Replace with your TUXCONFIG Pathname>"
                TUXDIR="<Directory where Tuxedo is installed>"
#Windows
 #Example:
 #              APPDIR="C:\home\me\simpapp"
 #              TUXCONFIG="C:\home\me\simpapp\tuxconfig"
 #              TUXDIR="C:\bea\tuxedo8.1"

 #UNIX
 #Example:
 #              APPDIR="/home/me/simpapp"
 #              TUXCONFIG="/home/me/simpapp/tuxconfig"
 #              TUXDIR="/home/bea/tuxedo8.1"


 <Machine-name>  LMID=simple

 #Example:
 #beatux         LMID=simple

 *GROUPS
 GROUP1
          LMID=simple GRPNO=1 OPENINFO=NONE

 *SERVERS
 DEFAULT:
                CLOPT="-A"
simpserv        SRVGRP=GROUP1 SRVID=1

 *SERVICES
 TOUPPER
```

In the configuration file for your application, you must replace the strings enclosed in angle brackets with values specific to your application. The following table provides a sample of the parameters that must be defined in every configuration file.

This Parameter . . .	Specifies . . .
IPCKEY	A numeric key that identifies the shared memory segment where the structures used by your application are located. The value must be greater than 32,768 and less than 262,143.

This Parameter . . .	Specifies . . .
machine_name	The node name of the machine. To obtain the node name on a Windows 2000 system, see your system administrator. To obtain the node name on a UNIX system, run the `uname -n` command.
APPDIR = *string*	A list of one or more directories in which application and administrative servers will be booted on this machine. For Windows, the value of *string* is the absolute pathname of one directory, optionally followed by a semicolon-separated list of pathnames for other directories on the machine being defined. For UNIX, the value of *string* is the absolute pathname of one directory, optionally followed by a colon-separated list of pathnames for other directories on the machine being defined.
TUXCONFIG = *string*	The absolute pathname of the device or system file where the binary TUXCONFIG file is to be created on this machine. The TUXCONFIG file is created by running the `tmloadcf(1)` command on the UBBCONFIG file.
TUXDIR = *string*	The absolute pathname of the product directory of the BEA Tuxedo software on this machine.

You must define APPDIR, TUXCONFIG, and TUXDIR for every machine in your BEA Tuxedo application. If you need to look up other parameters when editing your UBBCONFIG file, see reference page UBBCONFIG(5) in *BEA Tuxedo File Formats, Data Descriptions, MIBs, and System Processes Reference*.

You must edit your UBBCONFIG file before running `tmloadcf(1)` to verify the IPC requirements in the section that follows. If you run `tmloadcf` without first editing the UBBCONFIG file, the command will fail with syntax errors.

Using the TYPE Parameter in UBBCONFIG

The TYPE parameter in the MACHINES section of a configuration file specifies the invocation of the External Data Representation (XDR) encode/decode routines when messages are passed between unlike machines. The term “unlike” applies even to

machines of the same type if the compiler on each machine is different. In such a case, give each machine a unique TYPE string to force every message to go through the encode/decode routines.

Checking IPC Requirements

The BEA Tuxedo system uses interprocess communications (IPC) resources heavily. On many systems, the default values for the parameters that control the size and quantity of the various IPC resources are below the minimums needed to run even a modest BEA Tuxedo application. Therefore, you may need to reset some parameters. After editing your UBBCONFIG file, you should determine whether you have enough IPC resources for your application.

To perform this task, enter the following tmloadcf(1) command, specifying your edited UBBCONFIG file as input:

```
tmloadcf -c UBBCONFIG
```

With the -c option, the tmloadcf program prints a list of the minimum IPC resources required for your application, but does not create or update the TUXCONFIG file.

The following listing is an output report based on the values in ubbsimple.

Listing 6-3 Output Produced by tmloadcf -c

```
Ipc sizing (minimum /T values only)...
                  Fixed Minimums Per Processor
SHMMIN: 1
SHMALL: 1
SEMMAP: SEMMNI
                  Variable Minimums Per Processor
        SEMUME,           A                             SHMMAX
        SEMMNU,           *                               *
Node    SEMMNS  SEMMSL  SEMMSL  SEMMNI  MSGMNI  MSGMAP  SHMSEG
------  ------  ------  ------  ------  ------  ------  ------
sftuxe     17        5      12   A + 1      13      26     75K

where 1 <= A <= 8.
```

```
The number of expected application clients per processor should be added to each
MSGMNI value.
```

The output report identifies IPC resources by their traditional UNIX names. To map the traditional names to the names specific to a UNIX platform, see the data sheet for that platform in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. To map the traditional names to the names specific to the Windows 2000 platform, see the table titled "IPC Resource Name Mappings Between Windows and UNIX Systems" on page 2-14 in *Using BEA Tuxedo ATMI on Windows*.

The example output report indicates that to run `simpapp`, your system must have `SEMUME`, `SEMMNU`, and `SEMMNS` set to no less than 17. `SEMMSL` must be at least 5, and `SEMMNI` and `SEMMAP` at least 4 (assuming the value of A is 3). `MSGMNI` must be at least 13, and `MSGMAP` at least 26. Finally, the product of `SHMMAX` and `SHMSEG` must be at least 75K bytes.

The IPC values are application-dependent, and the numbers in this example reflect a very small configuration. If other client or server applications that use IPC resources are running on the same system with a BEA Tuxedo application, then the requirements of both applications must be satisfied. Keep in mind also that every machine participating in an application must have sufficient IPC resources available.

If the current IPC resources are inadequate, you must increase the values of the associated IPC parameters. For instructions on changing the current IPC values for a Windows 2000 system, see "Configuring IPC Resources to Maximize System Performance" on page 2-12 in *Using BEA Tuxedo ATMI on Windows*. For instructions on changing the current IPC values for a UNIX system, see the data sheet for your platform in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.

Creating the Universal Device List and the Transaction Log

You create the Universal Device List (UDL) and define a UDL entry for the global transaction log (TLOG) on each machine in your application that will use global transactions. The TLOG is a log file in which information about transactions is kept until the transaction is completed.

Defining the TLOG

Before creating the UDL and defining UDL entries for TLOG, you must set the following parameters in the `MACHINES` section of the `UBBCONFIG` file for each machine in your application that will use global transactions.

This Parameter . . .	Specifies . . .
`TLOGDEVICE` = *`string`*	The BEA Tuxedo filesystem containing the distributed transaction processing (DTP) TLOG for this machine. If not specified, it is assumed that this machine has no TLOG.
`TLOGOFFSET` = *`offset`*	The numeric offset in pages (from the beginning of the device) to the start of the BEA Tuxedo filesystem containing the DTP transaction log for this machine. The default is 0.
`TLOGNAME` = *`string`*	The name of the DTP transaction log for this machine. If not specified, the default is "TLOG."
`TLOGSIZE` = *`size`*	The numeric size, in pages, of the DTP transaction log for this machine. If not specified, the default is 100 pages.

Because the TLOG seldom needs to be larger than 100 blocks (pages) and because disk partitions are always substantially larger than that, it may make sense to use the same device for both the `TUXCONFIG` file and the TLOG. If so, the pathname of the device needs to be specified by both the `TUXCONFIG` and the `FSCONFIG` environment variables.

Creating the UDL and UDL Entries for TLOG

You must manually create a UDL entry for the TLOGDEVICE on each machine where a TLOG is needed. You may create these entries either before or after you have loaded TUXCONFIG, but you must create these entries before booting the application.

To access the create device list command, crdl, you invoke tmadmin -c with the application inactive. The -c option invokes tmadmin in configuration mode.

To create the UDL and a UDL entry for TLOG on each machine in your application that will use global transactions, follow these steps:

1. Log in as the application administrator on the MASTER machine.
2. Enter the following command:

   ```
   tmadmin -c
   crdl -z config -b blocks
   ```

   Here -z *config* specifies the full pathname of the device on which the UDL should be created (that is, where the TLOG will reside), and -b *blocks* specifies the number of blocks to be allocated on the device. The value of *config* should match the value of the TLOGDEVICE parameter in the MACHINES section of the UBBCONFIG file. The blocks must be larger than the value of TLOGSIZE. If -z is not specified, the value of *config* defaults to the value of the FSCONFIG environment variable.
3. Log in as the application administrator on each remaining non-MASTER machine that will use global transactions and repeat step 2.

If the TLOGDEVICE is mirrored between two machines, step 3 is not required on the paired machine. To be recoverable, the TLOG should reside on a device that can be mirrored.

Running simpapp to Verify Your Installation

One of the ways to verify that your BEA Tuxedo software is installed correctly is to run one or more of the sample applications included with the installation. The sample applications demonstrate the capabilities of the ATMI and CORBA clients, and the ATMI and CORBA C++ servers.

The following sections provide procedures for verifying both the ATMI and CORBA C++ parts of your BEA Tuxedo installation:

- Running simpapp to Verify the BEA Tuxedo ATMI Software Installation
- Running simpapp to Verify the BEA Tuxedo CORBA C++ Software Installation

The `simpapp` application is a non-distributed application, meaning that it runs on a single machine. It is designed so that it can be up and running within minutes after the BEA Tuxedo software is installed.

The `simpapp` application offers a single service called `TOUPPER`, which converts strings from lowercase to uppercase. The client is invoked with a single argument: a lowercase string to be converted to uppercase. The server returns the converted string to the client, and the client prints the converted string.

For example, the invocation

```
simpcl “hello world”
```

results in the output

```
Returned string is: HELLO WORLD
```

Two versions of `simpapp` exist: an ATMI version and a CORBA version. The ATMI version consists of an ATMI server, an ATMI client, and a `UBBCONFIG` file. The CORBA version consists of a CORBA C++ server, a CORBA C++ client, and a CORBA Java client. Building and running the CORBA Java client requires the installation of JDK 1.3 on your system.

Running simpapp to Verify the BEA Tuxedo ATMI Software Installation

To verify that you have successfully installed the BEA Tuxedo ATMI software on your system, run the ATMI version of the `simpapp` application, which on a Windows system can be found in the directory `%TUXDIR%\samples\atmi\simpapp`, and on a UNIX system can be found in the directory `$TUXDIR/samples/atmi/simpapp`. The procedure presented in the following two sections is also provided in the `README` file in the `simpapp` directory, and in "Tutorial for simpapp, a Simple C Application" on page 2-1 in *Tutorials for Developing BEA Tuxedo ATMI Applications*.

Running simpapp to Verify the BEA Tuxedo ATMI Software Installation on a Windows System

To configure and run the ATMI version of `simpapp` on a Windows system, follow these steps:

1. Log in to the target machine as the `Administrator` or as a member of the `Administrator` group and open a command-line shell.
2. Create a working directory for your sample application and change to it:

   ```
   cd C:\home\me
   mkdir atmi
   cd atmi
   ```

3. Set the environment variables used by the BEA Tuxedo system, as explained in "Setting Environment Variables on a Windows System" on page 6-14. Set `APPDIR` and `TUXCONFIG` as follows:

   ```
   set APPDIR=C:\home\me\atmi
   set TUXCONFIG=%APPDIR%\tuxconfig
   ```

   Note: You do not have to set the `WEBJAVADIR` environment variable.

4. Copy the `simpapp` files to your working directory. You will need to edit one of them: the configuration file, `ubbsimple`. Check the permissions on all the files in your working directory and, if necessary, change the permissions to allow full access. For example:

   ```
   copy %TUXDIR%\samples\atmi\simpapp\*.* *.*
   attrib -R /S *.*
   ```

5. Compile the simpapp client and server programs by entering the following commands:

```
buildclient -o simpcl -f simpcl.c
buildserver -o simpserv -f simpserv.c -s TOUPPER
```

6. In the sample configuration file, ubbsimple, replace the strings shown in angle brackets with values appropriate to your BEA Tuxedo system installation. Comments in ubbsimple explain how to customize the file. Set the following parameters in the ubbsimple file:

   - Set IPCKEY to a valid IPC key. This value must be greater than 32,768 and less than 262,143.
   - Set APPDIR to "C:\home\me\atmi".
   - Set TUXCONFIG to the literal pathname corresponding to $APPDIR/tuxconfig (in our example, "C:\home\me\atmi\tuxconfig").
   - Set TUXDIR to the absolute pathname of the product directory of the BEA Tuxedo software on this machine (for example, "C:\bea\tuxedo8.1").
   - Set machine-name to the name of your system. To determine the name of your system, see your system administrator.

   Note: The APPDIR, TUXCONFIG, and TUXDIR parameter settings in the ubbsimple file must match the APPDIR, TUXCONFIG, and TUXDIR environment variable settings.

7. Create the binary version of your edited configuration file by invoking tmloadcf(1), which produces a file named tuxconfig. This file, referenced by the TUXCONFIG environment variable, provides the BEA Tuxedo system with a description of the application configuration at run time:

```
tmloadcf -y ubbsimple
```

8. Boot simpapp by typing the following command:

```
tmboot -y
```

   If the boot succeeds, output similar to the following appears and you can proceed to step 10.

Listing 6-4 Output Produced by tmboot -y

```
Booting all admin and server processes in C:\home\me\atmi\tuxconfig
INFO: BEA Tuxedo(r) System Release 8.1
INFO: Serial #: 000102-9125503751, Maxusers 25
Booting admin processes ...
exec BBL -A:
     process id=24180 ... Started.
Booting server processes ...
exec simpserv -A :
     process id=24181 ... Started.
2 processes started.
```

9. If the boot fails, examine the log named `ULOG.`*`mmddyy`* in your application directory (`%APPDIR%`, `C:\home\me\atmi`). The string *`mmddyy`* is a placeholder for the date (digits representing the current month, day, and year) that will make up the end of the filename. If you see a message such as the following, near the end of the log

   ```
   can't create enough semaphores for BB
   ```

   then the interprocess communication (IPC) resources configured in your operating system are not adequate for running `simpapp`.

   To confirm this hypothesis, invoke the BEA Tuxedo system command `tmloadcf(1)` and specify the name of your configuration file, as shown in the following example:

   ```
   tmloadcf -c %APPDIR%\ubbsimple
   ```

   If the current value of any IPC parameter configured in your operating system is less than a minimum (either variable or fixed) listed in the `tmloadcf` output, you must increase the value of that parameter. For instructions on determining and changing the current IPC values for your platform, see "Configuring IPC Resources to Maximize System Performance" on page 2-12 in *Using BEA Tuxedo ATMI on Windows*.

10. If the boot succeeded, you can invoke the client. For example, enter the following command:

    ```
    simpcl "hello world"
    ```

    The following is displayed:

    ```
    Returned string is: HELLO WORLD
    ```

11. When you have finished, shut down `simpapp` with the following command:

    ```
    tmshutdown -y
    ```

Running simpapp to Verify the BEA Tuxedo ATMI Software Installation on a UNIX System

To configure and run the ATMI version of `simpapp` on a UNIX system, follow these steps:

1. Log in to the target machine as the BEA Tuxedo application administrator and open a command-line shell.
2. Create a working directory for your sample application and change to it:

    ```
    cd /home/me
    mkdir atmi
    cd atmi
    ```

3. Set and export the environment variables used by the BEA Tuxedo system, as explained in "Setting Environment Variables on a UNIX System" on page 6-15. Set `APPDIR` and `TUXCONFIG` as follows:

    ```
    APPDIR=/home/me/atmi
    TUXCONFIG=$APPDIR/tuxconfig
    export APPDIR TUXCONFIG
    ```

    Note: You do not have to set the `WEBJAVADIR` environment variable.

4. Copy the `simpapp` files to your working directory. You will need to edit one of them: the configuration file, `ubbsimple`. Make sure that the client and server files, `simpcl` and `simpserv`, are executable, and that the configuration file, `ubbsimple`, is writable. For example:

    ```
    cp $TUXDIR/samples/atmi/simpapp/* .
    chmod 755 simpserv simpcl
    chmod 644 ubbsimple
    ```

5. Compile the `simpapp` client and server programs by entering the following commands:

    ```
    buildclient -o simpcl -f simpcl.c
    buildserver -o simpserv -f simpserv.c -s TOUPPER
    ```

6. In the sample configuration file, `ubbsimple`, replace the strings shown in angle brackets with values appropriate to your BEA Tuxedo system installation. Comments in `ubbsimple` explain how to customize the file. Set the following parameters in the `ubbsimple` file:

   - Set `IPCKEY` to a valid IPC key. This value must be greater than 32,768 and less than 262,143.
   - Set `APPDIR` to `"/home/me/atmi"`.
   - Set `TUXCONFIG` to the literal pathname corresponding to `$APPDIR/tuxconfig` (in our example, `"/home/me/atmi/tuxconfig"`).
   - Set `TUXDIR` to the absolute pathname of the product directory of the BEA Tuxedo software on this machine (for example, `"/home/bea/tuxedo8.1"`).
   - Set `machine-name` to the name of your system. To determine the name of your system on a UNIX machine enter the command:

     ```
     uname -n
     ```

   Note: The `APPDIR`, `TUXCONFIG`, and `TUXDIR` parameter settings in the `ubbsimple` file must match the `APPDIR`, `TUXCONFIG`, and `TUXDIR` environment variable settings.

7. Create the binary version of your edited configuration file by invoking `tmloadcf(1)`, which produces a file named `tuxconfig`. This file, referenced by the `TUXCONFIG` environment variable, provides the BEA Tuxedo system with a description of the application configuration at run time:

   ```
   tmloadcf -y ubbsimple
   ```

8. Boot `simpapp` by typing the following command:

   ```
   tmboot -y
   ```

   If the boot succeeds, output similar to the following appears and you can proceed to step 10.

Listing 6-5 Output Produced by tmboot -y

```
Booting all admin and server processes in /home/me/atmi/tuxconfig
INFO: BEA Tuxedo(r) System Release 8.1
INFO: Serial #: 000102-9125503751, Maxusers 25
Booting admin processes ...
exec BBL -A:
     process id=24180 ... Started.
```

```
Booting server processes ...
exec simpserv -A :
     process id=24181 ... Started.
2 processes started.
```

9. If the boot fails, examine the log named `ULOG.`*`mmddyy`* in your application directory (`$APPDIR`, `/home/me/atmi`). The string *`mmddyy`* is a placeholder for the date (digits representing the current month, day, and year) that will make up the end of the filename. If you see a message such as the following, near the end of the log

   ```
   can't create enough semaphores for BB
   ```

   then the interprocess communication (IPC) resources configured in your operating system are not adequate for running `simpapp`.

   To confirm this hypothesis, invoke the BEA Tuxedo system command `tmloadcf(1)` and specify the name of your configuration file, as shown in the following example:

   ```
   tmloadcf -c $APPDIR/ubbsimple
   ```

   If the current value of any IPC parameter configured in your operating system is less than a minimum (either variable or fixed) listed in the `tmloadcf` output, you must increase the value of that parameter. For instructions on determining and changing the current IPC values for your platform, see the data sheet for your platform in "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1.

10. If the boot succeeded, you can invoke the client. For example, enter the following command:

    ```
    simpcl "hello world"
    ```

    The following is displayed:

    ```
    Returned string is: HELLO WORLD
    ```

11. When you have finished, shut down `simpapp` with the following command:

    ```
    tmshutdown -y
    ```

Running simpapp to Verify the BEA Tuxedo CORBA C++ Software Installation

To verify that you have successfully installed the BEA Tuxedo CORBA C++ software on your system, run the CORBA version of the `simpapp` application, which on a Windows system can be found in the directory `%TUXDIR%\samples\corba\simpapp`, and on a UNIX system can be found in the directory `$TUXDIR/samples/corba/simpapp`. The procedure presented in the following two sections is also provided in the `README` file in the `simpapp` directory, and in "Tutorial for simpapp, a Simple C Application" on page 2-1 in *Tutorials for Developing BEA Tuxedo ATMI Applications.*

Running simpapp to Verify the BEA Tuxedo CORBA C++ Software Installation on a Windows System

To configure and run the CORBA version of `simpapp` on a Windows system, follow these steps:

1. Log in to the target machine as the `Administrator` or as a member of the `Administrator` group and open a command-line shell.
2. Create a working directory for your sample application and change to it:

   ```
   cd C:\home\me
   mkdir corba
   cd corba
   ```

3. Make sure that the product directory in which you installed the BEA Tuxedo software is set in the `TUXDIR` environment variable. For example, if you installed the software in the `C:\bea\tuxedo8.1` directory, set `TUXCONFIG` as follows:

   ```
   set TUXDIR=C:\bea\tuxedo8.1
   ```

4. Copy the `simpapp` files to your working directory and change the permissions on all files to allow full access. For example:

   ```
   copy %TUXDIR%\samples\corba\simpapp\*.* *.*
   attrib -R /S *.*
   ```

5. Ensure that `nmake` is in your path.
6. To run `simpapp` automatically, enter `runme`. The `simpapp` application runs and prints the following messages:

```
Testing simpapp
    cleaned up
    prepared
    built
    loaded ubb
    booted
    ran
    shutdown
    saved results
  PASSED
```

7. To run the sample manually to observe the `simpapp` processes starting and stopping, follow these steps:

   a. Enter `results\setenv`.

   b. Enter `tmboot -y`. The application starts several processes.

   c. Enter `simple_client`. The prompt `String?` appears.

   d. Enter a word in lowercase letters. The application converts the word to uppercase and then to lowercase letters.

   e. Enter `tmshutdown -y`. The application shuts down the processes.

8. To restore the directory to its original state, perform these steps:

   a. `results\setenv`

   b. `nmake -f makefile.nt clean`

Running simpapp to Verify the BEA Tuxedo CORBA C++ Software Installation on a UNIX System

To configure and run the CORBA version of `simpapp` on a UNIX system, follow these steps:

1. Log in to the target machine as the BEA Tuxedo application administrator and open a command-line shell.

2. Create a working directory for your sample application and change to it:

   ```
   prompt> cd /home/me
   prompt> mkdir corba
   prompt> cd corba
   ```

3. Make sure that the product directory in which you installed the BEA Tuxedo software is set in the `TUXDIR` environment variable. For example, if you installed the software in the `/home/bea/tuxedo8.1` directory, set and export `TUXCONFIG` as follows:

   ```
   prompt> TUXDIR=/home/bea/tuxedo8.1
   prompt> export TUXDIR
   ```

4. Copy the `simpapp` files to your working directory and change the permissions on all files to allow full access. For example:

   ```
   prompt> cp $TUXDIR/samples/corba/simpapp/* .
   prompt> chmod 777 *
   ```

5. Ensure that `make` is in your path.

6. To run `simpapp` automatically, enter `../runme.ksh`. The `simpapp` application runs and prints the following messages:

   ```
   Testing simpapp
        cleaned up
        prepared
        built
        loaded ubb
        booted
        ran
        shutdown
        saved results
    PASSED
   ```

7. To run `simpapp` manually to observe the processes starting and stopping, follow these steps:

   a. prompt> `ksh`

   b. prompt> `../results/setenv.ksh`

   c. prompt> `tmboot -y`

      The application starts several processes.

   d. prompt> `simple_client`

      The prompt `String?` is displayed.

   e. prompt> *`enter_a_word_in_lowercase_letters`*

The application converts the word to uppercase and then to lowercase letters and displays the results.

f. prompt> `tmshutdown -y`

g. The application shuts down the processes.)

8. To restore the directory to its original state, follow these steps:

   a. prompt> `../results/setenv.ksh`

   b. prompt> `make -f makefile.mk clean`

Running buildtms and buildXAJS for BEA Tuxedo Applications That Use XA Resource Managers

For BEA Tuxedo applications that use distributed transactions and XA-compliant resource managers, you must use the `buildtms` command to construct a transaction manager server load module. This requirement exists on Windows 2000 and UNIX systems. When the module has been created, it must reside in `%TUXDIR%\bin` on Windows 2000 systems, or `$TUXDIR/bin` on UNIX systems.

If you run the CORBA C++ University sample applications, each sample's makefile creates the TMS load module for you and calls it `tms_ora.exe`. Therefore, running `buildtms` as a separate step is necessary only if you do not plan to run any of these sample applications.

For information about the `buildtms` command with BEA Tuxedo applications, see reference page `buildtms(1)` in *BEA Tuxedo Command Reference*.

Uninstalling BEA Tuxedo

Uninstalling BEA Tuxedo 8.1 or 8.0 does not remove the BEA Home directory associated with the installation but does remove all BEA Tuxedo components installed by the installer program. The uninstallation also removes the product directory associated with the installation unless one of the following is true:

- The product directory contains customer-created configuration or application files—the uninstallation does not delete customer-created configuration or application files.
- The uninstall was invoked from within the product directory structure—specifically, within the `uninstaller` directory.

To uninstall BEA Tuxedo 8.1, complete the procedures for the appropriate platform, provided in the following table. To uninstall BEA Tuxedo 8.0, substitute "Tuxedo 8.0" for "Tuxedo 8.1" in the following table.

To Uninstall BEA Tuxedo on This Platform . . .	Perform the Following Procedure . . .
Windows	1. Shut down any BEA Tuxedo servers that are running. For instructions on using the `tmshutdown` command to shut down BEA Tuxedo applications, see reference page `tmshutdown(1)` in *BEA Tuxedo Command Reference*. 2. From the Windows Start menu, choose Start → Programs → BEA WebLogic E-Business Platform → Tuxedo 8.1 → uninstall. The BEA Installation program Uninstaller window appears. 3. Click Uninstall to start the uninstall program. 4. Click Exit in the Uninstall Complete window.

To Uninstall BEA Tuxedo on This Platform . . .	Perform the Following Procedure . . .
UNIX	1. Shut down any BEA Tuxedo servers that are running. For instructions on using the `tmshutdown` command to shut down BEA Tuxedo applications, see reference page `tmshutdown(1)` in *BEA Tuxedo Command Reference*. 2. Go to the *`tux_prod_dir`*`/uninstaller` directory, where *`tux_prod_dir`* represents the product directory in which you installed the BEA Tuxedo software. 3. Choose one of two methods for uninstalling the software: ■ To use the GUI-mode installation program, go to step 4. ■ To use the console-mode procedure, go to step 5. 4. (GUI-mode method) Enter the `sh Uninstall_Tuxedo8` command at the prompt. In the Uninstaller window, click Uninstall to start the uninstall program, then click Exit in the Uninstall Complete window to complete the uninstallation. 5. (Console-mode method) Enter the `sh Uninstall_Tuxedo8 -i console` command at the prompt. When the uninstall process is complete, press Enter to exit the uninstaller.

Reinstalling BEA Tuxedo

When you start the BEA Installation program for BEA Tuxedo 8.1 on a system on which a copy of BEA Tuxedo 8.1 is already installed, the BEA Installation program detects the existing installation and provides you with the prompts shown in the following table.

Click . . .	To . . .
Continue	Close the warning window and continue with the installation. This option overwrites the previous installation.
Cancel	Return to the Choose BEA Home Directory window. To continue installing the software using a different BEA Home directory, select an existing BEA Home directory that does not contain the release 8.1 software or create a new BEA Home directory.
Exit	Exit the installation program and uninstall the previous installation. You can invoke the uninstall program as described in “Uninstalling BEA Tuxedo” on page 6-37, and reinstall the software as described in one of the following: ■ “Installing BEA Tuxedo Using GUI-Mode Installation” on page 2-1 ■ “Installing BEA Tuxedo on UNIX Systems Using Console-Mode Installation” on page 3-1 ■ “Installing BEA Tuxedo Using Silent Installation” on page 4-1

CHAPTER

7 Starting the BEA Tuxedo Administration Console

The following sections provide the system requirements for the BEA Tuxedo Administration Console and explain how to start and exit the Console.

- What is the BEA Tuxedo Administration Console?
- Administration Console File Tree
- Server Requirements
- Browser Requirements
- Hardware Requirements
- Setting Up Your Environment for the BEA Tuxedo Administration Console
- Starting the BEA Tuxedo Administration Console
- Exiting the BEA Tuxedo Administration Console

What is the BEA Tuxedo Administration Console?

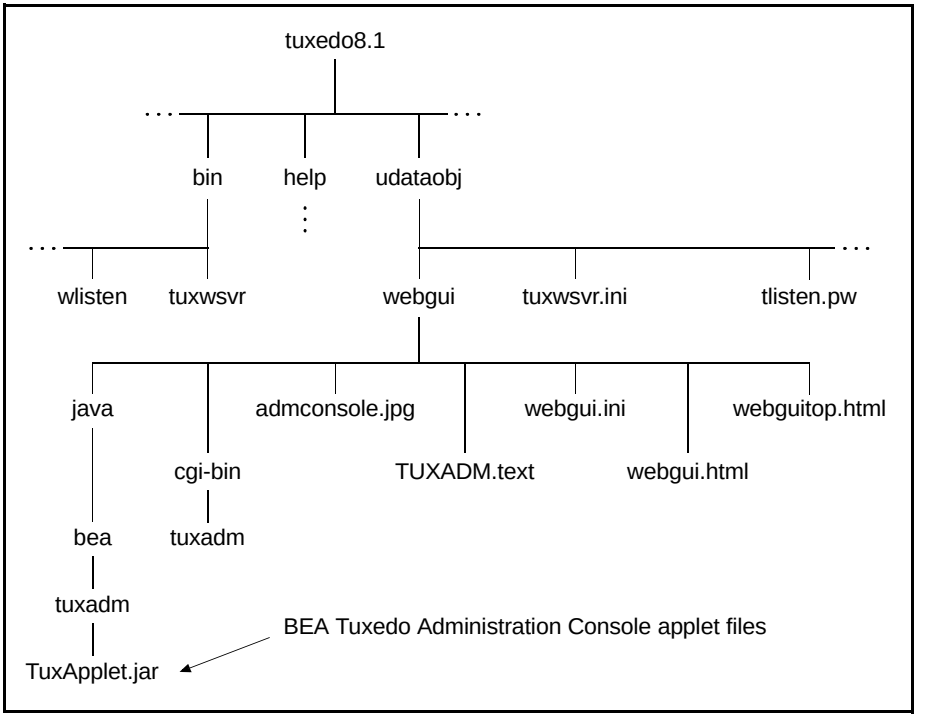
The BEA Tuxedo Administration Console is a graphical user interface that enables administrators to perform most administration and configuration tasks for BEA Tuxedo applications. It is implemented as a set of Java applets, which can run on most platforms that support a Java-capable Web browser.

The server-side components of the BEA Tuxedo Administration Console reside on one of the server machines in a BEA Tuxedo application. To use the Console, you must enter the URL of the server and download the Java applets.

Administration Console File Tree

During the BEA Tuxedo software installation, the installer program places most of the directories and files for the BEA Tuxedo Administration Console in the `webgui` directory, as shown in the following figure.

Figure 7-1 BEA Tuxedo Administration Console File Tree



The installer program installs the following HTML files:

- An HTML template file named `webgui.html`, which is used by the common gateway interface (CGI) program `tuxadm` as the basis for many screens displayed during a BEA Tuxedo Administration Console session.
- An HTML file named `webguitop.html`, which displays legal notices and warnings when the BEA Tuxedo Administration Console is first brought up on the screen.
- The HTML documentation files for the BEA Tuxedo Administration Console, which are installed in a top-level directory named `help`.

The installer program installs the class files for the Java applet in the `java` directory, and installs the `tuxadm` program in the `cgi-bin` directory. The installer assigns an alias pathname for `tuxadm`, which will be used by Web clients to access `tuxadm`. The alias pathname is `\cgi-bin` on a Windows 2000 system and `/cgi-bin` on a UNIX system.

Server Requirements

The BEA Tuxedo Administration Console server for BEA Tuxedo 8.1 is supported on the following platforms:

- Compaq Tru64 UNIX Version 5.1a on Alpha Systems
- HP-UX Version 11.0 (32-bit) on PA-RISC on HP 9000 Series
- IBM AIX 4.3.3 (32-bit) on IBM PowerPC
- Microsoft Windows 2000 Advanced Server (32-bit) on Intel IA32 (x86)
- Red Hat Linux 7.2 on Intel IA32 (x86)
- Sun Microsystems Solaris 8 (32-bit) on SPARC

Browser Requirements

The encryption level for the BEA Tuxedo Administration Console is set with the `ENCRYPTBITS` parameter in the `webgui.ini` file for the Console. In the following `webgui.ini` file, the encryption level is set to 56 bits.

```
# Web GUI initialization file.
# Created Sep 12, 2002 2:02:07 PM by BEA software installation
program.
#
TUXDIR=C:\bea\tuxedo8.1
INIFILE=C:\bea\tuxedo8.1/udataobj/webgui/webgui.ini
NADDR=//foo5:4003
DEVICE=/dev/tcp
```

```
CODEBASE=/java
DOCBASE=/doc
SNAPDIR=C:\bea\tuxedo8.1/udataobj/webgui/java/snapshot
SNAPBASE=/java/snapshot
ENCRYPTBITS=56
```

The `ENCRYPTBITS` parameter specifies the strength of encryption used in communication between the GUI applet and the BEA Tuxedo Administration Console server. The `ENCRYPTBITS` parameter can be set to 0, 56, or 128. The default value is 128.

The following table lists the platforms and browsers supported for BEA Tuxedo 8.1 when the BEA Tuxedo Administration Console is configured for 56-bit or 128-bit encryption.

On this platform . . .	BEA tested these browsers . . .	Using Java plug-in . . .
Compaq Tru64 UNIX Version 5.1a on Alpha Systems	Netscape 4.8	1.3.1
HP-UX Version 11.0 (32-bit) on PA-RISC on HP 9000 Series	Netscape 4.8	1.3.1
IBM AIX 4.3.3 (32-bit) on IBM PowerPC	Netscape 4.8	1.3.1
Microsoft Windows 2000 Advanced Server (32-bit) on Intel IA32 (x86)	Netscape 7.0 Internet Explorer 6.0	1.3.1
Microsoft Windows 98 or XP on Intel IA32 (x86)	Netscape 7.0 Internet Explorer 6.0	1.3.1
Red Hat Linux 7.2 on Intel IA32 (x86)	Netscape 7.0	1.3.1
Sun Microsystems Solaris 8 (32-bit) on SPARC	Netscape 4.8	1.3.1

Note: While the Microsoft Internet Explorer browser is supported, the Netscape browser is recommended. If you experience any difficulty using the Internet Explorer browser, use Netscape.

If the BEA Tuxedo Administration Console is configured with no encryption (0-bit encryption), Netscape 4.7 and Internet Explorer 5.0 are supported on any Windows platform regardless of the Java plug-in version.

Hardware Requirements

To run the BEA Tuxedo Administration Console, you need a color display device that meets the following requirements:

- Resolution: 800 by 600 or more is required; 1024 by 768 or more is recommended.
- Colors: A minimum of 256 colors is recommended.

Setting Up Your Environment for the BEA Tuxedo Administration Console

To run the BEA Tuxedo Administration Console, first set up your environment as described in "Setting Up Your Environment" on page 6-13. Ensure that your `TUXDIR`, `WEBJAVADIR`, and `PATH` environment variables are set correctly. Then set up the following two server processes:

- `tuxwsvr(1)`

  A Web server provided with the BEA Tuxedo system software. You are not required to use this server; you may, if you prefer, use your own commercial Web server.

- `wlisten(1)`

  A server required to administer the BEA Tuxedo Administration Console. It must be run on the `MASTER` machine in a Tuxedo multi-machine configuration.

After starting the tuxwsvr and wlisten server processes, you can start the BEA Tuxedo Administration Console to monitor the tuxwsvr server and the BEA Tuxedo application.

Starting tuxwsvr

The tuxwsvr process is a Web server process that can be used to support the BEA Tuxedo Administration Console GUI by customers who do not have a commercial Web server or a public-domain Web server on the machine on which the BEA Tuxedo Web GUI processes are running. The tuxwsvr process places itself in the background when invoked unless otherwise specified, and continues running until the machine shuts down or the tuxwsvr process is killed using an operating system command.

To Start Tuxwsvr on This Platform . . .	Enter the Following Command . . .
Windows 2000 system	`tuxwsvr -l //machine:port -i %TUXDIR%\udataobj\tuxwsvr.ini`
UNIX system	`tuxwsvr -l //machine:port -i $TUXDIR/udataobj/tuxwsvr.ini`

The BEA Tuxedo installer program creates the tuxwsvr.ini file, an example of which is shown below:

```
# tuxwsvr initialization file.
# Created Sep 12, 2002 2:02:07 PM by BEA software installation
program.
#
CGI    /cgi-bin     C:\bea\tuxedo8.1/udataobj/webgui/cgi-bin
HTML   /java    C:\bea\tuxedo8.1/udataobj/webgui/java
HTML   /doc     C:\bea\tuxedo8.1/help
HTML   /        C:\bea\tuxedo8.1/udataobj/webgui
```

Usually, you do not need to edit this file, but under certain circumstances, you may want to do so. For example, you may decide to move your Java files to a non-default directory. In that case, you would need to edit the pathnames in the initialization file appropriately. For details, see reference page tuxwsvr(1) in *BEA Tuxedo Command Reference*.

Starting wlisten

The wlisten process is a listener process that receives incoming connections from Web GUI applets and starts a Web GUI gateway process (wgated). All wlisten options are taken from an initialization file that is specified by the -i option. If the -i option is not given, then %TUXDIR%\udataobj\webgui\webgui.ini is used as the default initialization file on a Windows 2000 system, and $TUXDIR/udataobj/webgui/webgui.ini is used as the default initialization file on a UNIX system.

To start wlisten, follow these steps:

1. Check the webgui.ini file to make sure that the default values assigned to the parameters during installation are appropriate. If they are not, make the necessary changes.

   For example, on a machine called foo5, the default port assigned to wlisten is 4003. To run wlisten with port 6060, edit the NADDR parameter as follows:

   ```
   NADDR=//foo5:6060
   ```

   For details about other parameters in the webgui.ini file, see reference page wlisten(1) in *BEA Tuxedo Command Reference*.

2. Enter the following command:

   ```
   wlisten
   ```

Starting the BEA Tuxedo Administration Console

The tuxadm process is a CGI process used to initialize the Web GUI from a browser. As shown in the "Synopsis" section of reference page tuxadm(1), this program can be used only as a location, or URL from a Web browser; normally it is not executed from a standard command-line prompt. Like other CGI programs, tuxadm uses the QUERY_STRING environment variable to parse its argument list.

To start the BEA Tuxedo Administration Console, complete the following four-step procedure:

1. Start the browser.
2. Enter the following URL:

   `http://`*`machine`*`:`*`port`*`/webguitop.html`

   For example: `http://foo5:4003/webguitop.html`

   Use of this URL depends on the following assumption: You are using `tuxwsvr` with the `tuxwsvr.ini` file. If you are using a commercial browser on the default port (8080), you can use a URL such as `http://ctomsn:8080/webguitop.html`.

   The BEA Tuxedo Administration Console entry page, which includes warranty and license notices, displays.
3. To start the BEA Tuxedo Administration Console, select the Click Here to Run the BEA Tuxedo Administration Console prompt at the bottom of the screen. The Login window displays.
4. Enter your login name and password in the appropriate fields, and select LOGIN. The password must be one of the entries in the `tlisten.pw` file.

   The main window of the BEA Tuxedo Administration Console displays.

   The following table contains instructions for accessing additional information about the BEA Tuxedo Administration Console main window.

Table 7-1 Accessing Information About the BEA Tuxedo Administration Console Main Window

If. . .	Then. . .
The main window is displayed and you want to start working with the GUI	See "Administration Console Tutorial" in *BEA Tuxedo Administration Console Online Help*.
The main window is displayed and you want to read a description of it	See "A Tour of the Main Window" in *BEA Tuxedo Administration Console Online Help*.

Table 7-1 Accessing Information About the BEA Tuxedo Administration Console Main Window

If. . .	Then. . .
The main window is not displayed and the `Connect Failed` error message is displayed	1. On the Administration Console *server* machine, verify that the `wlisten` process is running. On a UNIX machine, for example, enter the `ps` command. 2. If `wlisten` is not running, open the `webgui.ini` file and, in the line `NADDR=//foo5:4003`, replace the port number (4003) with a valid port number. 3. Enter `wlisten` again: ■ `$ wlisten -i %TUXDIR%\udataobj\webgui\webgui.ini` (on Windows 2000) ■ `$ wlisten -i $TUXDIR/udataobj/webgui/webgui.ini` (on UNIX) 4. Check that the `tuxwsvr` process is running at the port specified in the URL. 5. Verify the password. It must match one of the entries in the `tlisten.pw` file. 6. Return to step 1.

Limitation: The BEA Tuxedo Administration Console has not been updated to support any new features introduced after BEA Tuxedo release 7.1.

Exiting the BEA Tuxedo Administration Console

To exit the BEA Tuxedo Administration Console, choose Domain → Exit from the menu bar. This menu option closes the current domain and exits the BEA Tuxedo Administration Console applet.

A BEA Tuxedo 8.1 Platform Data Sheets

The following sections provide platform-specific information for the platforms on which the BEA Tuxedo 8.1 system software is supported:

- Supported Platforms
  - Platform Support Policy
- Install Sets
- Supported Platforms (Initial Release)
  - Microsoft Windows 2000 Advanced Server (32-bit) on Pentium

    Note: Microsoft Windows 2000 Advanced Server (32-bit) data sheet information is applicable to Microsoft Windows XP (Professional) systems.
  - Solaris 8 (32-bit) on SPARC
- Supported Platforms (Post Release Ports/Certifications)
  - HP-UX 11iv1 (B.11.11)(32-bit) Using -AA Option on PA-RISC
  - HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC
  - HP-UX 11iv1 (B.11.11) (64-bit) on PA-RISC
  - HP-UX 11iv2 (B.11.23) (32-bit) on Itanium
  - HP-UX 11iv2 (B.11.23) (64-bit) on Itanium
  - HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC
  - HP-UX 11iv2 (B.11.23) (32/64-bit) on PA-RISC
  - HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC

- HP-UX 11iv3 (B.11.31) (32-bit) Itanium
- HP-UX 11iv3 (B.11.31) (64-bit) Itanium
- HP-UX 11iv3 (B.11.31) (32-bit) PA-RISC
- IBM AIX 5.2 (32/64-bit) on IBM PowerPC
- IBM AIX 5.2 (64-bit) on IBM PowerPC
- IBM AIX 5.3 (32/64-bit) on 64-bit IBM PowerPC
- IBM AIX 5.3 (64-bit) on IBM PowerPC
- Microsoft Windows 2003 Server (32-bit) on Pentium
- Microsoft Windows 2003 Server (64-bit) on Itanium
- Red Flag Linux 4.1 (32-bit) on Pentium
- Red Hat Linux Advanced Server 2.1 (32-bit) on Pentium
- Red Hat Linux Advanced Server 2.1 (64-bit) on Itanium
- Red Hat Linux Advanced Server 3.0 (32-bit) on Pentium
- Red Hat Linux Advanced Server 3.0 (64-Bit) on Itanium 2
- Red Hat Enterprise Linux 4.0 (32-bit) on Pentium
- Solaris 8 (64-bit) on SPARC
- Solaris 9 (32/64-bit) on SPARC
- Solaris 9 (64-bit) on SPARC
- Solaris 10 (32-bit) on x86 (64-bit AMD64)
- Solaris 10 (32/64-bit) on SPARC
- Solaris 10 (64-bit) on SPARC
- SUSE Linux Enterprise Server 8.0 (32-bit) on IBM zSeries
- SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium
- Turbo Linux DS 10 (32-bit) on Pentium

■ End of Life Platforms

- Compaq Tru64 UNIX Version 5.1a on Alpha Systems: EOL by Operating System Provider

- Compaq Tru64 UNIX Version 5.1b (64-bit) on Alpha Systems: EOL by Operating System Provider
- Compaq Tru64 UNIX Version 5.1b-1 (64-bit) on Alpha Systems: EOL by Operating System Provider
- Compaq Tru64 UNIX Version 5.1b-2 (64-bit) on Alpha Systems: EOL by Operating System Provider
- HP-UX Version 11.0 (32-bit) on HP 9000 Series: EOL by Operating System Provider
- IBM AIX 4.3.3 (32-bit) on IBM PowerPC: EOL by Operating System Provider
- Microsoft Windows 98 on Pentium: EOL by Operating System Provider
- Red Hat Linux 7.2 on Pentium: EOL by Operating System Provider

■ Platforms Supporting Threads

Supported Platforms

The following table lists the platforms on which the BEA Tuxedo system is supported for Release 8.1.

Additional software ports and certifications may continue after the initial release of BEA Tuxedo 8.1. For information regarding subsequent ports and certifications, please refer to the Platform Support information on the BEA web site at the following link:

`http://www.bea.com/products/tuxedo/platforms.shtml`

Platform information is maintained under the "Requirements" option under the Tuxedo product page.

Note: More detailed platform information is maintained on the secured eSupport portal under "Product News and EOL Updates." A customer eSupport password login is required. The eSupport link is:

`http://support.bea.com`

Vendor	Operating System	Release/Version
HP	HP-UX	HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC,HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC, HP-UX 11iv1 (B.11.11) (64-bit) on PA-RISC, HP-UX 11iv1 (B.11.11)(32-bit) Using -AA Option on PA-RISC, HP-UX 11iv2 (B.11.23) (64-bit) on Itanium, HP-UX 11iv3 (B.11.31) (32-bit) Itanium, HP-UX 11iv3 (B.11.31) (64-bit) Itanium, HP-UX 11iv3 (B.11.31) (32-bit) PA-RISC
IBM	AIX	Microsoft Windows 2000 Advanced Server (32-bit) on Pentium, IBM AIX 5.2 (64-bit) on IBM PowerPC

Vendor	Operating System	Release/Version
Microsoft	Windows	Microsoft Windows 2000 Advanced Server (32-bit) on Pentium, Microsoft Windows 2003 Server (32-bit) on Pentium, Microsoft Windows 2003 Server (64-bit) on Itanium
	Windows 98 (clients only)	
Red Hat	Linux	Red Hat Linux Advanced Server 2.1 (32-bit) on Pentium, Red Hat Linux Advanced Server 2.1 (64-bit) on Itanium, Red Hat Linux Advanced Server 3.0 (32-bit) on Pentium, Red Hat Linux Advanced Server 3.0 (64-Bit) on Itanium 2
Sun Microsystems	Solaris	Solaris 8 (32-bit) on SPARC, Solaris 8 (64-bit) on SPARC, Solaris 10 (32-bit) on x86 (64-bit AMD64), Solaris 10 (64-bit) on SPARC **Note:** For Solaris 10 platforms, Solaris 10 Containers are supported. Container support is limited to global zones.
SUSE	Linux	SUSE Linux Enterprise Server 8.0 (32-bit) on IBM zSeries, SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium

Note: BEA Jolt 8.1 and BEA SNMP Agent 8.1 are supported on the same platforms that are supported by BEA Tuxedo 8.1.

A data sheet is provided for each platform. Each data sheet includes the following platform-specific information:

- A list of available BEA Tuxedo install sets
- Hardware, software, network, and disk space requirements
- Instructions for mounting and unmounting the BEA Tuxedo software CD

- Tunable parameters

Platform Support Policy

The BEA policy regarding discontinuance of operating system platform support for Tuxedo and related products is as follows:

- BEA Tuxedo 32-bit binaries are supported on 64-bit operating systems, such as on 64-bit versions of HP-UX, Solaris, AIX and Windows. This support is based on OS vendor compatibility assurance that 32-bit applications can run on 64-bit OS without any changes. For more 32-bit application support on 64-bit OS information, please refer to respective OS vendor documentation.
- BEA Tuxedo is considered supported in virtualization software environments provided by the operating system vendor (such as Solaris Containers, HP-UX VM and AIX6 WPARs). Even though BEA has performed limited testing in these environments, the support is based on the OS vendor compatibility statement that software applications will run in a virtualization software environment without any changes.

  Other virtualization software environments (such as VMWare), are also considered supported, provided that the virtualization software environment is supported by the operating system vendor and the support criteria specified in the operating system data sheets are met.

  For more information, see Supported Platforms (Initial Release) andSupported Platforms (Post Release Ports/Certifications).
- The BEA policy is that when the operating system provider discontinues supporting a specific release, BEA support is also discontinued.
- BEA will not be able to notify customers and users when support for a specific operating system release is discontinued. As a user of the operating system release, we expect you to find out from the operating system provider of discontinued support and plan accordingly.

End of Life Platform Expectancy Table

This section contains the End-of Life expectancy table for Tuxedo 9.1 supported platforms.

Note: OS EOL dates may have changed since time of this publication. Check with vendor for current OS EOL dates.

Table A-1 Tuxedo 8.1 End of Life Platform Expectancy Table

OS	RELEASE DATE	OS EOL DATE
HP-UX 11iv1 (B.11.11)(32-bit) Using -AA Option on PA-RISC	2004.10.20	2013.12.31
HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC	2003.07.15	2013.12.31
HP-UX 11iv1 (B.11.11) (64-bit) on PA-RISC	2003.07.23	2013.12.31
HP-UX 11iv2 (B.11.23) (32-bit) on Itanium	2004.06.30	2013.12.31
HP-UX 11iv2 (B.11.23) (64-bit) on Itanium	2003.11.24	2013.12.31
HP-UX 11iv2 (B.11.23) (32/64-bit) on PA-RISC	2005.02.21	2013.12.31
HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC	2005.03.15	2013.12.31
HP-UX 11iv3 (B.11.31) (32-bit) Itanium	2007.12.20	TBD
HP-UX 11iv3 (B.11.31) (64-bit) Itanium	2007.12.20	TBD
HP-UX 11iv3 (B.11.31) (32-bit) PA-RISC	2007.12.20	TBD
IBM AIX 5.2 (32/64-bit) on IBM PowerPC	2005.06.10	2008.09.30
IBM AIX 5.2 (64-bit) PowerPC	2003.07.11	2008.09.30
IBM AIX 5.2 (64-bit) on IBM PowerPC	2003.10.15	2008.09.30
IBM AIX 5.3 (32/64-bit) on 64-bit IBM PowerPC	2004.9.15	TBD
IBM AIX 5.3 (64-bit) on IBM PowerPC	2005.08.22	TBD
Microsoft Windows 2000 Advanced Server (32-bit) on Pentium	2003.02.17	2010.7.13
Microsoft Windows 2003 Server (32-bit) on Pentium	2004.12.24	TBD
Microsoft Windows 2003 Server (64-bit) on Itanium	2004.09.24	TBD

Table A-1 Tuxedo 8.1 End of Life Platform Expectancy Table

OS	RELEASE DATE	OS EOL DATE
Microsoft Windows XP 32-bit Intel	2003.02.17	TBD
Microsoft Windows XP 32-bit Pentium	2004.11.30	TBD
Red Flag Linux 4.1 (32-bit) on Pentium	2005.07.15	TBD
Red Hat Linux Advanced Server 2.1 (32-bit) on Pentium	2003.10.31	2009.05.31
Red Hat Linux Advanced Server 2.1 (64-bit) on Itanium	2004.01.02	2009.05.31
Red Hat Linux Advanced Server 3.0 (32-bit) on Pentium	2004.08.1	2010.10.31
Red Hat Enterprise Linux 3.0 (32-bit) on Pentium	2004.10.01	2010.10.31
Red Hat Linux Advanced Server 3.0 (64-Bit) on Itanium 2	2005.01.31	2010.10.31
Red Hat Enterprise Linux 4.0 (32-bit) on Pentium	2005 Q4	2012.02.29
SCCS NeoShine Linux V1.03 32-bit Pentium	2005.10.15	TBD
Solaris 8 (32-bit) on SPARC	2003.02.17	2009.03.31
Solaris 8 (64-bit) on SPARC	2003.07.15	2009.03.31
Solaris 8 (64-bit) SPARC:Using Solaris 8 Tuxedo 8.1 32-bit Binary	2003.02.17	2009.03.31
Solaris 9 (32/64-bit) on SPARC	2003.07.31	TBD
Solaris 9 (64-bit) on SPARC	2004.01.15	TBD
Solaris 10 (32-bit) on x86 (64-bit AMD64)	2005.12.09	TBD
Solaris 10 (32/64-bit) on SPARC	2005.06.30	TBD
Solaris 10 (64-bit) on SPARC	2006.01.26	TBD
SUSE Linux Enterprise Server 8.0 (32-bit) on IBM zSeries	2004.08	TBD
SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium	2005.03.31	2011.06.30
Turbo Linux DS 10 (32-bit) on Pentium	2005.07.15	TBD

EOL information for all BEA products can be found at:
http://support.bea.com/product_news/Product_Retirement_Calendar.xls

Install Sets

An install set is a bundle of product software components related by function. BEA Tuxedo 8.1 offers the following six install sets:

- *Full install set*—consists of all the BEA Tuxedo 8.1 server and client components
- *Server install set*—consists of all the BEA Tuxedo 8.1 server components and some client components:
  - BEA Application-to-Transaction Monitor Interface (ATMI) server, native ATMI client, and ATMI Workstation (/WS) software
  - BEA Common Object Request Broker Architecture (CORBA) C++ server, native CORBA C++ client, and CORBA C++ client software
  - BEA Jolt 8.1 server software including BEA Jolt Internet Relay
  - BEA SNMP Agent 8.1 software
  - BEA Tuxedo Administration Console software
  - Link-Level Encryption (LLE) and Secure Sockets Layer (SSL) encryption software
- *Full client install set*—consists of all the BEA Tuxedo 8.1 client components:
  - BEA ATMI Workstation (/WS) client software
  - BEA CORBA C++ client software (C++ client Object Request Broker, or ORB) including environmental objects
  - BEA CORBA Java client software (BEA-branded Java client ORB) including environmental objects
  - BEA Jolt 8.1 client software

- Windows XP, 2000, and 98 systems only: BEA ActiveX client software including environmental objects and the BEA Application Builder graphical user interface (GUI)
- LLE and SSL encryption software

- *ATMI (/WS) client install set*—consists of the following BEA Tuxedo 8.1 components:
  - BEA ATMI (/WS) client software
  - LLE encryption software
- *CORBA client install set*—consists of the following BEA Tuxedo 8.1 components:
  - BEA CORBA C++ client software
  - BEA CORBA Java client software
  - SSL encryption software
- *Jolt client install set*—consists of the following BEA Tuxedo 8.1 components:
  - BEA Jolt 8.1 client software
  - LLE encryption software

In addition to selecting an install set during a BEA Tuxedo 8.1 installation, a user can further customize the installation by selecting (adding) or deselecting (deleting) one or more software components from the install set. Customizing is only possible for the GUI-mode installation method described in "Installing BEA Tuxedo Using GUI-Mode Installation" on page 2-1; it is not possible for the console-mode or silent-mode installation method.

SSL and LLE are available with two levels of encryption: 56-bit and 128-bit. Licenses for the 128-bit client versions of SSL and LLE are available in the United States and Canada. With proper authorization, customers outside the United States and Canada may also acquire licenses with 128-bit encryption enabled. For information about purchasing licenses, contact BEA Sales at `http://www.bea.com/contact/sales1.shtml`.

Supported Platforms (Initial Release)

The platforms in this section are available with the Tuxedo 8.1 initial GA release and are available on the Tuxedo 8.1 Product CD and on the BEA dev2dev web site as a product download. The data sheets for each of these platforms are listed as follows:

Microsoft Windows 2000 Advanced Server (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for Microsoft Windows 2000 Advanced Server (32-bit) systems on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Windows 2000 Advanced Server (32-bit)

- Full install set
- Server install set
- Full client install set (includes ActiveX clients)
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Windows 2000 Advanced Server (32-bit)

- Pentium processor
- 128 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Windows 2000 Advanced Server (32-bit)

Component	Requirement
C/C++ and COBOL compilers	C/C++: Visual C/C++ 6.0 SP4 or compatible; required for full (development) installations, but not for server-only or client-only installations; Net Express 3.1. Also, either Visual C/C++ 6.0 SP4, Visual Basic 6.0, or another OLE Automation development tool is required for client systems that run ActiveX client applications. COBOL: Micro Focus or other compatible COBOL compiler.
Internet browser for BEA Application Builder Help	BEA Application Builder on this platform tested with Netscape 7.0 and Internet Explorer 6.0. This browser is required only for the online help used in the BEA Application Builder. This GUI is installed on your system if you included ActiveX clients in your BEA Tuxedo 8.1 installation.
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 7.0 and Internet Explorer 6.0 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 7.0 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported. **Note:** If you experience problems using the Internet Explorer browser, use the Netscape browser.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1-C
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1-C
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On Windows 2000, for example, Visual C++ includes a C preprocessor.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Windows 2000 Advanced Server (32-bit)

TCP/IP provided by Microsoft Windows 2000 Advanced Server (32-bit Winsock).

Disk Space Requirements for Windows 2000 Advanced Server (32-bit)

The disk space requirements for installation on Windows 2000 (Intel) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	116 MB
Server install set:	86 MB
Full client install set:	62 MB
ATMI (/WS) client install set:	41 MB
CORBA client install set:	58 MB
Jolt client install set:	32 MB
Temporary space for installer:	50 MB

Tunable Parameters for Windows 2000 Advanced Server (32-bit)

Before running the BEA Tuxedo software, you may need to reconfigure the interprocess communication (IPC) parameters shown in the figure titled "BEA Administration Window with IPC Resources Page Displayed" on page 2-13 in *Using BEA Tuxedo ATMI on Windows*. For instructions about reconfiguring the IPC parameters, see "Configuring IPC Resources to Maximize System Performance" on page 2-12 in *Using BEA Tuxedo ATMI on Windows* and "Checking IPC Requirements" on page 6-22.

Solaris 8 (32-bit) on SPARC

The following sections list BEA Tuxedo 8.1 requirements for Solaris 8 (32-bit) systems on SPARC.

Available BEA Tuxedo 8.1 Install Sets for Solaris 8 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Solaris 8 (32-bit)

- UltraSPARC
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 8 (32-bit)

Component	Requirement
C/C++ and COBOL compilers	C/C++: Sun WorkShop 6 C++ 5.1 (Forte 6.2) or compatible; Server Express 1.0.0. COBOL: from Micro Focus or other compatible COBOL compiler; required only for BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes

- When Oracle is used, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.

- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 8 (32-bit)

TCP/IP using the Transport Layer Interface (TLI) network interface.

Disk Space Requirements for Solaris 8 (32-bit)

The disk space requirements for installation on Solaris 8 (32-bit) SPARC systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	296 MB
Server install set:	212 MB
Full client install set:	145 MB
ATMI (/WS) client install set:	86 MB
CORBA client install set:	141 MB
Jolt client install set:	59 MB
Temporary space for installer:	94 MB

Mounting and Unmounting the CD for Solaris 8 (32-bit)

The Solaris Volume Management software automatically mounts CDs on `/cdrom/cdrom0/s0`.

It is not necessary to unmount CDs on Solaris systems. However, it is necessary to issue a command to open the CD reader. To open the CD reader, `cd` to `/` (root) and enter `eject`.

Tunable Parameters for Solaris 8 (32-bit)

You probably need to reconfigure the Solaris kernel before running BEA Tuxedo 8.1 software because the default values of some tunable parameters are too low.

To adjust the tunable parameters, follow these steps:

1. Determine whether the current values are adequate.

   For instructions about determining whether the current tunable parameter values are adequate, see "IPC Resource Configuration on a UNIX System" on page D-1 and "Checking IPC Requirements" on page 6-22.

2. Change the tunable parameters as necessary.

   Information regarding kernel configuration is provided in the Solaris reference page `systune(1M)`.

The following table shows the default settings for the parameters and the settings used for the BEA Tuxedo University sample applications. Use these settings as a starting point, but keep in mind that your applications may require different settings.

Table A-2 University Sample Application Default Settings for Solaris 8 (32-bit) SPARC

Solaris Name	Traditional Name	Default Setting	Setting for University Sample Applications
shmsys:shminfo_shmmax	SHMMAX	131072	67108864
shmsys:shminfo_shmseg	SHMSEG	6	100
shmsys:shminfo_shmmni	SHMMNI	100	300
semsys:seminfo_semmns	SEMMNS	60	5048
semsys:seminfo_semmni	SEMMNI	10	5029
semsys:seminfo_semmsl	SEMMSL	25	2000
semsys:seminfo_semmap	SEMMAP	10	5024
semsys:seminfo_semmnu	SEMMNU	30	1024
semsys:seminfo_semume	SEMUME	10	128
msgsys:msginfo_msgmni	MSGMNI	50	1024
msgsys:msginfo_msgmap	MSGMAP	100	2048
msgsys:msginfo_msgmax	MSGMAX	2048	65535
msgsys:msginfo_msgmnb	MSGMNB	4096	65535

Table A-2 University Sample Application Default Settings for Solaris 8 (32-bit) SPARC

Solaris Name	Traditional Name	Default Setting	Setting for University Sample Applications
msgsys:msginfo_msgssz	MSGSSZ	8	256
msgsys:msginfo_msgtql	MSGTQL	40	2048
msgsys:msginfo_msgseg	MSGSEG	1024	8192
maxusers	maxusers	32	200
max_nprocs	NPROC	10+16*maxusers	(MAXUSERS*3)+64
maxuprc	MAXUP	max_nprocs-5	(NPROC * 9) / 10
semsys:siminfo	semusz		1024
semsys:siminfo	semvmx		32767
semsys:siminfo	semaem		16384

The tunable parameters currently set on your system are in the kernel configuration file located in the `/etc` directory (`/etc/`*`machine_name`*). This file typically has the same name as the machine (node) name.

Supported Platforms (Post Release Ports/Certifications)

The platforms in this section are post-GA ports that are available on the BEA dev2dev web site as a product download. The supported platform content is abbreviated for the ported platforms. Please contact BEA Customer Support regarding any additional platform support issues.

HP-UX 11iv1 (B.11.11)(32-bit) Using -AA Option on PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv1 (B.11.11) (32-bit) using -AA option on PARISC systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv1 (B.11.11) (32-bit) Using -AA Option

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv1 (B.11.11) (32-bit) Using -AA Option

- HP 9000 Series
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HHP-UX 11iv1 (B.11.11) (32-bit) Using -AA Option

Component	Requirement
Operating System	HP-UX 11i v1 (B.11.11)

Component	Requirement
C/C++ compilers	cc: B.11.11.08 aCC A.03.50 with Patch (PHSS_28880 PHSS_28871)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1.08
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1.08
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1.08 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle Cli 9i
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- "CORBA IDL

  All version of Tuxedo (after RP116) may have compile problem when use IDL to generate OBV related codes. This issue will be resolved by the future RP.

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.

- ATMI users need a C/C++ compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv1 (B.11.11) (32-bit) Using -AA Option

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv1 (B.11.11) (32-bit) Using -AA Option

The disk space requirements for installation on HP-UX 11iv1 (B.11.11) (32-bit) Using -AA Option on PA-RISC systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	381 MB
Server install set:	372 MB
Full client install set:	247 MB
ATMI (/WS) client install set:	191 MB
CORBA client install set:	238 MB
Jolt client install set:	129 MB
Temporary space for installer:	319 MB

HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv1 (B11.11) (32/64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv1 (B11.11) (32/64-bit)

- HP 9000 Series
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv1 (B11.11) (32/64-bit)

Component	Requirement
Operating System	HP-UX 11i v1 (B.11.11)
C/C++ compilers	cc: B.11.11.08 aCC A.03.50 with Patch (PHSS_28880 PHSS_28871)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1.08 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1.08
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1.08
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1.08 Interface Definition Language (IDL) ORB (run time)

Component	Requirement
Database for CORBA C++ applications	Tested with Oracle Cli 9i
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- Requires Tuxedo rolling patch 29
- The `thread_macros.h` file is modified to set thread stack size
- CORBA IDL

  All version of Tuxedo (after RP116) may have compile problem when use IDL to generate OBV related codes. This issue will be resolved by the future RP.
- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.

- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv1 (B11.11) (32/64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv1 (B11.11) (32/64-bit)

The disk space requirements for installation on HP-UX 11iv1 (B11.11) (32/64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	381 MB
Server install set:	372 MB

Component	Disk Space Requirement
Full client install set:	247 MB
ATMI (/WS) client install set:	191 MB
CORBA client install set:	238 MB
Jolt client install set:	129 MB
Temporary space for installer:	319 MB

HP-UX 11iv1 (B.11.11) (64-bit) on PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv1 (B.11.11) (64-bit) on PA-RISC systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX HP-UX 11iv1 (B.11.11)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv1 (B.11.11)

- HP 9000 Series
- 256 MB of RAM

- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv1 (B.11.11)

Component	Requirement
Operating System	HP-UX B.11.11
C/C++ compilers	cc: HP ANSI C B3910B A.11.01.07 aCC: HP ANSI C++ B3910B A.03.13
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.0 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.0
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.0
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.0 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	NA
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv1 (B.11.11)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv1 (B.11.11)

The disk space requirements for installation on HP-UX 11iv1 (B.11.11) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	355 MB
Server install set:	345 MB
Full client install set:	232 MB
ATMI (/WS) client install set:	189 MB
CORBA client install set:	222 MB
Jolt client install set:	112 MB
Temporary space for installer:	294 MB

HP-UX 11iv2 (B.11.23) (32-bit) on Itanium

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv2 (B.11.23) (32-bit) on Itanium systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv2 (B.11.23) (32-bit)

- Full install set
- Server install set
- Full client install set

- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv2 (B.11.23) (32-bit)

- Itanium processors that support HP-UX 11iv2 (B.11.23)
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11v2 (B.11.23) (32-bit)

Component	Requirement
Operating System	B.11.23 ia64 2576317775
C/C++ compilers	cc: HP aC++/ANSI C B3910B A.05.50 [May 15 2003] aCC:HP aC++/ANSI C B3910B A.05.53 [Oct. 2 2003]
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1

Component	Requirement
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval

mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv2 (B.11.23) (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv2 (B.11.23) (32-bit)

The disk space requirements for installation on HP-UX 11v2 (B.11.23) (32-bit) a systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	547 MB
Server install set:	538 MB
Full client install set:	320 MB
ATMI (/WS) client install set:	240 MB
CORBA client install set:	312 MB

Component	Disk Space Requirement
Jolt client install set:	143 MB
Temporary space for installer:	420 MB

HP-UX 11iv2 (B.11.23) (64-bit) on Itanium

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv2 (B.11.23) (64-bit) on Itanium systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv2 (B.11.23) (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

- Itanium processors that support HP-UX 11iv2 (B.11.23)
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

Component	Requirement
Operating System	B.11.23 (ia64)
C/C++ compilers	aCC: HP aC++/ANSI C B3910B A.05.53 [Oct 2 2003]
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.

- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

The disk space requirements for installation on HP-UX 11iv2 (B.11.23) (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	573 MB
Server install set:	565 MB
Full client install set:	336 MB
ATMI (/WS) client install set:	252 MB
CORBA client install set:	327 MB
Jolt client install set:	142 MB
Temporary space for installer:	418 MB

HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv2 (B.11.23) (64-bit) on PARISC systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv2 (B.11.23) (64-bit))

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

- HP 9000 Series
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

Component	Requirement
Operating System	HP-UX B.11.11
C/C++ compilers	aCC: HP ANSI C++ B3910B A.03.13
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.2.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0-64

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

The disk space requirements for installation on HP-UX 11iv2 (B.11.23) (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	355 MB
Server install set:	345 MB
Full client install set:	232 MB
ATMI (/WS) client install set:	189 MB
CORBA client install set:	222 MB
Jolt client install set:	112 MB
Temporary space for installer:	294 MB

HP-UX 11iv2 (B.11.23) (32/64-bit) on PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv2 (B.11.23) (32/64-bit) on PA-RISC.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv2 (B.11.23) (32/64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv2 (B.11.23) (32/64-bit)

- HP 9000 Series
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv2 (B.11.23) (32/64-bit)

Component	Requirement
Operating system	HP-UX 11.23 U 9000/800 2865190645 unlimited-user license

Component	Requirement
C/C++ and COBOL compilers	cc: (HP92453-01 B.11.11.12 HP C Compiler) aCC: (HP ANSI C++ B3910B A.03.60)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.2 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2 (HotSpot)
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2 (HotSpot)
Non-BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	NA
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- The Tuxedo 8.1 32-bit binary for HP-UX 11.00 will be tested on HP-UX11.23. Basing on HP-UX11.23 official back-forward compatibility declaration, only sanity test is needed to ensure the Tuxedo 8.1 for HP-UX 11.00 binary can execute on HP-UX 11.23.
- COBOL/LLE related test cases are not executed according to previous project execution coverage.

- SHM/MP/DOMAIN/JOLT/C++ cases have been executed; the JOLT and C++ CORBA cases executions have been modified to make them can be executed successfully.
- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv2 (B.11.23) (32/64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv2 (B.11.23) (32/64-bit)

The disk space requirements for installation on HP-UX 11iv2 (B.11.23) (32/64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	338 MB
Server install set:	247 MB
Full client install set:	166 MB
ATMI (/WS) client install set:	110 MB
CORBA client install set:	162 MB
Jolt client install set:	78 MB
Temporary space for installer:	38 MB

HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv2 (B.11.23) (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

- HP 9000 Series
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

Component	Requirement
Operating System	HP-UX 11.23 U 9000/800 2865190645 unlimited-user license
C/C++ compilers	cc: (HP92453-01 B.11.11.12 HP C Compiler) aCC: (HP ANSI C++ B3910B A.03.60)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.2 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.

Component	Requirement
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	NA
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.

- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv2 (B.11.23) (64-bit)

The disk space requirements for installation on HP-UX 11iv2 (B.11.23) (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	355 MB
Server install set:	345 MB
Full client install set:	232 MB
ATMI (/WS) client install set:	189 MB
CORBA client install set:	222 MB
Jolt client install set:	112 MB
Temporary space for installer:	294 MB

HP-UX 11iv3 (B.11.31) (32-bit) Itanium

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv3 (B.11.31) (32-bit) Itanium systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv3 (B.11.31) (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv3 (B.11.31) (32-bit))

- Itanium processors that support HP-UX 11iv3 (B.11.31)
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv3 (B.11.31) (32-bit)

Component	Requirement
Operating System	HP-UX B.11.31 U ia64
C/C++ compilers	cc: HP C/aC++ B3910B A.06.12 [Nov 03 2006]
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.5.x **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.5.x
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.5.x
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.5.x Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle10gR2
SSL certificate authorities	Verisign Netscape

Component	Requirement
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv3 (B.11.31) (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv3 (B.11.31) (32-bit)

The disk space requirements for installation on HP-UX 11iv3 (B.11.31) (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	573 MB
Server install set:	565 MB
Full client install set:	336 MB
ATMI (/WS) client install set:	252 MB
CORBA client install set:	327 MB
Jolt client install set:	142 MB
Temporary space for installer:	418 MB

HP-UX 11iv3 (B.11.31) (64-bit) Itanium

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv3 (B.11.31) (64-bit) Itanium systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv3 (B.11.31) (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv3 (B.11.31) (64-bit))

- Itanium processors that support HP-UX 11iv3 (B.11.31)
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv3 (B.11.31) (64-bit)

Component	Requirement
Operating System	HP-UX B.11.31 U ia64
C/C++ compilers	cc: HP C/aC++ B3910B A.06.12 [Nov 03 2006]

Component	Requirement
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.5.x **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.5.x
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.5.x
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.5.x Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle10gR2
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:

- LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

■ To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

■ For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv3 (B.11.31) (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv3 (B.11.31) (64-bit)

The disk space requirements for installation on HP-UX 11iv3 (B.11.31) (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	573 MB
Server install set:	565 MB
Full client install set:	336 MB
ATMI (/WS) client install set:	252 MB
CORBA client install set:	327 MB
Jolt client install set:	142 MB
Temporary space for installer:	418 MB

HP-UX 11iv3 (B.11.31) (32-bit) PA-RISC

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11iv3 (B.11.31) (32-bit) PA-RISC systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11iv3 (B.11.31) (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11iv3 (B.11.31) (32-bit))

- HP 9000 Series
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11iv3 (B.11.31) (32-bit)

Component	Requirement
Operating System	HP-UX 11iv3 (B.11.31) 64-bit PA-RISC
C/C++ and COBOL compilers	cc: B.11.59.01 061205 aCC: HP ANSI C++ B3910B A.03.33 COBOL: Micro Focus 5.0, ACUCOBOL-GT 7.0.1, or other compatible COBOL compiler.]
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.5.x **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.5.x
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.5.x

Component	Requirement
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.5.x Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle10gR2
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C/C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval

mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11iv3 (B.11.31) (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11iv3 (B.11.31) (32-bit)

The disk space requirements for installation on HP-UX 11iv3 (B.11.31) (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	573 MB
Server install set:	565 MB
Full client install set:	336 MB
ATMI (/WS) client install set:	252 MB
CORBA client install set:	327 MB

Component	Disk Space Requirement
Jolt client install set:	142 MB
Temporary space for installer:	418 MB

IBM AIX 5.2 (32/64-bit) on IBM PowerPC

The following sections list BEA Tuxedo 8.1 requirements for IBM AIX 5.2 (32/64-bit) on IBM PowerPC systems.

Available BEA Tuxedo 8.1 Install Sets for IBM AIX 5.2 (32/64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for IBM AIX 5.2 (32/64-bit)

- IBM PowerPC
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for IBM AIX 5.2 (32/64-bit)

Component	Requirement
Operating System	AIX 5.2.0
C/C++ compilers	VisualAge C++ 5.0.2 (With the July 2002VisualAge C++ for AIX V5.0 PTF) or above.
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1 Interface Definition Language (IDL) ORB (run time)
Database	Oracle Client 9i
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL
Other	Gnu make 3.74

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for IBM AIX 5.2 (32/64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for IBM AIX 5.2 (32/64-bit)

The disk space requirements for installation on IBM AIX 5.2 (32/64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	369 MB
Server install set:	359 MB
Full client install set:	267 MB
ATMI (/WS) client install set:	231 MB
CORBA client install set:	257 MB
Jolt client install set:	141 MB
Temporary space for installer:	310 MB

IBM AIX 5.2 (64-bit) on IBM PowerPC

The following sections list BEA Tuxedo 8.1 requirements for IBM AIX 5.2 (64-bit) on IBM PowerPC systems.

Available BEA Tuxedo 8.1 Install Sets for IBM AIX 5.2 (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for IBM AIX5.2 (64-bit)

- IBM PowerPC
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for IBM AIX5.2 (64-bit)

Component	Requirement
Operating System	AIX 5.2.0
C/C++ and COBOL compilers	C/C++: VisualAgeC/C++ for AIX Compiler, Version 5.0.2 or above. COBOL: Micro Focus 4.0
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1

Component	Requirement
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1 Interface Definition Language (IDL) ORB (run time)
Database	Tested with Oracle 9.2.0
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval

mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for IBM AIX 5.2 (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for IBM AIX 5.2 (64-bit)

The disk space requirements for installation on IBM AIX 5.2 (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	369 MB
Server install set:	359 MB
Full client install set:	267 MB
ATMI (/WS) client install set:	231 MB
CORBA client install set:	257 MB

Component	Disk Space Requirement
Jolt client install set:	141 MB
Temporary space for installer:	310 MB

IBM AIX 5.3 (32/64-bit) on 64-bit IBM PowerPC

The following sections list BEA Tuxedo 8.1 requirements for IBM AIX 5.3 (32/64-bit) on 64-bit IBM PowerPC.

Available BEA Tuxedo 8.1 Install Sets for IBM AIX 5.3 (32/64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for IBM AIX 5.3 (32/64-bit)

- IBM PowerPC
- 256 MB of RAM minimum
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5-1 MB per application server

Software Requirements for IBM AIX 5.3 (32/64-bit)

Component	Requirement
Operating System	AIX 5.3 prerelease version (Build 0429ESP_530)
C/C++ compilers	Visual Age C/C++ 6.0.0.0 Note: The `-qnamemangling=v5` flag is required for compiling CORBA applications using Visual Age C++ 6.0
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1
Non-BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Oracle Cli 9i
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for IBM AIX 5.3 (32/64-bit)

- TCP/IP, using the Sockets network interface

Disk Space Requirements for IBM AIX 5.3 (32/64-bit)

The disk space requirements for installation on an IBM AIX 5.3 (32/64-bit) on 64-bit IBM PowerPC system depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	273 MB
Server install set:	214 MB
Full client install set:	153 MB
ATMI (/WS) client install set:	93 MB
CORBA client install set:	93 MB
Jolt client install set:	98 MB
Temporary space for installer:	109 MB

IBM AIX 5.3 (64-bit) on IBM PowerPC

The following sections list BEA Tuxedo 8.1 requirements for IBM AIX 5.3 (64-bit) on IBM PowerPC: systems.

Available BEA Tuxedo 8.1 Install Sets for IBM AIX 5.3 (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for IBM AIX 5.3 (64-bit)

- IBM PowerPC
- 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for IBM AIX 5.3 (64-bit)

Component	Requirement
Operating System	AIX 5.3.0.0
C/C++ compilers	C/C++: IBM(R) XL C/C++ Enterprise Edition V7.0 Note: The `-qnamemangling=v5` flag is required for compiling CORBA applications using IBM(R) XL C/C++ Enterprise Edition V7.0
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.1 (JDK 1.3.1 for CORBA java client)
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.1 (JDK 1.3.1 for CORBA java client)

Component	Requirement
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.1 Interface Definition Language (IDL) ORB (run time)
Database	Tested with Oracle 9.2.0.1
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval

mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for IBM AIX 5.3 (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for IBM AIX 5.3 (64-bit)

The disk space requirements for installation on IBM AIX 5.3 (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	369 MB
Server install set:	359 MB
Full client install set:	267 MB
ATMI (/WS) client install set:	231 MB
CORBA client install set:	257 MB

Component	Disk Space Requirement
Jolt client install set:	141 MB
Temporary space for installer:	310 MB

Microsoft Windows 2003 Server (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for Microsoft Windows 2003 Server (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Microsoft Windows 2003 Server (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI client install set

  Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Microsoft Windows 2003 Server (32-bit)

- Pentium processor (133 MHz)
- 128 MB of RAM

- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Microsoft Windows 2003 Server (32-bit)

Component	Requirement
Operating System	Windows 2003 Server Version 5.2
C/C++ compilers	Microsoft (R) 32-bit C/C++ Standard Compiler Version 13.10.3077 for 80x86
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Oracle9i Enterprise Edition Release 9.2.0.1.0 - Production With the Partitioning, OLAP and Oracle Data Mining options JServer Release 9.2.0.1.0 - Production
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Microsoft Windows 2003 Server (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Microsoft Windows 2003 Server (32-bit)

The disk space requirements for installation on Microsoft Windows Server 2003 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	264 MB
Server install set:	248 MB
Full client install set:	195 MB
ATMI (/WS) client install set:	124 MB
CORBA client install set:	179 MB
Jolt client install set:	66 MB
Temporary space for installer:	137 MB

Microsoft Windows 2003 Server (64-bit) on Itanium

The following sections list BEA Tuxedo 8.1 requirements for Microsoft Windows 2003 Server (64-bit) on Itanium on Itanium systems.

Available BEA Tuxedo 8.1 Install Sets for Microsoft Windows 2003 Server (64-bit)

- Full install set
- Server install set

- Full client install set
- ATMI client install set

  Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Microsoft Windows 2003 Server (64-bit)

- Itanium processor (733 MHz)
- 128 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Microsoft Windows 2003 Server (64-bit)

Component	Requirement
Operating System	Microsoft Windows 2003 Version 5.2 (Build 3790.srv03_rtm.030324-2048)
C/C++ compilers	Microsoft (R) C/C++ Optimizing Compiler Version 13.10.2240.8 for IA-64
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2

Component	Requirement
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Oracle9i Release 2 (9.2.0.2.1) for 64-Bit Windows
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.

- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Microsoft Windows 2003 Server (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Microsoft Windows 2003 Server (64-bit)

The disk space requirements for installation on Microsoft Windows 2003 Server (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	402 MB
Server install set:	392 MB

Component	Disk Space Requirement
Full client install set:	298 MB
ATMI client install set:	286 MB
CORBA client install set:	288 MB
Jolt client install set:	290 MB
Temporary space for installer:	266 MB

Red Flag Linux 4.1 (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for Red Flag Linux 4.1 (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Red Flag Linux 4.1 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Red Flag Linux 4.1 (32-bit)

- Pentium
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Flag Linux 4.1 (32-bit))

Component	Requirement
Operating System	Linux 2.4.21-9.30AXsmp i686 i686 i386 GNU/Linux
C/C++ compilers	gcc version 3.2.3 20030502 (Asianux 1.0 3.2.3-36)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1_01 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1_01
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 JRE 1.3.1_01
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1_01 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	N/A
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.

- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Flag Linux 4.1 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Flag Linux 4.1 (32-bit)

The disk space requirements for installation on Red Flag Linux 4.1 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	250 MB
Server install set:	240 MB
Full client install set:	170 MB
ATMI (/WS) client install set:	140 MB
CORBA client install set:	160 MB
Jolt client install set:	90 MB
Temporary space for installer:	296 MB

Red Hat Linux Advanced Server 2.1 (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for ed Hat Linux Advanced Server 2.1 (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Red Hat Linux Advanced Server 2.1 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Red Hat Linux Advanced Server 2.1 (32-bit)

- Pentium
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Hat Linux Advanced Server 2.1 (32-bit)

Component	Requirement
Operating System	Red Hat Linux Advanced Server 2.1
C/C++ compilers	gcc/g++ version 2.96 20000731
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.1 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0 on Red Hat Linux AS

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Hat Linux Advanced Server 2.1 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Hat Linux Advanced Server 2.1 (32-bit)

The disk space requirements for installation on Red Hat Linux Advanced Server 2.1 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	280 MB
Server install set:	270 MB
Full client install set:	194 MB
ATMI (/WS) client install set:	164 MB
CORBA client install set:	186 MB
Jolt client install set:	114 MB
Temporary space for installer:	248 MB

Red Hat Linux Advanced Server 2.1 (64-bit) on Itanium

The following sections list BEA Tuxedo 8.1 requirements for Red Hat Linux Advanced Server 2.1 (64-bit) on Itanium systems.

Available BEA Tuxedo 8.1 Install Sets for Red Hat Linux Advanced Server 2.1 (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Red Hat Linux Advanced Server 2.1 (64-bit)

- Itanium
- 512 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Hat Linux Advanced Server 2.1 (64-bit)

Component	Requirement
Operating System	Red Hat Linux Advanced Server 2.1 on IA64 (64-bit)
C/C++ compilers	gcc version 2.96 20000731 (Red Hat Linux 7.2 2.96-112.7.2)

Component	Requirement
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.1 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:

- LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

■ To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

■ For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Hat Linux Advanced Server 2.1 (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Hat Linux Advanced Server 2.1 (64-bit)

The disk space requirements for installation on Red Hat Linux Advanced Server 2.1 (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	346 MB
Server install set:	334 MB
Full client install set:	182 MB
ATMI (/WS) client install set:	152 MB
CORBA client install set:	192 MB
Jolt client install set:	82 MB
Temporary space for installer:	302 MB

Red Hat Linux Advanced Server 3.0 (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for Red Hat Linux Advanced Server 3.0 (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Red Hat Linux Advanced Server 3.0 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Red Hat Linux Advanced Server 3.0 (32-bit)

- Pentium
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Hat Linux Advanced Server 3.0 (32-bit)

Component	Requirement
Operating System	Red Hat Linux Advanced Server3.0
C/C++ compilers	gcc/g++ version 3.2.3 20030502 (Red Hat Linux 3.2.3-24)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 JRE 1.4.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.1 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Hat Linux Advanced Server 3.0 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Hat Linux Advanced Server 3.0 (32-bit)

The disk space requirements for installation on Red Hat Linux Advanced Server 3.0 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	250 MB
Server install set:	240 MB
Full client install set:	170 MB
ATMI (/WS) client install set:	140 MB
CORBA client install set:	160 MB
Jolt client install set:	90 MB
Temporary space for installer:	296 MB

Red Hat Linux Advanced Server 3.0 (64-Bit) on Itanium 2

The following sections list BEA Tuxedo 8.1 requirements for Red Hat Linux Advanced Server 3.0 (64 Bit) on Itanium 2 systems.

Available BEA Tuxedo 8.1 Install Sets for Red Hat Linux Advanced Server 3.0 (64- Bit)

- Full install set
- Server install set
- Full client install set
- ATMI client install set

  Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Red Hat Linux Advanced Server 3.0 (64-Bit)

- Itanium
- 512 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Hat Linux Advanced Server 3.0 (64-Bit)

Component	Requirement
Operating System	Red Hat Linux Advanced Server 2.1 on IA64 (64-bit)
C/C++ compilers	gcc version 3.2.3 20030502 (Red Hat Linux 3.2.3-24)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.1 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.

- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Hat Linux Advanced Server 3.0 (64-Bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Hat Linux Advanced Server 3.0 (64-Bit)

The disk space requirements for installation on Red Hat Linux Advanced Server 3.0 (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	385 MB
Server install set:	282 MB
Full client install set:	185 MB
ATMI (/WS) client install set:	122 MB
CORBA client install set:	181 MB
Jolt client install set:	86 MB
Temporary space for installer:	475 MB

Red Hat Enterprise Linux 4.0 (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for Red Hat Enterprise Linux 4.0 (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Red Hat Enterprise Linux 4.0 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI client install set

Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Red Hat Enterprise Linux 4.0 (32-bit)

- Pentium
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Hat Enterprise Linux 4.0 (32-bit)

Component	Requirement
Operating System	Red Hat 4.0 (32-bit)
C/C++ compilers	gcc version 3.4.3 20041212 (Red Hat 3.4.3-9.EL4) (with RPM compat-libstdc++-33-3.2.3-47.3 installed).
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.5.0_0 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.5.0_0
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.5.0_0

Component	Requirement
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.5.0_0 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle Client 10g
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL
Other	GNU Make 3.80

Additional Notes:

- RPM compat-libstdc++-296-2.96-132.7.2.i386 (found on the RedHat product CD) is required and must be installed *before* installing Tuxedo 8.1.
- If you are using `std::streamstream` with a C++ CORBA application, you must add `libstdc++.so.6` using the `-f` flag when using `buildobjclient` and `buildobjserver`.

  This workaround changes the link order of the libraries and guarantees the current application is using the correct std C++ library.

  For example:

  ```
  ------------------------------------------------------

  #makefile
  LIBSTD_CXX=/usr/lib/libstdc++.so.6

  simple_client:$(CLIENT_SRCS)
  buildobjclient -o $@ -f "$(LIBSTD_CXX) $(CLIENT_SRCS)"
  ------------------------------------------------------
  ```

  The full `libstdc++.so.6` path name can be found by using `g++ -print-file-name=libstdc++.so.6`
- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.

- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Hat Enterprise Linux 4.0 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Hat Enterprise Linux 4.0 (32-bit)

The disk space requirements for installation on Red Hat Enterprise Linux 4.0 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	256 MB
Server install set:	182 MB
Full client install set:	127 MB
ATMI (/WS) client install set:	83 MB
CORBA client install set:	123 MB
Jolt client install set:	57 MB
Temporary space for installer:	340 MB

Solaris 8 (64-bit) on SPARC

The following sections list BEA Tuxedo 8.1 requirements for Solaris 8 (64-bit) on SPARC systems.

Available BEA Tuxedo 8.1 Install Sets for Solaris 8 (64-bit)

- Full install set
- Server install set
- Full client install set

- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Solaris 8 (64-bit)

- UltraSPARC
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 8 (64-bit))

Component	Requirement
Operating System	Solaris 8
C/C++ compilers	Sun WorkShop 6 update 2 C/C++ 5.3 2001/05/15
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.0 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java JRE 1.3.0
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.0
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.2.2 Interface Definition Language (IDL) ORB (run time)

Component	Requirement
Database for CORBA C++ applications	Tested with Oracle 9.2.0.1-64 bit
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 8 (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Solaris 8 (64-bit)

The disk space requirements for installation on Solaris 8 (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	385 MB
Server install set:	377 MB
Full client install set:	269 MB
ATMI (/WS) client install set:	227 MB
CORBA client install set:	261 MB
Jolt client install set:	108 MB
Temporary space for installer:	288 MB

Solaris 9 (32/64-bit) on SPARC

The following sections list BEA Tuxedo 8.1 requirements for Solaris 9 (32/64-bit) systems on SPARC.

Available BEA Tuxedo 8.1 Install Sets for Solaris 9 (32/64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Solaris 9 (32/64-bit)

- UltraSPARC
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 9 (32/64-bit)

Component	Requirement
Operating System	SunOS 5.9 Generic sun4u sparc SUNW, Ultra-80
C/C++ compilers	C/C++: Forte 6 Update 2 (C/C++ 5.3)

Component	Requirement
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1.03 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1.03
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1.03
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1.03 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0.2 - 32
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes

- When Oracle is used, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:

- LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

■ To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

■ For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 9 ((32/64-bit)

TCP/IP using the Transport Layer Interface (TLI) network interface.

Disk Space Requirements for Solaris 9 (32/64-bit)

The disk space requirements for installation on Solaris 9 (32/64-bit) SPARC systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	296 MB
Server install set:	212 MB
Full client install set:	145 MB
ATMI (/WS) client install set:	86 MB
CORBA client install set:	141 MB
Jolt client install set:	59 MB
Temporary space for installer:	94 MB

Solaris 9 (64-bit) on SPARC

The following sections list BEA Tuxedo 8.1 requirements for Solaris 9 (64-bit) on SPARC systems.

Available BEA Tuxedo 8.1 Install Sets for Solaris 9 (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Solaris 9 (64-bit)

- UltraSPARC
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 9 (64-bit)

Component	Requirement
Operating System	Solaris 5.9
C/C++ compilers	Sun WorkShop 6 update 2 C 5.3 2001/05/15
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1.03 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java JRE 1.3.1.03
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1.03
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3.1.03 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 9.2.0.1-64 bit

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 9 (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Solaris 9 (64-bit)

The disk space requirements for installation on Solaris 9 (64-bit) on SPARC systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	385 MB
Server install set:	377 MB
Full client install set:	269 MB
ATMI (/WS) client install set:	227 MB
CORBA client install set:	261 MB
Jolt client install set:	108 MB
Temporary space for installer:	288 MB

Solaris 10 (32-bit) on x86 (64-bit AMD64)

The following sections list BEA Tuxedo 8.1 requirements for Solaris 10 (32-bit) on x86 (64-bit AMD64) systems.

Available BEA Tuxedo 8.1 Install Sets for Solaris 10 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI client install set

  Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Solaris 10 (32-bit)

- 64-bit AMD64
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 10 (32-bit)

Component	Requirement
Operating System	SunOS 5.10
C/C++ compilers	Sun Studio 10. Must apply patch: 117831, 117846, 118682
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.5.0_01 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.5.0_01
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.5.0_01
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.5.0_01 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Oracle Client 10g
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.

- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 10 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Solaris 10 (32-bit)

The disk space requirements for installation on Solaris 10 (32-bit) x86 (64-bit AMD64) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	337 MB
Server install set:	252 MB
Full client install set:	183 MB
ATMI client install set:	130 MB
CORBA client install set:	178 MB
Jolt client install set:	102 MB
Temporary space for installer:	488 MB

Solaris 10 (32/64-bit) on SPARC

The following sections list BEA Tuxedo 8.1 requirements for Solaris 10 (32/64-bit) on SPARC.

Available BEA Tuxedo 8.1 Install Sets for Solaris 10 (32/64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set

- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Solaris 10 (32/64-bit)

- UltraSPARC
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 10 (32/64-bit)

Component	Requirement
Operating System	SunOS 5.10 Generic sun4u sparc SUNW, Sun-Fire-V440 (SPARC CPU)
C/C++ compilers	C/C++: SUN C/C++ 5.7 (Solaris Studio 10 for C/C++)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.2_08 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2_08
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2_08
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2_08 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	N/A

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes

- When Oracle is used, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C or C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 10 (32/64-bit)

TCP/IP using the Transport Layer Interface (TLI) network interface.

Disk Space Requirements for Solaris 10 (32/64-bit)

The disk space requirements for installation on Solaris 10 (32/64-bit) SPARC systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	296 MB
Server install set:	212 MB
Full client install set:	145 MB
ATMI (/WS) client install set:	86 MB
CORBA client install set:	141 MB
Jolt client install set:	59 MB
Temporary space for installer:	94 MB

Solaris 10 (64-bit) on SPARC

The following sections list BEA Tuxedo 8.1 requirements for Solaris 10 (64-bit) on SPARC systems.

Available BEA Tuxedo 8.1 Install Sets for Solaris 10 (64-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Solaris 10 (64-bit)

- UltraSPARC
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Solaris 10 (64-bit)

Component	Requirement
Operating System	SunOS 5.10
C/C++ compilers	Sun Studio 10

Component	Requirement
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.5.0_01 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java JRE 1.5.0_01
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.5.0_01
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.5.0_01 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	N/A
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:

- LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

■ To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

■ For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Solaris 10 (64-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Solaris 10 (64-bit)

The disk space requirements for installation on Solaris 10 (64-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	385 MB
Server install set:	377 MB
Full client install set:	269 MB
ATMI (/WS) client install set:	227 MB
CORBA client install set:	261 MB
Jolt client install set:	108 MB
Temporary space for installer:	288 MB

SUSE Linux Enterprise Server 8.0 (32-bit) on IBM zSeries

The following sections list BEA Tuxedo 8.1 requirements for SUSE Linux Enterprise Server 8.0 (32-bit) on IBM zSeries systems.

Available BEA Tuxedo 8.1 Install Sets for SUSE Linux Enterprise Server 8.0 (32-bit)

- Full install set
- Server install set
- Full client install set

- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for SUSE Linux Enterprise Server 8.0 (32-bit)

- IBM S/390 G5 or later models
- Tested with 1 GB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for SUSE Linux Enterprise Server 8.0 (32-bit)

Component	Requirement
Operating System	SUSE Linux Enterprise Server 8.0 - 2.4.21-94-default
C/C++ compilers	gcc/g++ 3.2.2
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java JRE 1.4.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.1 Interface Definition Language (IDL) ORB (run time)

Component	Requirement
Database for CORBA C++ applications	Tested with Oracle 9.2.0
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for SUSE Linux Enterprise Server 8.0 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for SUSE Linux Enterprise Server 8.0 (32-bit)

The disk space requirements for installation on SUSE Linux Enterprise Server 8.0 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	442 MB
Server install set:	432 MB
Full client install set:	351 MB
ATMI (/WS) client install set:	317 MB
CORBA client install set:	341 MB
Jolt client install set:	266 MB
Temporary space for installer:	411 MB

SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for SUSE Linux Enterprise Server 9.0 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI client install set

  Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for SUSE Linux Enterprise Server 9.0 (32-bit)

- Pentium
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for SUSE Linux Enterprise Server 9.0 (32-bit)

Component	Requirement
Operating System	SUSE Linux Enterprise Server 9.0 (kernel version 2.6.5-7.97-smp)
C/C++ compilers	gcc 3.3.3
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.2 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle Client 10g0
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for SUSE Linux Enterprise Server 9.0 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for SUSE Linux Enterprise Server 9.0 (32-bit)

The disk space requirements for installation on SUSE Linux Enterprise Server 9.0 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	256 MB
Server install set:	182 MB
Full client install set:	127 MB
ATMI (/WS) client install set:	83 MB
CORBA client install set:	123 MB
Jolt client install set:	57 MB
Temporary space for installer:	340 MB

Turbo Linux DS 10 (32-bit) on Pentium

The following sections list BEA Tuxedo 8.1 requirements for Turbo Linux DS 10 (32-bit) on Pentium systems.

Available BEA Tuxedo 8.1 Install Sets for Turbo Linux DS 10 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI client install set

  Note: The *ATMI client install set* replaces the *ATMI (/WS) client install set* for this platform.

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for Turbo Linux DS 10 (32-bit)

- Pentium
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Turbo Linux DS 10 (32-bit)

Component	Requirement
Operating System	Linux 2.6.9-5.11smp i686 i686 i386 GNU/Linux
C/C++ compilers	gcc version 3.4.3 20041212 (TurboLinux 3.4.3-9.2)
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.4.2 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.4.2
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.4.2
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.4.2 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	N/A

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C/C++ compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Turbo Linux DS 10 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for Turbo Linux DS 10 (32-bit)

The disk space requirements for installation on Turbo Linux DS 10 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	256 MB
Server install set:	182 MB
Full client install set:	127 MB
ATMI (/WS) client install set:	83 MB
CORBA client install set:	123 MB
Jolt client install set:	57 MB
Temporary space for installer:	340 MB

End of Life Platforms

The platforms in this section are *no longer* available with the Tuxedo 8.1 release. The data sheets for each of these platforms are listed as follows:

Compaq Tru64 UNIX Version 5.1a on Alpha Systems: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for Compaq Tru64 UNIX v5.1a on Alpha systems.

Available BEA Tuxedo 8.1 Install Sets for Compaq Tru64 UNIX Version 5.1a

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Compaq Tru64 UNIX Version 5.1a

- Compaq Alpha processors that support Compaq Tru64 UNIX Version 5.1a
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Compaq Tru64 UNIX Version 5.1a

Component	Requirement
C/C++ and COBOL compilers	C/C++:Compaq C V6.3-027 or compatible, Compaq C++ V6.2-024 or compatible; Net Express 3.1 COBOL: Micro Focus or other compatible COBOL compiler; required only for the BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1-alpha1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1-alpha1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Compaq Tru64 UNIX Version 5.1a

TCP/IP using the Sockets network interface.

Disk Space Requirements for Compaq Tru64 UNIX Version 5.1a

The disk space requirements for installation on Compaq Tru64 UNIX on Alpha systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	376 MB
Server install set:	277 MB
Full client install set:	221 MB
ATMI (/WS) client install set:	163 MB
CORBA client install set:	217 MB
Jolt client install set:	129 MB
Temporary space for installer:	135 MB

Mounting and Unmounting the CD for Compaq Tru64 UNIX Version 5.1a

Mounting a CD requires the type `CDFS`. Because `CDFS` is a configurable kernel option, the following line must exist in the system configuration file:

```
options CDFS
```

If the system configuration file does not contain this line, modify the file and then rebuild the kernel.

To mount a CD, enter the following commands:

```
su
mkdir /cdrom
/usr/sbin/mount -r -t cdfs -o noversion /dev/rz<unit#>c /cdrom
```

In the `mount` command line, *`unit#`* is the unit number of your CD-ROM drive; `cdrom` (literal) is the mounting point.

In almost all cases, the unit number of the CD-ROM drive on a new system is 4 (that is, /dev/rz4c). However, to ensure that you have the correct unit number of the drive, enter the following commands:

```
su
file /dev/rrz*c
```

The output identifies the CD-ROM drive as an RRD disk. The unit number of the drive is in the far left column. For example:

```
/dev/rrz4c: character special (8/4098) SCSI #0 RRD43 disk #32 (SCSI
ID #4)
```

To unmount the CD, enter the following command:

```
umount /cdrom
```

Tunable Parameters for Compaq Tru64 UNIX Version 5.1a

You probably need to reconfigure the Tru64 UNIX kernel before running BEA Tuxedo software because the default values of some tunable parameters are too low.

To adjust the tunable parameters, follow these steps:

1. Determine whether the current values are adequate.

   For instructions about determining whether the current tunable parameter values are adequate, see “IPC Resource Configuration on a UNIX System” on page D-1 and “Checking IPC Requirements” on page 6-22.

2. Reset the tunable parameters as necessary.

   For instructions about reconfiguring, rebuilding, and rebooting, see the following documentation from Compaq: reference page doconfig(8) and *System Tuning and Performance Management*.

The following table shows the default settings for the parameters and the settings used for the BEA Tuxedo University sample applications. Use these settings as a starting point, but keep in mind that your applications may require different settings.

Table A-3 University Sample Application Default Settings for Tru64 UNIX Version 5.1a

Compaq Tru64 UNIX Name	Traditional Name	Default Setting	Setting for University Sample Applications
semmns	SEMMNS	60	(SEMMNI*2)
semmni	SEMMNI	10	16
semmsl	SEMMSL	25	25
semume	SEMUME	10	10
semopm		10	10
semvmx		32767	32767
semaem		16384	16384
msgmni	MSGMNI	50	84
msgmax	MSGMAX	8192	8192
msgmnb	MSGMNB	16384	16384
msgtql	MSGTQL	40	40
maxusers	maxusers	varies	32
maxproc	NPROC	20+8*maxusers	32–72 per user
maxuprc	MAXUP	64	(NPROC * 9) / 10

The tunable parameters currently set on your system reside in the kernel configuration file located in the `/sys/conf` directory (`/sys/conf/`*`machine_name`*). This file typically has the same name as the machine (node) name.

To display the parameters, log in as user `root` and enter `/usr/bin/x11/dxkerneltuner` at the command prompt.

To change the value of a tunable parameter, follow the instructions given in reference page `UBBCONFIG(5)` in *File Formats, Data Descriptions, MIBs, and System Processes Reference*.

To specify the value of a parameter that was previously unspecified, add a line such as the following to the kernel configuration file:

```
semmni 256
```

Here `semmni` is the name of the parameter and `256` is its value.

Compaq Tru64 UNIX Version 5.1b (64-bit) on Alpha Systems: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for Compaq Tru64 UNIX Version 5.1b (64-bit) on Alpha systems.

Available BEA Tuxedo 8.1 Install Sets for Compaq Tru64 UNIX Version 5.1b

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Compaq Tru64 UNIX Version 5.1b

- Compaq Alpha processors that support Compaq Tru64 UNIX Version 5.1b
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Compaq Tru64 UNIX Version 5.1b

Component	Requirement
C/C++ and COBOL compilers	C/C++:Compaq C V6.3-027 or compatible, Compaq C++ V6.2-024 or compatible; Net Express 3.1 COBOL: Micro Focus or other compatible COBOL compiler; required only for the BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1-alpha1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1-alpha1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Compaq Tru64 UNIX Version 5.1b

TCP/IP using the Sockets network interface.

Disk Space Requirements for Compaq Tru64 UNIX Version 5.1b

The disk space requirements for installation on Compaq Tru64 UNIX Version 5.1b on Alpha systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	376 MB
Server install set:	277 MB
Full client install set:	221 MB
ATMI (/WS) client install set:	163 MB
CORBA client install set:	217 MB
Jolt client install set:	129 MB
Temporary space for installer:	135 MB

Compaq Tru64 UNIX Version 5.1b-1 (64-bit) on Alpha Systems: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for Compaq Tru64 UNIX Version 5.1b-1 (64-bit) on Alpha systems.

Available BEA Tuxedo 8.1 Install Sets for Compaq Tru64 UNIX Version 5.1b-1

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Compaq Tru64 UNIX Version 5.1b-1

- Compaq Alpha processors that support Compaq Tru64 UNIX Version 5.1b-1
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Compaq Tru64 UNIX Version 5.1b-1

Component	Requirement
C/C++ and COBOL compilers	C/C++:Compaq C V6.3-027 or compatible, Compaq C++ V6.2-024 or compatible; Net Express 3.1 COBOL: Micro Focus or other compatible COBOL compiler; required only for the BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1-alpha1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1-alpha1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)

Component	Requirement
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Compaq Tru64 UNIX Version 5.1b-1

TCP/IP using the Sockets network interface.

Disk Space Requirements for Compaq Tru64 UNIX Version 5.1b-1

The disk space requirements for installation on Compaq Tru64 UNIX Version 5.1b-1 on Alpha systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	376 MB
Server install set:	277 MB
Full client install set:	221 MB
ATMI (/WS) client install set:	163 MB
CORBA client install set:	217 MB
Jolt client install set:	129 MB
Temporary space for installer:	135 MB

Compaq Tru64 UNIX Version 5.1b-2 (64-bit) on Alpha Systems: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for Compaq Tru64 UNIX Version 5.1b-2 (64-bit) on Alpha systems.

Available BEA Tuxedo 8.1 Install Sets for Compaq Tru64 UNIX Version 5.1b-2

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Compaq Tru64 UNIX Version 5.1b-2

- Compaq Alpha processors that support Compaq Tru64 UNIX Version 5.1b-2
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Compaq Tru64 UNIX Version 5.1b-2

Component	Requirement
C/C++ and COBOL compilers	C/C++:Compaq C V6.3-027 or compatible, Compaq C++ V6.2-024 or compatible; Net Express 3.1 COBOL: Micro Focus or other compatible COBOL compiler; required only for the BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If encryption is not configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1-alpha1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1-alpha1
Non BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.

- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.
  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Compaq Tru64 UNIX Version 5.1b-2

TCP/IP using the Sockets network interface.

Disk Space Requirements for Compaq Tru64 UNIX Version 5.1b-2

The disk space requirements for installation on Compaq Tru64 UNIX Version 5.1b-2 on Alpha systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	376 MB
Server install set:	277 MB
Full client install set:	221 MB
ATMI (/WS) client install set:	163 MB
CORBA client install set:	217 MB
Jolt client install set:	129 MB
Temporary space for installer:	135 MB

HP-UX Version 11.0 (32-bit) on HP 9000 Series: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for HP-UX 11.0 (32-bit) on HP 9000 systems.

Available BEA Tuxedo 8.1 Install Sets for HP-UX 11.0 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set

- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for HP-UX 11.0 (32-bit)

- HP 9000 Series
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for HP-UX 11.0 (32-bit)

Component	Requirement
Operating system	HP-UX 11.0 32-bit plus patches PHKL_21039, PHKL_21684, and PHKL_21778 **Note:** The PHKL patches are an enhancement to HP-UX 11.0 that enable it to handle the large message queue sizes produced by BEA Tuxedo 8.1. These patches increase the SysV IPC MSGMNB message queue capacity from a 16-bit (ushort) limit to a 32-bit (int) limit for recompiled applications that are designed specifically to take advantage of this feature. Java users must also apply Java 2 patches, which are available at `http://www.unixsolutions.hp.com/products/java/2_60_software_content.html`.
C/C++ and COBOL compilers	C/C++: HP C ANSI A.11.01.20 or compatible, C++ A.03.33 or compatible (see note); Server Express 1.0.0 COBOL: Micro Focus or other compatible COBOL compiler; required only for BEA Tuxedo development environment **Note:** Do not use the -AA option.

Component	Requirement
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1 (HotSpot)
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1 (HotSpot)
Non-BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:

- LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

■ To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.

■ For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for HP-UX 11.0 (32-bit)

TCP/IP using the Sockets network interface.

Disk Space Requirements for HP-UX 11.0 (32-bit)

The disk space requirements for installation on HP-UX 11.0 (32-bit) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	338 MB
Server install set:	247 MB
Full client install set:	166 MB
ATMI (/WS) client install set:	110 MB
CORBA client install set:	162 MB
Jolt client install set:	78 MB
Temporary space for installer:	38 MB

Mounting and Unmounting the CD for HP-UX 11.0 (32-bit)

To mount a CD, enter the following commands:

```
su
mkdir /cdrom
mount -F cdfs -o cdcase /dev/dsk/cdrom_device /cdrom
```

Here *cdrom_device* is listed in the output of the `ioscan -f -n` command; `cdrom` (literal) is the mounting point.

To unmount the CD, enter the following command:

```
umount /cdrom
```

Tunable Parameters for HP-UX 11.0 (32-bit)

You probably need to reconfigure the HP-UX kernel before running BEA Tuxedo software because the default values of some tunable parameters are too low.

To adjust the tunable parameters, follow these steps:

1. Determine whether the current values are adequate.

   For instructions about determining whether the current tunable parameter values are adequate, see "IPC Resource Configuration on a UNIX System" on page D-1 and "Checking IPC Requirements" on page 6-22.

2. Reset the tunable parameters as necessary.

   For instructions about reconfiguring HP-UX, see "Setting Up a System" in the *HP-UX System Administration Tasks Manual*.

The following table lists the default settings for the parameters and the settings used for the University sample applications. Use these settings as a starting point, but keep in mind that your applications may require different settings.

Table A-4 University Sample Application Default Settings for HP-UX 11.0 (32-bit)

HP-UX Name	Traditional Name	Default Setting	Setting for University Sample Applications
shmmax	SHMMAX	67108864	0x40000000
shmseg	SHMSEG	12	32
shmmni	SHMMNI	100	512
semmns	SEMMNS	128	(SEMMNI*2)
semmni	SEMMNI	64	NPROC*5
semmap	SEMMA	semmni+2	1
semmnu	SEMMNU	30	(SEMMNI / 2)
semume	SEMUME	10	64
msgmni	MSGMNI	50	NPROC
msgmap	MSGMAP	2+msgtql	MSGTQL + 2
msgmax	MSGMAX	8192	32768
msgmnb	MSGMNB	16384	65535

Table A-4 University Sample Application Default Settings for HP-UX 11.0 (32-bit) (Continued)

HP-UX Name	Traditional Name	Default Setting	Setting for University Sample Applications
msgssz	MSGSSZ	8	128
msgtql	MSGTQL	40	(NPROC * 10)
msgseg	MSGSEG	2048	(MSGTQL * 4)
maxusers	MAXUSERS	32	200
nproc	NPROC	20+8*maxusers	(MAXUSERS * 3) + 64
maxuprc	MAXUPRC	50	(NPROC * 9) / 10
maxfiles	NFILES	60	15 * NPROC + 2048

The tunable parameters currently set on your system are in the kernel configuration file `tune.h` located in the `/stand/build` directory (`/stand/build/tune.h`).

IBM AIX 4.3.3 (32-bit) on IBM PowerPC: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for AIX 4.3.3 (32-bit) systems on PowerPC.

Available BEA Tuxedo 8.1 Install Sets for IBM AIX 4.3.3 (32-bit)

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see "Install Sets" on page A-9.

Hardware Requirements for IBM AIX 4.3.3 (32-bit)

- IBM PowerPC
- 256 MB of RAM minimum
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5-1 MB per application server

Software Requirements for IBM AIX 4.3.3 (32-bit)

Component	Requirement
C/C++ and COBOL compilers	C/C++: VisualAge C++ Professional/ C for AIX Compiler V5.0.2 or compatible; Server Express 1.0.0. COBOL: Micro Focus or other compatible COBOL compiler; required only for BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 4.8 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 4.8 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1
Non-BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7

Component	Requirement
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for IBM AIX 4.3.3 (32-bit)

- TCP/IP, using the Sockets network interface

Disk Space Requirements for IBM AIX 4.3.3 (32-bit)

The disk space requirements for installation on an IBM AIX 4.3.3 system depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	273 MB
Server install set:	214 MB
Full client install set:	153 MB
ATMI (/WS) client install set:	93 MB
CORBA client install set:	93 MB
Jolt client install set:	98 MB
Temporary space for installer:	109 MB

Mounting and Unmounting the CD for AIX 4.3.3 (32-bit)

To mount a CD, examine the file `/etc/filesystems` to determine whether there is a standard place in which to mount a CD. If there is, enter the `mount` command and specify the directory named in the `/etc/filesystems` entry.

For example, to mount a CD when an entry in `/etc/filesystems` specifies `/cd` as the mount point, enter:

```
su
/etc/mount /cd
```

If `/etc/filesystems` does not contain a CD entry, enter:

```
su
mkdir /cd
/etc/mount -v cdrfs -r cd_device /cd
```

In the latter command line, *`cd_device`* represents the name of the CD device file, typically `/dev/cd0`.

Alternatively, you can use the System Management Interface Tool (SMIT) to perform the mount. To use SMIT, enter the following:

```
smit mount
```

To unmount the CD, enter the following command:

```
unmount /cdrom
```

In this command line `cdrom` represents the mount point.

Tunable Parameters for IBM AIX 4.3.3 (32-bit)

No IPC configuration is required for AIX. To change the value of a kernel tuning parameter (`maxuproc` only):

1. Acquire superuser privileges.
2. Determine the values of all tunable parameters.
3. Change the value of the appropriate parameter.
4. Reboot the system.

Microsoft Windows 98 on Pentium: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for Microsoft Windows 98 systems on Pentium.

Available BEA Tuxedo 8.1 Install Sets for Windows 98

- Full client install set (includes ActiveX clients)
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Windows 98

- Pentium processor
- 32 MB of RAM

Software Requirements for Windows 98

Component	Requirement
C/C++ compilers	Either Visual C/C++ 6.0 SP4 or compatible, Visual Basic 6.0 SP4 or compatible, or another OLE Automation development tool is required for client systems that run ActiveX client applications only; otherwise, no additional compiler software is required on client-only systems.
Internet browser for BEA Application Builder Help	BEA Application Builder on this platform tested with Netscape 7.0 and Internet Explorer 6.0. This browser is required only for the online help used in the BEA Application Builder. This GUI is installed on your system if you included ActiveX clients in your BEA Tuxedo 8.1 installation.

Component	Requirement
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 7.0 and Internet Explorer 6.0 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 7.0 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported. **Note:** If you experience problems using the Internet Explorer browser, use the Netscape browser.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1-C
Java 2 Software Development Kit (SDK) for the Java development environment	Not applicable
Non-BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Not applicable
SSL certificate authorities	Verisign Netscape
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes:

- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.

- The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
- The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.

- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

  - Source Code:

    C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

  - Executables and libraries:

    Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Windows 98

TCP/IP provided by Microsoft Windows 98 (32-bit Winsock).

Disk Space Requirements for Windows 98

The disk space requirements for installation on Windows 98 (Intel) systems depends on which client install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full client install set:	62 MB
ATMI (/WS) client install set:	41 MB
CORBA client install set:	58 MB
Jolt client install set:	32 MB
Temporary space for installer:	50 MB

Red Hat Linux 7.2 on Pentium: EOL by Operating System Provider

The following sections list BEA Tuxedo 8.1 requirements for Red Hat Linux 7.2 systems on Pentium.

Available BEA Tuxedo 8.1 Install Sets for Red Hat Linux 7.2

- Full install set
- Server install set
- Full client install set
- ATMI (/WS) client install set
- CORBA client install set
- Jolt client install set

For descriptions of BEA Tuxedo install sets, see “Install Sets” on page A-9.

Hardware Requirements for Red Hat Linux 7.2

- Pentium III processor or higher
- 256 MB of RAM
- 1 additional MB RAM for each BEA Tuxedo application, plus 0.5–1 MB per application server

Software Requirements for Red Hat Linux 7.2

Component	Requirement
C/C++ and COBOL compilers	C/C++: gcc version egcs-2.96 or compatible; Net Express 3.1. COBOL: Micro Focus or other compatible COBOL compiler; required only for BEA Tuxedo development environment
Tools for the administration desktop	BEA Tuxedo Administration Console on this platform tested with Netscape 7.0 (see note) and Java 2 JRE 1.3.1 **Note:** Netscape 7.0 is supported if the Administration Console is configured for 40, 56, or 128-bit encryption. If no encryption is configured, Netscape 4.7 is supported.
Java 2 JRE for the Java run-time environment	Tested with Java 2 JRE 1.3.1
Java 2 Software Development Kit (SDK) for the Java development environment	Tested with Java 2 SDK 1.3.1
Non-BEA CORBA Java clients	Tested with Java 2 SDK 1.3 Interface Definition Language (IDL) ORB (run time)
Database for CORBA C++ applications	Tested with Oracle 8.1.7
SSL certificate authorities	Verisign Netscape

Component	Requirement
Lightweight Directory Access Protocol (LDAP) directory servers	Netscape Enterprise Server; needed to retrieve X.509v3 digital certificates for SSL

Additional Notes

- When using Oracle, Programmer/2000 Pro*C/C++ version 2.2.3.0.0 is required to build the BEA Tuxedo University sample applications.
- ATMI users need a C, C++, or COBOL compiler.
- CORBA C++ users need a C++ compiler and linker.
- CORBA Java IDL users need a C preprocessor. On UNIX systems, the C preprocessor comes with the system.
- For BEA Tuxedo 56-bit or 128-bit encryption:
  - LLE is available for BEA Tuxedo ATMI client (/WS) connections to the BEA Tuxedo Workstation Listener (WSL) or Workstation Handler (WSH). LLE is also available for BEA Jolt client connections to the BEA Tuxedo Jolt Server Listener (JSL) or Jolt Server Handler (JSH). SSL is not supported for encryption of these connections and for connections between machines and domains.
  - The BEA Tuxedo Internet Inter-ORB Protocol (IIOP) Listener (ISL) and IIOP Handler (ISH) support SSL 3.0 for IIOP connections.
  - The BEA Tuxedo CORBA C++ and CORBA Java clients support SSL 3.0. SSL connectivity between these clients, and the BEA Tuxedo ISL/ISH has been certified.
- To support certificate-based authentication when using SSL, BEA Tuxedo provides an LDAP-based certificate retrieval mechanism. This retrieval mechanism has been certified for use with the LDAP Directory server included with Netscape Enterprise Server.
- For compiler compatibility:

  Look for documentation from the compiler vendor that provides assurance that the version of compiler you want to use is compatible with the tested version of the compiler. The compatibility assurance must be provided for the following:

- Source Code:

  C/C++ source code that was compiled and linked using the tested version will compile with the newer version of complier without requiring any changes.

- Executables and libraries:

  Libraries and executables built using the tested version will run with libraries and executables that are built with the newer version of compilers.

Network Requirements for Red Hat Linux 7.2

TCP/IP using the Sockets network interface.

Disk Space Requirements for Red Hat Linux 7.2

The disk space requirements for installation on Red Hat Linux 7.2 (Intel) systems depends on which install set and components you select during the installation. Use the estimates in the following table as guidelines. These requirements assume the installation of the default components for the selected install set and have been rounded up to the nearest megabyte (MB).

Component	Disk Space Requirement
Full install set:	243 MB
Server install set:	173 MB
Full client install set:	115 MB
ATMI (/WS) client install set:	44 MB
CORBA client install set:	44 MB
Jolt client install set:	48 MB
Temporary space for installer:	14 MB

Mounting and Unmounting the CD for Red Hat Linux 7.2

To mount a CD, enter the following commands:

```
su
mkdir /cdrom1
mount -t iso9660 -r /dev/cd_device /cdrom1
```

To determine the value of *cd_device*, execute the following command:

```
dmesg | grep -i cd
```

Linux displays the following output:

cd_device device_description

The value of *device_description* may contain more than one field. For example, in the following output, the value of device description contains three fields:

```
hd20 Sony CDU-55 ATAPI
```

In this output:

- `hd20` is the value of *cd_device*.
- `Sony CDU-55 ATAPI` is the value of *device_description*.

To unmount the CD, enter the following command:

```
umount /cdrom1
```

Tunable Parameters for Red Hat Linux 7.2

The Red Hat Linux kernel parameters are preconfigured with setting sufficient for running the BEA Tuxedo 8.1 software. If you want to change any parameter settings, refer to the Red Hat Linux documentation.

Platforms Supporting Threads

The following platforms support threads:

- Initial Release
  - Microsoft Windows 2000 Advanced Server (32-bit) on Pentium
  - Solaris 8 (32-bit) on SPARC
- Supported Platforms (Post Release Ports/Certifications)
  - HP-UX 11iv1 (B.11.11)(32-bit) Using -AA Option on PA-RISC
  - HP-UX 11iv1 (B11.11) (32/64-bit) on PA-RISC
  - HP-UX 11iv1 (B.11.11) (64-bit) on PA-RISC
  - HP-UX 11iv2 (B.11.23) (32-bit) on Itanium
  - HP-UX 11iv2 (B.11.23) (64-bit) on Itanium
  - HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC
  - HP-UX 11iv2 (B.11.23) (32/64-bit) on PA-RISC
  - HP-UX 11iv2 (B.11.23) (64-bit) on PA-RISC
  - HP-UX 11iv3 (B.11.31) (32-bit) Itanium
  - HP-UX 11iv3 (B.11.31) (64-bit) Itanium
  - HP-UX 11iv3 (B.11.31) (32-bit) PA-RISC
  - IBM AIX 5.2 (32/64-bit) on IBM PowerPC
  - IBM AIX 5.2 (64-bit) on IBM PowerPC
  - IBM AIX 5.3 (32/64-bit) on 64-bit IBM PowerPC
  - IBM AIX 5.3 (64-bit) on IBM PowerPC
  - Microsoft Windows 2003 Server (32-bit) on Pentium
  - Microsoft Windows 2003 Server (64-bit) on Itanium
  - Solaris 8 (64-bit) on SPARC
  - Red Hat Linux Advanced Server 2.1 (32-bit) on Pentium

- Red Hat Linux Advanced Server 2.1 (32-bit) on Pentium
- Red Hat Linux Advanced Server 2.1 (64-bit) on Itanium
- Red Hat Linux Advanced Server 3.0 (32-bit) on Pentium
- Red Hat Linux Advanced Server 3.0 (64-Bit) on Itanium 2
- Red Hat Enterprise Linux 4.0 (32-bit) on Pentium
- Solaris 8 (64-bit) on SPARC
- Solaris 9 (32/64-bit) on SPARC
- Solaris 9 (64-bit) on SPARC
- Solaris 10 (32-bit) on x86 (64-bit AMD64)
- Solaris 10 (32/64-bit) on SPARC
- Solaris 10 (64-bit) on SPARC
- SUSE Linux Enterprise Server 8.0 (32-bit) on IBM zSeries
- SUSE Linux Enterprise Server 9.0 (32-bit) on Pentium
- Turbo Linux DS 10 (32-bit) on Pentium

Note: If threads are not supported on your platform, your application must either (1) exclude threads or (2) serialize threaded access through all BEA Tuxedo system calls.

B BEA Jolt 8.1 Overview and Installation Information

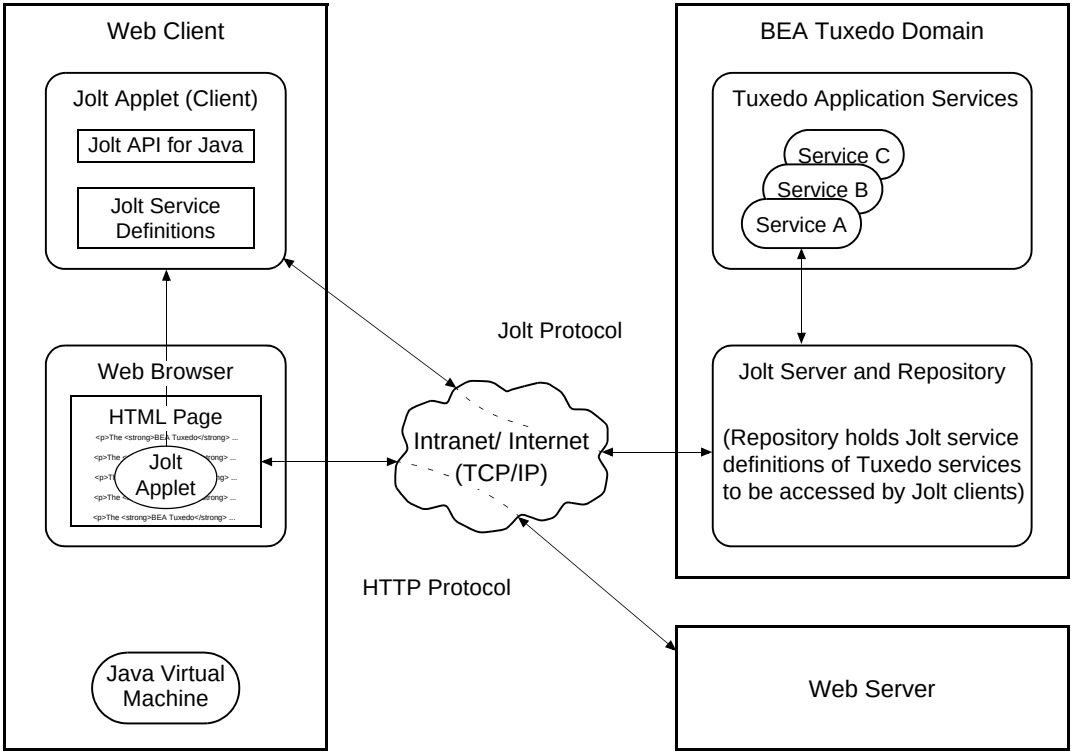
The following sections provide an overview of BEA Jolt 8.1 and present the prerequisites and preparatory information for installing the BEA Jolt 8.1 software components:

- About BEA Jolt
- BEA Jolt Licensing
- BEA Jolt Components
- BEA Jolt Client Personalities
- BEA Jolt Capabilities
- BEA Jolt Client Support
- BEA Jolt Release Interoperability
- ASP Connectivity Prerequisites
- BEA Jolt Pre-Installation Checklist
- BEA Jolt Documentation

About BEA Jolt

BEA Jolt is a Java class library and API that enables remote Java clients to access existing BEA Tuxedo ATMI services. As shown in the following figure, BEA Jolt extends the functionality of existing Tuxedo ATMI applications to include intranet- and Internet-wide availability.

Figure B-1 BEA Jolt Communication Architecture Using the Jolt Applet



Note: Web server and Jolt server must be running on the same computer machine.

The preceding figure shows one of five types of Jolt client personalities supported by BEA Jolt, all of which are briefly described in “BEA Jolt Client Personalities” on page B-9.

BEA Jolt Licensing

BEA Jolt 8.1, which is included in the BEA Tuxedo 8.1 distribution, is controllable through the BEA Tuxedo 8.1 license. BEA Jolt remains a separately sold and licensed product.

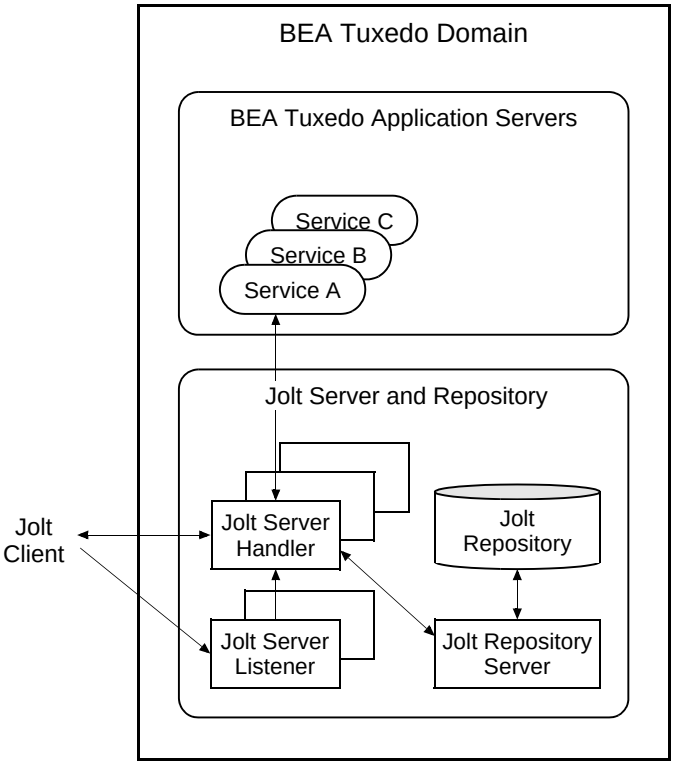
BEA Jolt Components

BEA Jolt consists of the following components for enabling secure, reliable access to servers inside corporate firewalls, and for creating Java-based client programs that access Tuxedo ATMI services:

- Jolt Server Listener
- Jolt Server Handler
- Jolt Repository Server
- Jolt Repository
- Jolt Internet Relay
- Jolt Class Library
- JoltBeans

As shown in the following figure, the Jolt server implementation consists of one or more Jolt Server Handlers, one or more Jolt Server Listeners, and one and only one Jolt Repository Server, all running on the same BEA Tuxedo server machine.

Figure B-2 BEA Jolt Server Implementation



A Jolt server listens for network connections from Jolt clients, translates Jolt messages, multiplexes multiple Jolt clients into a single process, and submits and retrieves requests to and from a Tuxedo ATMI application. As with all Tuxedo system executables, the Jolt server components reside in the *tux_prod_dir*/bin directory, where *tux_prod_dir* represents the directory in which the BEA Tuxedo 8.1 distribution is installed.

Jolt Server Listener

A Jolt Server Listener (JSL) is a listening process, running on the Tuxedo server, that accepts connection requests from Jolt clients and assigns connections to a Jolt Server Handler also running on the Tuxedo server. It also manages the pool of Jolt Server Handler processes, starting them in response to load demands.

Jolt Server Handler

A Jolt Server Handler (JSH) is a gateway process, running on the Tuxedo server, that handles communications between Jolt clients and the Tuxedo ATMI server application. A JSH process resides within the administrative domain of the application and is registered in the local Tuxedo bulletin board as a client.

Each JSH process can manage multiple Jolt clients. A JSH multiplexes all requests and replies with a particular Jolt client over a single connection.

Jolt Repository Server

The Jolt Repository Server (JREPSVR), running on the Tuxedo server, retrieves Jolt service definitions from the Jolt Repository and returns the service definitions to the Jolt Server Handler. The Jolt Repository Server also provides user support for updating or adding Jolt service definitions to the Jolt Repository.

Jolt Repository

The Jolt Repository, located on the Tuxedo server, is a central repository that contains definitions of Tuxedo ATMI services. These Jolt repository definitions are used by Jolt at run time to access Tuxedo services. You can export services to a Jolt client application or unexport services by hiding the definitions from the Jolt client. Using the Repository Editor, you can test new and existing Tuxedo services independently of the client applications.

Jolt Internet Relay

Jolt Internet Relay routes messages from a Jolt client to a Jolt Server Listener (JSL) or Jolt Server Handler (JSH). It eliminates the need for the JSL, JSH, and Tuxedo application to run on the same machine as the Web server. The Jolt Internet Relay consists of the following components:

- Jolt Relay (JRLY)

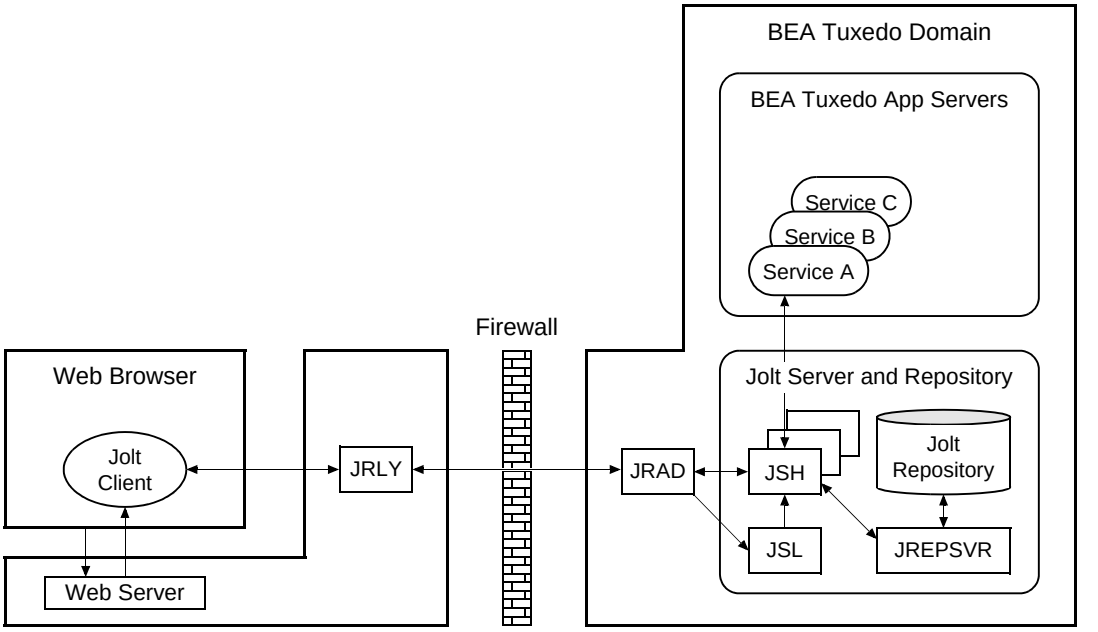
  A standalone program that routes Jolt messages from Jolt clients to the JSL or JSH via the Jolt Relay Adapter (JRAD). Jolt Relay is not a Tuxedo system server or client process, and it is not dependent on the BEA Tuxedo system software version.

- Jolt Relay Adapter (JRAD)

  A Tuxedo system server that operates as a back-end relay for Jolt Relay. The JRAD may or may not be located on the same Tuxedo host machine and server group to which the JSL server is connected.

The following figure illustrates the Jolt Internet Relay connection path.

Figure B-3 BEA Jolt Internet Relay Connection Path



Note: Web server software and JRLY process must be running on the same computer machine.

A Jolt server can connect directly to intranet Jolt clients and can connect indirectly to Internet Jolt clients through the Jolt Internet Relay, all at the same time. Jolt Internet Relay is transparent to Jolt servers and Jolt clients.

The JRLY executable (`jrly`) resides in the *`tux_prod_dir`*`/udataobj/jolt/relay` directory, whereas the JRAD executable resides in the *`tux_prod_dir`*`/bin` directory.

Jolt Class Library

The Jolt class library consists of Java class files that implement the Jolt API. These classes enable Java clients to invoke BEA Tuxedo ATMI services. The Jolt class library provides functions to set, retrieve, manage, and invoke communication attributes, notifications, network connections, transactions, and services.

The Jolt class library files reside in the *tux_prod_dir*/udataobj/jolt directory and are stored in the following JAR files:

- jolt.jar
- joltadmin.jar
- joltatm.jar
- JoltBeanDev.jar
- JoltBeanRt.jar
- JoltBeanDevAwt.jar
- JoltBeanRtAwt.jar
- JoltBeanDevSwing.jar
- JoltBeanRtSwing.jar
- JoltBeanDevSwing11.jar
- JoltBeanRtSwing11.jar
- joltjse.jar
- joltwls.jar
- joltasp.jar

To view the content of a Jolt JAR file, ensure that the path to the JDK 1.3 (or higher) software is included at the front of your PATH variable, go to the *tux_prod_dir*/udataobj/jolt directory, and enter the following command:

prompt> jar -tvf *filename*.jar

For example:

```
prompt> jar -tvf jolt.jar
   0 Thu Aug 08 07:19:02 EDT 2002 META-INF/
   68 Thu Aug 08 07:19:02 EDT 2002 META-INF/MANIFEST.MF
   547 Thu Aug 08 07:19:00 EDT 2002
     bea/jolt/ApplicationException.class
   741 Thu Aug 08 07:19:00 EDT 2002 bea/jolt/BData.class
   951 Thu Aug 08 07:19:00 EDT 2002 bea/jolt/ByteArrayUtil.class
   .
   .
   .
```

JoltBeans

JoltBeans provides a JavaBeans-compliant interface to BEA Jolt. JoltBeans are Bean components that can be used in JavaBeans-enabled integrated development environments (IDEs) to construct Jolt clients.

JoltBeans consists of two sets of Java Beans: JoltBeans toolkit (a JavaBeans-compliant interface to BEA Jolt that includes the JoltServiceBean, JoltSessionBean, and JoltUserEventBean) and Jolt GUI beans, which consist of Jolt-aware Abstract Window Toolkit (AWT) and Swing-based beans. The separation of BEA Jolt into these components permits the transactional and Internet components of client/server applications to be implemented separately with the security and scalability required for large-scale Internet and intranet services.

BEA Jolt Client Personalities

In addition to using BEA Jolt to build client applets and applications that remotely invoke existing and new Tuxedo applications, Java programmers can use BEA Jolt to build HTTP servlets or Microsoft Active Server Pages (ASPs) to perform server-side Java tasks in response to HTTP requests. This latter type of Jolt connectivity enables simple Web clients to access Tuxedo application services through any Web application server that supports generic servlets or ASPs.

BEA Jolt supports the following types of Java client personalities:

- Jolt applet—a downloadable Java interactive program, running in a Web browser environment, that uses the Jolt classes to invoke Tuxedo services from within a Web page. Accessing Tuxedo ATMI services in this manner requires the downloading and installation of Jolt class package `jolt.jar` (and possibly other Jolt class packages *except* `joltjse.jar`, and `joltwls.jar`, and `joltasp.jar`) on the machine running the Jolt applet.
- Jolt application—a standalone Java client, running on the Java Virtual Machine and operating system of a client machine, that uses the Jolt classes to invoke Tuxedo services. Accessing Tuxedo ATMI services in this manner requires the installation of Jolt class package `jolt.jar` (and possibly `joltadmin.jar`) on the machine running the Jolt application.

- JSE Connectivity for BEA Tuxedo—a Jolt HTTP servlet, running in a Java Web application server environment (for example, BEA WebLogic Server), through which simple Web-browser clients can invoke Tuxedo ATMI services. Accessing Tuxedo ATMI services in this manner requires the installation of Jolt class packages `jolt.jar` and `joltjse.jar` on the machine running the Web application server.

  A Jolt HTTP servlet uses Jolt session pool classes to invoke Tuxedo services on behalf of simple browser clients. Thus, the servlet handles all Jolt transactions on the Web server, which enables simple browser clients to invoke BEA Tuxedo services without directly connecting to the Jolt server and BEA Tuxedo.

- WebLogic Connectivity for BEA Tuxedo—a customized version of Jolt JSE Connectivity for the BEA WebLogic Server. Accessing Tuxedo ATMI services in this manner requires the installation of Jolt class packages `jolt.jar`, `joltjse.jar`, and `joltwls.jar` on the machine running BEA WebLogic Server.

  The Jolt client personality "WebLogic Connectivity for BEA Tuxedo" is also known as "BEA Jolt for BEA WebLogic Server."

- ASP Connectivity for BEA Tuxedo—a Jolt Active Server Page (ASP), running in the Microsoft Internet Information Server (IIS) Web server environment, through which simple Web-browser clients can invoke Tuxedo ATMI services. Accessing Tuxedo ATMI services in this manner requires the installation of Jolt classes `jolt.jar` and `joltasp.jar` on the machine running Microsoft IIS.

  A Jolt ASP uses an extension to the Jolt Java class library to invoke Tuxedo services on behalf of simple browser clients. Thus, the ASP handles all Jolt transactions on the Web server, which enables simple browser clients to invoke BEA Tuxedo services without directly connecting to the Jolt server and BEA Tuxedo.

BEA Jolt Capabilities

Running as a Java applet or as a standalone Java client application, BEA Jolt supports the following capabilities:

- Transaction context propagation
- Access to asynchronous BEA Tuxedo event notifications
- Typed buffer support

  BEA Jolt automatically converts Java messages to native BEA Tuxedo data types and buffers, and converts BEA Tuxedo data types and buffers back to Java messages.

- Jolt session pooling

  BEA Jolt supports the construction and use of Jolt session (connection) pools to increase efficiency, availability, and reliability.

- Jolt session pooling reset

  BEA Jolt support an option to reset a Jolt session pool without stopping the Jolt client, in the event of session pool failure. For example, if the Tuxedo server crashes or the Jolt Server Handler shuts down, the Jolt session pool may be reset without stopping the Jolt client.

To accommodate the BEA Jolt 8.1 server (JSL, JSH, JREPSVR) and Jolt Internet Relay (JRLY, JRAD) components, your environment must provide 2 MB of disk space. For BEA Jolt 8.1 system requirements, including supported platforms, see “BEA Tuxedo 8.1 Platform Data Sheets” on page A-1.

BEA Jolt Client Support

As stated in "BEA Jolt Client Personalities" on page B-9, BEA Jolt 8.1 supports the following five client types:

- Jolt applet
- Jolt application
- JSE Connectivity for BEA Tuxedo
- WebLogic Connectivity for BEA Tuxedo
- ASP Connectivity for BEA Tuxedo

The following table lists the requirements for the Jolt 8.1 applet and application client types.

Table B-1 Requirements for BEA Jolt 8.1 Applet and Application Client Types

This client type . . .	Is supported on . . .
Java applet running in a browser	Microsoft Internet Explorer (IE) 6.0 or higher
	Netscape Communicator 7.0 or higher
Jolt application—standalone application—running in a desktop environment	Java Development Kit (JDK) 1.3.1

The following table lists the requirements for the remaining three Jolt client types, all of which are implemented by HTML-based Jolt client classes running inside a Web server. The Web servers certified with BEA Jolt 8.1 are listed in the table.

Table B-2 Requirements for Web-Server based BEA Jolt 8.1 Client Types

Vendor	Web Server Version	OS Version	BEA Jolt Client Personality	Comments
Any vendor	Java Servlet Engine (Any version)	Any OS running JDK 1.3.1	JSE Connectivity for BEA Tuxedo	For a description, see the first note after this table.
BEA Systems, Inc.	BEA WebLogic Enterprise 5.1 or BEA WebLogic Server 6.0 or higher	Any	WebLogic Connectivity for BEA Tuxedo (also known as "BEA Jolt for BEA WebLogic Server")	For example installation instructions, see "Installing BEA Jolt 8.1 with BEA WebLogic Server" on page 5-11.
Microsoft	IIS 4.0 or higher	Windows 2000	ASP Connectivity for BEA Tuxedo	For a description, see the second note after this table.

Note: JSE Connectivity for BEA Tuxedo is the name of the Jolt Web application server that simplifies the handling of servlets in a BEA Tuxedo application environment. JSE is short for *Java Servlet Engine*.

Note: ASP Connectivity for BEA Tuxedo is the name of the Jolt Web application server that works with the existing Microsoft Internet Information Server (IIS) to provide a gateway for HTML clients into a BEA Tuxedo application environment. ASP, short for *Active Server Pages*, is an open, compile-free application environment in which Visual Basic programmers can combine HTML, scripts, and reusable ActiveX server components to create dynamic Web pages. Interactions between the Web server and Jolt classes are performed through VBScript and VB inside ASP.

BEA Jolt Client Requirements

BEA Jolt has the following client requirements:

- 574 KB of disk space for client classes
- 1364 KB of disk space for client API documentation
- 190 KB of disk space for client examples

- Java Development Kit (JDK) 1.3.1 is certified for BEA Jolt 8.1 application development (http://java.sun.com/j2se)
- Java-enabled browser (Internet Explorer) or Java Virtual Machine (JVM)

BEA Jolt Client Class Library

Various implementations of Java tend to show minor differences in characteristics. BEA Jolt 8.1 is based on JDK 1.3.1.

The BEA Jolt class library is compatible with the browsers and JDK versions shown in the following table.

Table B-3 BEA Jolt Class Library Compatibility

Vendor	Browser Version	Java Virtual Machine (JVM)	OS Version
Microsoft	Internet Explorer 6.0	MS JVM 4.0	Windows 2000
Netscape	Communicator 7.0	JDK 1.3.1	Windows 2000

BEA Jolt Release Interoperability

A BEA Jolt 8.1 client can interoperate with a BEA Jolt 1.2, 1.2.1, or 8.0 server implementation, but the client cannot use the new features available with BEA Jolt 8.1.

A BEA Jolt 1.2, 1.2.1, or 8.0 client can interoperate with a BEA Jolt 8.1 server implementation, but only the BEA Jolt 1.2, 1.2.1, or 8.0 functionality is available to the BEA Jolt client, even though new functionality is added to the BEA Jolt server-side components when they are upgraded to BEA Jolt 8.1.

ASP Connectivity Prerequisites

The following components are required before you can install BEA Jolt 8.1 ASP Connectivity for the BEA Tuxedo system:

- Microsoft Windows 2000 server
- Microsoft Internet Information Server (IIS) 4.0 or higher
- BEA Tuxedo 8.1

For details about the Microsoft products listed here, see the online Microsoft 2000 Option Pack product documentation, specifically the documentation about Microsoft Internet Information Server.

BEA Jolt Pre-Installation Checklist

On Windows systems, BEA Jolt 8.1 automatically installs two Microsoft dynamic link libraries (DLLs), `MSVCRT.DLL` and `MFC42U.DLL`, and overwrites older versions of these libraries. Before you begin installation, check whether older versions of these dynamic link libraries already exist. If they do exist and you do not want them to be overwritten, back them up.

BEA Jolt Documentation

For more information about BEA Jolt, see the following documentation:

- *Using BEA Jolt*
- *Using BEA Jolt with BEA WebLogic Server*

C File and Database Management and Disk Space Allocation

The following sections describe BEA Tuxedo file and database management and provide guidelines for allocating disk space for a BEA Tuxedo application:

- Introduction
- How the BEA Tuxedo System Manages Files
- Arranging for Raw Disk Space
- How the BEA Tuxedo Filesystem Is Organized
- Space for Queue Spaces
- Space for Application Servers

Introduction

For the most part, the following discussions apply to both Windows and UNIX systems except for the guidelines to repartition hard disk devices. On a Windows system, input/output (I/O) is buffered by default, but BEA Tuxedo sets a certain system-level

flag to change the default. Thus, all I/O for BEA Tuxedo processes is *unbuffered*, meaning that you do not need to make any special disk-space arrangements on a Windows system.

How the BEA Tuxedo System Manages Files

The BEA Tuxedo system provides a facility called the Disk Management Interface (DMI), which manages logical files within a single disk device or set of devices. The DMI performs tasks such as storing binary configuration tables and the transaction log. You can use it to create, initialize, or destroy entries in the BEA Tuxedo filesystem. To access the DMI, use the `tmadmin(1)`administrative commands described in the *BEA Tuxedo Command Reference*.

There are two ways that the logical files managed by the DMI can be stored physically:

- Stored on an operating-system (OS) filesystem
- Stored on disk space, set aside for the BEA Tuxedo system, that is outside the control of all OS filesystems

BEA Tuxedo files reside on device special files in the designated space and are managed directly by the DMI disk management software. The DMI supports the notion of a BEA Tuxedo filesystem distinct from any OS filesystem.

Space outside the OS filesystem is usually referred to as *raw disk space*. Not only is I/O faster when done by system calls reading directly from and writing directly to device special files on raw disks, but a physical `write()` occurs right away. When using an OS filesystem, BEA Tuxedo cannot predict or control the precise moment at which a `write()` is done. When using raw disk space, however, BEA Tuxedo has accurate control of the write operation, which is particularly important for entries in the BEA Tuxedo transaction log. Also, when multiple users are accessing the system, being able to control the write operation is important for assuring database consistency.

Arranging for Raw Disk Space

If you decide to use raw disk space for your BEA Tuxedo application, and you are using a UNIX system, you may find that the hard disk devices on your system are fully allocated to filesystems such as `/` (root) and `/usr`. If that is the case, you must repartition your hard disk device in order to set aside some partitions for use as non-OS filesystems. For repartitioning instructions, refer to the system administration documentation for your platform.

How the BEA Tuxedo Filesystem Is Organized

A BEA Tuxedo filesystem has a Volume Table of Contents (VTOC), which lists the files residing on the devices named in the Universal Device List (UDL). The UDL contains information about the location of the physical storage space for BEA Tuxedo system tables.

In a BEA Tuxedo application, all system files might be stored together on the same raw disk slice or OS filesystem. While it is possible to use regular OS filesystem files for the configuration tables, we strongly recommend that you store the transaction log, TLOG, on a raw disk device. Because the TLOG seldom needs to be larger than 100 blocks (51200 bytes assuming 512-byte blocks), and because disk partitions are always substantially larger than 100 blocks, it may make sense to use the same device for both the configuration files and the TLOG.

The following sample listing shows a sample VTOC and UDL diagram for a `bankapp` (sample application) configuration on a single machine.

Listing C-1 VTOC and UDL Diagram

```
Output based on setting FSCONFIG=$TUXCONFIG, and invoking tmadmin:

No bulletin board exists. Entering boot mode.
```

```
> livtoc
Volume Table of Contents on /usr2/bank/tuxconfig:
0: VTOC: Device 0 Offset 0 Pages 7
1: UDL: Device 0 Offset 7 Pages 28
2: _RESOURCE_SECT:    Device 0 Offset  35 Pages 6
3: _MACHINES_SECT:    Device 0 Offset  41 Pages 40
4: _GROUPS_SECT:      Device 0 Offset 141 Pages 100
5: _SERVERS_SECT:     Device 0 Offset 241 Pages 150
6: _SERVICES_SECT:    Device 0 Offset 391 Pages 60
7: _ROUTING_SECT:     Device 0 Offset 451 Pages 100
8: _NETWORK_SECT:     Device 0 Offset 551 Pages 20
9: _MIBPERMS_SECT:    Device 0 Offset 571 Pages 2
10: _NETGROUPS_SECT:  Device 0 Offset 573 Pages 2
11: _INTERFACES_SECT: Device 0 Offset 575 Pages 10

# If the TLOG is stored on the same device, there will be an
# entry something like:

12: TLOG:             Device 0 Offset 585 Pages 100
```

The BEA Tuxedo application administrator must make sure raw disk slices are available as needed on each node participating in an application. The following table lists the size of each element in the BEA Tuxedo filesystem.

Table C-1 Size of BEA Tuxedo System Tables

Entity	512-Byte Pages (Blocks)
VTOC	7
TUXCONFIG	550
TLOG	100 (default)
UDL	28
TOTAL	685

The amount of space required for the TUXCONFIG file must be larger if there are more entries in the configuration file, UBBCONFIG, than in the bankapp sample application. The administrator is encouraged to allocate additional space for dynamic

reconfiguration and growth of the application. The default block size assumed by the `crdl` subcommand of `tmadmin` is 1000 blocks (512000 bytes assuming 512-byte blocks), which should be adequate for the initial installation.

Space for Queue Spaces

If your BEA Tuxedo application uses /Q for store-and-forward queue management, your queue space can be listed in the same UDL as the one used to store the `TUXCONFIG` file and the TLOG, and managed by the BEA Tuxedo VTOC.

Space for Application Servers

As you are calculating your space requirements for the BEA Tuxedo system, you should also consider the requirements of the servers that perform the work of the application. These requirements are specified by the application; they are unrelated to the requirements for the BEA Tuxedo system itself (unless otherwise specified).

D IPC Resource Configuration on a UNIX System

The following sections describe the interprocess communication (IPC) parameters on a UNIX system and provide guidelines for configuring them:

- Parameter Sets Controlling IPC Resources
- Shared Memory
- Semaphores
- Message Queues and Messages
- Other Kernel Tunables

Parameter Sets Controlling IPC Resources

On a UNIX system, the BEA Tuxedo system uses the IPC resources provided by the UNIX operating system, which are controlled by the following three sets of tunable parameters.

Table 0-1

Tunable Parameters Starting with This Prefix . . .	Control the . . .
SHM	Amount of shared memory
SEM	Number of semaphores
MSG	Size of message queues and messages

The settings for these parameters are application-dependent. Most UNIX systems are shipped with default values that are too low for a BEA Tuxedo application.

Because the IPC parameters vary across different versions of the UNIX system, the descriptions provided in the following sections are generic. For the exact parameter names and defaults for each platform and for information on how to change parameter values, see "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1. If you change a parameter value, you will need to rebuild the kernel and reboot the operating system, using standard administrative tools. Consult your operating system administrator or the system administrator's guide for your platform for details.

If your BEA Tuxedo application is distributed, the minimum IPC resources must be available on every UNIX platform participating in the application.

Shared Memory

In the BEA Tuxedo environment, shared memory is used for the bulletin board and the control table of the workstation listener (WSL) and the IIOP listener (ISL) processes. An application may also use shared memory for its own purposes.

The following shared memory parameters may need to be adjusted:

SHMMAX
: Maximum size, in bytes, of a shared memory segment. This number represents the largest shared memory segment that can be allocated. A process can, however, attach to more than one segment of size SHMMAX.

SHMSEG
: Maximum number of shared memory segments per process. For a given configuration, the maximum amount of shared memory to which a process can attach is the product (in bytes) of SHMMAX * SHMSEG. A value between 6 and 15 should be adequate.

SHMMNI
: Maximum number of shared memory identifiers in the system. The BEA Tuxedo system requires one identifier per bulletin board and an additional identifier for each workstation listener (WSL) and IIOP listener (ISL) that is running.

SHMMIN
: Minimum size, in bytes, of shared memory segment. This parameter should always be set to 1.

Semaphores

Every process that participates in a BEA Tuxedo application requires a *semaphore*. A semaphore is a hardware or software flag used to prevent processes from accessing the same shared memory space at the same time. When a process has control of a shared memory resource, all other processes are locked out of the shared memory resource until the process releases the resource.

When the BEA Tuxedo application is booted, the underlying BEA Tuxedo system checks the number of semaphores configured in the operating system. If the configured number is not high enough, the boot fails.

The following semaphore parameters may need to be adjusted:

SEMMNS
: Maximum number of semaphores in the system. The minimum requirement for SEMMNS is

  ```
  MAXACCESSERS - MAXWSCLIENTS + 13
  ```

  where MAXACCESSERS is the maximum number of BEA Tuxedo system processes on a particular machine (including servers and native clients) and MAXWSCLIENTS is the maximum number of BEA Tuxedo remote clients. Both of these parameters are specified in the UBBCONFIG file for the application.

For more information about UBBCONFIG, see "Creating the Configuration File" in *Setting Up a BEA Tuxedo Application* or UBBCONFIG(5) in the *File Formats, Data Descriptions, MIBs, and System Processes Reference*.

SEMMNI

Maximum number of active semaphore sets.

SEMMSL

Maximum number of semaphores per semaphore set. SEMMNI and SEMMSL are commonly chosen so that their product equals SEMMNS. The BEA Tuxedo system does not perform semaphore operations on semaphore sets; however, it attempts to allocate as many semaphores per semaphore set as possible.

SEMMAP

Size of the control map used to manage semaphore sets. SEMMAP should be equal to SEMMNI.

SEMMNU

Number of undo structures in the system. Because an undo structure is needed for each process that can access the bulletin board, SEMMNU must be at least as large as SEMMNS. (The UNIX operating system uses undo structures to unlock semaphores held by processes that die unexpectedly.)

SEMUME

Maximum number of undo entries per undo structure. The value 1 suffices.

Message Queues and Messages

The BEA Tuxedo system uses UNIX system messages and message queues for client/server communication. Examples of such messages are service requests, service replies, conversational messages, unsolicited notification messages, administrative messages, and transaction control messages.

Every Multiple Servers, Single Queue (MSSQ) set of servers and every individual server has a message queue for receiving requests. Every client has its own queue for receiving replies. Servers that specify the REPLYQ parameter also get individual reply queues.

The adjustment of kernel message parameters is important to the proper tuning of an application. Inappropriate values can lead to an inability to boot, or to severe performance degradation.

Several message queue parameters are available to define various characteristics of the queue space, as indicated in the following table.

Table 0-2

This Parameter. . .	Specifies the . . .
MSGTQL	Total number of outstanding messages that can be stored by the kernel
MSGMNB	Total number of bytes that can be stored on one queue
MSGMAX	Maximum size of an individual message
MSGSEG	Total number of message segments that can be outstanding at one time
MSGSSZ	Size of each segment

If the limit specified by any of these parameters is exceeded, then a *blocking condition* occurs. There is one exception to this rule: MSGMAX. Messages that exceed 75 percent of MSGMNB, or that are larger than MSGMAX, are placed in a UNIX file. A very small message containing the filename is then sent to the recipient. Because this mode of operation results in a severe reduction in performance, we strongly recommend that you avoid it.

What Is Application Deadlock?

An application deadlock can result if every process is blocked while trying to send a message. For example, when clients fill up the message space with requests, servers that are trying to send replies are blocked. Therefore, no server can read a message and a deadlock results. Occasionally, timeouts can break a deadlock, but no useful work will have been done.

A client that sends its requests with the TPNOREPLY flag is especially troublesome. This practice can fill either individual queues or the system message space, depending on the size of the messages. Such applications may have to implement their own flow control to limit the number of outstanding messages.

To summarize, if clients or servers are blocking on their send operations (requesting services or sending replies), there is potential for trouble. It is usually no problem, though, for a single server request queue to remain full, as long as there is space in the system for more messages on other queues.

Performance Implications of Blocking Conditions

There are performance implications to queue blocking conditions, both on the sending side and the receiving side. When waking up blocked processes, the UNIX operating system wakes up all the processes blocked on a particular event, even if only one can proceed. The other processes go back to sleep. This process scheduling overhead can be expensive.

For example, on an empty server request queue on which more than one server (MSSQ) resides, an arriving message wakes up all the idle (blocked) servers on that queue. In the case of a full server request queue, as each request is read by a server, the system wakes up all the blocked clients. Depending on the size of the messages, zero or more clients can place messages on the queue. The rest go back to sleep. Because there may be hundreds of clients in the system, the mass wakeup of all of these clients every time a service request is processed can severely degrade performance.

Tunable Message Parameters

A properly tuned system rarely fills its queues. Enough slack should be left in the queues to handle the natural variability of the message flow. No exact settings can be recommended. Tuning is very application dependent. The UNIX `ipcs(1)` command provides a snapshot of the queues so you can determine whether they are full. You can try setting the `TPNOBLOCK` flag when sending requests. If you do, clients can tell when queues are full, and they can slow down a bit. It might help to increase the scheduling priority of servers with full request queues.

The following message parameters may need to be adjusted:

`MSGMNI`

Number of unique message queue identifiers. Each process participating in a BEA Tuxedo application on a particular machine typically needs at least one message queue. This number is reduced if MSSQ sets are used, which means that multiple server processes share a single queue. For transaction

processing, count an additional queue per server group for transaction manager server (TMS) processes. Thus, the minimum requirement for MSGMNI can be determined by the following formula:

```
MSGMNI = MAXACCESSERS + 7
+ (number of servers with REPLYQ)
+ (number of MSSQ sets)
- (number of servers in MSSQ sets)
```

MSGMAX

Maximum message size in bytes. MSGMAX must be big enough to handle any BEA Tuxedo application running on this machine.

MSGMNB

Maximum message queue length in bytes. This number must accommodate the total size of all messages that are on a queue and have not been taken off by the associated processes. The minimum value for MSGMNB is the value of MSGMAX. Messages longer than 75% of MSGMNB are sent to a file instead of a message queue—a situation that should be avoided because it severely degrades performance.

MSGMAP

Number of entries in the control map used to manage message segments. The value of MSGMAP should be the number of message segments (specified in MSGSEG).

MSGSSZ

Size, in bytes, of a message segment. A message can consist of several such segments. The value of MSGSSZ should be such that a multiple of MSGSSZ is equal to the size (including the BEA Tuxedo system header) of the most commonly sent message. By dividing messages into segments in this way, you can avoid wasting space.

MSGSEG

Number of message segments in the system.

MSGTQL

Total number of outstanding messages that can be stored by the kernel. This is the maximum number of unread messages at any given time.

Other Kernel Tunables

Experience with the BEA Tuxedo system has shown that some other UNIX system tunables may need to be set to higher values. These parameters are very application dependent and do not apply to all applications. "BEA Tuxedo 8.1 Platform Data Sheets" on page A-1 includes information on the defaults for each platform and instructions for changing them.

`ULIMIT`
: Maximum file size. `ULIMIT` needs to be large enough so that you can install the BEA Tuxedo system and build servers. We recommend 4 MB.

`NOFILES`
: Maximum number of open files per process. A BEA Tuxedo server requires a minimum of four file descriptors.

`MAXUP`
: Maximum number of processes per non-superuser. The BEA Tuxedo system processes—servers and administrative processes—run with the `UID` specified in the application's `UBBCONFIG` file. `MAXUP` needs to be large enough to allow all of these processes to run.

`NPROC`
: Maximum number of processes (system wide).

`NREGION`
: Number of region table entries to allocate. Most processes have three regions: text, data, and stack. Additional regions are needed for each shared memory segment and each shared library (including text and data) that is attached. However, the region table entry for the text of a "shared text" program is shared by all processes executing that program. Each shared memory segment attached to one or more processes uses another region table entry.

`NUMTIM`
: Maximum number of STREAMS modules that can be pushed by the Transport Layer Interface (TLI). A typical default value is 16; we recommend setting this parameter to at least 256.

`NUMTRW`

The number of TLI read/write structures to allocate in kernel data space. A typical default value is 16; we recommend setting this parameter to at least 256.

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