

## ❖ Notes:

### ➤ Application:

- An application is a collection of classes, jar files (java archive), property files, xml files, images, cascading styles sheets (CSS). Java script html files, etc., All are bundle together as an .ear(enterprise archive) file. If it is an Enterprise application or .war file (Web archive) if it is a Web Application to have a desired output.

### ○ Web Application:

- **Web Applications:** - It contains web resource like Servlets, JSP's, html files, Images, xml files etc., It won't contain any EJB resource.

- EJB(Enterprise Java Beans)
- JSP(Java Server Pages)

- **Enterprise Application :** It contain both Web resources like servlets, JSP's and also resources like, session beans, entity beans and message driven beans, developers will build as a .ear file If it is an Enterprise Application.

- Java has 3 flavors:

1. J2SE(Java 2 Standard Edition)
2. J2EE(Java 2 Enterprise Edition)
3. J2ME(Java 2 Mobile or Micro Edition)

- We can develop only stand alone Applications or Desktop Applications by using J2SE.
- We can't develop a Web based Applications by using J2SE.
- If we want to develop a Web based Application we have to depend on J2SE components like servlets, JSP's or EJB's.
- If an Application contains any of the J2EE components we require an external server like WebSphere, or JBOSS or Weblogic, etc., to run that application.
- A Web based Application doesn't have the ability to require end user's requests, execute the resource and to generated a response.
- Its mandatory that we require an external server to run a Web based application.

### **Types of Installation:**

We can install WAS two different ways.

1. GUI Mode
2. Silent Mode

### ➤ Steps to install WAS through silent mode:

- Identify the location of the response file.
- Take a backup of the original response file.
- Customize that response file parameters according to your environment.
- Modify Response file as  
License Agreementà'True'  
Installation Locationà'specify the location where you want to install'

Nodenameà' give the nodename'

Hostnameà' give the Hostname'

Cellnameà' cellname'

- Execute that response file by using a command  
**“./install –options<absolute path of response file> - silent”**
- Check for a message **INSTCONFSUCCESS** in a log file called **log.txt** if the installation is completed successfully.
- By using **“netStart”** we can check the port numbers.  
nodeName = “app\_node01”  
hostname= “Vostro”

#### ➤ **Important Parameters: -**

- W. SilentInstallSilentAcceptance.value = “true”
- P WaspointBean.InstallaLocation=”C:\IBM\_Base\WebSphere\AppServer”
- W default profile portspanel InstallWizardBean.
- W default profile .wc-defualthost= “9080”
- W default profile .wc-adminhost = “9060”
- W default profile .wc-defalhost\_secure= “9444”
- W default profile .wc-adminhost\_secure=“9044”
- W default profile .wc-BOOTSTRAP\_Addres=“2810”
- W default profile SOAP-CONNECTOR-ADDRESS= “8881”
- W.nodehostStandcallnamepanelInstallwizard Bean.nodeName = “Krishna\_node”
- W.nodehostStandcallnamepanelInstallwizard Bean.Hostname= “localhost”
- W. winservservicepanel install wizard Bean. Account Type = “localSystem”
- W. winservservicepanel install wizard Bean. StartupType = “manual”

#### ➤ **Types of Profile Creation:**

1. By using Profile creation wizard (6.0)

Profile Management Tool (6.1)

-GUI Mode

2. Command Line

3. Silent Mode

#### ➤ **1.GUI (Graphical User Interaction) Mode:**

- By suing profile creation wizard in (6.0)
  - Profile management tool in (6.1)
- C:\IBM\websphere\Appserver\bin\profilecreator\pctwindows.exe - windows  
C:\IBM\websphere\Appserver\bin\profilecreator\pctlinux.bin. –LINUX

#### ➤ **2.Command to create a profile in command line:-**

```
[C:\IBM\websphere\Appserver\bin>wasprofile.bat -create –profileName Appsrv04  
–profilepathC:\IBM\websphere\Appserver\profile\Appsrv04 –templatePath  
“C:\IBM\websphere\Appserver\profileTemplates\default” –nodeName  
App_node04 –cellName cell04 –hostname Krishna –starting port 2850
```

- Copy the WAS root directory and go to the command prompt and travels up to WAS root bin directory.
  - **Wasprofile.bat –help or - Listprofiles**
  - **profileregistry.xml** → We can find out how many profiles re these including path also.
- We can find profileresgistry.xml file in WAS root property directory.
  - **-Create -help**
- Create –ProfileName Appsrv02 -profilepath (copy the WAS Route profile and paste it).
  - Template - (copy the template path)
  - Node Name - app-node02-cellName-Mycell02
  - hostname- vostro-starting port 2850
- [C:/IBM\_Base\_April/websphere/AppServer/logs/wasprofile - “wasprofile –create – profileName Appsrv02.log”]
- **Cmdline:-**

```
[“C:\IBM\Base-April\WebShpere/AppServer/bin> wasprofile.bat –create –
profilename Apsrv02 –profilepath “C:/IBM_Base-
April/WebShpere/AppServer/profiles/Appsrv02” –templatepath
“C:\IBM\Base_April\WebSphere/AppServer/ProfileTemplates/default” -nodeName
app_node02
- -cellName mycell02-hostName vostro –stringpoint 2850].
```

#### ➤ **Port Value Assignments:**

- |                                        |                |       |
|----------------------------------------|----------------|-------|
| - Administrative console port          | (default 9060) | -9073 |
| - Administrative console security port | (default 9043) | -9056 |
| - Boot Strap port                      | (default 9809) | -9818 |
| - Soap Connector port                  | (default 8879) |       |

#### ➤ **Express and Base Packages:**

- Here we can create only one type of profile that is application server profile. But we can create N number of files. Here there is only one profile template that is default template. (For application server profile) is used to create application server profile.
- **ND package: in ND 6.0 there are 3types of profile templates :**
  1. default template
  2. dmgr profile
  3. managed template
- **So we can create 3 types of profiles :**
  1. Deployment Manager profile
  2. Application Server profile
  3. Custom profile
- In case of ND package. We can achieve single point of Administration, Work Load

Management and high availability.

## ❖ **PROFILE:-**

- A profile is nothing but an environment where will get a Node, server, and Admin console. So that we can provide Runtime environment for the applications and we can do administration activities on server and applications.

### **DMGR profile: (Deployment management profile)**

- It uses DMGR template at the time of DMGR profile creation here we won't get any sever by default just will get a DMGR process and it is used to manage federated servers and applications.
- DMGR profile provides a single point of administration so that it is easy to manage federated servers and applications.

### **Application Server Profile:**

- Here will get a server called server1 by default and we can use this server to deploy and run the applications, it is not possible to create more than one server within the application server profile if that profile is not federated with the DMGR.
- Only the Application Server Profile can run independently without the help of DMGR if distributed environment is not necessary.

### **Custom Profile (or) Managed Profile:**

- It contains an empty Node and it must be federated to the DMGR if we want to create any server under the custom now. Custom profile doesn't have any Admin consol and we have to depend on DMGR consol to manage Custom Profile Serves and Applications.

## ➤ **SERVERS:**

**SERVER:** Server is a 3<sup>rd</sup> party component which is going to run our Applications, that means which is providing a runtime environment for our applications.

### **Web Servers**

IHS Server  
Apache Server  
Iplanet Server  
Tomcat

**Tomcat** – Partial application server.

- Tomcat also most of the people called as Web Server. But it's not pure web server. It's a partial application server.
- Here we can have an application by using HTML, servlets & JSP's.
- We can deploy an application which was developed by using servlets, JSP's and HTML's into the Tomcat. But we can deploy this same application into http servers like IHS Servers, Apache Servers, Iplanet Servers.

## ➤ **Web Server:**

- The responsibility of the Web server is to deploy or is to generate the Static Content. (HTML files called as static pages, HTML contents calledas Static Content)
- The Static HTML files the Static Application we can deploy into the Servers.

## ➤ **Application Servers:**

AppServers:

JBOSS

WebLogic

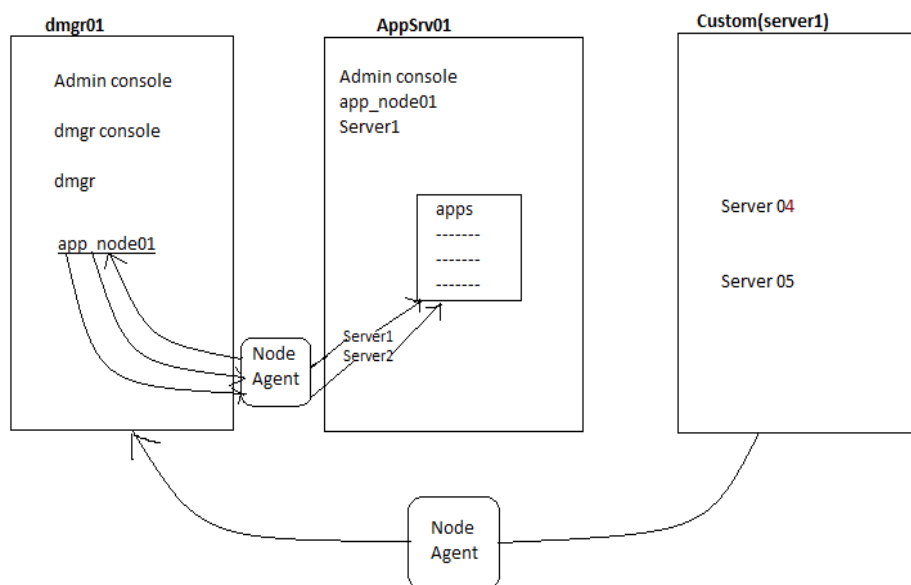
WebSphere

- The Application Servers can Deploy Web applications and Enterprise applications.
- An application which contains Servlets and JSP's that application called as Web Applications.
- It can deploy it can run web applications and also it can run EJB's.
- The Applications servers are more powerful than compare to Web Servers.
- Here (Tomcate) the Web servers can deploy only web applications. It can't deploy any Enterprise Applications.
- While coming to Application servers can run both Web Applications as well as Enterprise Applications.
- Web Applications contains N number of Servlets, JSP's and N number of Xml files and html files. We can't copy each and every file as a single file we can't deploy into particular server.
- So make as a single bundle that called as .war file (Web application- app1.war) it's a single file instead of having number file, make as a single file and that single file deploy into our servers.
- If it is a web Application make that application as a .war file. .war stands for Web Archive.  
.war – Web Archive.
- If it is an Enterprise Application make that application as an .ear file.
- .war doesn't contain any EJB's. It contains only web resources like servlets, JSP's and html files, cascading style sheets and the Java script. The Basic functionalities would have. It won't contains -EJB components like Session Beans, Nttps or message Beans.
- Whereas in the .ear file contains servlets, JSP's and EJB's. That means Web server (Tomcat server) can run war files. It can't run .ear files. Whereas Applications server can run both .war files as well as .ear files.
- WebSphere is one of the 3<sup>rd</sup> party components which is going to run both Web Applications and Enterprise Applications.

## ❖ **FEDERATION:**

- Federation is a process of adding a Node either from Application server profile or custom profile to the deployment Manager profile. At the time of federation a process called Node Agent will be created to communicate between deployment manager profile and Federated Profile.
- We can add a Node by sing a command ./addNode.sh, <hostname of dmgr><SOAP connector port no of dmgr> we can use -includeapps -username \*\*\* -Password \*\*\*\*. These options we can provide if global security is enabled. (Default SOAP connector port number is 8879).
- Once the Node off Application Server Profile or customprofile is added to the DeploymentManager. We can create N number of Servers under that Node and we can archive single point of Administration.

- A Node which is having Node Agent will be called as **Managed Node**, A node which Node Agent will be called as **unmanaged Node**.
- After Federation we can't access Application Server Profile Admin Consol. We have to do all the Administration activities on the Federated Server and Application through DMGR console only. And also Application Server Profile Admin consol can't be accessed after Federation.
- After Federation even though Node Agent is down there is No impact for the Federated profile Servers and Applications. But we can't do the Administration Activities through the DMGR console.
- After Federation if the DMGR is down there is no impact for the servers and applications. We can access applications normally.
- At the time of Federation a log file called addNode.log will be created under profile home/logs/directory.



### - **Managed Node**

### - **Unmanaged Node**

```
startManager.sh
stopManager.sh
StartServer.sh
stopServer.sh
```

- Cell is combination of **DMGR & Application Server**.

### **Note:**

```
AppServer/bin> stopNode.sh
```

### - **To start or Stop the Dmgr:**

```
Dmgr01/bin>startManager.sh
Dmgr01/bin>stopManager.sh
```

### - **Check the server status:**

```
AppServer/bin> serverStatus.sh -all    or to check the particular server status
AppServer/bin> serverStatus.sh -servername like Server01 or Server02.
AppServer/bin> startNode.sh
```

### - **Remove node:**

```
Appserver/bin> removenode.sh ----> it will remove the Node.
```

- **Start or Stop the Server:**

Appserver/bin> startServer.sh<servername>

Appserver/bin> stopServer.sh <servername>

- In custom profile there are no servers & Applications so we can't access the application server Admin console.

- **Url to Access to Admin console:**

http:// <host-name>:<admin-console port no>/ibm/console

<http://<host-name>:<admin-console port no>/admin>

<http://<ip address of the host><admin-console port no>/ibm/console>

If it is a same box we can use local host also

eg: <http://<local-host>:<admin-console port no>/ibm/console>

Default admin console port number is: 9060.

➤ **Difference between 6.0 & 6.1:**

1. 6.0 supports for java 1.4 where as 6.1 supports for java 1.5 or 5.0(1.5 and 5.0 one under the same).

2. **In 6.0 we can create only 3 types of profiles.**

1. Deployment Manager Profile
2. Application Server Profile
3. Custom Profile

**Where as in 6.1 we can create 4 types of Profiles that are:**

1. Cell profile
2. Deployment Manger Profile
3. Application Server Profile
4. Custom Profile

3. **In 6.0 to enable global security we are having only 3ways.**

1. Local user registry
2. System User Registry
3. LDAP user Registry (Light weight Documentary Access Protocol)

**In 6.1 we can enable Global Security in 4 different ways**

1. Local user Registry
2. System User Registry
3. LDAP user Registry
4. Federated Repository

- In 6.0 if you want to create profile through GUI (Graphic User Interface Mode). We can use **profile creationwizard**. In 6.1 we have to use **Profile Management Tool**.
- If you want to create a profile through command line we can use **wasprofile.sh – create options** in 6.1 **wasprofile.sh** is replicated and we have to use **manageProfiles.sh – create options**.
- In 6.0 after installation profile will be created. Where as in 6.1 at the time of installation itself profiles are created.

➤ **Steps to configure Global Security by using Local OS user Repository:-**

1. Create a User Accounts in your operating system.
  2. Assign Passwords for that Accounts.
  3. Login to the Admin Console and expand Security.
  4. Select Security Administration Application and Infrastructure option.
  5. Select Security configuration wizard.
  6. Select Local OS option to configure with Local OS User Repository.
  7. Provide User ID and Password.
  8. Under LPTA Authentication Mechanism, confirm the password once again.
  9. Enable Administrative Security Check box check.
  10. Select operation system under available realm definitions.
  11. Save the changes and Restart the Server.
  12. Now Access the admin console by using <https://<host-name>:9043/IBM/console/>
  13. Provide Username & Password to login to the Admin Console.
- Security → Security Administration → Configure → Select Local Operating System.

➤ **Steps to Enable Global Security by using Custom User Repository:-**

1. Create 2 files
  - i. User Registry
  - ii. Groups Registry
2. Add User Accounts into under users Registry file.
3. Add Groups into under group's registry.
4. Login to the Console and expand Security.
5. Select Secure Administration Application and Infrastructure options.
6. Select Security Configuration Wizard and Select Custom Registry Option.
7. Create 2 variables User File and Groups File.
8. Provide the absolute path of User Registry and Groups Registry as a value for that variable.
9. Enable Administrative Security check box and select Custom Registry under available relation definitions.
10. Save the changes and restart the server.
11. Login to the Admin Console by using <https://<host-name>:9.40.IBM/Cosnole> Url

➤ **Admin Console User Roles:-**

1. Administrator
2. Configurator
3. Operator
4. Monitor



admin .xml

- How to provide Username and Password without using cmd line?  
Soap.default.prop file which is under properties directory.  
Soap.default.prop file parameter name is login user ID login password.  
C:/IBM6.1/WebSphere/AppServer/profiles/dmgr01/bin>**startManager.bat.**

➤ **User Registry:-**

#<user ID> :<password> :<uid>:<group id>:  
Wasadmin:<password:101:200:wasadmin

➤ **Groups Registry:-**

#<group ID>:<gid>:<members>:<display Name>  
Sample:200:abc;wasadmin: “administrators”

❖ **Administrator User Roles:-**

**Specifies User Roles:** - The Following Administrative Roles provide different degrees of Authority that are needed to perform certain Application Server.

**Administrator:** - The Administrator Role has operator permissions, configuration permissions and the permission that is required to access sensitive data including server Password, (LTPA), Light Weight Thread Party Authentication password and Keys, and so on.

**Operator:** - The Operator Role has monitor permissions and can change the Runtime state for example; the operator can start and stop the servers.

**Configurator:** - The Configurator has monitor permissions and can change the Websphere Application Server Configurations.

**Monitor:** - The Monitor role has only the least permissions. This role primarily defines the User to viewing the Application Server configuration and current state.

➤ **Admin Security Manager: -**

The Admin's Security Manager has privileges for managing Users and Groups from within the administrative control and determines who has access to modify Users and Groups using Administrator role mapping. Only the Admin Security Manager role can map Users and Groups to Administration Roles. By default Admin ID is generated to the Admin Security Manager.

➤ **Iscadmins: -**

The Iscadmins role has Administrative privileges for managing Users and Groups from within the Administrative Console only.

Note: - To manage Users and Groups

➤ **Auditor: -**

Users generate this role can view and modify the configuration settings for the security Auditing subsystem For example a user with the Auditor role can complete the following tasks.

- Enable and Disable the Security Auditing Subsystem.
- Select the Event factory implementation to be used with the Event Factory plug-in port.
- Select and configure the service provide or emitters or both to be used within the service provider plug-in-port.
- Set the Audit policy, that describes the security Auditing subsystem.
- Set the security policy that describes the behavior after application server in the

event of an error with the security auditing service.

- Define which security events are to be audited.  
The auditor role the monitor.

1. Admin Console
  2. IACL/Jython Scripting – 6.1 onwards Jython isn't supporting.
  3. Application Server Tool Kit
  4. Rapid Deployment or Host Deployment.
- SystemError.log → to find the invocation Error while starting start Manger.
  - Sample Applications – installableApps  
InstallableApps contain – default-applications
- application.xml:-**  
C:\IBM-  
ND\WebSphere\Appserver\profiles\Appsrv01\installedapps\vostrocels01/default  
application.ear\META-INF → application.xml

#### **Step1: Select Installation options**

- ☐ Pre-compile JSP  
Directory to install application  
[                    ]
- ☐ Deploy Enterprise beans  
Application Name  
[plantsByWebShere]
- ☐ Enable Class Reloading
- ☐ Deploy Web Services

#### **Which file will be updated after deployment?**

'serverindex.xml'

#### **➤ Steps to Access an Application:-**

1. Find the context root of the Application.
  2. Find the target or server where that Application was deployed.
  3. Identify the hostname of that Application.
  4. Identify the port number corresponding to that host under the server.
  5. Make sure that host name port number was registered under host aliases.
- Select Enterprise Application.  
Target Mapping  
Map virtual hosts for web Modules.  
<http://vostro:9080/plantsByWebsphere>.  
Here 9080 is http transport port number.  
Environment: - -select virtual host  
-Default host – host aliases.

#### **➤ Steps to Deploy an Application:**

- Login to the Admin console Select Enterprise applications, select install option.

- Browse the Application either a .war file or .ear file.
- If it is a .war file we have to provide a context root. If it is .ear file No need to provide a context root.
- Specify that Application parameters like installation location, Application Name, Pre-compiled JSP, whether it contains ejb's and Web Services.
- Specify the target of the Application either the Server name or a Cluster name.
- Map the Data sources, & EJB's with JNDI
- Map virtual host by default it will select default-host.
- Save the changes and start your Application.

## ➤ CLUSTERS:

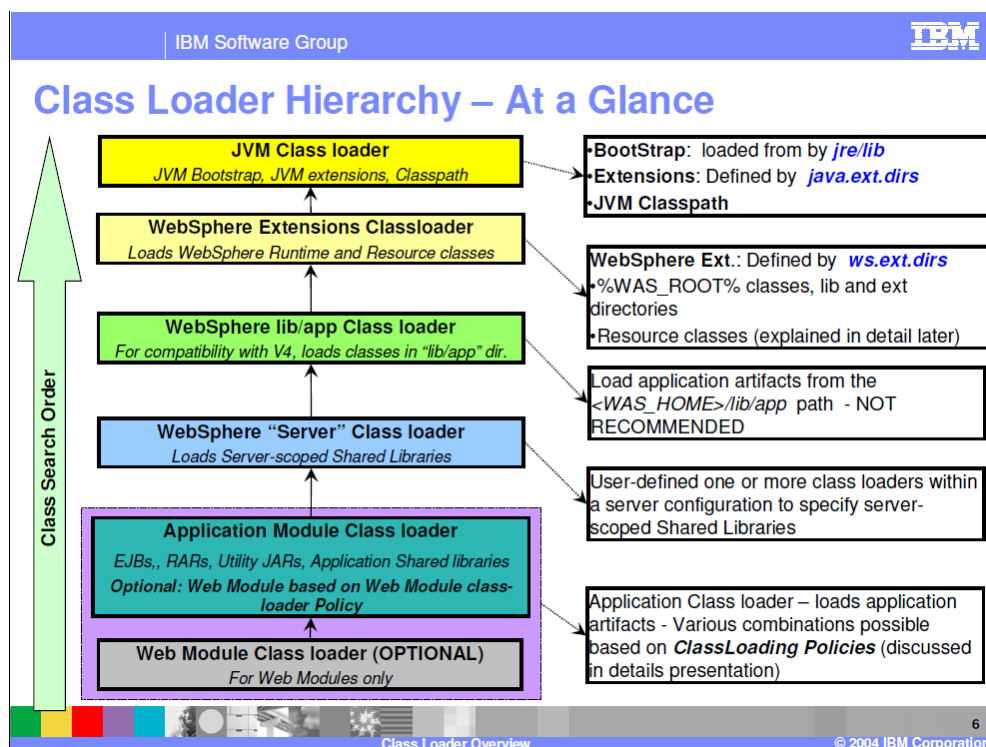
- A cluster group of Servers. We are going for a Cluster to achieve high availability.
- There are 2 types of Clusters.

### ➤ **Vertical Cluster:**

In Vertical Cluster clusters we are creating all the cluster members under the same Node (Box). If any one of the Cluster member is down request will be routed to other cluster member. If complete machine get crashes end user will get effect more in case of Vertical Cluster.

### ➤ **Horizontal Cluster:**

Here we are creating cluster members under different Boxes. If anyone of the Cluster member is down or complete Machine crashes at the time also end user will get response. Here the impact is very less. But maintenance cost is high and performance is low when compare to Vertical cluster.



## ➤ CLASS LOADER's:

- Class loader is one of the components under the JVM which loads the Jar files into the JVM.
- We have different types of Class Loaders:
  1. JVM Class Loader
  2. WebSphere Extension Class Loader
  3. WebSphere Server Class Loader
  4. Application Module Class Loader
  5. Web Module Class Loader

**JVM Class Loader:** (JVM Class Loader) it loads the Jar files which are under JVM class path.

**WebSphere Extensions Class Loader:** - It loads the Jar files which are under WAS root –lib library, ext directory, and classes directory.

**WebSphere Server Class Loader:** - It loads Jar files which are under shared libraries.

**Application Module Class Loader:** It loads Application related jar files,

**Web Module Class Loader:** - It loads Load Module related Jar files.

**These are different types of Class Loader Policies:**

**Under Server level:** Under Server level we have two different types of policies

**Server Levelà**

1. Single Class Loader Policy
2. Multiple Class Loader Policy

**Under Application Level:** Under Application level we have two different types of policy

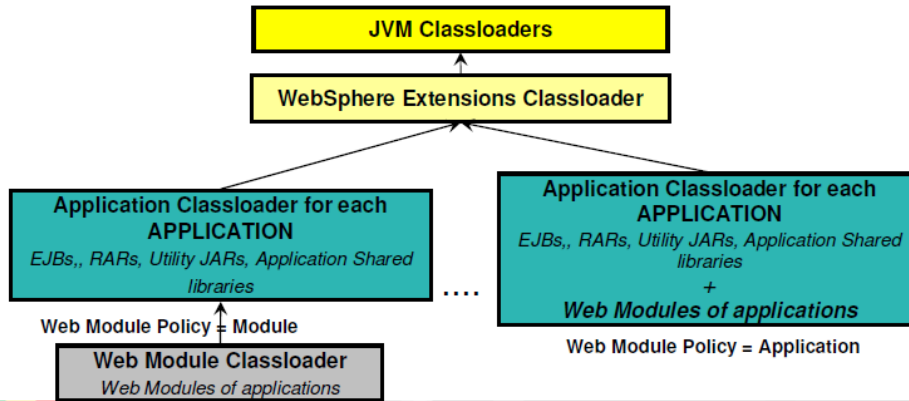
**Application Levelà**

1. Application Class Loader Policy
2. Module Class Loader Policy

- If I have selected the class loader policy as single. It will create only one application module class loader for all the applications under the Server.
- If we select the class loader policy as multiple, it will create an individual Application module class Loader for the Applications.
- If we select class Loader policy as application, it won't create any Web Module Class Loader, all the Web Module related Jar files also loaded by Applications module class loader.
- If we select class loader policy as a module, it will create one Web Module class Loader and web Module related Jar files will be loaded by this web module class loader.

## Application/Web Module policies: Multiple &

Application Class-loader Policy	Web Module Class-loader Policy	Comments
<b>Multiple</b>	<b>"Application" for some and "Module" for others</b>	<ul style="list-style-type: none"> <li>Pros: Can restart each application without affecting others</li> <li>Cons: Classes within one EAR cannot reference classes in another EAR</li> </ul>



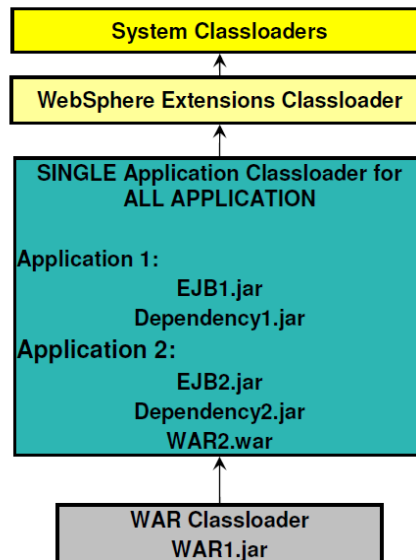
Class Loader Examples

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## Example 1

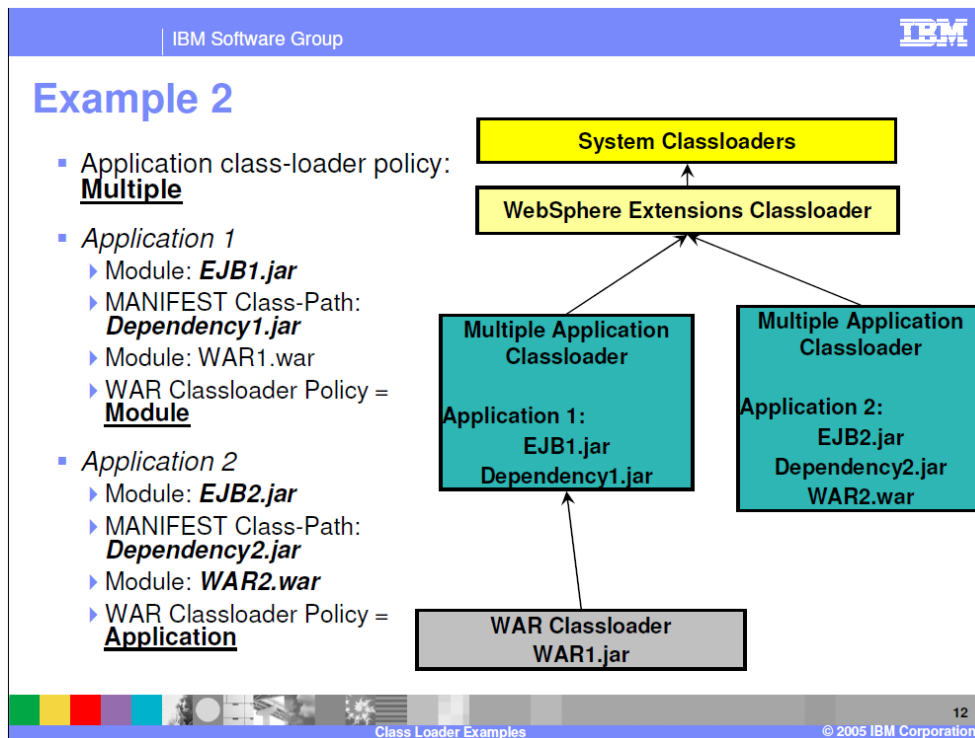
- Application class-loader policy: **Single**
- Application 1
  - Module: **EJB1.jar**
  - MANIFEST Class-Path: **Dependency1.jar**
  - Module: WAR1.war
  - Web Module Classloader Policy = **Module**
- Application 2
  - Module: **EJB2.jar**
  - MANIFEST Class-Path: **Dependency2.jar**
  - Module: **WAR2.war**
  - Web Module Classloader Policy = **Application**



Class Loader Examples

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### Shared Libraries:

- If the Applications are using same common jar files like servlets.ap.jar, JSP.ap.jar, struts.jar etc., instead of copying these Jar files to each and every application if we configure these common jar files we can reduce the size of Application and also the startup. Time of the Application and server. This shared library jar files will be loaded by websphere server class loader.

### Session Affinity:

- In a cluster environment whenever user makes a request and if the Subsequent request is loading from the same client. Suppose a request was server for that client by cluster member, now the new request coming from the same client will hit to the same cluster member even though there is no weight to server that request will be stored in the Queue and once the weight is reset then response will be generated to the End Users.

Example	a-s1
1 <sup>st</sup> request -----	3
2 <sup>nd</sup> request -----	3
3 <sup>rd</sup> request -----	2
4 <sup>th</sup> request -----	2
5 <sup>th</sup> request -----	2

### ➤ Refresh Pack:

- This is the term used to identify an update of the product version that typically contains features and changes the third digit of the version number identifies a refresh pack.
- Example: 6.0.1, 6.0.2, 7.0.0. The third digit indicates Refresh pack.

- **Fix Pack:**
  - This is the Term used to describe a product update which includes defect fixes the version numbers 4<sup>th</sup> digit identifies a fix pack.
  - Ex: - 6.0.0.1, 6.0.1.39, 7.0.0.19.
- **Fix Interim Fix: -**
  - These two terms indicates a temporary or emergency product update focused on a specific direct. This type of update used to be referred as an Emergency Fix or E-Fix.
- **Steps to Apply a Fix Pack or a Refresh Pack:**
  - Check the current version of WebSphere by using '**version info.sh**'
  - Stop all process that uses the WebShpere
  - Take a backup by using '**backupconfig.sh**'
  - Copy update installed directory to WAS root execute update executable file.
  - Now start your WebShpere process.
- **JDBC Providers: -** It is specifies what type of Database we are using and what type of implementation we are configuring.
- **Data Source: -** It is unique Name which holds information about Data Base like hostname, type of the Driver, port number, Data base Name and User credentials about the Data Base like User Name and Password.
- **Connection pool: -** It contains pre-defined connection objects and server will use this existing pre defined connection objects from the pool whenever we make a request. Once the transaction is completed connection objet will not be closed, connection object back to the pool and it will be used for further incoming request.
- **Connection Pool Properties:**
  - Connection wait timeout:** It is a time Interval which defines how much time a request can wait to get a connection object from the pool if connection pool reaches to Maximum no of connections.
  - Minimum Connections:** It defines the no of Minimum connection objects in the pool by default one is the connection objects in the pool by default one is the connection object
  - Maximum connections:** It defines the no of Maximum connection objects in the pool. By default - 10.
  - Unused time out:** It is a time interval which defines when the connection object has to be discarded from the pool if a connection objects not in use.
  - Aged Time Out:** This is the time interval which indicates the life time of the connection object is used for a long time and if that object reaches to aged time out interval the transaction will be discarded and connection object back to the pool.
  - Reap Time:** It is the time interval which indicates when the pool maintenance thread has to run across the connection pool. It any connection object reaches to aged time out or unused time out it will take necessary action on that connection object either the connection object should be in the pool or discarded to the pool.
  - Implementation type:** Connection pool Data Source: It is a Single Phase Commit. Whenever Transactions are completed with a particular schema that schema will be

committed. It won't wait other schema transactions or not.

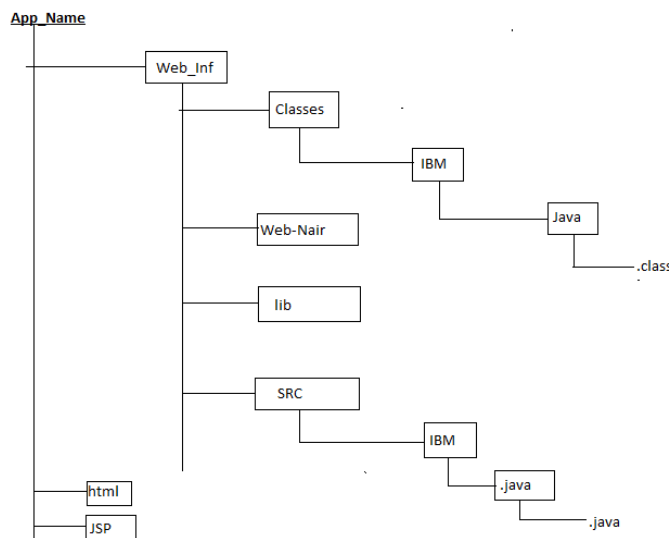
**XA Data Source:** It is a 2 phase commit. Once the transaction particular schema is committed it won't commit immediately until or unless all the dependency schema transactions are completed successfully.

- It will commit all the schemas at a time otherwise none of the schemas will be committed.

#### ➤ Web.xml:

```
<web-app>
<Servlet>
<servlet-Name>My Servlet</servlet-name>
<servlet-class>abc</servlet-class>
</servlet>

<Servlet-Mapping>
<url-pattern>call my servlet</url-pattern>
<servlet-name>My Servlet</servlet-name>
</servlet-mapping>
</web-app>
```



#### ❖ REQUEST FLOW:

1. Whenever user makes a request for example [www.abc.com](http://www.abc.com) initially request will go to DNS. DNS request forward that request to Load Balancer.
2. Load Balance forwards that request to Webserver we are using IHS server as a Webserver.
3. If request is a static request i.e. if a request is looking for any html pages or images etc. Webserver itself generates the Response.
4. If a request is Dynamic request, Webserver roots that request to corresponding Appserver with the help of plugins.
5. At the time of Webserver startup. It loads '**httpd.conf**' file into the server. It contains path of the '**plugin.cfg.xml file**'.
6. '**Plugin-cfg.xml**' file contains complete information about Application Server Environment. So that webserver forwards the request to the corresponding



Appserver.

7. Appserver contains mainly 2 containers

1. Web Container

2. EJB Container

8. Web Container is responsible to execute web resources like servlets, jsp's, html... etc.,

9. EJB container is responsible to execute EJB resources like Session Beans, Entity Beans and Message Beans.

10. If a request is looking for Web resources like Servlets, JSP's, Web Container itself generates the Response.

11. If a request is looking for EJB resources like Session Beans, Entity Beans and Message Beans Driven Beans, that request will be forwarded to EJB container through JNDI an RMI or 110p protocol.

12. If request requires any Database interaction that request will be forwarded to connection pool, connection object, once the transaction was completed, that connection object will be back to the pool.

13. Finally response will be forwarded from Web Container to Web Server and Web server forwards that request to End User.

➤ **Steps to Configure Data Base or JDBC providers or Data sources:**

- Identify the Jar file Location.
- Configure Jar file with Websphere variables.
- Create JDBC providers
- Create Data Sources.
- Test the Connection  
Username: admin  
Password: admin

➤ **Oracle:**

The Default username in oracle is SYSTEM or SYS

Default Oracle port number ID: 1521

Default Data Base in Role : XE

Jar files Necessary : jdbc14.jar

➤ **DB2:**

Default username : DB2 Admin

Default port number : [50000](#)

Default Data Base : SAMPLE

Jar files : db2 jcc.jar.db2 license – cu.jar

**1. Connection pool Data Source:** It is a single face commit

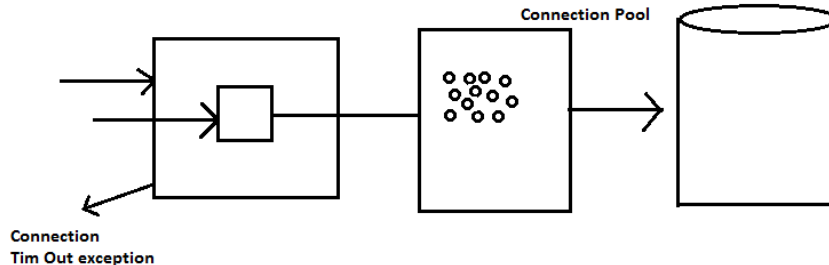
**2. XA Data Source:** 2 phase commit

- Type of connection pool parameters (properties)

Connection Timeout – default 180 sec

Min Connection – default min  
 Max connection – default max is 10  
 Unused time out –  
 Aged timeout –  
 Reap Timeout –

**When you will get connection time out exception?**



### ❖ Web Server:

- Generate plugin.cfg.xml
- **Goto dmgr bin>** or if it is not there **–Appsrv/bin> ./Genplugin.cfg.sh**  
 It will generate plugin.cfg.xml file under your <profile-home>/config/

### ➤ Steps to access an Application through the Webserver:-

- Generate plugin.cfg.xml file by using ./Genplugin.cfg.sh or through admin console.
- Configure the path of the plugin-cfg.xml file under httpd.conf file
- If we
- Make sure that Application server Application and Webserver or Running fine.
- Access your application through the Webserver port no by giving the uid  
<http://hostname:<webserver port number> /context root of the Application>.
- If we request is going through the webserver we can find a entry in the Access.log file.
- WAS root directory -> profiles/Appsrv01/bin>
  1. Dmgr01/bin>Genplugin-cfg.bat
  - HIS – 6.0 à plugin 6.1 ß ND6.1
  - HIS-6.1 – X
  - Configure webserver.bat à C: /plugins-bin
  - Configure webserver.sh
  - C:\localhost:81\PlantsByWebSphere.

### ❖ Types of LOG'S:-

#### 1. JVM Logs:-

- I. System.out.log
- II. System.err.log

#### 2. Native Logs:

- a. Native-Stdout.log
- b. Native-stderr.log

### 3. Trace Logs:

- a. Trace.log

### 4. Activity logs/Service logs:

- a. Activity.log

### 5. Profile Creation Logs:

- a. wasprofile-create-<profile-name>.log   à6.0
- b. <profile-name>-create.log               à6.1

### 6. Installation Logs:

- a. log.txt

### 7. Fix Pack logs:

- a. Update.log.txt

### 8. FFDC Log:

### 9. Command Line Logs:

- a. startServer.log
- b. stopServer.log
- c. addNode.log

### 10. Webserver Logs:

- a. Access.log
- b. Error.log
- c. Admin Error.log

- **JVM Logs:** - Each and Every process there will be jvm.log  
              <profile-home>/logs/(<serverName>)<processName>à1
- **Native Logs:** -<profile home> /logs/<processName>/ à1
- **Trace Logs:-** à1
- **Activity Logs/Service Logs:** -       <profileHome>/logs à2
- **Profile Creation Logs:** -   6.0à<WAS-root> logs/WAS profile
- <                   6.1à<WAS-root>/logs/manageProfiles/
- **Installation Logs:** - 1.temp  
                          2.<WAS-root>/logs
- **Fix Pack Logs:** -<WAS-root>/logs/update
- **FFDC Logs:** -<profile-home>/logs/ffdc/
- **Command line Logs:-**
  - 1. startServer.log               à1
  - 2. stopServer.log               à1
  - 3. addNode.log                  à2
- **Webserver logs:-**
  - 1.       Access Logs
  - 2.       Error Logs               à<JHS-root>/logs

### 3. Admin Error Logs

#### ➤ JVM Logs: -

1. System.out.log.

2. System.err.log

These are called as JVM Logs.

**System.out.log:-** It will contains all the structured print stream messages, Like Application component loaded started, stopped, services started, server started etc., does not contain any error messages, System.err.log files contain Error messages like port conflicts create listener failed Java.lang.class not found exception, java.sql, sql exception etc.,

#### ➤ Native Logs (or) Process Logs:-

- Native-stdout.log contains other than java code information like .dll, .iso, .exe etc.,
- Native-stderr.log contains Garbage collection information and this log will be created once we enable [] verbose Garbage Collection. This is available under
- Server1\Java and Process Management\process definition\Java virtual Machine\[]

#### ➤ Trace Logs: -

- Trace.log file will be created once we enabled Trace.in. It contains detailed information about a particular activity. That is which class it was called, which method it was called etc.,
- It is easy to pin point a failure with the help of Trace Logs.

#### ➤ Activity Logs or Service Logs: -

It contains all the process information under a profile. There will be only one Activity.log file for entire profile. By default it is in binary format. We can't read with a normal Text editor. We have to use Log Analyzer to analyze this log file. Here we can compare with **Symptom Database** for the known problems.

IBM software Assistance \ wasLogbr.bat

#### JVM Logs-

##### 1. System.out.log:

It doesn't contain Error Messages. S.O.P ("Welcome")

##### 2. System.err.log:

All the error messages are related in the system.err.log.

System.err.print("\_\_\_\_\_")

#### - Native logs/Process logs:

1. Native-stdout.log - .dll, .iso, .exe ----> these information will be recorded into this log file.

2. Native-stderr.log ---> this contains Garbage collector information.

- **Trace.log:** It contains detailed information about a particular Activity.

- **Activity logs:** For every process there will be one Activity log. It contains all process information. By default it will be created by binary code. To open this code we have a tool called **Loganalyzer**.

- **Profile Creation Logs:** For each and every profile there will be only one log.
- **Installation log:**
- F
- **FFDC logs**
- **StartServer-log:** <Profile Home> under the server name.

## ❖ **LOGIN UTILITIES:-**

### 1. **WebSphere Tracing:** -

- Tracing provides detailed information about the execution of WebSphere Application server components including Application Servers. Clients and other process in the environment.
- Trace files show the Time and sequence of methods called by WebSphere base classes.
- We can use these Trace files to pin point a failure. The different types of Tracing and logging levels are “**all, debug, detail, config, info, warn, error, severe**”.
- When we set login level as ‘all’ it enables all the logins for the component.
- When we set login level as ‘off’ it disables on the login for that component.

### 2. **Collector Tool:** -

- It gathers information about WebSphere installation and Packages it in a Java Archive (jar). This Jar file we can send to IBM Technical support to assist in determining and Analyzing the problem. We can execute a collection Tool by using command called ‘collector.sh’.

### 3. **FFDC:** -

- This tool preserves the information generated from a processing failure and runs control to the affected engines.
- FFDC runs in the background and collects events and errors that are accruing during WebSphere Application Server Runtime. By default FFDC logs will be created under <profile-home>/logs/FFDC.
- The main use of FFDC logs is to get service from IBM.

### 4. **Log Analyzer:** -

- By default Activity logs are in binary format. If we want to read that log files we have to use log Analyzer.
- It manages all the data and displays entries.
- Based on its Symptom Database the tool Analyzer interprets the events or error conditions in the log entries to diagnose the problem.
- We can open ‘log analyzer’ by using a command “./was logbr.sh”.

### 5. **Thread Dumps:** -

- Thread dumps other snapshot state of JVM at a given time they show what every Thread is doing at the time of dump. Thread dumps contains information of State of Threads and these are most useful in debugging hung process or Hung Threads.
- We can generate Thread Dumps by using a command
- kill-3<process ID>

- By default Thread Dumps will be generated under your “<profile-home> Directory with a file name “Java core.<Time Stamp>.pid.txt”. Alternatively we can Generate a Thread Dump by using a command “\$ Admin console invoke \$ jvm dumpThreads”. (These are case sensitive). This one after setting variable “wasadmin> set jvm[\$AdminConsole completeObjectName type = JVM, process=server1,\*]

## 6. Heap Dumps: -

- Heap Dumps provides detailed information about objects in the Heap memory.
- We can see size of the objects, relation between the objects and references for the objects.
- Heap Dumps mostly useful in debugging, memory leaks, we can generate a heap dump by using a command \$ Admin console invoke \$ jvm generated Dump”. It will generate a file called “HeapDump.<timestamp>.pid. phd”.  
(Phd-portable heap dump).
- Alternatively we can generate both Thread Dumps and Heap Dumps by using a command “kill-3<pid>”. If we set the parameters :-
- IBM\_HEAPDUMP - True
- IBM\_HEAP-DUMP- True
- IBM\_HEAPDUMP-OUTOFMEMORY – True
- IBM\_HEAPDUMPPDIR \_Heap,

Set these parameters under

<server-name> à Java and Process Management à Process Definition à

Environment entities.

### - How to find a process ID?

## ❖ Virtual Host:

By using virtual host we can access an application with Multiple Host Names or domain Names.

There are 2 types of virtual Hosts.

1. IP Based Virtual Host

2. Name Based Virtual Host

- If we want to Access an Application with Multiple Hostnames at the time we have to configure virtual host parameters in the httpd.conf file.
- We can access an application with multiple port no's from the Appserver if we configure virtual host 'host alias'.

### 1. IP Based Virtual Host:-

- In the case of IP Based virtual host we are capturing with the IP Address

### 2. Name Based virtual Host: -

- In the case of Name based virtual host by using the host name and parameters like Document root, Application location up to WAS directory and directory index have to configure under virtual host section in the httpd.conf file.
- In the application server at the time of deploying application we have to specify a host name by default it will take default host. If we want to configure other

default host after deploying application also we can create a new virtual host and have to map that new virtual host to the Application.

- We can access the same application with multiple port numbers and we can deploy multiple applications under the same box with the help of virtual host.

### **Name Virtual Host Plants**

```
- <virtualHost plants>
- ServerName Plants
- ServerAlias Server1
[DocumentRoot“c:\IBM_ND_Apriol-
7.0\WebShpere\AppServer\profiles\Appsrv011\installApps\Dmgr_cell01\plantsByWeb
Sphere.ear\plantsByWebSphere.war”.]
DirectryIndex.html
</virtual host>
NmaeVirtualHost Snoop1,abc
<virtualHost Snoop1,abc>
ServerName Snoop1
ServerAlias Server1
Docmuent Root “C:\IBM_ND_April-
7.0\WebSphere\AppServer\proflils\Appsrv01\installedApps\dmgr_Cell01\DefaultAppli
caiton.ear\DefaultWebApplicaiton.war”
DirectoryIndex index.html
</VirutalHost>
```

### **➤ Core Groups:-**

- A core group is a component of the high availability Manager function. A default core Group called Default core Group is created for each Cell in a WebSphere Application server Environment.
- A core groups must contain at least one NodeAgent or Deployment Manager.
- Every process is a member of exactly one Core Group.
- All members of clusters must be members same core group.

Java 2 security:

- Java 2 security is to provide Access to the system Resources like files, ports, sockets etc.,
- If we need to allow the access for Resources we need to give permissions with the help policies.

### **❖ Steps to configure SSL: - (Secure Socket Layer)**

- We can enable SSL in 2 different ways
- 1. By using self signed certificates
- 2. By using 3<sup>rd</sup> party certificates
- 3. If we want to configure SSL by using 3<sup>rd</sup> party certificates. First we have to Generate **.kdb file** (Key database) this we can generate by using **ikeman.sh**, after that we have to rice certificates signing request. Now copy **CSR** output content then login to the *Certificate Authority site*, then theirprovide you the organization details and select to which Web Server you require SSL certificate and Submit your

request.

- Once you receive Intermediate certificate and Actual Certificate we have to import that configure in the httpd.conf file with SSL module.
- Save the changes and restart your web server.
- If you want to enable SSL for plugins and Appserver we have to generate a Trust file and keystore file and mutually copy Trust file of plugins to appserver and appserver trustfile to plugins and configure in the SSL inbound channel and restart your server.
- SSL user's public and private key pairs to provide a secure communication.

✓ **Discussion:** -what is this SSL and what is the use of SSL? See some of the bank sites we can observe like Secure Protocol example see some the sites is showing like this site is verified by interest, this site is verified by so and so etc., these are all the certification authority.

Why we require a certificate? What is the necessary for certificate?

Assume client and end-user, whenever user makes a request before reaching to DNS or before reaching web server whenever I submit the user credentials like User name and password. Once I submit this user request parameters are going to request to the server. These parameters are reached to the server then only it will do authentication and authorization, then it will give the permissions. We are going to request to the server. That means your Request contains user information's. It may be user's credentials or it may be bank statements etc., if user is interacting to the server if it is a web based application that request is travel through the Internet. Suppose I am the user present I am in India if I am giving like aware.com the request is going to the US servers. Mean while it has to travel lot of components through the internet, whenever the request is carrying request parameters there may be chance of hack your request. Hackers will hack your request. Sometimes we came to know username and password hacked and applied then transaction are transferred, triggering bank accounts, funds transferred. If the request parameters i.e highly confidential parameters are hacked by someone, there will be huge impact to the end-users. So to avoid this with the help of SSL what we can do is we can provide a secure connection between the client and server. Even though hackers hack your request they can't read your parameters. Those are decrypted, Decryptions means it is going to change some other formats. Suppose if I give user name as ABC it is going to change the parameters like x1z4z05. The users can't understand. If you enable SSL here your request to be encrypted the client side under the server side it is going to decrypted to the original format. In the same way whenever the server is responding and it is going to encrypted. This will happen with the public and private key pairs. See some of the sites whether you want to accept secure item so and so if you press yes then only you will get permissions. 1 way SSL, 2 way SSL. If it is 2 way SSL both client and server have to accept. If it is 1 way SSL only server will accept. If you enable SSL we can provide a secure communicate client and server this will happen with the help of public and private key pairs to the help encryption and decryption.

✓ **Discussion:**  
**LDAP Server:**

In case of Registries we are having 3 types of user registries in 6.0 like profile OS Custom and LDAP. In 6.1 onwards we have 4 types of registries Federated repository is added.



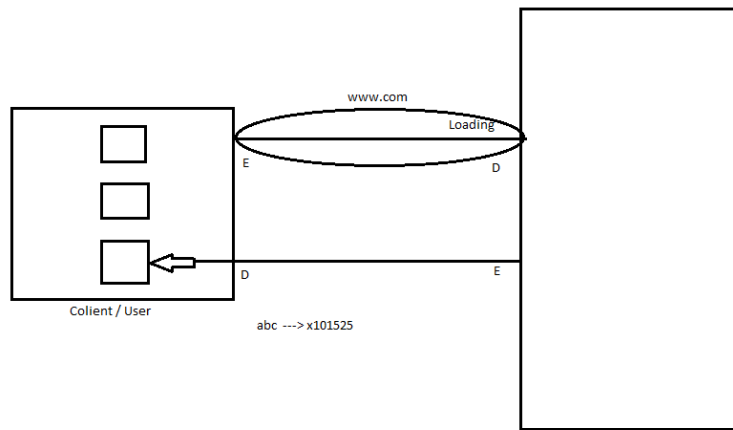
## What is this LDAP:-

Assume I have Application Server and we have one External directory server. It may be either serve1 server, Tivoli Server or Domino server. These directory servers are mainly to store the user's information. In local OS where we are storing Users information? In local OS We are storing user's credentials like username and password are storing in the operating system. What about custom registries? Where we are storing user information in the custom registry? Under **Files** we are storing user information in the custom registry. Whereas here i.e LDAP we are storing under separate external directory servers. It may be either Tivoli or serve1 or Domino.

- In interview part they will ask you how you will configure your LDAP server to Application server:

If you want to configure LDAP server in the Application server first of all you have to know some details regarding the LDAP Server the host name of the LDAP server this host name may be in different host or different location, you have to know where is that host that host name, the port number of the server, user credentials of the server, type of directory server. We have 2 names called Base DM and Bind DM.

- We need some information about the directory server then only we can configure here. Whenever user makes a request at the time the request will be forward to the directory server if the user is existing then the server will be responded.
- You don't have any chance to install LDAP server once you joined the organization. There will be separate LDAP team to do this.
- You will get LDAP Directory server Console, here we have to create user's registers/information this will be done by LDAP Team.
- After installation completed Configure with Application server login to the Console if it is a dmgr or what it may be whatever you have login to the Admin console, expand security and global security and select LDAP user registry under user registry now here we have to provide LDAP server details what are the details given in the LDAP Server the same details we have to provide here. Provide user name and password, type of directory server's serv1 directory server that is serv1 5.2, host name, port number by default is 389; if SSL is enabled port number is 6 digits. Here I have to provide Base DM and Bind DM.
  - Base DM is for Authentication
  - Bind DM is for Authorization.These all this information provided by the LDAP server team.
- Save the changes. Here also **security.xml** file get updated. Now expand AuthenticationMechanism go to LDPA authenticationmechanism. Here we have to confirm the password whatever the configuration we are doing in local OS and trusted procedure same but parameters changes.
- Enable Global security and select Active User is you have to select LDAP user registry, save the changes.



## ➤ NOTES:-

### ➤ Step to Configure LDAP user Registry: -

- Login to the admin console expand security and select Global security.
- Select LDAP user Registry and provide LDAP server details like User ID password type of directory server, host name of the directory server , port names of the directory server( by default by 381, if SSL is enabled LDAP server port number is 636) then provide Base destining machine name and Bind destining machine name.
- LTPA authentication mechanism confirms the password, Enable Global security check box and select LDAP user registry under Active user registry drop down save the changes and restart your server.

## ❖ ISSUES:

### 1. End users are getting page cannot be Displayed :

- We are able to access Application from Appserver and unable to access Application through Web Server.
- I have checked the status of the web server, it is running fine in a log files also there are No messages regarding this issue but I understood that request is reaching to web server and unable to reach to appserver because in the access.log file I found and entry reporting the request details.
- Then I have checked the path of the plugin-cfg.xml file in the httpd.conf file whether that path is properly configured or not. Yes plugin-cfg.xml file is available under plugin config location, but I don't know what is the issue, because there are No Error messages plugin logs and web server logs.
- To cross verify plugin-cfg.xml file i took a back of the existing plugin-cfg.xml file and generated a new plugin-cfg.xml file by using command `genpluginconf.sh`. but still I am facing the same problem I am able to access application from Appserver and unable to access application through web server, and also I verified the virtual host host alisis port 80 is registered or not, yes, it is registered but unable to figure out the problem/issue then I went through plugin-cfg.xml file parameters there is parameter called transport host name here the value should be the host name where the Application was deployed. But instead host name it is taking node name as a host name. I suspected may be this is the issue and modified manually the exact

host name of the application by using VI editor at the time I am able to access application through the web server also. But whenever I re generated plugin-cfg.xml file by using Genpluginconfig.sh it is generating file but it is not taking the proper values for the plugin-cfg.xml file parameters. In the IBM site I found that I have to apply a fix pack to resolve this issue then I raised a change request after getting an approval from the onsite support team I had applied fix pack then I didn't face any time this kind of issue.

## **2. Issue with Session Time out Interval:-**

- End users are able to access application but whenever they select modules to give details they are not gathering the details. This is an incident ticket and it is a serv1 or S1 ticket.
- To resolve this issue first I have to check level1 servers are upon running or not. Yes, web server is running fine and also I am able to see an entry in the access log file. That request is reaching to web server.
- I try to access that application from web server. I am able to access and facing the same problem once I click the Modules I am not getting the details.
- I have log in to the server where that application was deployed and check status of the server and application, yes, both are running fine but in the JVM log in system Erro.log I found an exception called java.lang.illegal state exception could not invoke service method on servlet I found in Google that this exception makes as due to errors in the code or due to invalid session objects and also at the time of response generation.
- Actually there are no changes in the code because we have deployed that application before one week and we are able to access that application before one hour. But I suspect that there may be a problem with session objects because in the error message java.lang.illegal state exception. It is showing session object internal with an ID. Then I have login to the admin console. I selected application under that we have additional properties there we have an option called session management then I increased set time out value after getting approval from onsite support team. Then I restarted application and we didn't face any time this kind of issue.
- To resolve this issue I went through http session interface life cycle and understood how new session objects will be created and how invalidate whether will be called after getting complete picture in session interface lifecycle I understood that I have to increase set time out interval.

For Issues: <http://www.websphereusergroup.org/>

Difference between

- Base is mainly for Authentication and bind Bind Mechanism Name is for Authorization. It is an object for the base dis Mechanism Name. These details are provided by LDAP Server Team.

## **❖ Environment Details:**

We are having 4 HIS servers, around 60 JVMs, 2 clusters, 12 Applications, 8 Nodes, 6 physical boxes, backend oracle, Coming to front end we are having around 4 web servers, we are using 7.0 as an IHS server or webserver, Coming to Middle wear we are using Application server 7.0 as a middle wear, here we are having around 60 JVMs; All are in a Horizontal cluster environment these are in a production. And

coming to clusters we are having 2 clusters, these clusters have 8 Nodes and these Nodes we have 12 Applications are Deployed. And Coming to back end oracle is a back end.

- 4 IHS Servers
- 60 JVMs.
- 2 clusters
- 12 Applications
- 8 Nodes
- 6 physical Boxes
- Back end - Oracle.
- Front End - 4 web servers
- Middle Wear - Apache server 7.0

**If they ask about explain Application server Architecture:**

Explain about the components,

In the Application server we have Web Container, EJB Container, JNDI and Message Beans

Web container responsible to execute the web resources like servlets and JSPs.

EJB Container responsible to execute the EJB resources like session beans, NTT Beans, Message Driven Beans.

JNDI is mainly for look up for Data sources and EJBs.

Web services engine will coming to picture you have any web service inside

Applications. And Messaging Engine is necessary if you are configuring tickets to JMS Applications or WebSphere MQ.

❖ **Roles and Responsibilities:**

**Daily Roles:**

I check is there any tickets raised by the on-site support team normally we have tickets like servers down application down, sometimes application deployments, configuration changes this kind of tickets we have. Around 4 to 5 tickets normally we have. My Applications are very stable sometimes it may resolve to 10 tickets also. Sometimes we have installations also. But it's not a regular basis. On regular basis I have to work on instant tickets and change tickets.

➤ **Scripting:**

Jython script, Shell scripts.

Suppose if they ask about scripting. You can say in my environment we have pre-defined scripts for deployments. I am not into writing the scripts from the scratch. But I can modify the changes in the existing scripts like application location, application name. if I get a chance yes, I can do that.

❖ **Tell about you self:**

I have Completed MCA. After that I have started my carrier with this technology. Currently I am working with Wipro. Total I have 4 years of experience relevant to WebSphere I have 3.8 years of experience. I involved in few different versions like 6.0, 6.1, and 7.0. I supported for different environments like dev, test, pre-prod and prod servers. I have experience in between the environments to the scratch like installing web servers and application servers and involved plug-ins, involved to a

process, involved profiles, involved federation, Application server profiles and Deployment management profile, involved in Global security LDAP servers like serv1 and Tivoli Directory servers, I have experience in configuring Databases like Oracle and DB2, I have experience in trouble shooting various instant tickets, change request According to the SLA's, involved trouble shooting debugging the issues. I have experience in configuring instead environments like vertical as well as horizontal cluster and involving deploying the applications configure virtual host web servers as well as from appServers.

- Don't end your tell about your content with Trouble shooting part.

## ❖ **SDLC (Software Development Life Cycle)**

Suppose if it is

If you are unable to resolve that issue will get escalated. The

So and so time period the company is unable to fix the issue or resolve the issue the company has to pay. There is huge impact of the revenue in case of production support.

- Sometimes if SLA violates and also there is certain time period within the time period also if company has unable to resolve the issue Company has to pay.

What type of issues comes under serve 1 ticket?

What type of issues comes under serve 2 ticket?

What type of issues comes under server3 tickets?

**Serve 1**-serve1 in the sense High severity – Suppose if ICICI Application is down, the employees is idle, the customers is idle contactors are not going on and also impact on the reputation. There will be lot of things in the background.

That means high priority like Applications down, servers down, we are unable to access the application these kinds of issues is comes under Serve 1

**Serve 2:** you are able to access the application may be 1 or 2 issues are not working.

Like you're login to your transactions account, if it is not giving a bank statement, maybe it is giving only 3 months statements or may be online transfers will not happened or sometimes if you are not identify the services what bank is providing. If particular option is not working, suppose there is no much impact on the business at the time they make the issue as a serve 2 ticket.

**Serve 3:** if the there are any deployments or if there are change activities like giving some changes, deploying applications, creating clusters these comes under serve 3 ticket.

- Generally who will raise the ticket? From where you will get a ticket?

- If you are a user, if you get any problem you will report a customer support. Customer support will interacts with Technical team (expertise), if Technical expertises are unable to resolve the issue they have to interact the people who developed the application.

- That means finally we are getting a ticket from the CLIENT.

- Client is raising a ticket and whenever they raise a ticket they will provide the severity of the ticket. Once we receive the ticket immediately you have to find what is the severity of the ticket. Based on the severity you have to respond to the ticket. In the SLA they will specify that will resolve this ticket if it is a serv1 ticket 1 hour time, if it is Serve2 ticket 4 hours times, if it is serve3 ticket may be 1 or 2

days. We Start the investigation and will solve as soon as possible, immediately reply to the client saying that the debugging under process.

- We are getting the tickets from the client. The Client will specify the severity of the ticket like S1, S2 or S3 whatever it may be. The client will specify the severity to whom specify the severity is assign, it depends on the environment once again.
- Suppose if you are in shift, if there is a ticket and if the ticket is in Bucket. You have to take the ticket and you have to resolve. Sometimes administrators are some others will assign you the tickets. Generally in the industry if they raise the ticket it will be in the bucket, you have to take the ticket in bucket and you have to resolve that is your responsibility, if you are in support. That means whatever the issue is occurred immediately I will do response like I am the responsible person take the ticket and resolve the ticket as soon as possible. You have to take initiative and you have to fix the problem.
- Administrators receives the ticket, they will check what is the severity of the ticket, if it is a serve 1 ticket or serve 2 ticket or serve 3 . If I am the administrator immediately according to the severity I have to give a response to the ticket.
- We started investigation, debugging the issue and we identified so and so problem and the issue is resolved. If the issue is resolved you have to send a mail to the Client saying that the issue is resolved who raised the ticket and also keeping the CC to your team as well as on site support team, like this issue is resolved, and its working fine. If they sometimes won't provide you any require mail regarding this issue, if you won't get any reply mail from the client within 2 days, then you can close the ticket.
- If you get response saying that 'yes, it is working fine then you can close that ticket', immediately close the ticket after you getting the response from the client or else if you won't get the reply from the client regarding your mail for that issue within 2 days then you can close the ticket.
- If we receive a sign off mail from the client we can close the ticket at the time itself, or if issue is resolved and send a mail to the client if it is working fine but if you don't get any mail from the client within 2 days then you can close the ticket.

➤ **How will you get a ticket and how will you resolve?**

- I will get a ticket generally from the client and also from the onsite support team. Whenever they raising a ticket they will specify what is the severity of the ticket like s1, s2 or s3. Based on the severity I have to resolve the ticket. For serve1 ticket there will be one hour time, I have to resolve the ticket within the one hour time, and serve2 ticket we have to resolve within 4 hours time. For serve3 ticket we have one business day and once the ticket is resolved I will send a mail to the client saying that everything is working fine and also keeping CC to the onsite support team as well as off shore support team. If I get the reply from the client there is no problem in the issue and working fine then I will close the ticket at the time itself or I didn't get any reply mail from the client within 1 or 2 days of time regarding the issue. I will close the ticket.
- If the ticket is getting escalated (escalated means within the time period unable to resolve) we have an escalation procedure. Immediately I will interact with the onsite support team they are the SME's (Subject Matter Experts). Most of the cases issue will not get escalated. If issue gets escalated immediately I will interact with onsite support team, I will tell to the onsite supported guys what is the investigation

I did and what is the error I am getting. With the help onsite support team most of the cases issue will be resolved.

- Suppose if onsite support team also unable to resolve the issue **(PMR) Problem Management Record** we are raising PMR with IBM. That means we are taking the help of IBM people saying that this is the issue, these are the problems what we are facing. They will gather some of the information from us. And they have own internal tools. With those tools they analyze and identify, will resolve the issues. Each and every issue we can't escalate.
- Most of the cases offshore support team itself issues will be resolved. My Applications are very stable if in case some times we interact with the onsite support team. With the help of Onsite support team and offshore support team will be resolved the issues. If both the teams are unable to resolve then both the teams sit and discuss doing group chat or con calls based on discussions the issue will be resolved.
- If there is any issue in your Environment there may be lot of components like Database, Applications servers, Linux, UNIX, some edge components. That means Eldap team is there, Database team etc.
- If any issue is getting escalated then all the team members will join the Con call, sometimes they will have group chat and every team check their component in their own environment (is saying that I check my component like check their own environment) and they will confirm, finally they get conclusion where the actual problem occurred and will be resolved.

➤ **What type of tickets we have:-**

**1. Instant tickets 2. Changed tickets 3. Problem tickets**

1. Instant management
2. Change Management
3. Proper Management

**1. Instant Management:-** Instant Management means the activities which are occurs suddenly.

Serverdown, Application down, 404 errors, database down, Eldap Is down.

**2. Change Management:-** Change Activities, doing some changes environment like port numbers, modifying username, password. Weekend will happen most of the time.

**3. Problem Management:-** If you are using same kind of issues again and again then it will be a problem.

- **ClientààSecurityààAdministrator**

- 1. First of all know about environment
- 2. Time Frame
- 3. Any changes to the environment

- Logs files place a major role in Troubleshooting.

❖ **Analyzing, Designing, Coding, Testing, Implementation:-**

- In analyzing how is going to gather the requirement? What they will do?
- B.A – Business Analyzer.  
These BA guys coming to the picture. They will gather the information from the client. From the client they will gather the requirements and they will prepare one document. (The document Name is (BRS).
- BRS (Business Requirements Specification) documents will be prepared by the B.A's. What is the client requirement they gather the information based on the requirement they will prepare one Document. This is the document prepared by Business Analyst (BA) and the document will be going to the Designing Phase/(Designing Team).
- **In the Designing Team who are designing your project?**
- Technical Architecture. Technical Architecture will take the BRS document. They will start Design the project. It may be HLD, LLD (High Level Design, Low level Design). They will design the Document here project Architectures. It depends on the Environment once again.
- Either their project Architectures or Technical Leads or Project Managers they are into Technical internal functional. It depends on the environment.
- Most of the cases project Architectures ( They have more then 15 to 20 years of Experience)
- They specified how many layers contain a project. i.e what is the content we have to use, what is the back ground we have to use/ what is the versions we have to use and what is the hardware we require. All the specifications, all the debugging, Methodologies, the levels, layers that enter to the Architectures. Then document HLD or LLD will be given to (whom) developers. ( coding and all given to developers)
- They start the coding according to the document given by the project Architects. According to the design they start the coding. Once the coding is started by the developers. They developed one application. Developers don't know how to install WAS. But they know how to deploy an application into the server. Suppose if they want to install. If they don't know how to install sometimes was a responsible person as a WebSphere administrator you have to work into the Development environment also. i.e as a WebSphere administrator we have to support for Development environment also. If necessary. Like install the application server (sometimes they don't know the deployment also). They will give the application. Most of the cases first test the Application whether the application is running or not. Then only you can deploy. Most of the cases they will run the application but if some of the environments are like just they will give the application. You have to deploy an application into development also. That means you will get a chance work in development environment also, like installing application server, implementation, supports if necessary.
- In development environment the applications are successfully running. Then it will move to ( whom) Testing team. Testing in the sense quality Analyst people (Testers).
- **What they will do?**
- They will execute some test cases. They check it is pass or failed Test cases are prepared by either this team or onsite support team or either client. They have to execute the test cases; they have to check the functionality as well as the function fails. Each and everything they have to test.



- Most of the cases they don't know how to deploy an application. If the application is deployed anything. We are able to access the application. They can test the application but they don't know how to deploy the application. The testing Team, the BA guys they don't know how to deploy and how to install a setup. You are the responsible person to deploy an application and install the setup. You have to provide an environment for them.
- If the application is running fine they will check whether each and every thing the test case is successful or not. They will test the application. I.e as a websphere administrator you have to support for Test Environment also. Once in the test environment the application is successful, then it will be moved testing environment. The Testing Environment also is successful. Suppose if they are getting any bugs what they will do? They invoke to the developers. They will use some of the tools Bugs evorn. They raise the bugs to the developers. They will modify and they check the application and once again you have to deploy the application and they will test the application. Once in the environment is successful then it will move to (whom) test environment/QA or pre-prod or UAT environment (user Acceptance testing). Here also you are the responsible person to build a WebSphere environment for the client.
- In the UAT environment who will test the application in the sense (here client will test the application whether the my requirements are satisfied or not, they implemented or not) they will check each and everything once again execute test cases and al. once in the UAT environment, it is successful in the UAT environment also you are the responsible person.
- Most of the cases you are supporting for Test, UAT servers and production servers. In the UAT environment in the sense the client is going to test your application. The requirements are satisfied, successfully implemented or not each and every thing.
- Once in the UAT environments successful then they will move to the Implementation phase that is production.
- As an administration most of the cases will get a change in supporting for Test, Pre-prod and Implementation that is production.
- You have to support for these environments most of the cases, but some of the environments will have more staging. Before production one more environment called staging.
- This is the normal procedure.
- Suppose if the interviewer ask what are the environments you're supporting for?  
**I am supporting for Test, Pre-Prod, production that is implementation.**
- My application is running successfully in the production in the application server is stopped with unknown person they huge impact to the end-users. (E.g. Gmail applicants we are accessing from the production) at the time client won't accept. So here I have to provide lot of security for that admin console. Only authenticated Authorized persons log into the admin console. They should have a permission to do any activities. Based on the experience, based on the skill level I have to provide some permission.
- Authorization in the sense we have to provide what is the permissions particular member should have either it can start the server or stop the server, login the admin console, monitor, they give some administration changes.
- We have to provide security for the admin console to minimize the impact that

applications, to minimize the impact the customers to the clients for end users.

- To achieve that to provide security to the admin console. What is the mechanism we have in the sense we have global security.
- If you enable global security I can provide only security for the admin console. Only Authenticated persons can login to the admin console.
- How to enable Global security:
- We can enable Global security in 3 different ways in 6.0  
In 6.1 we can enable 4 different ways:
- **6.0:-**
  1. Local OS user registry
  2. Custom User Registry
  3. LDAP user Registry.
- **6.1:-**
  1. Local OS user registry
  2. Custom User Registry
  3. LDAP user Registry.
  4. Federated Repository.

## ❖ “INSTALL AND CONFIGURATION NAVIGATIONS”:-

### ➤ **ORACLE:**

1. C:/oracle.XE

UID: SYSTEM

PSD: admin

Jar file: c:/oracleXE/app/oracle/product/10.2.0/server/jdbc/lib. à ojdbc14.jar

Extract Jar file you will get lot classes in pool.

2. Expand the Environment

-Select WebSphere variables

We have to define scope as a scope level Node.

- Scope is Cell level
- Scope is Node level
- Scope is Server level

Scope à Node-App-node01

Oracle-JDBC-Driver-Path - path of the jar file

Node Level: variable.xml

3. Expand Resources – expand JDBC – select JDBC providers

Select Node scope-node level

Select New

Oracle JDBC Driver

Implementation Type:

Connection pool Data Source

Next

- Default you will get one path of oracle jar.file (70) Finish

Review: variable.xml

Nodelevel-variable.xml

Nodelevel-resource.xml

Save

#### 4. Select Data source under JDBC

-select the SOAP as Node level

-select New

Data Source Name

[oracleds]

JNDI Name

[Jdbc/oracleds] Next

[ ] select and empty JDBC provider Next

ProvideNameàurl valueà [jdbc.oracle:thin:@vostro:1521:XE]

Next None all 2 levels

[oracle data.....]

Next & Finish à Save

Select oracleds which directory created in Data Source under related items.

Select JAS J2C authentication driver.

Select – New

Alias

[oracle - userdetails]

UserID

[SYSTEM]

Password

[Admin] Next – security updated – Save

Oracle Data ds

Under security

Selectà

Save

Jdbc:orale:thin:@vostro:121:XE