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# IBM® WebSphere® Application Server V6

## *Application Installation*



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Updated March 1, 2005

This presentation will focus on the basics of application installation in WebSphere Application Server, Version 6.

## Goals

You will learn to:

- Manage applications
- Install an application
- View/Update application bindings and other deployment-specific information
- Uninstall an application



The goal of this presentation is to discuss application management.

We will talk about how to manage applications, that is, how to install an application, how to view or update application bindings and other deployment specific information, and how to uninstall an application.

We will also talk about fine grained application update, which is one of the new features in WebSphere Application Server version 6.

## Agenda

- Installing an application
  - ▶ Administrative Console
  - ▶ wsadmin
- Other operations using the Administrative Console and wsadmin
  - ▶ Viewing/Editing application-related information
  - ▶ Shared libraries



The agenda for this presentation applies to both the Network Deployment packaging and the Express packaging of WebSphere Application Server. This presentation will discuss installing an application, as well as some other operations performed through the Administrative Console and wsadmin. It will also discuss application-related information, how to view and edit this information, and discuss shared libraries.

## Section

# *Installation*



This section will discuss installation.

## Administrative Console

- Administrative Console provides a wizard
- Deployer provides necessary information:
  - ▶ JNDI names of Enterprise Java™ Beans (EJBs)
  - ▶ Target Mappings to server/cluster
  - ▶ Can map application to a Web server
  - ▶ Web services bindings
- Applications >Enterprise Applications >Install an Application



The Administrative Console provides a wizard for installing the application. This is very similar to version 5. The deployer will provide necessary information during the installation of the application, such as JNDI names of an EJB, bindings, and target mappings to servers or clusters, which means which servers the application will run on.

Something new in version 6 is the ability to specify a Web server as a target. So in addition to associating an application with a specific application server, you can also associate an application with a specific Web server. Generating the Plug-in for the HTTP server in version 6 is application centric, meaning that WebSphere Application Server will create a Plug-in file for each Web server, based on the list of applications that are deployed on that Web server.

Finally, Web Services bindings can be specified during the installation of an application. To install application using the Administrative Console, under Applications click Enterprise Applications, then Install an Application.

## wsadmin

- Interactive install
  - ▶ Prompts user for binding information
  - ▶ \$AdminApp installInteractive c:/MyApp1.ear
- Non-interactive install
  - ▶ Bindings could be pre-configured in EAR or specified on command
  - ▶ \$AdminApp install c:/MyApp1.ear
- Use the wsadmin –conntype NONE option if server is stopped
- List all installed Applications
  - ▶ \$AdminApp list
- Invoking help text
  - ▶ \$AdminApp help
  - ▶ \$AdminApp help installInteractive



To install an application using wsadmin, you can either do an interactive install or a non-interactive install. When you do an interactive install, the command line installer will prompt you to specify any binding information. You will need to specify, for example, the JNDI names for your EJBs, your resource reference bindings, and so on during installation. The method for doing an interactive install is the command “\$AdminApp installInteractive” followed by the path to your EAR file.

A non-interactive install is available if your application contains all the binding information. Packaging tools like the Application Server Toolkit or IBM® Rational® Application Developer, allow you to provide all the bindings within the EAR file. You may also specify binding information on the install command.

It is worth noting that once you run an interactive install, the non-interactive command for the exact same thing is placed in the logs, which can be very helpful in automating your installations.

Using the AdminApp command within wsadmin is available in even if the server is not running, by using the command line option conntype none. Using this connection type places wsadmin in local mode where it interacts directly with the XML files that are in the repository. However, not all of the commands in wsadmin are available in local mode, such as the start/stop Application commands.

In order to see all the commands that are available for the AdminApp object, enter “AdminApp help”. For specific command help, enter “AdminApp help” and then the command.

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## Other Operations

- Administrative Console has uninstall function
- Resources associated with the application are not removed
- Uninstalling applications using wsadmin
  - ▶ wsadmin -c "\$AdminApp uninstall WebSphereBank"
- Applications can also be started and stopped
- Export applications to file system
- Export table data definition language (DDL) file

**Enterprise Applications**  
Lists installed applications. A single application can be deployed onto multiple servers.

Preferences

Start Stop Install Uninstall Update Rollout Update Remove File Export Export DDL

Select	Name	Status
<input type="checkbox"/>	WebSphereBank	⊙

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Any of the functions that are available in the Administrative Console are also available in wsadmin. One example is the uninstall function in the Administrative Console . Keep in mind that the resources that are associated with the application are not removed, only the application configuration itself. To uninstall the WebSphereBank application using wsadmin, you would use the command wsadmin -C "\$AdminApp uninstall WebSphereBank". Applications can also be started and stopped using either the Administrative Console or wsadmin. Applications can be exported to the file system, and it is possible to export the table data definition language (DDL) file. The table DDL file describes to a database the structure of the data used by the application.

There are two other buttons illustrated here that haven't been mentioned yet: the Update, and the Rollout Update buttons. The update button is used to do fine grained application update, which will be discussed in another presentation. The Rollout Update button is used to rollout the update to one node at a time, thus keeping the application running on at least some of the nodes at any given time.

## Application-Related Information

- Select Applications > Enterprise Applications > Select an application
- Application Binaries
  - ▶ Determines location
  - ▶ Use Meta-data From Binaries: determines meta-data location
- Classloader Mode
  - ▶ PARENT\_FIRST: Search immediate parent first
  - ▶ PARENT\_LAST: Try to load class before delegating
- WAR Classloader Policy
  - ▶ Module: Each web module gets its own Classloader
  - ▶ Application: Web Modules use Application Classloader

Classloader details covered in separate presentation



If you select applications, then enterprise applications, then select an application, you can enter the general properties for the application, as illustrated here.

When application is installed, WebSphere Application Server keeps two copies of the metadata. The copy within the binaries remains unchanged, while the other copy is the one that can be modified by the deployer during the installation process. Selecting “Use Metadata From Binaries” assures that the metadata from the deployment descriptors within the EAR file are used rather than the metadata where configuration changes may have been made during installation.

Classloader Mode determines how the classes are loaded, and in which order. Classloader mode can be set at application server level, application level, or the WAR (or Web Module) level.

PARENT\_FIRST is the default Classloader mode. The behavior is to search the immediate parent first and then its policy would determine if that got searched first or its parent.

PARENT\_LAST mode tries to find and load the class from its own classloader and if the class was not found, it delegates to its immediate parent classloader, and then the immediate parent’s classloader policy would take control.

WAR Classloader Policy determines how the WAR modules are loaded per Application. At the Enterprise Application level, choose APPLICATION or MODULE.

If you select APPLICATION, all the Web modules in the application EAR use the Application Classloader (dictated by the Application Classloader Policy)

For MODULE, every WAR uses its own Classloader, different than the Application Classloader.

More complete Classloader details are covered in a separate module.



## Viewing/Editing Application-Related Information

Modify Session Management, Application Profile Information

Add Shared Libraries to the application

Modify application binding virtual host information (EJB bindings, datasource bindings, reference bindings)

Click individual module to view/edit module level information (Web Services Security bindings)

**Additional Properties**

- [Session Management](#)
- [Application Profile](#)
- [Libraries](#)
- [Target Mappings](#)
- [Last Participant Support Extension](#)
- [View Deployment Descriptor](#)
- [Publish WSDL](#)
- [Provide JNDI Names for Beans](#)
- [Map EJB references to beans](#)
- [Map datasources for all 2.0 CMP beans](#)
- [Provide default datasource mapping for modules containing 2.0 entity beans](#)
- [Map virtual hosts for web modules](#)
- [Map resource env entry references to resources](#)
- [Map modules to application servers](#)

**Related Items**

- [Web Modules](#)
- [EJB Modules](#)
- [Connector Modules](#)

Under the Additional Properties section of each application you will see the links that are illustrated here. Here you can modify the Session Management settings and Application Profile information. Application Profile is one of the Programming Model Extensions that was there in version 5.1 Enterprise Edition which is now available in version 6.0. It was known as dynamic access intent, a way to dynamically assign Access Intents for EJBs based on the client that is accessing the EJB. You can also add shared libraries to the application by clicking on libraries. Last participant support is another Programming Model Extension. From additional properties you can also view the deployment descriptor, publish the WSDL, modified the application bindings, provide JNDI names for beans, map references for EJBs, and set up data sources, all using the Administrative Console. Also, under the related items, you can click on a particular module and view or edit module level information.

## Shared Libraries for J2EE Applications

- For code that needs to be shared among applications
  - ▶ Can be either common jar(s) or native libraries
- Under Environment -> Shared Libraries
  - ▶ Click New
- Under Applications -> Enterprise Applications
  - ▶ Select application
  - ▶ Click Libraries
  - ▶ Click Add
  - ▶ Select library from list

**Shared Libraries > New**  
Specifies a container-wide shared library that can be used by multiple applications.

Configuration

**General Properties**

\* Name  
MySharedLib1

Description  
my shared libraries for use in applications

\* Classpath  
C:\mydir\mysharedlib1.jar

Native Library Path

Can specify a jar file or directory

Shared Libraries are useful for code that needs to be shared between applications. Using the administrative console, under environment, then shared libraries, you can click new to create a new shared library. The Classpath field points in the directory structure to the jar file for the shared code. Under each application, you can click on Libraries and associate shared libraries from a list.



## Summary

- The Administrative Console and wsadmin can be used for various application management tasks:
  - ▶ Install/uninstall an application
  - ▶ View/Update application bindings and other deployment-specific information
  - ▶ Start/stop applications
  - ▶ Export applications



The Administrative Console and wsadmin provide support for a variety of application management tasks.

These include: Installing and uninstalling an application, viewing and updating application bindings and other deployment specific information, starting and stopping applications, and exporting an application.

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