

IBM WebSphere Business Connection



# Installation and Configuration Guide for UNIX

*Version 1.1.1*

**Note!**

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 59.

**Third Edition (February 2003)**

This edition applies to Version 1, Release 1, Modification 1, of *IBM® WebSphere® Business Connection* (5724-D26) and to all subsequent releases and modifications until otherwise indicated in new editions.

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# Installation and Configuration

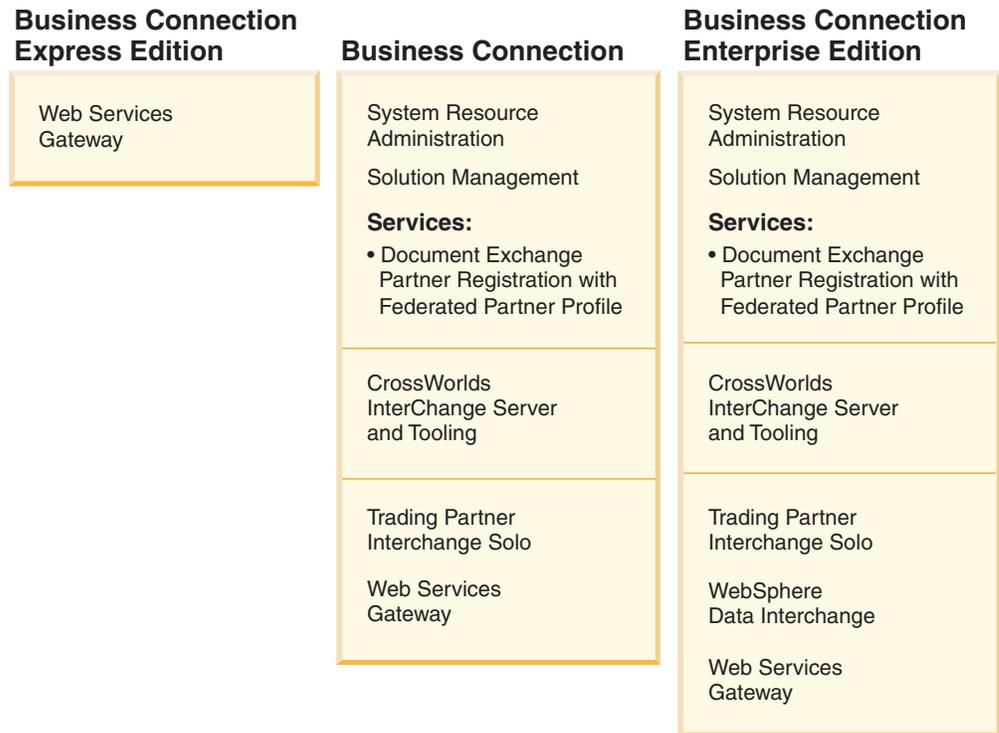
This guide contains information and instructions for installing and testing IBM<sup>(R)</sup> WebSphere<sup>(R)</sup> Business Connection on UNIX (Solaris<sup>(R)</sup> or AIX<sup>(R)</sup>) servers. The Business Connection family of offerings includes:

- IBM WebSphere Business Connection Enterprise Edition
- IBM WebSphere Business Connection
- IBM WebSphere Business Connection Express Edition

Use this book no matter which edition you are installing. Note, however, that the Express Edition, which includes a subset of the components installed with the other editions, differs in its installation instructions. The guide will indicate whether an instruction applies only to a specific edition.

## About Business Connection

All three of the Business Connection editions are installed on the standard IBM e-business platform, which consists of DB2<sup>(R)</sup> and WebSphere Application Server. The Business Connection Express Edition adds Web Services Gateway to that standard platform. The Business Connection and Business Connection Enterprise Edition add the Business Connection Technology components, such as Solution Management and Document Exchange. They also include CrossWorlds<sup>(R)</sup> technology. The following illustration shows all the components of the various editions.



*Business Connection edition components*

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## How this document is organized

The remainder of this document is divided into five parts.

- In the “Part I - Before you begin” on page 3, you’ll find the hardware and software requirements for each of the Business Connection editions.
- In “Part II - Installing and configuring prerequisite software” on page 7, you’ll install the prerequisite programs (such as DB2). You will use this book in conjunction with the installation instructions that come with those programs.
- “Part III - Installing and configuring Business Connection” on page 17 describes how to install and configure the Business Connection Technology components. Installation and configuration are largely automated, although you will perform some manual configuration steps.
- “Part IV - Business Connection Security” on page 47 shows you how to set up security on your Business Connection system.
- “Part V - After installation” on page 57 describes how to remove an installation and how to start the system.

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## Part I - Before you begin

To install Business Connection and its prerequisite software, you should have experience with installing the UNIX (Solaris or AIX) operating systems, DB2, WebSphere Application Server, and the SecureWay<sup>(R)</sup> product family. If you are installing Business Connection or Business Connection Enterprise Edition, you should also have experience with the MQSeries<sup>(R)</sup> product family and IBM CrossWorlds.

Also note that WebSphere Business Connection is intended to be run on a dedicated platform. Be aware that the security procedures described in this document affect *all* Web (and application) server content on the Business Connection platform.

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## Hardware requirements

To install and configure an edition of the Business Connection product, you will need one of the following minimum computer configurations:

For **WebSphere Business Connection Express Edition**, the following minimum hardware is recommended:

- Sparc @ 400 Mhz for Solaris platforms
- RS/6000 @ 375 Mhz for AIX platforms
- 10 GB of disk space
- 512 MB RAM

For **WebSphere Business Connection**, the following minimum hardware is recommended:

- Sparc @ 400 Mhz for Solaris platforms
- RS/6000 @ 375 Mhz for AIX platforms
- 20 GB of disk space
- 1.0 GB of RAM

For **WebSphere Business Connection Enterprise Edition**, the following minimum hardware is recommended:

- Sparc @ 400 Mhz for Solaris platforms
- RS/6000 @ 375 Mhz for AIX platforms
- 40 GB of disk space
- 2 GB of RAM

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## Software requirements

The following table shows which software packages should be installed for each Business Connection edition when using either the Solaris (8 Patch cluster, 10/1/2002 or later) or AIX (Version 4.3.3, with updates for patch 9 and X11.adt.lib.4.3.3.10) platforms. An “X” next to the software package in each edition column indicates that the package is needed. Before you begin the installation process, make sure you have the right level of software installed or available for installation.

Table 1. Software packages required for Business Connection

Software Package	Business Connection Express	Business Connection	Business Connection Enterprise
Microsoft Internet Explorer Version 5.5	X	X	X
IBM DB2 V7.2 with FixPack 6 (Business Connection can use the limited-use license included with the WebSphere Application Server)	X	X	X
IBM WebSphere Application Server 4.0.1 Advanced Edition, FixPack 3 and eFix PQ61654. For Solaris only: Sun JDK 1.3.1_05 for WebSphere Application Server, Sun_131_05_eFix.jar, WebSphere eFix PQ67287.	X	X	X
IBM HTTP Server 1.3.19.3  <b>Important:</b> This is an upgrade to the version of the HTTP Server that comes with WebSphere Application Server. Obtain a copy of the upgrade. You will install it in the section "Upgrading the HTTP Server" on page 22.	X	X	X
IBM MQSeries 5.2 Server		X	X
IBM MQSeries 5.2 Client		X	X
ma88 5.2.2		X	X
IBM CrossWorlds InterChange Server 4.1.1 + Administration Tools, Web Services Connector 1.0.1, and ICS 4.1.1.1 FixPack (Business Connection includes a limited-use license). Additionally, for AIX, Web Services Connector - version 1.1.3 and WebSphere Business Integration Adapter Runtime library 1.2.3.		X	X
IBM SecureWay Directory Version 3.2.2 for Solaris and AIX	X	X	X
IBM CrossWorlds TPI Solo (1 partner)		X	X
IBM WebSphere Enterprise Extensions 4.1 (JMS Connectors)	X	X	X
Sun JDK 1.3.1_03 for Solaris IBM JDK 1.3.1 for AIX		X	X
CrossWorlds Visibroker		X	X
IBM WebSphere Business Connection (Business Connection Technology components)	X (Web Services Gateway V1.1 only)	X	X

Note that the procedures in this guide assume you are performing an initial installation. The sections in this document are arranged in the order you must install the Business Connection components.

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## Installation Assistance

If you find that some element of the installation process does not work correctly or you have trouble configuring the systems for IBM WebSphere Business Connection, call 1-888-IBM-HELP (888-426-4357).



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## Part II - Installing and configuring prerequisite software

This section describes the software you need to install before you install the Business Connection edition.

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### Installing and configuring DB2

Here, and throughout much of this document, the following table style is used to indicate the editions of WebSphere Business Connection to which the section applies. The table lists the various Business Connection editions and whether or not the information that follows applies to that edition.

Table 2. Business Connection editions and information applicability

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

### Installing DB2

To install DB2 v7.2.1 for UNIX (Solaris or AIX) operating systems do the following:

1. Run the db2setup from the install CD. Follow the installation steps using the DB2 installation document for the platform to install the DB2 UDB Enterprise Edition and the DB2 Administration Client components. **DO NOT** create the db2 instance and the administration server before installing the DB2 FixPack 6. (Use the space bar to select items during the DB2 installation and the tab key to navigate.)

**Note:** Be sure to install the DB2 Control Center if you intend to manage DB2 from this workstation.

2. If you are using Solaris, refer to the *Quick Beginnings* book, Updating Solaris kernel configuration parameters (which is part of the documentation that is installed with DB2) and make the required changes to the kernel.
3. Install DB2 FixPack 6 for UNIX. Refer to the FixPackReadme.txt file under the FixPack install source directory and follow the steps to install the DB2 FixPack 6.
4. Log in as the root user before you perform the following steps to create the DB2 Administration Server and db2inst1 instance.

### Creating the DB2 Administration Server and db2inst1 instance

The following steps must be followed to create the DB2 Administration Server and db2inst1 instance:

1. For AIX: from /usr/1pp/db2\_07\_01/install, run **db2setup**.
2. For Solaris: from /opt/IBMdb2/V7.1/install, run **db2setup**.
3. Select **Create** to create a DB2 Instance and an Administration Server.
4. Select **Create a DB2 Instance**.

5. Accept the db2inst1 defaults for the DB2 Instance panel and enter a password.
6. Select **OK**.
7. Accept the db2fenc1 defaults for the Fenced User panel and enter a password.

After you have entered a password, do the following:

1. Select **OK**.
2. Select **Do not set up DB2 Warehouse Control Database**.
3. Select **OK**.
4. Select **Create the Administration Server**.
5. Accept the default for the Administration Server panel and enter a password.

When a password has been entered, do the following:

1. Select **OK**.
2. Select **OK** for the DB2SYSTEM name notice.
3. Select **OK** on the Create DB2 Service panel.
4. Select **Continue** on the DB2 Setup Utility Summary Report panel.
5. Select **OK** on the Warning panel to start the installation.
6. Select **OK** on the *Completed Successfully* notice.
7. Select **OK** to exit from the Status Report.
8. Select **Close** to exit from the DB2 Setup Utility panel.
9. Select **OK** to exit from the DB2 Setup Utility.

**Note:** If you had created, or had existing db2 instances and administration servers prior to installing FixPack 6, please refer to the DB2 FixPack 6 readme file to update them before you proceed to the next step.

## Installing JDBC support

1. Go to the <DB2\_HOME>/java12 directory (where DB2\_HOME is the location where DB2 was installed).
2. Execute the *usejdbc2* script to set up the DB2 JDBC Driver to JDBC 2.0 environment.

## Creating databases

Before you install IBM WebSphere Application Server and CrossWorlds InterChange Server (ICS), you will create databases for the products. Note that if you are installing Business Connection Express Edition, you should skip the steps to install or configure a database for CrossWorlds ICS.

**Note:** Ensure that you have at least 1GB of space on the hard drive for the DB2 Instance.

The following table shows information about these databases:

*Table 3. Database information*

Prerequisite	Database Name	DB2 Parameters
WebSphere Application Server	WAS40	DB2_rr_to_rs = yes Maxagents = 50
CrossWorlds ICS	Cwrepos	Applheapsz = 2048 Maxappls = 50

To create and configure the databases, you will enter a series of commands. All of these commands are entered from a command prompt by the DB2 instance user:

1. Create databases for WebSphere Application Server and CrossWorlds ICS by entering:
  - `db2 create db was40 alias was40`
  - `db2 create db cwrepos alias cwrepos`
2. Configure the instance with the following two commands in the command prompt:
  - `db2 update db manager config using maxagents 50`
  - `db2set db2_rr_to_rs=yes`
3. If you are installing on Business Connection or Business Connection Enterprise Editions, enter the following commands to configure the database for Crossworlds ICS:
  - `db2 update db config for cwrepos using applheapsz 2048`
  - `db2 update db config for cwrepos using maxappls 50`
4. Stop and start the database manager with the following three commands in the command prompt:
  - `db2 force applications all`
  - `db2stop`
  - `db2start`

## Configuring DB2 for JTA (Solaris only)

Next, you specify Java Transaction Service (JTS) as the distributed transaction manager to use with DB2. The JTS transaction manager supports the Java Transaction API (JTA).

To configure DB2 for JTA:

1. Open the DB2 Control Center.
2. Expand the **Instances** tree and highlight **DB2**.
3. Right-click **DB2**, click **Multisite Update**, and then click **Configure**.
4. In the **Configure Wizard**, select **Use TP Monitor Named below** and click **JTS**.
5. Click **Finish**.

## Using EXTSHM with DB2 (AIX only)

The support of EXTSHM has been added to DB2 V7.2 (V7.1 FixPack 3). By default AIX does not permit 32-bit applications to attach to more than 11 shared memory segments per process, of which a maximum of 10 can be used for local DB2 connections.

While initializing WebSphere Application Server you might see a DB2 exception (SQL 1224N) and the service may fail to start. To resolve the exception use EXTSHM with DB2 by doing the following:

1. Log on as the DB2 Instance User.
2. Execute the following DB2 commands:
  - a. `db2stop`
  - b. `export EXTSHM=ON`
  - c. `db2set DB2ENVLIST=EXTSHM`
  - d. `db2start`

**Note:** By adding the following lines to the db2profile run by the instance owner (default profile: <DB2\_HOME>/sqllib/db2profile), the above steps need not be applied at each restart of the server.

- export EXTSHM=ON
- db2set DB2ENVLIST=EXTSHM

---

## Configuring DB2

The operations that follow are required to properly configure DB2.

### Setting the maximum concurrent databases

The default for the maximum number of concurrently active databases in DB2 is 8. To use DB2 with the Business Connection components, you must change this value to 16. Do the following:

1. Open the DB2 Control Center (run **db2cc**). If you are using a Control Center on another machine, add your DB2 system and retrieve its Instances prior to the next step. In the following instructions, substitute <DB2INST1> with the actual name of the instance.
2. Expand the **Instances** tree and highlight <DB2INST1>.
3. Right-click <DB2INST1> and then click **Configure**.
4. From the **Environment** tab, change the number under **Maximum number of concurrently active databases** from 8 to 16.
5. Select **OK**.

### Verifying DB2 installation and configuration

You can verify that DB2 was installed and configured correctly by doing one of the following:

- Use *First Steps* to create the sample database that comes with DB2
- Let the WebSphere Application Server “verify the install” when it creates its tables in the WebSphere Application Server database

---

## Installing and configuring WebSphere Application Server

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 4. Business Connection editions and information applicability*

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

Installing WebSphere Application Server 4.0.3 involves installing FixPack3 over a WebSphere Application Server 4.0.1 installation.

1. Set DB2 JDBC drivers to JDBC 2.0 if you have not already done so. (See “Installing DB2” on page 7).

2. Create a database for WebSphere Application Server if it has not already been done. (See "Configuring DB2" on page 10).
3. Run `install.sh` to start the installation GUI. Follow the steps in the *WebSphere Application Server (WAS) Installation Guide* to install WebSphere Application Server 4.0.1 and provide the DB2 database information for the WebSphere Application Server database that you just created. (For AIX this database is in `/home/db2inst1`. For Solaris it is in `/export/home/db2inst1`.)
4. Install WebSphere Application Server FixPack3:
  - a. Go to the directory where you downloaded the eFix.
  - b. Run `install.sh`.
  - c. Enter **Y** to upgrade the WebSphere Application Server, and enter the directory where it is installed, for example `/usr/WebSphere/AppServer`.
  - d. Enter **Y** to upgrade the HTTP Server, and enter the directory where the HTTP Server is installed, for example `/usr/IBMHttpServer`.
  - e. Enter **Y** to upgrade and use the WebSphere JDK field.
  - f. Enter **Y** to **install the Connector Architecture**.
5. When installing IBM WebSphere Business Connection 1.1.1 on Solaris with WebSphere 4.0.3, it is necessary to apply the following WebSphere and Solaris upgrades:
  - JDK upgrade - Solaris Sparc J2SDK 1.3.1\_05-b02
  - WebSphere eFix PQ67287.
  - Latest Solaris J2SE OS patch cluster.

The upgrades listed above can be obtained at the following locations:

- JDK upgrade - Obtain from WebSphere Application Server Level 2 support team (WASENG).
- PQ67287 - Obtain from WebSphere Application Server support Web site: <http://www-3.ibm.com/software/webservers/appserv/support.html>
- Solaris J2SE\_Solaris 8 recommended patches - Obtain from <http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>

**Note:** This information applies to the WebSphere JDK and not the system JDK. To check the WebSphere JDK version to determine if you have the JDK upgrade installed do the following:

```
cd <was_root>/java/jre/bin ./java -fullversion
```

The output should be:

```
java full version "1.3.1_05-b02"
```

## Verifying the WebSphere Application Server configuration

To verify that the WebSphere Application Server configuration is correct:

1. Check the install log for any errors.
2. Start the default application server.
3. From the WebSphere installation directory go to `WebSphere/AppServer/bin` and run `startupServer.sh`.
4. From the WebSphere installation directory go to the `bin` directory and run `adminclient.sh` to bring up the Administrative Console.

---

## Installing and configuring MQSeries Server and MQSeries Client

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 5. Business Connection editions and information applicability*

Applies to	Edition
	Business Connection Express Edition
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

**Note:** If you are installing Business Connection Express Edition, skip the following sections and go to “Installing IBM SecureWay Directory Version 3.2.2 for AIX/Solaris” on page 16.

This section describes how to install and configure MQSeries. Perform the following:

### Installing MQSeries

To install both the MQSeries Server and Client, follow the installation instructions and select both client and server filesets.

**Note:** Do not configure MQSeries at this time. CrossWorlds ICS will install a batch file to configure the Queue Manager and its queues for you.

### Installing the MQSeries JMS support

MQSeries JMS support is supplied as a supportPac (ma88) and is available as a Web download. The installation instructions for the supportPac are contained in the MQSeries Using Java guide, which is also available from the MQSeries Web site:

1. From a browser, enter:  
<http://www.ibm.com/software/ts/mqseries/txppacs/ma88.html>
2. Download the supportPac and the guide.
3. Follow the instructions in the guide to install the ma88 supportPac.

**Note:** The supportPac needs to be installed on all offerings **except** WebSphere Business Connection Express Edition.

---

## Installing a JDK

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 6. Business Connection editions and information applicability*

Applies to	Edition
	Business Connection Express Edition
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

To compile CrossWorlds objects, a JDK 1.3.1 must be installed on the system and visible in the system path. WebSphere Business Connection contains CrossWorlds objects which must be compiled. so the system path must contain the correct version of Java. The configuration process for WebSphere Business Connection also uses the JDK 1.3.1, therefore the system path must contain this version of Java when configuring. To verify the version of Java installed on a system, from a command prompt enter:

```
java -version
```

See CrossWorlds documentation for the exact version of JDK. Suitable versions of the JDK can be downloaded from **IBM for AIX** and from **Sun for Solaris**.

## Installing CrossWorlds VisiBroker

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 7. Business Connection editions and information applicability*

Applies to	Edition
	Business Connection Express Edition
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

“Installing and configuring CrossWorlds Interchange Server VisiBroker” is on the CrossWorlds InterChange Server CD. When you install VisiBroker, take all the defaults.

After you install CrossWorlds VisiBroker, refer to the CrossWorlds Installation Guide to start VisiBroker (osagent).

## Installing and configuring CrossWorlds InterChange Server

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 8. Business Connection editions and information applicability*

Applies to	Edition
	Business Connection Express Edition
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

Before you install CrossWorlds InterChange Server, make sure you have installed DB2, MQSeries, and CrossWorlds VisiBroker.

### Installing the InterChange Server

1. Set the DB2 JDBC drivers to JDBC 2.0 if you haven't already done so. (See “Installing JDBC support” on page 8.)
2. Create the database for ICS if it hasn't already been done. (See “Creating databases” on page 8.)
3. Run the setup.

- a. Select only the following Connectors:
  - **JDBC**
  - **JMS**
  - **TPI**
  - **Web Services (SOAP)**
- b. In the **ICS Name** field, put the name you want to give the Server. The convention is *cw\_hostname*.
- c. Change the values in the InterChange Server Configuration panel, as follows:
  - In the **Database Driver** field, select: **DB2**
  - In the **Database** fields, enter: *cwrepos*
  - In the **Login** fields, enter: *<DB2\_INSTANCE\_OWNER>*
  - In the **Password** fields, enter: *<your\_password>*
- d. On Solaris, for Serverless Trading Agent, select **No (this field does not exist on AIX)**.

## Configuring the InterChange Server

1. Configure the InterChange Server according to the CrossWorlds manuals.
2. Be sure to configure the MQSeries Queue manager and create an MQListener, as directed.
3. Register the new server in the CrossWorlds System Manager running on a *Windows* system:

**Note:** Before continuing, ensure you have the MSVCP60.DLL in the system path. This Microsoft file is available with Adobe Acrobat Reader and other programs.

Be sure to follow the directions in the CrossWorlds Installation Guide if CSM and ICS are on different subnets.

- a. Start CrossWorlds System Manager. Click **Start > Programs > IBM CrossWorlds > Server and Tools > CrossWorlds System Manager**.
- b. Right-click on **CrossWorlds System > Register New Server**.
- c. Enter the name used at installation (*cw\_hostname*), and then click **OK**.
- d. Double-click on the new server name.
- e. Enter the default **User Name** as **admin** and the **Password** to **null**, and click **Connect**.
4. Verify that log and trace messages are sent to files:
  - a. From the CrossWorlds System Manager with the server connected, click **Server > Configuration**.
  - b. Click the **Trace/Log Files** tab.
  - c. Check **To File** for both Logging and Tracing.
  - d. If needed, change the file name for both Logging and Tracing.
  - e. Click **OK** to save the changes.
5. Load the ICS Repository (the *cwrepos* database) by following the instructions in the CrossWorlds Installation document.  
Enter the default user ID as **admin** and the default password as **null**.

## Verifying the installation

If the installation finished without any errors, the installation is valid.

## Installing the FixPacks

The final step is to download and apply two FixPacks, as follows:

1. Stop any CrossWorlds programs that are running.
2. From your browser, go to <http://www.ibm.com/support/us/>
3. In the **Search the technical support database** field, enter: CrossWorlds Web Services Connector 1.0.1  
to locate the FixPack for CrossWorlds Web services.
4. Download the FixPack and apply it according to its ReadMe instructions.
5. From your browser, go to <http://www.ibm.com/support/us/> again.
6. In the **Search the technical support database** field, enter: CrossWorlds 4.1.1.1  
to locate the FixPack for the CrossWorlds ICS.
7. Download the CrossWorlds ICS 4.1.1.1 FixPack and apply it according to its ReadMe instructions.

**Note:** The next six instructions (8-13 ) are for AIX only.

8. From your browser, go to <http://www.ibm.com/support/us/> again.
9. In the **Search the technical support database** field, enter: Connector for Webservices 1.1.3 fixpack
10. Download the FixPack and apply it according to its ReadMe instructions.
11. From your browser, go to <http://www.ibm.com/support/us/> again.
12. In the **Search the technical support database** field, enter: WebSphere Business Integration Adapter Runtime library 1.2.3
13. Download the FixPack and apply it according to its ReadMe instructions.
14. Ensure that <CROSSWORLDS>/connectors/SOAP/start\_SOAP.sh is executable.

---

## Installing CrossWorlds TPI

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 9. Business Connection editions and information applicability*

Applies to	Edition
	Business Connection Express Edition
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

## Installing TPI

- Follow CrossWorlds Instructions for installing TPI.
- You will need registration numbers that came with the software to complete the installation.

## Verifying the installation

You verify the installation by starting the TPI server. From the CrossWorlds Administrative User, run the following commands:

```
CD <TPI_HOME>/bin ./START_SERVER ./ADMIN
```

The CrossWorlds TPI Server is installed and verified if the Admin Client comes up.

---

## Installing IBM SecureWay Directory Version 3.2.2 for AIX/Solaris

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 10. Business Connection editions and information applicability*

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

1. Install the SecureWay Directory following the instructions, and, when running the LDAPXConfig program, in the Administration Configuration panel, select the administrator name.
  - a. For Administrator distinguished Name, use **cn=root** (the default).
  - b. For Administrator Password: type a password.
2. For the WebServer to be Configured, select **IBM HTTP Server**.
3. Select the location of the configuration file: httpd.conf (If you installed IBM HTTP Server anywhere other than the default, use **Browse** to change it.)

The SecureWay Directory Server is installed and verified.

**Note:** You might want to write a script to automatically start SecureWay Directory Server at system boot time.

---

## Part III - Installing and configuring Business Connection

This section shows you how to install and configure the Business Connection components. Make sure you have installed all prerequisite programs for the edition of Business Connection you are installing.

---

### Business Connection, Business Connection Express, and Business Connection Enterprise installation

Successful installation of all the Business Connection components requires that the following items be in place. If any are missing, then the installation might not work.

For Business Connection Express, make sure you've installed:

- DB2
- WebSphere Application Server
- SecureWay Directory Server
- WebSphere eFix PQ67287 (Solaris only)

For Business Connection and Business Connection Enterprise Edition, make sure you've installed:

- DB2
- WebSphere Application Server
- MQSeries (including the ma88 supportPac)
- The Sun JDK
- CrossWorlds VisiBroker
- CrossWorlds (including the FixPack)
- The CrossWorlds TPI Server (if your configuration includes TPI)
- SecureWay Directory Server
- WebSphere eFix PQ67287 (Solaris only)

**Note:** For AIX only, on Business Connection Enterprise Edition, if you are using WebSphere Data Interchange in your configuration, make sure you have installed it. See <http://www-3.ibm.com/software/ts/datainterchange> for information on WebSphere Data Interchange.

If you are installing on Business Connection Express Edition, you will install and configure only the Web Services Gateway.

If you are installing on Business Connection or Business Connection Enterprise Edition, you will install and configure the following components:

- Web Services Gateway
- Solution Management
- Security
- System Resource Administration
- Document Exchange
- Registration and Provisioning

In addition to the components listed above, the following files are installed during WebSphere Business Connection installation. Except as noted for Message Warehouse, these components do not require any configuration.

- Business Connection common code, which is in a JAR file named `bctcommon.jar`. This JAR file contains common classes that can be used by other Business Connection services, such as the exception class that all Business Connection components use.
  
- Business Connection WebSphere support code, which is in a JAR file named `bctwsas.jar`. This JAR file contains the tracing support code used by some of the Business Connection modules that run in WebSphere Application Server (for example, the Routing Filter, Authentication Filter, MessageWarehouse, and Exception Handler components).
  
- Business Connection Web Services Gateway support code, which is contained in an EAR file named `bctwsbgwsupport.ear`. This EAR file contains the Message Warehouse and Exception Handler components.
  - The Message Warehouse is a wrapper for the Solution Manager client and is used for audit logging.
  
  - The Exception Handling is called by the Web Services Gateway when an internal exception occurs.

The Message Warehouse component requires configuration of the Solution Manager Logging Client before it can be used.

- Business Connection Web Services Gateway filter code, which includes the following files:
  - The SOAP Routing Filter provides for a selection from several potential target destinations for the same Web services when using a SOAP channel. This filter is in the `bctwsbgwroutingfilterssoap.ear` file.
  
  - The SOAP/LFT Routing Filter provides for a selection from several potential target destinations for the same Web service when using a SOAP channel and LFT channel for the same service. This filter is in the `bctwsbgwroutingfilterlft.ear` file.
  
  - The Authentication Filter is used in the Web Services Gateway and provides for obtaining security credentials. This filter is in the `bctwsbgwauthenticationfilterssoap.ear` file.

## Updating the System Path for installation and configuration of WebSphere Business Connection

The installation scripts require that the Present Working Directory (PWD) be appended to the PATH environment variable in the shell that runs the scripts. In the Korn shell, this can be done by entering the following command:

```
export PATH=$PATH:.
```

Your UNIX System Administrator can provide the proper syntax to set the path in other shells and make this path the default for the entire system by editing the `/etc/environment` file, if desired.

---

## Creating hosting userid

WebSphere Business Connection requires a special userid for some functions. The UNIX administrator can create the userid using `smit` on AIX or `admintool` on Solaris. The userid must have the following characteristics:

Userid: `hosting`

Password: `hosting`

**Note:** The security policy on some systems might require that you change the password the first time you log in. The administrator must ensure that the "hosting" Userid can log in using the above password.

## Adding root to the MQM group

Using operating system-specific tools, (`smit` on AIX, `admintool` on Solaris), add root to the MQM group. Be sure to restart the CrossWorlds queue manager after you add root to the `mqm` group.

---

## Starting the Business Connection installation program

Before you begin the installation of the Business Connection components, note that on AIX for WebSphere Business Connection and WebSphere Business Connection Express editions, the installer (`setupaix.bin`) might return to the command prompt without executing anything. If this occurs, modify shared memory usage for the installer by running the following command from a command prompt:

```
export LDR_CNTRL=MAXDATA=0x50000000
```

Then rerun `setupaix.bin` from the same command prompt.

If you are installing Business Connection from a CD, note that the CD contains the following files, which are installable images (packaged as tar files for UNIX versions) for various editions of Business Connection:

WBC Tec 1.1.1 Win 2000 for WBC and WBC Enterprise Editions eImage	C48MSNA.exe
WBC Tec 1.1.1 Win 2000 for WBC Express Edition eImage	C48MTNA.exe
WBC Tec 1.1.1 Sol/AIX for WBC Express Edition eImage	C48MUNA.tar
WBC Tec 1.1.1 Sol/AIX for WBC Edition eImage	C48MVNA.tar
WBC Tec 1.1.1 AIX for WBC Enterprise Edition eImage	C48MWNA.tar

You are entitled to use the version for which you have purchased a license.

- If you are installing WebSphere Business Connection Express Edition:

*Table 11. Business Connection editions and information applicability*

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
	<b>Business Connection</b>
	<b>Business Connection Enterprise Edition</b>

1. Mount the WebSphere Business Connection installation media on your UNIX system.
2. Copy the following file to a temporary directory:  
C48MUNA.tar
3. From the temporary directory, enter the following command to extract the image:  
tar -xvf C48MUNA.tar
4. Run one of the following:
  - For AIX:  
setupaix.bin
  - For Solaris:  
setupsolaris.bin
5. When prompted, provide the path where you want to install Web Services Gateway as <BCT\_HOME>/Gateway\_Name (where BCT\_HOME is the location in the file system that the WebSphere Business Connection files were installed).
6. After the setup program has been completed, go to “Configuring the Web Services Gateway” on page 22

- If you are installing WebSphere Business Connection or Business Connection Enterprise Edition:

Table 12. Business Connection editions and information applicability

Applies to	Edition
	Business Connection Express Edition
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

1. Mount the WebSphere Business Connection installation media on your UNIX system.
2. Copy one of the following files to a temporary directory:
  - For WebSphere Business Connection:  
C48MVNA.tar
  - For WebSphere Business Connection Enterprise Edition (AIX only):  
C48MWNA.tar
3. From the temporary directory, enter the following command to extract the image:
  - For WebSphere Business Connection:  
tar -xvf C48MVNA.tar
  - For WebSphere Business Connection Enterprise Edition (AIX only):  
tar -xvf C48MWNA.tar
4. From the temporary directory, run one of the following:
  - For AIX:  
setupaix.bin

- For Solaris:  
setupsolaris.bin
- 5. Read and accept the IBM Software License Agreement. Click Next.
- 6. When prompted, provide the path where you wish to install the WebSphere Business Connection files. Click Next.
- 7. After the setup program has completed, continue with **Applying updates to WebSphere Application Server**.

---

## Applying updates to WebSphere Application Server

In this section, you will apply an eFix and an enhancement to WebSphere Application Server to enable it to run with all editions of the Business Connection (including the Express Edition). The eFix and enhancement were installed by the setupaix.bin and setupsolaris.bin programs respectively; you simply apply them in the correct directory. The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 13. Business Connection editions and information applicability*

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

### Applying the eFix

To apply the eFix:

1. To obtain the complete version of the PQ61654 eFix, please call IBM Support OR go to the following URL for IBM WebSphere Support: <http://www-3.ibm.com/software/webservers/appserv/support/index.html>
2. Stop any web servers (such as the IBM HTTP Server and the WebSphere Application Server) that are running.
3. Please follow the readme instructions that come with the eFix.

**Note:** Use WebSphere java while applying the eFix.

4. **DO NOT** use the partial version of the eFix found in the `<WSGW_HOME>/WAS_eFix_PQ61654` or `<BCT_HOME>/WAS_eFix_PQ61654` directories.
5. Restart the WebSphere Application Server and IBM HTTP server.

### Applying the JMS Support

To install the enhancement:

1. Locate the ship.aix.zip (for AIX) and ship.solaris.zip (for Solaris) files as follows:
  - If you are installing Business Connection Express Edition, the file is located in the `<WSGW_HOME>/WAS_JMS_Support` directory.
  - If you are installing Business Connection or Business Connection Enterprise Edition, the file is located in the `<BCT_HOME>/WAS_JMS_Support` directory.

2. Unzip the JMS packages into a temporary directory (for example, /tmp/jms).
3. From a command prompt, change the directory to the location where you extracted the JMS package.
4. Change the directory to the JMS Server directory (for example: /tmp/jms/ship.aix/EEX) and run the following command: ./setup  
This starts the WebSphere Application Server Enterprise Edition installation program.
5. Select **Custom Installation**. Click **Next**.
6. Select **Extended Messaging Support** package. Click **Next**.
7. Select the remaining defaults and complete the installation of the JMS Support package.
8. After the installation has been successfully completed, verify that you have the correct level of WebSphere Application Server by doing the following:
  - a. Display the WebSphere Administrative Console.
  - b. Click **Help > About**.
  - c. Make sure that the version listed is **Advanced Edition for Multiplatforms with Enterprise Edition Services**.

If your screen shows only “Advanced Edition for Multiplatforms” (without **with Enterprise Edition Services**), the correct level is not installed. To reinstall, stop the WebSphere Application Server and rerun the procedure.

---

## Upgrading the HTTP Server

Perform the following instructions to upgrade to a later version of the IBM HTTP Server:

1. Stop the IBM WebSphere Administrative Server Service if it is already running.
2. Download IBM HTTP Server 1.3.19.3 from <http://www6.software.ibm.com/dl/websphere/http-p>
3. Install IBM HTTP Server 1.3.19.3. If you need assistance, refer to the installation instructions at:

<http://www-3.ibm.com/software/webservers/htpservers/doc/v1319/9ainstal.htm>

---

## Configuring the Web Services Gateway

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 14. Business Connection editions and information applicability*

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

After the setup program has completed and you have applied the updates to WebSphere Application Server, the next step is to configure the Web Services

Gateway. For all editions of Business Connection (including the Business Connection Express Edition), follow these steps for each computer in your configuration:

1. If the WebSphere Application Server is running, stop it and close the Administrative Console before you begin configuring the Web Services Gateway. Ensure that the HTTP Server is still running.
2. Run `configure.sh` script from the `<WSGW_HOME>/install` directory (where `WSGW_HOME` is the directory location where the gateway is installed).
3. When prompted for the WebSphere path, specify the directory where you installed the WebSphere Application Server.
4. When prompted for the node name for WebSphere Application Server, enter the WebSphere Application Server node on which you wish to configure the Web Services Gateway. (If you are installing the gateway on your local machine, the WebSphere Application Server node would be your system hostname.)
5. When prompted for the Web Services Gateway directory, specify the `WSGW_HOME` directory.
6. When prompted for the IBM MQSeries Java install location, specify the directory where MQSeries Java is installed.

**Note:** This step applies only to the Business Connection edition.

7. When prompted for the DB2 path, specify the directory where you installed IBM DB2.

You will also be asked for the `db2instance` user and password that you defined in “Installing DB2” on page 7

8. Wait for the configuration program to finish, and verify that the WebSphere Application Server was started by the configuration program. If it is not started, start the WebSphere Application Server and start the Administrative Console.
9. Make sure the Web Services Gateway Application Server has the Working Directory set to `<WSGW_HOME>` and the Module Visibility set to **Application**.
10. Stop the WebSphere Application Server and the HTTP Server.
11. Check your `<WAS_HOME>` directory to make sure that the following files are *not* in the directory:
  - `<WAS_HOME>/lib/uddi4j.jar`
  - `<WAS_HOME>/lib/wsif.jar`
  - `<WAS_HOME>/lib/wsdl4j.jar`
  - `<WAS_HOME>/java/jre/lib/ext/http.jar`

These files should have been removed automatically by the configuration program. If these files *are* in the <WAS\_HOME> directory, move them to the <WAS\_HOME>/WSGW\_Backup directory.

12. Start the HTTP server, then the WebSphere Application Server, and run adminclient.sh to **Start the Administrative Console**.
13. If it is not started, start the Web Services Gateway Application Server.
14. To view the Web Services Gateway administration page, go to:  
`http://<hostname>/wsgw/admin`

---

## Web Services Gateway channels

The following table shows the applicability of the information that follows to the various Business Connection editions.

*Table 15. Business Connection editions and information applicability*

Applies to	Edition
Yes	<b>Business Connection Express Edition</b>
Yes	<b>Business Connection</b>
Yes	<b>Business Connection Enterprise Edition</b>

Channels are entry points to the Web Services Gateway and carry requests and responses between Web services and the Web Services Gateway. A request to the Web Services Gateway arrives through a channel, is translated into a WSIF message, is passed through any filters that are registered for the requested service, and finally is sent on to the service implementation. Responses follow the same path in reverse.

The channels that are part of WebSphere Business Connection are:

- ApacheSOAPChannel1
- ApacheSOAPChannel2
- ApacheAxisChannel1
- ApacheAxisChannel2
- LFTChannel1
- LFTChannel2

Two versions of each type of channel are supplied so that, for each channel type, you can set up separate channels for inbound and outbound requests. This provides a simple mechanism for giving different access rights to users from outside your organization from the rights you give to users within your organization:

- To ensure that users outside your organization can only access those internal services that you choose to publish externally, you deploy those services on the public channel.
- To give users inside your organization access to the full range of internal and external services, you deploy those services on the private channel.

Complete the following steps to deploy the channels (for Business Connection and Express editions), filters (Business Connection), and LFT sample (Express edition).

Document Exchange services, which apply only to Business Connection and Business Connection Enterprise Edition, are also installed.

1. Make sure that the Web Services Gateway application server is started.
2. From a command prompt, change to the directory  
<BCT\_HOME>/wsgw/install

**Note:** BCT\_HOME is typically the parent directory of WSGW\_HOME.

3. Enter the following command to deploy the channels and filters. Note that the keyword **HOSTNAME** must be in *uppercase*.

```
runCWGenUtility_WSGWConfig.sh -director WSGWConfigInitial.xml  
HOSTNAME=<fully-qualified hostname> <WAS_HOME> <BCT_HOME>
```

This command configures all the channels and filters that were installed by the configuration program.

4. Next, enter one of the following commands. Note that the keyword **BCT\_HOME** must be in *uppercase*.

For Express only:

```
runCWGenUtility_WSGWConfig.sh -director  
WSGWConfigSampleService_unix.xml BCT_HOME=<BCT_HOME> <WAS_HOME>  
<BCT_HOME>
```

For Business Connection only:

```
runCWGenUtility_WSGWConfig.sh -director WSGWConfigSampleService.xml  
BCT_HOME=<BCT_HOME> <WAS_HOME> <BCT_HOME>
```

This command configures a service used by the Document Exchange component. Document Exchange applies only to Business Connection and Business Connection Enterprise Edition.

5. To modify the WSDL URI for exported definitions, do the following:
  - a. Display the Web Services Gateway administration console by opening a Web browser and entering the following. `http://<HOSTNAME>/wsgw/admin`
  - b. Click on the **Configure Gateway** link.
  - c. Verify that the WSDL URI for exported definitions field contains a fully qualified host name. If it does not, enter the fully-qualified host name and continue to the next step.
  - d. Click on **Apply Changes**.

If you are going to use LFT (Large File Transfer support), refer to the Using the Web Services Gateway document, which contains sample procedures you can use to verify your LFT installation. Before you run the LFT samples, make sure your PATH system environment variable includes <WAS\_HOME>/java/bin.

**Note:** Business Connection Express Edition users have finished the installation and configuration of Business Connection Express Edition. For information on administering the Web Services Gateway, see Using the Web Services Gateway .

---

## Security

The WebSphere Business Connection uses various products to provide security services. These services include authentication, authorization, and encryption to protect the following:

- Access to the WebSphere Administration Console
- Access to the Web Services Gateway Administration pages
- Access to the Business Connection System Resources Administration pages
- Access to the Registration and Provisioning pages
- Access to the SOAP and AXIS channels

This section applies to configuration of the WebSphere Business Connection machine only. Specific instructions for the various artifacts are covered later in this document.

### Configuring SecureWay Directory

The first step in securing your Business Connection system is to configure the LDAP directory. An ldif file is provided with Business Connection that contains a set of WebSphere and Business Connection administrators. This file is described later in this section.

1. First, create the necessary suffixes:
  - a. Verify that the SLAPD Daemon is running. If not, start it according to instructions supplied by SecureWay.
  - b. To open the Web-based administration facility of SecureWay Directory, open a Web browser and go to `http://<hostname>/ldap`.

If a pop-up window appears stating that the Java Plug-in 1.3.1. 02 cannot be located, perform the following steps:

- 1) From the Internet Explorer browser, select **Tools > Internet Options**.
  - 2) Click the **Advanced** tab and scroll down until you see the Java (Sun) settings.
  - 3) Uncheck the box **Use Java 2 v1.3.1 03**, and then click **OK**.
  - 4) Reload the page, and the LDAP Administration page will appear.
- c. Log in as **cn=root**.
  - d. On the **Settings > Suffixes** page, add the **o=Root Organization** suffix and then select **Update**.
  - e. Add the suffix **dc=allegro**, and then select **Update**.
  - f. Restart the SecureWay Directory service.
2. Start a command window and change the directory to `<BCT_HOME>/properties`
  3. Run the following command to load the LDAP data: `ldif2db -i wbc.ldif`
  4. Change the directory to `<BCT_HOME>/allegro/ldapschema`
  5. Run the following command to load the LDAP data: `ldif2db -i ldapdata.ldif`
  6. To verify that the data is loaded, use the dmt tool supplied with the SecureWay directory.

7. In the dmt tool, expand the **dc=allegro** tree to verify that the data is displayed.

At this point, the data is stored in the SecureWay Directory. It contains the WebSphere Administrator user ID, which is used to start the WebSphere Administrative Console. It is defined as **uid=spadmin,dc=Users,dc=allegro**, and its password is **spadmin**.

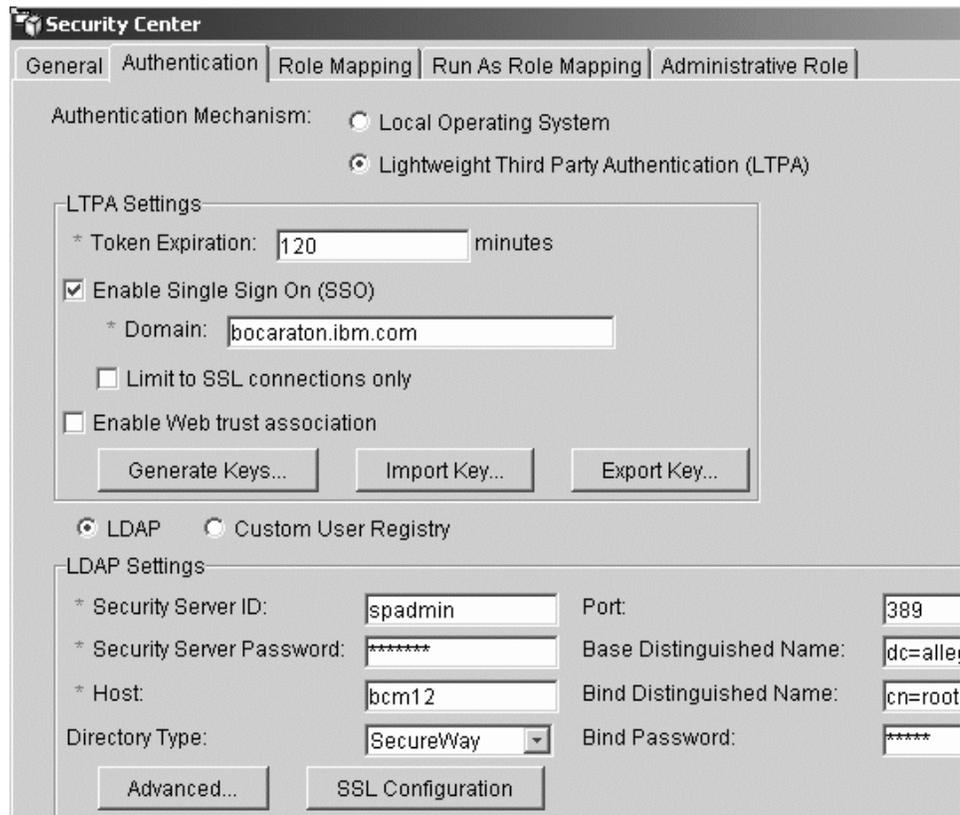
The password should be changed to prevent unauthorized access to this data. Use the Directory Management Tool to change the password.

## Configuring WebSphere Security

The next step is to configure security for the WebSphere Application Server.

Global Security will be enabled later in the WebSphere Business Connection confirmation process.

1. From the **WebSphere Administrator's Console**, go to **Console > Security Center**.
2. Click the **Authentication** tab, and select the **Lightweight Third Party Authentication** radio button.
3. Make sure **Enable Single Sign On** is checked, and then enter the domain in which the WebSphere Application Server is running (for example, bocaraton.ibm.com).



*Security Center screen showing LDAP settings*

The screen in the picture above shows the settings required for using LDAP as

the authentication mechanism. Click **Help** if you need information about the fields on this tab.

4. On the LDAP Settings, enter the appropriate information from the following table:

Table 16. LDAP Setting information

Field Name	Value
Security Server ID	spadmin
Security Server Password	spadmin
Host	<hostname of the Directory server>
Port	389
Base Distinguished Name	dc=allegro
Bind Distinguished Name	cn=root
Bind Password	<Bind Name password>
Directory Type	SecureWay

5. Click **OK**.
6. When a prompt appears requesting the LTPA password, enter a password.
7. Close the WebSphere Admin Console.
8. Stop and start the WebSphere Admin Server so that the changes will take effect.

## Securing the Web Services Gateway administration

This section describes the process to secure the Web Services Gateway administration Web pages using WebSphere security. Perform the following steps:

1. Start the WebSphere Admin Console.
2. Stop the Web Services Gateway (WSGW) application server, if it is running.
3. Expand the **Enterprise Application** folder and highlight the **Web Services Gateway Core** application.
4. Select the **User/Role Mappings** tab on the right pane of the window.
5. Select the **AuthenticatedUsers** role and click **Select**.
6. Check only the **Select user/groups** box , type an asterisk (\*) in the **Search** field, and click **Search**. Select the group **cn=SPAdmin,dc=SecurityRole,dc=allegro** and then click **Add**. Finally, click **OK**.
7. Click **Apply** to enable the changes, then do the following:
  - a. For Web Services Gateway Apache SOAP Channel 1:
    - 1) Highlight the **Web Services Gateway Apache SOAP Channel 1** application.
    - 2) Select the **User/Role Mappings** tab on the right pane of the window.
    - 3) Select the **AuthenticatedUsers** role and click **Select**.
    - 4) Check only the box labeled **Everyone (no authentication)**, click **OK**.
    - 5) Click **Apply** to enable the changes.
  - b. For Web Services Gateway Apache SOAP Channel 2:
    - 1) Highlight the **Web Services Gateway Apache SOAP Channel 2** application.
    - 2) Select the **User/Role Mappings** tab on the right pane of the window.
    - 3) Select the **AuthenticatedUsers** role and click **Select**.

- 4) Check only the box labeled **Everyone (no authentication)**, click **OK**.
  - 5) Click **Apply** to enable the changes.
- c. For Web Services Gateway Apache Axis Channel 1:
- 1) Highlight the **Web Services Gateway Apache Axis Channel 1** application.
  - 2) Select the **User/Role Mappings** tab on the right pane of the window.
  - 3) Select the **AuthenticatedUsers** role and click **Select**.
  - 4) Check only the box labeled **Everyone (no authentication)**, click **OK**.
  - 5) Click **Apply** to enable the changes.
- d. For Web Services Gateway Apache Axis Channel 2:
- 1) Highlight the **Web Services Gateway Apache Axis Channel 2** application.
  - 2) Select the **User/Role Mappings** tab on the right pane of the window.
  - 3) Select the **AuthenticatedUsers** role and click **Select**.
  - 4) Check only the box labeled **Everyone (no authentication)**, click **OK**.
  - 5) Click **Apply** to enable the changes.
- e. For Web Services Gateway LFT Channel 1:
- 1) Highlight the **Web Services Gateway LFT Channel 1** application.
  - 2) Select the **User/Role Mappings** tab on the right pane of the window.
  - 3) Select the **AuthenticatedUsers** role and click **Select**.
  - 4) Check *only* **Select Users/Groups** and then enter \* in the **Search** field and click **Search**.
  - 5) Select the **cn=CSR,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group, click **OK**.
  - 6) Click **Apply** to enable the changes.
- f. For Web Services Gateway LFT Channel 2:
- 1) Highlight the **Web Services Gateway LFT Channel 2** application.
  - 2) Select the **User/Role Mappings** tab on the right pane of the window.
  - 3) Select the **AuthenticatedUsers** role and click **Select**.
  - 4) Check *only* **Select Users/Groups** and then enter \* in the **Search** field and click **Search**.
  - 5) Select the **cn=CSR,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group, click **OK**.
  - 6) Click **Apply** to enable the changes.
8. Start the **WSGW** application server
  9. Using Microsoft Internet Explorer Version 5.5 or above, enter the following URL to display the Web Services Gateway Admin page:  
<http://<hostname>/wsgw/admin>

The IBM Web Services Gateway Admin page is displayed.

---

## Configuring Business Connection components

Be sure to read the following note before proceeding.

**Special Note:**

The remaining sections of this document apply only to Business Connection and Business Connection Enterprise Edition. Stop here if you are installing and configuring Business Connection Express Edition.

This section describes the steps you take to configure the following Business Connection components:

- Solution Manager
- System Resource Administration
- Document Exchange
- Registration and Provisioning

To configure these components, you will run a series of commands that take as a parameter the name of an XML file containing configuration settings. The shell script is named BCTConfigure.sh.

**Note:** The system will aid in the completion of the entries, but they should be verified by the installer for accuracy and completeness.

When you run the shell script, you will see the Configuration Wizard screens, which already contain prefilled information. For example, the location of the MQSeries program might already be filled in, if the configuration program can determine this information.

The information that appears on the Configuration Wizard screens is derived from the system environment variables, if they are set. If no value can be found, values are taken from the ConfigurationList.properties file in the WebSphere Business Connection properties directory. In all cases, the configuration program allows the user to update the value.

## Memory conflict

**Note:** The following information applies only to AIX applications.

A memory conflict might occur as a result of using MQSeries in bindings mode with a Version 1.2 or 1.3 JRE, which causes a 2059 return code (queue manager not available) from the MQSeries connection request. To avoid this, add the IPCCBaseAddress parameter to the <Q Manager> stanza in the mqs.ini file on each machine. This affects the part of the shared memory MQSeries uses when connecting; by default this parameter is set to 8, but it is recommended that it be set to 9.

**Note:** Execute the next two steps as a User ID that is part of the MQM group.

1. Edit the /var/mqm/mqs.ini file, locate the QueueManager stanza for <QManager>, and add the IPCCBaseAddress parameter:

```
QueueManager: Name=<Q Manager> Prefix=/var/mqm IPCCBaseAddress=9
```

The name of the MQ Queue Manager is where WebSphere Business Connection has all its queues. You can find this information by opening the MQSeries Explorer. The same manager is used by the CrossWorlds Queue Manager (cw\*.queue.manager).

- Now stop and restart the queue manager so that the change takes effect:  

```
endmqm -i <Q Manager> strmqm <Q Manager> strmqcsv <Q Manager>
```

Allowable values for the IPCCBaseAddress parameter are 4, 5, 8, 9, 10, 11 or 12; if the value 11 or 12 does not allow the application to connect as normal, try all of the other values, as 11 or 12 are not guaranteed to have success. The more components involved in the application (WebSphere Application Server, DB2 and so on) the less shared memory is available for MQSeries to use.

For more information about the known memory conflict, see the Web site:  
<http://www-3.ibm.com/software/ts/mqseries/support/summary/javasupp.html#AIX>

Also, when running the Solution Manager client from systems other than WebSphere Application Server and CrossWorlds, there is an environmental variable that must be set if you get the following error:

```
javax.jms.JMSEException: MQJMS2005: failed to create MQQueueManager for 'Q Manager'
```

Set LDR\_CNTRL variable as follows:

```
export LDR_CNTRL=MAXDATA=0x30000000
```

## Running the Configuration Wizard

The following information is provided to help you run the Configuration Wizard. In the “Configuring the WebSphere Business Connection Components for WebSphere Application Server” you will be asked for this information.

First you will be asked to enter the appropriate values for the locations and names (if the fields are not filled in or if the information is not correct). Note that you should *not* enter a slash at the end of a path. (Normally the configuration program fills in the values that it can determine.)

Here are some examples of these values you might need to change as you go through the configuration. Change (or enter) information *only if* the prefilled information is incorrect or the field is blank. The sample values are intended to show you the format in which the information should be entered.

In the samples, the host name is WBCSYSTEM1 and the connection-specific DNS Suffix is wbc.yourcompany.com. Substitute the actual values for your own system when you complete the screens.

Given the values of WBCSYSTEM1 and wbc.your.company.com, the system installation would default to the values shown in the following table. Remember to use the values for *your* system.

Table 17. Field, Sample Value, and Description information

Field	Sample value (Substitute the actual values for your system)	Description
WAS_HOME	/usr/WebSphere/AppServer (AIX) /opt/WebSphere/AppServer (Solaris)	The directory where WebSphere Application Server is installed.
MQ_HOME	/usr/mqm (AIX) /opt/mqm (Solaris)	The directory where MQ Series is installed.

Table 17. Field, Sample Value, and Description information (continued)

Field	Sample value (Substitute the actual values for your system)	Description
MQ_JAVA_INSTALL_PATH	/usr/mqm/java (AIX) /opt/mqm/java (Solaris)	The directory where the Java classes for MQSeries (ma88) are installed.
CW Queue Manager's Name	cw_WBCSYSTEM1.queue.manager  (Use your actual value in place of WBCSYSTEM1.)	The name of the MQ Queue Manager where WebSphere Business Connection has all its queues. The same manager is used by the CrossWorlds queue manager.
DB2_HOME	/home/db2inst1/sqllib (AIX) /export/home/db2inst1/sqllib (Solaris)	The directory where the DB2 instance has been created.
BCT_HOME	/opt/WBC	The name of the directory where WebSphere Business Connection is installed. This information was entered when you started the installation ("Starting the Business Connection installation program" on page 19).
HTTP_SERVER_HOME	/usr/HTTPServer (AIX) /opt/IBMHTTPD (Solaris)	The directory where the HTTP server was installed.
KEYSTORE_PASS	abcdef	Not used on UNIX platforms. Enter any 6-character string.
TRUSTSTORE_PASS	abcdef	Not used on UNIX platforms. Enter any 6-character string.

Next you will be asked to configure the System Resource Administration component. The following table provides information you might need to fill in (or accept the prefilled) values for the fields.

Table 18. System Resource Administration information

Field	Sample value (Substitute the actual values for your system)	Description
CW Server Domain	WBCSYSTEM1.wbc.yourcompany.com	The fully qualified host name of your system.
ICS Server	cw_WBCSYSTEM1	The ICS Server name. You can find this information by using the CrossWorlds System Management console.
ICS Username	admin	The ICS user name.
ICS Password	null	The ICS user's password.

Table 18. System Resource Administration information (continued)

Field	Sample value (Substitute the actual values for your system)	Description
WSGW Node name	WBCSYSTEM1	The WebSphere Application Server node where Web Services Gateway is installed. This information is available from the WebSphere Advanced Administrative Console.

Next you will be asked for Document Exchange information to fill in (or accept the prefilled) values for the fields to configure the Document Exchange component. The following table provides information you might need:

Table 19. Document Exchange information

Field	Sample value (Substitute the actual values for your system)	Description
DB2 Username	db2inst1	The DB2 user with sufficient authority to create databases and tables.
DB2 Password	ibmdb2	The password for the DB2 user.
ICS Server	cw_ WBCSYSTEM1	The ICS Server name. You can find this information by using the CrossWorlds System Management console.
ICS Username	admin	The ICS user name.
ICS Password	null	The ICS user's password.
CW_HOME	/opt/CrossWorlds	The directory where CrossWorlds is installed.
WSGW Node Name	WBCSYSTEM1	The WebSphere Application Server node where Web Services Gateway is installed. This information is available in the WebSphere Advanced Administrative Console.

Registration and Provisioning information to fill in (or accept the prefilled) values for the fields to configure the Registration and Provisioning component will be asked for next. The following table provides information you might need:

Table 20. Registration and Provisioning information

Field	Sample value (Substitute the actual values for your system)	Description
BCT Node	WBCSYSTEM1	The WebSphere Application Server node where Business Connection is installed. This information is available from the WebSphere Advanced Administrative Console.

Table 20. Registration and Provisioning information (continued)

Field	Sample value (Substitute the actual values for your system)	Description
BCT Domain	wbc.yourcompany.com	The connection-specific DNS Suffix. See your UNIX System Administrator for additional information.
BCT_TCPIP	9.99.99.99	Your IP address. See your UNIX System Administrator for additional information.
LDAP Home	/usr/ldap (AIX) /opt/ldap (Solaris)	The directory where SecureWay Directory (LDAP) is installed.
LDAP Admin Name	cn=root	The LDAP administrator's user name.
LDAP HOST	WBCSYSTEM1	The name of the system where LDAP is installed.
LDAP_PW	admin	LDAP administrator's password
CrossWorlds User	cwadmin	CrossWorlds ADMIN user created on UNIX system.
CWTPI Home	/opt/CrossWorldsTPI	The directory where CrossWorlds TPI is installed.

Then you will be asked to click **Submit**, but before you do, note that if you do click **Submit** before completing the fields for all the components, the configuration program will prompt you. For example, if you clicked Submit before completing the information for System Resource Administration, the System Resource Administration screen would be displayed and you would have to fill out the fields (or accept the pre-filled values), click **OK**, and then click **Submit** on the BCT Install Wizard page.

## Configuring the WebSphere Business Connection Components for WebSphere Application Server

Ensure that the MQSeries Queue Manager and SecureWay Directory Version 3.2.2 for Solaris and AIX *are running* and the WebSphere Application Server service is *not* running.

1. From a command prompt, login as root and change the directory to:  
<BCT\_HOME>/bin
2. Start the shell script with the parameter shown: ./BCTConfigure.sh  
bct\_was.xml

The shell script will ask you for the location of WebSphere Application Server and CrossWorlds ICS. Enter the actual location of WebSphere Application Server (on AIX most WebSphere Application Server installations are in /usr/WebSphere/AppServer and on Solaris, most WebSphere Application Server installations are in /opt/WebSphere/AppServer). The default CrossWorlds installation directory is /opt/CrossWorlds.

Check all the log files in the <BCT\_HOME>/logs directory for errors. You might see errors in the log files while trying to drop the tables/triggers, because it may not exist the very first time. You can ignore these errors. A log file with a length of zero bytes means the command was successful. If you see other errors, correct the problem indicated in the error log and re-run the

previous command. If you receive the following errors in `<BCT_HOME>/logs/startdb.log`:

- SQL1224N - A database agent could not be started to service a request, or was terminated as a result of a database system shutdown or a force command. SQLSTATE = 55032
- DB21034E - The command was processed as an SQL statement because it was not a valid Command Line Processor command. During SQL processing it returned: SQL0900N - The application state is in error. A database connection does not exist. SQLSTATE = 08003

but the program continues with the output shown below, then the above errors should be ignored.

- Database Connection Information
- Database server = DB2/NT 7.2.4
- SQL authorization ID = ADMININIST...
- Local database alias = BCMLOG

In some log files, you may see "database not found" errors when trying to drop a database. These error messages only occur if the database did not previously exist and are acceptable.

3. Su to the `<db2user>` by entering the command: `su - <db2user>`
  - a. From the command prompt, connect to the BCMLOG database by entering the following command: `db2 connect to bcmlog`
  - b. Change to the bnd subdirectory by entering: `cd sqllib/bnd`
  - c. Bind the database by entering the following commands from the bnd directory while connected to the database: `db2 bind @db2ubind.lst blocking all grant publicdb2 bind @db2cli.lst blocking all grant public`  
Note: Two warning messages are expected, but no failures are acceptable.
  - d. Exit.
4. Set up security for WebSphere Control Program if your user ID or password for WebSphere is **not spadmin**:

Edit the `sas.wscp.props` file (located in the `<WAS_HOME>/properties` directory), and update the following properties:

```
com.ibm.CORBA.loginUserid=WebSphere login ID
com.ibm.CORBA.loginPassword=WebSphere login password
```

Then save the file and exit.

5. Open a command prompt and change to directory `<BCT_HOME>/bin`. Execute the following script: `bct_sra_encode.sh sas`
6. Create and configure WebSphere Application Server BCT\_Allegro server:
  - a. Start the WebSphere Application Server Admin Console, if not started already.
  - b. Click on **Console**, select **Wizards**, click on **Create Application Server**.

- c. Enter the Application Server name as **BCT\_Allegro** and ensure that *<yournode>* is selected in the **Node to install server on** field, click **Next**.
  - d. Accept all the defaults on the **Enabling Other Services** wizard panel and click **Next**. On the **Completing the Create of the Application Server** wizard panel, click **Finish**, and let the wizard complete the creation of the application server.
  - e. Expand **WebSphere Administrative Domain, Nodes, <yournode>, Application Servers, BCT\_Allegro**.
  - f. In the right panel, click **General**.
  - g. In the **Module Visibility Field**, select **Application**.
  - h. Click on **File**, change stdout.txt and stderr.out to:  
`<BCT_HOME>/logs/bct_allegro_out.txt`  
and  
`<BCT_HOME>/logs/bct_allegro_err.txt`
  - i. Click the **JVM Settings** tab.
  - j. In the **Classpaths** field, click **Add**, and type:  
`<BCT_HOME>/allegro:<BCT_HOME>/allegro/config:<BCT_HOME>/properties:<DB2_HOME>/cc/xml4j.jar`
  - k. If you are not using the Secure Socket Layer (SSL), do the following:
    - 1) Click the **Services** tab, select **Web Container Service**, and click **Edit Properties**.
    - 2) Select **Transport** in the **Web Container Service** window, change the port number of HTTP transports from 9080 to 8080, and click **OK**.
  - l. Click **Apply**.
7. Deploy HostingEAR.ear
- a. Start the WebSphere Application Server Admin Console, if not started already.
  - b. Click on **Console**, select **Wizards**, click **Install Enterprise Application**.
  - c. Browse to the HostingEAR.ear file in `<BCT_HOME>/lib`, select **HostingEAR.ear** and click **Next**.
- Note:** When you install the HostingEAR.ear file, a window will appear asking you to deny access to all unprotected methods. Click **NO**.
- d. At **Mapping Users To Roles**, and for each of the roles in the list, do the following:
    - 1) Click on the role to select it.
    - 2) Click **Select**.
    - 3) Check the box labeled **Everyone (no authentication)**.
    - 4) Click **OK**.
  - e. Click **Next** until you arrive at **Selecting Virtual Hosts for Web Modules**.
  - f. Highlight all the Web Modules, click **Select Virtual Host**, choose **allegro\_host**, click **Next**.

- g. Highlight all the modules, click on **Select Server** and select **BCT\_Allegro**. Then click **OK**.
  - h. Click **Next**.
  - i. Click **Finish** to deploy the EAR file.
  - j. Select **No** on the pop-up window asking to regenerate code now.
8. Deploy HostingUIEAR.ear
- a. Start the WebSphere Application Server Admin Console, if not started already.
  - b. Click on **Console**, select **Wizards**, click on **Install Enterprise Application**.
  - c. Browse to HostingUIEAR.ear file in `<BCT_HOME>/lib`, select **HostingUIEAR.ear** and click **Next**.
  - d. Click **Next** until you get to select **Mapping Users To Roles**:
    - 1) Highlight the **Company Users Role** and click **Select**.
    - 2) Check *only* **Select Users/Groups** and then enter \* in the **Search** field and click **Search**.
    - 3) Select the **cn=OrgOwner,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group.
    - 4) Click **OK**.
    - 5) Highlight the **CSR** role and click **Select**.
    - 6) Check *only* **Select Users/Groups** and then enter \* in the **Search** field and click **Search**.
    - 7) Select the **cn=CSR,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group.
    - 8) Click **OK**.
    - 9) Highlight the **AllUsers** role and click **Select**.
    - 10) Check *only* the box labeled **Everyone (no authentication)**.
    - 11) Click **OK**.
  - e. Click **Next** until you arrive at **Selecting Virtual Hosts for Web Modules**.
  - f. Highlight all the Web Modules, click **Select Virtual Host**, choose **allegro\_host**, click **Next**.
  - g. Highlight all the modules, click on **Select Server** and select **BCT\_Allegro**. Then click **OK**.
  - h. Click **Next**.
  - i. Click **Finish** to deploy the EAR file.
9. From `<BCT_HOME>/bin`, run the shell script as the root user:
- ```
./BCT_RP_INSTALL_ALL_2.sh
```

## Securing WebSphere Business Connection Enterprise Applications

Perform the following from the WebSphere Advanced Administrative Console if you have to secure WebSphere Business Connection:

1. Enterprise Application : DE\_EAR
  - a. Select **DE\_EAR** under Enterprise Applications.
  - b. In the right panel, select the **User/Role Mappings** tab.
  - c. Highlight **AuthenticatedUsers** role and click **Select**.

- d. Check *only Select users/groups*, enter \* in the **Search** field, and click **Search**.
  - e. Select the **cn=SPAdmin,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group.
  - f. Click **OK**.
  - g. Click **Apply**.
2. Enterprise Application : SRA
- a. Select **SRA** under **Enterprise Applications**.
  - b. In the right panel, select the **User/Role Mappings** tab.
  - c. Highlight **Administrator** and click **Select**.
  - d. Check *only Select users/groups* and then enter \* in the **Search** field and click **Search**.
  - e. Select the **cn=SPAdmin,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group to the **Selected Users/Groups**.
  - f. Click **OK**.
  - g. Click **Apply**.

Next, right-click the node name in the WebSphere Administrative Console and click **Regen Webserver plugin**.

Finally, restart the WebSphere Administrative Server and the WebSphere Administrative Console.

## Configuring the WebSphere Business Connection Components for CrossWorlds

Make sure the CrossWorlds ICS is stopped, and that WebSphere Application Server is running, then:

1. From the `<BCT_HOME>/bin` directory run the following as the root user, with the parameter shown: `./BCTConfigure.sh bct_cw.xml`
2. Check the new logs in `<BCT_HOME>/logs` to make sure there are no errors. If there was an error, correct the problem indicated in the error log and re-run the command in step 1.
3. Su to the CrossWorlds administrative userid to pick up changes made to `CWSharedEnv.sh` and start ICS. Run the following commands under `<BCT_HOME>/bin` as the CrossWorlds administrative userid from a command prompt to load the CW repository.

**Note:** The following commands create the CrossWorlds objects required for WebSphere Business Connection 1.1.1. The commands might also overwrite some existing CrossWorlds objects. Specifically, if you are also using the CrossWorlds InterChange Server for other (non-WebSphere Business Connection) applications, the data handler meta-objects in `<BCT_HOME>/CW/CW_TL/bcttc_cw.out` may overwrite existing customized data handler meta-objects. Be sure to make a backup copy of the CrossWorlds repository before running the commands. You might need to modify the newly installed data handler meta-objects to restore the customizations required for the other applications.

- a. `./bctde_loadRepository.sh`
- b. `./bctrp_loadRepository.sh`
- c. `./bcttl_loadRepository.sh`

**Note:** You might see a message that states:

```
Failed to load NativeMap class: xxxxx
```

where xxxxx is a map name. If you see the message, ignore it and continue.

4. Check the logs for these commands in `<CROSSWORLDS>/logs` to make sure there are no errors.
5. Restart the CrossWorlds Interchange Server.
6. From the CrossWorlds System Manager, do the following:
  - a. Configure the **BCTDocTransferReceive** connector
    - 1) Right-click the connector name and select **Edit Definitions**.
    - 2) When the Connector Designer is displayed, click the **Application Config Properties** tab.
    - 3) Enter the information for **ApplicationUserName** and **ApplicationPassword**, and save the changes.

For example, if your DB2 User ID is db2admin and your DB2 password is db2, these are the values you enter. This userid should be the instance owner or a userid with similar privileges.
    - 4) Click **File>Save to Server** to save, then exit.
  - b. Configure the **BCTDocTransferSend** connector.
    - 1) Right-click the connector name and select **Edit Definitions**.
    - 2) When the Connector Designer is displayed, click the **Application Config Properties** tab.
    - 3) Enter the information for **ApplicationUserName** and **ApplicationPassword**, and save the changes.

For example, if your DB2 User ID is db2admin and your DB2 password is db2, these are the values you enter. This userid should be the instance owner or a userid with similar privileges.
    - 4) Click **File>Save to Server** to save, then exit.
  - c. Configure the **EmailConnector** connector.
    - 1) Right-click on the connector **EmailConnector** and select **Edit Definitions**.
    - 2) Select the **Application Config Properties** tab.
    - 3) In the **Value** column for SMTP\_MailHost, enter your SMTP Server.

- 4) Ensure **DebugNode** is set to **False**.
  - 5) Ensure **DataHandlerConfigMO** is blank.
  - 6) Click **File>Save to Server** to save, then exit.
- d. Configure the TPI Connector connector
- 1) Right-click on the connector **TPIConnector** and select **Edit Definitions**.
  - 2) Select the **Application Config Properties** tab.
  - 3) Select the **TradingPartnerConfigurationFile** property and in the **Value** field, enter: `<BCT_HOME>/bin/TPI.IN`  
where `<BCT_HOME>` is the actual directory of the WebSphere Business Connection.
  - 4) Click **File>Save to Server** to save, then exit.
7. Update the collaboration properties, as follows:
- a. From the CrossWorlds System Manager, right-click on the collaboration object **SAI\_to\_BCTDEReceiveConnector\_BCT\_DocumentTransferInbound**, select **Properties**, and on the right side of the window, select the **Properties** tab.
    - 1) Set the **BCT\_LOG** value to **Yes** for logging in to the Solution Manager.
    - 2) Set the **BCT\_FILE\_DOWNLOAD\_DIR** to the directory where the Web Services Gateway downloads the file. For reference, check the attribute `lft-directory` on the application server on WebSphere Application Server where the LFT channel is deployed.
    - 3) Click **OK** to save.
  - b. Right-click on the collaboration object **BCTDSendConnector\_to\_BCTDESOAPConnector\_BCT\_DocumentTransferOutbound**, select **Properties**, and on the right side of the window, select the **Properties** tab.
    - 1) Set the **BCT\_LOG** value to **Yes** for logging in to the Solution Manager.
    - 2) Set the **BCT\_SOAP\_SERVER\_URL** to the outbound Web Services Gateway SOAP server URL.
    - 3) Click **OK** to save.
8. Restart the CrossWorlds Interchange Server.

## Other Configurations

1. Enable WebSphere security:
  - a. From the **WebSphere Administrator's Console**, go to **Console > Security Center**.
  - b. The security center menu is displayed. From the **General** tab, check the box for **Enable Security**. Click **OK**.
  - c. Stop and start the WebSphere Admin Server so the changes will take effect.
2. Encoding and Encrypting passwords.

- a. Encoding the LDAP password is optional. If you want to encode the password, do the following:
    - 1) Start a command prompt.
    - 2) Change to the `<BCT_HOME>/bin` directory.
    - 3) Execute: `WBCEncodePassword.sh password`  
where *password* is your LDAP password
    - 4) Open the following file for edit:
 

```
<BCT_HOME>/allegro/config/LDAPConfig.properties
```
    - 5) Locate the line **LDAPRootpassword=<admin password>**
    - 6) Change the value to the encoded password generated in step 2.a.3.
    - 7) Save and close the file.
  - b. Encrypt the DB2 and LDAP passwords:
    - 1) From a command prompt as root, change to the `<BCT_HOME>/wms/bin` directory.
    - 2) Execute the following script: `wms_encrypt.sh password`  
where *password* is your DB2 password
    - 3) Make a note of the **ASCII encrypted string value**, as it is the one needed.
    - 4) Execute the following script: `wms_encrypt.sh password`  
where *password* is your LDAP password.
    - 5) Make a note of the **ASCII encrypted string value**, as it is the one needed.
  - c. Change `<WAS_HOME>/installedApps/WebSphere_Member_Services.ear/classes/xml/wms.xml`.
    - 1) Change `@PASSWORD@` to the encrypted DB2password. Use the value from step 2.b.3 above.
    - 2) Change `@ADMIN_PW@` to the LDAP admin encrypted password. Use the value from step 2.b.5 above.
    - 3) Save and close the file.
3. Configuring the CrossWorlds TPI Server.

Set the HTTP port of the CrossWorlds TPI Server to 5081. This can be accomplished by doing the following:

- a. Start the TPI CrossWorlds Server Administrator Console by performing the following commands:
  - 1) `cd <CrossWorlds TPI Directory>/bin`
  - 2) `start_server`
  - 3) `admin`
- b. At the Login pop-up, click on **OK**.
- c. Select **Tools**, and then select **Preferences**.
- d. In the **Preference** window, select **Ports**.

- e. Under the **API** heading in the **HTTP port** field, enter: 5081
- f. Click **OK**.

## Verifying the install and configuration of WebSphere Business Connection components

Before verifying the WebSphere Business Connection components, make sure the following pre-reqs are running:

- MQSeries Queue manager
- MQSeries Listener
- CrossWorlds Visibroker smart agent
- WebSphere Application Server
- WebSphere Application Server Console
- CrossWorlds ICS
- CrossWorlds CSM
- CrossWorlds TPI Server, if using
- IBM Secureway Service
- IBM HTTP Server

To verify the WebSphere Business Connection components, do the following:

1. Verifying LDAP

Start the Directory Management Tool and make sure you see: o=Root  
Organization dc=allegro

2. Verifying CrossWorlds artifacts

- a. From the CrossWorlds System Manager, start the following collaborations objects, if they are not running already:

- SAI\_to\_BCTDEReceiveConnector\_BCT\_ DocumentTransferInbound
- BCTDESendConnector\_to\_BCTDESOAPConnector\_BCT\_ DocumentTransferOutbound
- RegSync
- RegSyncEmail

**Note:** A green icon next to the collaboration object signifies that it has started. If an object is not running, click **Start**.

- b. From the CrossWorlds System Manager, start the following connectors, if they are not running already:

- BCTDocTransferSendConnector
- BCTDocTransferReceiveConnector
- BCTDocTransferSOAPConnector
- BCTCMSSOAPConnector
- BCTFedSOAPConnector
- EmailConnector

**Note:** A green icon next to the collaboration object signifies that it has started. If an object is not running, click **Start**.

- c. Under maps, confirm that the following maps are started:
  - BCT\_SOAP\_CMS\_upgrade\_to\_BCTPartnerProfileGBO
  - BCT\_SOAP\_FederationService\_add\_to\_BCTPartnerProfileGBO
  - BCTPartnerProfileGBO\_to\_BCT\_SOAP\_CMS\_upgrade
  - BCTPartnerProfileGBO\_to\_BCT\_SOAP\_FederationService\_add
  - XML\_BCTPartnerProfileInput\_to\_BCTPartnerProfileGBO

**Note:** A green icon next to the collaboration object signifies that it has started. If an object is not running, click **Start**.

- d. As the CrossWorlds administrative user, from the command prompt enter the following: `cd <CROSSWORLDS>/bin`  
Run the following shell script:  
`./connector_manager_BCTDocTransferSend -start`
  - e. As the CrossWorlds administrative user, from the command prompt enter the following: `cd <CROSSWORLDS>/bin`  
Run the following shell script:  
`./connector_manager_BCTDocTransferReceive -start`
  - f. As the CrossWorlds administrative user, from the command prompt enter the following: `cd <CROSSWORLDS>/bin`  
Run the following shell script:  
`./connector_manager_BCTDocTransferSOAP -start`
  - g. As the CrossWorlds administrative user, from the command prompt enter the following: `cd <CROSSWORLDS>/bin`  
Run the following shell script:  
`./connector_manager_BCTCMSSOAP -start`
  - h. As the CrossWorlds administrative user, from the command prompt enter the following: `cd <CROSSWORLDS>/bin`  
Run the following shell script:  
`./connector_manager_BCTFedSOAP -start`
  - i. As the CrossWorlds administrative user, from the command prompt enter the following: `cd <CROSSWORLDS>/bin`  
Run the following shell script:  
`./connector_manager_EMail -start`
3. Verifying WebSphere Application Server artifacts

From the WebSphere Application Server Console, start the following app servers:

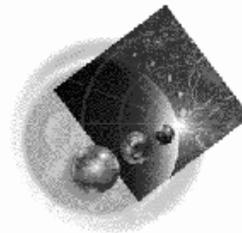
- a. Start BCT\_DE server.
- b. Start WebSphere Member Services server.
- c. Start the BCT\_RP\_Web server.
- d. Start the BCT\_RP\_TC server.
- e. Start the BCT\_Allegro server.
- f. Start the BCT\_RP server.
- g. Start the BCT\_SRA server.
- h. Start the BCT\_SRA\_CW server.

- i. Start BCTExceptionLog.
  - j. Start BCTAuditLog.
  - k. Start BCTBusinessLog.
  - l. Start WSGW.
4. Verifying Web Services Gateway

From the Web Services Gateway console, select Channels and make sure you have definitions correctly created for ApacheSOAPChannel1 and ApacheSOAPChannel2.

5. Verifying WebSphere Business Connection Console
- a. Using Microsoft Internet Explorer version 5.5 or above, enter the following URL to bring up the Business Connection Administrative console:  
http://<FULLY QUALIFIED HOSTNAME>/WBC/index.jsp
  - b. When you are prompted to enter a user ID, enter: spadmin  
For the password, enter the password that you set in “Configuring WebSphere Security” on page 27. If you did not reset the password, use spadmin.
  - c. If the Welcome Screen shown below is displayed, the System Resource Administration configuration on WebSphere was successful.

## Welcome to Business Connection Admin Console



*Business Connection Admin Console welcome screen*

After all of the above starts without errors, you have successfully verified the Installation and Configuration of WebSphere Business Connection.

---

## Before using the Registration and Provisioning component

Before you can begin using the Registration and Provisioning component to register with partners, complete the following sections that apply to you.

### Follow these steps if you will be using CrossWorlds TPI Server

1. Create the directory <BCT\_HOME>/partners/<your company name>/serv/tpiserver, if one does not already exist.

2. Create a company profile in CrossWorlds TPI Server. (Refer to the CrossWorlds TPI Server Admin doc.)
3. Export the company profile (as a partner profile using XML format) to the `<BCT_HOME>/partners/<your company name>/serv/tpiserver` directory.

**Note:** The name of the file must be: *your company name.xml*. This same name (your company name) must be used when using the WebSphere Business Connection to register your company with your partners.

## Follow these steps to use Document Exchange

When you configured Document Exchange earlier in this installation procedure, you deployed a WSDL file named `BCT_DocumentTransfer_Create.wsdl` in Web Services Gateway. Before you begin the process of registering with a trading partner and actually exchanging documents, you will be providing your WSDL to your trading partner.

1. From the command window, go to the following directory: `<BCT_HOME>/wsdl`
2. Open the `BCTDE_ServiceDefinition.xml` file for edit.
3. In the `lft:address` location line, replace **localhost** with the host name.
4. Save the changes.
5. Create the directory `<BCT_HOME>/partners/<your company name>/serv/de`.

Note that `<your company name>` must be the same name you will use to register your company.

6. Copy the `BCTDE_ServiceDefinition.xml` file and the `BCTDE_ServiceInterface.xml` file to the directory `<BCT_HOME>/partners/<your company name>/serv/de`.

When you register with a trading partner, these XML files will be copied to the partner's computer, just as the partner's xml files will be transferred to your computer. This process is described in **Administering the System**.



---

## Part IV - Business Connection Security

This section describes the steps you can take to install security at various points in your Business Connection system.

|                   |
|-------------------|
| <b>Important:</b> |
|-------------------|

|                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The WebSphere Business Connection offerings are intended to be run on a dedicated platform. Be aware that the security procedures described in this section affect <i>all</i> Web- and application-server content on the WebSphere Business Connection platform. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

If your configuration includes a TPI server, refer to the TPI documentation for information on setting up security for the server.

---

### Configuring SSL connections for CrossWorlds and Web Services Gateway

This part of the document describes how SSL connections will be established to provide data encryption between the CrossWorlds SOAP connector and the Web Services Gateway and between Web Services Gateways.

#### SSL configuration of the IBM HTTP Server

The Web Service Gateway machine uses the IBM HTTP Server to receive HTTPS requests. To set up SSL configuration, perform these steps on the Web Service Gateway machine.

1. Create the HTTP Administrator ID:
  - a. Log on as root.
  - b. From a command prompt, change the directory to <IBM\_HTTP\_Server\_HOME>/bin.
  - c. Run: `htpasswd ../conf/admin.passwd Administrator` (may be any value).  
When prompted, enter the password.
2. Create the key database and a Web-server certificate. The program `ikeyman` is used to create these objects.
  - a. Start `ikeyman`.
  - b. To create the key database, click **Key Database File -> New**. Enter the file name and desired location. For example, on the mapped network drive:  
<BCT\_HOME>/properties/key.kdb  
Accept the default of **CMS Key database file** for **Key database type**. Click **OK**. You are then prompted to enter the key database password. Make sure to check the **Stash the password to a file**.
  - c. To create a certificate, you have two choices—create a self-signed certificate, or request a certification from a certification agency (for example, Verisign).
    - 1) To create a self-signed certificate, click **Create -> New Self-Signed Certificate**. Enter the host name of your WebSphere Business Connection

machine (without the domain) as the key label and your company as the organization, and then click **OK** to create the certificate.

- 2) To request a new certificate, click **Create -> New Certificate Request**. Fill out the key label and common name with the computer name, and click **OK**. When the certificate from Verisign is received, save it to an .arm file and import it into **ikeyman**.
3. On your UNIX machine, stop the http servers. Edit the admin.conf file under <IBM\_HTTP\_Server\_HOME>/conf, comment out 'user nobody' and 'group nobody', and add the following two lines after the commented lines:
  - User cwadmin
  - Group staff
4. Change the ownership of the httpd.conf:
  - a. From a command prompt, change the directory to:  
<IBM\_HTTP\_Server\_HOME>/conf.
  - b. Enter: chown cwadmin:staff httpd.conf
5. Start the HTTP and Administration servers.
6. Start the HTTP Admin Console by entering: http://<hostname>  
Then click on **Configure Server**. You will then be prompted to enter a user ID and password. Enter this as **Administrator** and the password you created in the previous step.
  - a. Set up the security module.
    - 1) Click **Basic Settings**.
    - 2) Click **Module Sequence** (Scope: GLOBAL).
    - 3) Click **Add**.
    - 4) Select **Select a module to add** and open the drop down list. Go to the bottom of the list and select **ibm\_ssl** from the list. The Module DLL will be placed to the right.
    - 5) Click the **Apply** button.
    - 6) Click the **Close** button.
    - 7) Click the **Submit** button.
  - b. Set up a secure host IP and an additional port for the secure server.
    - 1) Click **Basic Settings**.
    - 2) Click **Advanced Properties** (Scope: GLOBAL).
    - 3) Click the **Add** button for the **Specify additional ports and IP addresses** field. Leave the IP address fields empty and enter 443 in the Port field.
    - 4) Click the **Apply** button.
    - 5) Click the **Close** button.
    - 6) Click the **Submit** button.
  - c. Set the keyfile and SSL timeout values for the secure server.
    - 1) Click **Security**.
    - 2) Click **Server Security** (Scope: GLOBAL).

- 3) Click the **Enable SSL No** radio button. This disables SSL for Global scope.
  - 4) Enter the path and file name of the key database. This is the file created using `ikeyman` in step 2.
  - 5) For SSL Version 2 session IDs, enter a Timeout value of 100secs.
  - 6) For SSL Version 3 session IDs, enter a Timeout value of 1000secs.
  - 7) Click the **Submit** button.
- d. Set up the virtual host structure for the secure server.
- 1) Click **Configuration Structure**.
  - 2) Click **Create Scope** (Scope: GLOBAL).
  - 3) Select **VirtualHost** in the **Select a valid scope to insert within the scope selected in the right panel** field.
  - 4) Enter the fully qualified domain name.
  - 5) Enter the virtual host port (443).
  - 6) Leave the server name blank.
  - 7) Leave Alternate name(s) for host blank.
  - 8) Click the **Submit** button.
- e. Set up the virtual host document root for the secure server.
- 1) Click **Basic Settings**.
  - 2) Click **Core Settings** and then select the **Scope** button and select the `<virtualhost>` you created in the previous step.
  - 3) Enter the server name as a fully qualified domain name.
  - 4) Enter the document root directory name:  
`<IBM HTTP Server install path>/htdocs`
  - 5) Click the **Submit** button.
- f. Enable SSL and select the mode of Client Authorization.
- 1) Click **Security**.
  - 2) Select **Host Authorization**
  - 3) Select the **Scope** button and select the `<virtualhost>` you created in step d. (This forces a refresh of the newly created scope.)
  - 4) Click the **Enable SSL Yes** radio button. (This enables SSL for Virtual Secure Host.)
  - 5) Click the **Mode of client authorization to be used None** radio button
  - 6) Click the **Submit** button.
7. WebSphere needs to be modified so it recognizes the requests coming from the HTTP Server to the secured port 443. From the WebSphere console, select **Virtual Hosts** and then add to the host Aliases of default\_host: `*:443` and then click **Apply** to save the changes.
8. Next, you will complete the same sequence of steps to secure port 8080.
- a. Set up a secure host IP and an additional port for the secure server.

- 1) Click **Basic Settings**.
  - 2) Click **Advanced Properties** and make sure Scope is set to GLOBAL.
  - 3) Click the **Add** button for the **Specify additional ports and IP addresses** field. Leave the IP address fields empty and enter 8080 in the Port field.
  - 4) Click the **Apply** button.
  - 5) Click the **Close** button.
  - 6) Click the **Submit** button.
- b. Set up the virtual host structure for the secure server.
- 1) Click **Configuration Structure**.
  - 2) Click **Create Scope** (Scope: GLOBAL).
  - 3) Select **VirtualHost** in the **Select a valid scope to insert within the scope selected in the right panel** field.
  - 4) Enter the fully qualified domain name.
  - 5) Enter the virtual host port (8080).
  - 6) Leave the server name blank.
  - 7) Leave Alternate name(s) for host blank.
  - 8) Click the **Submit** button.
- c. Set up the virtual host document root for the secure server.
- 1) Click **Basic Settings**.
  - 2) Click **Core Settings** and then select the **Scope** button and select the *<virtualhost>* you created in the previous step.
  - 3) Enter the server name as a fully qualified domain name.
  - 4) Enter the document root directory name: *<IBM HTTP Server install path>/htdocs*
  - 5) Click the **Submit** button.
- d. Enable SSL and select the mode of Client Authorization.
- 1) Click **Security**.
  - 2) Select **Host Authorization** (Scope: VirtualHost) *<host ip addr:8080>*.
  - 3) Select the **Scope** button and select the *<virtualhost>* you created in step b. (This forces a refresh of the newly created scope.)
  - 4) Click the **Enable SSL Yes** radio button. (This enables SSL for Virtual Secure Host.)
  - 5) Click the **Mode of client authorization to be used None** radio button
  - 6) Click the **Submit** button.
9. Edit the httpd.conf file under *<IBM\_HTTP\_Server\_HOME>/conf*:
- Comment out the following line: `#AddModule mod_app_server_http.c`
  - Uncomment the following line: `#Listen 80`
10. Restart the HTTP Server.

11. Next the Web Server Plugin must be regenerated. Select the node for the computer, right-click and select **Regen Webserver Plugin**.
12. Restart the WebSphere Application Server.
13. Stop, then restart the HTTP Server. This action applies the changes you just made.
14. Verify that an SSL connection on port 443 can be established to the HTTP Server and WebSphere by accessing the Business Connection Admin Console. From a browser, enter: `https://<fully qualified hostname>/WBC/index.jsp`  
The HTTP Server certificate will be presented to the browser. Accept this and the Admin Console will be displayed (assuming the System Resource Administration application server is running).
15. Verify that an SSL connection on port 8080 can be established to the HTTP Server and WebSphere by accessing the Business Connection Admin Console. From a browser, enter: `https://<fully qualified hostname>:8080/hostingUI/UIServlet/BCTEnrollmentView`  
The HTTP Server certificate will be presented to the browser. Accept this and the registration page will be displayed.

**Note:** If you are challenged while attempting to gain access to the above page, please perform the following steps:

- a. Start the WebSphere Application Server Admin Console, if not started already.
- b. Expand **WebSphere Administrative Domain, Nodes, <yournode>, Application Servers, BCT\_Allegro**.
- c. Stop the BCT\_Allegro application server.
- d. Expand **WebSphere Administrative Domain, Enterprise Applications**.
- e. Delete the **hostingEAR** and **HostingUIEAR** enterprise applications.
- f. Follow steps 7, 8, and 9 in “Configuring the WebSphere Business Connection Components for WebSphere Application Server” on page 34.
- g. Start the BCT\_Allegro application server.
- h. Rerun step 14 above.

## HTTPS Configuration from Document Exchange SOAP Connector to HTTP Server

The following steps are used to configure HTTPS from the Document Exchange SOAP connector to the IBM HTTP Server. It is assumed that CrossWorlds and the IBM HTTP Server are installed on the same machine.

1. Extract the certificate from the IBM HTTP Server into a file using these steps:
  - a. Start `ikeyman` from a command prompt `<HTTP SERVER_HOME>/ssl/ikeyman`
  - b. Click on **Key Database File > Open** to open the certificate database on the HTTP server.
  - c. Select the file that was created from the previous section (for example, `<BCT_HOME>/properties/key.kdb`).

- d. Click **Extract Certificate**. In the **Location** field, enter:
    - <CROSSWORLDS>/lib/security/<Exported\_Cert>.arm
  - e. Close the ikeyman program.
2. Create a trusted certificate database (truststore) with the HTTP server certificate. To create the truststore:
    - a. Change to the following directory: <CROSSWORLDS>/lib/security
    - b. Create the truststore by executing the following command from a command window:
 

```
keytool -import -alias <HTTP_Server_Hostname> -file
<Exported_Cert>.arm -keystore truststore
```
    - c. Enter <password>(This must be at least six characters long.)
    - d. At the **Trust this certificate** prompt, type yes.
  3. Create the certificate database (keystore) with the HTTP server certificate:
    - a. To create the keystore, execute the following command from the command window, as shown below:
 

```
keytool -import -alias <HTTP_Server_Hostname> -file
<Exported_Cert>.arm -keystore keystore
```
    - b. Enter <password>
    - c. At the **Trust this certificate** prompt, type yes.
  4. Modify the CrossWorlds SOAP Connector shell script so that it uses the certificate databases shown below. There might be several variants, so the proper file must be modified per the Web service being utilized.
 

For example, for Document Exchange, edit the <CROSSWORLDS>/connectors/BCTDocTransferSOAP/start\_BCTDocTransferSOAP.sh file to include the following parameters on the java command statement.

```
-Djavax.net.ssl.keyStore=<CROSSWORLDS>/lib/security/keystore
-Djavax.net.ssl.keyStorePassword=password
-Djavax.net.ssl.trustStore=<CROSSWORLDS>/lib/security/truststore
-Djavax.net.ssl.trustStorePassword=password
```

**Note:** These changes should be made by inserting the following text on the line that starts with “exec \${CWJAVA} \${JVM\_FLAGS} -classpath ...” statement, between the “<JVM\_FLAGS>” parameter and the “-classpath ...” parameter: The text in the document should be inserted between <JVM\_FLAGS> and ûclasspath.
  5. Modify the URL that contains the HTTP statement.
 

For example, the Document Exchange collaboration object BCTDESendConnector\_to\_BCTDESOAPConnector\_BCT\_DocumentTransferOutbound contains a parameter named BCT\_SOAP\_SERVER\_URL. You can modify this object using the CrossWorlds System Manager as follows:

    - a. Expand the collaboration object.
    - b. Right-click on the object and select **Properties**.
    - c. Click the **Properties** tab and change the BCT\_SOAP\_SERVER\_URL parameter from **http** to **https**
    - d. Change **localhost** to the host name.

- e. Click OK.
- f. Restart the collaboration object.

---

## Providing security for the Document Exchange Web service

This section describes how to apply security to the Document Exchange Web service. For more information on Web-service security, refer to the Administering the System document.

### Creating a <webservice>.ear file

The first step is to generate the facade EJB using the WSGWAuthGen.sh script. The script is located in the <WSGW\_HOME>/scripts/auth folder. The script takes two arguments.

- The URL defining the location of the gateway installation
- The name of the Web service deployed in the gateway

To run the script:

1. Go to a command prompt and switch the directory to <WSGW\_HOME>/scripts/auth.
2. Enter the WSGWAuthGen command as shown below: WSGWAuthGen  
http://<WSGW\_Hostname>/wsgw BCT\_DocumentTransfer\_Create

Note that the URL should include the root context and that the deployed service is case-sensitive.

Upon successful execution of this script, a <webservice>.ear file named BCT\_DocumentTransfer\_Create.ear is created in the <WSGW\_HOME>/scripts/auth folder and also a subfolder called <ejb>. This directory is temporary and may be deleted. The EAR file will be used to implement security on the Web Services Gateway for Document Exchange.

To complete the steps of assigning roles and protecting methods, use the Application Assembly Tool (AAT) that comes with WebSphere. The following instructions are specific to AAT. The process discussed involves making changes to the file wsgwauth.ear, which can be found in the <WSGW\_HOME>/bin directory. In order to protect the installation copy of this file, make a copy of it.

1. Launch the Application Assembly Tool from the WebSphere task menu.
2. Cancel the **Welcome to Application Assembly Tool**.
3. Select **File > Open** and use the **Browse** button to select the <BCT\_HOME>/wsgw/bin/wsgwauth.ear file.
4. Import the BCT\_DocumentTransfer\_Create.ear file into the wsgwauth.ear using the following instructions:

- a. Click on the **EJB Modules** folder in the left-hand pane.
- b. Right-click and select **Import**. Use the file dialog to select the generated ear file <WSGW\_HOME>/scripts/auth/<BCT\_DocumentTransfer\_Create.ear>.
- c. A dialog box is presented offering a choice of **Select Modules to Import**. Select the Document Exchange Web service and click **OK**.
- d. When the **Confirm Values** dialog box is presented, click **OK**.

5. Expand the EJB Modules folder in the left-hand pane to see the name of the Web service (Document Exchange) just imported. The name is displayed in the **File Name** and **Display** fields.

6. Now that you have imported the EAR file, you can begin to define roles and assign roles to methods.
  - a. Expand the Document Exchange EJB module and highlight the **Security Roles** option.
  - b. Right-click and select **New** to define a security role. Enter `AuthenticatedUsers` for the role name. Click **OK** to save.
  - c. To assign defined roles to Web-service methods, select **Method Permissions** in the left-hand pane under the Document Exchange EJB. Right-click and select **New**.
  - d. Enter `ProtectedMethods` as the method permission name.
  - e. In the **Methods** pane, click **Add** for methods.
  - f. Expand the tree down to the Remote branch and select the method `m_BCT_DocumentTransfer()`.
  - g. Click **OK** to save the changes.
  - h. In the **Roles** pane, click **Add**.
  - i. Select a previously defined role from the list. For example, **AuthenticatedUsers**. Click **OK** to save.
  - j. Click **OK**.
  
7. The next stage is to ensure the Authorization EJB is able to reference the new EJB just imported. To do this:
  - a. Expand **EJB Module > BCT\_DocumentTransfer\_Create**, and then expand **Session Beans**. Select the `BCT_DocumentTransfer_Create` service.
 

Next, select the **Bindings** tab on the right side pane, and copy the JNDI name into the clipboard. You will use this name in step d below.
  - b. Expand the **WSGW Authorization** EJB module, and then expand **Session Beans > Authorization** and click on **EJB References**. Right-click and select **New**.
  - c. Enter `WSGWReference` as the name for the reference and use the **Link** pulldown field to select the newly imported Document Exchange service. All the other fields in the pane will be populated automatically.
  - d. Click on the **Bindings** tab and enter the JNDI name that was copied in step a. This should be in the form of `websphere/WSGW/Security/BCT_DocumentTransfer_Create`.
 

Click **OK** to save.
  - e. Select **File > Save** to save a modified copy of the `wsgwauth.ear` file.
  - f. Close the Application Assembly Tool.
  
8. Deploy the `wsgwauth.ear` file by highlighting **Enterprise Applications** on the WebSphere Administrative Console. Stop the Application Server (if it is running). Right-click and select **Install Enterprise Application**.

9. Select **Browse** and find the wsgwauth.ear file in the <WSGW\_HOME>/bin folder. Click **Next** to continue.

Next you will see the following message: The application contains method permissions. Do you wish to deny access to unprotected methods?

Select **No**.

10. On the **Mapping Users to Roles** page, highlight **AuthenticatedUsers** and click **Select**.

Check only the **Select users/groups** and then enter \* in the **Searchfield** and click **Search**. A list of users and groups is displayed.

Select the **cn=CSR,dc=SecurityRole,dc=allegro** group from the **Available Users/Groups**, and click **Add** to add the group to the **Select Users/Groups**. Finally, click **OK**.

11. Click **Next** until you reach the Binding Enterprise Beans to JNDI Names screen. Click **Next** and, if the following message appears: Duplicate EJB JNDI Name message will appear.

Click **No** to proceed.

12. Click **Next** until you reach the Selecting Application Servers screen. Highlight both modules and then click **Select Server**. Select the **WSGW** application server, and click **OK**.

13. Click **Next**, and then click **Finish**.

At the completion of the installation wizard, you will be requested to generate application code. Select **Yes** when this option appears, and then click **OK** to deploy the code. Do not change any of the default values.

14. Restart the **WSGW** application server from the WebSphere Administrative Console.



---

## Part V - After installation

This section describes tasks that you perform after installation. It describes a script you should run after installation as well as how to remove a Business Connection installation and how to start and stop a Business Connection system. It also points you to information about using the system.

---

### Removing files

As part of installation, various passwords are set or generated, and some of these passwords are visible in the files used during installation. This procedure removes all the files that might contain passwords.

When you are certain you have successfully completed installation and configuration, follow these steps to remove files that contain passwords.

1. From a command window, change the directory to `<BCT_HOME>/bin`
2. Execute the following script: `delPasswordFiles.sh`
3. Manually remove `BCT_RP_REPLACE_WBCUI_DATA_FIRST.xml.log` from `<BCT_HOME>/logs`

---

### Running the BCTVPDCreate program

After you finish installing Business Connection, run the `BCTVPDCreate.sh` program as follows:

1. From a command prompt, change to the directory `<BCT_HOME>/bin`.
2. Execute the following script: `BCTVPDCreate.ss`

This program prepares your system for reinstalling another version of Business Connection in the future.

If you receive an update to Business Connection, you will receive installation instructions along with the update. When you apply an update (as opposed to installing another version), you execute the following after installation:

```
BCTVPDUpdate.sh
```

To view the current installation information, you can run the following command at any time:

```
BCTVPDVersion.sh
```

Note that the `BCTVPDVersion` program applies only to Business Connection and Business Connection Enterprise Edition. To determine your current installation information for Business Connection Express Edition, do the following:

1. Open a command window.
2. Go to the following directory: `<BCT_HOME>/wsgw`
3. Open the `Readme.txt` file for instructions on determining the product version.

---

## Starting up and shutting down

To start and stop the applications or their individual components, you can use the WebSphere Administrator's Console. Alternatively, entire Application Servers (not components) may be controlled via the WebSphere Business Connection System Management console.

Note that if you have security enabled, stop all servers before stopping the WebSphere Application Server. Otherwise, problems will occur the next time you try to start it.

---

## Removing WebSphere Business Connection

To uninstall any version of Business Connection, run `uninstaller.bin` from `<WSGW_HOME>/_uninst`

Some files might not be removed. If this is the case, manually remove files related to Business Connection.

---

## Where to next?

After you install and configure your Business Connection edition, you can register with trading partners, set up document exchange, and run logging and tracing operations. These tasks are described in the *Administering the System* document.

---

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---

## Programming interface information

Programming interface information is intended to help you create application software using this program.

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