






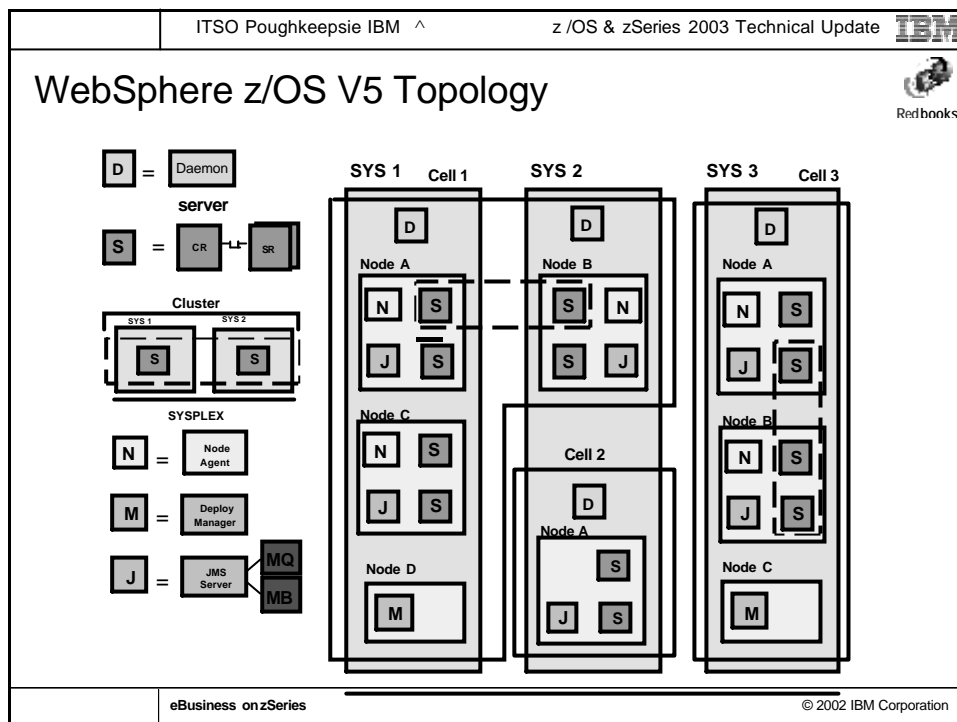


ITSO Poughkeepsie IBM ~		z/OS & zSeries 2003 Technical Update
 Redbooks Application Deployment in WebSphere z/OS V5.0.1		
Sabine Holl Alex Louwe Kooijmans Kevin J. Senior		sabine_holl@at.ibm.com nl53347@nl.ibm.com kev_senior@it.ibm.com
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Agenda 		
<ul style="list-style-type: none"> ■ Application Deployment for the WebSphere system administrator . . . ■ What is your complete target topology? <ul style="list-style-type: none"> ■ There will be multiple test environments as well as Production ■ Developer Tools <ul style="list-style-type: none"> ■ WebSphere Studio Application Developer (WSAD) ■ WebSphere Studio Enterprise Developer (WSED) ■ WebSphere z/OS: Application Deployment <ul style="list-style-type: none"> ■ Java Management EXtension (JMX) APIs ■ Application Assembly Tool (AAT) ■ WebSphere Administrative Console ■ wsadmin scripts and Ant ■ Hot Deployment and Dynamic Reload 		
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<h1>Topology</h1> <p>WebSphere z/OS V4 vs V5 Terminology Planning a complete test and production infrastructure</p>	
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<h2>Summary of Terminology</h2>															
<table border="1"> <thead> <tr> <th>WAS V4</th> <th>WAS V5</th> </tr> </thead> <tbody> <tr> <td>Node (approx)</td> <td>Cell</td> </tr> <tr> <td>Server</td> <td>Cluster</td> </tr> <tr> <td>Server Instance</td> <td>Cluster member</td> </tr> <tr> <td>Systems Management Server (approx)</td> <td>Node Agent</td> </tr> <tr> <td>Control Region</td> <td>Control Region</td> </tr> <tr> <td>Server Region</td> <td>Server Region</td> </tr> </tbody> </table>		WAS V4	WAS V5	Node (approx)	Cell	Server	Cluster	Server Instance	Cluster member	Systems Management Server (approx)	Node Agent	Control Region	Control Region	Server Region	Server Region
WAS V4	WAS V5														
Node (approx)	Cell														
Server	Cluster														
Server Instance	Cluster member														
Systems Management Server (approx)	Node Agent														
Control Region	Control Region														
Server Region	Server Region														
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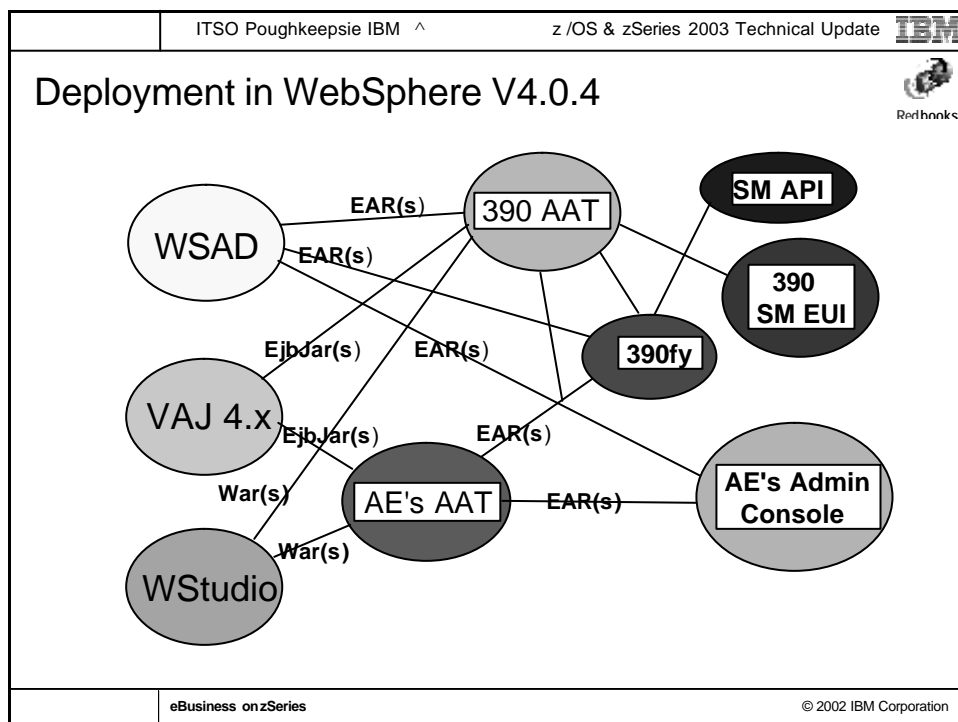
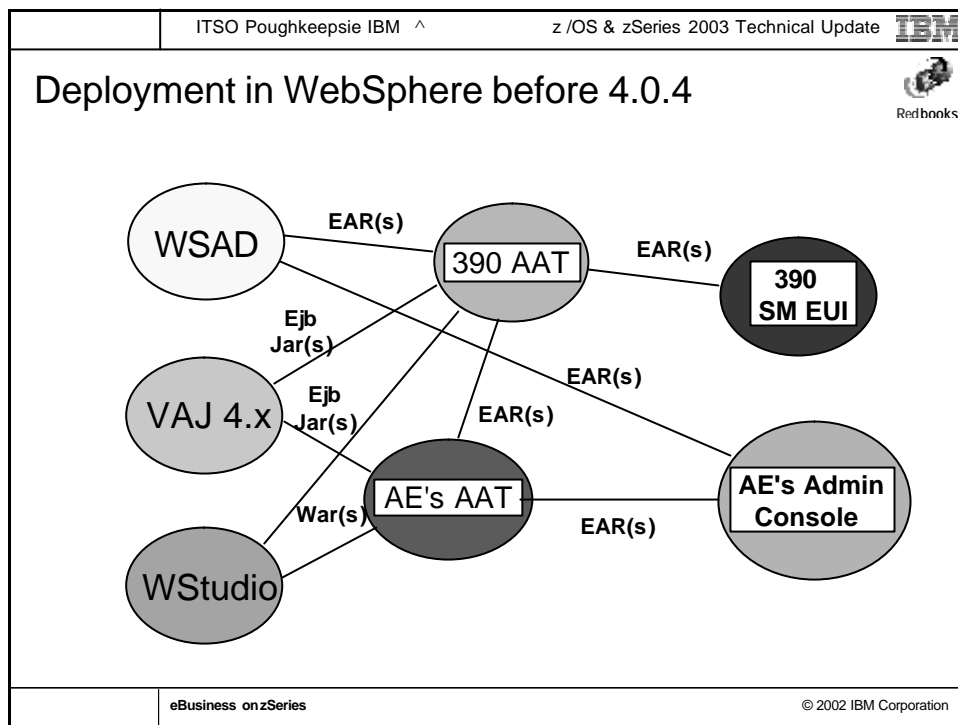


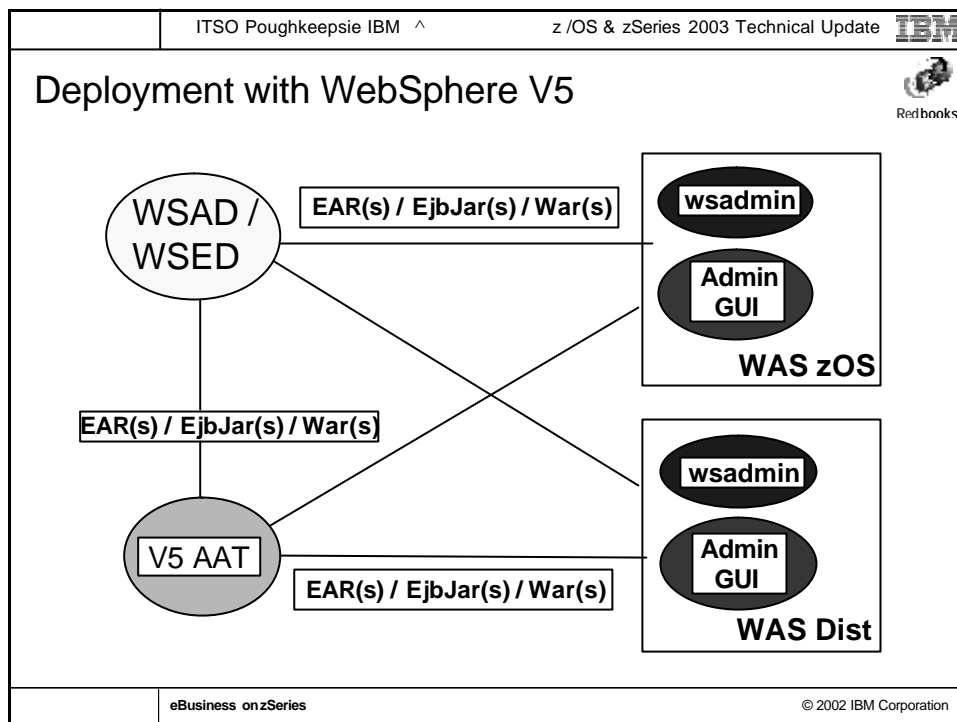
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WebSphere z/OS V5.0 compared with V4.01

▪ Complex Install/Bootstrap	▪ Greatly simplified Install/Bootstrap
▪ Replicated Server Topology	▪ Clustered Server Topology
▪ Centralized Admin Repository	▪ Distributed Admin Repository
▪ "Fat" Admin Client	▪ "Thin" Browser Admin Client
▪ SMAPI/REXX Scripting	▪ wsadmin/JACL scripting
▪ z/OS Proprietary SM Model	▪ WAS Family SM Model

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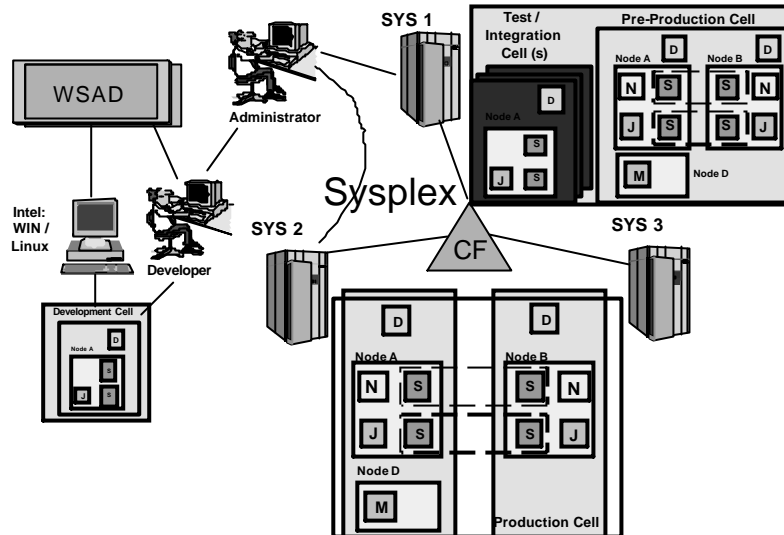
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Administrative Environments

<ul style="list-style-type: none"> ■ Development Environment <ul style="list-style-type: none"> ■ Developer is the administrator ■ Very tight integration with development tooling ■ Focus on one part of overall solution ■ Requires quick and easy admin. changes ■ WebSphere Base Application Server package ■ Test and Integration Environment <ul style="list-style-type: none"> ■ Aggregates several development environments ■ Focus on total solution domain 	<ul style="list-style-type: none"> ■ Pre-Production <ul style="list-style-type: none"> ■ Topology like production but smaller (re-sizable) ■ Test install / backout of changes ■ Test production security ■ Performance Test environment ■ Production Environment <ul style="list-style-type: none"> ■ Greater scaling requirements ■ Administrative robustness and failure tolerance ■ Managed and restricted administration activities ■ Centralized administration ■ WebSphere Network Deployment package
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WebSphere Application Deployment Stages





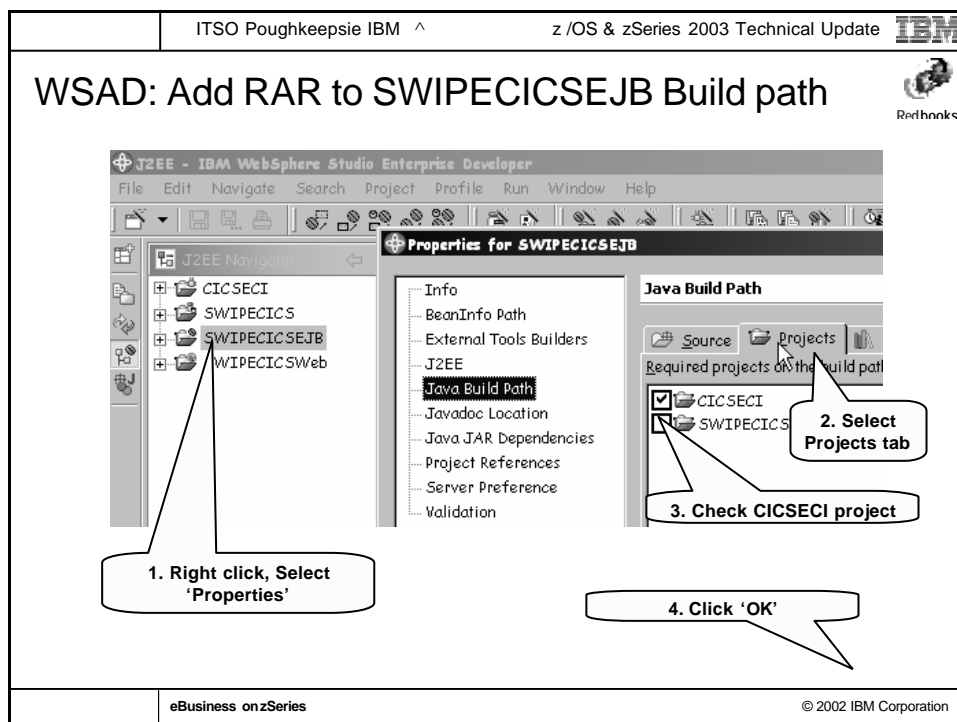
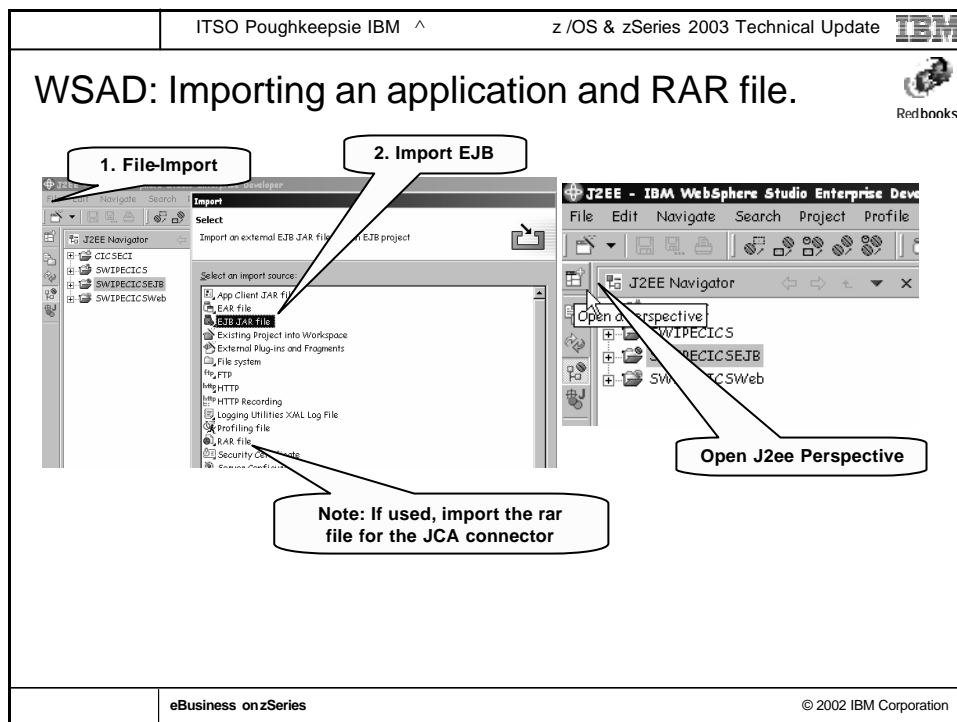
Application Deployment 'phases'



- Phase 1: Developer to Test/Integration
 - Install EAR file via GUI
- Phase 1x: Test / Integration to other clones environments such as:
 - Financial testing with closing controlled data
 - Education system with data which is reset after course
 - Use scripts
- Phase 2: Test / Integration to Pre-Production (and backout)
 - Scripts
- Phase 3: Pre-production to Production (and backout)
 - Scripts created / tested in Pre-production
- Phase E: Developer to Pre-production (Emergency fix path)
 - Manual process / script

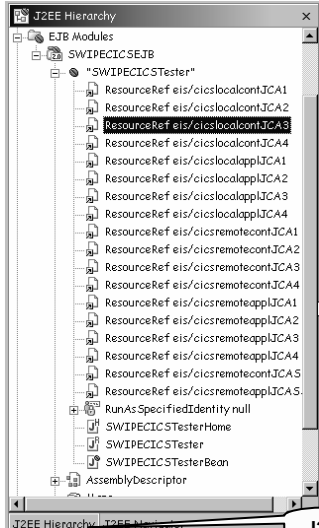
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<div data-bbox="1204 342 1268 409" style="text-align: right;">  Redbooks </div> <div data-bbox="395 600 1157 757" style="text-align: center;"> <h1>Developer Tools</h1> </div> <div data-bbox="582 790 1157 857" style="text-align: center;"> <p>WebSphere Studio Application Developer (WSAD) WebSphere Studio Enterprise Developer (WSED)</p> </div>		
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<div data-bbox="1204 1272 1268 1339" style="text-align: right;">  Redbooks </div> <div data-bbox="339 1283 651 1328" style="text-align: center;"> <h2>WSAD and WSED</h2> </div> <div data-bbox="367 1350 1236 1720"> <ul style="list-style-type: none"> ■ Both WSAD and WSED are built on the Eclipse standard workbench so the 'look and feel' is similar. ■ WSED contains support for procedural languages COBOL and PL/I in addition to Java. ■ This is not a course in the use of WSAD. What we want to understand here is how the developer should prepare the deployment descriptors in the ear file so the application is ready to deploy. ■ We will look at 2 aspects: <ul style="list-style-type: none"> ■ Resource Reference bindings for JCA adaptors ■ Security role-userid mappings </div>		
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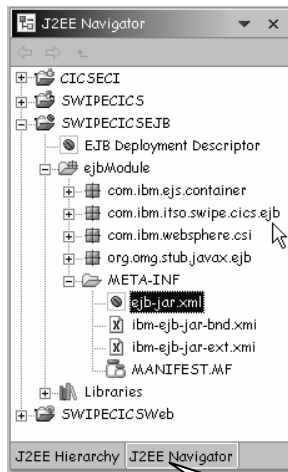


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WSAD: Resource Reference bindings (1)



J2EE Hierarchy view

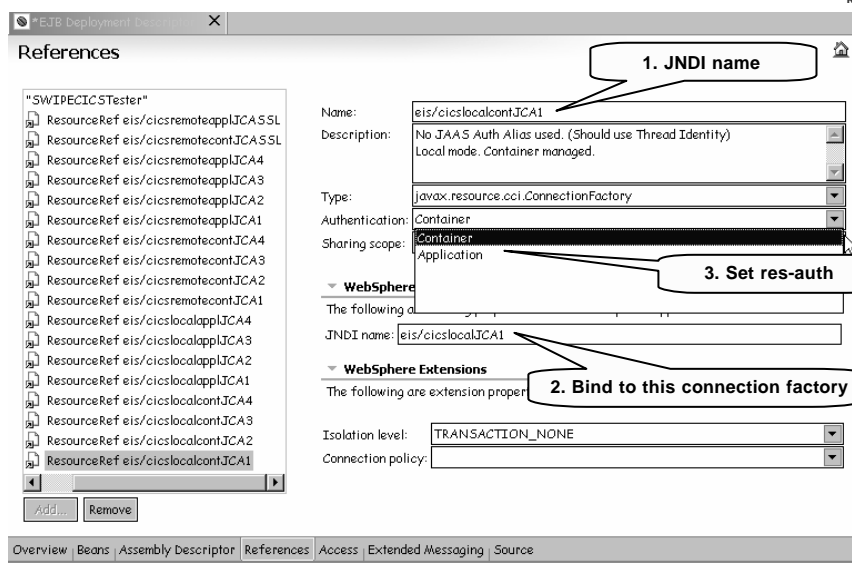


J2EE Navigator view

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WSAD: Resource Reference bindings (2)



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WSAD: Security Roles

J2EE Hierarchy

Enterprise Applications

Application Client Modules

Connector Modules

Web Modules

EJB Modules

SWIPECICSEJB

"SWIPECICSTester"

AssemblyDescriptor

CICSServletManager

CICSEJBManager

(CICSServletManager, CICSEJBManager)

Maps

Databases

Servers

Server Configurations

J2EE Navigator

Outline

SWIPECICSEJB

AssemblyDescriptor

"SWIPECICSTester"

EJB Deployment Descriptor

Assembly Descriptor

Security Roles

The following security roles are defined for the EJB JAR:

CICSServletManager

CICSEJBManager

Add...

Remove

Method Permissions

The following method permissions are defined for the EJB JAR:

(CICSServletManager, CICSEJBManager)

"SWIPECICSTester"

*

Add...

Edit...

Remove

Excludes List

The following method elements are marked as uncallable by the assembly

Overview Beans Assembly Descriptor References Access Extended

Security roles in EJB jar

These roles are permitted to run all methods of SWIPECICSTester EJB

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Redbooks

WSAD: XML view of deployment descriptor

J2EE Navigator

ibm-application-ext.xml

MANIFEST.MF

SWIPECICSEJB

EJB Deployment Descriptor

ejbModule

com.ibm.ejs.container

com.ibm.itso.swipe.cics.e

com.ibm.websphere.csi

org.omg.stub.java.ejb

META-INF

ejb-jar.xml

ibm-ejb-jar-bnd.xml

ibm-ejb-jar-ext.xml

MANIFEST.MF

Libraries

SWIPECICWeb

J2EE Hierarchy

J2EE Navigator

Outline

SWIPECICSEJB

AssemblyDescriptor

"SWIPECICSTester"

EJB Deployment Descriptor

<resource-ref id="ResourceRef_1061244812937">

<description>No J2EE Alias. Remote code. Application M

<res-ref-name>eis/cicsremotesplJ2CASL</res-ref-name>

<res-type>javax.resource.cci.ConnectionFactory</res-ty

<res-auth>Application</res-auth>

<res-sharing-scope>Shareable</res-sharing-scope>

</resource-ref>

</session>

</enterprise-beans>

<assembly-descriptor id="AssemblyDescriptor_ID">

<security-role id="SecurityRole_1061244812934">

<description>Maps to userid SERVMAN</description>

<role-name>CICSServletManager</role-name>

</security-role>

<security-role id="SecurityRole_1061244812935">

<description>Maps to userid EJBMAN</description>

<role-name>CICSEJBManager</role-name>

</security-role>

<method-permission id="MethodPermission_1061244812934">

<description>SWIPECICSPermission: + Authorization check on

<role-name>CICSServletManager</role-name>

<role-name>CICSEJBManager</role-name>

<method id="MethodElement_1061244812934">

<ejb-name>"SWIPECICSTester"</ejb-name>

<method-name>*</method-name>

</method>

</method-permission>



</assembly-descriptor>



</ejb-jar>



Overview Beans Assembly Descriptor References Access Extended Messaging Source



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<div>WebSphere z/OS V5 </div> <div> <h1>Application Deployment</h1> <ul style="list-style-type: none"> Java Management Extensions (JMX) Application Assembly Tool (AAT) WebSphere Administrative Console Deploying application with MDBs wsadmin / JACL scripts and Ant Hot deployment and Dynamic Reload Classloaders </div>	
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<div>WebSphere Management Facility Characteristics </div> <ul style="list-style-type: none"> ▪ Full Function, Single API <ul style="list-style-type: none"> ▪ Based on JMX core framework ▪ Configuration, Operations, Events, Performance, Tuning ▪ Accessible through Java APIs, scripting language, web console GUI ▪ Standards Based Implementation <ul style="list-style-type: none"> ▪ Instrumentation - JMX, JSR77 ▪ Connectors - SOAP, RMI/IIOP, SNMP (later) ▪ Configuration - UML/MOF, XML ▪ Supports Multiple Administrators <ul style="list-style-type: none"> ▪ Update concurrency ▪ J2EE Role-based Security ▪ Customizable, Interoperable <ul style="list-style-type: none"> ▪ Extensible by adding JMX MBeans ▪ File-based, distributed SM repository ▪ Same JMX code, MicroEdition in WAS z/OS 	
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<div data-bbox="339 353 849 398">WebSphere JMX Components</div> <div data-bbox="1204 342 1268 409">  Redbooks </div> <ul style="list-style-type: none"> ■ WebSphere MBeans <ul style="list-style-type: none"> ■ JMX ModelMBean (ManagedBean) Interface ■ JSR-077 ManagedObject Interface, Event Notification ■ extended WebSphere properties, operations, notifications ■ all MBeans defined by XML MBeanDescriptor ■ WebSphere JMX Agent <ul style="list-style-type: none"> ■ MBeanServer, plus Agent Services (Monitor, Timer, Relation) ■ TMX4J (externally available on AlphaWorks) ■ JMX Connectors and Adapters <ul style="list-style-type: none"> ■ XML/HTTP (SOAP) JMX Connector ■ RMI JMX Connector (uses WebSphere ORB) ■ Later ... <ul style="list-style-type: none"> • SNMP Adapter • Asynchronous JMS Connector 		
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<div data-bbox="339 1283 759 1328">WebSphere Admin Tools</div> <div data-bbox="1204 1272 1268 1339">  Redbooks </div> <ul style="list-style-type: none"> ■ Command Line Tools <ul style="list-style-type: none"> ■ single node utilities to start server, perform simple functions ■ located in /bin directory ■ Admin Console <ul style="list-style-type: none"> ■ Web application - runs in some application server ■ browser is the client environment (connects to app server) ■ Wadmin Scripting program <ul style="list-style-type: none"> ■ non-graphic admin client ■ 3 modes - interactive, batch, command line ■ Java Admin APIs <ul style="list-style-type: none"> ■ allows custom admin programs to be written in Java ■ public classes and methods documented in the product javadoc , InfoCenter 		
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WebSphere z/OS V5

Application Deployment

Java Management Extensions (JMX)
Application Assembly Tool (AAT)
WebSphere Administrative Console
Deploying application with MDBs
wsadmin / JACL scripts and Ant
Hot deployment and Dynamic Reload
Classloaders


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Application Assembly Tool (AAT)

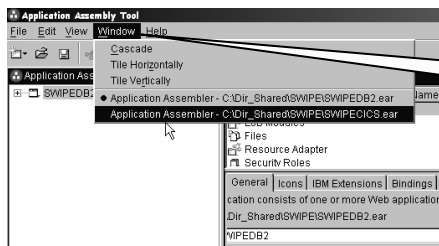
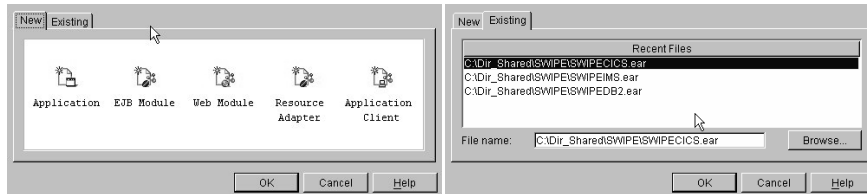
- The AAT in WebSphere z/OS V5 is now like the AAT used on other platforms.
- Part of WebSphere Client Development Kit for zOS
- Download from /<websphere_install_root>/lib/setup.exe



- Import the application ear file
- Each application is in a separate window
- View / Edit deployment descriptor
- Export modified ear

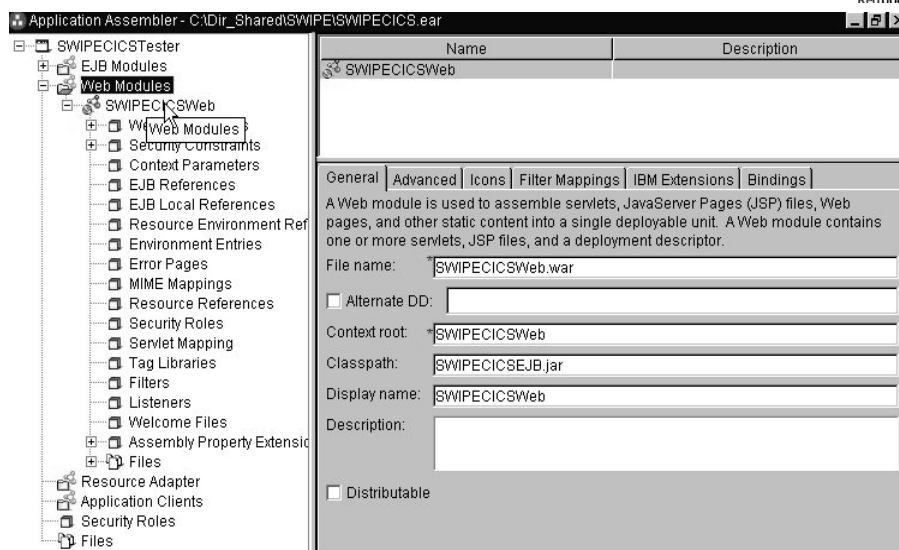
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AAT: Selecting your ear file



Each open application is selectable
from 'Window' in the tool bar

AAT: Overview



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AAT: Welcome Files

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AAT: Resource Reference Binding

Name	Type	Authentication	Description	Sharing Scope
(A) eis/cicslocalappJCA1	javax.resource.cci...	Application	No JAAS Auth alia...	Shareable
(A) eis/cicslocalappJCA2	javax.resource.cci...	Application	...	Shareable
(A) eis/cicslocalappJCA3	javax.resource.cci...	Application	...	Shareable
(A) eis/cicslocalappJCA4	javax.resource.cci...	Application	Wrong password ...	Shareable
(A) eis/cicslocalcontJCA1	javax.resource.cci...	Container	No JAAS Auth Alia...	Shareable
(A) eis/cicslocalcontJCA2	javax.resource.cci...	Container	Both Component ...	Shareable
(A) eis/cicslocalcontJCA3	javax.resource.cci...	Container	Wrong (invalid) us...	Shareable
(A) eis/cicslocalcontJCA4	javax.resource.cci...	Container	Wrong password ...	Shareable
(A) eis/cicsremoteappJCA1	javax.resource.cci...	Application	No JAAS Auth Alia...	Shareable
(A) eis/cicsremoteappJCA2	javax.resource.cci...	Application	Component and C...	Shareable
(A) eis/cicsremoteappJCA3	javax.resource.cci...	Application	Wrong (invalid) us...	Shareable
(A) eis/cicsremoteappJCA4	javax.resource.cci...	Application	Wrong password ...	Shareable
(A) eis/cicsremoteappJCASSL	javax.resource.cci...	Application	No JAAS Alias. Re...	Shareable
(A) eis/cicsremotecontJCA1	javax.resource.cci...	Container	No JAAS Auth Alia...	Shareable
(A) eis/cicsremotecontJCA2	javax.resource.cci...	Container	on container an...	Shareable
(A) eis/cicsremotecontJCA3	javax.resource.cci...	Container	ng (invalid) us...	Shareable
(A) eis/cicsremotecontJCA4	javax.resource.cci...	Container	ng password ...	Shareable
(A) eis/cicsremotecontJCASSL	javax.resource.cci...	Container	JAAS Alias. Re...	Shareable

Resource References

Binding to Connection Factory JNDI name

res-auth

General | IBM Extensions | Bindings

A resource reference is a logical name used to locate a connection factory object. These objects define connections to external resources such as databases and messaging systems.

Name: eis/cicslocalappJCA1

Type: javax.resource.cci.ConnectionFactory

Authentication: Application

Sharing Scope: Shareable

Description: No JAAS Auth alias defined
Local mode. Application managed

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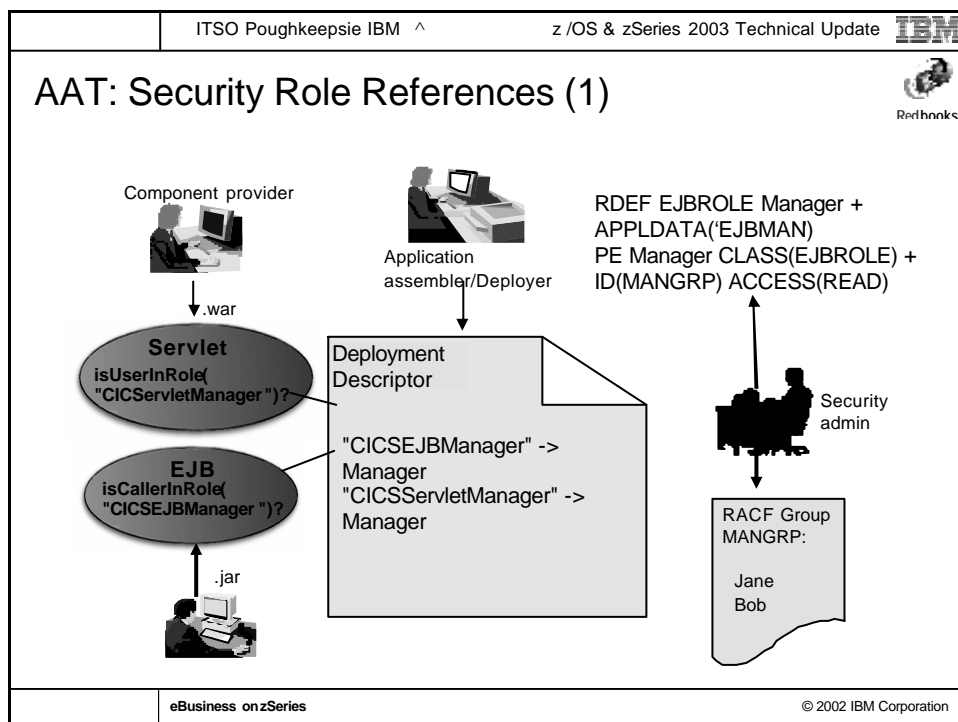
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AAT: Security Roles

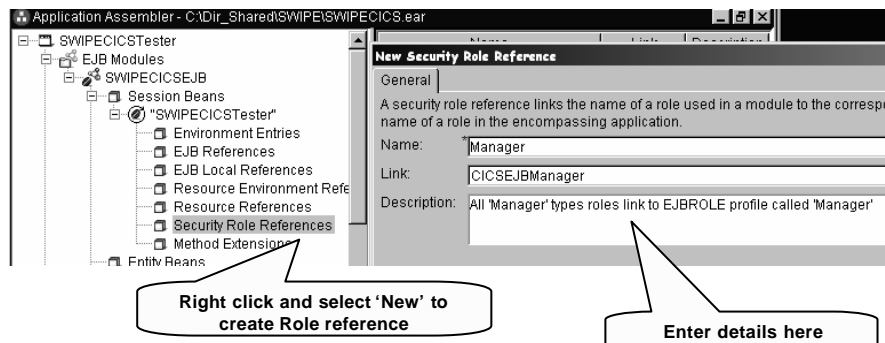
The screenshot shows the 'Application Assembler' window for 'C:\Dir_Shared\SWIPE\SWIPE\CICS.ear'. The left pane shows a tree view with 'Security Roles' selected under 'EJB'. The right pane shows the 'Security Roles in EJB deployment descriptor' table with two entries: 'CICSEJBManager' (Maps to userid EJBMAN) and 'CICServletManager' (Maps to userid SERVMAN). Below the table, the 'General' tab is selected, showing a description of a security role and the 'Name' field set to 'CICSEJBManager'.

Callouts indicate 'Security Roles in EJB deployment descriptor' and 'Security Roles in ear deployment descriptor'.

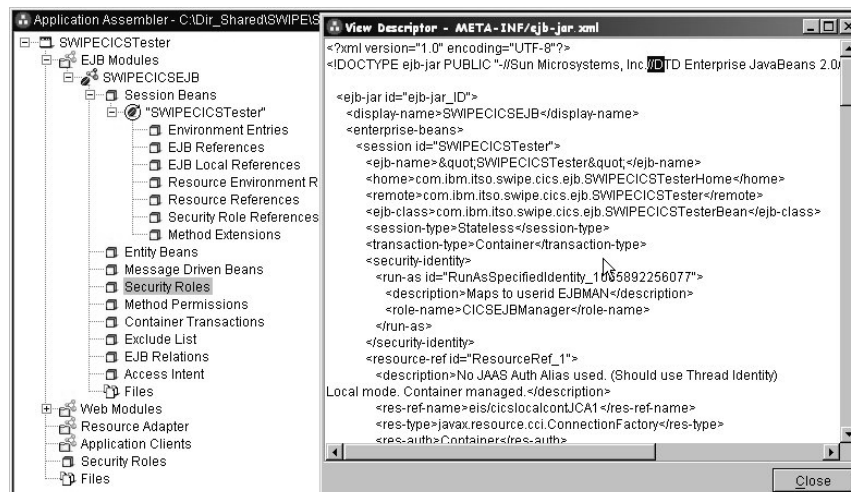
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AAT: Security Role References (2)



AAT: View XML file



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	<h2 data-bbox="339 353 523 398">AAT: Save</h2>  <ul style="list-style-type: none"> ■ When changes are finished use 'File' –'Save' to save the changes or click the diskette icon in the tool bar. ■ There is no specific 'Export' option as there was in AAT for V4. ■ You can now use the WebSphere Administration Console or wsadmin to deploy the application 	
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	<h2 data-bbox="339 1283 691 1328">WebSphere z/OS V5</h2>  <h1 data-bbox="387 1473 1217 1630">Application Deployment</h1> <ul style="list-style-type: none"> Java Management Extensions (JMX) Application Assembly Tool (AAT) WebSphere Administrative Console Deploying application with MDBs wsadmin / JACL scripts and Ant Hot deployment and Dynamic Reload Classloaders 	
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Admin Console: Locate the ear file to install

Redbooks

WebSphere Application Server Administrative Console Version 5

Home | Save | Preferences | Logout | Help

User ID: VSP1ADM

baseProd1

Servers

Applications

Enterprise Applications

Install New Application

Resources

Security

Environment

System Administration

Troubleshooting

Preparing for the application installation

Specify the EAR/WAR/JAR module to upload and install.

Path:

Browse the local machine or a remote server:

Local path:

Browse...

Server path:

Context Root:

Used only for standalone Web modules (*.war)

You must specify a context root if the module being installed is a WAR module.

Next

Cancel

1. Install New Application

2. Browse to find the ear file

3. Click 'Next'

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Admin Console: Preparing for installation

Redbooks

WebSphere Application Server Administrative Console Version 5

Home | Save | Preferences | Logout | Help

User ID: VSP1ADM

baseProd1

Servers

Applications

Enterprise Applications

Install New Application

Resources

Security

Environment

System Administration

Troubleshooting

Preparing for the application installation

You can choose to generate default bindings and mappings: [?]

Generate Default Bindings

Prefixes:

Do not specify unique prefix for beans

Specify Prefix:

elb

Specify prefix to use for generated JNDI names.

Override:

Do not override existing bindings

Override existing bindings

Generate default bindings for existing entries and over write them.

Virtual Host

Do not default virtual host name for web modules

Default virtual host name for web modules:

default_host

The virtual host to be used for this web module.

Specific bindings file:

Browse...

Optional location of pre-defined bindings file.

Previous

Next

Cancel

Note

Click 'Next'

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Admin Console: Step 1: Application Options

WebSphere Application Server Administrative Console
Version 5

Home | Save | Preferences | Logout | Help

User ID: VSP1ADM

baseProf1

- Servers
- Applications
 - Enterprise Applications
 - Install New Application
 - Resources
 - Security
 - Environment
 - System Administration
 - Troubleshooting

Install New Application

Allows installation of Enterprise Applications and Module

→ Step 1: Provide options to perform the installation

Specify the various options available to prepare and install your application.

AppDeployment Options	Enable
Pre-compile JSP	<input type="checkbox"/>
Directory to Install Application	<input type="text"/>
Distribute Application	<input checked="" type="checkbox"/>
Use Binary Configuration	<input type="checkbox"/>
Deploy EJBs	<input type="checkbox"/>
Application Name	<input type="text" value="SMWPEICSEJBTester"/>
Create MBeans for Resources	<input checked="" type="checkbox"/>
Enable class reloading	<input type="checkbox"/>
Reload interval	<input type="text"/>

Next Cancel

Step 2 Provide JNDI Names for Beans

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Admin Console: Step 2: Bean JNDI names

WebSphere Application Server Administrative Console
Version 5

Home | Save | Preferences | Logout | Help

User ID: VSP1ADM

baseProf1

- Servers
- Applications
 - Enterprise Applications
 - Install New Application
 - Resources
 - Security
 - Environment
 - System Administration
 - Troubleshooting

Install New Application

Allows installation of Enterprise Applications and Module

Step 1 Provide options to perform the installation

→ Step 2: Provide JNDI Names for Beans

Each non message driven enterprise bean in your application or module must be bound to a JNDI name.

EJB Module	EJB	URI	JNDI Name
SMWPEICSEJBT	"SMWPEICSEJBT"	SMWPEICSEJBT.jar/META-INF/ejb-jar.xml	<input type="text" value="ejb/SMWPEICSEJBT"/>

Previous Next Cancel

Step 3 Map EJB references to beans
Step 4 Map resource references to resources
Step 5 Map virtual hosts for web modules
Step 6 Map modules to application servers
Step 7 Map security roles to users/groups
Step 8 Map RunAs roles to users
Step 9 Summary

If the deployment descriptor is correct you could jump straight to Step 9

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Admin Console: Step 4: Resource References

Step 3 Map EJB references to beans

→ Step 4: Map resource references to resources

Each resource reference defined in your application must be mapped to a resource.

javax.resource.cci.ConnectionFactory

Specify existing Resource JNDI name: select.... Apply

2. Select CF JNDI name from list

3. Click 'Apply'

1. Check

4. Now correct?

	Module	EJB	URI	Reference Binding	JNDI Name
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalcontJCA1	eis/cicslocalJCA1
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalcontJCA2	eis/cicslocalJCA2
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalcontJCA3	eis/cicslocalJCA3
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalcontJCA4	eis/cicslocalJCA4
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalapplJCA1	eis/cicslocalJCA1
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalapplJCA2	eis/cicslocalJCA2
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalapplJCA3	eis/cicslocalJCA3
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicslocalapplJCA4	eis/cicslocalJCA4
<input type="checkbox"/>	SWIPEICSEJB	"SWIPEICSTester"	SWIPEICSEJB.jar,META-INF/fejb-jar.xml	eis/cicsremotecontJCA1	eis/cicsremoteJCA1

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Admin Console: Step 8: Map RunAs roles to users

Step 7 Map security roles to users/groups

→ Step 8: Map RunAs roles to users

The Enterprise beans you are installing contain predefined RunAs roles. RunAs roles are used by Enterprise beans that need to run as a particular role to be recognized while interacting with another Enterprise bean.

username:

password:

Apply

Remove the RunAsUser user name and password from the selected roles.

Remove

<input type="checkbox"/>	Role	User Name
<input type="checkbox"/>	CICSEJBManager	
<input type="checkbox"/>	CICSServletManager	


Previous Next Cancel


Step 9 Summary

Click on Step 9 to go to Summary

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Admin Console: Step 9: Summary

[Step 8](#) Map RunAs roles to users

Step 9: Summary


Summary of Install Options


Options	Values
Distribute Application	Yes
Use Binary Configuration	No
Cell/Node/Server	Click here
Create MBeans for Resources	Yes
Enable class reloading	No
Deploy EJBs	No
was.policy.data	was.policy file does not exist
Application Name:	SWIPECICSTester
Reload Interval	
Directory to Install Application	
Pre-compile JSP	No
Application Name	SWIPECICSTester

Previous
Finish
Cancel

Click 'Finish'

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Admin Console: Installation messages

Installing..

If there are EJB's in the application, the EJB Deploy process may take several minutes. Please do not save the configuration until the process is complete.

Check the SystemOut.log on the Deployment Manager or Server where the application is deployed for specific information about the EJB Deploy process as it occurs.

ADMA5005: Application SWIPECICSTester configured in WebSphere repository

ADMA5001: Application binaries saved
in /wasv5Config/prodCell1/AppServerNC/wstemp/608656330/workspace/cells/baseProd1/applications/SWIPECICSTester.ear/S

ADMA5011: Cleanup of temp dir for app SWIPECICSTester done.

ADMA5013: Application SWIPECICSTester installed successfully.

Application SWIPECICSTester installed successfully.

If you want to start the application, you must first save changes to the master configuration.

[Save to Master Configuration](#)

If you want to work with installed applications, then click Manage Applications.

[Manage Applications](#)

1. Look for this message

2. Click to save master configuration

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Admin Console: Save master configuration

Message(s)
 ⚠ Changes have been made to your local configuration. Click [Save](#) to apply changes to the master configuration.
 ⓘ The server may need to be restarted for these changes to take effect.

Enterprise Applications >
Save
 Save your workspace changes to the master configuration

Save to Master Configuration
 Click the Save button to update the master repository with your changes. Click the Discard button to discard your changes and begin work again using the master repository configuration. Click the Cancel button to continue working with your changes.
 Total changed documents: 16
☐ View items with changes

Click 'Save'

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Admin Console: Start the application

User ID: V5P1ADM
baseProd1
☐ Servers
☐ Applications
 Enterprise Applications
 Install New Application
☐ Resources
☐ Security
☐ Environment
☐ System Administration
☐ Troubleshooting

Enterprise Applications
 A list of installed applications. A single application can be deployed onto multiple servers. ⓘ
 Total: 4
☐ Filter
☐ Preferences

<input type="checkbox"/>	Name	Status
<input type="checkbox"/>	ItsOBankSEAR	➔
<input checked="" type="checkbox"/>	SWMEPICSTester	⌘
<input type="checkbox"/>	adminconsole	➔
<input type="checkbox"/>	ivtApp	➔



1. Check box



2. Hit 'Start'



3. Check this changes to green arrow



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<div data-bbox="339 353 687 398">WebSphere z/OS V5</div> <div data-bbox="1204 342 1268 409">  </div> <div data-bbox="339 544 1220 701"> <h1>Application Deployment</h1> </div> <div data-bbox="582 728 1013 929"> <p> Java Management Extensions (JMX) Application Assembly Tool (AAT) WebSphere Administrative Console Deploying applications with MDBs wsadmin / JACL scripts and Ant Hot deployment and Dynamic Reload Classloaders </p> </div>		
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<div data-bbox="339 1283 911 1328">Deploying Applications with MDBs</div> <div data-bbox="1204 1272 1268 1339">  </div> <ul style="list-style-type: none"> ■ Use the WebSphere Administrative Console to define the listener ports <p>Servers – Application Servers - <server name> - Additional Properties Select : Message Listener Service and set the properties. Open Custom Properties and review/set properties of listener service</p> ■ For each MDB, use the AAT to configure the deployment attributes to match the listener port <p>Expand EJB module. Click on Message-driven beans. Open General Deployment tab. Set properties e.g. transaction type Open Advanced Deployment tab. Set properties e.g. Acknowledge mode Open Bindings tab. Set properties e.g. MDB listener port.</p> ■ Use the WebSphere Administrative Console to install the application <ul style="list-style-type: none"> ■ This stage is a standard WebSphere Application Server task ■ You are prompted to specify the name of the listener port that the application is to use for late responses. Select the listener port, then click OK. 		
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<div data-bbox="335 347 694 392">WebSphere z/OS V5</div> <div data-bbox="1204 336 1268 403"></div>			
<div data-bbox="343 537 1220 694"> <h1>Application Deployment</h1> </div> <div data-bbox="566 728 1005 929"> <p> Java Management Extensions (JMX) Application Assembly Tool (AAT) WebSphere Administrative Console Deploying application with MDBs wsadmin / JACL scripts and Ant Hot deployment and Dynamic Reload Classloaders </p> </div>			
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<div data-bbox="335 1288 654 1332">wsadmin overview</div> <div data-bbox="1204 1276 1268 1344"></div>			
<ul style="list-style-type: none"> ■ wsadmin <ul style="list-style-type: none"> ■ Actually a specialized Java AdminClient application ■ Several possible languages (Tcl, Jython, Javascript) but only JACL on z/OS ■ 3 modes - interactive, command line (-c) , script file (-f) ■ 3 objects to represent admin functions - AdminControl, AdminConfig, AdminApp ■ Primarily meant to allow rapid creation of small control programs using existing administration function ■ Considerable documentation in InfoCenter section (200 pages or more!) ■ AdminClient Java API <ul style="list-style-type: none"> ■ Represents the remote client side of WAS admin programming interface ■ Used by all internal admin tools shipped with WAS 5.0 ■ Based on JMX programming model, with distributed extensions ■ Allows more sophisticated admin program logic, better exception handling, registration for event notification ■ Public javadoc shipped in install image 			
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<h2 data-bbox="339 353 858 398">wsadmin scripting environment</h2> <div data-bbox="1204 342 1268 409">  Redbooks </div> <ul style="list-style-type: none"> ■ Refer to the Infocentre or Systems Administration manual GA22-7962 ■ Properties files define properties relating to a connection between a wsadmin client and a target server ■ Three levels of properties files: <ul style="list-style-type: none"> ■ Level 1. Default properties: from <WAS_HOME>/properties/wsadmin.properties ■ Level 2. In the Java user.home property/wsadmin.properties ■ Level 3. WSADMIN_PROPERTIES environment variable -> wsadmin.properties ■ -p command line option points to a file with a properties These properties override others from the other sources which are themselves processed in order, each overriding the previous properties encountered. Keep it simple! ■ Profiles can be used to customize the scripting environment <ul style="list-style-type: none"> ■ -profile can point to a properties file (which can point to another profile) 		
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<h2 data-bbox="339 1283 611 1328">wsadmin tracing</h2> <div data-bbox="1204 1272 1268 1339">  Redbooks </div> <ul style="list-style-type: none"> ■ Trace options can be set in a properties file (default wsadmin.properties) <ul style="list-style-type: none"> ■ Or -profile point to a properties file ■ com.ibm.ws.scripting.traceString=true switches on trace to . . . ■ com.ibm.ws.scripting.traceFile=/<filepath>/tracefile.name <ul style="list-style-type: none"> ■ If not set, trace / logging goes to the admin console ■ Enabling trace from command line invocations : <pre data-bbox="387 1675 638 1731">\$AdminControl trace com.ibm.*=all=enabled</pre> 		
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<h2 data-bbox="339 353 1050 398">Installing a new application using wsadmin</h2> <div data-bbox="1204 342 1268 409">  Redbooks </div> <ul style="list-style-type: none"> ■ wsadmin can be used to install a new application ■ For interactive and command line, use Telnet to execute wsadmin or a batch job, not OMVS because the command line is too short ■ Launch wsadmin by running wsadmin.sh file from <WAS_HOME>/bin ■ Interactive install <ul style="list-style-type: none"> ■ <WAS_HOME>/bin/wsadmin.sh ■ wsadmin>\$AdminApp installInteractive /<wasconfig_root>/<cell>/<node>/installableApps/SWIPECICS.ear ■ Non-interactive invocation <ul style="list-style-type: none"> ■ <WAS_HOME>/bin/wsadmin.sh ■ wsadmin>\$AdminApp install /<wasconfig_root>/<cell>/<node>/installableApps/SWIPECICS.ear 		
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<h2 data-bbox="339 1283 1050 1328">Installing a new application using wsadmin</h2> <div data-bbox="1204 1272 1268 1339">  Redbooks </div> <ul style="list-style-type: none"> ■ Use -conntype NONE option, if the server stopped <ul style="list-style-type: none"> ■ wsadmin.sh -conntype NONE -c \$AdminApp install /<wasconfig_root>/<cell>/<node>/installableApps/SWIPECICS.ear ■ To list all installed applications (you need the server up to do this no local mode) <ul style="list-style-type: none"> ■ wsadmin>\$AdminApp list ■ Invoking help text <ul style="list-style-type: none"> ■ wsadmin>\$Help help ■ wsadmin>\$AdminApp help ■ wsadmin>\$AdminApp help installInteractive 		
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<h2 data-bbox="339 353 609 392">Batch execution</h2> <div data-bbox="1204 342 1268 409">  Redbooks </div>	<ul style="list-style-type: none"> ■ The customized CNTL library contains BBOIAPP which execute a batch job that invokes wsadmin to install the adminconsole and ivt applications. <pre data-bbox="438 504 957 963"> /***** /* STEP 2 - Install the IVT app. */ /***** //INST2 EXEC PGM=IKJEFT01,REGION=0M //SYSTSPRT DD SYSOUT=* //SYSTSIN DD * BPXBATCH SH + /wasv5Config/prodCell1+ /AppServerNC+ /bin/wsadmin.sh -conntype none + -c '\$AdminApp install + /wasv5Config/prodCell1+ /AppServerNC+ /installableApps/ivtApp.ear + {-appname ivtApp -usedefaultbindings + -server server2 + -node nodeC + -cell baseProd1}' + 1>> /tmp/bbowiapp.out + 2>> /tmp/bbowiapp.err /* </pre>	<div data-bbox="475 981 614 992">eBusiness on zSeries</div> <div data-bbox="1109 981 1257 992">© 2002 IBM Corporation</div>

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<h2 data-bbox="339 1283 657 1321">Application Update</h2> <div data-bbox="1204 1272 1268 1339">  Redbooks </div>	<ul style="list-style-type: none"> ■ From end-user perspective, the update process will be very similar to ins tall <ul style="list-style-type: none"> ■ It will additionally take the name of the existing app that is to be upgraded ■ No continuous availability of the application. The reinstall process:- <ul style="list-style-type: none"> ■ Stops the current application if it is running ■ Uninstalls the current application ■ Installs the new application j ■ Continuous availability requires more planning <ul style="list-style-type: none"> ■ ND configuration <ul style="list-style-type: none"> • AutoSynch off to prevent automatic install across the cell • Use of the distributed plugin for initial balancing and affinities (implied by ND) ■ A way to control distribution of IP messages (dynamic VIPA and Sysplex distributor) 	<div data-bbox="475 1910 614 1921">eBusiness on zSeries</div> <div data-bbox="1109 1910 1257 1921">© 2002 IBM Corporation</div>

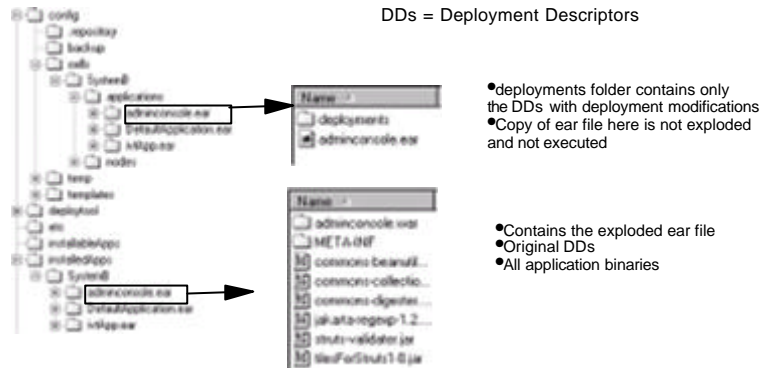
	ITSO Poughkeepsie IBM ^ z /OS & zSeries 2003 Technical Update	
<h2 data-bbox="339 353 855 398">Application Update (continued)</h2> <div data-bbox="1204 342 1268 409">  Redbooks </div>		
<ul style="list-style-type: none"> ■ Using Admin Console <ul style="list-style-type: none"> ■ The user interface will guide the users through the same install steps for update ■ Applications ->Enterprise Applications. Select the Application and click "Update" ■ Using wsadmin <ul style="list-style-type: none"> ■ Use update option in AdminApp ■ Example: <pre data-bbox="443 734 1069 813">\$AdminApp install <wasconfig_root>/<cell>/<node>/installableApps/SWIPECICS.ear { -appname SWIPECICSTester -update -update.ignore.new}</pre> <ul style="list-style-type: none"> ● -update option specifies that the application named SWIPECICS is to be redeployed using the supplied EAR file ● -update.ignore.new option specifies that the bindings from the new version are ignored 		
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<h2 data-bbox="339 1283 399 1328">Ant</h2> <div data-bbox="1204 1272 1268 1339">  Redbooks </div>		
<ul style="list-style-type: none"> ■ Ant (ANother Tool) is now supported in WebSphere z/OS V5.0.1 (Service level W501000) ■ Very popular with developers ■ Apache Ant is a Java-based build tool. <ul style="list-style-type: none"> ■ Similar to Make, but extended by Java classes rather than shell scripts. ■ Instead of shell, XML files are used. ■ These XML files reference a target tree in which various tasks are run. ■ Each task is run by an object that implements a particular Task interface. ■ For more detailed information about Ant, refer to the Apache Web site: http://jakarta.apache.org/ant/index.html ■ Also see WebSphere distributed Redbook for usage information: SG24-6993 WebSphere Version 5 Application Development Handbook There are samples for wsadmin and Ant supplied with this Redbook 		
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<h2 data-bbox="339 353 400 394">Ant</h2>	<div data-bbox="1204 342 1268 409" data-kind="parent"></div> <ul style="list-style-type: none"> ■ The tasks included with IBM WebSphere Application Server enable you to: <ul style="list-style-type: none"> ■ Install and uninstall applications ■ Run EJB deployment and JSP precompilation tools ■ Start and stop servers ■ Run administrative scripts or commands ■ By combining these tasks with those provided by Ant, you can create build scripts that compile, package, install, and test your application on IBM WebSphere Application Server. ■ WebSphere Ant is supplied in <WAS_HOME>/lib/ant.jar Javadoc for package: com.ibm.websphere.ant.tasks is at: http://publib7b.boulder.ibm.com/wasinfo1/en/info/aes/javadoc/ae/com/ibm/web-sphere/ant/tasks/package-summary.html ■ Launched using: <was_install_root>/bin/ws_ant.sh ■ Note that Ant build XML file and properties files must be in ascii. 	
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<h2 data-bbox="339 1283 687 1323">WebSphere z/OS V5</h2>	<div data-bbox="1204 1272 1268 1339" data-kind="parent"></div> <div data-bbox="339 1529 1217 1686" data-kind="parent"></div> <div data-bbox="582 1724 770 1753" data-kind="parent">Where did it go?</div> <div data-kind="ghost"></div>	
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Repository - Base Application Server



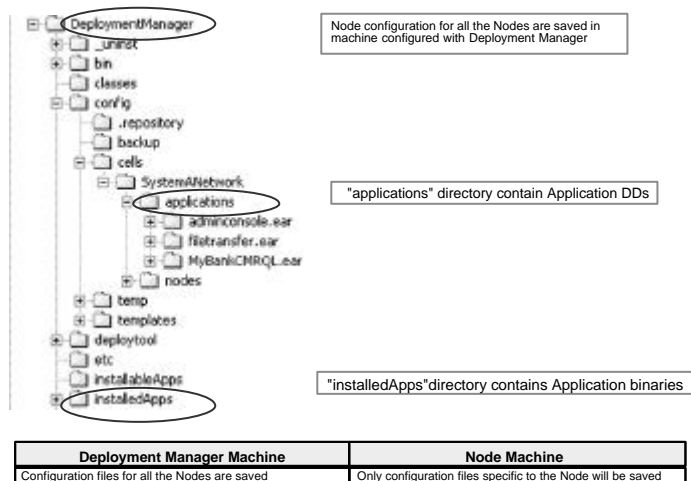
- deployments folder contains only the DDs with deployment modifications
- Copy of ear file here is not exploded and not executed



- Contains the exploded ear file
- Original DDs
- All application binaries



- DDs in installedApps dir. are the original DDs in the EAR file (unmodified DDs)
- App Server takes the modified DDs (from config dir.) to start the application
- DDs in config dir. contain all updates provided after installation of the Application ear.



Example: Could have provided a different JNDI name for an EJB or resource



Repository – Network Deployment







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WebSphere z/OS V5 		
<h1 data-bbox="343 504 1220 660">Application Deployment</h1> <ul style="list-style-type: none"> Java Management Extensions (JMX) Application Assembly Tool (AAT) WebSphere Administrative Console Deploying application with MDBs wsadmin / JACL scripts Hot Deployment and Dynamic Reloading Classloaders 		
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Hot Deployment and Dynamic Reloading 		
<ul style="list-style-type: none"> ■ Hot deployment <ul style="list-style-type: none"> ■ The process of adding new components (such as WAR files, EJB Jar files, enterprise Java beans, servlets, and JSP files) to a running server without having to stop the application server process and start it again. ■ Dynamic reloading <ul style="list-style-type: none"> ■ The ability to change an existing component without needing to restart the server in order for the change to take effect. Dynamic reloading involves: <ul style="list-style-type: none"> • Changes to the implementation of a component of an application, such as changing the implementation of a servlet • Changes to the settings of the application, such as changing the deployment descriptor for a Web module 		
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<h2 data-bbox="339 353 778 398">Hot Deployment Overview</h2> <div data-bbox="1204 342 1268 409">  Redbooks </div> <ul style="list-style-type: none"> ■ Locate your expanded ear file. If you did not override the location in Step 1 of the installation it will be in: <i>install_root/installedApps/cell_name/application_name.ear.</i> ■ Locate the application metadata files. ■ If running ND configuration with multiple nodes disable AutoSynch : System Administration – Node Agents – File Synchronization Service Uncheck the option: Automatic Synchronization ■ Change or add the following components or modules as needed: <ul style="list-style-type: none"> ■ Application files ■ WAR files ■ EJB Jar files ■ HTTP plug-in configuration files 		
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<h2 data-bbox="339 1283 858 1328">Hot Deployment: General rules</h2> <div data-bbox="1204 1272 1268 1339">  Redbooks </div> <ul style="list-style-type: none"> ■ Web Modules can be reloaded independently in WebSphere distributed but not in WebSphere z/OS ■ EJB Modules <ul style="list-style-type: none"> ■ Cannot be stopped/restarted independently in Version 5 ■ The entire application has to be restarted ■ Best practice: stop/restart the Enterprise Application <ul style="list-style-type: none"> ■ This will ensure that all the dependencies are also reloaded 		
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	<h2 data-bbox="339 353 616 398">Dynamic Reload</h2>  <ul style="list-style-type: none"> ■ Set as an option on the application or on the deployment descriptor (META-INF/ibm-application-ext.xml) (Reload Enabled and Reload Interval options) ■ Performance penalty so avoid, especially avoid low reload intervals. 	
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	<h2 data-bbox="339 1283 687 1328">WebSphere z/OS V5</h2>  <h1 data-bbox="387 1451 1217 1597">Application Deployment</h1> <ul style="list-style-type: none"> Java Management Extensions (JMX) Application Assembly Tool (AAT) WebSphere Administrative Console Deploying application with MDBs wsadmin / JACL scripts Hot Deployment and Dynamic Reloading Classloaders 	
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v4 vs. v5 Classloading Policies - Comparison

v4		v5	
4.0 Classloader Policy	v5 Application Classloader Policy	v5 WAR Classloader Policy	
SERVER	SINGLE	APPLICATION	
COMPATIBILITY	SINGLE	MODULE	
APPLICATION	MULTIPLE	APPLICATION	
MODULE	N/A	N/A	
J2EE Application Mode	MULTIPLE	MODULE	

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Shared Libraries

Environment
Update Web Server Plugin
Virtual Hosts
Manage WebSphere Variables
Shared Libraries
Naming

DEFINE New Shared Libraries

Configuration
General Properties
Name: MySharedCode
Description:
Classpath: C:\MyCode\
Native Library Path:

Can be a Single JAR file or DIRECTORY that contains multiple JAR files

Native Library used by the Application - DLLs, lib*.so, etc.

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