IBM DB2 Records Manager

# IBM DB2 Records Manager Deployment Guide

*Version 3.1 Release 1*

GC18-7994-00

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**Note**

Before using this information, be sure to read the general information under notices.

This manual was produced using IBMIDDoc SGML, the Epic editor, and processed for print and online using the ID Workbench.

**First Edition (September 2003)**

This edition applies to Version 3 Release 1 of the IBM DB2 Records Manager for Windows® (product number 5724-E68) and at all subsequent releases and modifications until otherwise indicated in new editions.

# Contents

# Chapter 1. Deployment Guide

IBM® DB2® Records Manager describes the steps for a manual installation.

## Who should use this guide

Use this guide if you are responsible for installation of IBM DB2 Records Manager.

## Skills Required

You should be familiar with the following;

- Websphere
- IBM DB2 Universal Databases
- Network administration
- your Windows operating system
- Database administration
- experience with relational database technology
- knowledge of online debugging techniques

## How to use this guide

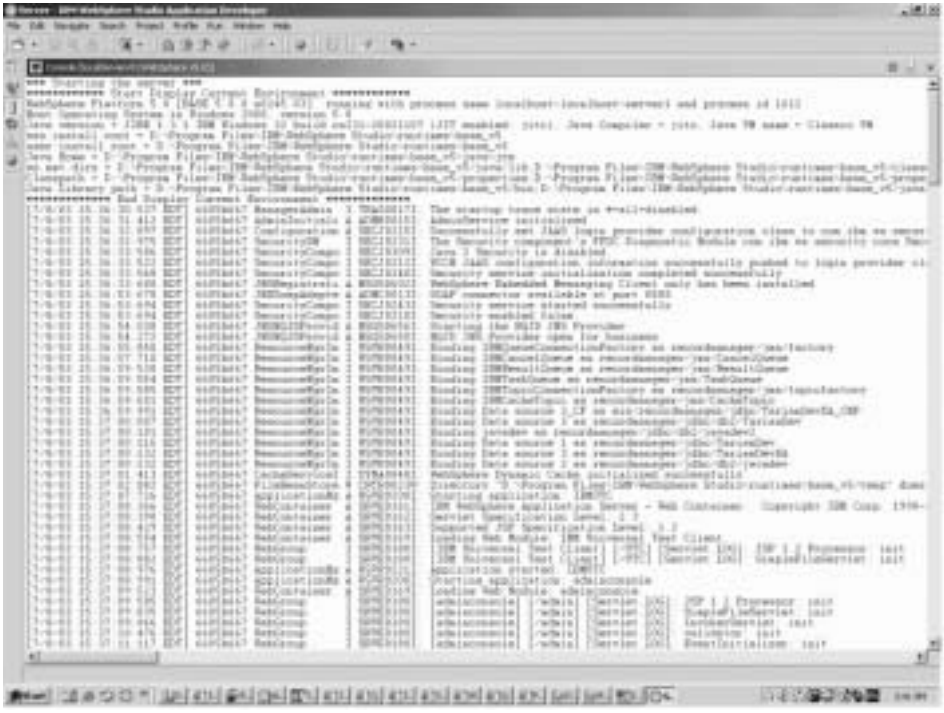
Make sure you examine the IBM DB2 Records Manager readme.txt file for additional information. See Install - directory/readme.txt where install -directory is the directory in which you installed the DB2 Records Manager (for example, C:\Program files\IBM\DB2 Recoreds Manager, which is the default installation directory).

# Chapter 2. Install fixpack1

When performing an installation of IBM DB2 Records Manager you must ensure that fixpack1 for WebSphere Application Server (WAS) has been installed.

If fix pack 1 for WebSphere Application Server 5.0 (WAS) has not been installed,

- Check **WebSphere SystemOut log** to verify the version that is currently installed.



You can download WebsSphere from IBM using the following link: http:

//www-1.ibm.com/ support/docview.wss?rs=180&context=SSEQTP&q=&uid=swg24004576&loc=en_US&cs=utf-8&lang=en.

You have serval versions to select. Install **Windows NT/2000 Base** version.

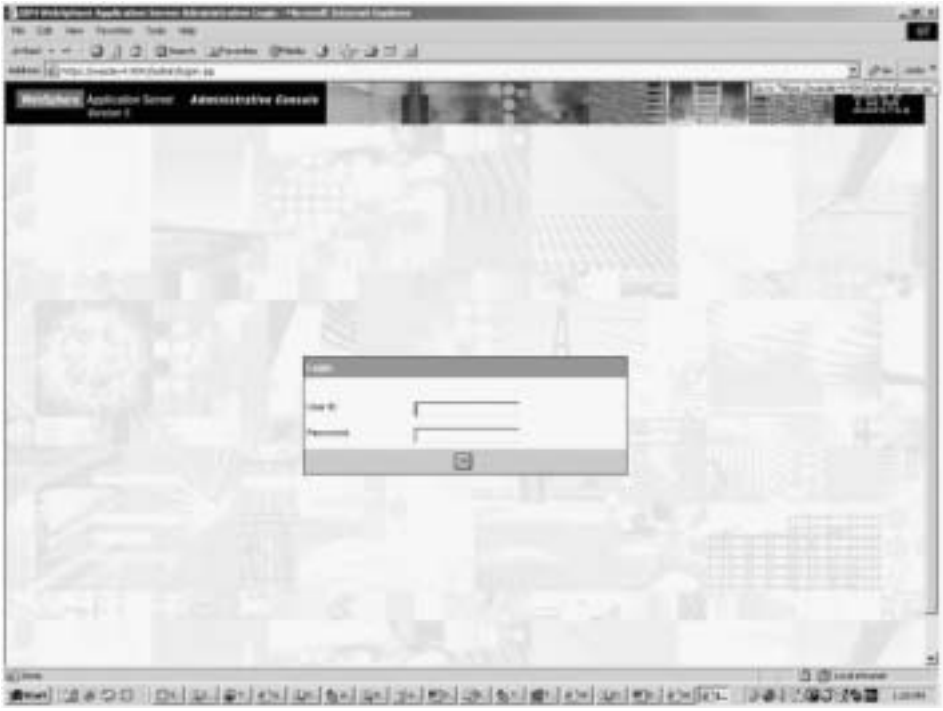
**To install the patch**:

1. Stop the **WAS server** if it is running.
2. Stop the IBM HTTP Server.
3. Stop the IBM HTP Admin server.
4. Make sure the JAVA_HOME environment variable is pointed to the IBM JVM; ie. C:\WebSphere\Appserver\bin.
5. Unzip was50_fp1_win.zip.
6. Run updateWizard.bat.
7. Use all default settings.
8. Uncheck the **Embedding Messaging** checkbox, if WebSphere Embedding Messaging Server is not installed.
9. Reboot server.
10. Create local connections of the databases on the BLL server. Do this using the IBM DB2 Connection Wizard.

## Configure WebSphere

Launch **FirstSteps** from **Start ->Programs->IBM WebSphere->Application Server v5.0-> First Steps.**

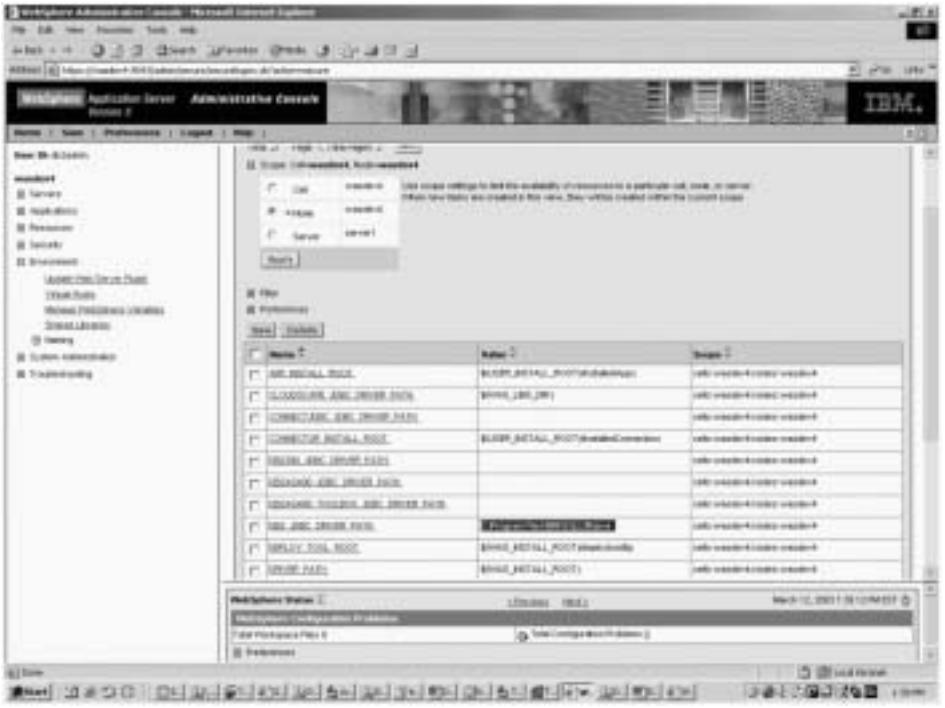
1. Click the **Start Server** option.
2. Open the **Administrative Console.**



## Set up environment Variables

Make the DB2_JDBC_DRIVER_PATH variable point to the directory with db2 jdbc jars. For example

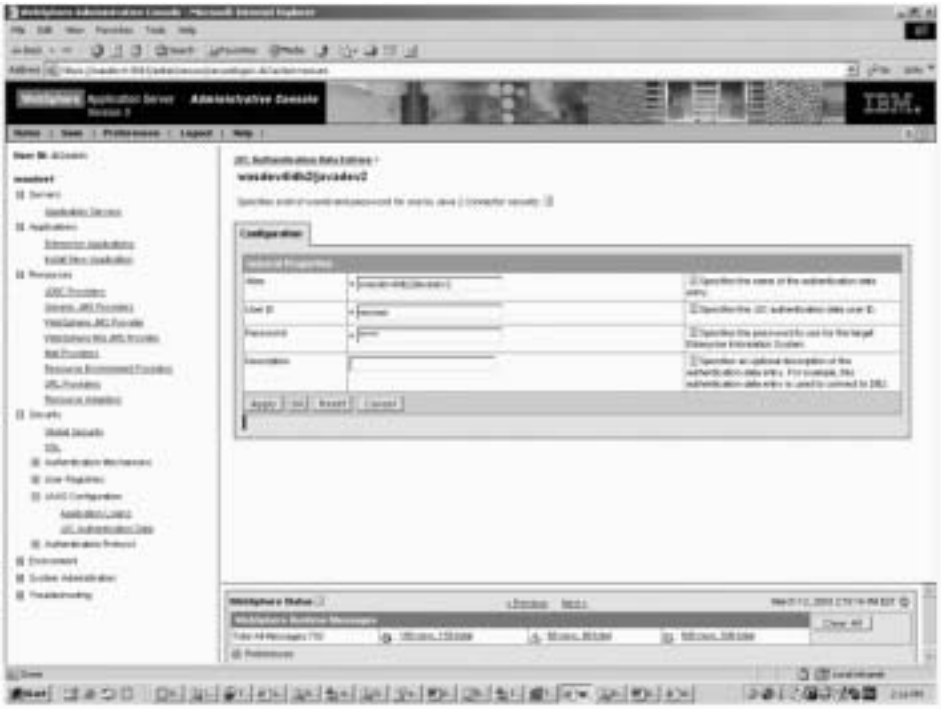
c:\Program Files\IBM\SQLLIB\java



## Create J2C Authentication Data Entries

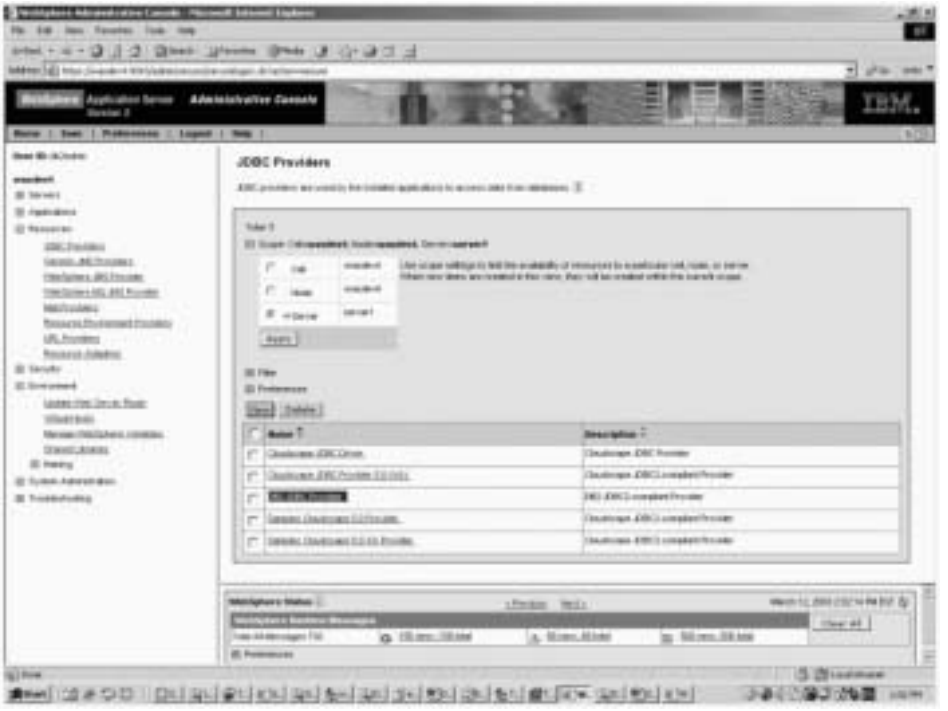
(Repeat as many times as you have DBs created)

1. Security -> JAAS Configuration -> J2C Authentication Data.
2. Click **New**.
3. Alias = [Database name that has been created].
4. UserID = recman.
5. Password = qa4ibm.
6. Click **Apply** and then click **OK**.



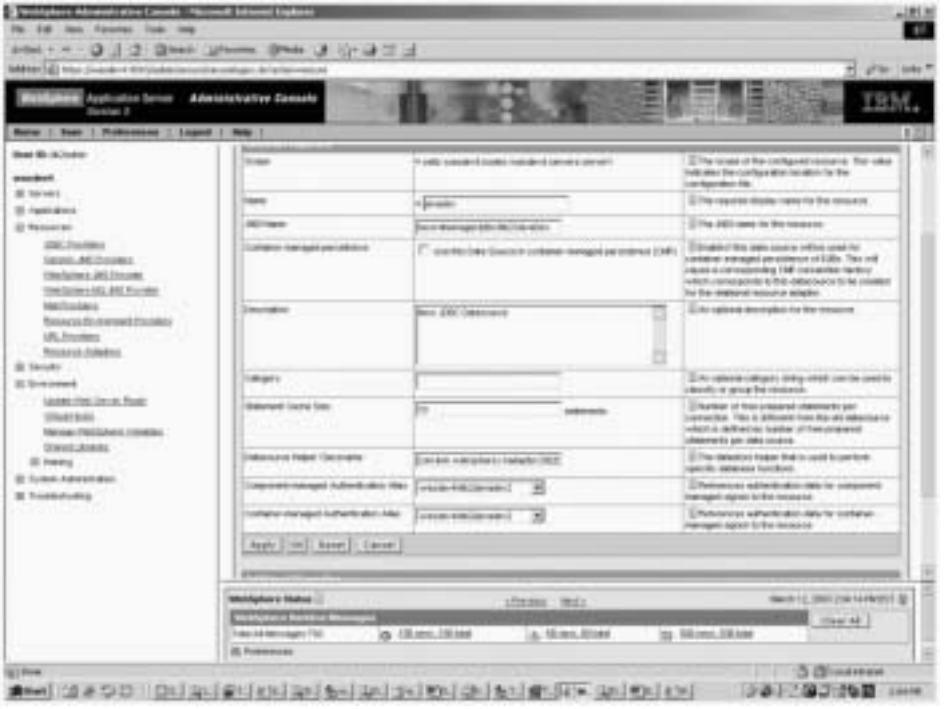
## Create DB2 Datasource

1. Resources -> JDBC Providers.
2. Click the **Server** radio button, and click **Apply.**
3. Click **New**.
4. Enter "**DB2 Legacy CLI-based Type 2 JDBC Driver (XA)**"in the name box.
5. Click **Apply**.
6. Scroll down and click **Data Sources**.



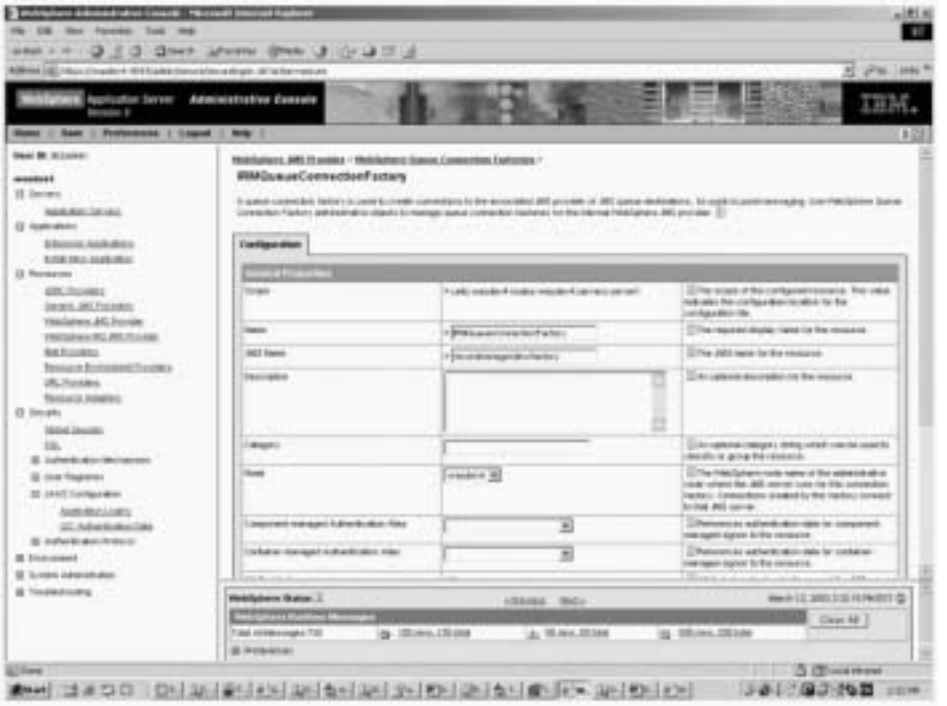

### Repeat the process for as many databases as you have created

1. Click **New**.
2. Name = [database name].
3. JNDI = recordmanager/jdbc/db2/[database name].
4. Component Managed Authentication Alias = [database name].
5. Container Managed Authentication Alias = [database name].
6. Click **Apply**.
7. Click **Custom Properties**.
8. Click Database Name.
9. Value = [database name].
10. Click **Apply**, click **OK**.
11. Click **OK**.



## Configure WebSphere JMS Provider - Queue

1. Resources -> WebSphere JMS Provider.
2. Select the **Server** radio button, and click **Apply**.
3. Click **WebSphere Queue Connection Factories**.
4. Click **New**.
5. Name = IRMQueueConnectionFactory.
6. JNDI Name = recordmanager/jms/factory.
7. Click **Apply**, click **OK**.



## Create WebSphere Queue Destinations

1. Resources-> WebSphere JMS Providers.
2. Click **Server** radio button.
3. Click **Apply**.
4. Click **WebSphere Queue Destinations**. Make three,
   a. Task
   b. Result
   c. Cancel

   .

### TaskQueue

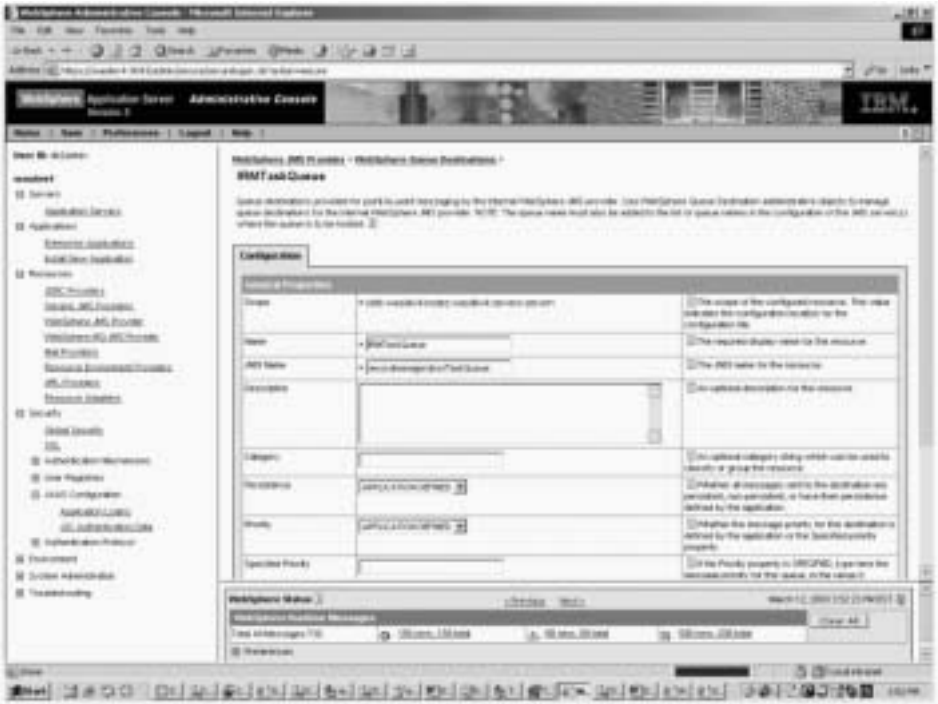
Name = IRMTaskQueue
jndiName = recordmanager/jms/TaskQueue
Persistance = Persistent
Priority = ApplicationDefined
Expiry = Unlimited

### ResultQueue

Name = IRMResultQueue
jndiName = recordmanager/jms/ResultQueue
Persistance = Persistent
Priority = ApplicationDefined
Expiry = Unlimited

### CancelQueue

Name = IRMCancelQueue
jndiName = recordmanager/jms/CancelQueue
Persistance = Persistent
Priority = ApplicationDefined
Expiry = Unlimited



## Configure WebSphere JMS Provider - Topic

1. Resources -> WebSphere JMS Provider.
2. Select the Server radio button, click Apply.
3. Click WebSphere Topic Connection Factories.
4. Click New.
5. Name = IRMTopicConnectionFactory.
6. JNDI Name = recordmanager/jms/topicfactory.

7. Port = Queued.
8. Component-managed Authentication Alias = Not Selected.
9. Container-managed Authentication Alias = Not Selected.
10. Clone Support = Unchecked.
11. Client ID = Unchecked.
12. XA Enabled = Checked.
13. Click Apply, click OK.

### Create WebSphere Topic Destinations

1. Resources -> WebSphere JMS Providers
2. Click Server radio button, click Apply.
3. Click WebSphere Topic Destinations.

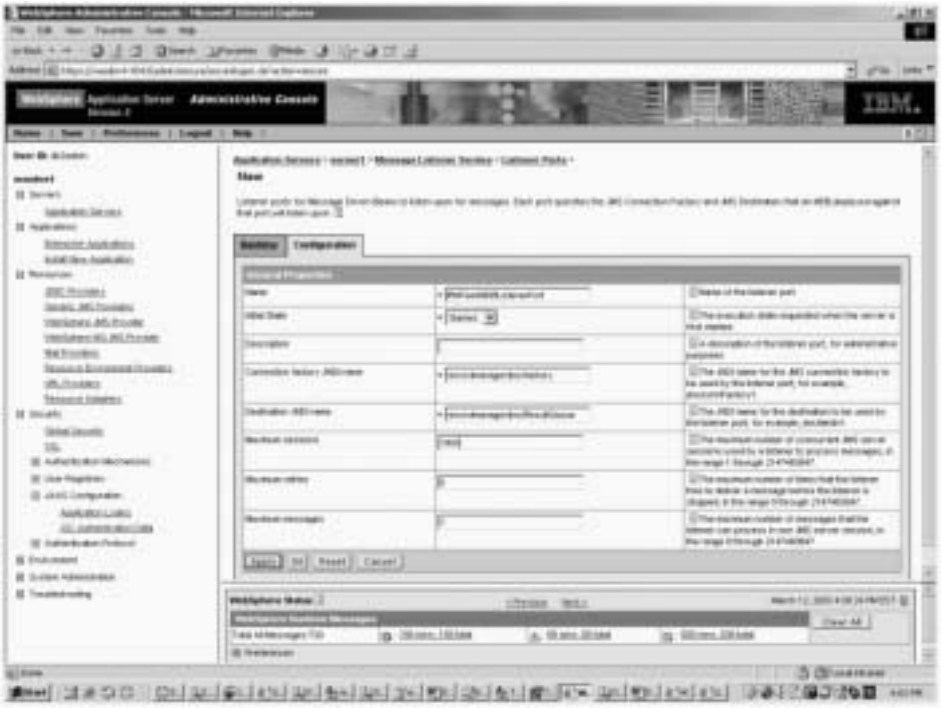
Name = IRMCacheTopic
jndiName = recordmanager/jms/CacheTopic
Category = empty
Topic = IRMCacheTopic
Persistance = persistent
Priority = ApplicationDefined
Specified Priority = empty
Expiry = Unlimited
Specified Expiry = empty

---

## Create listener ports for Message Driven Beans

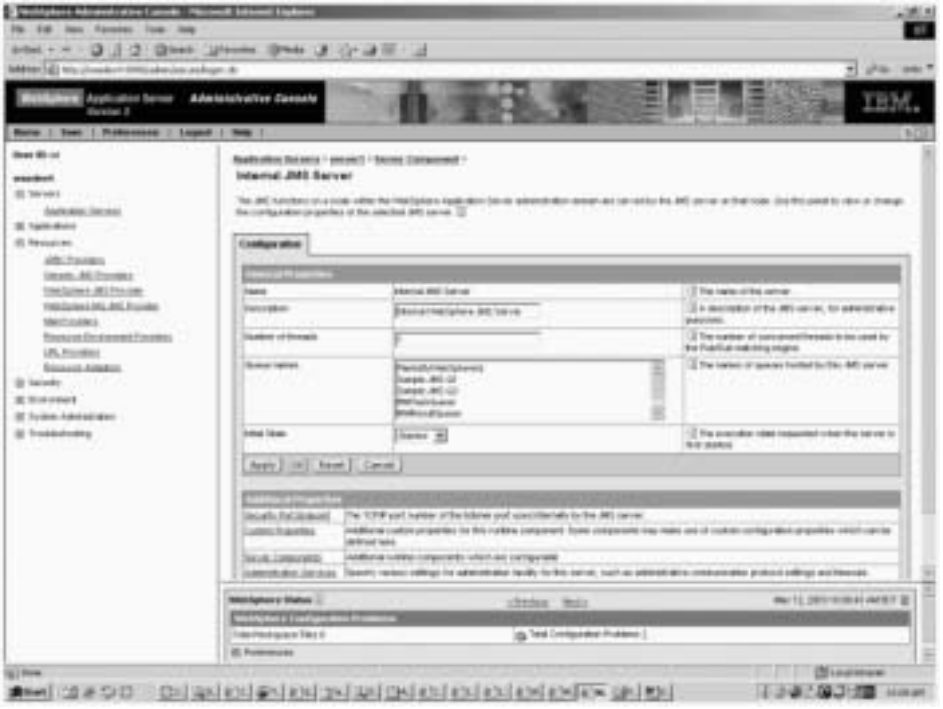
1. Servers -> Application Servers, click server1.
2. Click Message Listener Service.
3. Click Listener Ports, click New.

Name = IRMTaskListenerPort
Initial State = Started
Connection factory JNDI name = recordmanager/jms/factory
Destination JNDI name = recordmanager/jms/TaskQueue
Click Apply, click OK.



## Add Message Queues to Application Server

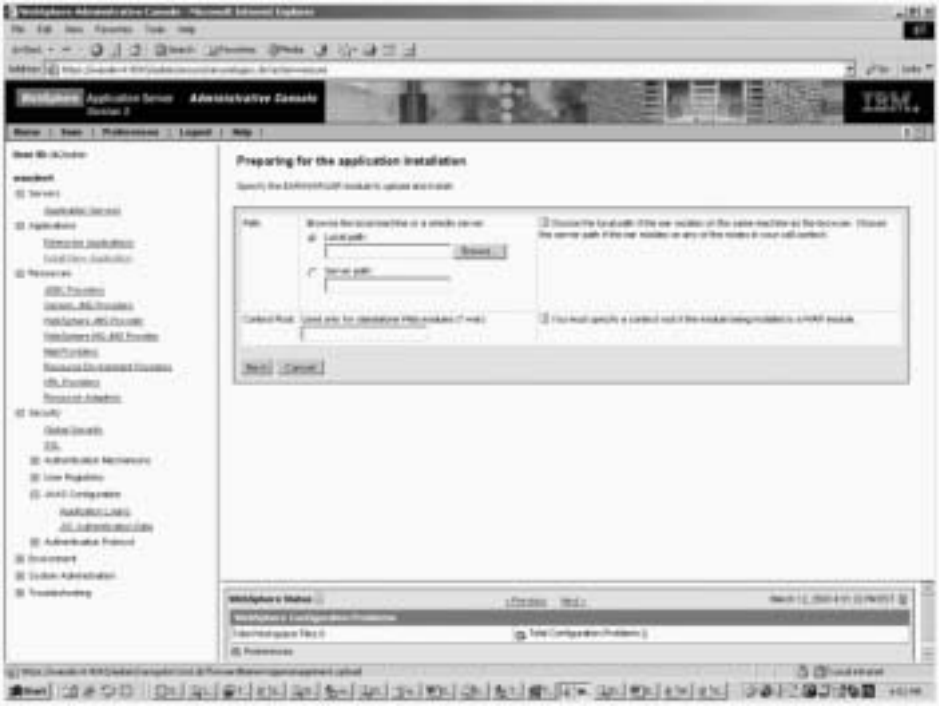
1. Go to Servers - Application Servers - server1 - Server Component.
2. In the Queue names box, manually enter the following values:
   a. IRMTaskQueue
   b. IRMResultQueue
   c. IRMCancelQueue
3. Click Apply, click OK.



Restart WebSphere application server. Ensure that it starts without errors.

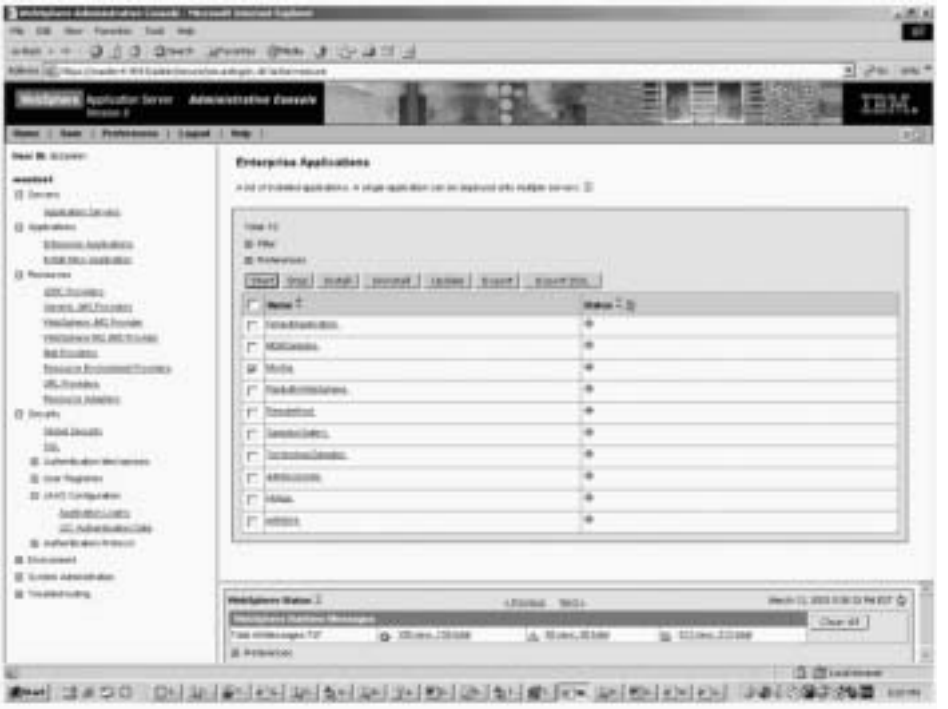
## Deploy IBM DB2 Records Manager application

1. Launch the Administrative Consol.
2. Click **Applications -> Install New Application**.
3. Click **Browse** and point to **IRMEngine.ear** in the local directory.
4. Click **Next** until the Finish button appears. No further configuration is required.
5. Click **Save to Master Configuration**.



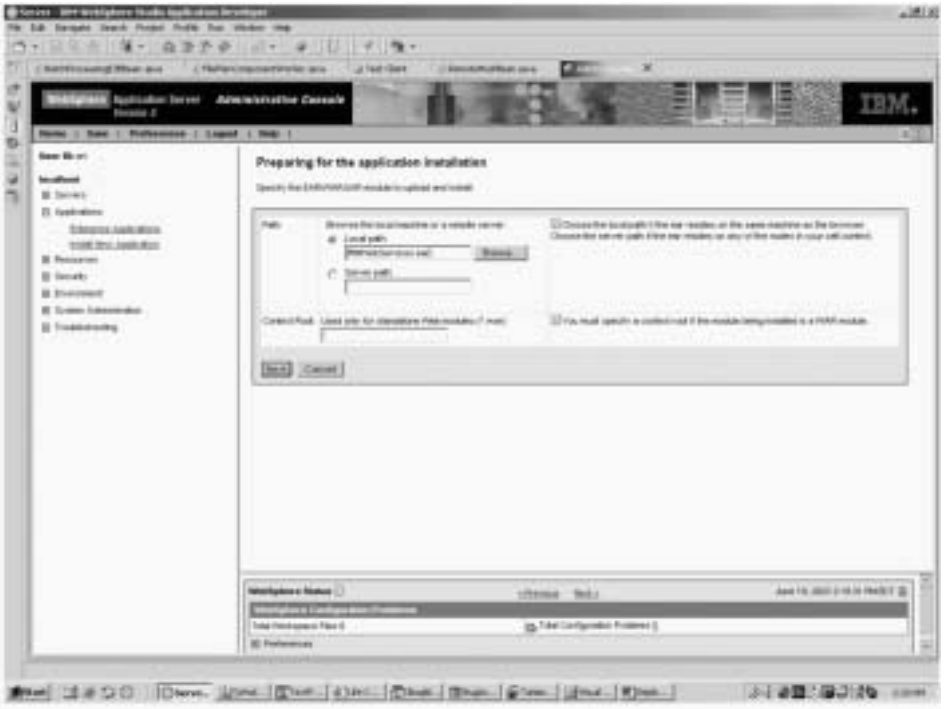

## Start the application

1. Go to **Servers > Enterprise Applications**.
2. If IBM DB2 Records Manager application is not started, check the check-box next to the IBM DB2 Records Manager application and click **Start**.



## Deploy the IRM Engine Web Services application (Optional)

1. Launch the Administrative Console.
2. From the Administrative Console go to **Applications**> **Install New Application**.
3. Click **Browse**, and point to the **IRM EnginewebServices.ear**.
4. Click **Next** until **Finish** appears. No further configuration is required.
5. Click Save to Master Configuration.




## Start the IRM Engine Web Services application (Optional)

1. Go to the Admin Console>Applications >Enterprise Applications
2. If IBM Records Manager WebServcies app is not started, check the checkbox next to it and Click **Start**.

## IBM DB2 Records Manager Administrator application Installation

### Configure the WebDeployment Descriptor for your environment

1. Make a backup copy of the distribution IRMClientEAR.ear file.
2. Go to **Start/Programs/IBM WebSphere/Application Server.**/ Application Assembly Tool: Select **Existing** and click **Browse**...
3. Select the**IRMClientEAR.ear** file and click **OK**.
4. Expand Web modules/IBM Records Manager/Web components/Environment Entries. Select irm_jndiserver.
5. Change the value to

   to iiop://your_server_name:your_server_JNDI_port

   replacing the

your_server_name:your_server_JNDI_port

with your particular settings.

**Note:** By default the port is 2809, therefore use the default unless you changed it to another value.

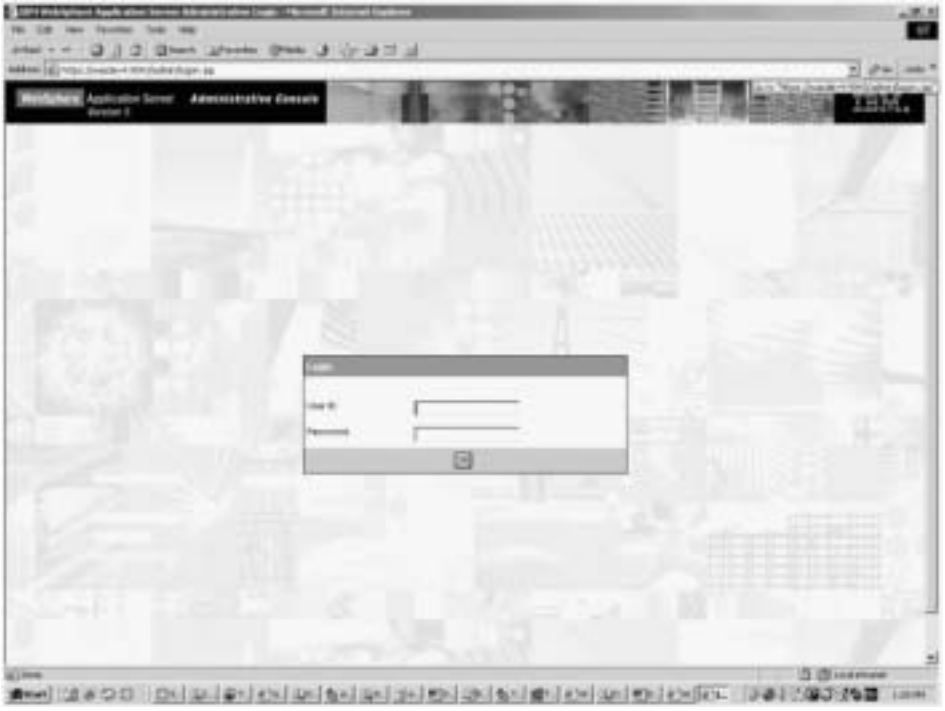
See WebSphere documentation for more details about using Application Assembly Tool. Click **Apply** and **File/Save**.

The **IRMClientEAR.ear** is now updated with your particular server settings. You can install it in WebSphere following the next procedure.

## Login to Administrative Console

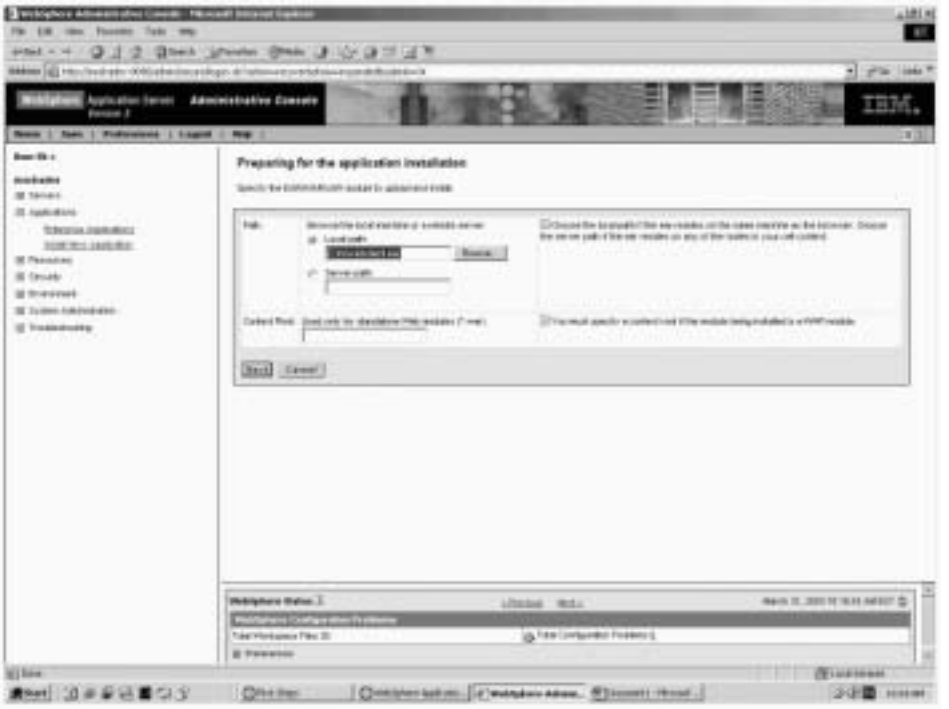
Go to Programs / WebSphere / Application Server / Administrative Console and log in.

**Note:** Depending how the server was installed you might be able to log in with any username / Password.



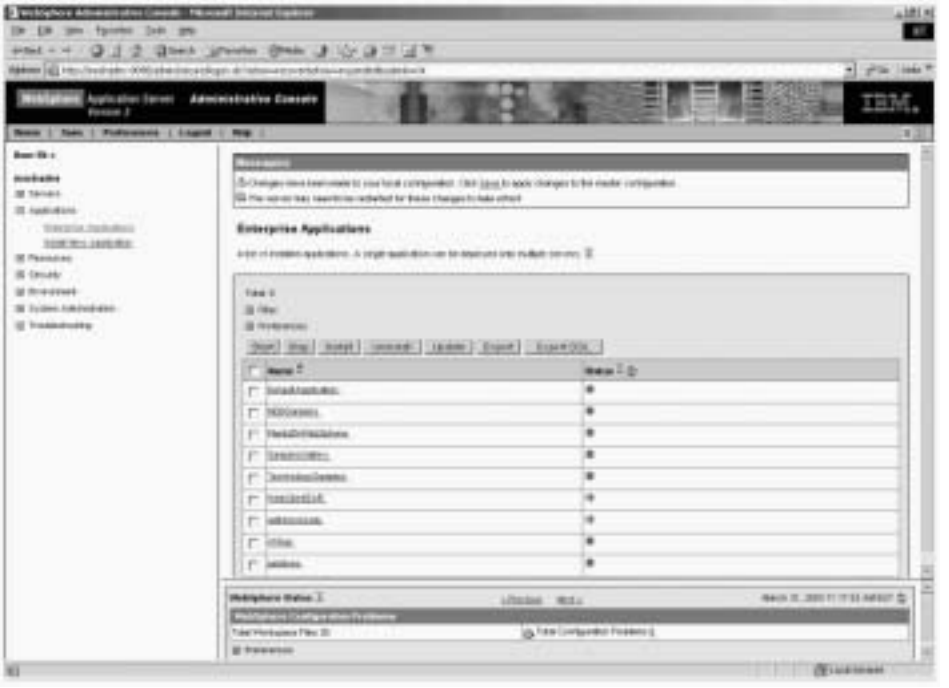
### Install the presentation layer (Client Application)

1. Go to **Application ->Install New Application**.
2. Click **Browse** and point to the updated **IRMClientEAR.ear** file.
3. Click **Next** until the **Finish** appears. No further configuration is required.
4. Click **Finish**.
5. Click **Save to Master Configuration**.




## Start Application

1. Application> Enterprise Application.
2. confirm that the IRMClientEAR is started, and if not, check the IRMClientEAR checkbox and click **Start**.



## Installation Notes for the IRM 3.1 Database on DB2

**Preparation of the Database installation and upgrade;**

Before an automatic or manual installation, the following configuration changes must be made on the database server:

**Step 1.** Configuration changes on the DB server needed to insure the authentication ------of the IBM DB2 Records Manager user specified during the DB installation:

1. Start **Administrative Tools >> Computer Management** and select/expand **System Tools >> Local Users** and **Groups >> Users**.
2. Start **Administrative Tools >> Computer Management**, and **select/expand System Tools >> Local Users** and **Groups >> Users** and then **Action >> New User** to create a new Windows 2000 local user.
3. Enter the following information about the new user
   - User name = RM user name
   - Password = RM user password
   - User must change password at next logon = No
   - Password never expires = Yes.

## MANUAL RM DATABASE INSTALLATION

The database can be installed manually by using scripts (or the equivalent javacommand) from the ″DB2DBInstall″ folder. Each step terminates immediately and returns an non-zero error code when a fatal error is encountered.

**Step 1.** Find out what is the node name alias for the DB2 instance where the Records Manager ------ database is going to be created.

1. When you work on the database server, use **DB node alias** as the name of the instance.
2. When you work remotely, the DBA must create the alias. Do this before running the Records Manager database installation scripts.

**Step 2.** Set the environment variable needed to locate the Java JAR file and ------ the libraries, and set the current directory.

Assuming that: - variable IN=...\DB2DBInstall (absolute path)
- variable IP=%IN%\InstallProgs
- variable MC=com.ibm.gre.dbdevman.DBDMStartPoints.DB2DBInstall

then execute:

SETCLASSLIBS=%IP%\DB2DB
Install.jar;%IP%\Libraries\DB2JAVA.ZIP;%IP
%\Libraries\log4j-1.2.8.jarCD %IN%

**Step 3.** Create the Record Manager database and instance.

1. Create the Record Manager database and instance by running
   java -classpath
   ″%CLASSLIBS%″ %M
   C% %IN% CreateDB <arg1> <arg2>...
   or
   DB2DBInstall
   %IN% CreateDB <arg1> <arg2>...

   from Command Prompt with the following arguments:

   NodeName: DB node/instance name/alias (containing the RM database)
   SAUserName: SysAdm user name
   SAUserPwd: SysAdm user pwd
   DBName: IRM database name and alias
   DftDBDisk: IRM database default disk
   DataFolder: IRM database containers folder (for tablespace containers)
   UserName: IRM user name (owner of the RM schema)
   UserPwd: IRM user pwd

DBTerritory: IRM database territory( e.g. US, CA, FR)
DBCollation: IRM database collation (SYSTEM, IDENTITY)

2. Create the Record Manager data and code objects, and load the initial records in some tables by running,

   java -classpath
   ″%CLASS
   LIBS%″ %MC% %IN% BuildSchema <arg1> <arg2>...

   or

   DB2DBInstall
   %IN% BuildSchema <arg1> <arg2>...

   from Command prompt with the following arguments:

   DBName: IRM database alias
   UserName: IRM user name (owner of the RM schema)
   UserPwd: IRM user pwd
   SchemaLocale: IRM schema locale (with Java Locale specifier)
   Formats: lang or lang_country (e.g. en_US)

3. Load an initial custom File Plan, by running

   java -classpath
   ″%CLASSLIBS%″ %MC% %IN%
   LoadFilePlan <arg1> <arg2>...

   or

   DB2DBInstall %IN%
   LoadFilePlan <arg1> <arg2>...

   from Command Prompt with the following arguments:

   Operation = LoadFilePlan
   DBName: RM database alias
   UserName: RM user name (owner of the RM schema)
   UserPwd: RM user pwd
   FilePlan: initial RM file plan (values: ″Default″)

## MANUAL RM DATABASE UPGRADE

The database can be upgraded manually by using scripts (or the equivalent java command) from the ″DB2DBInstall″ folder.

**Note:** The script or the equivalent java command should be called with the ″DB2DBInstall\InstallFiles″ folder as current directory.

**Step 1.** Determine the database alias for the RM database.

1. When you work on the database server, the name of the database should be used as database alias.
2. When you work remotely, the alias must be created by the DBA using DB2 Configuration Assistant before running the RM database upgrade scripts.

**Step 2.** Set the environment variable needed to locate the Java JAR file and ------ the libraries, and set the current directory.
Assuming that:

variable IP=...\InstallProgs (absolute path)
variable IF=...\InstallFiles (absolute path)
variable MC=com.ibm.gre.dbdevman.DBDMStartPoints.DB2DBInstall

Then execute:

SETCLASS
LIBS=%IP%\DB2DBInstall.jar;%IP%\Libraries
\DB2JAVA.ZIP;%IP%\Libraries\log4j-1.2.8.jar
CD %IF%

**Step 3.** Upgrade the IRM 2.1.1 DB2 database to IRM 3.1 by running

java -classpath
"%CLASSLIBS%" %MC% %IN% UpgradeDB211to31 <arg1> <arg2>...

or

DB2DBInstall %IN% UpgradeDB211to31 <arg1> <arg2>...

from Command Prompt with the following arguments:
NodeName: DB node/instance name/alias (containing the RM database)
DBName: IRM database name and alias SAUserName: SysAdm user name
SAUserPwd: SysAdm user pwd
DataFolder: IRM database containers folder (for new tablespace container)
UserName: IRM user name (owner of the RM schema)
UserPwd: IRM user pwd SchemaLocale: IRM schema locale (with Java Locale specifier)
Formats: lang or lang_country (e.g. en_US)

## DIRECT CALLS FROM JAVA PROGRAMS

1. The installation operations can be executing directly by calling the following static method:

   public static boolean mainInstallDB(String[] args) {
      from the class

com.ibm.gre.dbdevman.DBDMStartPoints.DB2DBInstall
stored
in DB2DBInstall\InstallProgs\DB2DBInstall.jar.

2. The argument **args** contains the following

   :args[0] = absolute path of the DB2DBInstall
   folder
   args[1] = operation:
   ″CreateDB″, ″Build Schema″, ″LoadFilePlan″,
   ″UpgradeDB211to31″
   args{i] = operation specific arguments
   (see above for details)

3. The mainInstallDB method returns:
   true - if DB installation/upgrade operation completed successfully
   true - if DB installation/upgrade operation failed

4. Details about the
   DB installation/upgrade operation failure
   can be found in the DB install/log files
   created in the DB2DBInstall folder.

   **Note:** The CLASSLIB variable must be set as described above.

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# Glossary

## A

**API.** Application Programming Interface

**application programming interface.** A software interface that enables applications to communicate with each other. An API is the set of programming language constructs or statements that can be coded in an application program to obtain the specific functions and services provided by the underlying licensed program.

**archive.** Persistent storage used for long-term information retention, typically very inexpensive for each stored unit and slow to access, and often in a different geographic location to protect against equipment failures and natural disasters.

**attribute.** A unit of data that describes a certain characteristic or property (for example, name, address, age, and so forth) of an item, and which can be used to locate that item. An attribute has a type, which indicates the range of information stored by that attribute, and a value, which is within that range. For example, information about a file in a multimedia file system, such as title, running time, or encoding type (MPEG1, H.263, and so forth).

**attribute group.** Convenience grouping of one or more attributes.

## B

**base attributes.** A set of indexes that is assigned to each object.

**binary large object.** A sequence of bytes with a size ranging from 0 bytes to 2 gigabytes. This string does not have an associated code page and character set. Image, audio, and video objects are stored in BLOBs.

**BLOB.** See binary large object

## C

**Class.** In object-oriented design or programming, a model or template that can be instantiated to create objects with a common definition and therefore, common properties, operations, and behavior. An object is an instance of a class.

**client application.** An application written with the Content Manager APIs to customize a user interface.

## D

**DAO.** Data access objects. They are object created with Visual Basic.

## J

**JDBC.** Java database connectivity

**Java Virtual Machine.** interprets compiled Java binary code for a computer's processor so that it can perform a Java program's instructions.

## O

**ORB.** Object Request Broker acts as a "broker" between the client request for a service from a component and the completion of the request.

## S

**SQL.** Structure Query Language, SQL is an American National Standards Institute. standard computer language for accessing and manipulating database systems. SQL statements are used to retrieve and update data in a database.

## W

**WSDL.** Web Services Description Language. It is an XML based language. You use it to describe the services you offer and you provide the means to access the services electronically. WSDL is derived from SOAP and from IBM's Network Accessible Service Specification Language.

# List of Abbreviations

**API** Application Programming Interface

**CORBA**
Common Object Request Broker Architecture

**DBMS**
Database Management System

**DoD 5015.2**
Department of Defense 5015.2

**ECD** Engineering Change Document

**EJB** Enterprise Java™ Bean

**IIOP** Internet Inter-Orb Protocol

**IRM** IBM DB2 Records Manager

**J2EE** Java 2 Enterprise Edition

**JMS** Java Messaging Service

**JSP** Java Server Pages

**JVM** Java virtual machine

**ORB** Object Request Broker

**RMI** Remote Method Invocation

**SOAP** Simple Object Access Protocol

**SQL** Structured Query Language

# Summary of Changes

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