CICS Transaction Server V4.2

11442 CICS and Java: How the JVM Server transforms Java in CICS

Matthew Webster

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CICS Transaction Server for z/OS V4.2

Events

- System Events
- Assured Events
- Lifecycle Management

Management

- Transaction Tracking
- Workload Management
- Password Phrases

Java

- 64-bit Applications
- Multithreaded Server
- OSGi Management

Scalability

- More Threadsafe
- Optimised Threadsafe
- 64-bit Exploitation

Connectivity

- Axis2 Web Services
- Web Services Offload
- HTTP & IP Extensions

new and enhanced capability across five major technology areas

Related CICS TS V4.2 Sessions

- ***Monday***
  - **11420: CICS TS V4.R2 Technical Overview**
  - **11454: CICS TS V4.R2 User Experience**
- ***Tuesday***
  - **11434: CICS Explorer - A System Programmer Perspective**
- ***Wednesday***
  - **11439: Event Processing: Insight into Your CICS Systems and Business**
  - **11442: CICS and Java: How the JVM Server transforms Java in CICS**
- **Thursday**
  - **11448: Core Foundations and Scalability**
  - **11450: CICS WLM: Improved Throughput from Optimized WLM**
- **Friday**
  - **11458: Modernizing CICS -- Hands-on Lab, Part 1 of 2**
  - **11459: Modernizing CICS -- Hands-on Lab, Part 2 of 2**

Java

- 64-bit Applications
- Multithreaded Server
- OSGi Management

Themes & Topics

- **Brief History**
- **User Roles**
- **Platform & Tools**
- **Demonstration**
- **Future**

BRIEF HISTORY

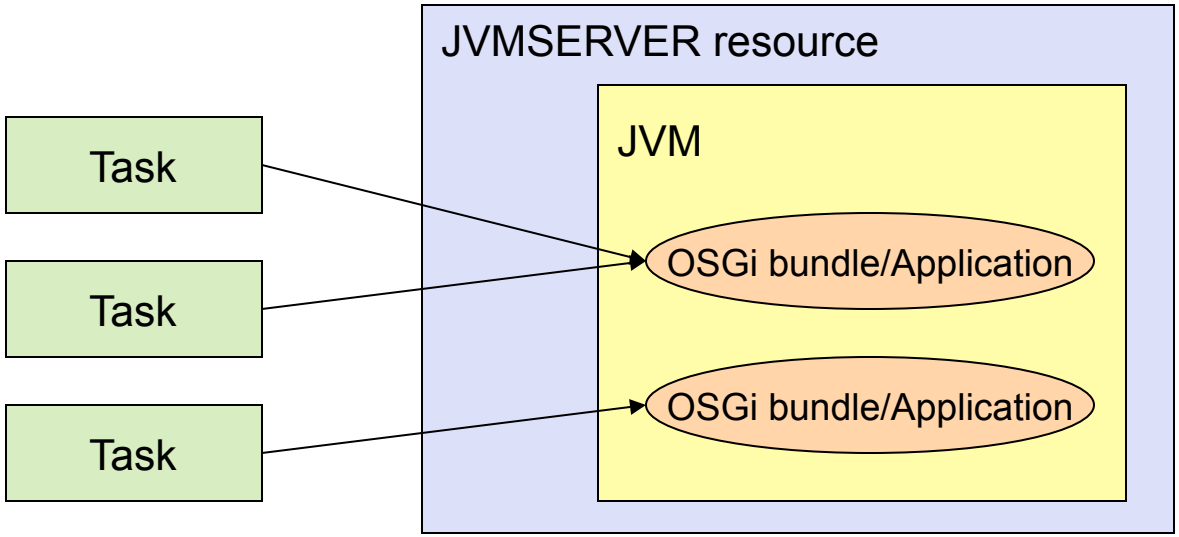
CICS TS V4.2 JVM Server

- **New 64-bit Java runtime environment**
  - Increases the number of JVMs that can be used in a single CICS region
  - Removes the constraints on heap storage for each JVM
  - Provides performance advantages when running on IBM zEnterprise 196 (z196) hardware
- **JVM server for user programs**
  - Run multiple Java transactions as threads in a single JVM server process
  - Simplified the setup and management of the CICS Java runtime environment
  - Improved portability for Java applications and tools deployed in CICS
- **OSGi bundles for development, deployment & management of Java applications**
  - Java applications packaged as one or more industry standard OSGi bundles and then deployed/installed as a CICS BUNDLE
  - Removes the need to load Java applications from a statically defined class path
  - Provision of application isolation and versioning, cross-package prerequisite checking, and simplified package redeployment

CICS TS V4.2 Pooled JVM

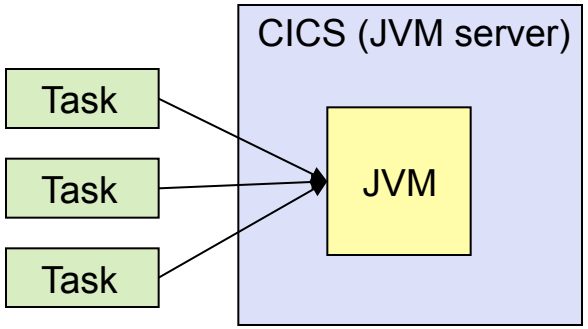
- **Enterprise Java Bean Support**
  - Enterprise Java Bean (EJB) 1.1 specification and the associated CICS EJB Server components was stabilized in CICS TS V4.1
  - Not available in JVM server
  - Encouraged to migrate EJB applications to be Java SE components and make them available through web services or the JEE Connector Architecture (JCA)
- **Java pool infrastructure**
  - Infrastructure was stabilized in CICS TS V4.1
  - Encouraged to migrate Java applications to OSGi bundles
  - See ***Migrating applications using the CICS Explorer SDK*** in the V4.2 Information Center

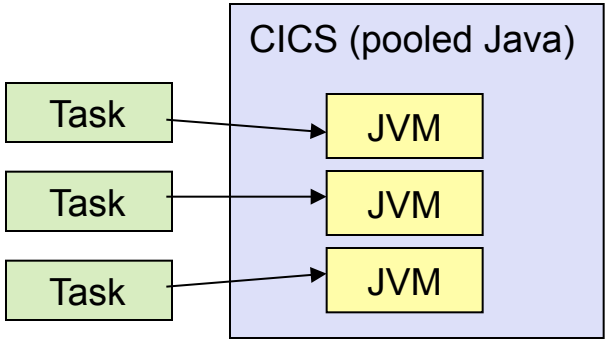
What is a JVM server…?



- a new CICS resource containing a **long-running** JVM.
- the strategic direction of Java in CICS
- a JVM that serves **multiple transactions concurrently**.
- a JVM in which applications/tasks run as OSGi bundles.

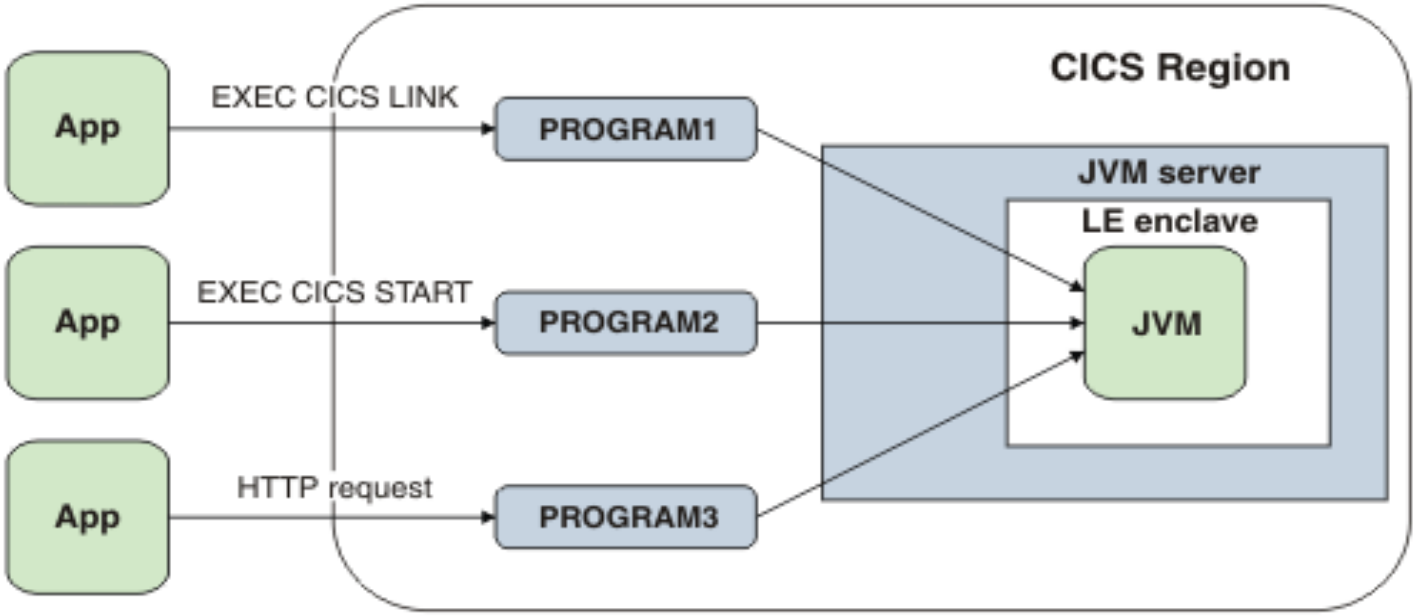
JVM server vs existing Java support?





Single JVM - serves many tasks (reduced storage)	Pool of JVMs - each serves only a single task.
(concurrent, multi-threaded, up to 256 threads per JVM server)	Java Program Isolation
T8 (CICS key)	J8 (CICS key), J9 (User key)
MAXTHRDTCBS (automatically calculated), up to max of 1024 per region	MAXJVMTCBS, SIT parm
More standard Server model (+ data-sharing)	Difficult, convoluted to share data and state.
Dynamic update and replace of modules	JVMs must be restarted to effect changes

Attaching work to a JVMSERVER?



CICS Explorer SDK

- **CICS Explorer SDK V1.0**
  - Introduced with CICS TS V4.1
  - Plug-in development for CICS Explorer
- **CICS Explorer SDK V1.1**
  - Introduced with CICS TS V4.2
  - CICS Java development
- **CICS Explorer meets Eclipse IDE**
  - Integrated documentation, examples & wizards for simplified development & deployment
  - Support for migrating applications using conversion, wrapping or injection
  - Supports the development of Java applications for both a JVM server and pooled JVM

USER ROLES

Dave the Developer

- **Goals**
  - Dave wants to write code
- **Tools and Products**
  - Development tools (e.g. Eclipse, Rational Application Developer)
  - Web browser
- **Tasks**
  - Tasked with implementing individual application components according to predefined contract
- **Skills / Education**
  - Background in software development
  - Familiar with one or more languages/ technologies e.g. Java.

Steve the Systems Programmer

- **Goals**
  - Work with a test and production environment which empowers the business user and is up 24/7.
- **Tools and Products**
  - CICS Explorer
  - TSO/ISPF
  - OMEGAMON® for z/OS
- **Tasks**
  - Manage the incoming requests for new roles and new applications
- **Skills / Education**
  - z/OS knowledge
  - Trouble shooting
  - Programming (e.g., JCL, COBOL)

DEMONSTRATION

Demonstration: CICS Explorer & CICS Explorer SDK

- **Goals**
  - Run a Java application in CICS
  - Demonstrate different application development & systems management roles
  - End-to-end experience with CICS Explorer SDK
- **Dave the Developer**
  - Will create, deploy & test the application
  - Can troubleshoot application problems
- **Steve the System Programmer**
  - Will create the Java environment and install & manage the application
  - Can troubleshoot application dependency problems
- **Setup**
  - Anaheim: Mac OS X 10.7 + Java SE 6 (Update 26) + Eclipse 3.6.2 (Cocoa 64-bit) + CICS Explorer SDK V1.1
  - Hursley: CICS TS V4.2 (CICSplex)
  - *Java* and *CICS SM* perspectives in separate workbench windows

CICS Explorer & CICS Explorer SDK Demonstration

Java - com.ibm.cics.server.examples.hello/src/examples/hello/HelloCICSWorld.java - Eclipse SDK

File Edit Source Refactor Navigate Search Project Run Window Help

CICS SM Java

Package Explorer

- com.ibm.cics.server.examples
  - META-INF
  - hello.osgibundle
  - jcics.osgibundle
  - web.osgibundle
- com.ibm.cics.server.examples.hello
  - JRE System Library [J2SE-1.4]
  - Plug-in Dependencies
  - src
    - examples.hello
      - HelloCICSWorld.java
      - HelloWorld.java
  - META-INF
  - OSGI-INF
  - build.properties
- com.ibm.cics.server.examples.jcics
- com.ibm.cics.server.examples.web

HelloCICSWorld.java

```
 * @start_nonoco_copyright@
package examples.hello;

import com.ibm.cics.server.CommAreaHolder;

public class HelloCICSWorld
{
    public static void main(CommAreaHolder CAH)
    {
        Task t = Task.getTask();
        if ( t == null ) {
            System.err.println("HelloCICSWorld example: Can't get Task");
        }
        else {
            t.out.println("Hello from a Java CICS application");
        }
    }
}
```

Problems | @ Javadoc | Declaration

com.ibm.cics.server.Task

This class provides a set of methods and variables that correspond to a CICS task.

Since CICS TS version:
1.3
Since package version:
1.0

Help

Contents

- CICS Java Developer Guide
  - What you need to know about
  - Java programming using JCICS
    - The Java class library for CIC
    - JCICS exception mapping
    - Using JCICS
    - Java restrictions
  - Accessing data from Java applic
  - Connectivity from Java applicat
  - Developing and deploying appl
    - Developing applications usi
    - Setting up the target enviro
    - Creating a plug-in project
    - Updating the plug-in projec
    - Creating a CICS Bundle proj
    - Adding a plug-in to a CICS
    - The JCICS samples
    - Packaging existing applicati
    - Deploying a CICS bundle pr
    - Deploying a CICS non-OSGi
    - Enabling a Java security ma
    - Installing OSGi bundles in a
  - JCICS Javadoc

Go To:
Search Related Topics
Bookmarks Index

Workbench User Guide

Fetching children of

1. Configure and install JVM server
2. Create and install (sample) CICS resources
3. Create CICS bundle

Steve the Systems Programmer

Edit supplied DFHOSGI profile and “File > Save As…”

CICS SM – /u/mqtest/jvmprofs/IYCWEGG1/DFHOSGI – Eclipse SDK – /Users/matthew_webster/Workspaces/orlando

CICSple | CICSple

Server: EGCM

- CICSEXP1 (6/6)
  - EXPWRK1 EGCM (ACTIVE)
  - EXPWRK2 EGCM (ACTIVE)
  - IYCWEGD1 (IYCWEGD1)
  - IYCWEGE1 (IYCWEGE1)
  - IYCWEGF1 (IYCWEGF1)
  - IYCWEGG1 (IYCWEGG1)
  - IYCWEGW1 (IYCWEGW1)
  - IYCWEGW2 (IYCWEGW2)
  - ALLGRP (Group defined by
  - EXPAGRP1 (Explorer JUnit
  - EXPAGRP2 (Explorer JUnit
  - EXPGRP1 (CICSRegionDefi
  - EXPTGRP1 (Explorer JUnit
  - EXPTGRP2 (Explorer JUnit

z/OS | Reso

Path: /u/mqtest/jvmpr (205)

- IYCWEFF1
- IYCWEFF2
- IYCWEFFS
- IYCWEGD1
- IYCWEGE1
- IYCWEGF1
- IYCWEGG1
  - DFHJVMCD
  - DFHJVMERR
  - DFHJVMOUT
  - DFHJVMPR
  - DFHOSGI
- IYCWEGGS
- IYCWEHE1
- IYCWEHF1
- IYCWEHG1
- IYCWEHH1
- IYCWEHHS
- IYCWJDM2

CNX0211I Context: IYCWEGG1. Resource: JVMSERV. 0 records collected at 08-Aug-2011 16:20:24

Name:

Region	Name	Enable Status	Max Threads	Threads	Install Time

JVM Server Definitions | Bundle Definitions | Program Definitions

CNX0211I Context: IYCWEGG1. Resource: JVMSVDEF. 2 records collected at 08-Aug-2011 16:21:44

Name: CSDGroup: DFH$*

Name	Description	CSDGroup	Change Time	Change User ID
DFH$AXIS	CICS jvmserver to rur	DFH$AXIS	04-Aug-2011 16:50	MQTEST
DFH$JVMS	CICS jvmserver to rur	DFH$OSGI	04-Aug-2011 16:50	MQTEST

Properties | Error Log | Internal Web Browser

Property	Value
Basic	
CSDGroup	DFH$OSGI
Description	CICS jvmserver to run OSGi samples
Enabled Status	ENABLED
JVM Profile	DFHOSGI
LE Runtime Options Program	DFHAXRO
Name	DFH$JVMS
Threadlimit	15
Userdata 1	N/A
Userdata 2	N/A
Userdata 3	N/A
Version	0
Definition Signature	
Change Agent	CSDBATCH
Change Release	0670
Change Time	04-Aug-2011 16:50:30

/u/mqtest/jvmprofs/IYCWEGG1/DFHOSGI

```
#*****************************************************************
#
#                        Required parameters
#                        -------------------
#
# The set of supported CICS options for JVM servers
# differs from those used with JVM pools.
#
# JAVA_HOME specifies the location of the Java directory.
#
#JAVA_HOME=/usr/lpp/java/J6.0/
JAVA_HOME=/java/java601_bit64_GA/J6.0.1_64
#
# Set the current working directory. If this environment variable is
# set, a change to the specified directory is issued before the JVM
# is initialized, and the STDIN, STDOUT and STDERR streams are
# allocated to this directory.
#
# If you do not specify this option, the current working directory is
# left unchanged and the STDIN, STDOUT and STDERR streams are allocated
# to the /tmp directory.
#
#WORK_DIR=.
WORK_DIR=/u/webster/CICSEXP1

# Specify any directories that contain DLLs required at run time. For
# example, to use the IBM DB2 Driver for JDBC and SQLJ, add the
# directory containing the native DLLs to the LIBPATH_SUFFIX option.
# See the "Application Programming Guide and Reference for Java" relevant
# to the level of DB2 being used.
#
#LIBPATH_SUFFIX=
#
#*****************************************************************
#
#                     JVM server specific parameters
#                     ------------------------------
#
# Use the OSGI_BUNDLES option to specify a list of middleware
# bundles that are installed and activated in the OSGi framework
# when the JVM is initialized.
# The list of bundles must be comma separated.
#
#OSGI_BUNDLES=/u/example/pathToBundleDirectory/B1.jar,\
#             /u/example/pathToBundleDirectory/B2.jar
#
```

Fetching children of | CICSEXP1 (CICSplex)

Edit supplied DFHOSGI profile and “File > Save As…”

```
# JAVA_HOME specifies the location of the Java directory.
#
#JAVA_HOME=/usr/lpp/java/J6.0/
JAVA_HOME=/java/java601_bit64_GA/J6.0.1_64
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# allocated to this directory.
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# If you do not specify this option, the current working directory is
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```

Properties | Error Log | Internal Web Browser

Property	Value
Basic	
CSDGroup	DFH$OSGI
Description	CICS jvmserver to run OSGi samples
Enabled Status	ENABLED
JVM Profile	DFHOSGI
LE Runtime Options Program	DFHAXRO
Name	DFH$JVMS
Threadlimit	15
Userdata 1	N/A
Userdata 2	N/A
Userdata 3	N/A
Version	0
Definition Signature	
Change Agent	CSDBATCH
Change Release	0670
Change Time	04-Aug-2011 16:50:30

```
# directory containing the native DLLs to the LIBPATH_SUFFIX option.
# See the "Application Programming Guide and Reference for Java" relevant
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#
#*****************************************************************************
#
#                    JVM server specific parameters
#                    ------------------------------
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#
```
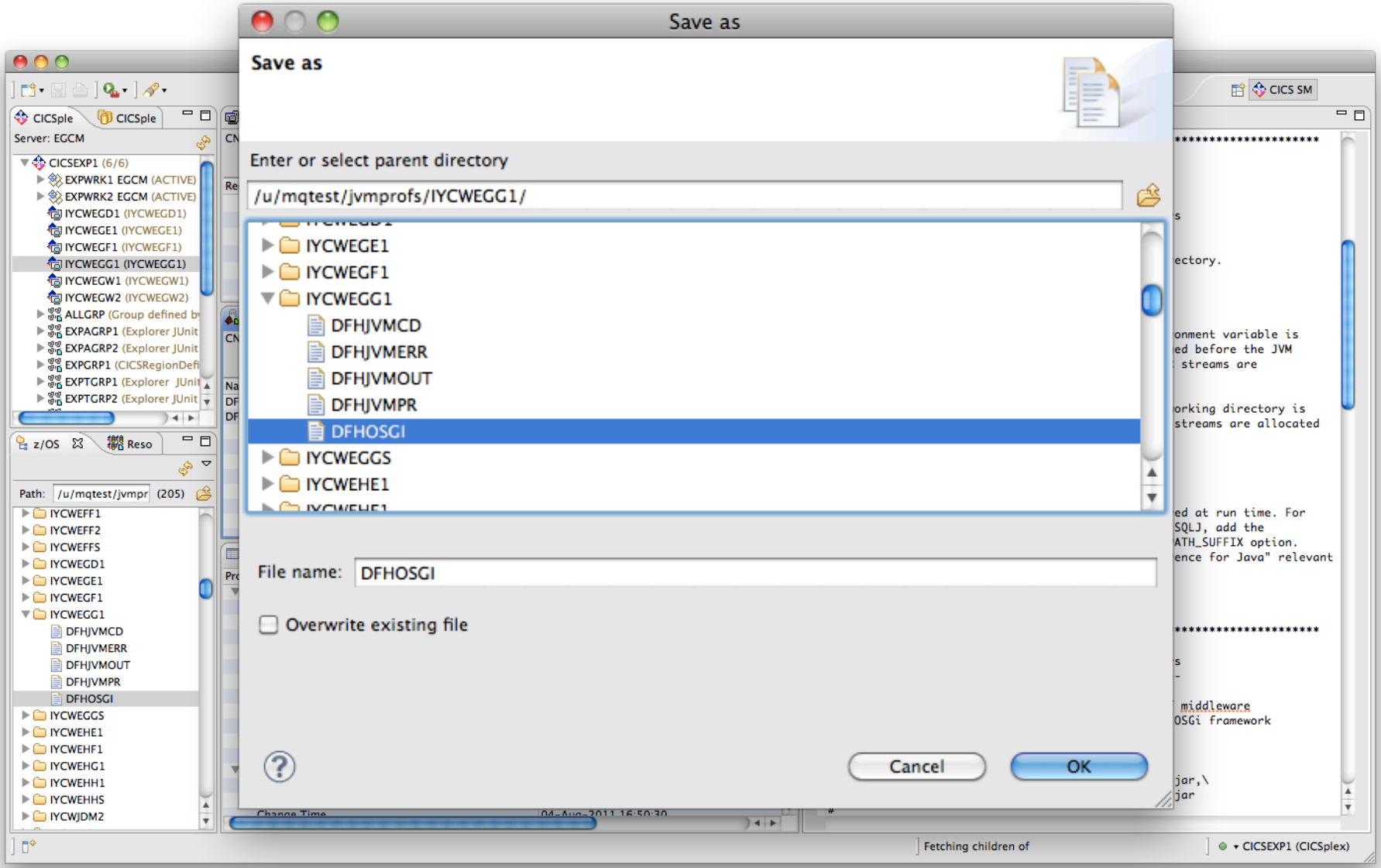

Fetching children of | CICSEXP1 (CICSplex)

Edit supplied DFHOSGI profile and “File > Save As…”



Use “Show SIT Parameters” to find JVM Profile Directory

/u/mqtest/jvmprofs/IYCWEGG1/DFHOSGI | SIT Parameters (SYSIN)

SIT Parameters (SYSIN)

Attributes

Property	Value
▼Auto Install	
Auto Install Consoles	AUTO
▼Basic	
CICS SVC	240
CPSM Connection	LMAS
GM Text	'WELCOME TO EXPLORER LMAS CICS 670, REGION IYCWEGG1'
SIT Suffix	PE
SRBSVC	241
Start	INITIAL
SYSIDNT	EGG1
USS Home	/cics/cics670
▼CSD	
Auto Install Group Lists	(C42E67)
CSD Concurrent Requests	6
CSD Disposition	SHR
CSD Forward Recovery Log	1
CSD Journal ID	1
CSD Recovery	ALL
CSD RLS	YES
▼Dump	
System Dump Max	5
▼File Control	
RLS	YES
▼Java	
JVM Profile Directory	/u/mqtest/jvmprofs/IYCWEGG1
▼Network	
Application ID	IYCWEGG1
Intersystem Communication	YES
IRC Start	YES
TCP/IP	YES

INSTALL sample DFH$JVM JVM server

CNX0211I Context: IYCWEGG1. Resource: JVMSERV. 0 records collected at 08-Aug-2011 16:20:24

Name:

Region	Name	Enable Status	Max Threads	Threads	Install Time

JVM Server Definitions | Bundle Definitions | Program Definitions

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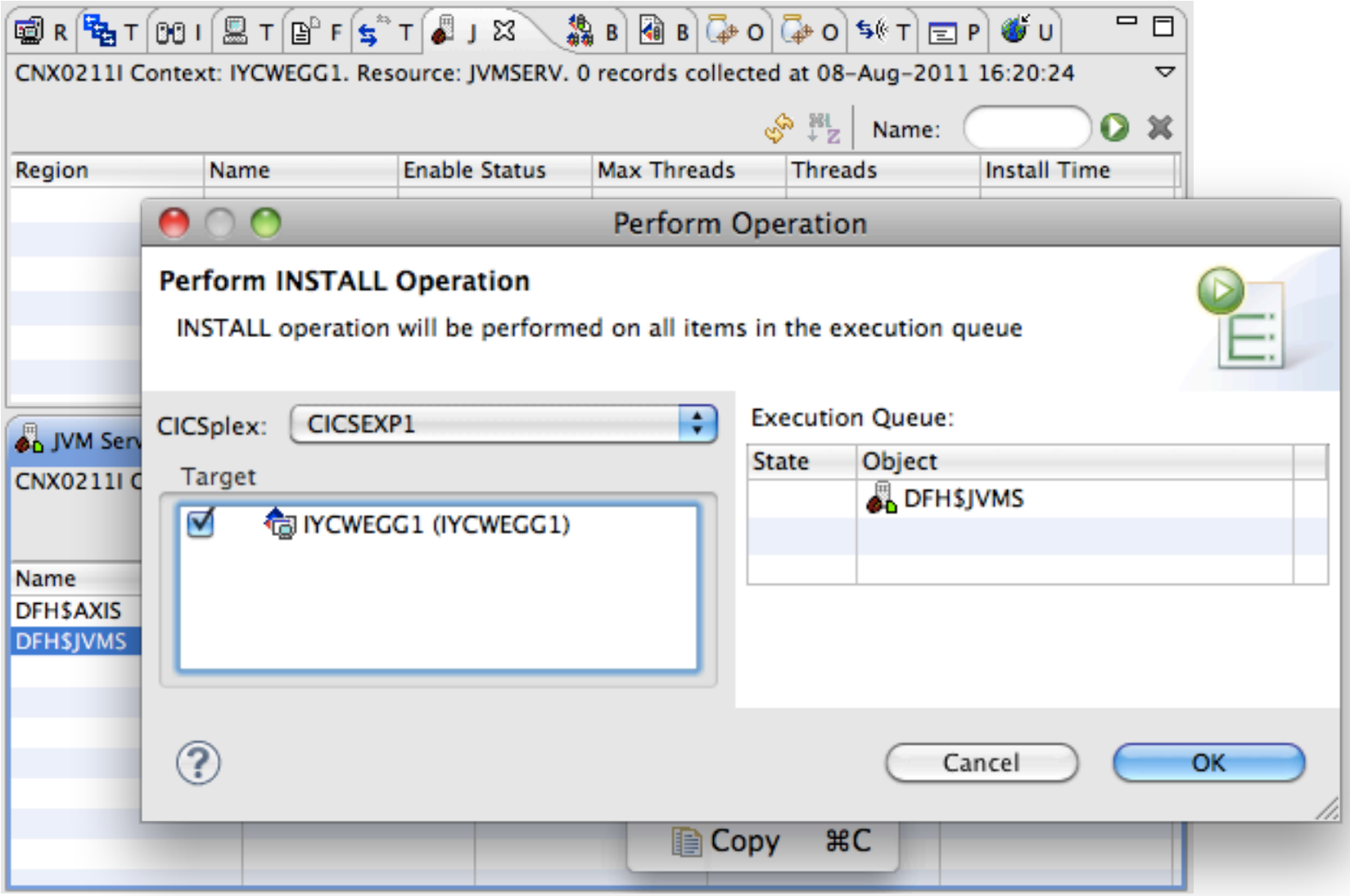
Name: CSDGroup: DFH$*

Name	Description	CSDGroup	Change Time	Change User ID
DFH$AXIS	CICS jvmserver to rur	DFH$AXIS	04-Aug-2011 16:50	MQTEST
DFH$JVMS	CICS jvmserver to rur	DFH$OSGI	:50	MQTEST

New...
Open
Install...
Delete
Copy ⌘C

INSTALL sample DFH$JVM JVM server



JVM server DFH$JVMS ENABLED

CNX0211I Context: IYCWEGG1. Resource: JVMSERV. 1 records collected at 08-Aug-2011 16:48:44

Name:

Region	Name	Enable Status	Max Threads	Threads	Install Time
IYCWEGG1	DFH$JVMS	✓ ENABLED	15	0	08-Aug-2011 16

Check IYCWEGG1.DFH$JVMS.dfhjvmtrc for any problems

CICS SM – /u/webster/CICSEXP1/IYCWEGG1.DFH$JVMS.dfhjvmtrc – Eclipse SDK – /Users/matthew_webster/Workspaces/orlando

CICSplex Exp | CICSplex Rep

Server: EGCM

- CICSEXP1 (6/6)
  - EXPWRK1 EGCM (ACTIVE)
  - EXPWRK2 EGCM (ACTIVE)
  - IYCWEGD1 (IYCWEGD1)
  - IYCWEGE1 (IYCWEGE1)
  - IYCWEGF1 (IYCWEGF1)
  - IYCWEGG1 (IYCWEGG1)
  - IYCWEGW1 (IYCWEGW1)
  - IYCWEGW2 (IYCWEGW2)
  - ALLGRP (Group defined by EYU9XDB
  - EXPAGRP1 (Explorer JUnit AOR group
  - EXPAGRP2 (Explorer JUnit AOR group
  - EXPGRP1 (CICSRegionDefinitionTest)
  - EXPTGRP1 (Explorer JUnit TOR grou
  - EXPTGRP2 (Explorer JUnit TOR group

z/OS UNIX | Resource G

Path: /u/webster (25)

- all.policy
- Blueprint
- BUN1
- bundle
- bundle_dir
- cics.test
- CICSEXP1
  - IYCWEGG1.DFH$JVMS.dfhjvmerr
  - IYCWEGG1.DFH$JVMS.dfhjvmin
  - IYCWEGG1.DFH$JVMS.dfhjvmout
  - IYCWEGG1.DFH$JVMS.dfhjvmtrc
  - IYCWEGG1.MAWBLUE1.dfhjvmerr
  - IYCWEGG1.MAWBLUE1.dfhjvmin
  - IYCWEGG1.MAWBLUE1.dfhjvmout
  - IYCWEGG1.MAWBLUE1.dfhjvmtrc
  - IYCWEGG1.MAWWEB1.dfhjvmerr
  - IYCWEGG1.MAWWEB1.dfhjvmin
  - IYCWEGG1.MAWWEB1.dfhjvmout
  - IYCWEGG1.MAWWEB1.dfhjvmtrc

CNX0211I Context: IYCWEGG1. Resource: JVMSERV. 1 records collected at 08-Aug-2011 16:48:44

Name:

Region	Name	Enable Status	Max Threads	Threads	Install Time
IYCWEGG1	DFH$JVMS	ENABLING	15	0	08-Aug-2011 16

JVM Server Definitions | Bundle Definitions | Program Definitions

CNX0211I Context: IYCWEGG1. Resource: JVMSVDEF. 2 records collected at 08-Aug-2011 16:21:44

Name: CSDGroup: DFH$*

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DFH$JVMS	CICS jvmserver to rur	DFH$OSGI	04-Aug-2011 16:50	MQTEST

Properties | Error Log | Internal Web Browser

Property	Value
Basic	
Basdefinever	0
CICS Release	E670
Enable Status	ENABLING
JVM Created (GMT)	
JVM Created (Local time)	
JVM Profile	DFHOSGI
LERUNOPTS	DFHAXRO
Name	DFH$JVMS
PID	0
Region	IYCWEGG1
Use Count	0
JVM Heap	
GC Events (Major)	0
GC Events (Minor)	0
GC Heap Freed (Major)	0
GC Heap Freed (Minor)	0
GC Min Heap	0
GC Policy	
GC Time (Major)	0
GC Time (Minor)	0
Heap	0
Init Heap	0
Max Heap	0

SIT Parameters (SYSI | /u/webster/CICSEXP1/

```
2011/08/08 15:52:15.361    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.712    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.764    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.782    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.824    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.843    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.854    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.893    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.934    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:16.960    GMT I Router-Init-Thread com.ibm.cics.r
2011/08/08 15:52:17.088    GMT I Router-Init-Thread com.ibm.cics.c
2011/08/08 15:52:17.089    GMT I Framework Event Dispatcher com.ib
2011/08/08 15:52:17.089    GMT I Framework Event Dispatcher org.ec
2011/08/08 15:52:17.090    GMT I Framework Event Dispatcher org.ec
2011/08/08 15:52:17.090    GMT I Framework Event Dispatcher org.ec
2011/08/08 15:52:17.090    GMT I Router-Init-Thread com.ibm.cics.r
0 org.eclipse.osgi 3.6.1.R36x_v20100806 ACTIVE
1 org.eclipse.osgi.services 3.2.100.v20100503 ACTIVE
2 org.eclipse.equinox.log 1.2.100.v20100503 ACTIVE
3 com.ibm.cics.server 1.300.0 ACTIVE
4 com.ibm.cics.ras 1.300.0 ACTIVE
5 com.ibm.ras 1.300.0 ACTIVE
6 com.ibm.record 1.0.0 ACTIVE
7 com.ibm.cics.domains 1.300.0 ACTIVE
8 com.ibm.cics.osgi 1.0.0 ACTIVE
9 com.ibm.cics.osgi.impl 1.0.0 ACTIVE
2011/08/08 15:52:17.091    GMT I Router-Init-Thread com.ibm.cics.r
```

CNX0100I Connected user WEBSTER to host cicsexp1host.hursley.ibm.com on port 27062 | Writable | Insert | 1 : 1 | Fetching children of | CICSEXP1 (CICSplex)

List of system and “middleware” OSGi bundles installed

/u/mqtest/jvmprofs/IYCWEGG1/DFHOSGI | SIT Parameters (SYSIN) | /u/webster/CICSEXP1/IYCWEGG1.DFHSJVMS.dfhjvmtrc

```
2011/08/08 15:52:15.361    GMT I Router-Init-Thread com.ibm.cics.router.Router: Starting the OSGi Framework.
2011/08/08 15:52:16.712    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing OSGi System bundle: /cic
2011/08/08 15:52:16.764    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing OSGi System bundle: /cic
2011/08/08 15:52:16.782    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:16.824    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:16.843    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:16.854    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:16.893    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:16.934    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:16.960    GMT I Router-Init-Thread com.ibm.cics.router.Router: Installing CICS System bundle: /cic
2011/08/08 15:52:17.088    GMT I Router-Init-Thread com.ibm.cics.osgi.impl [com.ibm.cics.osgi.CICSController, com.i
2011/08/08 15:52:17.089    GMT I Framework Event Dispatcher com.ibm.cics.osgi.impl: BundleEvent STARTED
2011/08/08 15:52:17.089    GMT I Framework Event Dispatcher org.eclipse.osgi: BundleEvent STARTED
2011/08/08 15:52:17.090    GMT I Framework Event Dispatcher org.eclipse.osgi: FrameworkEvent STARTED
2011/08/08 15:52:17.090    GMT I Framework Event Dispatcher org.eclipse.osgi: FrameworkEvent STARTLEVEL CHANGED
2011/08/08 15:52:17.090    GMT I Router-Init-Thread com.ibm.cics.router.Router: Bundles:
0 org.eclipse.osgi 3.6.1.R36x_v20100806 ACTIVE
1 org.eclipse.osgi.services 3.2.100.v20100503 ACTIVE
2 org.eclipse.equinox.log 1.2.100.v20100503 ACTIVE
3 com.ibm.cics.server 1.300.0 ACTIVE
4 com.ibm.cics.ras 1.300.0 ACTIVE
5 com.ibm.ras 1.300.0 ACTIVE
6 com.ibm.record 1.0.0 ACTIVE
7 com.ibm.cics.domains 1.300.0 ACTIVE
8 com.ibm.cics.osgi 1.0.0 ACTIVE
9 com.ibm.cics.osgi.impl 1.0.0 ACTIVE
2011/08/08 15:52:17.091    GMT I Router-Init-Thread com.ibm.cics.router.Router: OSGi Framework started.
```

Lots of useful information about JVM server

Properties | Error Log | Internal Web Browser

Property	Value
Basic	
Basdefinever	0
CICS Release	E670
Enable Status	ENABLING
JVM Created (GMT)	
JVM Created (Local time)	
JVM Profile	DFHOSGI
LERUNOPTS	DFHAXRO
Name	DFH$JVMS
PID	0
Region	IYCWEGG1
Use Count	0
JVM Heap	
GC Events (Major)	0
GC Events (Minor)	0
GC Heap Freed (Major)	0
GC Heap Freed (Minor)	0
GC Min Heap	0
GC Policy	
GC Time (Major)	0
GC Time (Minor)	0
Heap	0
Init Heap	0
Max Heap	0
Peak Heap	0
Resource Signature	
Threads	
Max Threads	15
Peak Threads	0
Peak Waiting Threads	0
Sys Thread Peak Wait	0
Sys Thread Usage	8
Sys Thread Waits	0
Sys Thread Wait Time	0
Threads	0
Thread Waits	0
Thread Wait Time	0
Waiting Threads	0
Waiting Threads (Sys Thread)	0

1. Consult *CICS Java Developer Guide*
2. Set Target Platform
3. Create (example) application
4. Deploy application as CICS bundle

Dave the Application Developer

Empty workspace, empty CICS bundle

Java - Eclipse SDK - /Users/matthew_webster/Workspaces/orlando

Package Explorer

z/OS UNIX Files

Path: /u/webster/ (25)

- BUN1
- bundle
- bundle_dir
- cics.test
- CICSEXP1
- cicsjava
- com.ibm.cics.db2.jcc_1.0.0.jar
- DFHOSGI
- dfjejbpl.policy
- IYK2Z2G1
- java
- JTPLEX1
- lib
- orlando
- OSGIMAW1
- osgimaw1
- poolmaw1
- SDAYPEG

Problems | Javadoc | Declaration

0 items

Description	Resource	Path	Location	Type

Help

Contents

- Workbench User Guide
- Java development user guide
- Platform Plug-in Developer Guide
- JDT Plug-in Developer Guide
- Plug-in Development Environment Guide
- CICS Event binding editor
- CICS Explorer SDK Developer's Guide
- CICS Explorer User Guide
- CICS Java Developer Guide
  - What you need to know about CICS
    - CICS transactions
    - CICS tasks
    - CICS application programs
    - CICS services
    - Java runtime environment in CICS
  - Java programming using JCICS
    - Accessing data from Java applications
    - Connectivity from Java applications in CICS
  - Developing and deploying applications
    - Developing applications using the CICS
    - Setting up the target environment
    - Creating a plug-in project
    - Updating the plug-in project manifest fi
    - Creating a CICS Bundle project
    - Adding a plug-in to a CICS bundle proje
    - The JCICS samples
    - Packaging existing applications to run ir
    - Deploying a CICS bundle project
    - Deploying a CICS non-OSGi Java applicat
    - Enabling a Java security manager
    - Installing OSGi bundles in a JVM server
  - JCICS Javadoc
- Custom documentation

Go To: Search | Related Topics | Bookmarks | Index

Fetching children of

Developing applications using the CICS Explorer SDK

Help

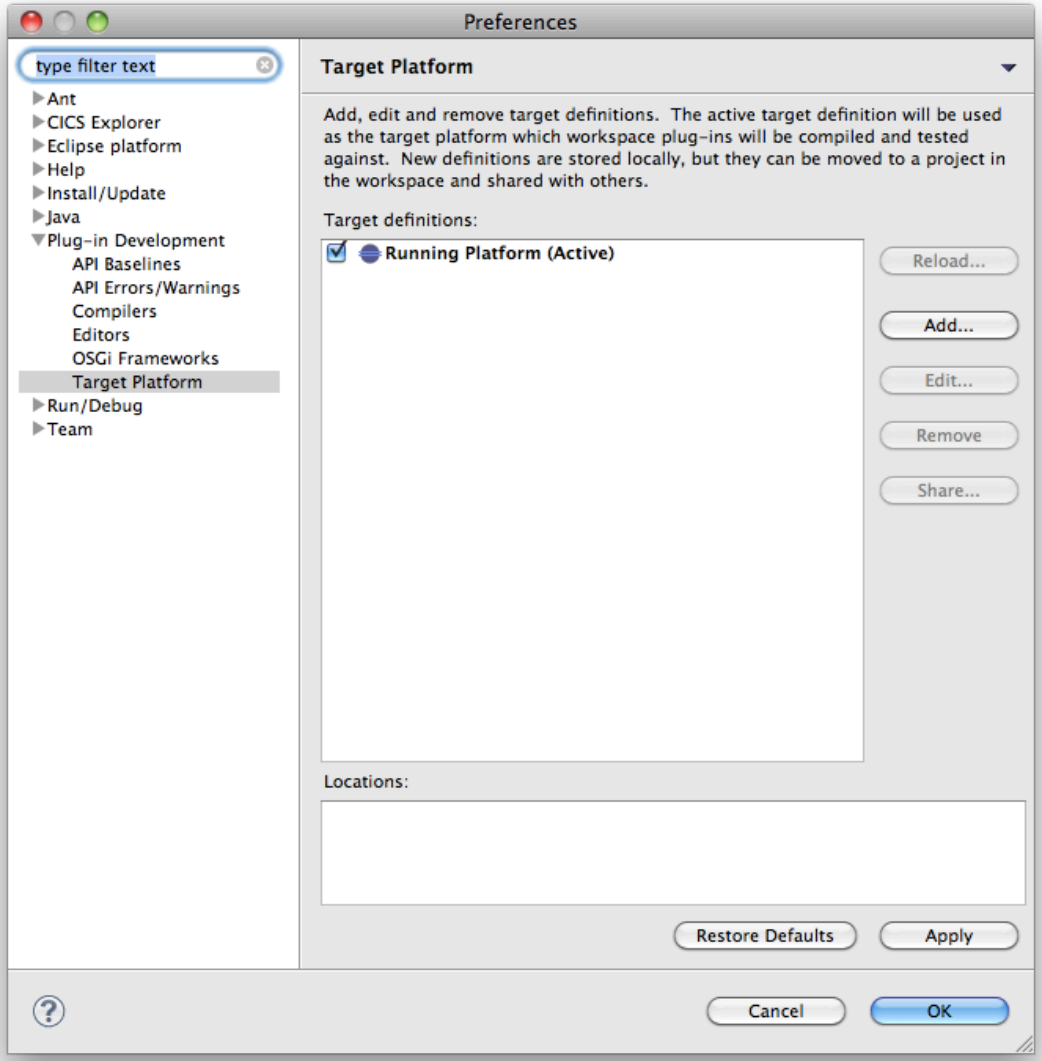
You can use the SDK to develop a Java application to run in any supported release of CICS. Different releases of CICS support different versions of Java, and the JCICS API has also been extended in later releases to support additional features of CICS. To avoid using the wrong classes, the SDK provides a feature to set up a target platform. You can define which release of CICS you are developing for and the SDK automatically hides the Java classes that you cannot use.

See the *CICS Java Developer Guide* in the SDK help for full details on how you can perform each of the following steps to develop and deploy applications.

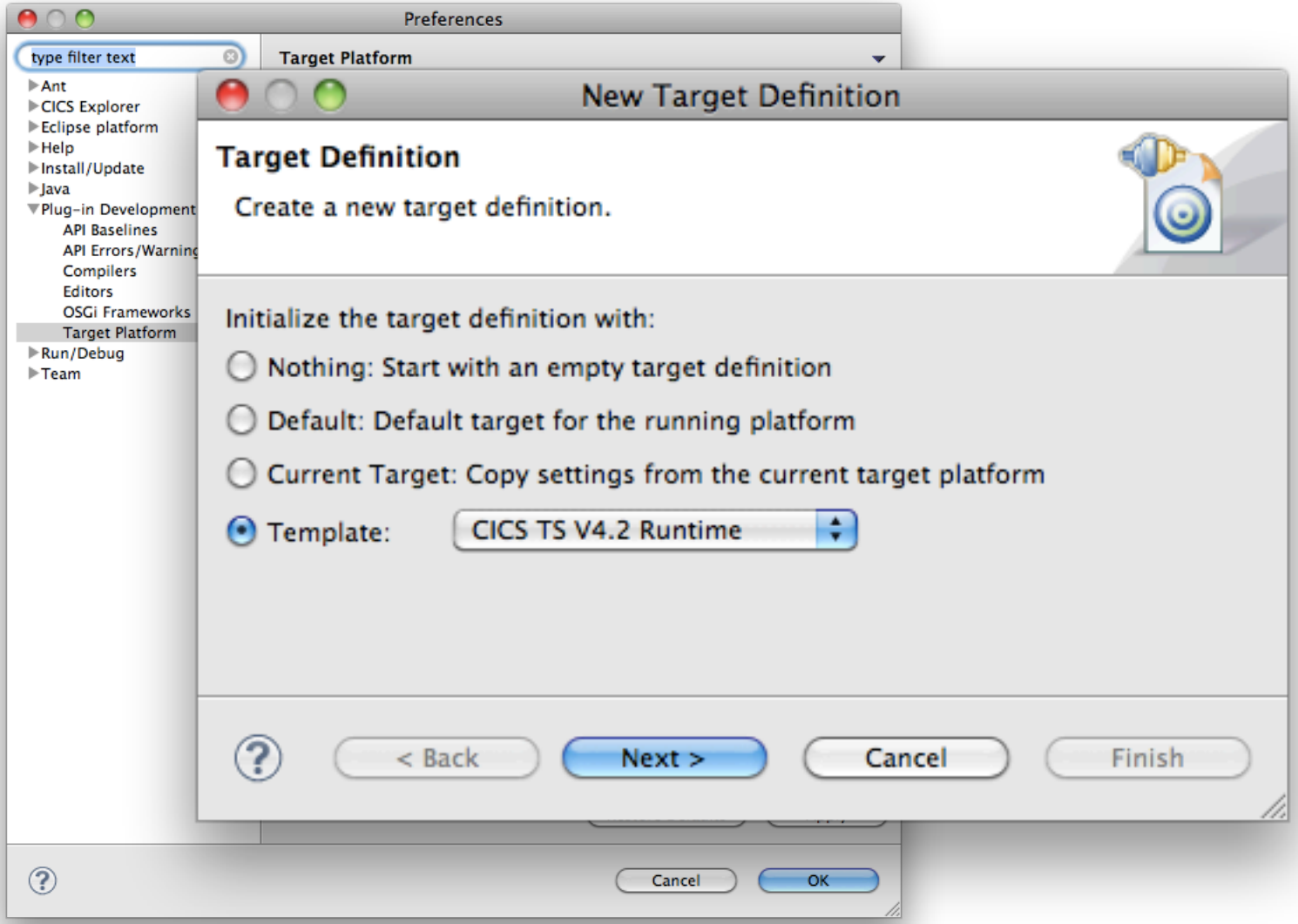
Procedure

1. Set up a target platform for your Java development. The target platform ensures you use only the Java classes that are appropriate for the target release of CICS in your application development.
2. Create a plug-in project for your Java application development.
3. Develop your Java application using best practices. If you are new to developing Java applications for CICS, you can use the JCICS examples provided with the CICS Explorer™ SDK to get started. To use JCICS in a Java application, you must import the com.ibm.cics.server package.
4. Deploy your Java application in a CICS bundle to zFS. CICS bundles can contain one or more OSGi bundles and are the unit of deployment for your application in CICS. If you are running the Java application in a JVM server, you must know the name of the JVMSERVER resource in which you want to deploy the application.

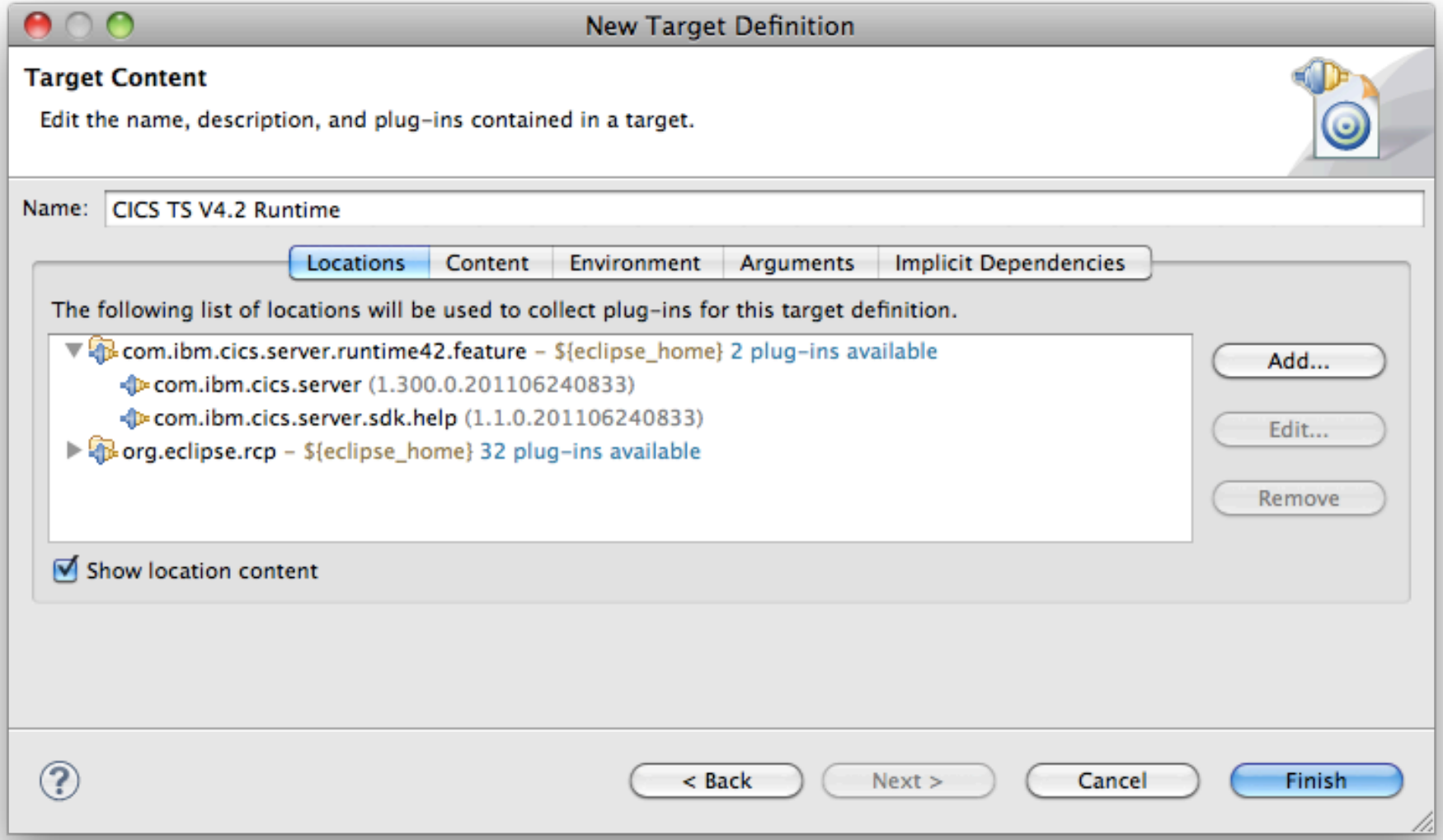
Set Target Platform



Set Target Platform



JCICS version 1.300 (V4.2)



Java 1.6

New Target Definition

Target Content

Edit the name, description, and plug-

Name: CICS TS V4.2 Runtime

Locations

The following list of locations will b

com.ibm.cics.server.runtime4

com.ibm.cics.server (1.30

com.ibm.cics.server.sdk.h

org.eclipse.rcp - ${eclipse_h

Show location content

New Target Definition

Target Content

Edit the name, description, and plug-ins contained in a target.

Name: CICS TS V4.2 Runtime

Locations | Content | Environment | Arguments | Implicit Dependencies

Target Environment

Specify the target environment. If left blank, the default environment variables from the host (running) platform will be used.

Operating System:

Windowing System:

Architecture:

Locale:

Java Runtime Environment

Specify the JRE or execution environment for this target. Selecting a named JRE will change the workspace default JRE setting.

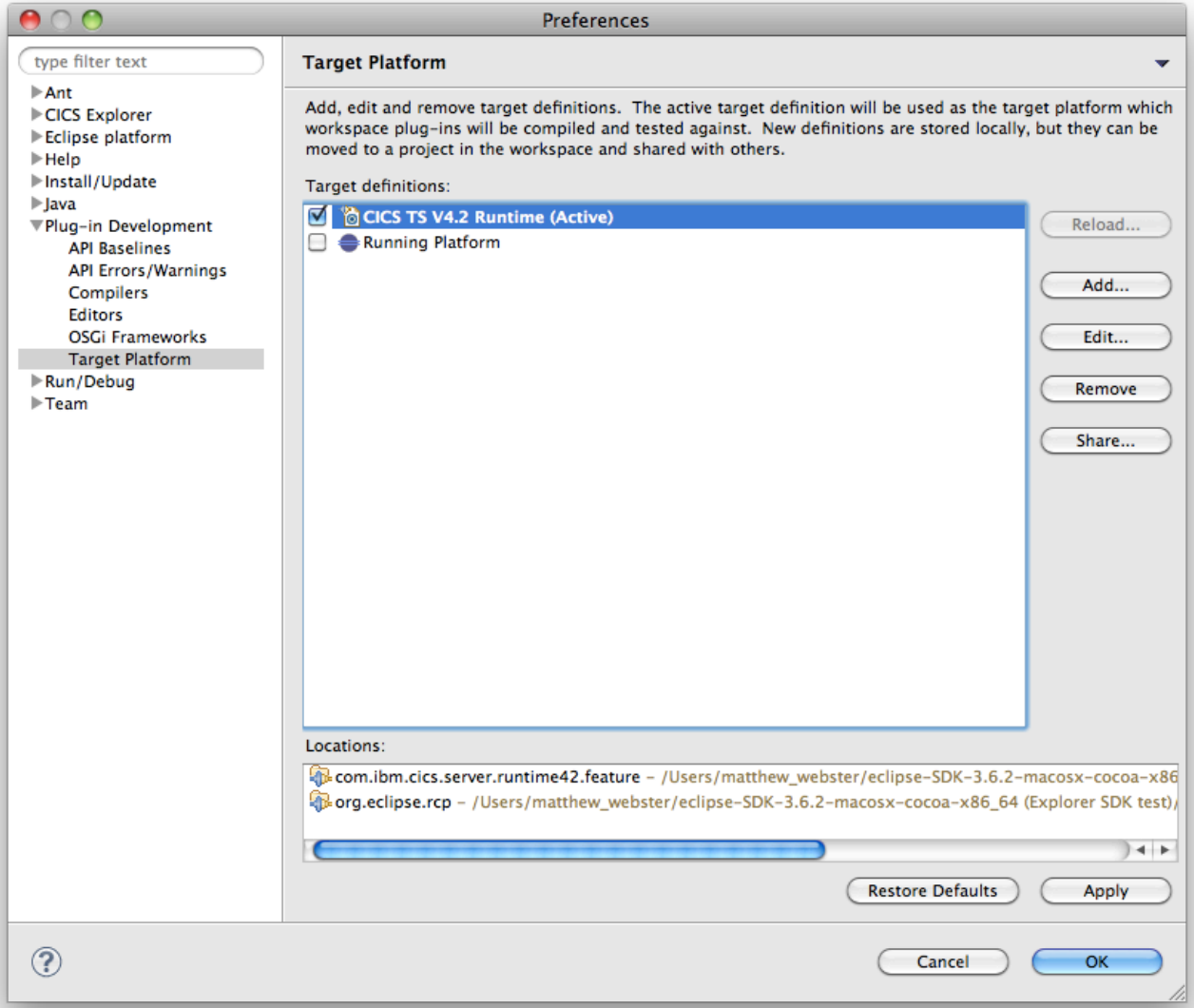
Default JRE

JRE name: JVM Contents (MacOS X Default)

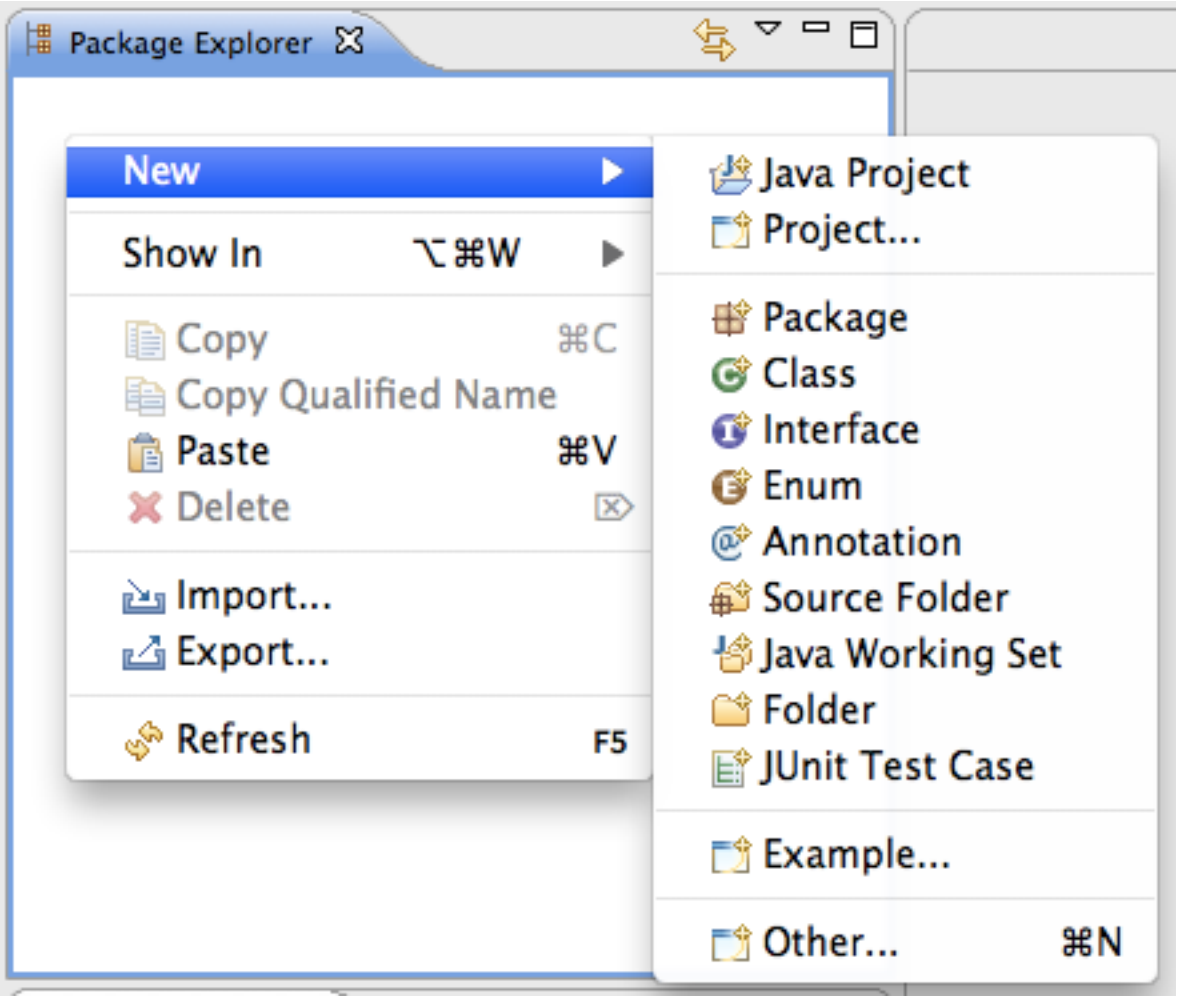
Execution Environment: JavaSE-1.6

< Back | Next > | Cancel | Finish

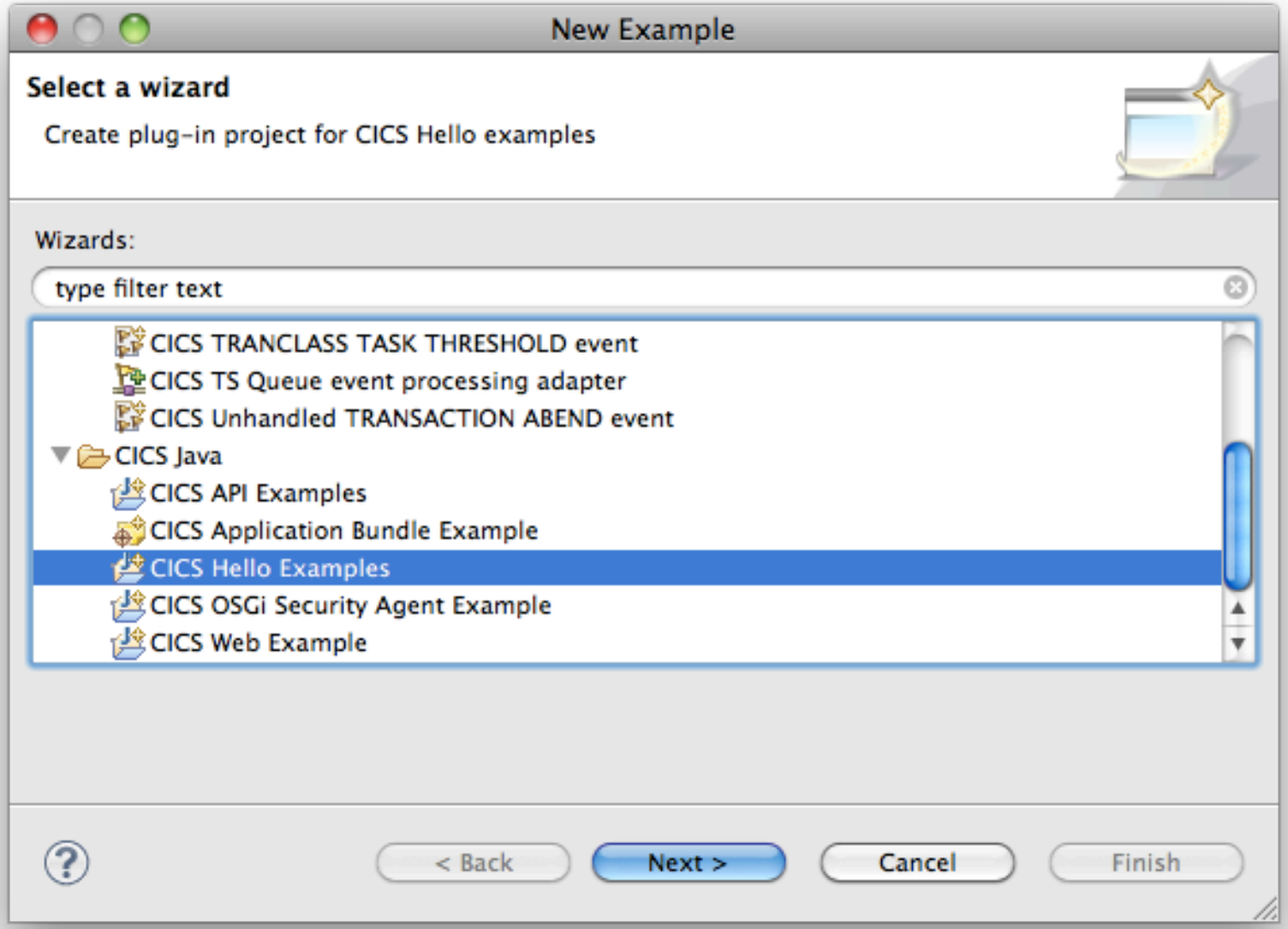
Select the new target



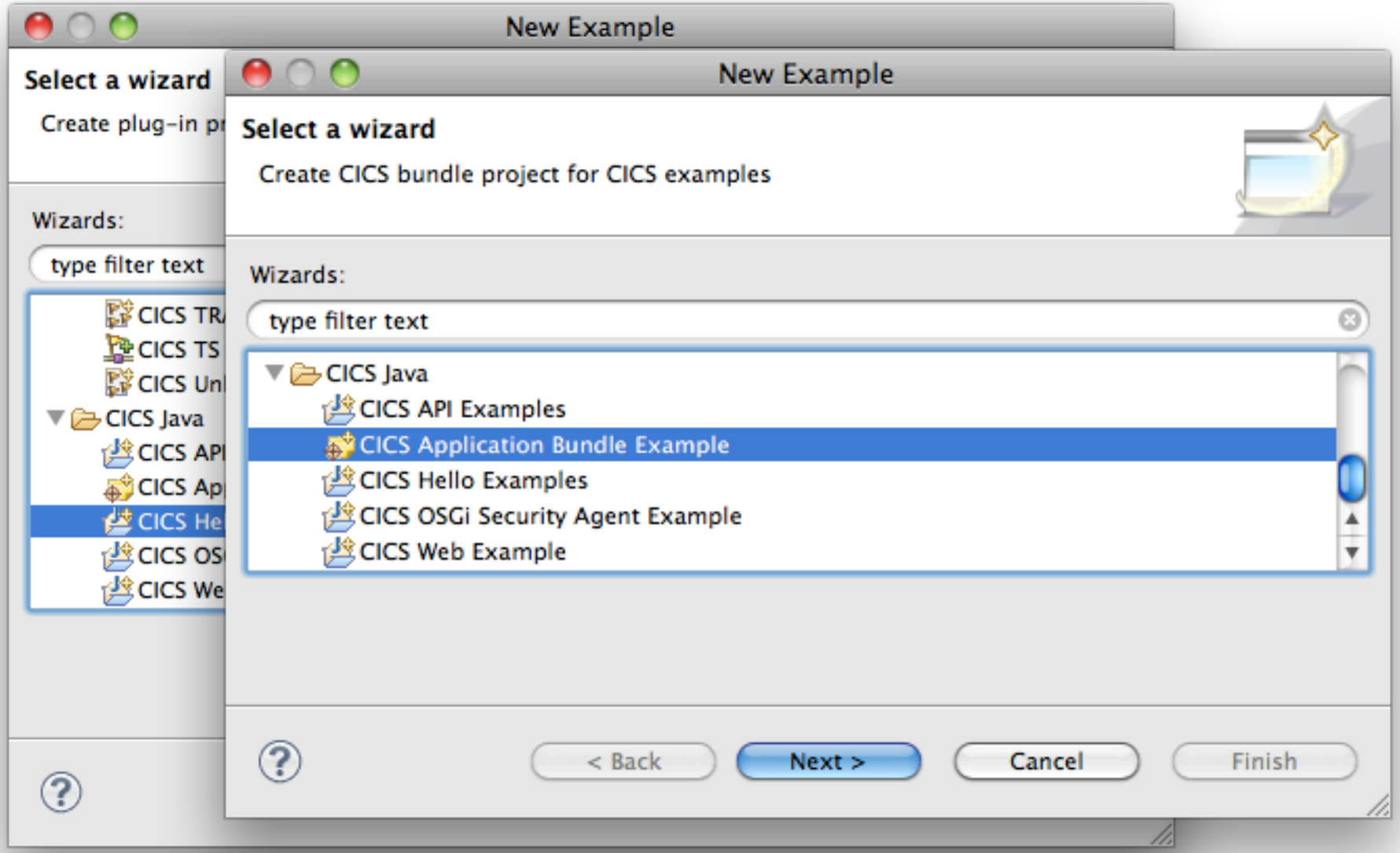
Add the examples (Hello, JCICS & Web) to the workspace



Add OSGi bundle projects



Add CICS bundle project



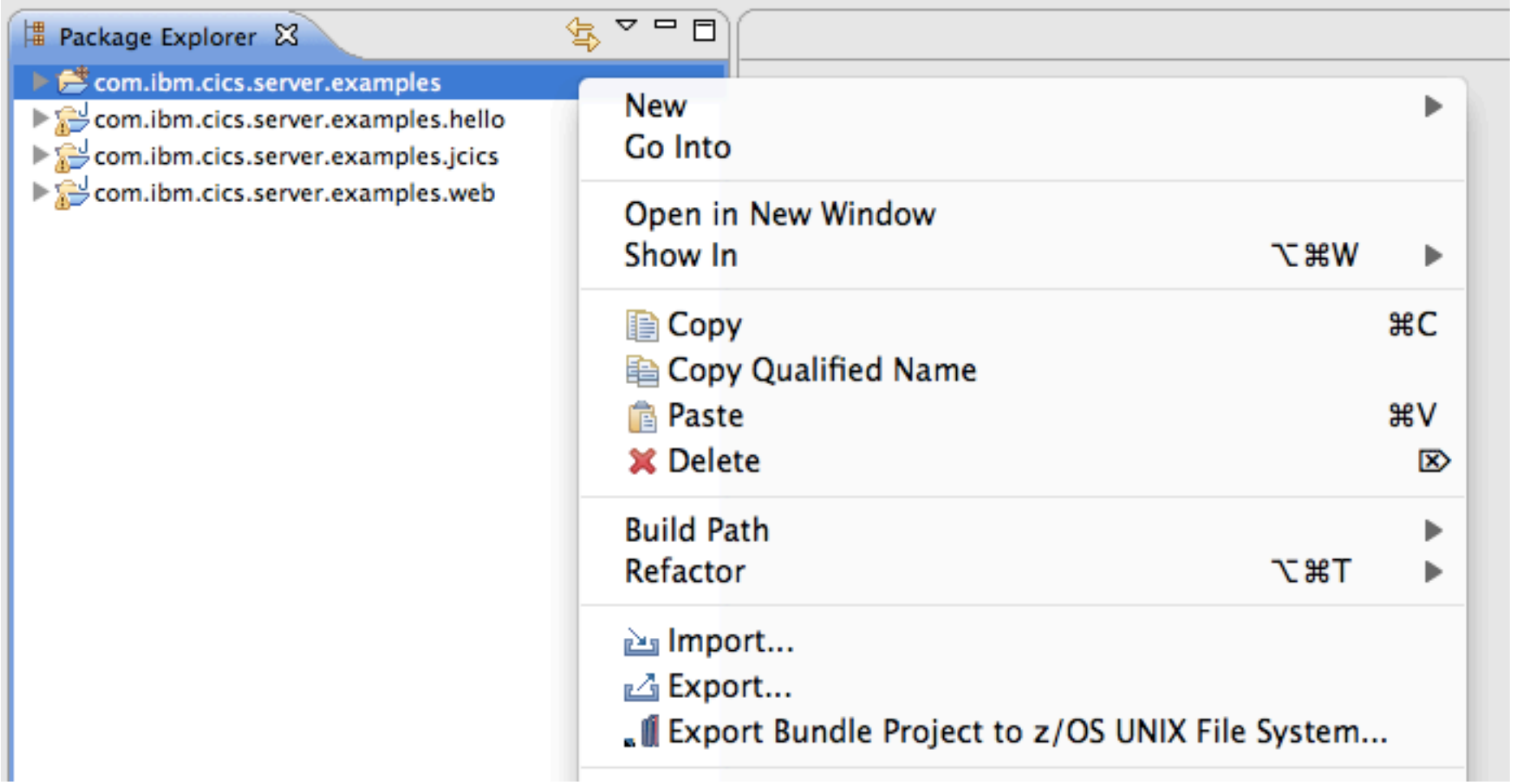
Errors in the Problems view for missing OSGi bundles

Problems | Javadoc | Declaration

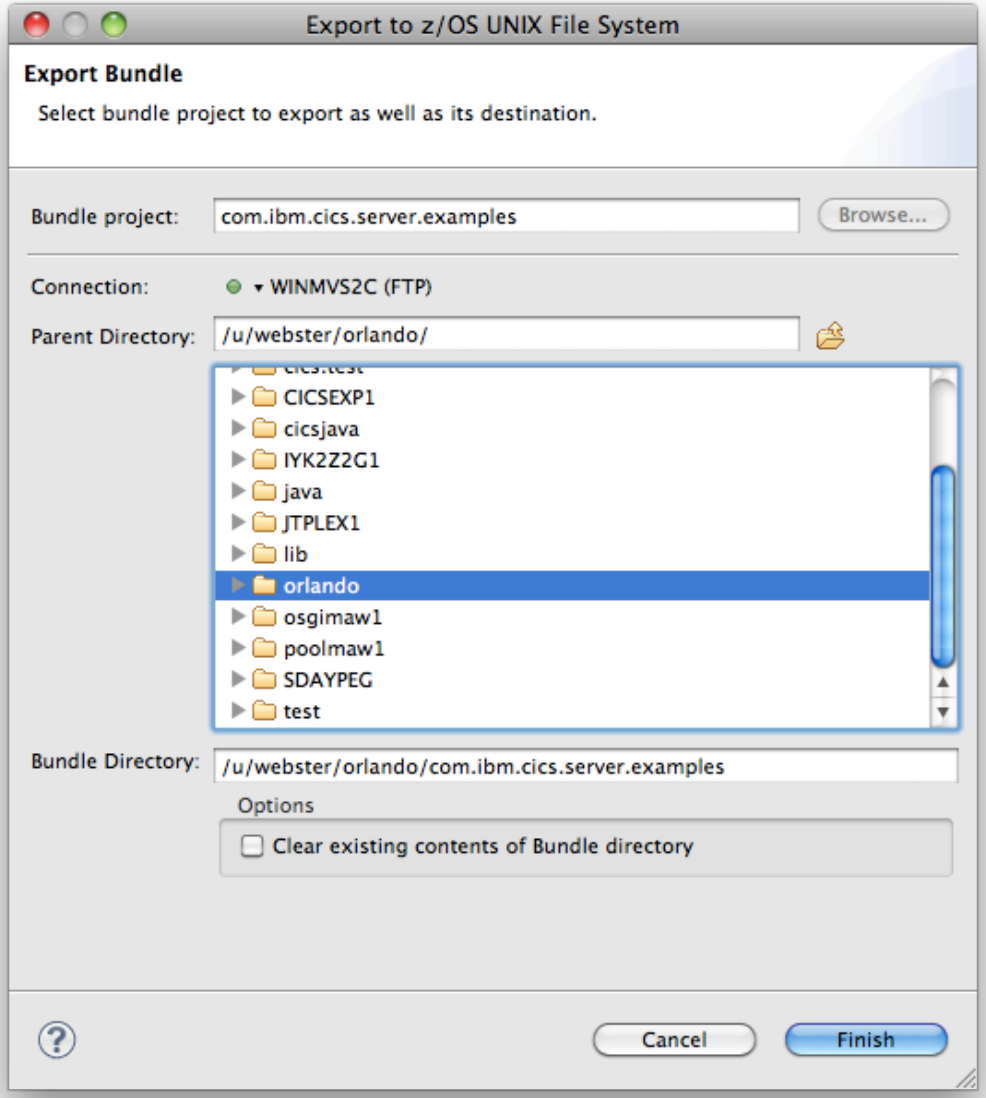
2 errors, 1 warning, 0 others

Description	Resource
Errors (2 items)	
Unable to find plug-in project named "com.ibm.cics.server.examples.jcics" matching version "1.0.0"	jcics.osgibundle
Unable to find plug-in project named "com.ibm.cics.server.examples.web" matching version "1.0.0"	web.osgibundle
Warnings (1 item)	

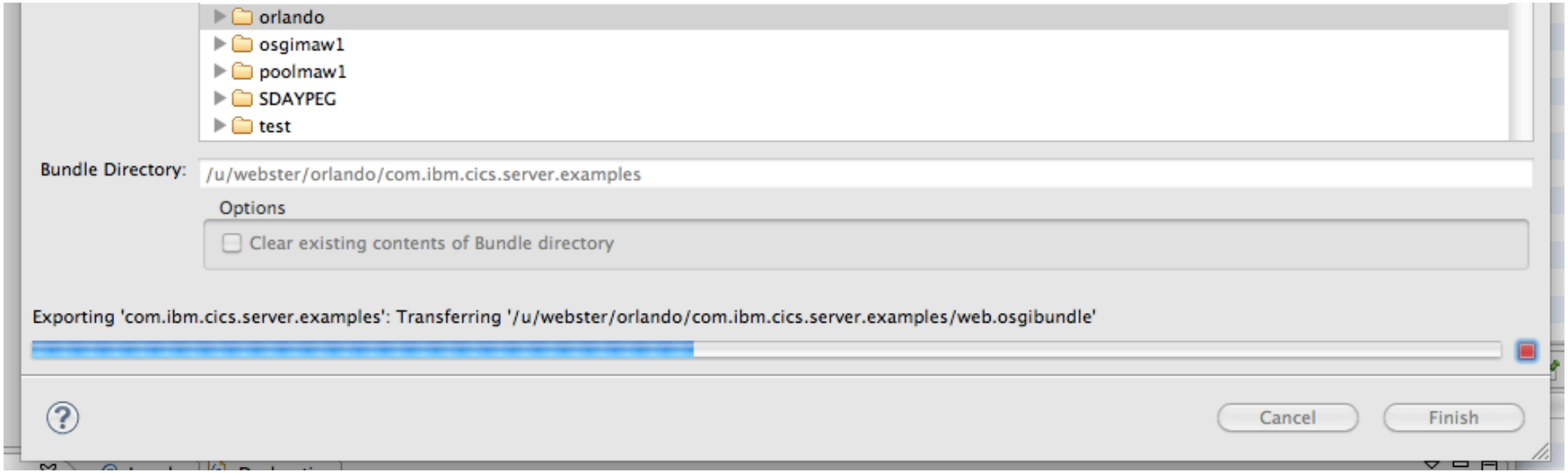
Deploy application as CICS bundle



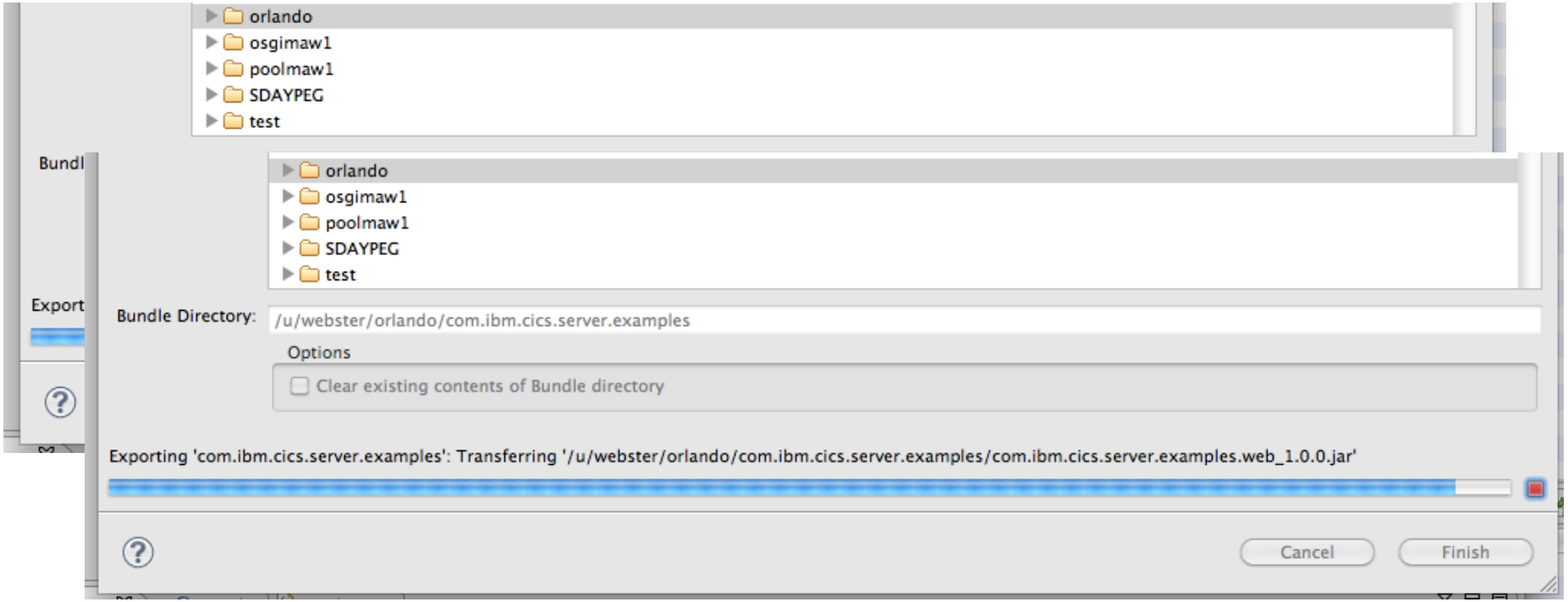
Select CICS bundle directory



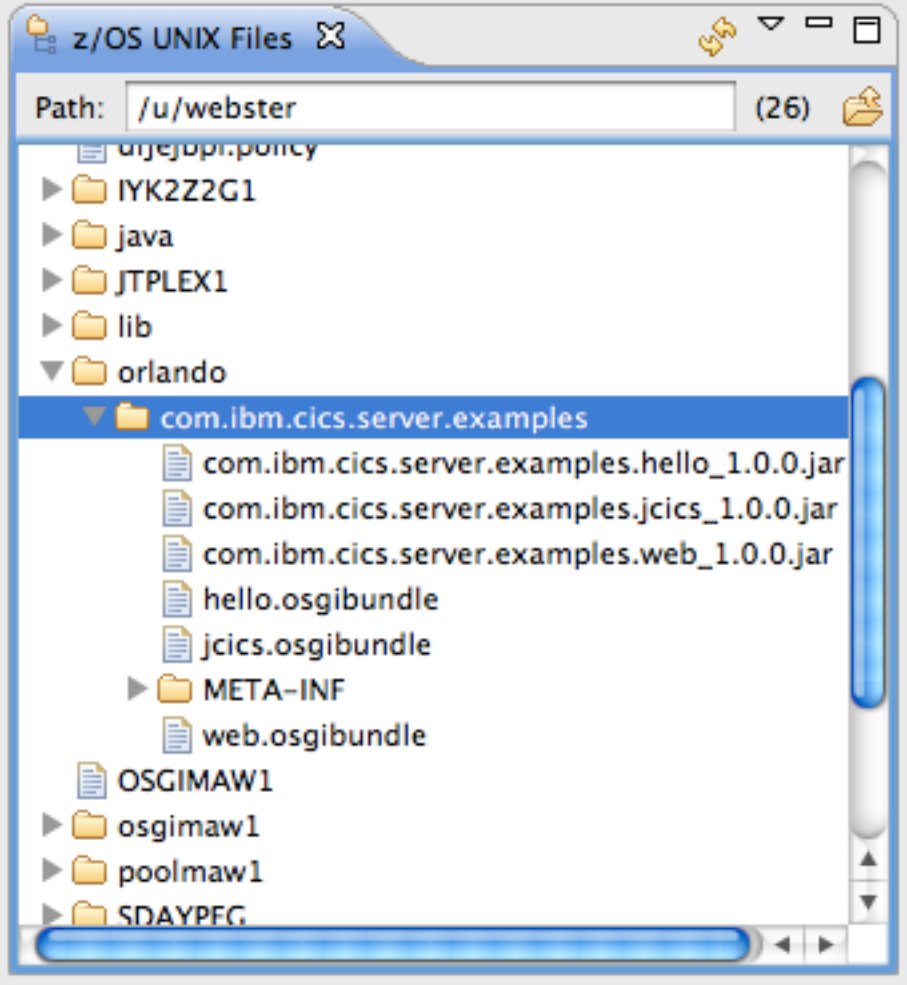
Transfer metadata files



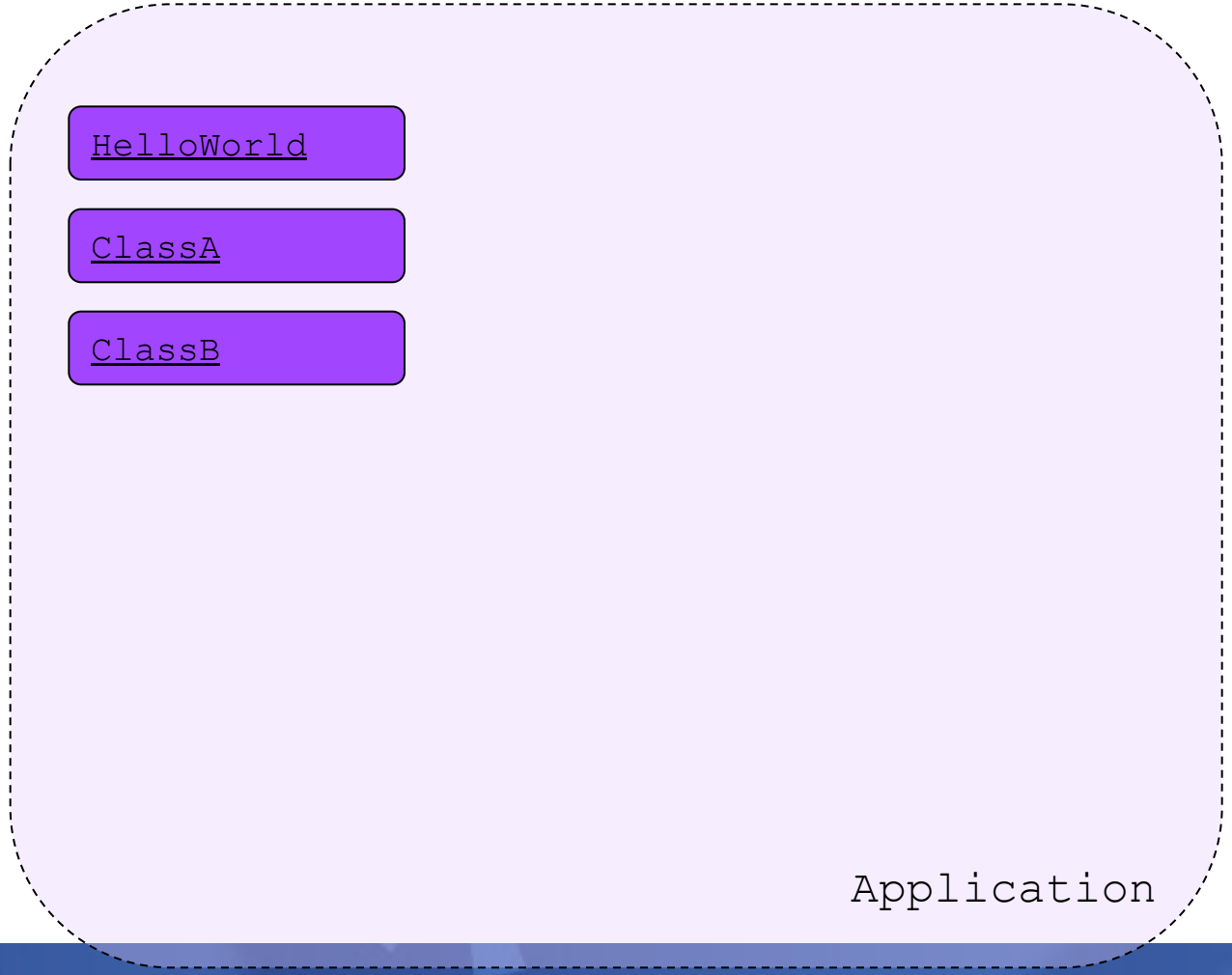
Build, locally export & transfer OSGi bundle JAR files



Handoff CICS bundle to Steve

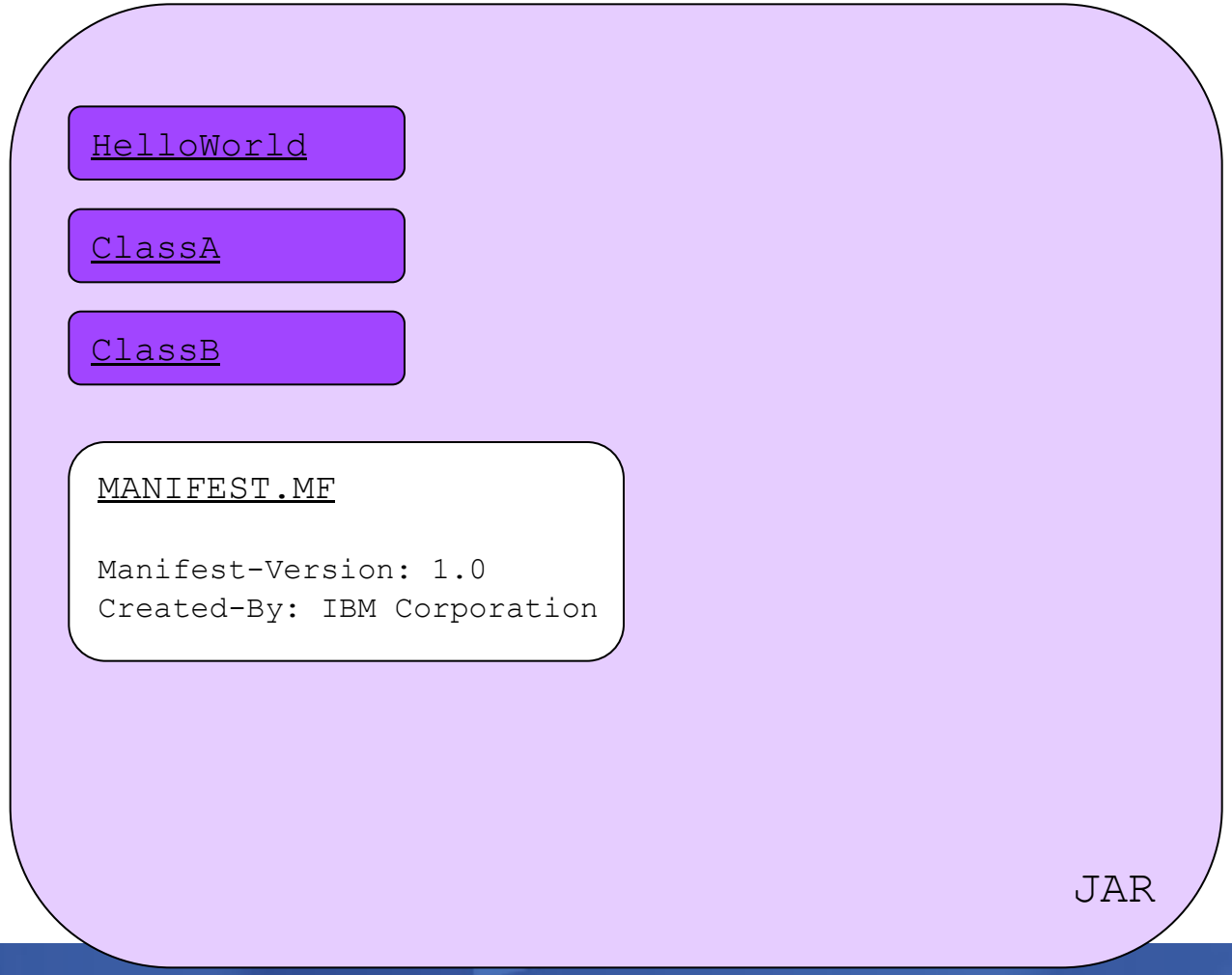


What is an OSGi Bundle?

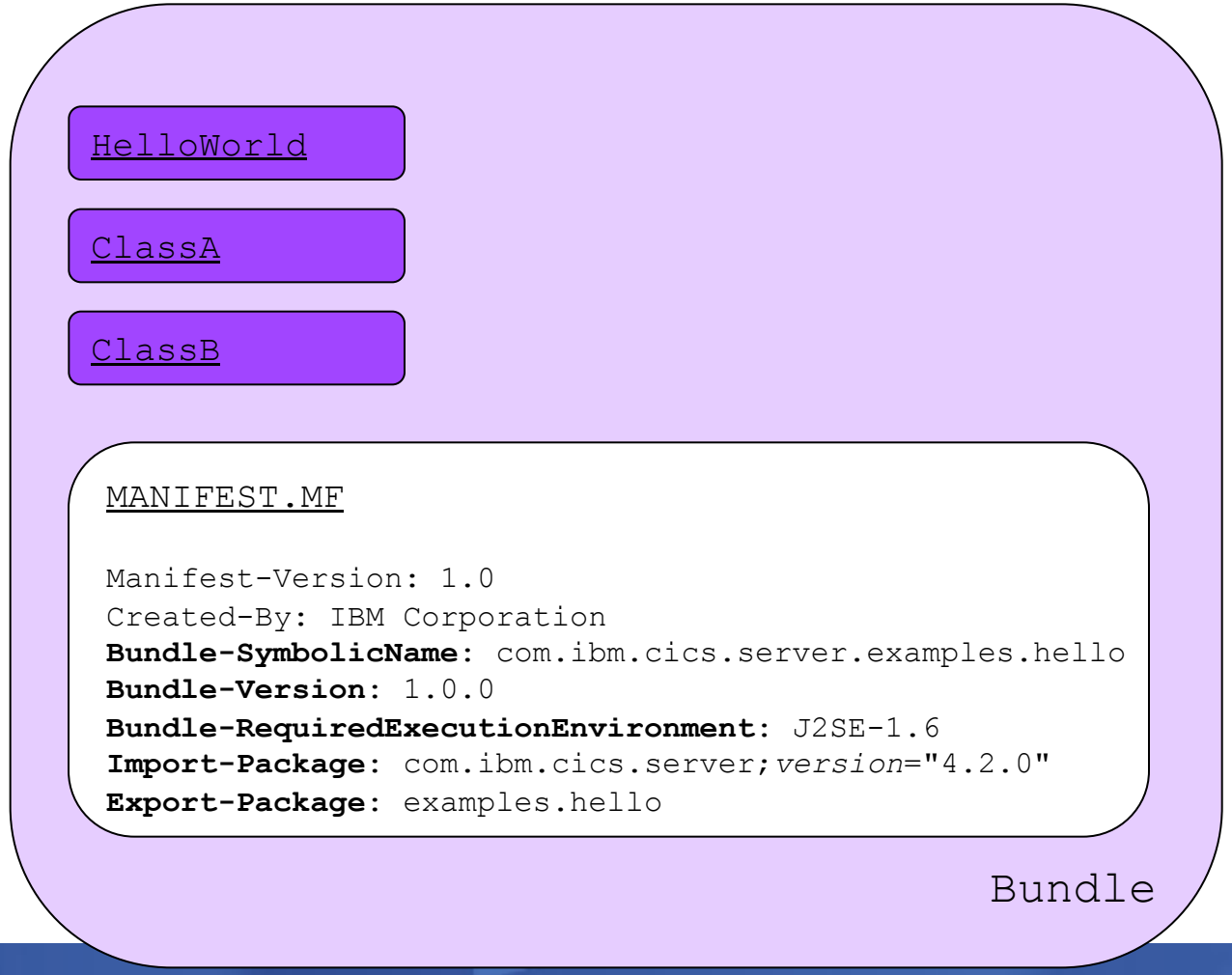


What is an OSGi Bundle?

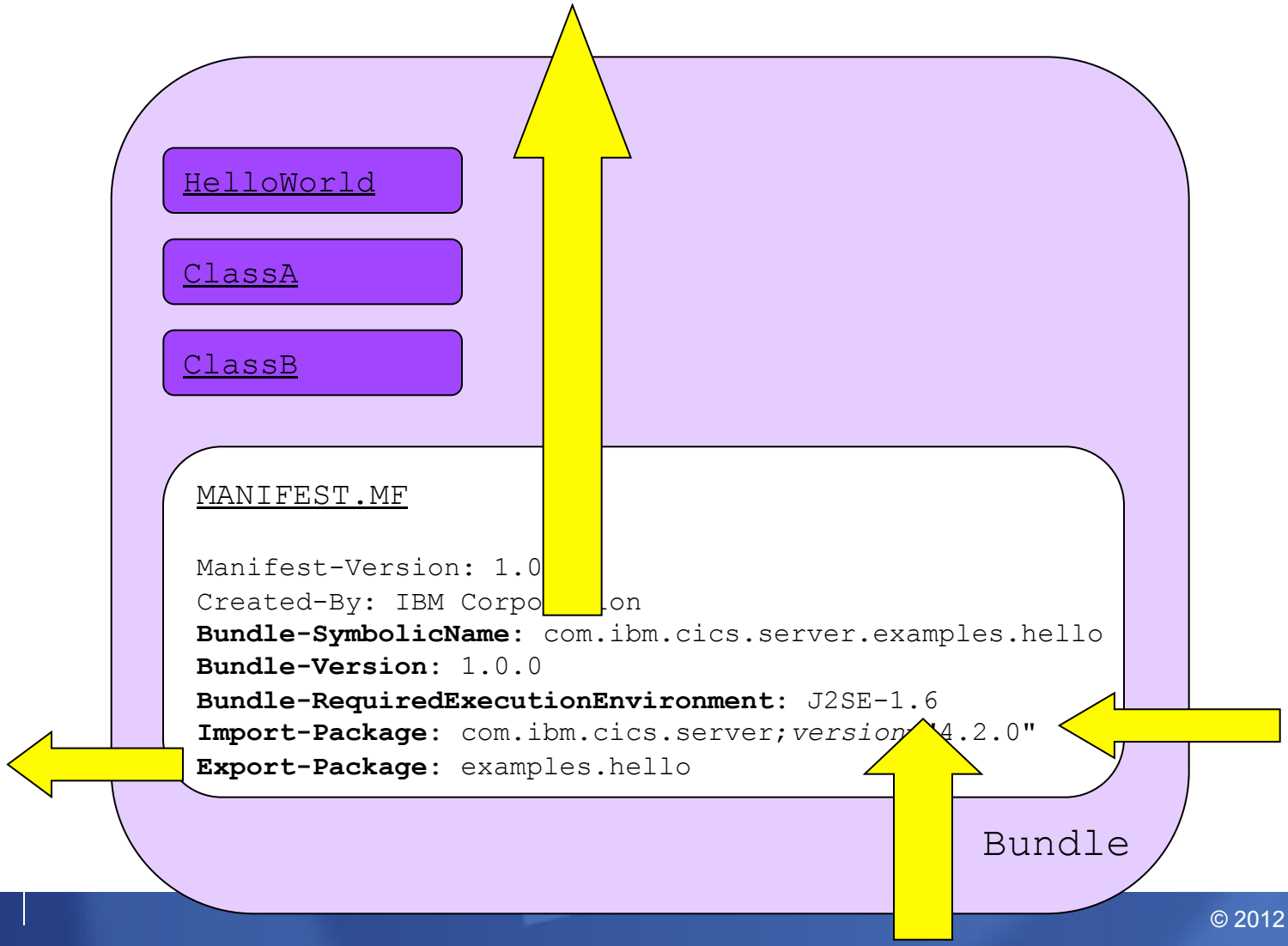
What is an OSGi Bundle?



What is an OSGi Bundle?



What is an OSGi Bundle?



What is an OSGi Bundle?

1. Install application as CICS bundle
2. Validate OSGi bundles and services
3. Ensure TCP/IP service and URI Map available
4. Run the application

Steve the Systems Programmer

Handoff CICS bundle from Dave

CICS SM – Eclipse SDK – /Users/matthew_webster/Workspaces/orlando

CICSplex Explorer | CICSplex Repositories

Server: EGCM

- CICSEXP1 (6/6)
  - EXPWRK1 EGCM (ACTIVE)
  - EXPWRK2 EGCM (ACTIVE)
  - IYCWEGD1 (IYCWEGD1)
  - IYCWEGE1 (IYCWEGE1)
  - IYCWEGF1 (IYCWEGF1)
  - IYCWEGG1 (IYCWEGG1)
  - IYCWEGW1 (IYCWEGW1)
  - IYCWEGW2 (IYCWEGW2)
  - ALLGRP (Group defined by EYU9XDBT)
  - EXPAGRP1 (Explorer JUnit AOR group)
  - EXPAGRP2 (Explorer JUnit AOR group)
  - EXPGRP1 (CICSRegionDefinitionTest)
  - EXPTGRP1 (Explorer JUnit TOR group)
  - EXPTGRP2 (Explorer JUnit TOR group)
  - FOOBAR
  - HELLO (Stew's hello group)
  - J3778631 (Created by JUnit – DELETE ME)

Regions | Tasks | ISC/MRO Connections | Terminals | Files | Transactions | JVM Servers

CNX0211I Context: IYCWEGG1. Resource: JVMSERV. 1 records collected at 08-Aug-2011 19:19:39

Region	Name	Enable Status	Max Threads	Threads	Install Time
IYCWEGG1	DFH$JVMS	✓ ENABLED	15	0	08-Aug-2011 16:48:27

Bundle Definitions — Name: — CSDGroup: OSGIMA

CNX0211I Context: CICSEXP1. Resource: BUNDDEF. 2 records collected at 08-Aug-2011 19:22:03

Name	Description	CSDGroup	Change Time	Change User
DFH$OSGB	CICS bundle containing OSGi sample bundles	OSGIMAW1	08-Aug-2011 18:43:14	CICSUSER
SAMPMAW1	Matthew Webster	OSGIMAW1	21-Apr-2011 11:13:11	CICSUSER

z/OS UNIX Files — Path: /u/webster (26)

- DFHOSGI
- dfjejbpl.policy
- IYK2Z2G1
- java
- JTPLEX1
- lib
- orlando
  - com.ibm.cics.server.examples
    - com.ibm.cics.server.examples.hello_1.0.0.jar
    - com.ibm.cics.server.examples.jcics_1.0.0.jar
    - com.ibm.cics.server.examples.web_1.0.0.jar
    - hello.osgibundle
    - jcics.osgibundle
    - META-INF
    - web.osgibundle
  - OSGIMAW1
- osgimaw1
- poolmaw1

Properties | Error Log

Property	Value
Basic	
Basescope	
Bundle Directory	/u/webster/orlando/com.ibm.cics.server.examples
CSDGroup	OSGIMAW1
Description	CICS bundle containing OSGi sample bundles
Name	DFH$OSGB
Status	ENABLED
Userdata 1	N/A
Userdata 2	N/A
Userdata 3	N/A
Version	0
Definition Signature	
Change Agent	CSDAPI

Fetching children of webster — CICSEXP1 (CICSplex)

Handoff CICS bundle from Dave

CICS SM – Eclipse SDK – /Users/matthew_webster/Workspaces/orlando

CICSplex Explorer | CICSplex Repositories

Server: EGCM

- CICSEXP1 (6/6)
  - EXPWRK1 EGCM (ACTIVE)
  - EXPWRK2 EGCM (ACTIVE)
  - IYCWEGD1 (IYCWEGD1)
  - IYCWEGE1 (IYCWEGE1)
  - IYCWEGF1 (IYCWEGF1)
  - IYCWEGG1 (IYCWEGG1)
  - IYCWEGW1 (IYCWEGW1)
  - IYCWEGW2 (IYCWEGW2)
  - ALLGRP (Group defined by EYU9XDBT)
  - EXPAGRP1 (Explorer JUnit AOR group)
  - EXPAGRP2 (Explorer JUnit AOR group)
  - EXPGRP1 (CICSRegionDefinitionTest)
  - EXPTGRP1 (Explorer JUnit TOR group)
  - EXPTGRP2 (Explorer JUnit TOR group)

Regions | Tasks | ISC/MRO Connections | Terminals | Files | Transactions | JVM Servers

CNX0211I Context: IYCWEGG1. Resource: JVMSERV. 1 records collected at 08-Aug-2011 19:19:39

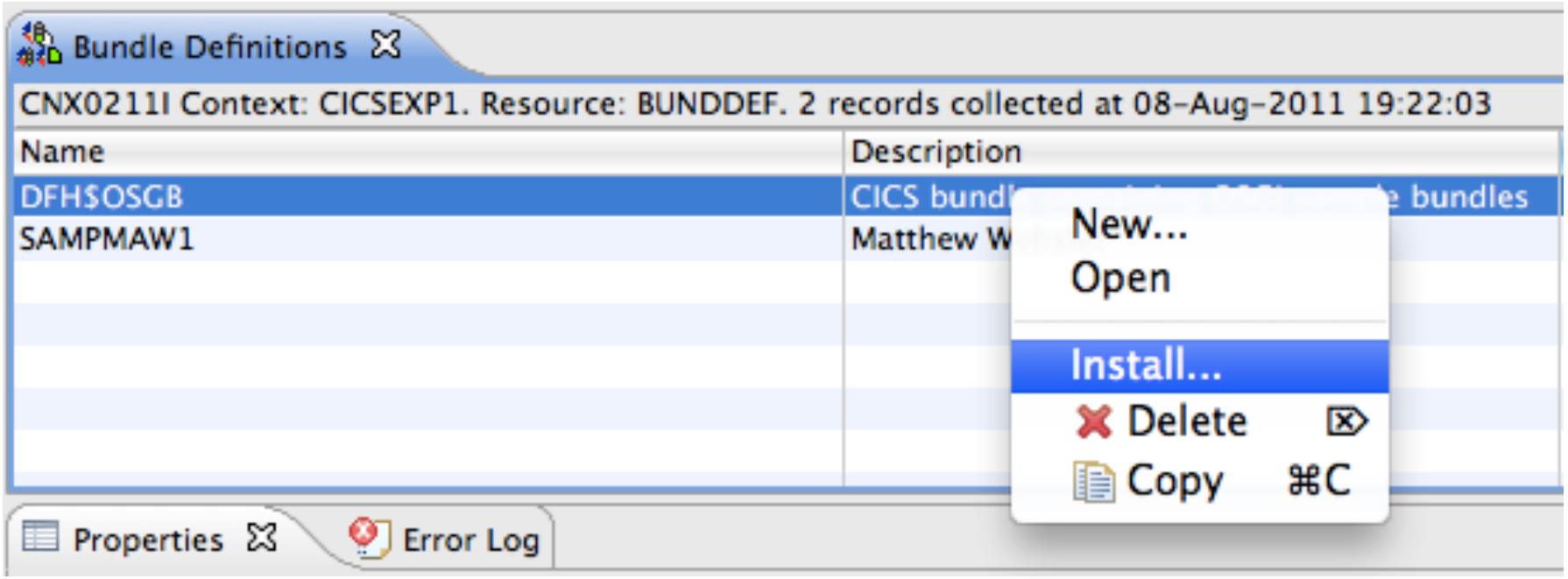
Region	Name	Enable Status	Max Threads	Threads	Install Time
IYCWEGG1	DFH$JVMS	✓ ENABLED	15	0	08-Aug-2011 16:48:27

Properties | Error Log

Property	Value
Basic	
Basescope	
Bundle Directory	/u/webster/orlando/com.ibm.cics.server.examples
CSDGroup	OSGIMAW1
Description	CICS bundle containing OSGi sample bundles
Name	DFH$OSGB
Status	ENABLED
Userdata 1	N/A
Userdata 2	N/A
Userdata 3	N/A
Version	0

Fetching children of webster | CICSEXP1 (CICSplex)

Install application as CICS bundle



Regions | Tasks | ISC/MRO Connections | Terminals | Files | Transactions | JVM Servers | Bundles | Bundle Parts

CNX0211I Context: IYCWEGG1. Resource: BUNDLE. 1 records collected at 08-Aug-2011 20:04:19

Name:

Region	Name	Status	Install Time
IYCWEGG1	DFH$OSGB	✓ ENABLED	08-Aug-2011 19:36:46

Check CICS bundle and bundle parts

Regions | Tasks | ISC/MRO Connections | Terminals | Files | Transactions | JVM Servers | Bundles | Bundle Parts

CNX0211I Context: IYCWEGG1. Resource: BUNDLE. 1 records collected at 08-Aug-2011 20:04:19

Name:

Region	Name	Status	Install Time
IYCWEGG1	DFH$OSGB	✓ ENABLED	08-Aug-2011 19:36:46

Regions | Tasks | ISC/MRO Connections | Terminals | Files | Transactions | JVM Servers | Bundles | Bundle Parts

CNX0211I Context: IYCWEGG1. Resource: BUNDPART. 3 records collected at 08-Aug-2011 20:04:31

Bundle Part:

Region	Bundle	Bundle Part	Enable Status	Meta Data File	Part Class	Part Type
IYCWEGG1	DFH$OSGB	hello	ENABLED	hello.osgibundle	DEFINITION	http://www.ibm.com/xml
IYCWEGG1	DFH$OSGB	jcics	ENABLED	jcics.osgibundle	DEFINITION	http://www.ibm.com/xml
IYCWEGG1	DFH$OSGB	web	ENABLED	web.osgibundle	DEFINITION	http://www.ibm.com/xml

OSGi bundle for Web example

Regions | Tasks | ISC/MRO Co | Terminals | Files | Transactions | OSGi Bundles

CNX0211I Context: IYCWEGG1. Resource: OSGIBUND. 3 records collected at 08-Aug-2011 20:07:55

JVM Server	Symbolic Name	Version	State	Bundle	Bundle Part
DFH$JVMS	com.ibm.cics.server.examples.hello	1.0.0	✓ ACTIVE	DFH$OSGB	hello
DFH$JVMS	com.ibm.cics.server.examples.jcics	1.0.0	✓ ACTIVE	DFH$OSGB	jcics
DFH$JVMS	com.ibm.cics.server.examples.web	1.0.0	✓ ACTIVE	DFH$OSGB	web

OSGi service for Web example

Regions | Tasks | ISC/MRO Co | Terminals | Files | Transactions | OSGi Bundles

CNX0211I Context: IYCWEGG1. Resource: OSGIBUND. 3 records collected at 08-Aug-2011 20:07:55

JVM Server	Symbolic Name	Version	State	Bundle	Bundle Part
DFH$JVMS	com.ibm.cics.server.examples.hello	1.0.0	✓ ACTIVE	DFH$OSGB	hello
DFH$JVMS	com.ibm.cics.server.examples.jcics	1.0.0	✓ ACTIVE	DFH$OSGB	jcics

Regions | Tasks | ISC/MRO Co | Terminals | Files | Transactions | OSGi Bundles | OSGi Services | JVM Servers

CNX0211I Context: IYCWEGG1. Resource: OSGISERV. 9 records collected at 08-Aug-2011 20:08:02

JVM Server	Service Name	OSGi Bundle	Version	Service Status	Bundle	Bundle Part
DFH$JVMS	examples.hello.HelloCICSWorld	com.ibm.cics.server.examples.hello	1.0.0	ACTIVE	DFH$OSGB	hello
DFH$JVMS	examples.hello.HelloWorld	com.ibm.cics.server.examples.hello	1.0.0	ACTIVE	DFH$OSGB	hello
DFH$JVMS	examples.ProgramControl.ClassOne	com.ibm.cics.server.examples.jcics	1.0.0	ACTIVE	DFH$OSGB	jcics
DFH$JVMS	examples.ProgramControl.ClassTwo	com.ibm.cics.server.examples.jcics	1.0.0	ACTIVE	DFH$OSGB	jcics
DFH$JVMS	examples.ProgramControl.ClassThree	com.ibm.cics.server.examples.jcics	1.0.0	ACTIVE	DFH$OSGB	jcics
DFH$JVMS	examples.ProgramControl.ClassFour	com.ibm.cics.server.examples.jcics	1.0.0	ACTIVE	DFH$OSGB	jcics
DFH$JVMS	examples.TDQ.ClassOne	com.ibm.cics.server.examples.jcics	1.0.0	ACTIVE	DFH$OSGB	jcics
DFH$JVMS	examples.TSQ.ClassOne	com.ibm.cics.server.examples.jcics	1.0.0	ACTIVE	DFH$OSGB	jcics
DFH$JVMS	examples.Web.Sample1	com.ibm.cics.server.examples.web	1.0.0	ACTIVE	DFH$OSGB	web

CICS PROGRAM for Web example

Regions | Tasks | ISC/MRO | Terminals | Files | Transactio | Programs | OSGi Bund | OS

CNX0211I Context: IYCWEGG1. Resource: PROGRAM. 3 records collected at 08-Aug-2011 20:17:34

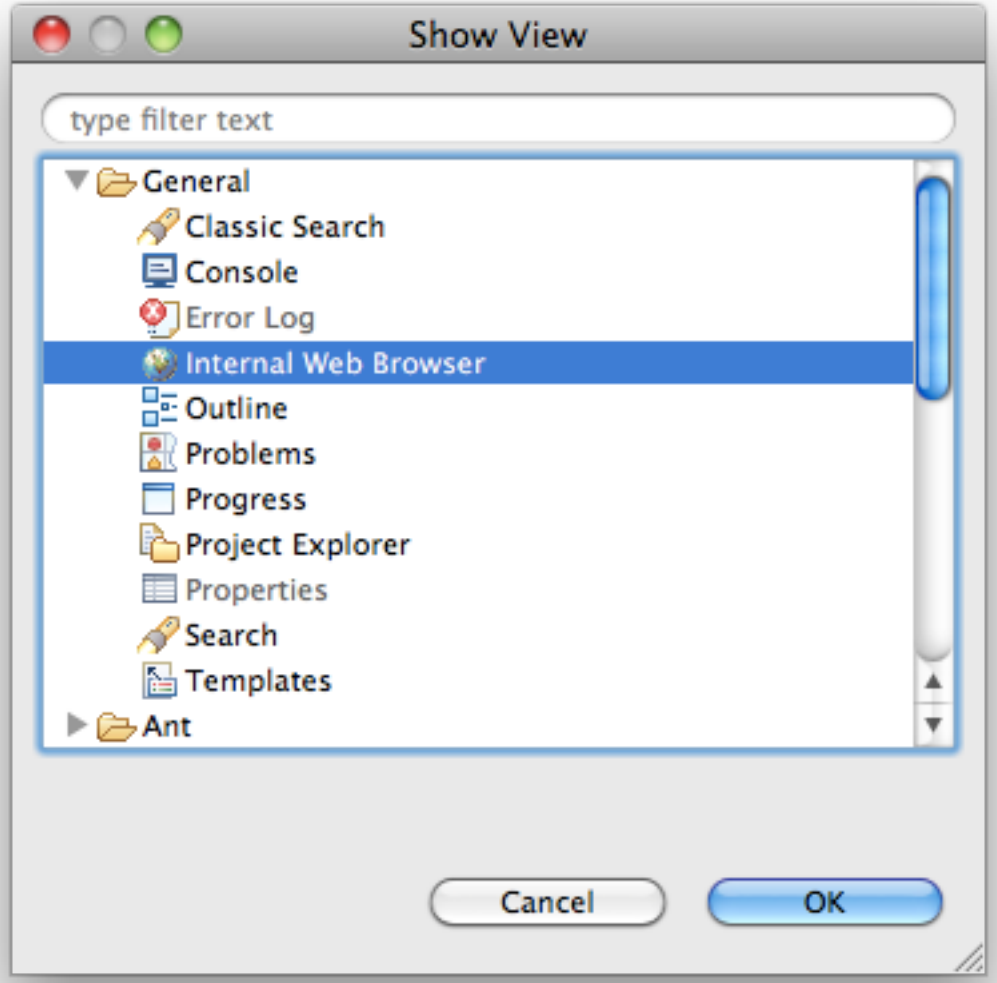
Region	Name	Status	Use Count	Concurrent Use Count	Language	JVM Class
IYCWEGG1	DFJ$JHE1	✓ ENABLED	0	0	JAVA	examples.hello.HelloWorld
IYCWEGG1	DFJ$JHE2	✓ ENABLED	0	0	JAVA	examples.hello.HelloCICSWorld
IYCWEGG1	DFJ$JWB1	✓ ENABLED	0	0	JAVA	examples.Web.Sample1

Check IYCWEGG1.DFH$JVMS.dfhjvmtrc for any problems

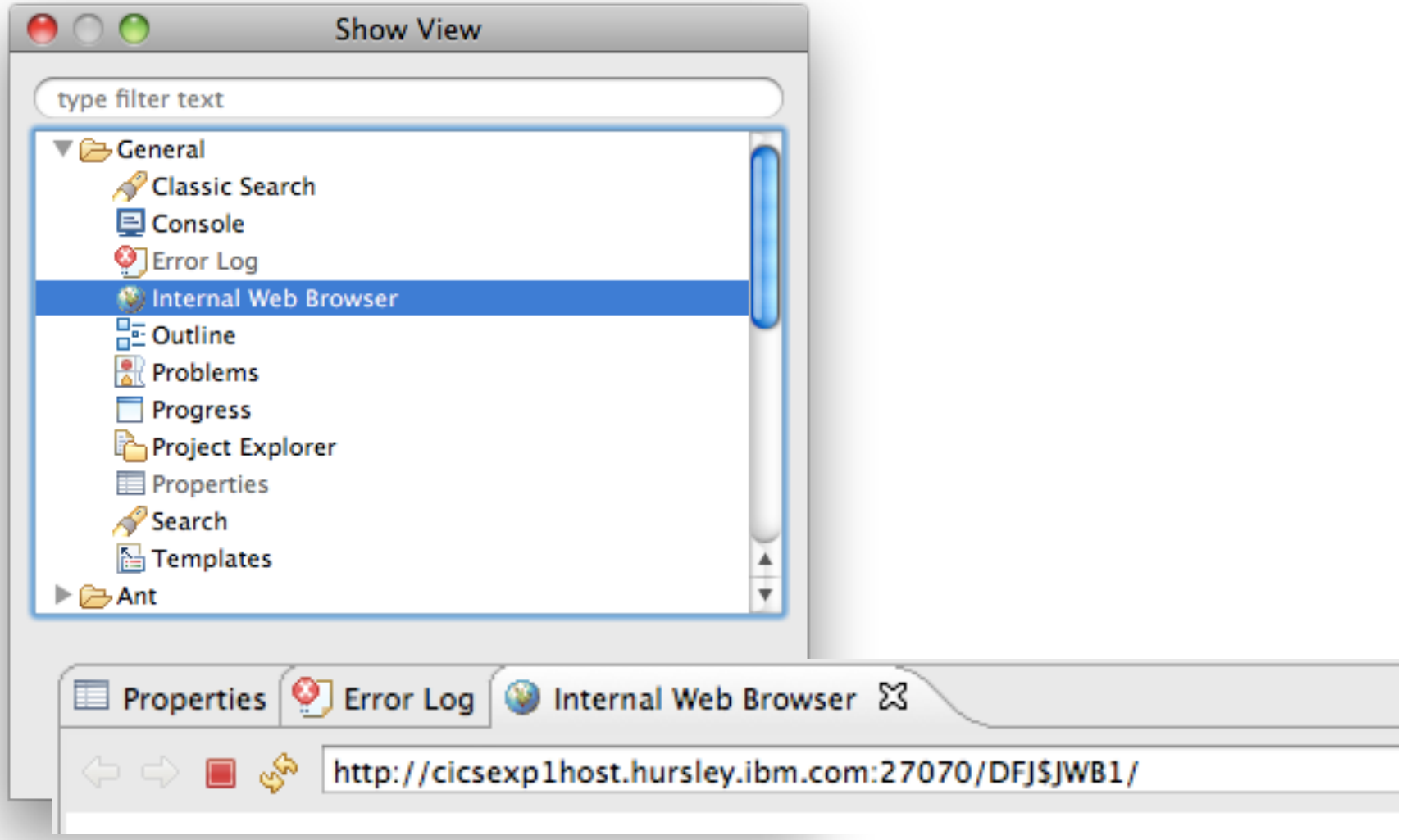
/u/webster/CICSEXP1/IYCWEGG1.DFH /u/webster/CICSEXP1/IYCWEGG1.DFH

```
2011/08/08 18:36:46.733    GMT I ENABLE_OSGIBUNDLE:Thread-24 com.ibm.cics.s
2011/08/08 18:36:46.733    GMT I ENABLE_OSGIBUNDLE:Thread-24 com.ibm.cics.s
2011/08/08 18:36:46.735    GMT I ENABLE_OSGIBUNDLE:Thread-24 com.ibm.cics.s
2011/08/08 18:36:46.735    GMT I ENABLE_OSGIBUNDLE:Thread-24 com.ibm.cics.s
2011/08/08 18:36:46.735    GMT I Framework Event Dispatcher com.ibm.cics.se
2011/08/08 18:36:46.735    GMT I ENABLE_OSGIBUNDLE:Thread-24 com.ibm.cics.o
Bundles:
0 org.eclipse.osgi 3.6.1.R36x_v20100806 ACTIVE
1 org.eclipse.osgi.services 3.2.100.v20100503 ACTIVE
2 org.eclipse.equinox.log 1.2.100.v20100503 ACTIVE
3 com.ibm.cics.server 1.300.0 ACTIVE
4 com.ibm.cics.ras 1.300.0 ACTIVE
5 com.ibm.ras 1.300.0 ACTIVE
6 com.ibm.record 1.0.0 ACTIVE
7 com.ibm.cics.domains 1.300.0 ACTIVE
8 com.ibm.cics.osgi 1.0.0 ACTIVE
9 com.ibm.cics.osgi.impl 1.0.0 ACTIVE
10 com.ibm.cics.server.examples.hello 1.0.0 ACTIVE
11 com.ibm.cics.server.examples.jcics 1.0.0 ACTIVE
12 com.ibm.cics.server.examples.web 1.0.0 RESOLVED
```

Open the Internal Web Browser to test DFJ$JWB1



Enter Web example URL



Success!

CICS SM – /u/webster/CICSEXP1/IYCWEGG1.DFH$JVMS.dfhjvmout – Eclipse SDK – /Users/matthew_webster/Workspaces/orlando

CICSplex Explorer | CICSplex Repositories

Server: EGCM

- CICSEXP1 (6/6)
  - EXPWRK1 EGCM (ACTIVE)
  - EXPWRK2 EGCM (ACTIVE)
  - IYCWEGD1 (IYCWEGD1)
  - IYCWEGE1 (IYCWEGE1)
  - IYCWEGF1 (IYCWEGF1)
  - IYCWEGG1 (IYCWEGG1)
  - IYCWEGW1 (IYCWEGW1)
  - IYCWEGW2 (IYCWEGW2)
  - ALLGRP (Group defined by EYU9XDBT)
  - EXPAGRP1 (Explorer JUnit AOR group)
  - EXPAGRP2 (Explorer JUnit AOR group)
  - EXPGRP1 (CICSRegionDefinitionTest)
  - EXPTGRP1 (Explorer JUnit TOR group)
  - EXPTGRP2 (Explorer JUnit TOR group)
  - FOOBAR
  - HELLO (Stew's hello group)
  - J3778631 (Created by JUnit – DELETE ME)

CNX0211I Context: IYCWEGG1. Resource: PROGRAM. 3 records collected at 08-Aug-2011

Name: DFJ$*

Region	Name	Status	Use Count	Concurrent Use Count	Language	JVM
IYCWEGG1	DFJ$JHE1	✓ ENABLED	0	0	JAVA	exa
IYCWEGG1	DFJ$JHE2	✓ ENABLED	0	0	JAVA	exa
IYCWEGG1	DFJ$JWB1	✓ ENABLED	0	0	JAVA	exa

Bundle Definitions

CNX0211I Context: CICSEXP1. Resource: BUNDDEF. 2 records collected at 08-Aug-2011

Name: CSDGroup: OSGIMA

Name	Description
DFH$OSGB	CICS bundle containing OSGi sample b
SAMPMAW1	Matthew Webster

z/OS UNIX Files

Path: /u/webster (26)

- Blueprint
- BUN1
- bundle
- bundle_dir
- cics.test
- CICSEXP1
  - IYCWEGG1.DFH$JVMS.dfhjvmerr
  - IYCWEGG1.DFH$JVMS.dfhjvmin
  - IYCWEGG1.DFH$JVMS.dfhjvmout
  - IYCWEGG1.DFH$JVMS.dfhjvmtrc
  - IYCWEGG1.MAWBLUE1.dfhjvmerr
  - IYCWEGG1.MAWBLUE1.dfhjvmin
  - IYCWEGG1.MAWBLUE1.dfhjvmout
  - IYCWEGG1.MAWBLUE1.dfhjvmtrc
  - IYCWEGG1.MAWWEB1.dfhjvmerr
  - IYCWEGG1.MAWWEB1.dfhjvmin
  - IYCWEGG1.MAWWEB1.dfhjvmout
  - IYCWEGG1.MAWWEB1.dfhjvmtrc

Properties | Error Log | Internal Web Browser

http://cicsexp1host.hursley.ibm.com:27070/DFJ$JWB1/

Web Sample1

Inbound Client Request Information:

Method: GET

Version: HTTP/1.1

Path: /DFJ$JWB1/

Request Type: HTTPYES

Query String: null

HTTP headers:

/u/webster/CICSEXP1/IYCWEGG1.DFH$JVMS.dfhjvmout

```
Sample1 started
Method: GET (3)
Version: HTTP/1.1 (8)
Path: /DFJ$JWB1/ (10)
Request Type: HTTPYES
Value for HTTP header User-Agent is 'Mozilla/5.0 (Macintosh; Ir
HTTP headers:
Name: Host (4)
Value: cicsexp1host.hursley.ibm.com:27070 (34)
Name: User-Agent (10)
Value: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebK
Name: Accept (6)
Value: text/html,application/xhtml+xml,application/xml;q=0.9,*/
Name: Cache-Control (13)
Value: no-cache (8)
Name: Accept-Language (15)
Value: en-gb (5)
Name: Accept-Encoding (15)
Value: gzip, deflate (13)
Name: Cookie (6)
Value: IBM_W3SSO_ACCESS=w3.ibm.com; mbox=PC#1308316221146-73862
Name: Connection (10)
Value: keep-alive (10)
Server Name: winmvs28.hursley.ibm.com (24)
Client Address: 9.12.227.251 (12)
ClientAddrNu: 9.12.227.251
Server Address: 9.20.122.80 (11)
ServerAddrNu: 9.20.122.80
Clientauth: NO
SSL: NO
TcpipService: MAWWEB1
PortNumber: 27070
Doctoken: Doctoken: 35 39 176 0 0 0 0 10 64 64 64 64 64 64 64 6
Docsize: 2913
Sample1 complete
```

CNX0100I Connected user WEBSTER to host winmvs2c.hursley.ibm.com on port 21 | Fetching children of webster | WINMVS2C (FTP)

FUTURE

"CICS TS V5.1 open beta"

- **CICS Application Packaging**
  - New CICS bundle resources: LIBRARY, PROGRAM, TRANSACTION, URIMAP
  - Dependency management
- **CICS Application Lifecycle**
  - Simple Deploy-INSTALL-ENABLE-DISABLE-DISCARD life-cycle for multi-bundle, multi-language applications
- **WAS Liberty profile technology**
  - Java Servlets
  - JavaServer Pages (JSP)
  - Co-location of presentation and business applications

QUESTIONS

Summary

- **Platform**
  - Highly scalable runtime
  - Application lifecycle and versioning
- **Tools**
  - System programmer manages Java workloads using strategic interfaces consistent with other modern CICS workloads
  - Application developer leverages existing skills, tools and processes
  - Natural handoff between roles
- **Future**
  - “Auto-install” for CICS Java programs
  - Fully packaged Java and Java/traditional language applications
  - Liberty

Related CICS Java Sessions

Monday

11420: CICS TS V4.R2 Technical Overview

11423: CICS TS V4.R2 Planning Your CICS Upgrade

Tuesday

11434: CICS Explorer - A System Programmer Perspective

Wednesday

11441: Managing CICS Resources in a Unix File System: Best Practices

11442: CICS and Java: How the JVM Server transforms Java in CICS

Thursday

11449: CICS Question Box and Pot Luck

Friday

11458: Modernizing CICS -- Hands-on Lab, Part 1 of 2

11459: Modernizing CICS -- Hands-on Lab, Part 2 of 2

More Information

- **IBM CICS Explorer**
  - http://www.ibm.com/software/htp/cics/explorer/
- **SHARE (Past Conferences)**
  - 8514: CICS Explorer Update
    http://share.confex.com/share/116/webprogram/Session8514.html
  - 8265: CICS JVM Server
    http://share.confex.com/share/116/webprogram/Session8265.html
  - 8272: Best Practices for CICS Systems Management
    http://share.confex.com/share/116/webprogram/Session8272.html
- **Podcasts**
  - http://www.ibm.com/software/cics/tserver/v42/library/index4.html
- **Blog**
  - http://masterterminal.wordpress.com/
- **developerWorks Community**
  - https://www.ibm.com/developerworks/mydeveloperworks/blogs/cicsdev/
- **"CICS TS V5.1 open beta"**
  - http://www.ibm.com/software/cics/openbeta/