


IBM® WEBSHERE® APPLICATION SERVER V6.0– LAB EXERCISE

WebSphere Application Server - Express V6 Installation Guide

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What this exercise is about

The objective of this lab is to show you how to install WebSphere Application Server V6 Express edition. This lab will show a basic install, and creation of a new profile for the application server. This will show a number of the options when creating a new profile and then demonstrate a number of command line tools for working with profiles.

Lab Requirements

Instructions and subsequent documentation use symbolic references to directories which are listed as follows:

Location Reference	Linux example	Windows example
<WAS_HOME>	/opt/WebSphere/AppServer	C:\WebSphere\AppServer
<RWD_HOME>	/opt/RSDP	C:\RSDP
<TEMP>	/tmp	C:\temp

You will need the appropriate operating system WAS60 CD or install images to complete this lab.

Space Requirements:

If you are going to download the CD images from the website, make sure that you have enough space on your file system.

- Temporary Disk Space for install Image : approximately 2.23GB and additional space for unzipping the files
- Disk space for product and profile creation: approximately 1GByte

Unzipping the Installation images:

- Create a directory under <TEMP>

Windows Example: C:\temp\was60

- Download the appropriate install images from the website to <TEMP>/was60 .

For Example:

Windows

```
wasexpress60gm.rwd.disk1.windows.zip
wasexpress60gm.rwd.disk2.windows.zip
wasexpress60gm.rwd.disk3.windows.zip
wasexpress60gm.server.windows.zip
```

Linux

```
wasexpress60gm.server.linux.tar.gz
```

- Create new directory unpack under <TEMP>/was60 and navigate to <TEMP>/was60/unpack
- Unpack image to <TEMP>/was60/unpack directory.
 - Use the unzip utility to unzip the product image.

Windows Example: **unzip ../wasexpress60gm.server.windows.zip**

- Use the gzip to unpack the install image.

Linux Example: `gzip -cd ../wasexpress60gm.server.linux.tar.gz | tar -xvf -`

Note: Latest unzip utility can be found at <http://www.info-zip.org/pub/infozip/UnZip.html> . Latest gzip can be obtained from <http://www.gzip.org/#exe>

What you should be able to do

At the end of this lab you should be able to:

- Install WebSphere V6 Express.
- Create and configure a server profile for your application server.

Introduction

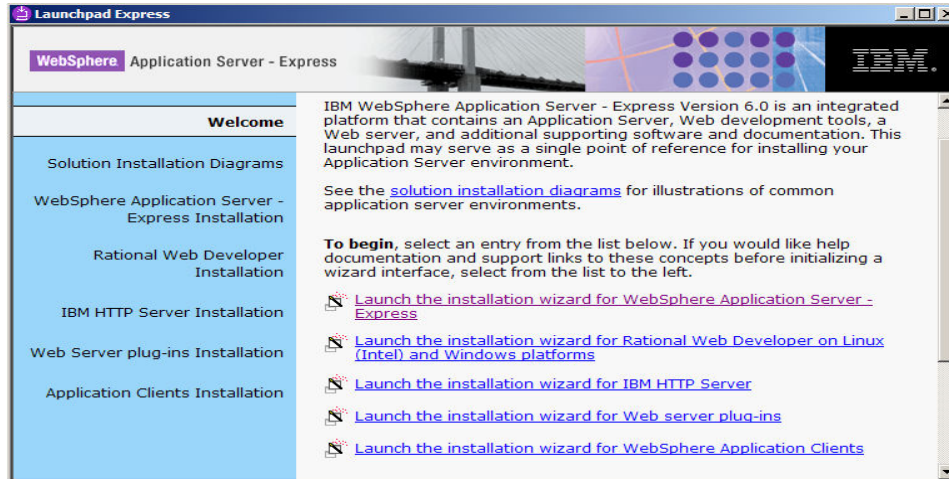
Installation of WebSphere has undergone some significant changes in version 6 with the addition of server profiles. Application Server installation is simplified and faster with the introduction of profiles. Profiles allow administrators to manage the server configurations independently from the product binary files.

The biggest improvement to installation is that now you can install one copy of the core files (binary system files and such) on a machine, then use *profiles* to define multiple application server runtime environments -- each with its own administrative interfaces -- that share the core files. This has many positive ramifications for preparing, installing, maintaining, and removing installations, including a decreased footprint.

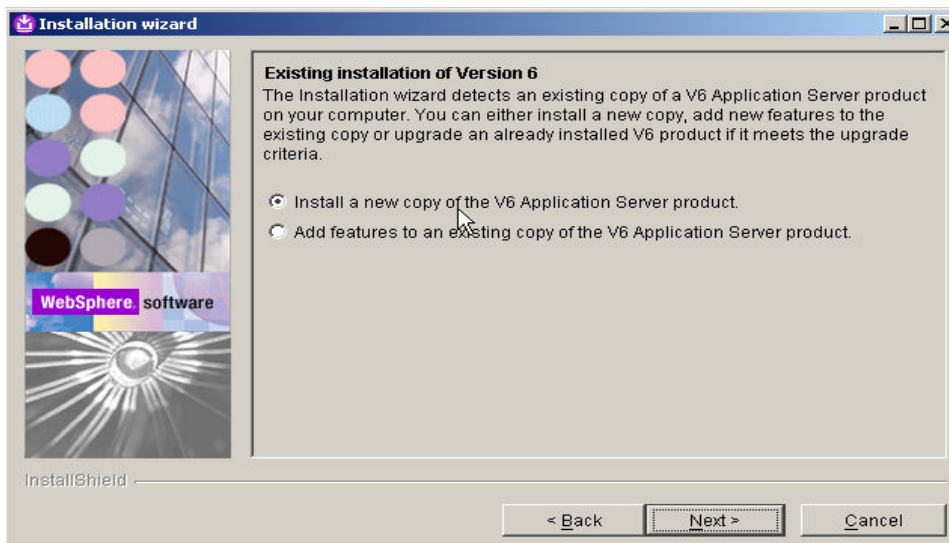
Rational Web Developer (RWD) is included with Express, and has several improvements of its own. To save time and trouble for developers who build applications with WebSphere Application Server, Version 6 includes a new wizards-based, drag-and-drop environment that automates the most common and tedious steps of application development and deployment. By eliminating hand coding, developers can significantly reduce the number of programming steps previously needed to build an application. These features also allow developers to build and test applications once and deploy them across many disparate systems.

Part 1: Installing WebSphere and Creating a Profile

1. Open the command prompt, browse to the directory where the installation images are present and issue the command **launchpad.bat for windows and ./launchpad.sh** for UNIX.
2. The following screen appears. We are going to install the application server so select **Launch the installation wizard for WebSphere Application Server - Express**.

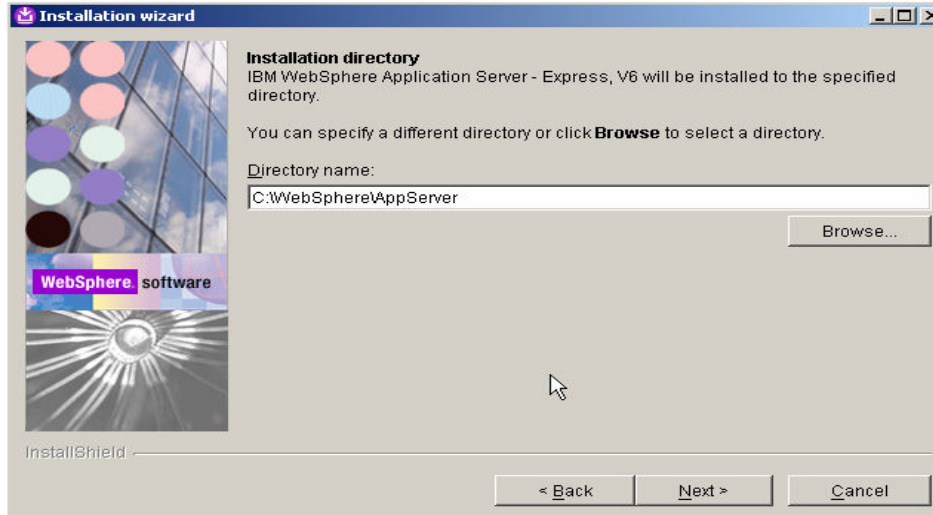


3. Review the information on the Welcome screen and click **Next**.
4. Accept the license agreement and click **Next**.
5. Verify that your system passes the prerequisite check and click **Next**.
6. If another copy of Application server installation is present on the system, the following screen is displayed. Select **Install new copy** and Click **Next** to continue.

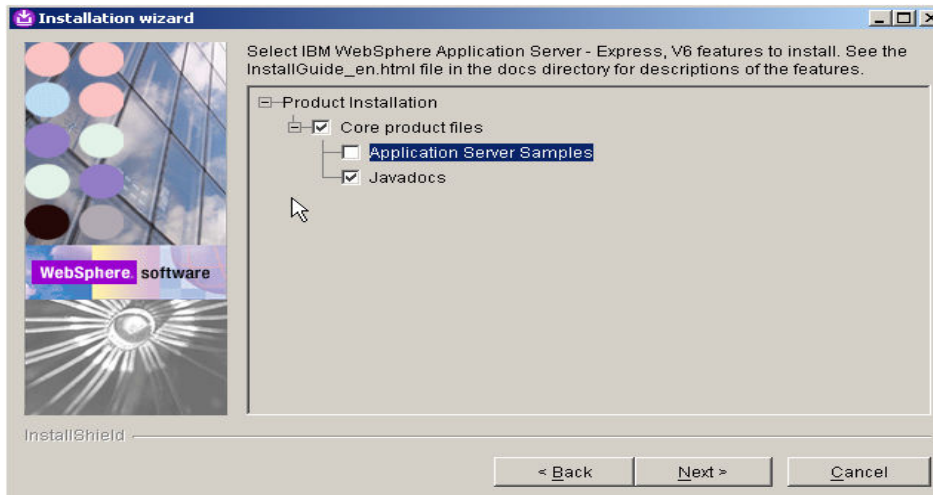


7. On the next screen you can select the installation directory.

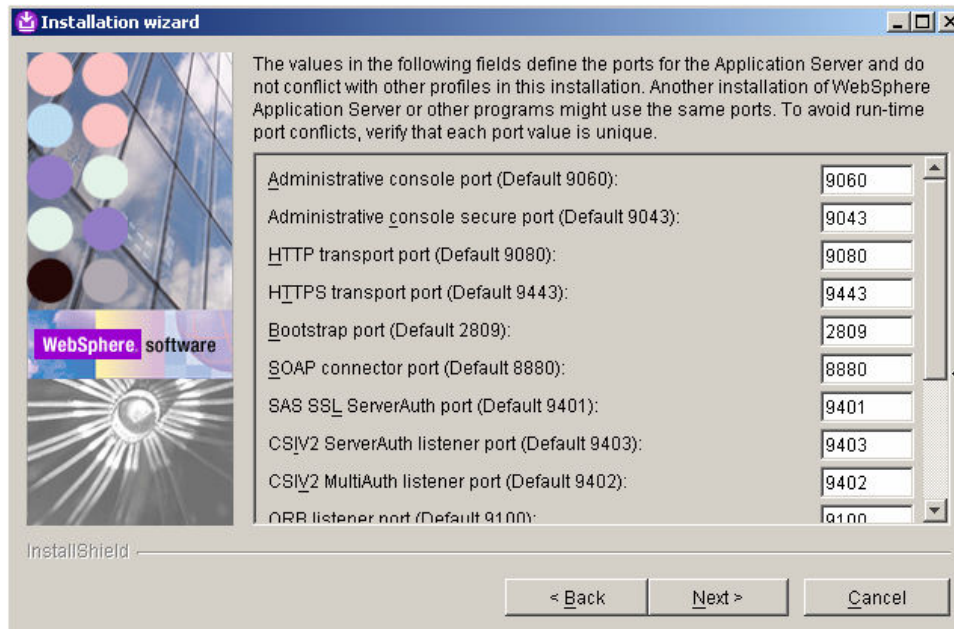
- ___ a. Type **C:\WebSphere\AppServer** as installation path for **Windows**
- ___ b. Type **/opt/ WebSphere/AppServer** for Linux
- ___ c. Click **Next** to continue.



- ___ 8. On this screen you can select the components to be installed. Unselect the checkbox for **Application Server Samples** and click **Next**.



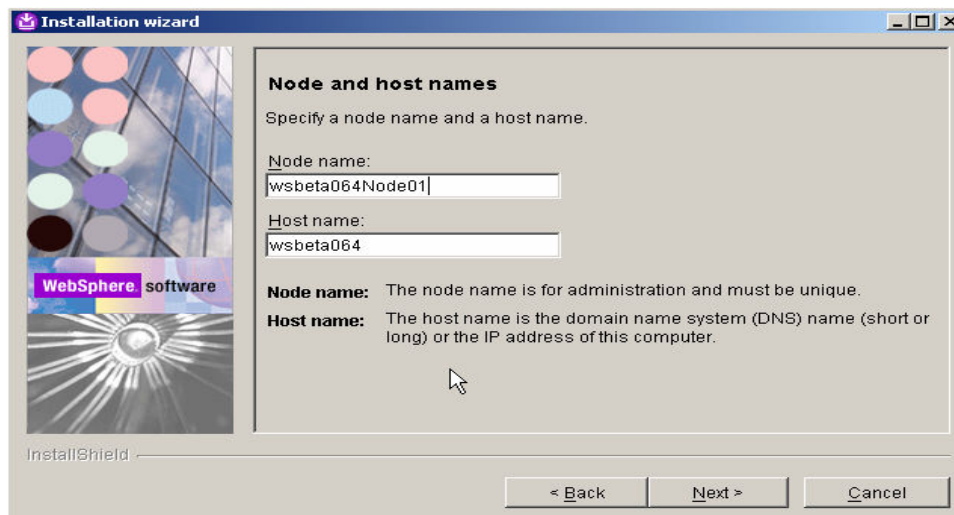
- ___ 9. The next screen presents a summary of the ports that will be used by the profile. Click **Next** to continue.



- ___ 10. On this screen you enter in the Host and node name for the profile you are creating making sure to match the criteria for uniqueness. The profile creator should generate unique names for you.

The node name generated by the profile creator uses your **hostname+”Node”+ numericalvalue**. The numerical value is incremented each time a new profile is being created.



- ___ a. In this example keep the default values and click **Next**.

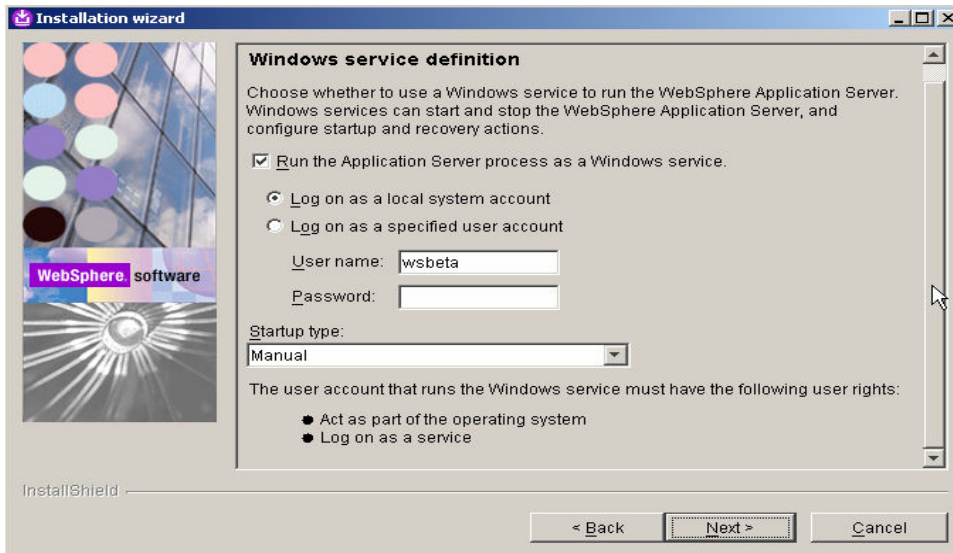


- ___ 11. **Select** the checkbox next to **Run the Application Server process as a Windows service** and click **Next**. If you want to select the option Log on as specified user account, make sure that the user account information you provide must have the following rights

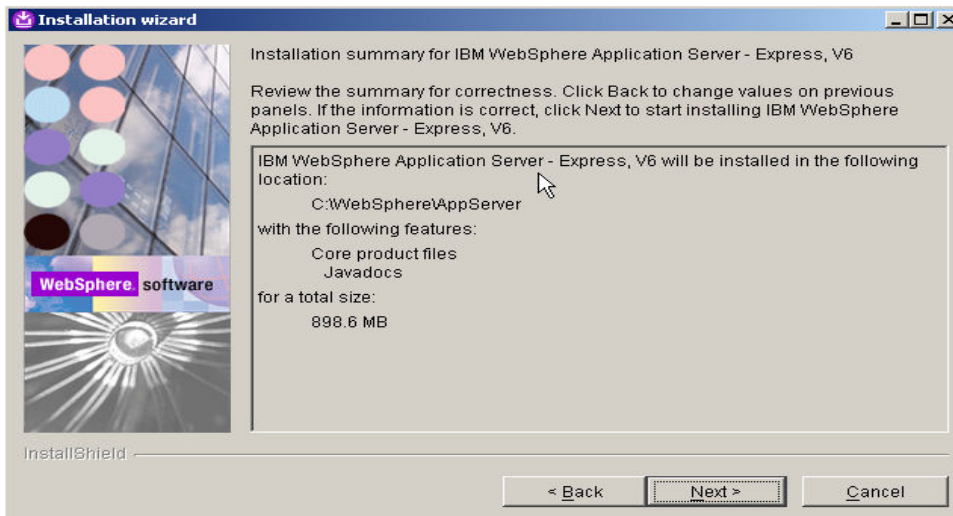
- ___ a. Act as part of operating System

__ b. Log on as service

Note: This screen does not appear for   platforms.



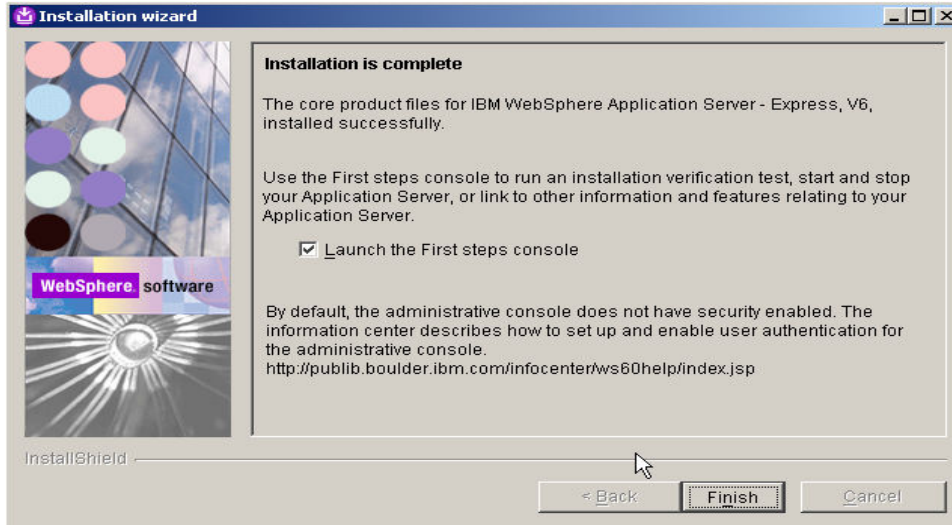
- ___ 12. The next screen will provide a summary of the profile you are about to create. Review the information and click **Next** to begin the profile creation. This process will take a while, now would be a good time to stretch your legs.



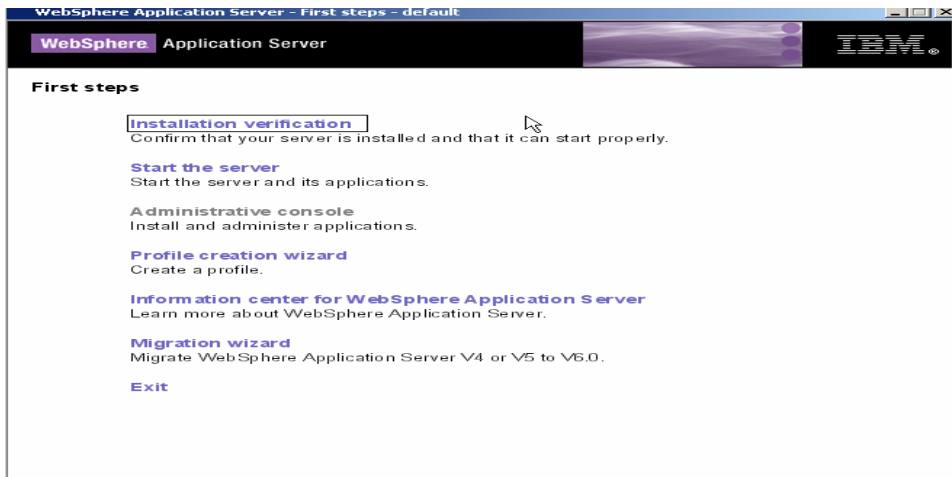
13. After the profile has been created you will be presented with the option to launch the First steps console. Leave the check box selected and click **Finish**.

At this particular point, a default profile has been created for you. The profile name is **default** and it should appear under <WAS_HOME>/profiles

By default one profile called **default** is created during the installation of the product. In order to create additional profiles, refer to the section [Working with Profiles](#)



14. Now verify that the installation was successful. You can do this from the First Steps window. In the **First Steps** window, select **Installation Verification**.



- ____ 15. Verify that your install passes verification and close the window. There may be some exceptions related to the ivtserver, these can be ignored, it is just an issue with this driver.



```
First steps output - Installation verification
Server name is: server1
Profile name is: default
Profile home is: C:\WebSphere\AppServer\profiles\default
Profile type is: default
Cell name is: wsbeta064Node03Cell
Node name is: wsbeta064Node01
Current encoding is: Cp1252
Server port number is: 9080
IVTL0020I: Could not connect to Application Server, waiting for server to start
IVTL0010I: Connecting to the WebSphere Application Server wsbeta064 on port: 9080
IVTL0020I: Could not connect to Application Server, waiting for server to start
Start running the following command: cmd.exe /c "C:\WebSphere\AppServer\profiles\default\bin\startServer.bat" server1
>ADMU0116I: Tool information is being logged in file
>
> C:\WebSphere\AppServer\profiles\default\logs\server1\startServer.log
>ADMU0128I: Starting tool with the default profile
>ADMU3100I: Reading configuration for server: server1
>ADMU3200I: Server launched. Waiting for initialization status.
>ADMU3000I: Server server1 open for e-business; process id is 3324
IVTL0015I: WebSphere Application Server wsbeta064 is running on port 9080 for profile default
Testing server using the following URL: http://wsbeta064:9080/ivt/ivtserver?parm2=ivtservlet
IVTL0050I: Servlet Engine Verification Status - Passed
Testing server using the following URL: http://wsbeta064:9080/ivt/ivtserver?parm2=ivtAddition.jsp
IVTL0055I: JSP Verification Status - Passed
Testing server using the following URL: http://wsbeta064:9080/ivt/ivtserver?parm2=ivtejb
IVTL0060I: EJB Verification Status - Passed
IVTL0035I: Scanning the file C:\WebSphere\AppServer\profiles\default\logs\server1\SystemOut.log for errors and warni
IVTL0040I: 0 errors/warnings were detected in the file C:\WebSphere\AppServer\profiles\default\logs\server1\SystemOut
IVTL0070I: IVT Verification Succeeded
IVTL0080I: Installation Verification is complete
```

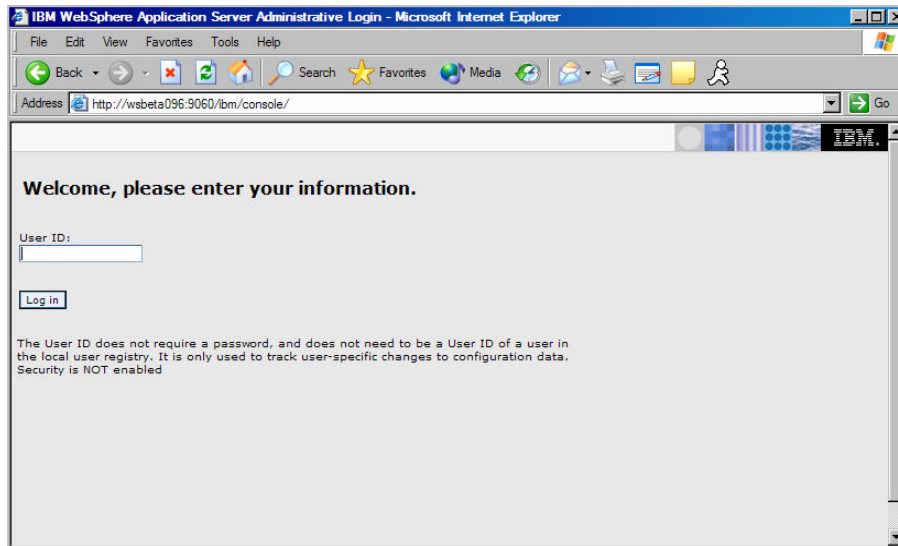
- ____ 16. Close the First steps window by clicking the **X** in the upper right corner.
- ____ 17. Click **Exit** to close the Launchpad.

Part 2: Administrative Console

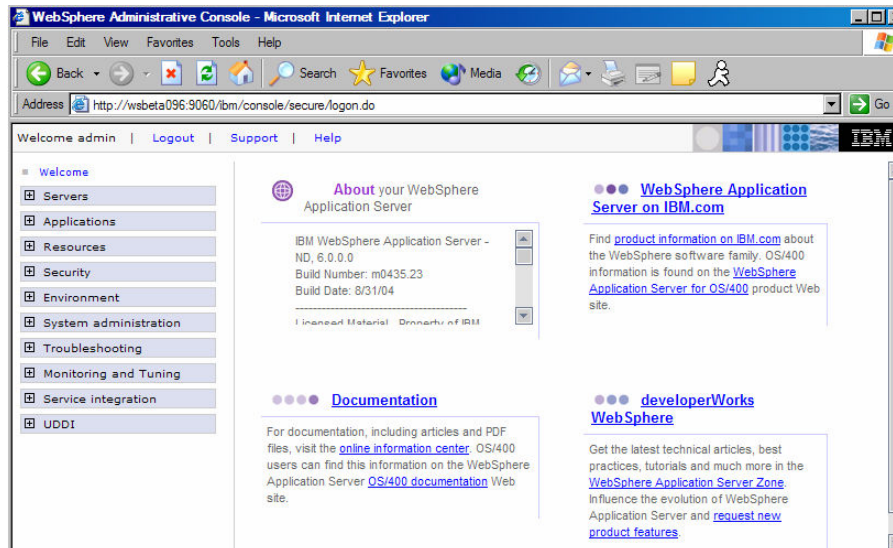
While most of the functions in the administrative console are working, there may be cases for which you have to use the wsadmin command line scripts.

1. Open an administrative console by using the URL <http://<hostname>:9060/ibm/console>

NOTE: Remember to change the text, <host_name>, within the given URL to the actual host name of the server started, as shown in the screenshot below. You can retrieve the host name of your server by using the “hostname” command from the command line.



2. Type admin as username and click login button



- ____ 3. Click the + sign next to Servers on the left pane and select Application servers. This should list all the servers that are running at the present time. At this particular moment we only have one server server1 that is running.

- ____ 4. Logout of the Administrative Console by clicking Logout on the top of the screen in Administrative Console.

Part 3: Backup Configuration

- ____ 1. To backup the configuration of this server, open a command prompt and navigate to **<WAS_HOME>/AppServer/profiles/default/bin.**
- ____ 2. Issue the command **backupConfig.**

Also with the addition of profiles there are some changes on where you issue some commands. Commands for the server, such as `serverstatus`, `startserver` and `stopserver` can be issued from the `was_home\profiles\profile_name\bin` directory. You can issue the appropriate commands for a specific profile. Commands can also be issued from the path `<install_home>/bin`, in this case `websphere/appserver/bin`, using the `-profile` option.

Part 4: Starting and Stopping Application Server

___ 1. To start the Server

Using Command Line: You can start the Server using the following steps:

___ a. Open a Command window and navigate to the following directory:

<WAS_HOME>\profiles\default\bin

___ b. Use the following command below to start the server:

startServer.bat server1 for **Windows**

startServer.sh server1 for **Linux** platforms

___ c. When the server has started successfully, the final two lines displayed will read:

Server launched. Waiting for initialization status.

Server server1 open for e-business; process id is 1932

The process id may vary. This can also be verified in the log file **startServer.log** in the **<WAS_HOME>\profiles\default\logs\server1** directory.

Progress can be monitored by viewing the **SystemOut.log** file in the **<WAS_HOME>\profiles\default\logs\server1** directory.

___ d. The alternative way to start the server if it is registered as service (only for windows):

- 1) Go to Start Menu->settings->Control Panel.
- 2) Double click Administrative tools.
- 3) Double click services

This should open a new window with list of applications registered as services. Right click on the service that says IBM WebSphere Application Server and select start.

___ 2. To stop the Server

You can stop the Server using one of the following steps:

___ b. Using Command Line, open a Command window and navigate to the following directory:

<WAS_HOME>\profiles\default\bin

For example:

C:\WebSphere\AppServer\profiles\default\bin in **Windows**

___ c. Use the command below to stop the server.

stopServer.bat server1 for **Windows**

stopServer.sh server1 for  platforms

___ d. When the server has been successfully stopped, the final two lines displayed will read:

Server stop request issued. Waiting for stop status.

Server server1 stop completed.

This can also be verified in the log file **stopServer.log** in the **WAS_HOME>\profiles\default\logs\server1** directory

___ e. The alternative way to stop the server if registered as service(only for windows):

- 1) Go to Start Menu->settings->Control Panel.
- 2) Double click Administrative tools.
- 3) Double click services
- 4) This should open a new window with list of applications registered as services. Right click on the service that says IBM WebSphere Application Server and select stop.

___ 3. Working with Profiles (Optional)

NOTE: This second half of the lab will show a number of new commands available for managing profiles. You will focus on the creation, management and deletion of profiles.

Version 6 simplifies the object model for WebSphere Application Server .The V6 tool creates a run-time environment in a separate set of files called a *profile*. The profile is the file set that defines the Application Server environment and the file set that the process can change. The *profile creation tool* and its graphical user interface (*Profile creation wizard*) and **wasprofile** are the only ways to create Application Server environments in V6.

The **wasprofile** command line tool defines each Application Server instance of a Version 6 product. You must run the wizard or the command line tool each time that you want to create a stand-alone Application Server. A need for more than one stand-alone Application Server on a machine is common. Administration is greatly enhanced when using V6 profiles instead of multiple product installs. Not only is disk space saved, but updating the product is simplified when you only maintain a single set of product core files. Also, creating new profiles is faster and less prone to error than full product installs, allowing a developer to create new disposable profiles of the product for development and testing.

Profile templates are part of the shared product files. A template exists for each type of profile. A copy of the template is used to create that particular type of profile.

The installation programs for WebSphere Application Server - Express and for the WebSphere Application Server product each use the profile creation tool to create a stand-alone Application Server profile, in the default location. The Express product contains just one profile template, for a stand-alone Application Server.

___ 4. Profile Creation Tool (PCT)

You can create additional profiles using the Profile Creation Tool (PCT).

___ a. To launch profile creation tool (PCT)

You can start the profile creation tool (PCT) using one of the following two options:

1) Using the Command Prompt:

a) Open a Command window and navigate to the following directory:

<WAS_HOME>\bin\ProfileCreator for **Windows**

b) Use the following command below to launch the profile creation tool (PCT) :

pctWindows.exe for **Windows**

pctLinux.bin for Linux

2) Using the Start Menu (for Windows only):

a) Select **Start** → **All Programs** → **IBM WebSphere** → **Application Server v6.0** → **PCT**

___ 5. Working with profiles using wasprofile:

Some of the tasks that can be done using **wasprofile** are

___ a. Open a command prompt. Navigate to the **C:\WebSphere\AppServer\bin** directory.

___ b. List Profiles:

The listProfiles command allows you to see all of the profiles currently on this machine. On the command prompt issue the **wasprofile -listProfiles** command. You should see the profile **default** that you created during installation.

___ c. Get Path of Profile:

You can learn the path associated with a profile as well. Issue the command **wasprofile -getPath -profileName default** and this will display the path for **default**.

___ d. Creating and Deleting profiles:

___ 6. You also have the option of creating a new profile from the command line.

```
wasprofile.sh -create
```

```
-profileName profile_name  
-profilePath profile_path  
-templatePath template_path  
-nodeName node_name  
-cellName cell_name  
-hostName host_name  
[-startingPort starting_port | -portsFile port_file]  
[-registry registry_name]  
[-debug]
```

The templates to be used with the **-templatePath** variable are located in;

was_home/profileTemplates/default for a stand-alone application server.

- ___ 7. The `-startingPort` variable is important so that this new profile doesn't conflict with the ports already used by the existing profile, `profile1`. You can either provide a starting port number to be used or create a ports file listing the various ports for the profile. You can find the ports used by an existing profile by looking at the file:

```
<was_home>\profiles\profile1\config\cells\cell_name\nodes\node_name\serve  
rindex.xml
```

___ a. Creating Profile:

- 1) Create a new profile using the command line interface. Issue the following command(Note this is all one line), this command will take a few minutes to complete:

```
wasprofile -create -profileName profile1 -profilePath  
C:\WebSphere\AppServer\profiles\profile1 -templatePath  
C:\WebSphere\AppServer\profileTemplates\default -nodeName testNode -  
cellName testCell -hostName <hostname>
```

___ b. Listing all Profiles:

- 1) While still in `C:\WebSphere\AppServer\bin` in the command prompt.
- 2) Issue the `wasprofile -listProfiles` command. You should see default and profile1.

___ c. Delete Profile:

- ___ d. Now delete `inst2` using the `wasprofile` command. Issue the command `wasprofile -delete -profileName profile1`.

- ___ 8. This completes the portion of the lab on working with profiles. You have successfully added and removed a profile from the command line.

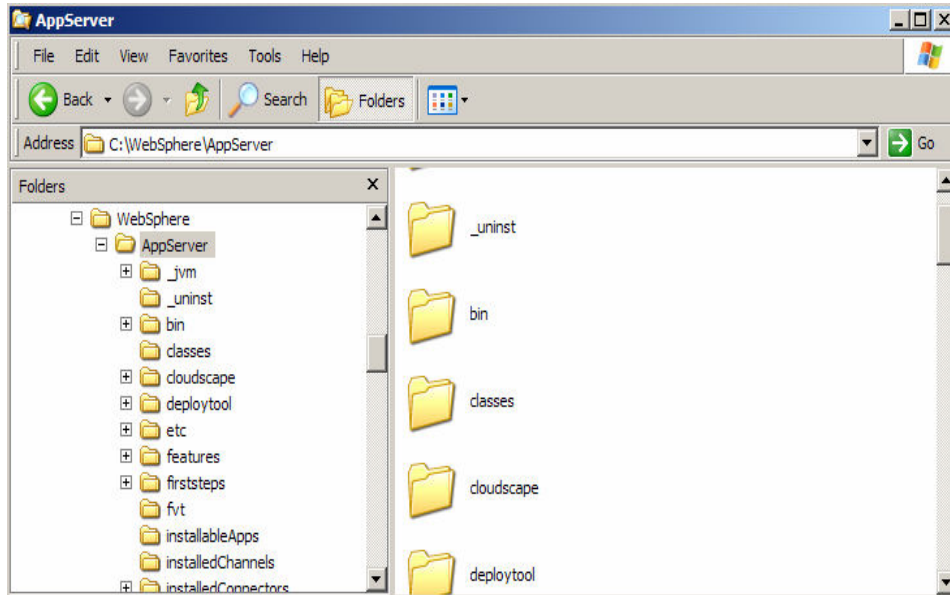
Part 5: Directory Structure:

Installation Directory:

The Application server binary is installed in <WAS_HOME>

For example:

C:\WebSphere\AppServer for **Windows**



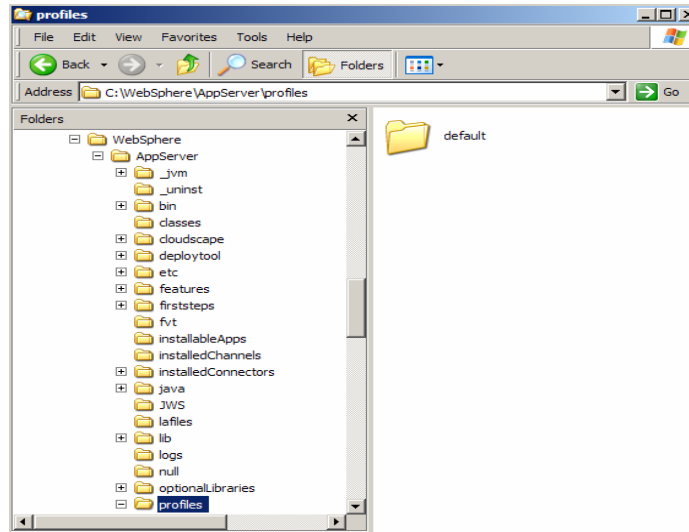
The profiles are created under <WAS_HOME>/profiles directory. The profiles that are created using the same binary are placed under <WAS_HOME>/profiles distinguished by the profile name.

For Example:



The path to the profile default that you created during the installation is:

C:\WebSphere\AppServer/profiles/default

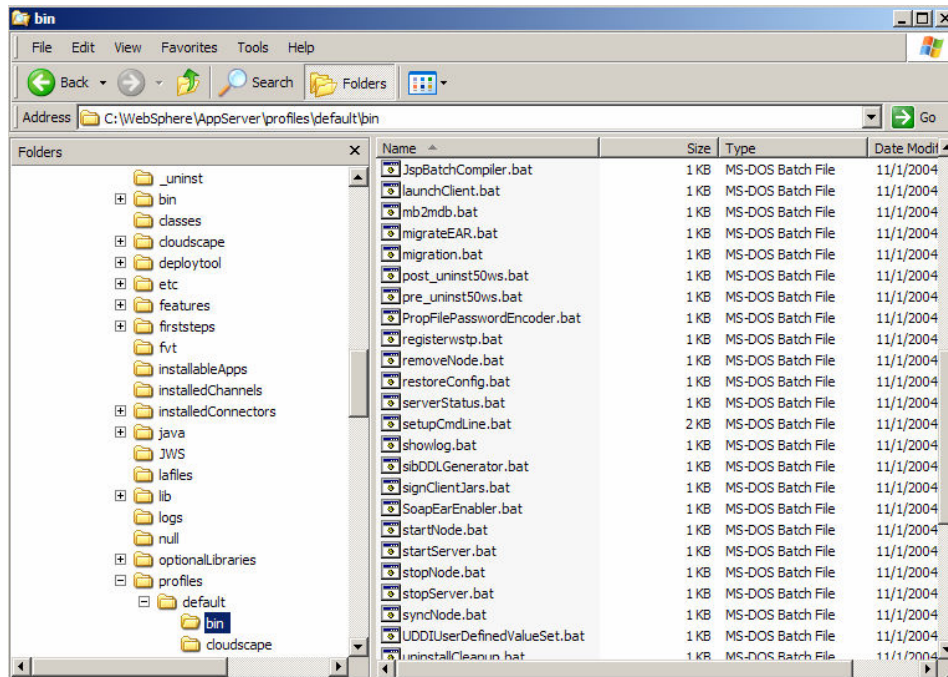
If you create a new profile called profile1, then there would be another additional folder called profile1 under this directory



The bin directory under <WAS_HOME>/profiles/default contains scripts like **startServer.bat**, **stopServer.bat**, **serverStatus.bat** and many other scripts.

For   environment the file extension is **.sh** instead of **.bat**

Note: It is recommended that you use the scripts under <WAS_HOME>/profiles/<profilename>/bin when working with a particular profile instead of using scripts under the <WAS_HOME>/bin directory.



Part 6: Uninstalling the WebSphere Application Server – Express V6 Product (Optional)

1. Before uninstalling IBM WebSphere Application Server v6, make sure you **stop** all the application servers. Navigate to the following directory:

<WAS_HOME>_uninst

2. Run **uninstaller.exe** (for Windows) or **./uninstaller.bin** for Linux- the wizard will guide you through the uninstall process.

After the uninstall process is complete, you will notice that some of the directories still exist within the directory. Manually delete the **<WAS_HOME>** directory and then reboot your computer if you have a Windows operating System. You have now successfully uninstalled the IBM WebSphere Application Server Express V6.

Part 7: Troubleshooting the Installation

A successful installation of a WebSphere Application Server product installs the core product files and creates the server1 Application Server

The <WAS_HOME>/logs/log.txt file, the <WAS_HOME>/logs/wasprofile/wasprofile_create_profile_name.log file, and the profiles_root/profile_name/logs/pctLog.txt file record installation status.

The installer program records the following indicators of success in the logs:

INSTCONFSUCCESS

INSTCONFPARTIALSUCCESS

INSTCONFFAILED

If the error happens early in the installation, look for the log.txt file in the system temporary area. The installation program copies the log from the temporary area to the logs directory at the end of the installation.

Perform the following procedure to troubleshoot an installation.

Steps for this task

- ___ 1. Check the installation log files for errors after installing:
 - ___ a. During installation, a single entry in the <WAS_HOME>/logs/log.txt file points to the temporary log file, either %TEMP%\log.txt on Windows platforms, or /tmp/log.txt on Linux and UNIX platforms. The installation program copies the file from the temporary directory to the <WAS_HOME>/logs/log.txt location at the end of the installation.
 - ___ b. If the installation fails and the <WAS_HOME>/logs/log.txt has only this one pointer to the temporary directory, open the log.txt file in the temporary directory. The log might have clues to the installation failure. Uninstalling creates the <WAS_HOME>/logs/uninstlog.txt file.
 - ___ c. Using a machine with a DHCP IP address can cause problems if the IP address changes subsequently. It is recommended to use a fixed IP address.
 - ___ d. A minimum of 80Mb free disk space in the temporary directory is necessary in order for the Administrative Console application to be installed successfully.
 - ___ e. IBM WebSphere Application Server can write system messages to several general-purpose logs. These include the JVM logs, the process logs and the IBM service log.

Table 1. Installation logs for WebSphere Application Server products

Log	Content	Indicators
<WAS_HOME>/logs/log.txt	Logs all installation events	<p>INSTCONFFAIL Total installation failure.</p> <p>INSTCONFSUCCESS Successful installation.</p> <p>INSTCONFPARTIALSUCCESS Installation errors occurred but the installation is still usable. Additional information identifies the errors</p>

Table 1. Installation logs for WebSphere Application Server products

Log	Content	Indicators
<WAS_HOME>/logs/wasprofile/wasprofile_create_profile_name.log	<p>Traces all events that occur during the creation of the named profile</p> <p>Created when using the Profile creation wizard or the wasprofile command</p>	<p>INSTCONFFAIL Total profile creation failure.</p> <p>INSTCONFSUCCESS Successful profile creation.</p> <p>INSTCONFPARTIALSUCCESS Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.</p>
<WAS_HOME>/logs/wasprofile/wasprofile_delete_profile_name.log	<p>Traces all events that occur during the deletion of the named profile</p> <p>Created when using the Profile creation wizard or the wasprofile command</p>	<p>INSTCONFFAIL Total profile deletion failure.</p> <p>INSTCONFSUCCESS Successful profile deletion.</p> <p>INSTCONFPARTIALSUCCESS Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.</p>
<WAS_HOME>/profiles/profile_name/logs/pctLog.txt	<p>Logs all profile creation events that occur when using the Profile creation wizard</p>	<p>INSTCONFFAIL Total profile creation failure.</p> <p>INSTCONFSUCCESS Successful profile creation.</p> <p>INSTCONFPARTIALSUCCESS Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.</p>

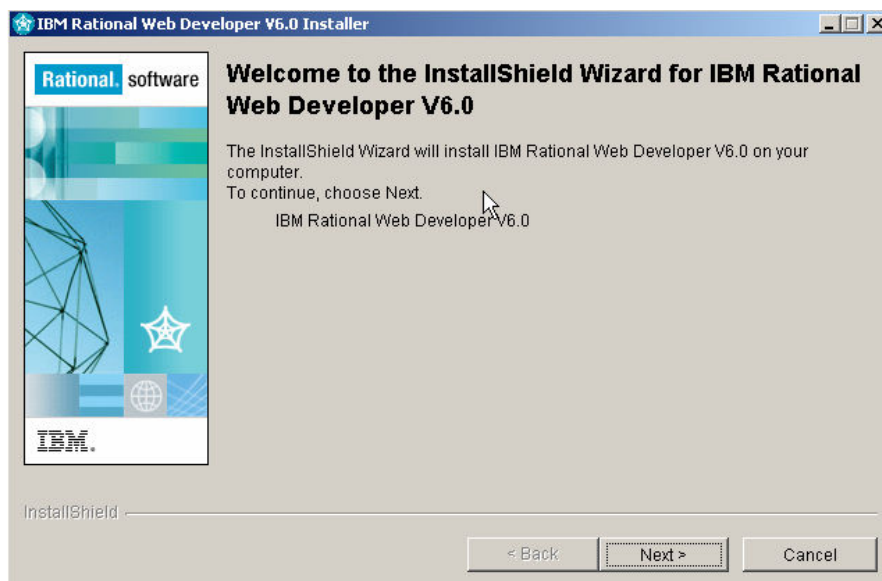
Part 8: Rational Web Developer

1. Installing the IBM Rational Web Developer V6



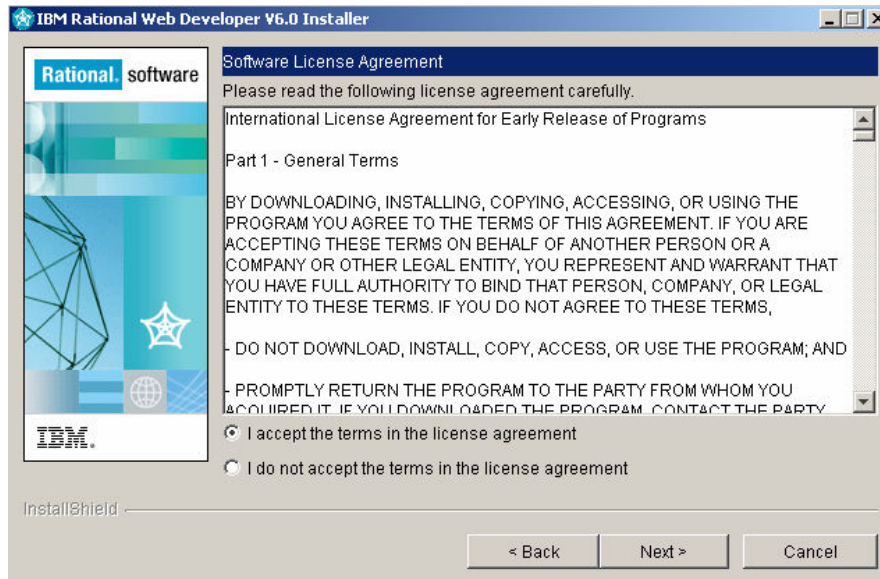
2. Click on Launch the installation wizard for Rational Web Developer on Linux (Intel) and Windows platforms link in the Launchpad window.

3. Wait till you see the welcome screen. The installation wizard opens and a welcome page appears:



a. Click **Next** to Continue

4. The license agreement appears: if you agree to the license agreement, select the radio button alongside I accept the terms in the license agreement message, and click **Next** to continue



5. A pre-requisite check is carried out, after which the product directory screen appears:

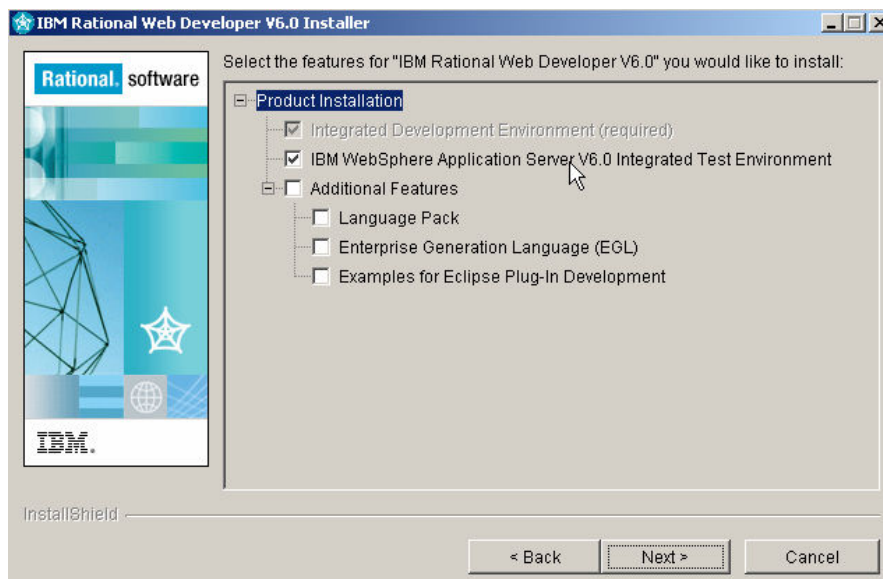
Type in the path where you want to install the RWD.

For Example :

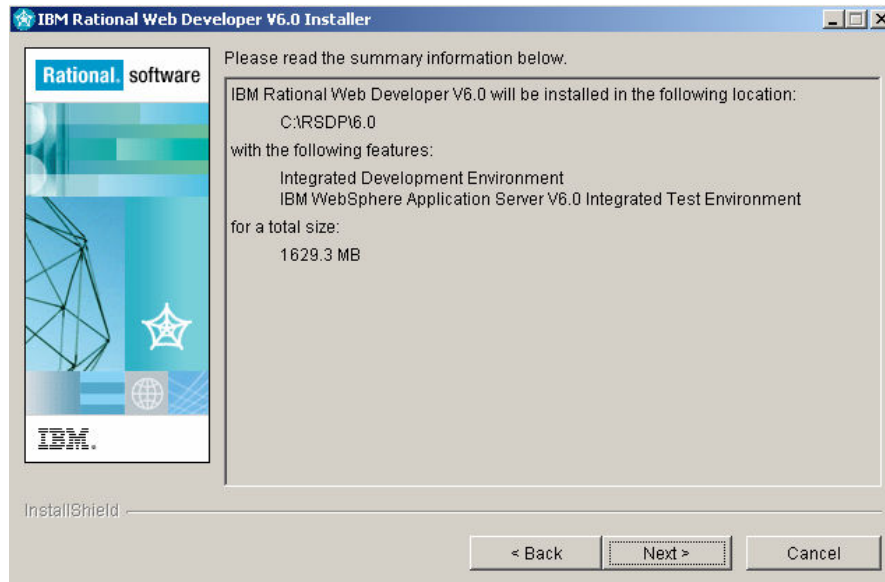
  /opt/RSDP

6. Click **Next** to continue.

7. This screen allows you to choose the features that can be selected for installation. For this installation, accept the default and click **Next**.



___ 8. The next screen lists all the features which will be installed:



___ 9. Click **Next** to continue.

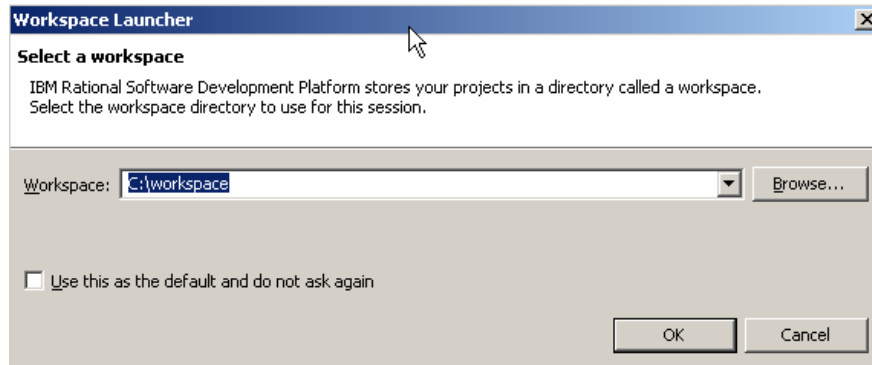
The installation of IBM Rational Web Developer 6.0 will now begin. Installation time may vary depending on the features you have selected and the resources available on your computer.

**Make sure that you do not interrupt the installation process even if it appears to be hanged. It will take some time for the installation to complete.

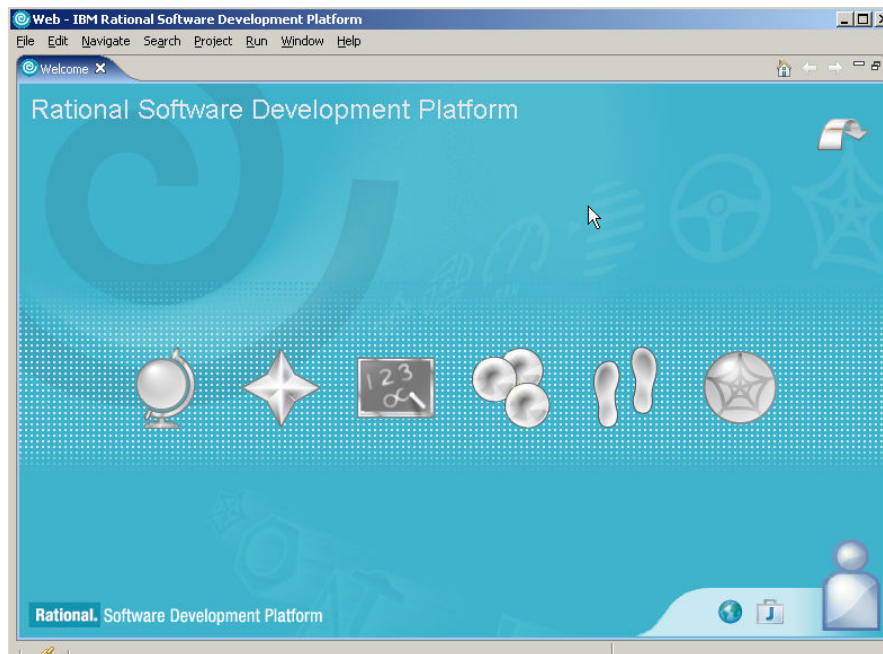
When the finish installation screen appears click Finish. This completes the installation of IBM Rational Web Developer 6.0

Part 9: Launching IBM Rational Web Developer V6

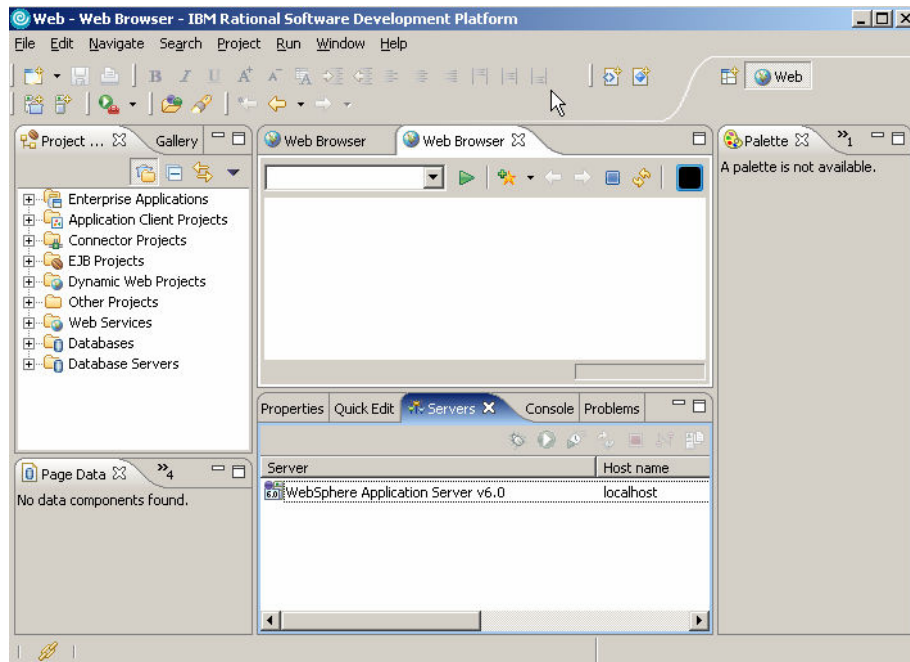
- ___ 1. Using the Start Menu, select Start → All Programs → IBM Rational Software Development Platform → IBM Rational Developer 6.0 → Rational Web Developer
- ___ 2. A Workspace launcher window opens up. You can either keep the default workspace path or change it. You can make the present workspace your default for all your projects by checking the checkbox next to **Use this as the default and do not ask again**



- ___ a. Click **OK** to continue.
- ___ 3. The following screen opens up. Click the arrow on the top right most corner to go to your workbench.






- ___ 4. The following screen shows your workspace.



____ 5. To close the IBM Rational Web Developer, go to File menu and click Exit.

Part 10: Uninstalling the IBM Rational Web Developer V6

- ___ 1. Before uninstalling IBM Rational Web Developer v6, make sure you **stop** all the application servers. Navigate to the following directory:

<RWD_HOME>\rwd_prod\uninst
- ___ 2. Run **uninstaller.exe** (for ) or **uninstaller.bin** (for  )- the wizard will guide you through the uninstall process.
 - ___ a. Click **Next** to continue.
- ___ 3. The next screen lists all the features that are to be uninstalled. Accept the default selected features and click **Next**.
- ___ 4. The next screen lists all the features that you have selected to uninstall. Click **Next** to continue.
- ___ 5. Click **Finish** to close uninstall wizard of IBM Rational Web Developer 6.0
- ___ 6. After the uninstall process is complete, you will notice that some of the directories still exist within the directory. Manually delete the **<RWD_HOME>** directory and then reboot your computer if you have a Windows operating System. You have now successfully uninstalled the IBM Rational Web Developer.

What you did in this exercise

In this lab you installed WebSphere Application Server Express v6, and created a profile for your application server. You then worked with the new command line tools provided for creating and managing profiles. You have installed the IBM Rational Web Developer.

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