Just Get it Written: Deploying Applications to OC4J Using JDeveloper and EM

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NoCOUG

I Heard Him Say This

Putting application software on your PC is a bad idea ...
It's my fault.
We sold it to you. Sorry.

— *Larry Ellison, CEO Oracle Corp.,*
Oracle OpenWorld 1999

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Survey

- Developers
  - Forms
  - JDeveloper
- DBAs
- System administrators
- J2EE systems
  - 1-2 years
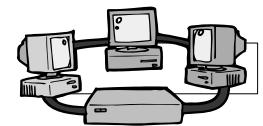 - Oracle App Server
  - Other servers

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Web Deployment

- Deployment Concepts

- JDeveloper Support

- Deploying from EM

Slides available on www.nocoug.org

The white paper accompanying these slides contains a hands-on practice

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Preparation for Deployment

- Development and testing complete
- Required libraries identified
- Application server is available
  - Has an appropriate web container (JVM) process
    - For example, OC4J for JSP or UIX
  - You know the server administration password
    - Or know someone who knows
   - Needed to copy files to the server

Deployment Objectives

- Ensure that all required libraries are available
- Ensure that library versions match between development and deployment
- All JDev projects needed must be deployed
  - Model
  - ViewController
- Files must be archived into specially formatted J2EE JAR files
  - WAR
  - EAR (if more than one application)

Enterprise Application Archive (EAR)

- Contains one or more WAR (application) files
- A file you deploy
- Copy to the app server directory: OC4J_HOME/j2ee/home/applications
  - App server processes new EAR files when restarting
  - Can also process EAR files without restarting
- The app server expands this into its component WAR files
  - Each WAR file goes into a directory corresponding to its name
  - Then it expands the WAR files
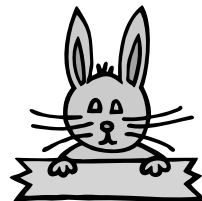
Sample EAR File
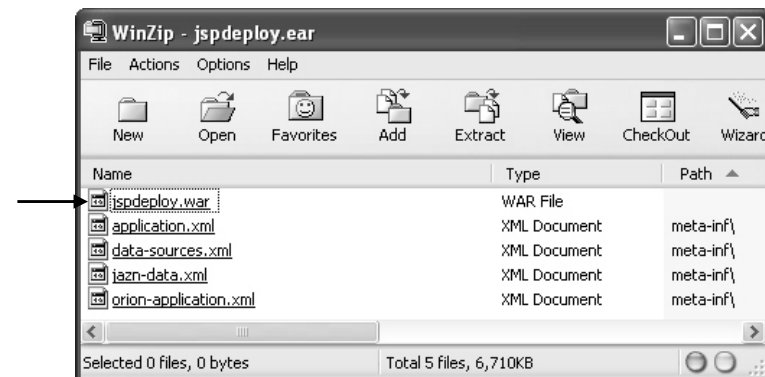
- One app (WAR) file in this case
- Several XML configuration files
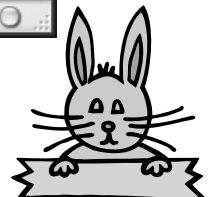
Web Application Archive (WAR)

- Also called, *Web Archive*
- Can alternatively be deployed without an EAR
- Contains all files required for an application
- Contains files or directories inside WEB-INF (the main runtime directory)
- Copied to server and expanded into separate files by the server
  - Inside a directory named the same as the WAR file

Sample WAR File

- App server extracts files into the ../applications/ <app> directory
  - <app> is the name of the WAR file
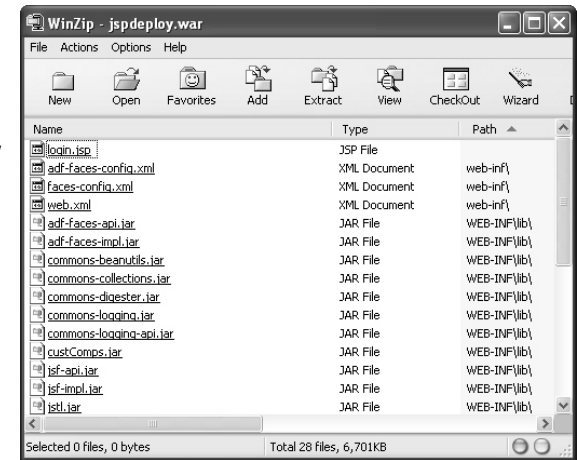
Deployed Directory Structures

- Directory under j2ee/home/ applications
- EAR file here
- WAR file here
  - All files in the WAR file expanded into this directory
- Publicly available files in WEB-INF
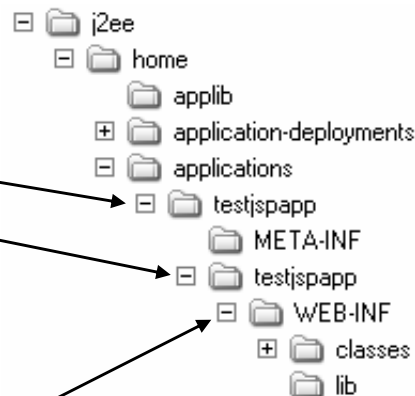
Web Deployment

- Deployment Concepts
- JDeveloper Support
- Deploying from EM

Two Big Steps

1. Prepare a WAR deployment profile
   - Specify what to deploy
     - Application projects
     - ADF BC projects
     - Required libraries

2. Deploy using the deployment profile
   - This creates the WAR and EAR
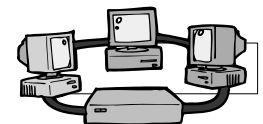   - JDev copies them to the server

> **Alternative to 2**: Prepare the EAR using JDev and copy it to the server using Enterprise Manager (an Oracle iAS utility).
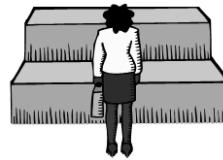
Testing in Standalone OC4J

- Between running the app in JDeveloper and deploying to the server run this test
- You need to set up the OC4J standalone instance
  - OC4J is part of Oracle iAS app server
  - Included with JDeveloper for standalone
- Ensure that the OC4J versions are compatible
  - App server vs local standalone

Deployment Profile

- Yet another XML file containing properties
- Select the ViewController project and select WAR File in the New gallery
- This will find dependencies on ADF BC projects and libraries
  - No need to deploy ADF BC projects separately
- New gallery starts the Deployment Profile Wizard
- The profile is visible in the ViewController node for Resources
- Create separate deployment profiles for separate purposes – multiple targets, etc.

Deployment Profile Wizard

Change the context root here (or on Project Settings dialog).

Other defaults should work.
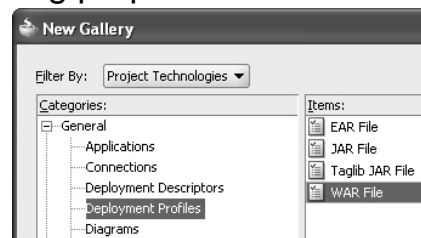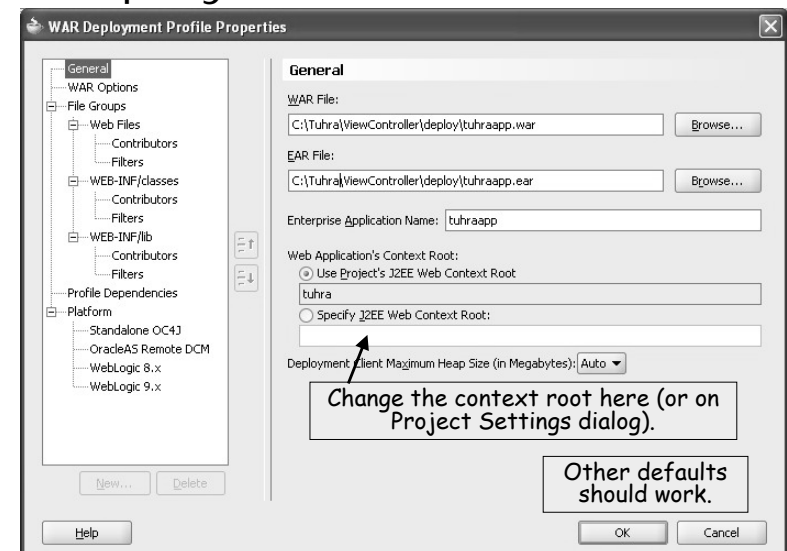
Deploying From JDeveloper

- Assumes OC4J standalone has been set up and is running and the JDeveloper app server connection is set up
  - See hands-on practice for those steps
- Deploy to | <app server connection> from right-click menu on the deployment profile

```
ViewController
  Application Sources
  Resources
    Messages.properties
    tuhraapp.deploy
  Web Content
    css          Deploy to <most recent>
    help         Deploy to                ►   LocalOC4J
    images       Deploy to WAR file           New Connection...
    pages        Deploy to EAR file
    pages\lov    Delete            Delete
    pages\manage Compare With       ►
    security     Replace With       ►
    WEB-INF      Properties...
```

(Demo)

What Next?

- Wait and watch
  - JDeveloper will build the WAR and EAR files in the project directory

```
----  Deployment started.  ----    Mar 22, 2007 1:09:19 AM
Target platform is Standalone OC4J 10g 10.1.3 (LocalOC4J3).
Wrote WAR file to C:\J2EEClass\JSPDeploy\ViewController\deploy\jspdeploy.war
Wrote EAR file to C:\J2EEClass\JSPDeploy\ViewController\deploy\jspdeploy.ear
```

  - Then it copies the WAR file to the server instance
  - Message log window will show progress

Deployment Log Window

```
Deployment - Log
----  Deployment started.  ----    Mar 22, 2007 1:09:19 AM
Target platform is Standalone OC4J 10g 10.1.3 (LocalOC4J3).
Wrote WAR file to C:\J2EEClass\JSPDeploy\ViewController\deploy\jspdeploy.war
Wrote EAR file to C:\J2EEClass\JSPDeploy\ViewController\deploy\jspdeploy.ear
Uploading file jspdeploy.ear ...
Uploading file jspdeploy.ear ...
Uploading file jspdeploy.ear ...
Uploading file jspdeploy.ear ...
Uploading file jspdeploy.ear ...
Uploading file jspdeploy.ear ...
Uploading file jspdeploy.ear ...
Application Deployer for jspdeploy STARTS.
Copy the archive to C:\JDev10132\j2ee\home\applications\jspdeploy.ear
Initialize C:\JDev10132\j2ee\home\applications\jspdeploy.ear begins...
Unpacking jspdeploy.ear
Done unpacking jspdeploy.ear
Unpacking jspdeploy.war
Done unpacking jspdeploy.war
Initialize C:\JDev10132\j2ee\home\applications\jspdeploy.ear ends...
Starting application : jspdeploy
Initializing ClassLoader(s)
Initializing EJB container
Loading connector(s)
Starting up resource adapters
Initializing EJB sessions
Committing ClassLoader(s)
Initialize jspdeploy begins...                      Context root
Initialize jspdeploy ends...
Started application : jspdeploy
Binding web application(s) to site default-web-site begins...
Binding jspdeploy web-module for application jspdeploy to site default-web-site under context root jspdeploy
Initializing Servlet: javax.faces.webapp.FacesServlet for web application jspdeploy
Binding web application(s) to site default-web-site ends...
Application Deployer for jspdeploy COMPLETES. Operation time: 5118 msecs
Elapsed time for deployment:  11 seconds
----  Deployment finished.  ----    Mar 22, 2007 1:09:30 AM

Messages   Deployment
```
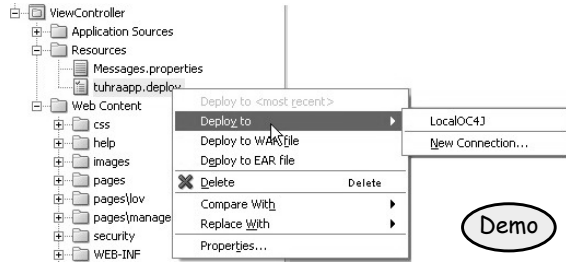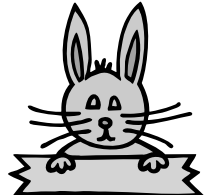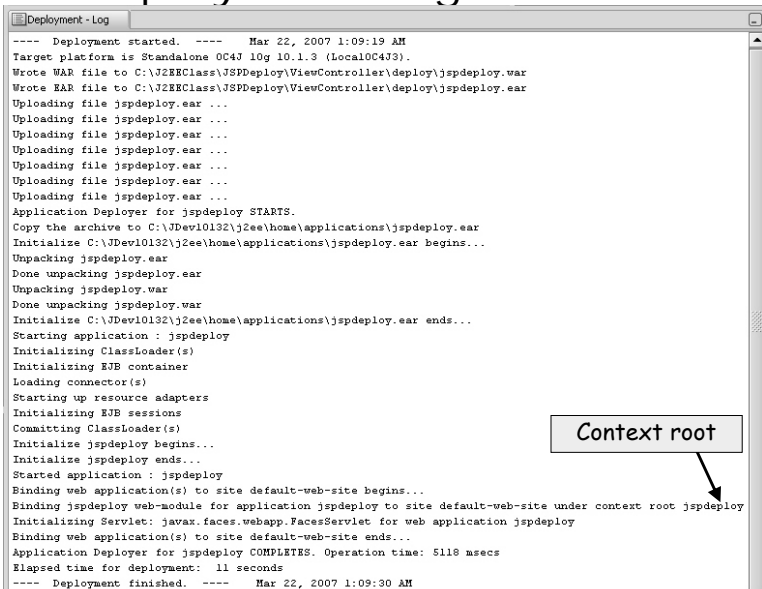

Test the Application

- Close JDeveloper if you are skeptical
- In browser, run the application URL
  - In this case, http://localhost:8888/jspdeploy
  - This opens the default page
- Test the app and close the browser
- The EAR file will be deployed to the directory indicated in the Log window

```
Application Deployer for jspdeploy STARTS.
Copy the archive to C:\JDev10132\j2ee\home\applications\jspdeploy.ear
```
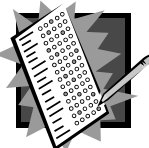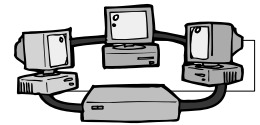
Connections Navigator

- The JDev server connection contains a list of deployed applications
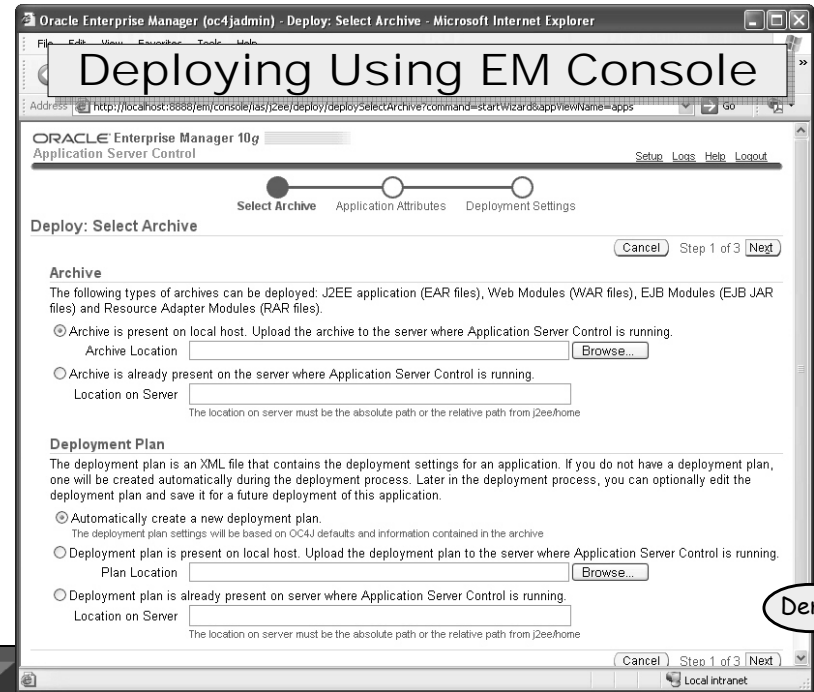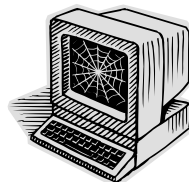- You can act on these using JDeveloper
  - Undeploy
  - Start
  - Stop

Connections Navigator

Connections
- Application Server
  - LocalOC4J
    - standalone
      - Applications
        - application1
        - as
        - da   New...   Ctrl-N
        - de   Start
        - jav   Stop
        - sy   Undeploy
        - webapp1
      - VMs
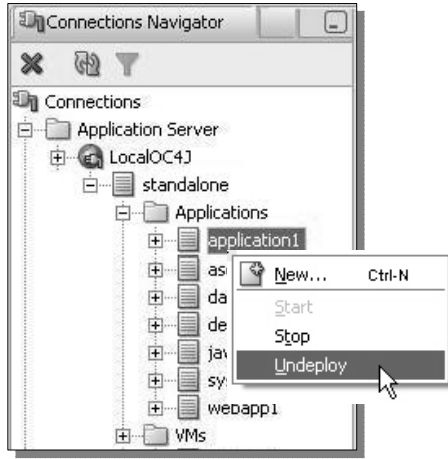
Web Deployment

- Deployment Concepts

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Deploying From EM

- Enterprise Manager is usually under the control of the app server administrator
  - (Be kind to your app server administrator)
- You need to package the EAR file and let them know where it is
  - Select "Deploy to WAR File" from the deployment profile node in the navigator
- The administrator will deploy the EAR file to a new or existing application node
  - Setting up the application is a one-time task
  - Deploying the app after the setup is easier than before the setup

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Deploying Using EM Console

Oracle Enterprise Manager (oc4jadmin) - Deploy: Select Archive - Microsoft Internet Explorer

Address: http://localhost:8888/em/console/ias/j2ee/deploy/deploySelectArchive?command=startWizard&appViewName=apps

ORACLE Enterprise Manager 10g
Application Server Control   Setup Logs Help Logout

Select Archive   Application Attributes   Deployment Settings

Deploy: Select Archive
                              Cancel Step 1 of 3 Next

Archive
The following types of archives can be deployed: J2EE application (EAR files), Web Modules (WAR files), EJB Modules (EJB JAR files) and Resource Adapter Modules (RAR files).

○ Archive is present on local host. Upload the archive to the server where Application Server Control is running.
    Archive Location [_____] Browse...
○ Archive is already present on the server where Application Server Control is running.
    Location on Server [_____]
    The location on server must be the absolute path or the relative path from j2ee/home

Deployment Plan
The deployment plan is an XML file that contains the deployment settings for an application. If you do not have a deployment plan, one will be created automatically during the deployment process. Later in the deployment process, you can optionally edit the deployment plan and save it for a future deployment of this application.

○ Automatically create a new deployment plan.
    The deployment plan settings will be based on OC4J defaults and information contained in the archive
○ Deployment plan is present on local host. Upload the deployment plan to the server where Application Server Control is running.
    Plan Location [_____] Browse...
○ Deployment plan is already present on server where Application Server Control is running.
    Location on Server [_____]
    The location on server must be the absolute path or the relative path from j2ee/home

Demo

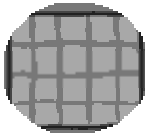   Cancel Step 1 of 3 Next

Tips

- Examine other deployment files
  - orion-application.xml – OC4J-specific
- Always undeploy first
  - You cannot redeploy before undeploying
- Do not do multiple deploys and undeploys in the same OC4J session
- If the deployment fails restart the OC4J instance
- If that fails, restart the app server instance
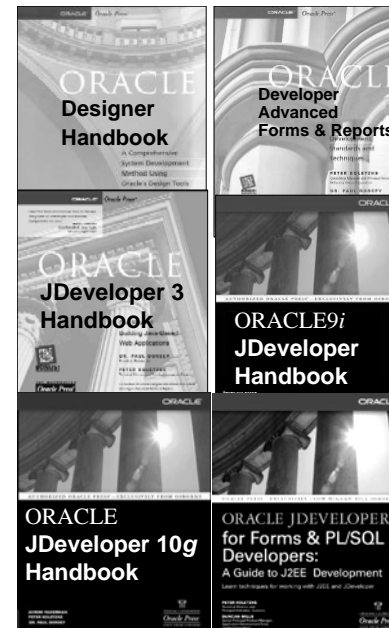- If that fails, restart the machine

Summary

- J2EE web applications are deployed to the app server using EAR files
- EAR files contain WAR files
- WAR files contain application files and all required libraries
- JDeveloper's deployment profile helps gather the files
- Run a utility to create the EAR file and deploy to the app server
- Alternatively, use Application Server (EM) Console

Moral

Don't get it right,
just get it written.

—*James Thurber*,
Fables for our Time

Designer Handbook

Developer Advanced Forms & Reports

JDeveloper 3 Handbook

ORACLE9*i* **JDeveloper Handbook**

ORACLE **JDeveloper 10*g* Handbook**

ORACLE JDEVELOPER for Forms & PL/SQL Developers: A Guide to J2EE Development

- **Please fill out the evals**
- **Books co-authored with Dr. Paul Dorsey, Avrom Roy-Faderman, & Duncan Mills**
- **Personal web site:**
  ```
  http://ourworld.compuserve.com/
       homepages/Peter_Koletzke
  ```

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http://www.quovera.com

- **Founded in 1995 as Millennia Vision Corp.**
- **Profitable for 7+ years without outside funding**
- **Consultants each have 10+ years industry experience**
- **Strong High-Tech industry background**
- **200+ clients/300+ projects**
- **JDeveloper Partner**
- **More technical white papers and presentations on the web site**