CHAPTER – 5

PRODUCT INSTALLTION AND CONFIGURATION FOR BANKING SETUP
5.1 Weblogic Server installation

First downloaded the installer (wls1035_oepel111172_win32), then click on installer to start the weblogic installation.

Once I have clicked on installer, Welcome page will come as below.

![Figure 10](image10.png)

Welcome page come will come after few seconds.

![Figure 11](image11.png)
Click on next button; ask the installation path for weblogic as below figure

Figure 12

Next window ask about the path for weblogic middleware home directory. I have chosen the D (D:\Oracle\Middleware) drive for installation as above figure.

Main directory for all fusion middleware products will be middleware home because all fusion middleware products used Weblogic to deploy the component.

Click on next button will ask about registering for security update.

Figure 13
Here we need to give the information about the product registration with oracle support or not. If we register the product with support then we receive the information like any patch that is related with that version either a security patch or any other patch. We should have oracle support id and password if we want to register.

Decline the registration will go with next step.

![Oracle Installer - WebLogic 10.3.4.0](image)

**Figure 14**

Select the installation type.

- **Typical**— if we select the typical installation then all software or we can say complete software component installation will be done in system apart from Server example.

- **Custom**—in some case we don’t want complete installation, we want only few component like portal or server example etc., then we need to go through with custom option.

Click on next button will ask about the JDK version.
Figure 15

Above screen shows the list of JDKs. This is depending on installer which we will include, like .jar installer of weblogic does not include SDKs.

From the list we need to select JDK because Weblogic product requires a JDK, apart from that if we want to select other JDK that we can also select but it should be installed in our system.

Click on next button will ask about the different product directory installation

Weblogic Server

Oracle coherence

Oracle Enterprise packs for Eclipse.

Here in below screen says either we are going to install default path for all product or will provide a new path. Whatever product we will select during installation those will appear here in below screen. We will provide the installation path for all three which mentioned above.
As I have used D drive for installations, below will be the path for different product.

D:\Oracle\Middleware\wlserver_10.3

D:\Oracle\Middleware\coherence_3.6

D:\Oracle\Middleware\oepe_10.3

C drive is the default directory for all product installation.

Whatever product we will select during installation those will appear here in above screen. Here we will provide path for all three product weblogic server, coherence and for eclipse.

If we want to install all three in other path rather than default, then we click on browser either we can mentioned the installation path directly then it will create these directories automatically.
Once we have, product will install and then we want to add component, need to provide a installation path where we have already installed all three product.

Click on next button ask about the node manager service on port 5556.

Latter we will discuss about the nodemanager at the time of Domain creation.

Click to next ask about the shortcut location.
Here we need to select one option either “All users” Start menu folder or second is Local user’s Start menu folder however “All users” Start menu folder is recommended.

When we select this option, all users will have the access on installed software with registration on machine. Only those users can create shortcut in the all user’s folders which have admin rights.

For a domain, start menus shortcuts are not created if a user will not have a admin rights to create a weblogic domain through a configuration wizard but he can create shortcuts manually by pressing ALT+A after selecting all items.

Second option, when we select “Local user’s start menu folder”

When we select this option, all shortcuts those are created during installation will not be accessible by other users. Click on next button will show the installation summary about the product in next page.
Once click on next button, show the progress of installation.

Oracle® WebLogic Server 11g Release 1 (10.3.4)

Outperform

- Quick application responsiveness
- Proven, highest reliability, availability, and scalability
- Fastest Java Virtual Machine
Once the progress bar reaches 100%, that means installation is complete.

![Oracle Installer - WebLogic 10.3.4.0](image)

**Figure 23**

In this screen you see a dialog box with the message "Congratulations! Installation is Complete." That is weblogic server is successfully installed on machine. Below is the production installation directory on machine.

![Directory of D:\Oracle\Middleware](image)

**Figure 24**
5.2 Domain creation for Banking Application

Here are the steps for domain creation.

A] Run the config.cmd (On Window) script or config.sh in (On Unix).

Figure 25

Once run the config script, configuration wizard will open.

Figure 26

Next screen will ask about the basic domain information including below point:
Create a new weblogic domain; if we are creating a fresh domain then we need to select this option.

Extend an existing weblogic domain; this option will be used when are going to extent the domain that is already created.

Here we are creating a fresh domain for banking application; select a default option “create a new weblogic domain” as below.

![Figure 27](image)

Click on next button, will ask about domain source, like below.

![Figure 28](image)

In previous screen, there are other FMW (Fusion middleware) components are also coming but we are creating a basic weblogic domain, by default it seems as disable. If we want to select other component
then we need to check that component. Here we are not selecting other component as those are not requiring at this time for creating a simple domain for banking application. Click on next button.

![Fusion Middleware Configuration Wizard](image)

Specify Domain Name and Location

Enter the name and location for the domain:

- **Domain name**: BankingDomain
- **Domain location**: D:\Oracle\Middleware\user_projects\domains

Figure 29

Here we need to give the name of domain. In my case I have given the domain name as "BankingDomain" and path would be “D:\Oracle\Middleware\user_projects\domains”.

Note: whenever will create a domain, it will create under “user_projects”.

Once click on next button it will ask about below configuration parameter.

Name: <This is the user name for administrator>

User Password: <This is password for administrator user>

Confirm User password: <This is confirmation of password for administrator user>

Description: <This field is not necessary; we can give the description as per our understanding>

Below information we need to keep in mind because will use the same information latter on this chapter. Screenshot is next page.
After giving all the information, click on next button.

Above screen ask about jdk (java developer kit) as weblogic application server require jdk to run, here I have select JRockit. I will discuss about the different types of jdk latter. Second it will ask the mode of
server in which server will run, here I have selected the production. This also I will discuss latter about the modes. Then click on next button.

![Figure 32](image)

**Figure 32**

Above screen will ask about the configuration about servers. Here we are modifying the configuration for only Administration server by checking the Administration server, other will modify once the domain will be created. Click on next button.

![Figure 33](image)

**Figure 33**
Above screen asks about the configuration details about admin server as I have given the admin server name as **BankingAdminServer**, **listen address** as localhost and **port** as 7001.

We can put any name for admin server but the listen address will dependent on IP address for machine in which we are configuring the admin server and 7001 port is the default port for admin if we want to change the port, we can but that port should be free.

We can check with **netstat** command either the port is free or not.

![netstat output](image1.png)

**Figure 34**

After putting the configuration detail for admin server, click on create button, will show all the detail about domain.

![Configuration Summary](image2.png)

**Figure 35**
Once we have clicked on create button it will create the domain as above, normally it take around 2 to 3 minute for creating a domain. Once domain is created just check the Start Admin Server and then click done button. Domain will create by starting the admin server.

5.3 Starting BankingAdminServer
Once the admin server is starting, we can show the logs of admin server like below. In between it ask about the username and password for admin server that we have given at the time of domain configuration.

Here we need to give the username and password as we have given at the time of admin server configuration, once provided it will start to admin server.
In previous screen we are seeing the message “Server started in RUNNING mode” that means admin server is started and in running mode. In between server will pass to different stages called server life cycle. Once the Admin server started, we can access the weblogic console for BankingDomain. With below URL

http://localhost:7001/console/

Open any browser and enter the above URL, below screen will ask about the username and password detail.

![WebLogic Server® 11g Administration Console](image)

**Figure 40**

Here we need to give the username and password for admin server, enter the information like below.
Once enter the username and password and press to Login button, next screen will come about our Banking domain.

Figure 41

Figure 42
Here in left side we have the entire configuration tabs are there for banking domain, like below.

![Figure 43]

Under environment we have multiple tabs like server, cluster, machine etc.

![Figure 44]
Once we click on server, it will show all about the server information in our BankingDomain, initially we have only one administration server (BankingAdminServer (admin)) that is running on 7001 port.

![Table of Servers]

**Figure 45**

Here below is the complete directory structure of our domain “BankingDomain”.

![Directory Structure]

**Figure 46**

Now, here we have only one server in my testing BankingDomain is “BankingAdminServer”. Now we will create managed server, cluster etc and will deploy my testing bank application into the server and cluster and will see what outcome will occur.
5.4 Application or Managed server creation

Open a weblogic console, keep in mind whenever we are going to change the existing configuration of our weblogic domain, click on “Lock & Edit” button, like below.

Figure 47

Once we will click on that button, it will automatically disable (Lock & Edit) and after changing the existing configuration, need to release the configuration.

Figure 48
Once we will release the configuration by pressing the Release Configuration button, changes will save in our domain. Main important thing is, until and unless we will not release the configuration no other can change the configuration.

Let’s start with creating a managed server that means I am going to change the configuration of our domain, I have just click on Lock & Edit button.

Then I have click on Environment->Server, below screen will come.

![Figure 49](image)

Here I am able to see “New” is enabling. Once clicked on new button, it will ask about below information about our managed server.

Server Name, Listen Address and Port, like below.

![Figure 50](image)
I have given the information as like below.

<table>
<thead>
<tr>
<th>Server Name</th>
<th>Server Listen Address</th>
<th>Server Listen Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>BankServer1</td>
<td>localhost</td>
<td>7010</td>
</tr>
</tbody>
</table>

After putting all the information, need to click on Next button, below screen will come with all the information that we have provided.
Once we click on Finish button, BankServer1 will be created in our domain, if we want to change any information need to press back button, here I have pressed Finish button. Once I have pressed finish button, server created successfully. Like below.

![Figure 53](image)

**Figure 53**

But main thing is that configuration is not changed, to change the configuration need to click on Active changes button in below screen.

![Figure 54](image)

**Figure 54**
If we will click on “undo all changes”, it will remain all changes as previously. As we release the changes after pressing Activate changes, Lock & Edit button will enable and configuration have been activated.

![Oracle WebLogic Server Administration Console](image1)

**Figure 55**

Till yet we have created a managed server successfully. When we created first time a managed server it will in shutdown state, below screen will show this scenario.

![Managed Server Status](image2)

**Figure 56**

Here our BankServer1 is showing in SHUTDOWN state, now we will start this server,

To start this server we need to go in bin directory under the domain directory. See the next screen
In bin directory, we have multiple scripts to handle the domain. Here we are going to start our managed server BankServer1, to start any managed server in our domain, need to use the “startManagedWebLogic.cmd”. Below is the syntax.

### 5.5 Starting Managed Server (BankServer1)

startManagedWebLogic.cmd managed_server_name admin_url [For Windows Machine]

startManagedWebLogic.sh managed_server_name admin_url [For Unix Machine]
In my scenario managed_server_name is “BankServer1” and admin URL is “http://localhost:7001”. As I have entered below command to start the managed server “BankServer1”.

```
startManagedWebLogic.cmd BankServer1 http://localhost:7001
```

See previous screen,

After hitting the command, server will start and we are able to see the logs of the server.

![Figure 59](image)

After few seconds it will ask about the username and password for that we have configure during domain creation (admin username and password). Enter the username and password.

![Figure 60](image)
After few second server will come in running mode. And all the information about the server activity is locked in a log file.

![Log File Example](image1.png)

**Figure 61**

Here below is the screen shot about the log path information. Mean logs will be available under the domain directory like `<domain directory>/Servers/Server name`. We can also change the log path etc.

![Directory Structure](image2.png)

**Figure 62**
Here we are start and stop doing from the command line but it’s very difficult if our managed servers are distributed on different machine. So in that case we have to go with script directory in each machine then we will fire the command for start/stop but it’s very risky and time taking process.

We can start/stop all managed server through console at one go, if we have node manager configured in each machine where our managed server are running. All remote function like start and stop of the managed server through admin console, all we can perform through node manager.

**Nodemanager:** Nodemanager is nothing but a separate java utility; it’s automatically installed once weblogic server is installed on system. All the scripts and properties are placed in respective path.

When we have node manager configured, remotely we can do the start/stop managed server. It has the capability to kill the process of instance when it found failed during monitor the self-reported health and will start the server automatically.
5.6 Node manager and Machine configuration

Now I am configuring the node manager for my BankingDomain.

To configure node manager, Click on Machine tab under the environment.

Machine

Machine is basically called a logical system in which we can creation more that one weblogic server instances depending on the hardware of the system. Suppose we have a managed server in a machine which dont have admin server and we want to do remote opration, in that case we required the nodemanager configuration and for it we need to define or machine. In production we generally use this type of configuration.

Machine configuration is required listen addree and port and this listen address. Machine is very usefule we use the concept of clustering becasue in cluserting we can implemnetloadbalancing and session replication.if we are creating machine on unix, it's called unix machine configuration and when we create machine on window it's called window's machine configuration. Bleow is the procedure for creating a machine.
We are able to see below screen once we clicked on machine.

<table>
<thead>
<tr>
<th>Summary of Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td>A machine is the logical representation of the computer that hosts one or more WebLogic Server instances (servers). WebLogic Server uses configured mode replication, are delegated. The Administration Server uses the machine definition in conjunction with Node Manager to start remote servers.</td>
</tr>
<tr>
<td>This page displays key information about each machine that has been configured in the current WebLogic Server domain.</td>
</tr>
</tbody>
</table>

Figure 65

As I have already explained above, if we are going the change the existing configuration of domain then need to press Lock and Edit. Once Lock and Edit will do we can change the configuration. Here we are going to change the configuration after adding the machine and node manager in our domain. As we click on Lock and Edit, New button that we are seeing as disable in above screen, will be enabled.

<table>
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</tr>
</tbody>
</table>

Figure 66

Now I am going to create a machine by clicking new button. Once new button is clicked it will ask below information about machine Name and Machine OS.
We can give any machine name as per our convenient but the Machine OS is very important part, like if we are creating machine in Unix machine then need to give machine OS as Unix or if we are creating a machine in windows environment that need to give machine OS as other.

In my testing, given the machine name as BankMachine1 and Machine OS as Other like below.

![Figure 67](image_url)

After giving the information, click on next button. As clicked on next button it will ask about the configuration about node manager as below.

![Figure 68](image_url)

Here we need to give the information Listen Address, port and type, Again need to give the listen address as per machine IP and default port of node manager is 5556. If we want to change port etc then we cannot do directly through console.
After than click on finish button, as we clicked on finish button machine (BankMachine1) will be created in our domain. Below is the snip.

![Figure 69](image)

Now we need to release the configuration by clicking “Activate Changes” button.

After that need to assign our managed server BankServer1 to machine that we have created as BankMachine1. Click on machine, then press Log & Edit, then click on machine name (BankMachine1), below screen will come for machine name as BankMachine1.

![Figure 70](image)
Click on Next button below screen will come after adding the server with machine.

![Image](76x435.png)

Figure 71

Then release the configuration by clicking Activate changes as below.

![Image](76x230.png)

Figure 72

Here we are able to see our managed server “BankServer1” is associated with machine “BankMachine1” is in SHUTDOWN state. Now we can start our managed server directly through console rather from command line as we have used earlier

```bash
startManagedWebLogic.cmd managed_server_name admin_url (Windows command).
```

For it we need to start the node manager process. Below is the path where all the script is there.
Below is path to start and stop the node manager process.

![Image of command prompt showing path to start and stop the node manager process.]

**Figure 73**

Now run the batch script by entering the script “startNodeManager.cmd”

![Image of command prompt showing script execution.]

**Figure 74**

Once we enter above command, we can see the node manager is running on 5556 port, here one important thing is that if we have different machine than need to run the node manager process on each machine.
Here are the logs showing that node manager is started.

![Node Manager Logs](image)

Figure 75

Once node manager is started on machine then we can able to start the managed server through the console. Right now our BankServer1 is showing in SHUTDOWN state. Click on control tab under the server. Once we clicked on control below snip come to us.

![Control Tab Snip](image)

Figure 76

Here I am able to see all control like start, shutdown etc are disable, it will all enable by clicking the server on which we are going to control, like start/stop etc.

Here I am going to start the BankServer1, then need to check the BankServer1.
As I checked the BankServer1, all control (like start, shutdown etc.) is enabled for me as below snip.

![Figure 77](image1)

Now click on Start button, once I have clicked on start button it will ask to confirm either yes or no like below snip.

![Figure 78](image2)

As I clicked on Yes button, BankServer1 will go for start as below snip.

![Figure 79](image3)
But the main thing, this time our server is started through the node manager.

Figure 80

After few seconds our managed server will come in running mode.

Figure 81

So that mean, if we have configured node manager in our environment, we can control our managed server through single point (Admin console).

In next chapter, I will deploy and test my bank application and will show how it will work on different scenario.