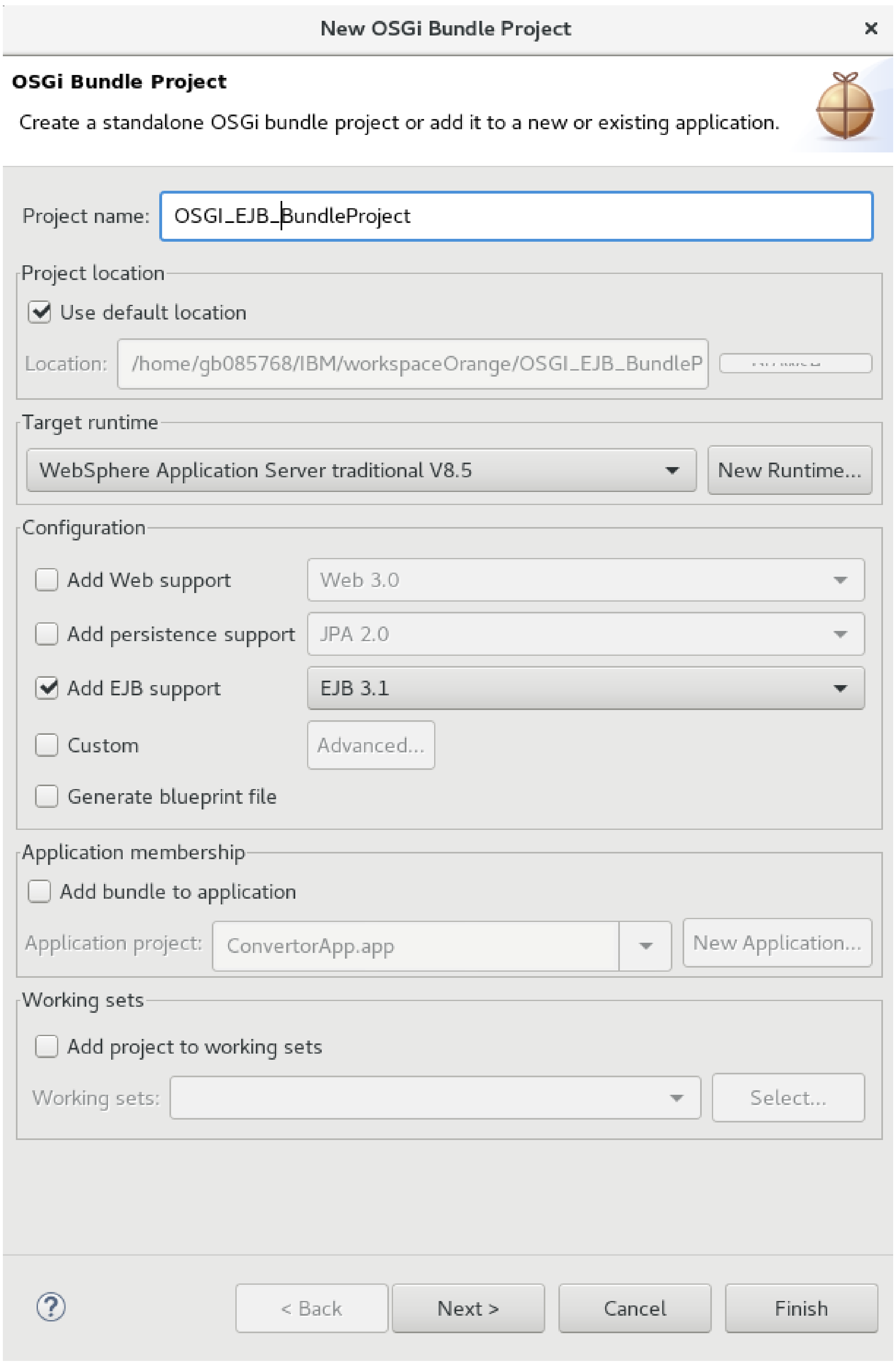
To add an Message Driven Bean EJB into the MDM OSGi framework, perform the following tasks (default/obvious screens not shown):

1. create a OSGi Bundle Project (equivalent to an MDM Development Project) and make sure to select “Add EJB support”



New OSGi Bundle Project

OSGi Bundle Project

Create a standalone OSGi bundle project or add it to a new or existing application.

Project name: OSGI_EJB_BundleProject

Project location

[✓] Use default location

Location: /home/gb085768/IBM/workspaceOrange/OSGI_EJB_BundleP

Target runtime

WebSphere Application Server traditional V8.5 — New Runtime...

Configuration

[ ] Add Web support — Web 3.0

[ ] Add persistence support — JPA 2.0

[✓] Add EJB support — EJB 3.1

[ ] Custom — Advanced...

[ ] Generate blueprint file

Application membership

[ ] Add bundle to application

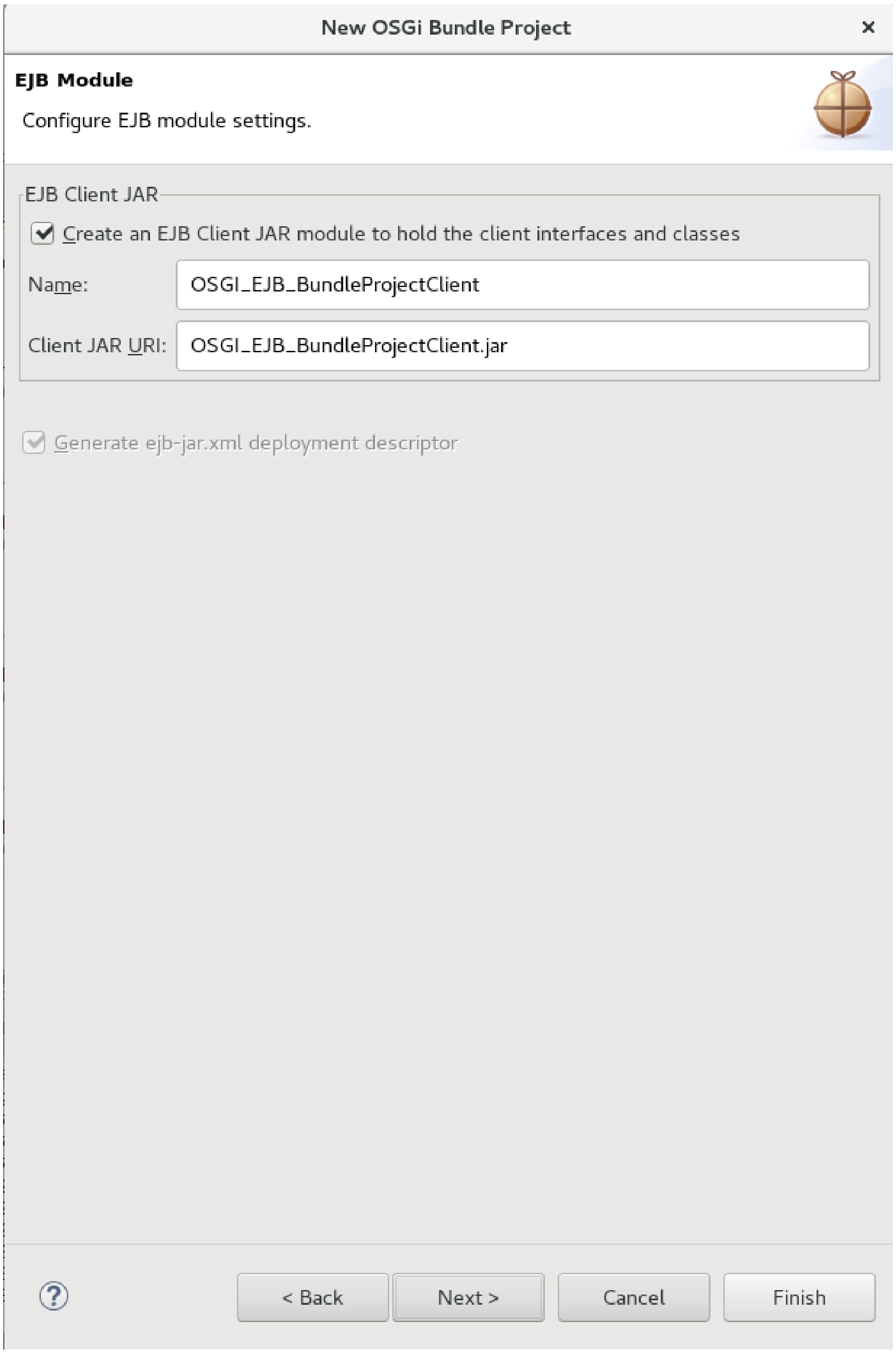
Application project: ConvertorApp.app — New Application...

Working sets

[ ] Add project to working sets

Working sets: — Select...

2. specify a project client name (defaults are fine!):


New OSGi Bundle Project

EJB Module

Configure EJB module settings.

EJB Client JAR

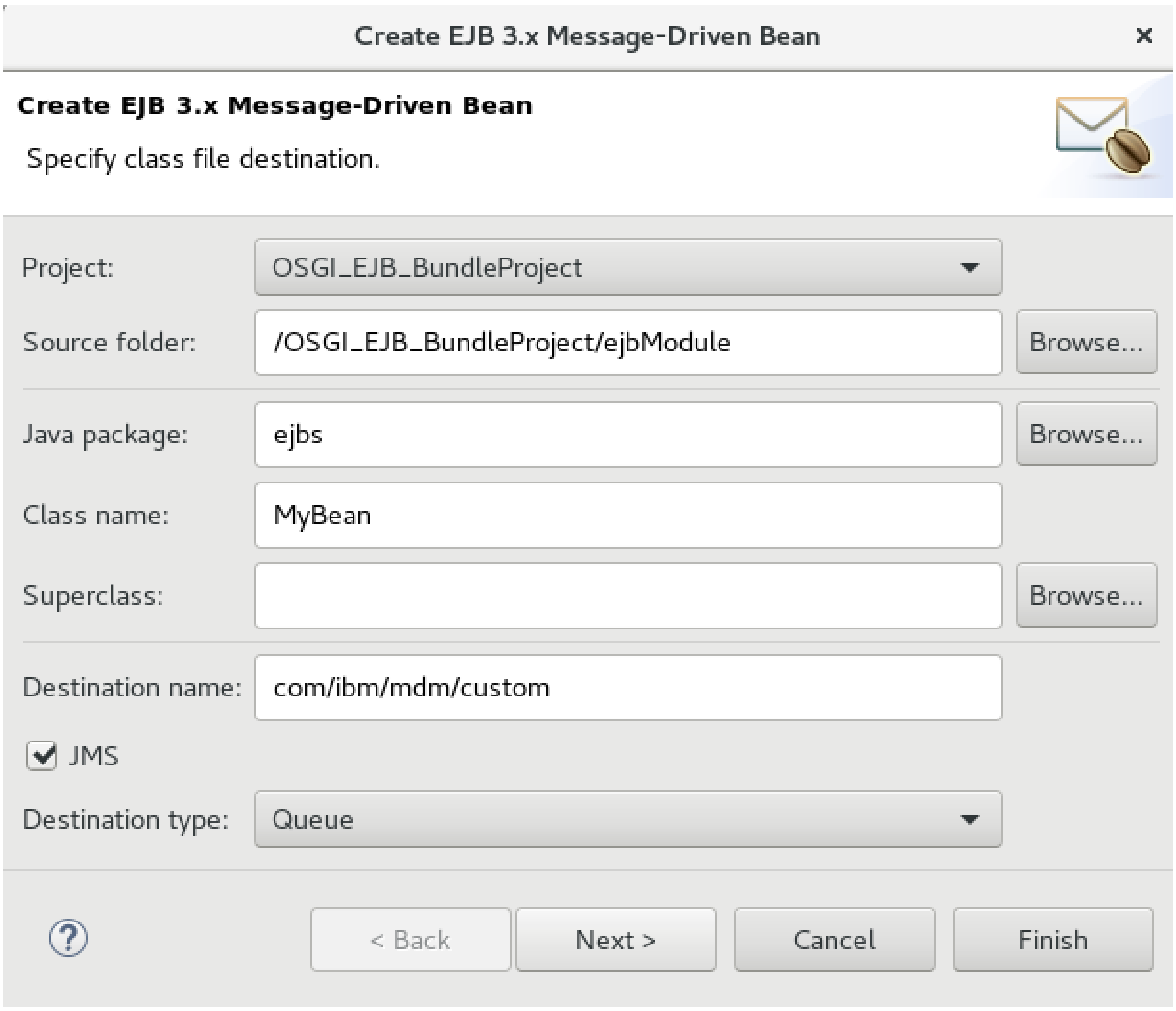
✓ Create an EJB Client JAR module to hold the client interfaces and classes

Name:	OSGI_EJB_BundleProjectClient
Client JAR URI:	OSGI_EJB_BundleProjectClient.jar

✓ Generate ejb-jar.xml deployment descriptor

3. specify package name + class name (arbitrary I believe).

The destination name must be same as the JNDI name as configured in WAS Console. See document 01_WAS_Setup_Q_for_MDB.pdf (section Configuration JCA : "- **Destination JNDI name** (The JNDI name that the message-driven bean uses to look up the JMS destination in the JNDI name space): "

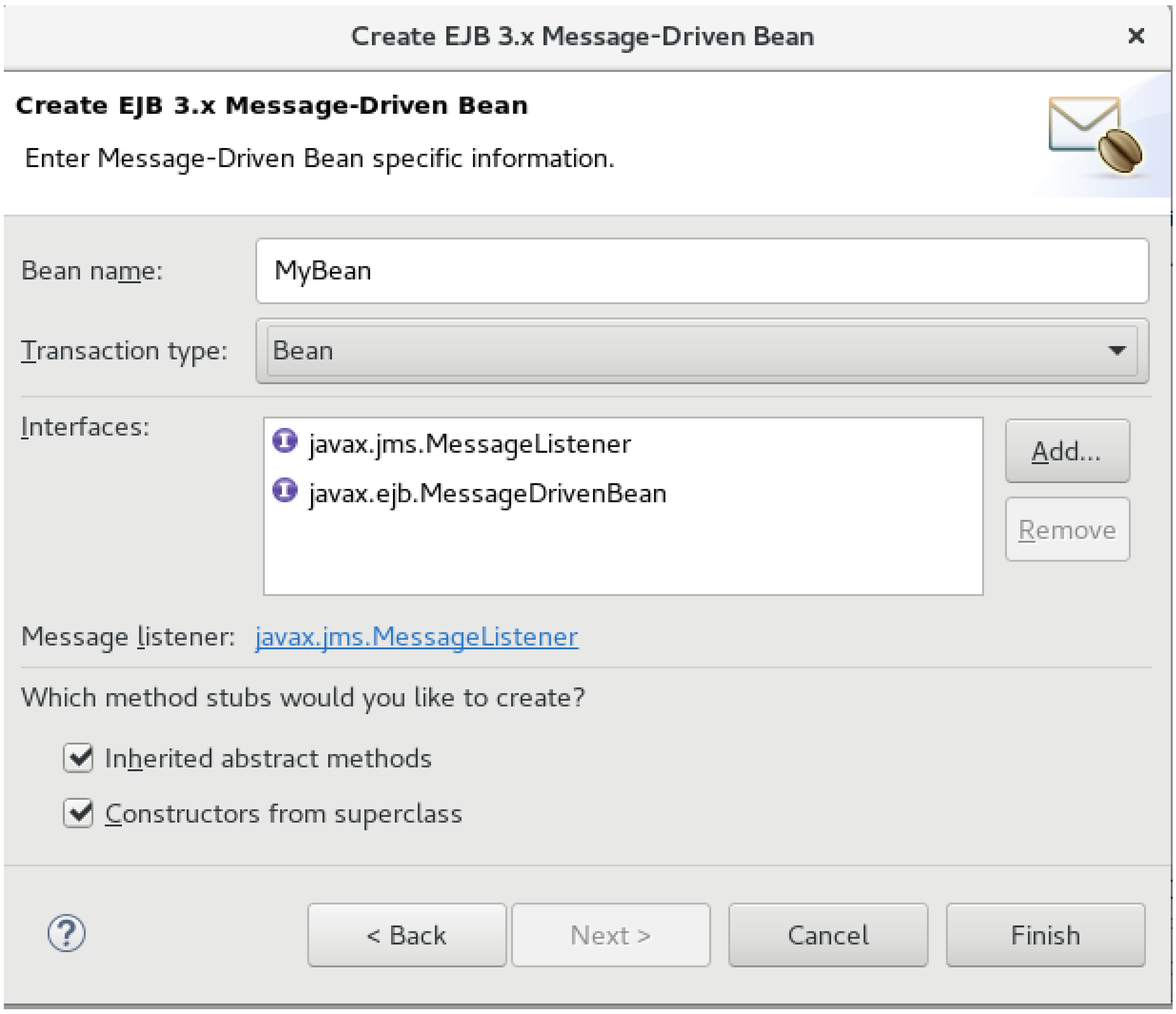


Create EJB 3.x Message-Driven Bean

Specify class file destination.

Project:	OSGI_EJB_BundleProject
Source folder:	/OSGI_EJB_BundleProject/ejbModule
Java package:	ejbs
Class name:	MyBean
Superclass:	
Destination name:	com/ibm/mdm/custom
[✓] JMS	
Destination type:	Queue

4. Change Transaction Type to Bean… and add MessageDrivenBean interface.. so there are two interfaces...


Create EJB 3.x Message-Driven Bean

Create EJB 3.x Message-Driven Bean

Enter Message-Driven Bean specific information.

Bean name: MyBean

Transaction type: Bean

Interfaces:
javax.jms.MessageListener
javax.ejb.MessageDrivenBean

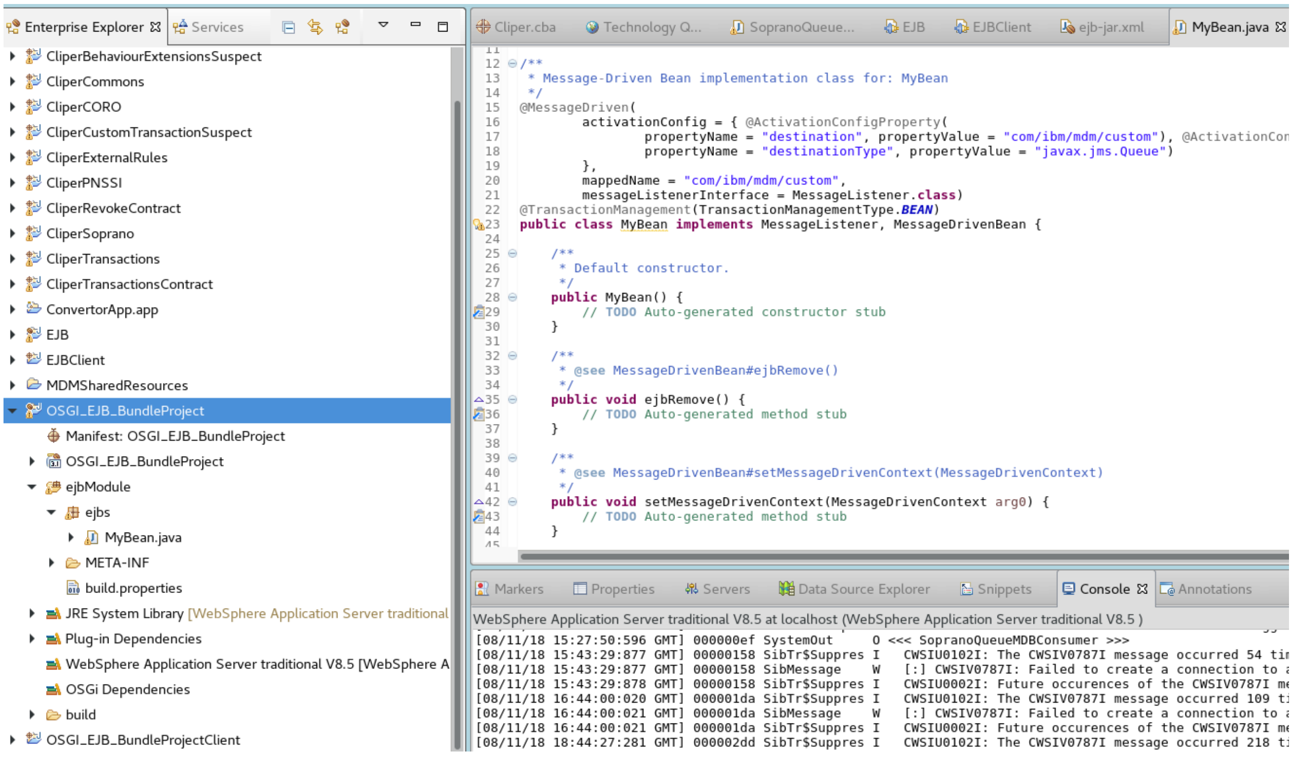
Message listener: javax.jms.MessageListener

Which method stubs would you like to create?

[✓] Inherited abstract methods

[✓] Constructors from superclass

5. so now you have a OSGi module project (which is to be added to your CBA); Java class for your specific implementation, and an associated client project (not sure what this does : don’t need to modify it and I also added it to the CBA but don’t know if this is required)



```
/**
 * Message-Driven Bean implementation class for: MyBean
 */
@MessageDriven(
        activationConfig = { @ActivationConfigProperty(
                propertyName = "destination", propertyValue = "com/ibm/mdm/custom"), @ActivationCon
                propertyName = "destinationType", propertyValue = "javax.jms.Queue")
        },
        mappedName = "com/ibm/mdm/custom",
        messageListenerInterface = MessageListener.class)
@TransactionManagement(TransactionManagementType.BEAN)
public class MyBean implements MessageListener, MessageDrivenBean {

    /**
     * Default constructor.
     */
    public MyBean() {
        // TODO Auto-generated constructor stub
    }

    /**
     * @see MessageDrivenBean#ejbRemove()
     */
    public void ejbRemove() {
        // TODO Auto-generated method stub
    }

    /**
     * @see MessageDrivenBean#setMessageDrivenContext(MessageDrivenContext)
     */
    public void setMessageDrivenContext(MessageDrivenContext arg0) {
        // TODO Auto-generated method stub
    }
```

WebSphere Application Server traditional V8.5 at localhost (WebSphere Application Server traditional V8.5)

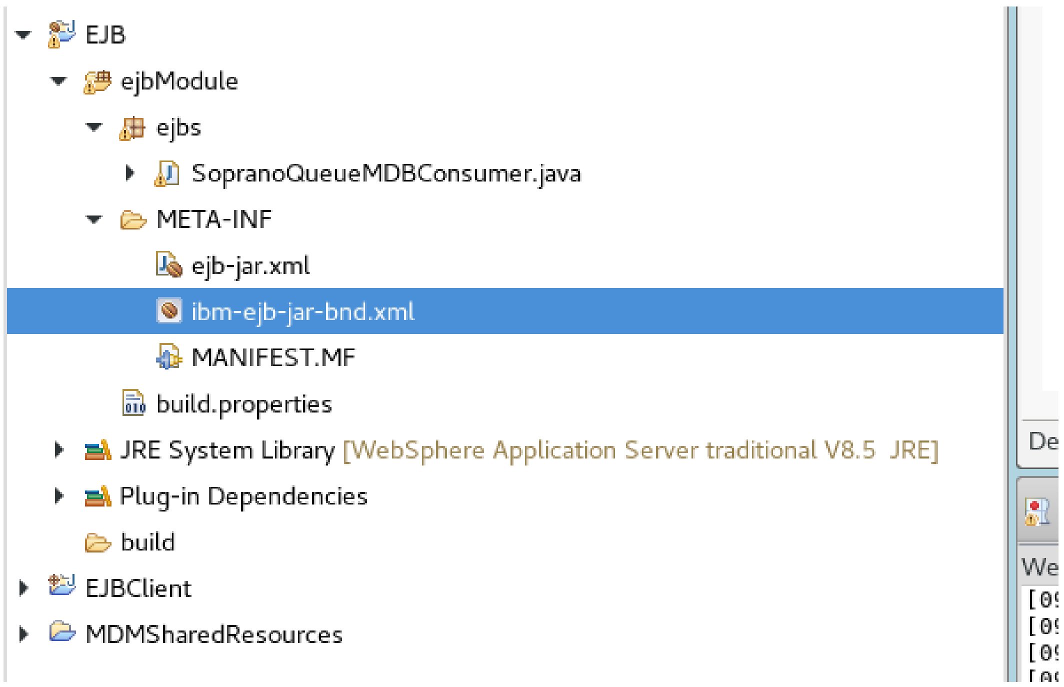
```
[08/11/18 15:27:50:596 GMT] 000000ef SystemOut     O <<< SopranoQueueMDBConsumer >>>
[08/11/18 15:43:29:877 GMT] 00000158 SibTr$Suppres I   CWSIU0102I: The CWSIV0787I message occurred 54 tin
[08/11/18 15:43:29:877 GMT] 00000158 SibMessage    W   [:] CWSIV0787I: Failed to create a connection to a
[08/11/18 15:43:29:878 GMT] 00000158 SibTr$Suppres I   CWSIU0002I: Future occurences of the CWSIV0787I me
[08/11/18 16:44:00:020 GMT] 000001da SibTr$Suppres I   CWSIU0102I: The CWSIV0787I message occurred 109 ti
[08/11/18 16:44:00:021 GMT] 000001da SibMessage    W   [:] CWSIV0787I: Failed to create a connection to a
[08/11/18 16:44:00:021 GMT] 000001da SibTr$Suppres I   CWSIU0002I: Future occurences of the CWSIV0787I me
[08/11/18 18:44:27:281 GMT] 000002dd SibTr$Suppres I   CWSIU0102I: The CWSIV0787I message occurred 218 ti
```

5B.

create file ibm-ejb-jar-bnd.xml in EJB -> ejbModule -> META-INF

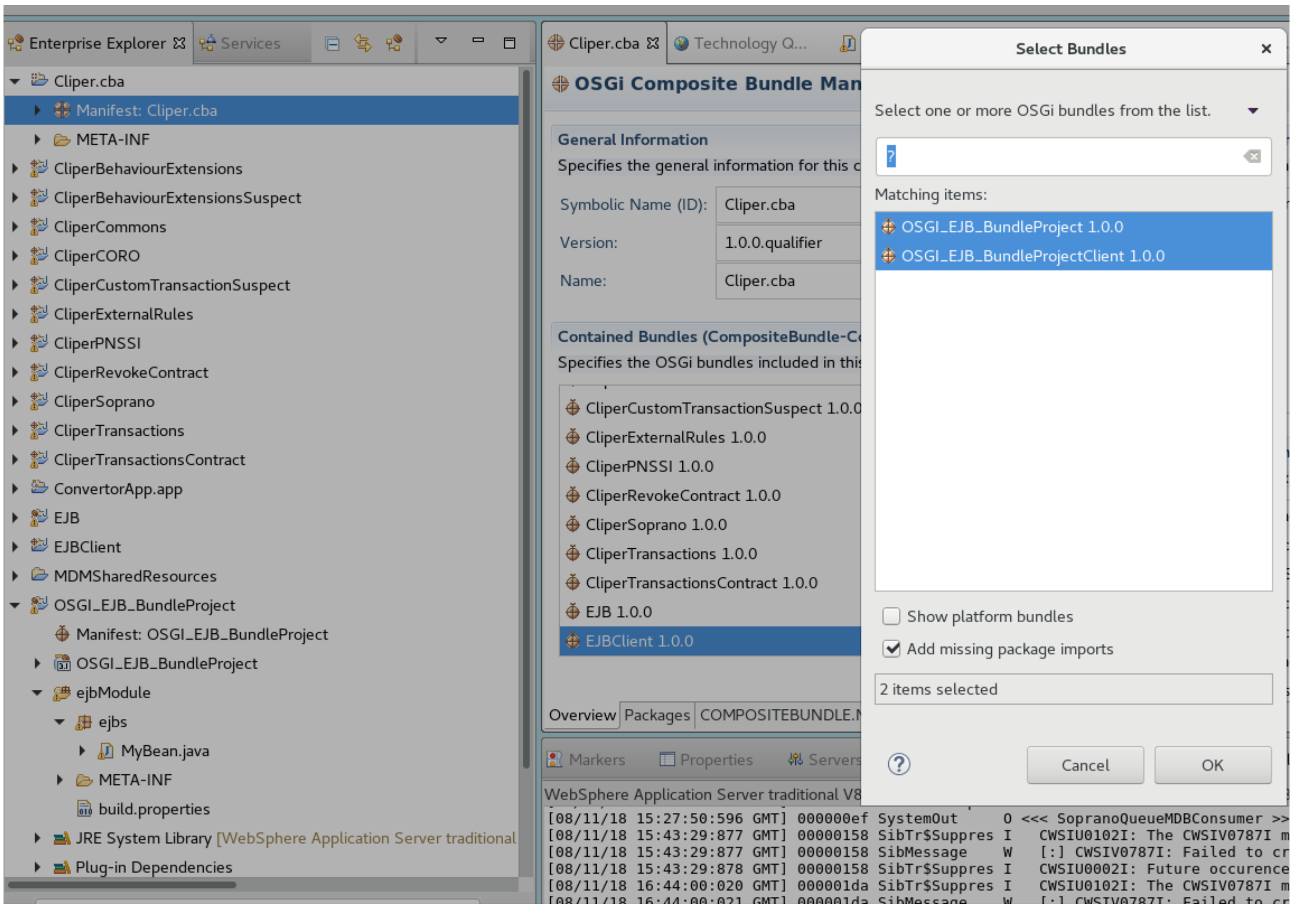
This correctly sets the binding when the CBA is attached. No need to do it from WAS Admin Console.

```
<?xml version="1.0" encoding="UTF-8"?>
<ejb-jar-bnd xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns="http://websphere.ibm.com/xml/ns/javaee"
        xsi:schemaLocation="http://websphere.ibm.com/xml/ns/javaee
http://websphere.ibm.com/xml/ns/javaee/ibm-ejb-jar-bnd_1_0.xsd"
        version="1.0">
        <message-driven name="SopranoQueueMDBConsumer">
                <jca-adapter activation-spec-binding-name="jms/SopranoProcessActivationSpec"
                        destination-binding-
name="com/francetelecom/cliper/sopranoprocessing/SopranoProcessingQueue" />
        </message-driven>

</ejb-jar-bnd>
```



```
EJB
  ejbModule
    ejbs
      SopranoQueueMDBConsumer.java
    META-INF
      ejb-jar.xml
      ibm-ejb-jar-bnd.xml
      MANIFEST.MF
    build.properties
  JRE System Library [WebSphere Application Server traditional V8.5 JRE]
  Plug-in Dependencies
  build
EJBClient
MDMSharedResources
```

6. Select your CBA Composite Bundle project, and add both projects to it.


Enterprise Explorer
Services

- Cliper.cba
  - Manifest: Cliper.cba
  - META-INF
- CliperBehaviourExtensions
- CliperBehaviourExtensionsSuspect
- CliperCommons
- CliperCORO
- CliperCustomTransactionSuspect
- CliperExternalRules
- CliperPNSSI
- CliperRevokeContract
- CliperSoprano
- CliperTransactions
- CliperTransactionsContract
- ConvertorApp.app
- EJB
- EJBClient
- MDMSharedResources
- OSGI_EJB_BundleProject
  - Manifest: OSGI_EJB_BundleProject
  - OSGI_EJB_BundleProject
  - ejbModule
    - ejbs
      - MyBean.java
    - META-INF
    - build.properties
  - JRE System Library [WebSphere Application Server traditional
  - Plug-in Dependencies

Cliper.cba
Technology Q...

OSGi Composite Bundle Man

General Information

Specifies the general information for this c

Symbolic Name (ID): Cliper.cba

Version: 1.0.0.qualifier

Name: Cliper.cba

Contained Bundles (CompositeBundle-C

Specifies the OSGi bundles included in this

- CliperCustomTransactionSuspect 1.0.0
- CliperExternalRules 1.0.0
- CliperPNSSI 1.0.0
- CliperRevokeContract 1.0.0
- CliperSoprano 1.0.0
- CliperTransactions 1.0.0
- CliperTransactionsContract 1.0.0
- EJB 1.0.0
- EJBClient 1.0.0

Overview | Packages | COMPOSITEBUNDLE.M

Select Bundles

Select one or more OSGi bundles from the list.

?

Matching items:

- OSGI_EJB_BundleProject 1.0.0
- OSGI_EJB_BundleProjectClient 1.0.0

☐ Show platform bundles

☑ Add missing package imports

2 items selected

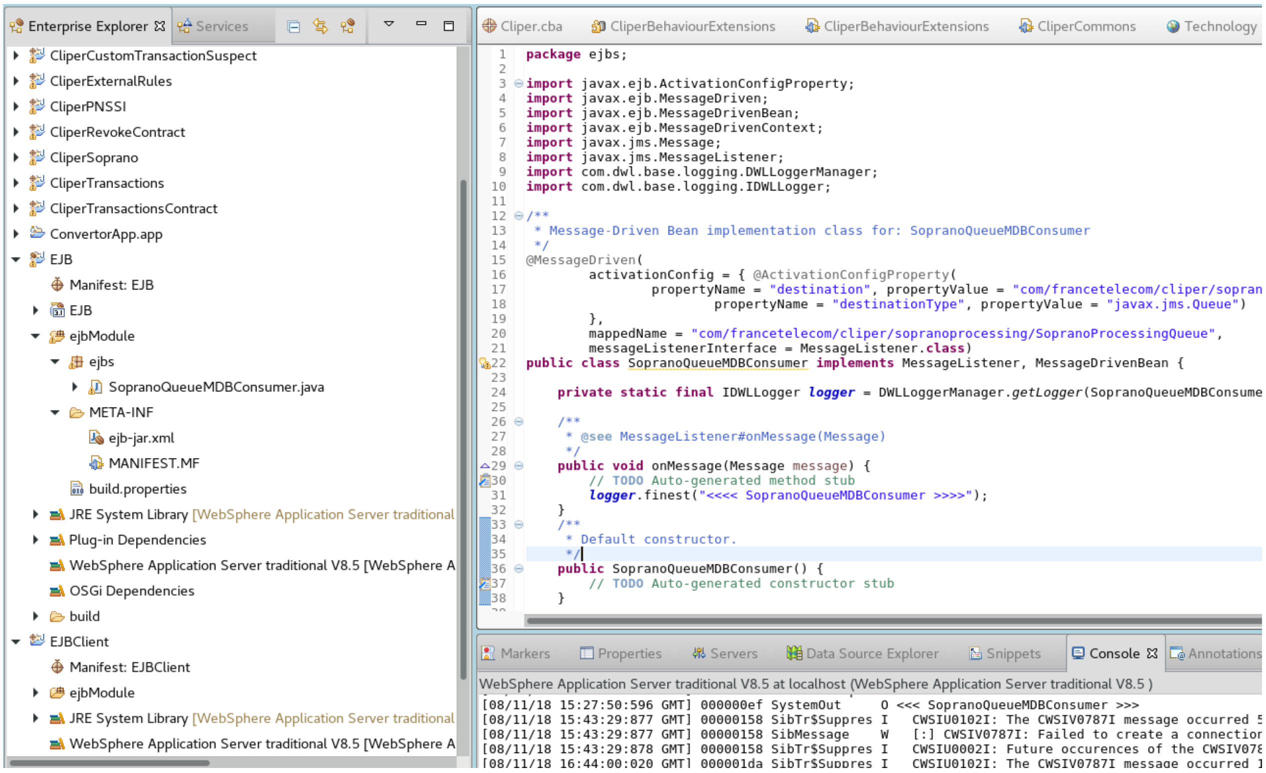
Cancel | OK

Markers | Properties | Servers

WebSphere Application Server traditional V8

```
[08/11/18 15:27:50:596 GMT] 000000ef SystemOut     O <<< SopranoQueueMDBConsumer >>
[08/11/18 15:43:29:877 GMT] 00000158 SibTr$Suppres I   CWSIU0102I: The CWSIV0787I m
[08/11/18 15:43:29:877 GMT] 00000158 SibMessage    W   [:] CWSIV0787I: Failed to cr
[08/11/18 15:43:29:878 GMT] 00000158 SibTr$Suppres I   CWSIU0002I: Future occurence
[08/11/18 16:44:00:020 GMT] 000001da SibTr$Suppres I   CWSIU0102I: The CWSIV0787I m
[08/11/18 16:44:00:021 GMT] 000001da SibMessage    W   [:] CWSIV0787I: Failed to cr
```

7. below is the Java Bean class modified to use some MDM packages.. in this case logging..



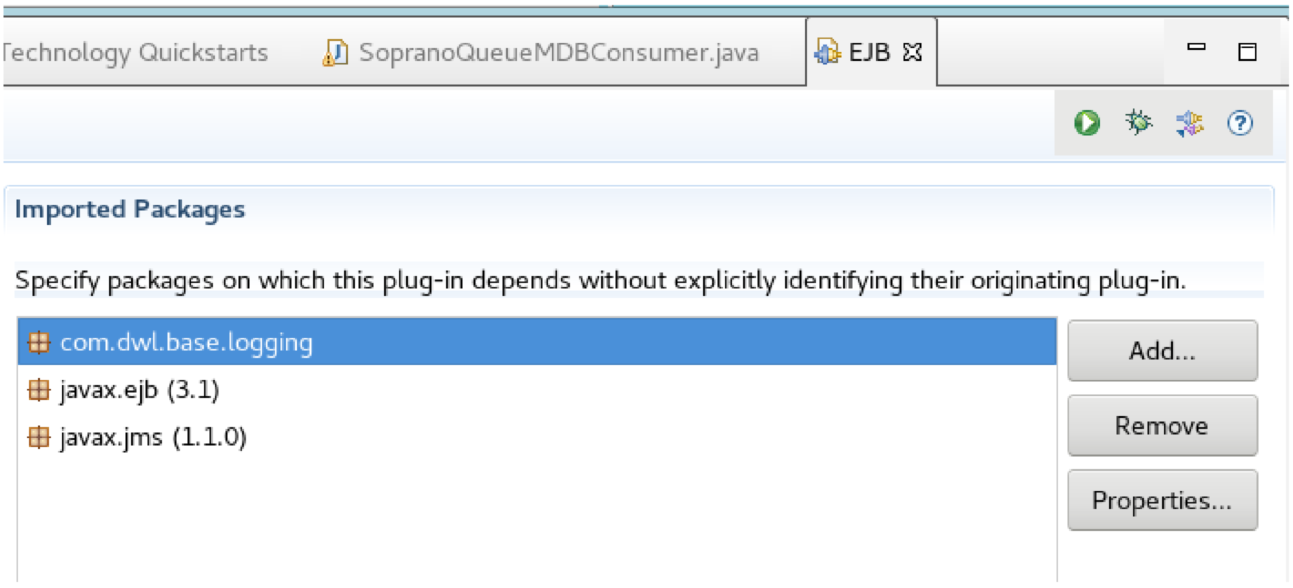
```
package ejbs;

import javax.ejb.ActivationConfigProperty;
import javax.ejb.MessageDriven;
import javax.ejb.MessageDrivenBean;
import javax.ejb.MessageDrivenContext;
import javax.jms.Message;
import javax.jms.MessageListener;
import com.dwl.base.logging.DWLLoggerManager;
import com.dwl.base.logging.IDWLLogger;

/**
 * Message-Driven Bean implementation class for: SopranoQueueMDBConsumer
 */
@MessageDriven(
        activationConfig = { @ActivationConfigProperty(
                propertyName = "destination", propertyValue = "com/francetelecom/cliper/sopran
                        propertyName = "destinationType", propertyValue = "javax.jms.Queue")
        },
        mappedName = "com/francetelecom/cliper/sopranoprocessing/SopranoProcessingQueue",
        messageListenerInterface = MessageListener.class)
public class SopranoQueueMDBConsumer implements MessageListener, MessageDrivenBean {

    private static final IDWLLogger logger = DWLLoggerManager.getLogger(SopranoQueueMDBConsume

    /**
     * @see MessageListener#onMessage(Message)
     */
    public void onMessage(Message message) {
        // TODO Auto-generated method stub
        logger.finest("<<<< SopranoQueueMDBConsumer >>>>");
    }
    /**
     * Default constructor.
     */
    public SopranoQueueMDBConsumer() {
        // TODO Auto-generated constructor stub
    }
```

WebSphere Application Server traditional V8.5 at localhost (WebSphere Application Server traditional V8.5)

```
[08/11/18 15:27:50:596 GMT] 000000ef SystemOut     O <<< SopranoQueueMDBConsumer >>>
[08/11/18 15:43:29:877 GMT] 00000158 SibTr$Suppres I   CWSIU0102I: The CWSIV0787I message occurred 5
[08/11/18 15:43:29:877 GMT] 00000158 SibMessage    W   [:] CWSIV0787I: Failed to create a connectior
[08/11/18 15:43:29:878 GMT] 00000158 SibTr$Suppres I   CWSIU0002I: Future occurences of the CWSIV078
[08/11/18 16:44:00:020 GMT] 000001da SibTr$Suppres I   CWSIU0102I: The CWSIV0787I message occurred 1
```

8. to allow use of MDM packages, you simply import the packages into the OSGi Bundle project which contains the Java Bean class.

Because the Bundle project is part of an MDM CBA, there is no need to import MDM JARs.

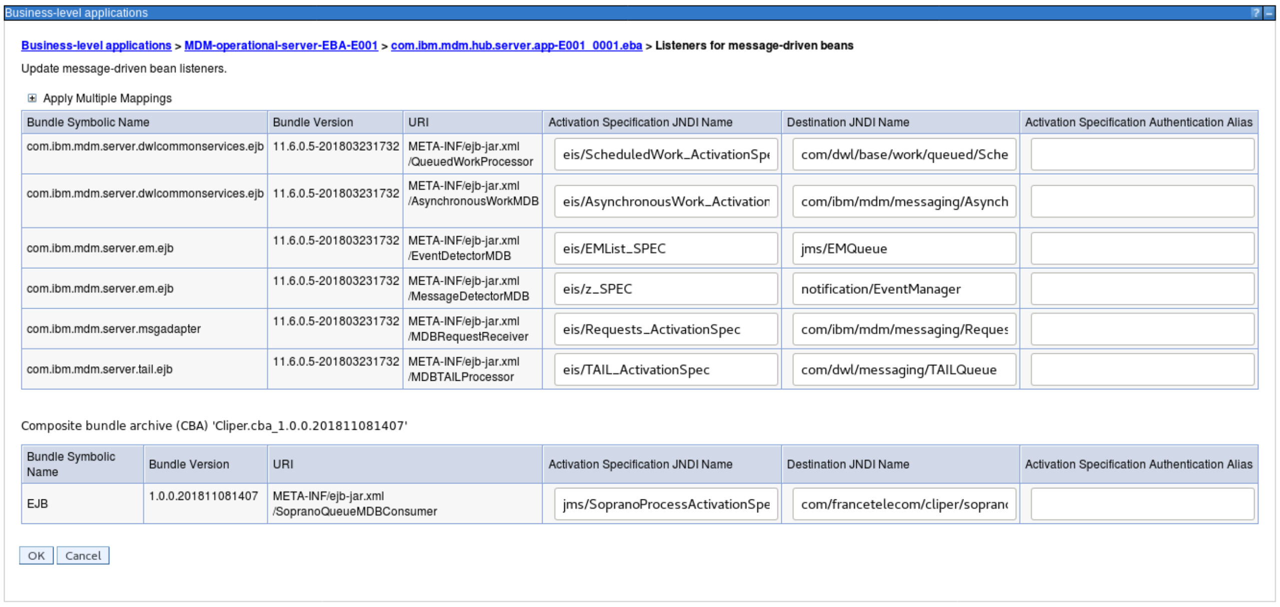


Specify packages on which this plug-in depends without explicitly identifying their originating plug-in.

com.dwl.base.logging
javax.ejb (3.1)
javax.jms (1.1.0)

9. NOT REQUIRED.. see Step 5B.

final step, after deploying the custom CBA in WAS, is to configure the bindings for the custom CBA. These settings correspond to the Queue settings defined which accepts the messages passed into the MDB…


Business-level applications

Business-level applications > MDM-operational-server-EBA-E001 > com.ibm.mdm.hub.server.app-E001_0001.eba > Listeners for message-driven beans

Update message-driven bean listeners.

⊞ Apply Multiple Mappings

Bundle Symbolic Name	Bundle Version	URI	Activation Specification JNDI Name	Destination JNDI Name	Activation Specification Authentication Alias
com.ibm.mdm.server.dwlcommonservices.ejb	11.6.0.5-201803231732	META-INF/ejb-jar.xml /QueuedWorkProcessor	eis/ScheduledWork_ActivationSp	com/dwl/base/work/queued/Sche	
com.ibm.mdm.server.dwlcommonservices.ejb	11.6.0.5-201803231732	META-INF/ejb-jar.xml /AsynchronousWorkMDB	eis/AsynchronousWork_Activation	com/ibm/mdm/messaging/Asynch	
com.ibm.mdm.server.em.ejb	11.6.0.5-201803231732	META-INF/ejb-jar.xml /EventDetectorMDB	eis/EMList_SPEC	jms/EMQueue	
com.ibm.mdm.server.em.ejb	11.6.0.5-201803231732	META-INF/ejb-jar.xml /MessageDetectorMDB	eis/z_SPEC	notification/EventManager	
com.ibm.mdm.server.msgadapter	11.6.0.5-201803231732	META-INF/ejb-jar.xml /MDBRequestReceiver	eis/Requests_ActivationSpec	com/ibm/mdm/messaging/Reques	
com.ibm.mdm.server.tail.ejb	11.6.0.5-201803231732	META-INF/ejb-jar.xml /MDBTAILProcessor	eis/TAIL_ActivationSpec	com/dwl/messaging/TAILQueue	

Composite bundle archive (CBA) 'Cliper.cba_1.0.0.201811081407'

Bundle Symbolic Name	Bundle Version	URI	Activation Specification JNDI Name	Destination JNDI Name	Activation Specification Authentication Alias
EJB	1.0.0.201811081407	META-INF/ejb-jar.xml /SopranoQueueMDBConsumer	jms/SopranoProcessActivationSpe	com/francetelecom/cliper/sopran	

Update : as explained in previous section, this step is no longer required.. instead create file ibm-ejb-jar-bnd.xml in EJB -> ejbModule -> META-INF

This correctly sets the binding when the CBA is attached. No need to do it from WAS Admin Console.

```
<?xml version="1.0" encoding="UTF-8"?>
<ejb-jar-bnd xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xmlns="http://websphere.ibm.com/xml/ns/javaee"
        xsi:schemaLocation="http://websphere.ibm.com/xml/ns/javaee
http://websphere.ibm.com/xml/ns/javaee/ibm-ejb-jar-bnd_1_0.xsd"
        version="1.0">
        <message-driven name="SopranoQueueMDBConsumer">
                <jca-adapter activation-spec-binding-name="jms/SopranoProcessActivationSpec"
                        destination-binding-
name="com/francetelecom/cliper/sopranoprocessing/SopranoProcessingQueue" />
        </message-driven>

</ejb-jar-bnd>
```