

Application Edition Manager for WebSphere Extended Deployment Version 5.1

User's Guide

January 2005





Table of Contents

Introduction	3
Installation.....	3
Support	3
Terminology	4
Versions and Editions	4
Application Rollout	4
Application Compatibility	4
Base Edition	5
Default Edition.....	5
Operational Environment.....	5
Functional Overview of Console Operations <i>Edition Control Center</i>	6
Edition Control Center Task in Navigation Tree	6
Manage Editions.....	8
Manage Edition Deployments	9
Application Install Wizard.....	11
Enterprise Editions	12
Usage Scenarios	13
Scenario Environment.....	13
Installing Your First Edition	15
Full Rollout - 'Bug Fix'	18
Graduated Rollout – 'Test the Water'	22
Rollback – 'Back out an Edition'	24
Deleting an Edition	26
Deleting an Inactive Edition	27
Deleting the Active Edition	28
Deleting the Default Edition	30
Troubleshooting	32
Known Problems.....	34
Frequently Asked Questions	35
Appendix A - Installation.....	36
Windows.....	36
Application Server Node.....	36
Deployment Manager Node	37
Linux.....	39
Application Server Node.....	39
Deployment Manager Node	40
Appendix B – Application Edition Manager MBean.....	41
Define the Application Edition Manager MBean	41
Configure the Application Edition Manager MBean to Automatically Start.....	44
Usage Examples and Command Syntax for use under wsadmin	45
Removing the Application Edition Manager MBean configuration.....	47
Appendix C - Uninstall	50
Windows.....	50
Application Server Node.....	50
Deployment Manager Node	51
Linux.....	52
Application Server Node.....	52
Deployment Manager Node	52
Appendix D – Application Rollout Algorithm.....	54



Introduction

Application Edition Manager for WebSphere Extended Deployment provides additional capabilities to the WebSphere Extended Deployment environment essential for managing interruption-free production application deployments. Interruption-free means users of your application will experience no loss of service when you install an application update in your execution environment.

The Application Edition Manager for WebSphere Extended Deployment – or simply *Edition Manager, for short* - also provides an application versioning model that supports multiple deployments of the same application in a WebSphere cell. Each deployment is distinguished by a unique edition number. The Edition Manager makes it possible to choose which edition to activate on a WebSphere application server cluster, enabling you to either rollout new application updates or back off a change and revert to an older level when necessary.

The Edition Manager is fully integrated with WebSphere Extended Deployment (XD), interacting with both the On Demand Router (ODR) and XD's dynamic workload balancing and application placement manager. This assures predictable application behavior when you apply application updates, ensuring smooth transition from one application edition to another while the system continues to manage your application performance goals.

The Edition Manager's *Edition Control Center* extension to the WebSphere Administrative Console provides detailed control over the application update and rollout process, including enhancements to both the application install and deployment tasks. This enables precise control over individual application editions, including edition activation across the application servers to which your application is deployed. Scripting APIs are also provided to enable integration of edition management functions with automated application deployment.

The Application Edition Manager for WebSphere Extended Deployment delivers added value to your WebSphere Extended Deployment environment by supporting your overall application lifecycle, enabling application updates to be individually managed and seamlessly applied to your production environment interruption-free, without loss of service.

Installation

Refer to Appendix A for installation instructions. If you choose to enable the Application Edition Manager mbean to use with scripting, see also Appendix B. Uninstall is covered in Appendix C.

Support

While the licensing agreement for IBM tech previews specifically state no support is provided, the fact is we are interested in your successful usage of this technology and your feedback. So we will help you with any problems you may experience on a best-can-do basis through the communication methods described below. Please be aware there is no specific length of time during which this tech preview will be available and it may be withdrawn at anytime. Furthermore, while the licensing agreement also stipulates that IBM reserves the right to release – or not release – the technology delivered in this tech preview into a formally supported product, please recognize that if IBM does choose to release this technology into a formally supported product at some point in the future, your feedback could be instrumental in shaping the resultant product delivery. In other words: comments are welcome!



Communication about the use of the Application Edition Manager for WebSphere Extended Deployment Tech Preview is available through both email and a forum. The email address is:

wasxaems@us.ibm.com

The forum is accessible through URL:

http://www-128.ibm.com/developerworks/forums/dw_forum.jsp?forum=436&cat=9

Terminology

There are various terms we use when discussing the concepts related to application updates and the use of this tech preview. There is no reference architecture to describe this domain and hence no standard terminology. To improve the chances you can understand what we mean, we'll explain ourselves a bit in this section.

Versions and Editions

When we say *version*, we mean what you probably think we mean: a successive generation of an interface, or function, or implementation, or an entire application, etc. It's a development and build concept. So what's an *edition* then? We use the term *edition* to mean a successive deployment generation – i.e. the *deployment* of a particular set of versioned artifacts. So *edition* is a deployment and operational concept. We could have simply used the term *version* for this, but have learned it's better to not overload the term, since when we say *version*, many people immediately think of things like source control, build, etc and not necessarily deployment. Using the term *edition* makes it easier for us to separate and distinguish between what's going on in your development and build environment from what's going on in your deployment and operational environment.

Application Rollout

When we say *application rollout*, we are talking about the act of actually deploying and activating an application update (i.e. edition) across a server cluster. Since our focus is on providing the ability for interruption-free application updates, *application rollout* includes such activities as quiescing requests in a particular server, fencing it from receiving new requests, stopping the server, replacing the application binaries available to that server, restarting the server, and resuming the flow of requests to it. *Application rollout* across a server cluster means performing these set of activities across a set of the servers in that cluster.

Application Compatibility

Let's face it, some application changes are transparent to your users and others are not. When an application change delivers at least the same APIs as the last time and no semantic change to essential behavior, then that application update is said to be *backward compatible* – meaning that existing users of the application can continue to use the updated application without changing what they're doing. In fact, existing users should not notice the difference between using the updated application or its predecessor. Any change that requires existing users to change is an incompatible update. Our belief is that most users attempt to make compatible application update



whenever feasible. However, we recognize that at certain times you may be motivated to drop old function, or change interfaces to improve maintainability or other factors, and may in fact introduce incompatible changes to your deployment environment. Naturally, incompatible changes require careful planning to address how impact to existing users will be managed.

Base Edition

We use the term *base edition* to refer to a deployed application that has no specific edition information associated with it. For example, all applications that were installed before you added the Edition Manager support to your WebSphere Extended Deployment cell will show up in the Edition Manager as *base editions*.

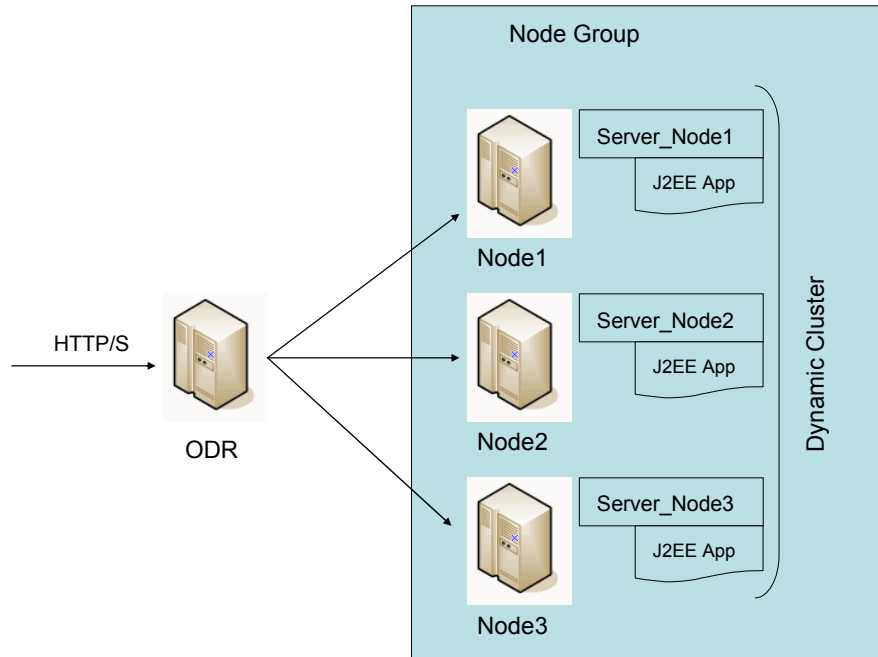
Default Edition

We use the term *default edition* to designate the particular application edition that will be activated on a new server added dynamically by WebSphere Extended Deployment workload management. This happens when you run a WebSphere Extended Deployment dynamic cluster in automatic or supervised mode and it adds an additional server to the dynamic cluster in response to a rise in workload. The new server will start that application edition that is marked as the *default edition*.

Note: if no edition is marked as default then the application server will start without activating any edition of that application.

Operational Environment

The operational environment in which the Edition Manager is designed to run is a WebSphere Extended Deployment cell. The Edition Manager can manage applications deployed to dynamic or static clusters that receive their work requests through a WebSphere Extended Deployment On-Demand Router (ODR). E.g.



The Edition Manager provides support for interruption-free application upgrades only for applications accessed through the WebSphere Extended Deployment On-demand Router (ODR) via the HTTP/S protocol. Service continuity during application upgrade is not assured for inter-application access (i.e. one J2EE app calling another) unless the inter-application access is accomplished via HTTP/S through another ODR layer.

The current level of the Edition Manager function support only compatible application updates. The tech preview provides no capability to discriminate among user requests and direct them to different application editions. All editions of a given application are assumed to be equivalent – e.g. compatible. Therefore any request for a given application will be routed to any available and active edition of that application. The principle focus of this tech preview is to assure no loss of service as one edition of an application is replaced by another in your execution environment.

Functional Overview of Console Operations

Edition Control Center

The process of installing this tech preview added an extension to your WebSphere Administrative console, called the *Edition Control Center*. This section will describe the purpose and functional capabilities of each page of this extension.

Edition Control Center Task in Navigation Tree

Access to the Edition Control Center main page is through the console's navigation tree under the *Applications* section:



User ID: vignola

XDNetwork

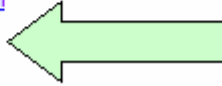
☒ Servers

☒ Applications

[Enterprise Applications](#)

[Install New Application](#)

[Edition Control Center](#)



Click the *Edition Control Center* link to access this new extension. When you enter the Edition Control Center, you will see this page:

Edition Control Center

Manage application editions and their deployments ⓘ

Total: 1

☒ Filter

☒ Preferences

Manage Editions Manage Edition Deployments Install Application

<input type="checkbox"/>	Name ▾	Deployment ▾
<input type="checkbox"/>	BeenThere50	BTDynCluster

The Edition Control Center main page has the following features:

1. Application list

This is a list of your installed applications and their deployment targets – i.e. the clusters or servers on which they are installed. Administrative applications that are part of the WebSphere administrative infrastructure – i.e. the adminconsole and fileTransfer apps – are omitted from this display.

2. Manage Editions button

Use this button to enter the Manage Editions page for the selected application. You can choose only one application at a time. The Manage Editions page allows you to perform various operations on your application and its editions, such as install or uninstall specific editions.

3. Manage Edition Deployments button

Use this button to enter the Manage Edition Deployments page for the selected application. You can choose only one application at a time. The Manage Edition Deployments page allows you to control which edition is active on its deployment targets and perform interruption-free edition rollout to those targets.

4. Install Applications button

Use this button to install an application edition. This button is similar to using the *Install*



New Application link in the Navigation tree, except that it can be used to install both the first and subsequent editions of an application. If you enter the Application Wizard from the *Install New Application* link in the Navigation tree you can only install new applications or update existing applications – you cannot install additional editions of an application through the *Install New Application* link.

Manage Editions

The Manage Editions page provides several maintenance functions for application editions. When you select an application on the Edition Control Center main page and click the *Manage Editions* button, you are next taken to this page:

[Edition Control Center](#) >

Manage Application Editions

Install, change, and uninstall editions of this application. ⓘ

<input type="button" value="Install Edition"/>			<input type="button" value="Uninstall Edition"/>			<input type="button" value="Deactivate Edition"/>			<input type="button" value="Set Default Edition"/>		
<input type="checkbox"/>	Edition ▾	Description						Active			
<input type="checkbox"/>	1.0	Prototype Version						No			

On this page, you will find the following features:

1. Edition list

This is a list of editions for the currently selected application. You selected the application on Edition Control Center main page. The list includes for each edition, its edition number, description, and an indicator designating whether this edition is active – i.e. in use – on any of the application's deployment targets. If you have multiple editions of an application it may be true that one or more editions are in use (active) while others are not. For example, you may have superseded edition 1.0 with edition 2.0 and edition 2.0 is active, while edition 1.0 is no longer active.

The default edition is treated specially and always marked as active. This reflects the fact that default edition will be used for any new server added to the cluster. This is true even if the default edition is currently not in use by any of the existing servers in the cluster.

Note that each edition is represented as a link, which upon clicking, takes you to the configuration detail page for that particular edition.

2. Install Edition button

Use this button to install another edition of the currently selected application. At the present time, this button simply launches the Application Install Wizard, which is the same as clicking the *Install New Application* link in the Navigation tree. However, eventually we envision this button not only launching the Application Install Wizard, but also pre-setting the *Application Editions Properties* step in the Wizard. It is only because of limitations in the Administrative Console's current extensibility framework that we



cannot establish this linkage now.

3. Uninstall Edition button

Use this button to uninstall the selected edition. Only inactive, non-default editions may be uninstalled. If the edition you wish to uninstall is active, you must first deactivate it. If the edition you wish to uninstall is currently the default edition, you must make another edition the default. If and only if the default edition is the only edition, it may be deleted.

4. Deactivate Edition button

Use this button to deactivate the selected edition. This makes the edition eligible for deletion, assuming it is not also the default edition. After deactivating an edition, the deployment targets on which that edition was formally active will use the default edition when they are started, or in the case that the deployment targets are presently running, when they are restarted.

5. Set Default Edition button

Use this button to mark the selected edition as the default edition. The default edition is the edition used by a deployment target following a deactivation of an active edition (see discussion of Deactivate Edition button, above) or for a new server dynamically added to a dynamic cluster by the WebSphere Extended Deployment workload management features.

Manage Edition Deployments

The Manage Edition Deployments page provides functions to control which edition of an application is currently active on the application's deployment targets. When you select an application on the Edition Control Center main page and click the *Manage Edition Deployments* button, you are next taken to this page:



[Edition Control Center](#) >

Manage Edition Deployments

View and change the application editions deployed and running on each server

Total: 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTDynCluster
Application: BeenThere50
Edition To Deploy: 2.0

Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

2.0	Production Version (Default Edition)
1.0	Prototype Version
Default Edition	

Filter
 Preferences

<input type="checkbox"/> Server	Node	Active Edition
<input type="checkbox"/> BTDynCluster_600X	600X	Default Edition
<input type="checkbox"/> BTDynCluster_T30	T30	Default Edition
<input type="checkbox"/> BTDynCluster_T40	T40	Default Edition

On this page you will find the following features:

1. Available Editions list

This is the list box located toward the top of the page that shows the currently existent editions for the selected application. The reserved name 'Default Edition' always appears in this box and has a special meaning: it is an alias that means 'the current default edition'. You can always rollout the current default edition explicitly by selecting it from this list. The currently defined default edition is identifiable among the other editions because it displays the text '(Default Edition)' in its description field.

If you select the reserved edition name 'Default Edition' as the edition for your rollout, however, then two things happen:

- a. The edition currently marked as default is rolled out. This should be no surprise.
- b. What you might not expect immediately, is that when 'Default Edition' is indicated as the active edition for any of your servers, the currently defined default edition is the edition that is actually started anytime you start that server. So even if, say edition 1.0 is marked as default at the time you do such a rollout, if you later mark edition, say, 2.0 as default and restart your server, it will activate edition 2.0, since edition 2.0 is the currently defined edition. New servers added to the cluster always start the currently defined default edition.



Note, after you select an edition in this list box, you have to click the 'Apply' button to make your selection effective. You will see the 'Edition to Deploy:' field, located above this list box, change to reflect your applied selection.

2. Deployment Targets list

This list shows the individual deployment targets for this application. This means the servers on which this application is deployed, what nodes those reside upon, and what edition of the application is currently active on those servers.

3. Rollout Edition button

Use this button to rollout an edition change across the set of selected deployment targets. This is the Application Edition Manager feature you use to perform an interruption-free application upgrade. When you select this button, a carefully orchestrated edition 'swap' occurs across the selected deployment targets. This edition swap replaces the previously active edition with the one you have selected. This is performed according to a special algorithm that ensures no loss of service - or application availability - during the swap. For the curious, the details of this algorithm and its operational implications are explained in Appendix D.

4. Change Active Edition button

Use this button to stage an edition swap across the set of selected deployment targets. When you change active edition using this feature, an immediate rollout and edition swap does not occur, but rather, the newly assigned active edition will actually be activated upon the next start of the affected deployment targets.

5. Mange Editions button

Use this button to jump to the *Manage Editions* page for the current application. This is the same as using the *Manage Editions* button for a selected application from the *Edition Control Center* main page.

Application Install Wizard

Installation of this tech preview also modifies the Application Install Wizard, to include an additional step (shown below as step 7) through which you can specify edition properties for your application:



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
- [Step 3](#) Map EJB references to beans
- [Step 4](#) Map virtual hosts for web modules
- [Step 5](#) Map modules to application servers
- [Step 6](#) Ensure all unprotected 2.0 methods have the correct level of protection

→ **Step 7 : Application Edition Properties**

Set Application Edition Properties. The Application edition is a dotted numeric field (eg 2.1.1); the description is a text field.


Edition Property	Value
Application Edition	<input type="text"/>
Edition Description	<input type="text"/>

If you enter an edition value and description, you will create a new edition of the application. If you omit this information, your application will be installed as a base edition.

Enterprise Editions

While there is no actual change to the Enterprise Editions page, you will note that each edition of an application you install will appear on this page with an unusual name formed from the combination of the application name and the edition identifier. We refer to this as the 'mangled name'. A current limitation in this tech preview is that there is no ability to display the Status of applications that have these mangled names. This is something we would correct in a GA version of this function if we get to ship it in a supported product.








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"/> BeenThere50-edition1.0	
<input type="checkbox"/> BeenThere50-edition2.0	
<input type="checkbox"/> adminconsole	
<input type="checkbox"/> filetransfer	



Usage Scenarios

Next, we will detail several typical usage scenarios:

1. Installing Your First Edition

This scenario takes you through the steps necessary to install and activate you're the first edition of an application.

2. Full Rollout – 'Bug Fix'

This scenario takes you through the steps necessary to replace the currently active edition with a new one.

3. Graduated Rollout – 'Test the Water'

This scenario takes you through the steps necessary to partially replace the currently active edition with a new one.

4. Rollback – 'Back out Edition'

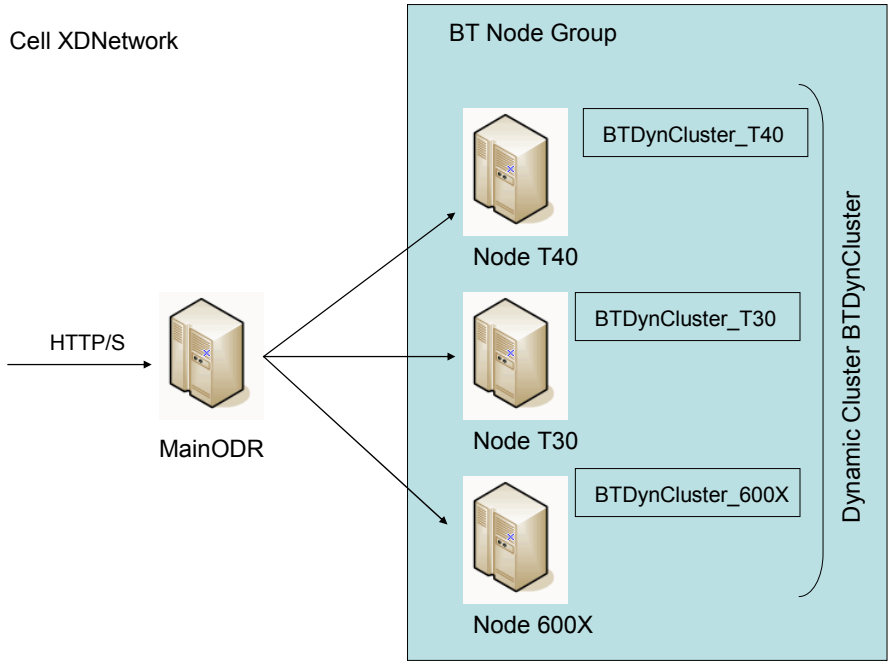
This scenario takes you through the steps necessary to replace the currently active edition with a previously active edition.

5. Deleting an Edition

This scenario takes your through the steps necessary to delete an edition. Discussion of deleting an inactive, active, and default edition are covered.

Scenario Environment

For your reference, the WebSphere configuration used for the development of these scenarios is a four node WebSphere Extended Deployment cell with a single node group comprised of three application server nodes and a single dynamic cluster defined within that node group:





Installing Your First Edition

Follow the steps in this scenario to install the first edition of an application.

1. Enter the Edition Control Center

Edition Control Center

Manage application editions and their deployments

Total: 0	
Filter	
Preferences	
<input type="button" value="Manage Editions"/> <input type="button" value="Manage Edition Deployments"/> <input type="button" value="Install Application"/>	
<input type="checkbox"/> Name	Deployment
None	

2. Click the *Install Application* button

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:

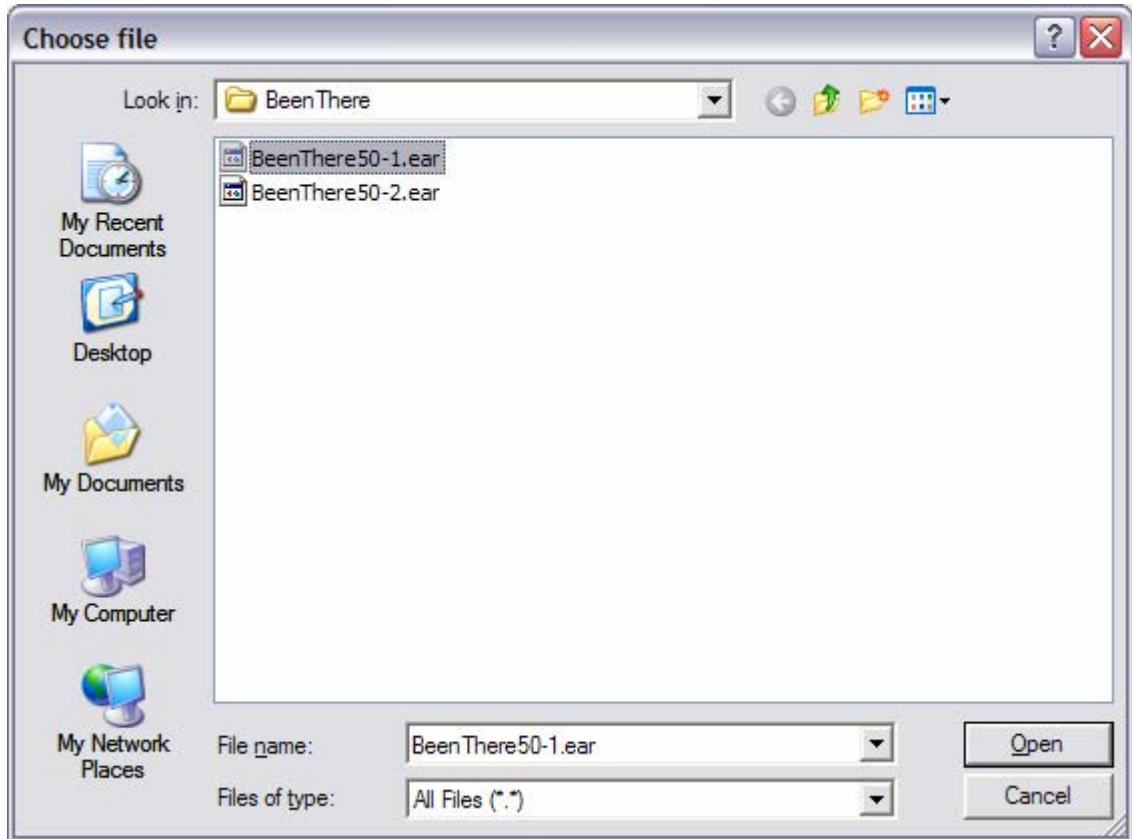
Server path:

Context Root: Used only for standalone Web modules (*.war)

Choose the local path if the ear resides on the same machine as the browser. Choose the server path if the ear resides on any of the nodes in your cell context.

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

3. Select the application archive file to install. In this example, the application archive is found on a local path:



4. Walk through the steps of the Application Install Wizard like you normally would, except that when you get to the *Application Edition Properties* step, enter suitable edition information. By the way, for this example, we selected the dynamic cluster *BTDynCluster* as the deployment target. In the case of your first edition, we suggest an edition number of 1.0 makes sense, as illustrated below:

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
- [Step 3](#) Map EJB references to beans
- [Step 4](#) Map virtual hosts for web modules
- [Step 5](#) Map modules to application servers
- [Step 6](#) Ensure all unprotected 2.0 methods have the correct level of protection

→ **Step 7 : Application Edition Properties**

Set Application Edition Properties. The Application edition is a dotted numeric field (eg 2.1.1); the description is a text field.

Edition Property	Value
Application Edition	<input type="text" value="1.0"/>
Edition Description	<input type="text" value="Prototype Version"/>

- [Step 8](#) Summary



5. Complete the wizard, click the 'Finish' button, and you will see the customary confirmation page:

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.

WSAE0005: Application edition/description successfully deployed.

ADMA5005: Application BeenThere50 configured in WebSphere repository

ADMA5001: Application binaries saved in C:\WebSphere\V5R1\XDdmgr\wstemp\455822602\workspace\cells\XDNetwork\applications\BeenThere50.ear\BeenThere50.ear-edition1.0

ADMA5011: Cleanup of temp dir for app BeenThere50 done.

ADMA5013: Application BeenThere50 installed successfully.

Application BeenThere50 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](#)


6. Save and synchronize with your nodes.
7. Return to the Edition Control Center and you will see the application you just installed:



Edition Control Center

Manage application editions and their deployments 

Total: 1

 Filter

 Preferences

<input type="checkbox"/>	Name 	Deployment 
<input type="checkbox"/>	BeenThere50	BTDynCluster

8. Select the application and click the *Manage Editions* button to see the installed editions of this application:



[Edition Control Center >](#)

Manage Application Editions

Install, change, and uninstall editions of this application. [i](#)

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/>	Edition ▾	Description	Active
<input type="checkbox"/>	1.0	Prototype Version	No

9. Select edition 1.0 and click the *Set Default Edition* button to make it the default edition:

[Edition Control Center >](#)

Manage Application Editions

Install, change, and uninstall editions of this application. [i](#)

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/>	Edition ▾	Description	Active
<input type="checkbox"/>	1.0 (Default Edition)	Prototype Version (Default Edition)	No

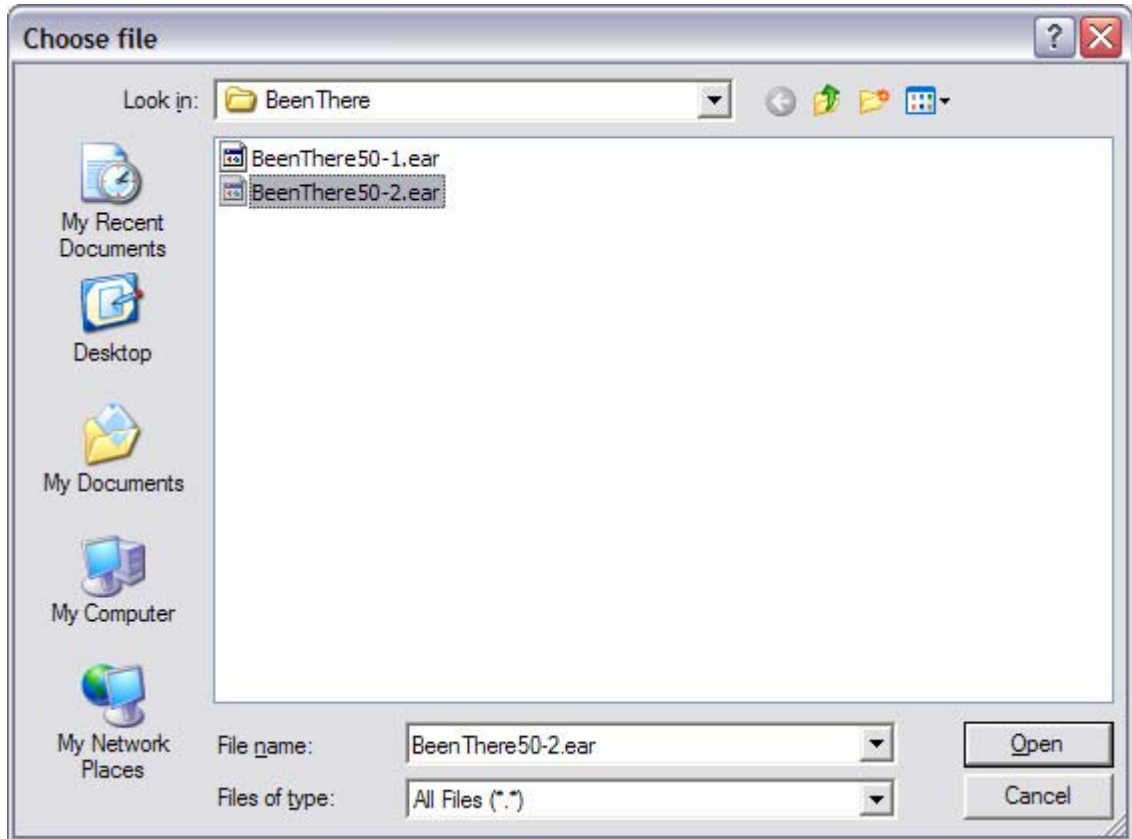
10. Start (or restart) the servers on which this application was deployed in order to activate the application edition in those servers.

Full Rollout - 'Bug Fix'

In this scenario, we will replace the currently active edition with a new one. The new edition might be a simple modification to the application, such as a bug fix. However, the update could also be a more substantial change; as long as it is a backward compatible change, it can be rolled out to replace the currently active edition without a loss of service to the end users of your application.

To perform a full rollout, follow these steps:

1. Repeat the same steps as were done when installing your first edition, except this time select the updated application archive and specify appropriate edition information in the Application Install Wizard. In the case of this example, we will install our version 2 archive:



Specify edition information in the Application Install Wizard:

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
- [Step 3](#) Map EJB references to beans
- [Step 4](#) Map virtual hosts for web modules
- [Step 5](#) Map modules to application servers
- [Step 6](#) Ensure all unprotected 2.0 methods have the correct level of protection

→ **Step 7 : Application Edition Properties**

Set Application Edition Properties. The Application edition is a dotted numeric field (eg 2.1.1); the description is a text field.

Edition Property	Value
Application Edition	<input type="text" value="2.0"/>
Edition Description	<input type="text" value="Production Version"/>

[Step 8](#) Summary

For this example, we will call this edition 2.0.



2. To see the results, return to the Edition Control Center, select your application, and click the *Manage Editions* button:

[Edition Control Center](#) >

Manage Application Editions

Install, change, and uninstall editions of this application.

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/> Edition	Description	Active	
<input type="checkbox"/> 1.0 (Default Edition)	Prototype Version (Default Edition)	No	
<input type="checkbox"/> 2.0	Production Version	No	

3. To rollout this new edition, go back to the Edition Control center, select your application and then click the *Manage Edition Deployments* button:

View and change the application editions deployed and running on each server

Total 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTCluster
Application: BeenThere50
Edition To Deploy: 2.0

Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

<input checked="" type="checkbox"/>	2.0	Production Version
<input type="checkbox"/>	1.0	Prototype Version (Default Edition)

Filter
 Preferences

<input checked="" type="checkbox"/> Server	Node	Active Edition
<input checked="" type="checkbox"/> BTServer1	600X	Default Edition
<input checked="" type="checkbox"/> BTServer2	T30	Default Edition
<input checked="" type="checkbox"/> BTServer3	T40	Default Edition

On this page, ensure that edition 2.0 is selected. Do this by selecting edition 2.0 and clicking the *Apply* button. Next, select all deployment targets and click the *Rollout Edition* button. The system will next orchestrate an interruption-free edition swap, following the algorithm described in appendix D. The intermediate results of this activity is displayed in the console:



```
Deploying Application -BeenThere50-2.0
To the following members of the Cluster -BTDynCluster
WebSphere:node=600X,name=BTDynCluster_600X
WebSphere:node=T30,name=BTDynCluster_T30
WebSphere:node=T40,name=BTDynCluster_T40
Starting Deployment of application BeenThere50-2.0
Stopping traffic to BTDynCluster_600X@600X
Remove old target -WebSphere:cell=XDNetwork,node=600X,server=BTDynCluster_600X- for edition -1.0-
Adding new target -WebSphere:cell=XDNetwork,node=600X,server=BTDynCluster_600X- for edition -2.0-
Synchronizing nodes
Synchronization complete
Restarting server -BTDynCluster_600X@600X-
Resuming request traffic to -BTDynCluster_600X@600X-
Stopping traffic to BTDynCluster_T30@T30
Remove old target -WebSphere:cell=XDNetwork,node=T30,server=BTDynCluster_T30- for edition -1.0-
Adding new target -WebSphere:cell=XDNetwork,node=T30,server=BTDynCluster_T30- for edition -2.0-
Synchronizing nodes
Synchronization complete
Restarting server -BTDynCluster_T30@T30-
Resuming request traffic to -BTDynCluster_T30@T30-
Stopping traffic to BTDynCluster_T40@T40
Remove old target -WebSphere:cell=XDNetwork,node=T40,server=BTDynCluster_T40- for edition -1.0-
Adding new target -WebSphere:cell=XDNetwork,node=T40,server=BTDynCluster_T40- for edition -2.0-
Synchronizing nodes
Synchronization complete
Restarting server -BTDynCluster_T40@T40-
Resuming request traffic to -BTDynCluster_T40@T40-

Update completed
```

4. To see the results, return to the Edition Control Center, select your application, and click the *Manage Edition Deployments* button:



[Edition Control Center](#) >

Manage Edition Deployments

View and change the application editions deployed and running on each server

Total: 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTDynCluster
Application: BeenThere50
Edition To Deploy: 2.0

Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

2.0	Production Version
1.0	Prototype Version (Default Edition)

Default Edition

Filter

Preferences

<input type="checkbox"/>	Server	Node	Active Edition
<input type="checkbox"/>	BTDynCluster_600X	600X	2.0
<input type="checkbox"/>	BTDynCluster_T30	T30	2.0
<input type="checkbox"/>	BTDynCluster_T40	T40	2.0

Note: while we did not show it in this scenario, it would probably be a good idea to have made edition 2.0 the default edition before we began the rollout. This would ensure that any new servers added to the cluster – particularly a dynamic cluster running in automatic mode – would run edition 2.0 – not edition 1.0, which we left as the default in this example.

Graduated Rollout – ‘Test the Water’

In this scenario, we have a compatible application update, but are not willing to commit it to all servers in the cluster. For example, we might want to monitor its behavior in our actual production environment. This, despite all the pre-production testing we would have already completed before this point.

A graduated rollout is really no different than a full rollout except that not all members of the cluster are selected for rollout. In our case, we will rollout edition 2.0 only to one of our three currently active cluster members as the first step of our graduated rollout process. So on the *Manage Edition Deployments* page, we simply select edition 2.0 and our first target server:



[Edition Control Center](#) >

Manage Edition Deployments

View and change the application editions deployed and running on each server

Total: 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTDynCluster
Application: BeenThere50
Edition To Deploy: 2.0

Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

2.0	Production Version
1.0	Prototype Version (Default Edition)

Default Edition

Filter
 Preferences

<input type="checkbox"/> Server	Node	Active Edition
<input type="checkbox"/> BTDynCluster_600X	600X	1.0
<input type="checkbox"/> BTDynCluster_T30	T30	1.0
<input checked="" type="checkbox"/> BTDynCluster_T40	T40	1.0

After seeing the usual status messages:

```
Deploying Application -BeenThere50-2.0
To the following members of the Cluster -BTDynCluster
WebSphere:node=T40,name=BTDynCluster_T40
Starting Deployment of application BeenThere50-2.0
Stopping traffic to BTDynCluster_T40@T40
Remove old target -WebSphere:cell=XDNetwork,node=T40,server=BTDynCluster_T40- for edition -1.0-
Adding new target -WebSphere:cell=XDNetwork,node=T40,server=BTDynCluster_T40- for edition -2.0-
Synchronizing nodes
Synchronization complete
Restarting server -BTDynCluster_T40@T40-
Resuming request traffic to -BTDynCluster_T40@T40-

Update completed
```

We can inspect the *Manage Edition Deployments* page for this application and review the result:



[Edition Control Center](#) >

Manage Edition Deployments

View and change the application editions deployed and running on each server

Total: 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTDynCluster
Application: BeenThere50
Edition To Deploy: 2.0

Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

2.0	Production Version
1.0	Prototype Version (Default Edition)

Default Edition

Apply

Filter
 Preferences

<input type="checkbox"/>	Server	Node	Active Edition
<input type="checkbox"/>	BTDynCluster_600X	600X	1.0
<input type="checkbox"/>	BTDynCluster_T30	T30	1.0
<input type="checkbox"/>	BTDynCluster_T40	T40	2.0

As we can clearly see, edition 2.0 is active only on the appointed server, while the others are still running edition 1.0.

Note that if additional servers are added to this cluster, they will use the default edition, which is still marked as edition 1.0.

You can repeat this process at any rate you wish until the new edition is activated across all members of the cluster. At that point, it would probably make sense, also, to mark this latest edition as the default, so that any new servers started would pickup this same edition and not the old one.

Rollback – ‘Back out an Edition’

You would want to back out an edition if something goes wrong with it after it has been rolled out. Whether a full or a graduated rollout, it is possible from time to time that some unwanted behavior in your application update might occur and you need to return to running some previous edition level.

Returning to a previous edition is really the same as doing a full or graduated rollout in reverse; instead of rolling out the newer edition, you would simply rollout the older one.

For example, to back out our graduated rollout of edition 2.0 from the preceding scenario, we would just rollout edition 1.0:



[Edition Control Center](#) >

Manage Edition Deployments

View and change the application editions deployed and running on each server

Total: 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTDynCluster
Application: BeenThere50
Edition To Deploy: 1.0

Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

2.0	Production Version
1.0	Prototype Version (Default Edition)

Default Edition

Filter
 Preferences

<input type="checkbox"/>	Server	Node	Active Edition
<input type="checkbox"/>	BTDynCluster_600X	600X	1.0
<input type="checkbox"/>	BTDynCluster_T30	T30	1.0
<input checked="" type="checkbox"/>	BTDynCluster_T40	T40	2.0

Rolling out this edition results in the usual messages:

```
Deploying Application -BeenThere50-1.0
To the following members of the Cluster -BTDynCluster
WebSphere:node=T40,name=BTDynCluster_T40
Starting Deployment of application BeenThere50-1.0
Stopping traffic to BTDynCluster_T40@T40
Remove old target -WebSphere:cell=XDNetwork,node=T40,server=BTDynCluster_T40- for edition -2.0-
Adding new target -WebSphere:cell=XDNetwork,node=T40,server=BTDynCluster_T40- for edition -1.0-
Synchronizing nodes
Synchronization complete
Restarting server -BTDynCluster_T40@T40-
Resuming request traffic to -BTDynCluster_T40@T40-


Update completed
```

And produces the expected result:



[Edition Control Center >](#)

Manage Edition Deployments

View and change the application editions deployed and running on each server 

Total: 3

Deployment: WebSphere:Cell=XDNetwork,Cluster=BTDynCluster
Application: BeenThere50
Edition To Deploy: 2.0




Change the edition deployment to this target by selecting an edition, one or more servers, then clicking Deploy Edition

Editions:

2.0	Production Version
1.0	Prototype Version (Default Edition)

Default Edition

Filter
 Preferences

<input type="checkbox"/> Server 	Node 	Active Edition 
<input type="checkbox"/> BTDynCluster_600X	600X	1.0
<input type="checkbox"/> BTDynCluster_T30	T30	1.0
<input type="checkbox"/> BTDynCluster_T40	T40	1.0

Deleting an Edition

In this scenario we will show you how dispose of unwanted application editions. After multiple successive editions of an application have been deployed and rolled out, which is certainly not unusual in the lifespan of many production applications, you may have a number of editions stored in your repository that are no longer needed and you wish to clean things up and get rid of them.

An edition may be in any one of three states and the method for deleting (or uninstalling) an edition varies slightly based on its current state. The three states are:

a. Inactive

This is an edition that is neither the assigned for use in any deployment target, nor the default. An inactive edition can be freely uninstalled at anytime.

b. Active

This is an edition that is currently assigned for use in one or more deployment targets. In other words, one or more servers are assigned to use (i.e. run) this edition. An active edition cannot be uninstalled. It must first be made inactive.

Note the default edition is always marked active because it will be used for any new server added to a server cluster.

To deactivate an edition, you can either replace it by following the edition rollout



procedure as discussed in either the full or graduated rollout scenarios previously or you can use the *Deactivate Edition* button to stage the deactivation. By staging the deactivation, the edition will be deleted from the master repository but will remain in use in any server that is currently executing that edition. Upon next restart of the server, that server will activate the default edition instead of the edition you just deactivated.

c. Default

This is simply the edition marked as default. The default edition can never be uninstalled. To uninstall the edition currently marked as the default, another edition must be marked as the new default edition. If the default edition was also truly active – assigned for use in some deployment target – then it must be deactivated as described above in the discussion of active editions.

Deleting an Inactive Edition

1. Enter *Manage Editions*

Select the target application and click the *Manage Editions* button:

Edition Control Center

Manage application editions and their deployments

Total: 1	
Filter	
Preferences	
<input checked="" type="checkbox"/> Manage Editions	<input type="checkbox"/> Manage Edition Deployments
<input type="checkbox"/> Install Application	
<input checked="" type="checkbox"/> Name	Deployment
<input checked="" type="checkbox"/> BeenThere50	BTDynCluster

2. Uninstall the edition

Select the deletion you wish to uninstall and click the *Uninstall Edition* button:

[Edition Control Center](#) >

Manage Application Editions

Install, change, and uninstall editions of this application.

<input type="checkbox"/> Install Edition	<input type="checkbox"/> Uninstall Edition	<input type="checkbox"/> Deactivate Edition	<input type="checkbox"/> Set Default Edition
<input type="checkbox"/> Edition	Description	Active	
<input type="checkbox"/> 1.0 (Default edition)	Prototype Version	Yes	
<input checked="" type="checkbox"/> 2.0	Production Version	No	



You will next see the following messages:

Message(s)

- ⚠ Changes have been made to your local configuration. Click [Save](#) to apply changes to the master configuration.
- ℹ The server may need to be restarted for these changes to take effect.
- ℹ BeenThere50-edition2.0 was uninstalled successfully.

[Edition Control Center](#) >

Manage Application Editions

Install, change, and uninstall editions of this application. ⓘ

<input type="checkbox"/>	Edition ▾	Description	Active
<input type="checkbox"/>	1.0 (Default edition)	Prototype Version	Yes

Note your servers do not actually need to be restarted to reflect this change.

3. Save and synchronize changes.

Deleting the Active Edition

1. Enter *Manage Editions*

Select the target application and click the *Manage Editions* button:

Edition Control Center

Manage application editions and their deployments ⓘ

Total: 1

Filter

Preferences


<input checked="" type="checkbox"/>	Name ▾	Deployment ▾
<input checked="" type="checkbox"/>	BeenThere50	BTDynCluster


2. Deactivate the active edition




[Edition Control Center >](#)

Manage Application Editions

Install, change, and uninstall editions of this application. 


<input type="button" value="Install Edition"/>			<input type="button" value="Uninstall Edition"/>			<input type="button" value="Deactivate Edition"/>			<input type="button" value="Set Default Edition"/>		
<input type="checkbox"/>	Edition 	Description				Active					
<input type="checkbox"/>	1.0 (Default edition)	Prototype Version				Yes					
<input checked="" type="checkbox"/>	2.0	Production Version				Yes					


Click the *Deactivate Edition* button and you will receive this message:

Message(s)	
	For the changes to take effect, you must restart the affected application servers.

[Edition Control Center >](#)

Manage Application Editions

Install, change, and uninstall editions of this application. 

<input type="button" value="Install Edition"/>			<input type="button" value="Uninstall Edition"/>			<input type="button" value="Deactivate Edition"/>			<input type="button" value="Set Default Edition"/>		
<input type="checkbox"/>	Edition 	Description				Active					
<input type="checkbox"/>	1.0 (Default edition)	Prototype Version				Yes					
<input type="checkbox"/>	2.0	Production Version				No					

When you restart the affected servers, they will start the default edition. Note that an alternative method of uninstalling an active edition is to first replace it with another edition by following one of the rollout scenarios, thus making it inactive. Use the rollout approach if you want to ensure an interruption-free deactivation of the edition you wish to delete.

3. Uninstall the edition

Select the deletion you wish to uninstall and click the *Uninstall Edition* button:



Message(s)
For the changes to take effect, you must restart the affected application servers.

[Edition Control Center >](#)

Manage Application Editions

Install, change, and uninstall editions of this application.

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/> Edition	Description	Active	
<input type="checkbox"/> 1.0 (Default edition)	Prototype Version	Yes	
<input checked="" type="checkbox"/> 2.0	Production Version	No	

You will next see the following messages:

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.
 BeenThere50-edition2.0 was uninstalled successfully.

[Edition Control Center >](#)

Manage Application Editions

Install, change, and uninstall editions of this application.

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/> Edition	Description	Active	
<input type="checkbox"/> 1.0 (Default edition)	Prototype Version	Yes	

Note your servers do not actually need to be restarted to reflect this change.

4. Save and synchronize changes.

Deleting the Default Edition

1. Enter *Manage Editions*

Select the target application and click the *Manage Editions* button:



Edition Control Center

Manage application editions and their deployments [i](#)

Total: 1

[Filter](#)

[Preferences](#)

[Manage Editions](#) [Manage Edition Deployments](#) [Install Application](#)

<input checked="" type="checkbox"/>	Name v	Deployment v
<input checked="" type="checkbox"/>	BeenThere50	BTDynCluster

2. Mark another edition as default

Select the new default edition and click the *Set Default Edition* button:

[Edition Control Center](#) > [Manage Edition Deployments](#) >

Manage Application Editions

Install, change, and uninstall editions of this application. [i](#)

[Install Edition](#) [Uninstall Edition](#) [Deactivate Edition](#) [Set Default Edition](#)

<input type="checkbox"/>	Edition v	Description	Active
<input type="checkbox"/>	1.0 (Default edition)	Prototype Version	Yes
<input checked="" type="checkbox"/>	2.0	Production Version	Yes

You will next see the result:

[Edition Control Center](#) > [Manage Edition Deployments](#) >

Manage Application Editions

Install, change, and uninstall editions of this application. [i](#)

[Install Edition](#) [Uninstall Edition](#) [Deactivate Edition](#) [Set Default Edition](#)

<input type="checkbox"/>	Edition v	Description	Active
<input type="checkbox"/>	1.0	Prototype Version	No
<input type="checkbox"/>	2.0 (Default edition)	Production Version	Yes

3. Uninstall the edition

Select the edition to delete and click the *Uninstall Edition* button:



[Edition Control Center](#) > [Manage Edition Deployments](#) >

Manage Application Editions

Install, change, and uninstall editions of this application.

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/> Edition	Description	Active	
<input checked="" type="checkbox"/> 1.0	Prototype Version	No	
<input type="checkbox"/> 2.0 (Default edition)	Production Version	Yes	

You will next see these messages:

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.
BeenThere50-edition1.0 was uninstalled successfully.

[Edition Control Center](#) > [Manage Edition Deployments](#) >

Manage Application Editions

Install, change, and uninstall editions of this application.

<input type="button" value="Install Edition"/>	<input type="button" value="Uninstall Edition"/>	<input type="button" value="Deactivate Edition"/>	<input type="button" value="Set Default Edition"/>
<input type="checkbox"/> Edition	Description	Active	
<input type="checkbox"/> 2.0 (Default edition)	Production Version	Yes	

Note your servers do not actually need to be restarted to reflect this change.

4. Save and synchronize changes.

Troubleshooting

While we have extensively tested the Application Edition Manager, we recognize it is still possible you may run into problems using it. We encourage you to communicate any problems you encounter in its use to us through either the email address or forum. These communication mechanisms are identified in the Support section of this document.

You can minimize certain problems you might encounter by ensuring certain preconditions are met during the use of the Edition Manager:



1. Need a default edition

When you install your first edition of an application, it is not automatically defined as the default edition, nor is it automatically made the active edition in any of the deployment targets on which you installed the edition. You must assign the first default edition explicitly through the *Manage Editions* page. You must also assign an active edition to your deployment targets. See the *Installing Your First Edition* scenario to review how to do this.

2. Node agents and servers must be running for runtime operations

Rollout Edition, Deactivate Edition, and Change Active Edition are all runtime operations that require the current deployment targets and their node agents be up and running. For any deployment target that is not up, the operation will not be performed and instead you will receive an error message indicating:

mbean for <server name> not found.

This is not a catastrophic failure. It simply means the operation you attempted to perform did not take place in the indicated server. However, this may nevertheless undermine your present objectives. To correct this, just start that server and re-perform the operation in question.

If you encounter some other problem, you are advised to inspect the SystemOut.log files of the Deployment Manager, and the nodeagents and servers involved in the present operation.

If you choose to report the problem to us, it will be helpful for you to collect and save these files. The preferred mechanism is to use the collector utility on each affected node, including the Deployment Manager, and be prepared to send us the output. The collector utility is found in the *bin* directory under each WebSphere install directory.




Known Problems

1. The Application Edition Manager presently requires the Deployment Manager server's JMX SOAP connector to be configured to listen on the default port 8879.
2. The status indicator for application editions shows only 'unknown' as the current status on the Enterprise Applications page. Application editions are identifiable on this page as applications whose name is in the form *application name_edition{edition value}*. For example, BeenThere50_edition1.0 is an edition, whereas just BeenThere50 is a regular application installed through the *Install New Application* link from the console's navigation bar.



Frequently Asked Questions

1. Q. Can the Application Edition Manager be used in a non-WebSphere Extended Deployment environment?
A. No, this level of the Application Edition Manager is designed to coordinate application updates with the work managed through the WebSphere Extended Deployment On-Demand Router only.
2. Q. Can the Application Edition Manager assure interruption-free application upgrade for workloads driven by IIOF or JMS protocols?
A. No, the Application Edition Manager can assure interruption-free application upgrade only for workload managed by the WebSphere Extended Deployment On-Demand Router. The WebSphere Extended Deployment V5.1 On-Demand Router supports HTTP/S only.
3. Q. Can the Application Edition Manager assure interruption-free application upgrade for workloads that include calls between J2EE applications?
A. Yes, provided that each inter-application request is HTTP/S through an On-Demand Router.
4. Q. Can the Application Edition Manager assure interruption-free application upgrade for workloads hosted on static clusters?
A. Yes, provided there is an On-Demand Router managing the work being sent to that static cluster.
5. Q. Can the Application Edition Manager support deployment of one edition of an application to one cluster and deployment of another edition to a different cluster?
A. No, currently, the Application Edition Manager supports only the same deployment target for all editions of the same application.
6. Q. Does the Application Edition Manager support activation of different editions on different members of the same server cluster.
A. Yes.
7. Q. Does the Application Edition Manager restart the application or the entire server in order to activate a new edition?
A. Server.
8. Q. Can the Application Edition Manager handle the activation of applications with incompatible changes?
A. No, because the presently the On-Demand Router has no edition-awareness and therefore no means to segregate request traffic on the basis of edition.
9. Q. Can the Application Edition Manager handle the activation of applications that include database schema changes?
A. Yes, if the database schema changes are done in a backward compatible way. Otherwise, no, for the same reason given in response to question #8, above.



Appendix A - Installation

The Application Edition Manager for WebSphere Extended Deployment Tech Preview is presently supported for use on Windows and Linux platforms only. The versions of those platforms on which this tech preview are supported are the same Windows and Linux platforms on which WebSphere Extended Deployment itself is supported. Refer to the appropriate section below for installation instructions for your chosen platform.

This function provided by this tech preview is useful only in a Network Deployment environment. To use this tech preview you need to install in on all nodes in your WebSphere Extended Deployment cell.

Installation Tip

It does not matter if you install the tech preview on the Deployment Manager node before the Application Server nodes or vice versa. What does matter is that you install the tech preview on all the nodes in the cell, including the Deployment Manager node before you attempt to use it.

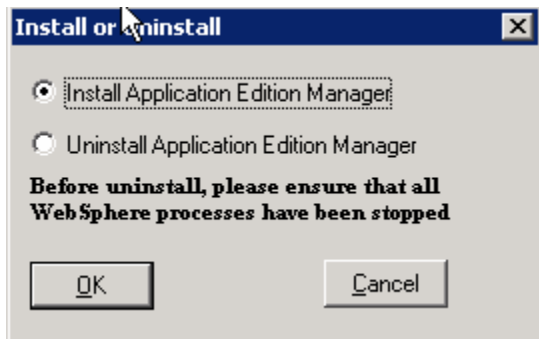
The best way to ensure success is to stop the Deployment Manager and all application servers and nodeagents in the cell before installing the tech preview, and then install the tech preview on the Deployment Manager and all the application server nodes. After the tech preview is installed throughout the cell, then you can begin restarting servers.

Windows

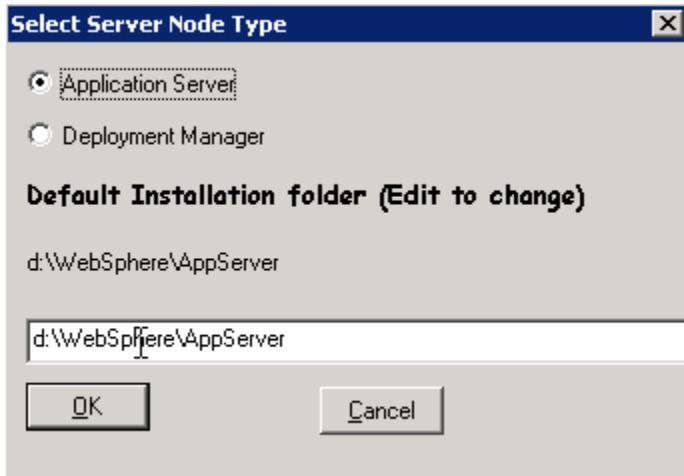
There is one file in the Tech Preview:
Setup.exe

Application Server Node

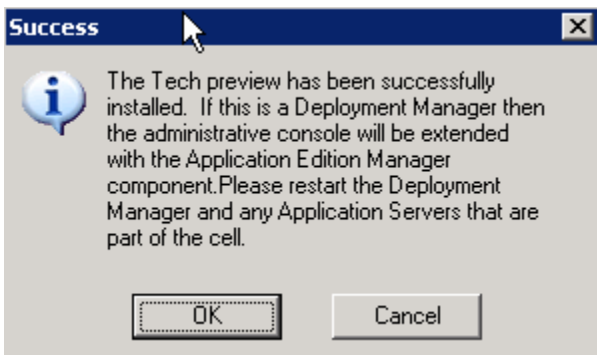
1. Launch setup.exe



2. Select Install Application Edition Manager. Click OK

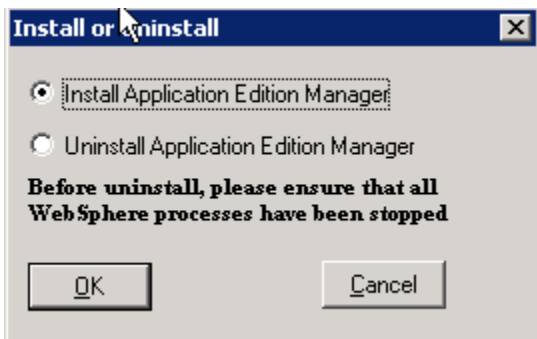


3. Select the Application Server, and ensure that the Default Installation folder is correct. If necessary, make any changes to the installation path. Click OK.
4. After the files have been copied, the following dialog is displayed.

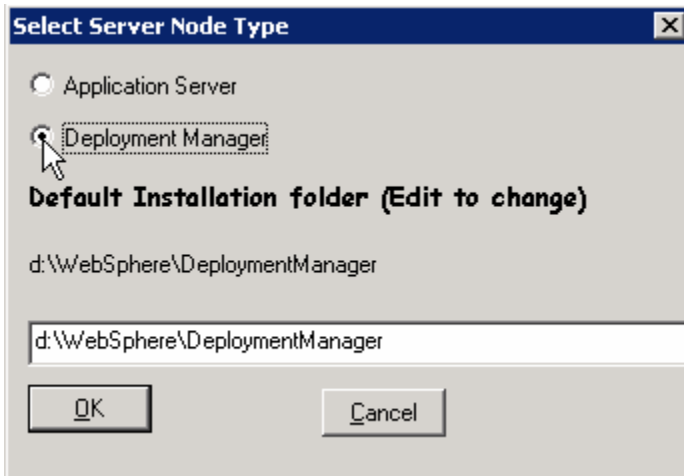


Deployment Manager Node

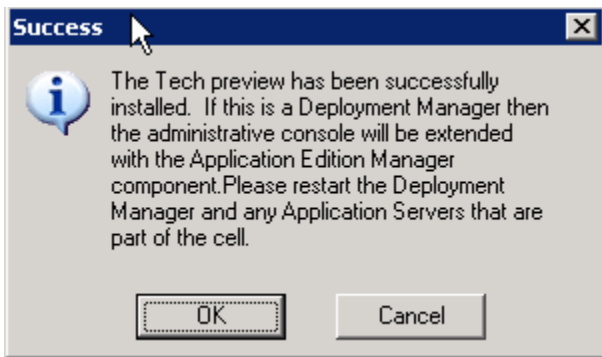
1. Launch setup.exe



2. Select Install Application Edition Manager, and select OK.



3. Select Deployment Manager, and ensure that the Default Installation folder is correct. If necessary, make any changes to the installation path. Click OK.
4. After the files have been copied then the following dialog is displayed.

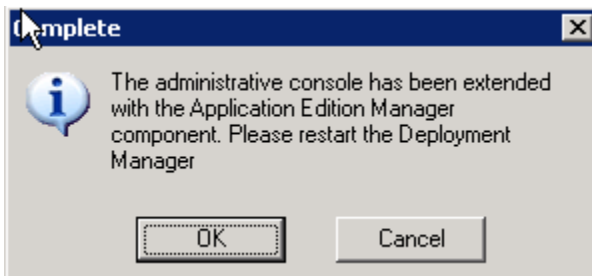


5. On the Deployment Manager, the installation process starts the PluginProcessor to install the extensions to the Administrator Console.



```
C:\WINDOWS\system32\cmd.exe
PLPR0002I: com.ibm.ws.console.perftuningadmin is currently installed
PLPR0002I: com.ibm.ws.console.policyconfiguration is currently installed
PLPR0002I: com.ibm.ws.console.probdetermination is currently installed
PLPR0002I: com.ibm.ws.console.proxy is currently installed
PLPR0002I: com.ibm.ws.console.resources is currently installed
PLPR0002I: com.ibm.ws.console.runtimemap is currently installed
PLPR0002I: com.ibm.ws.console.security is currently installed
PLPR0002I: com.ibm.ws.console.servermanagement is currently installed
PLPR0002I: com.ibm.ws.console.taskconfig is currently installed
PLPR0002I: com.ibm.ws.console.taskmanagement is currently installed
PLPR0002I: com.ibm.ws.console.webservices is currently installed
PLPR0002I: com.ibm.ws.console.wssecurity is currently installed
PLPR0002I: com.ibm.ws.console.xdruntime is currently installed
PLPR0003I: Opening Console Enterprise Application - d:\WebSphere\DeploymentManager\wstemp\PluginProcessor\adminconsole.ear
PLPR0007I: Opening d:\WebSphere\DeploymentManager\appedition.war Module Extension war
PLPR0008I: Installing Plugin id [com.ibm.ws.console.appmanagement.appedition] name [appedition] contextRoot [appedition] embedded [true]
PLPR0013I: Saving Console Enterprise Application
PLPR0014I: Closing Console Enterprise Application
PLPR0006I: Compressing Console Enterprise Application to - d:\WebSphere\DeploymentManager\wstemp\PluginProcessor\adminconsole.ear
PLPR0098I: Redeploying Console Enterprise Application
```

6. At completion, you will see the following dialog:



7. Restart the Deployment Manager
8. Goto to Steps **Define and Configure the Application Edition Manager MBean** in **Appendix B**

Linux

There are two files in the Tech Preview:

1. wasxd_appeditionmgr_nd.tar -- Deployment Manager
2. wasxd_appeditionmgr_base.tar – Application server

Application Server Node

1. Stop all WebSphere servers including the nodeagent
2. Copy file wasxd_appeditionmgr_base.tar to the \$WAS_HOME directory



3. Issue command

```
tar -xvf wasxd_appeditionmgr_base.tar
```

This will extract and copy the files to the following directories

 - admin-jmx-scr-runtime.jar -- \$WAS_HOME/classes
 - wjmxapp.jar -- \$WAS_HOME/classes
4. Remove file wasxd_appeditionmgr_base.tar
5. Start the nodeagent by issuing command

```
$WAS_HOME/bin/startServer.sh nodeagent
```

Deployment Manager Node

1. Stop all WebSphere processes including the Deployment Manager
2. Copy file wasxd_appeditionmgr_nd.tar to the \$WAS_HOME directory
3. Issue command

```
tar -xvf wasxd_appeditionmgr_nd.tar
```

This will extract and copy the files to the following directories

 - appedition.war -- \$WAS_HOME
 - appEditionDeploy.jar -- \$WAS_HOME/classes
 - admin-jmx-scr-runtime.jar -- \$WAS_HOME/classes
 - wjmxapp.jar -- \$WAS_HOME/classes
 - xdappmgmt.jar -- \$WAS_HOME/lib/ext
 - xdappmgmtmbean.jar -- \$WAS_HOME/classes
4. Issue command

```
$WAS_HOME/bin/PluginProcessor.sh -install -moduleExtension  
$WAS_HOME/appedition.war
```

This will install the Application Edition Manager plugin extension to the Administrative Console.
5. Remove file wasxd_appeditionmgr_nd.tar
6. Start the Deployment Manager by issuing command

```
$WAS_HOME/bin/startManager.sh
```
7. Goto to Steps **Define and Configure the Application Edition Manager MBean in Appendix B**



Appendix B – Application Edition Manager MBean

The Application Edition Manager for WebSphere Extended Edition includes an MBean to provide a scripting API. The code for this function is installed with the rest of the tech preview, but requires additional configuration to enable. If you choose to enable this function, you will need to both define the MBean to the WebSphere and configure it to automatically start. Please refer to the next two sections for instructions on how to perform these tasks.

Define the Application Edition Manager MBean

The following steps show how to define the Application Edition Manager MBean as a WebSphere Extension MBean.

1. Start the administrative console
2. Select System Administration-> Deployment Manager

Environment

System Administration

[Cell](#)

[Deployment Manager](#)

[Nodes](#)

[Node Agents](#)

[Console Users](#)

[Console Groups](#)

[Node Groups](#)

[Health Controller](#)

3. Select Administration Services from Additional Properties panel

Additional Properties	
ORB Service	Specify settings for the Object Request Broker Service.
Administration Services	Specify various settings for administration facility for this server, such as administrative communication protocol settings and timeouts.
Diagnostic Trace Service	View and modify the properties of the diagnostic trace service.
Logging and Tracing	Specify Logging and Trace settings for this server.
Custom Services	Define custom service classes that will run within this server and their configuration properties.
Process Definition	A process definition defines the command line information necessary to start/initialize a process.

4. Select Extension MBean Providers from Additional Properties panel



Additional Properties	
JMX Connectors	Connectors provide a communication channel between WebSphere managed processes based on a specific communications protocol.
Extension MBean Providers	A list of the libraries that contain elements that support the ExtensionMBean mechanism for extending the admin service with additional JMX MBeans.
Repository Service	The configuration data used by the implementation of the repository service.
Custom Properties	Additional custom properties for this service which may be configurable.

5. Select New
Enter the following information
For the classpath – enter \$WAS_HOME/classes/xdappmgtmbean.jar

[dmgr](#) > [Administration Services](#) > [Extension MBean Providers](#) >

New

A library containing an implementation of a JMX MBean, and its MBean XML Descriptor file, to be used to extend the existing WebSphere managed resources in the core administrative system.

Configuration

General Properties

Classpath	<input type="text" value="d:/websphere/deploymentmanager/classes/xdappmgtmbean.jar"/>	The classpath within the provider library where the MBean Descriptor can be located. The classloader needs this information to load and parse the Extension MBean XML Descriptor file.
Description	<input type="text" value="Application Edition Manager Mbean lib"/>	Arbitrary descriptive text for the Extension MBean Provider configuration. Use this field for any text that helps identify/differentiate the provider configuration.
Name	<input type="text" value="* ApplicationEditionManagerMBean"/>	A name to be used to identify the Extension MBean provider library.

6. Select OK



[dmgr](#) > [Administration Services](#) >

Extension MBean Providers

A library containing an implementation of a JMX MBean, and its MBean XML Descriptor file, to be used to extend the existing WebSphere managed resources in the core administrative system. [i](#)

Total: 1

Filter

Preferences

<input type="checkbox"/>	Name ▾	Description ▾	Classpath ▾
<input type="checkbox"/>	ApplicationEditionManagerMBean	Application Edition Manager Mbean library	d:\websphere\deploymentmanager\classes\xdappmgmtmbean.jar

7. Select the new added MBean Provider

[dmgr](#) > [Administration Services](#) > [Extension MBean Providers](#) >

Application Edition Manager Mbean library

A library containing an implementation of a JMX MBean, and its MBean XML Descriptor file, to be used to extend the existing WebSphere managed resources in the core administrative system. [i](#)

Configuration

General Properties

Classpath	<input type="text" value="d:\websphere\deploymentmanager\classes\xdappmgmtmbean.jar"/>	i The classpath within the provider library where the MBean Descriptor can be located. The classloader needs this information to load and parse the Extension MBean XML Descriptor file.
Description	<input type="text" value="Application Edition Manager Mbean lib"/>	i Arbitrary descriptive text for the Extension MBean Provider configuration. Use this field for any text that helps identify/differentiate the provider configuration.
Name	<input type="text" value="*ApplicationEditionManagerMBean"/>	i A name to be used to identify the Extension MBean provider library.

Additional Properties

extensionMBeans	MBean definitions which are not included with the base WebSphere product.
---------------------------------	---

8. Select extensionMBeans

9. Select New



10. Enter the information as shown in the panel below



Identifies where the metadata for the MBean is located. 

Configuration

General Properties

descriptorURI	* AppEditionManagerMBean.xml	 The location of the MBean's descriptor
type	* AppEditionManager	 The type of the MBean.

Apply OK Reset Cancel

11. Click OK
12. Click Save

Configure the Application Edition Manager MBean to Automatically Start

WebSphere does not automatically start (or activate) extension Mbeans. Extension MBean providers are responsible for activating their MBeans. A typical way this is done is through use of a custom service. A custom service has a well-defined initialization point, which provides a good point of control from which to activate extension Mbeans. This is the mechanism used to activate the Application Edition Manager MBean. The following steps show how to define this custom service.

1. Select System Administrator --> Deployment Manager
2. Select Custom Services from the Additional Properties panel

Additional Properties	
ORB Service	Specify settings for the Object Request Broker Service.
Administration Services	Specify various settings for administration facility for this server, such as administrative communication protocol settings and timeouts.
Diagnostic Trace Service	View and modify the properties of the diagnostic trace service.
Logging and Tracing	Specify Logging and Trace settings for this server.
Custom Services	Define custom service classes that will run within this server and their configuration properties.
Process Definition	A process definition defines the command line information necessary to start/initialize a process.
End Points	Specifies a communication endpoint used by services or runtime components running within a process.
HTTP transports	Configure the HTTP transports associated with this webcontainer

3. Select New
Specify the classname as com.ibm.ws.caappdeploy.mbean.AppEditionManagerMBean
Specify the classpath as \$WAS_HOME/classes/xdappmgmtmbean.jar



Configuration

General Properties

Startup	<input checked="" type="checkbox"/>	<i>i</i> Specifies whether the server will attempt to start the specified service when the server starts.
External Configuration URL	<input type="text"/>	<i>i</i> Specifies the URL for a custom service configuration file.
Classname	* <input type="text" value="oy.mbean.AppEditionManagerMBean"/>	<i>i</i> Specifies the class name of the service implementation. This class must implement the Custom Service interface.
Display Name	* <input type="text" value="AppEditionManagerMBean"/>	<i>i</i> Specifies the name of the service.
Description	<input type="text" value="AppEditionManagerMBean library"/>	<i>i</i> Describes the custom service.
Classpath	* <input type="text" value="anager/classes/xdappmgmtmbean.jar"/>	<i>i</i> Specifies the class path used to locate the classes and jars for this service.

Apply OK Reset Cancel

4. Click OK

Total: 1

Filter

Preferences

New Delete

<input type="checkbox"/>	External Configuration URL	Classname	Display Name	Startup
<input type="checkbox"/>	-	com.ibm.ws.caappdeploy.mbean.AppEditionManagerMBean	AppEditionManagerMBean	true

5. Save the changes
6. Restart the Deployment Manager

Usage Examples and Command Syntax for use under wsadmin

1. To get a handle to the MBean instance, issue command
set ca [\$AdminControl queryNames *:*,type=AppEditionManager]
2. To get help on the functions supported by the MBean, issue command
\$Help all \$ca



```
C:\> Command Prompt - wsadmin
wsadmin>$Help all $ca
Name: WebSphere:cell=xddmgrNetwork,name=AppEditionManagerMBean,mbeanIdentifier=c
ells/xddmgrNetwork/nodes/xddmgrManager/servers/dmgr/server.xml#CustomService_110
0029401797,type=AppEditionManager,node=xddmgrManager,process=dmgr
Description: null
Class name: javax.management.modelmbean.RequiredModelMBean

Attribute                                     Type                                     Access
Operation
boolean setDefaultEdition(java.lang.String, java.lang.String)
boolean activateEdition(java.lang.String, java.lang.String, java.lang.String)
boolean removeEdition(java.lang.String, java.lang.String, java.lang.String)
boolean deployEditionOnServer(java.lang.String, java.lang.String, java.lang.Stri
ng, java.lang.String)
boolean deployEditionOnCluster(java.lang.String, java.lang.String, java.lang.Str
ing)

Notifications
jmx.attribute.changed

Constructors
wsadmin>
```

3. Command setDefaultEdition – Sets an edition to be the default edition.

Syntax: \$AdminControl invoke setDefaultEdition {<appName> <edition_string>} where <appName> is the name of the application, and <edition_string> is the edition number. Use "" for the base edition.

To set edition 1.0 of application BeenThere as the default edition, issue command
e.g. \$AdminControl invoke \$ca setDefaultEdition {BeenThere 1.0} /*for edition 1.0 as default

To set the base edition of application BeenThere as the default edition, issue command
\$AdminControl invoke \$ca setDefaultEdition {BeenThere ""} /* for the base edition as default

4. Command removeEdition – Removes an edition from a server (Same as deactivating an edition)

Syntax: \$AdminControl invoke removeEdition {<appName> <edition_string> <server_name>} where <appName> is the name of the application, <edition_string> is the edition number, and <server_name> is the well define name of the server. Use "" for the base edition.

To remove an edition from a specific server, BTDC_xdwas7, issue command
\$AdminControl invoke \$ca removeEdition {BeenThere ""
WebSphere:cell=xdwas5Network,node=xdwas7,server=BTDC_xdwas7}

5. Command activateEdition – Activates an edition on a server.

Syntax: \$AdminControl invoke activateEdition {<appName> <edition_string> <server_name>} where <appName> is the name of the application, <edition_string> is the edition number, and <server_name> is the well define name of the server.. Use "" for the base edition.

To activate an edition on a specific target server, issue command
\$AdminControl invoke \$ca activateEdition {BeenThere "1.0"
WebSphere:cell=xdwas5Network,node=xdwas7,server=BTDC_xdwas7}



6. **Command `deployEditionOnServer` – Deploys (rolls out) an edition to a specific server.**

Syntax: `$AdminControl invoke deployEditionOnServer {<appName> <edition_string> <cluster_name> <server_name>}` where `<appName>` is the name of the application, `<edition_string>` is the edition number, `<cluster_name>` is the name of the cluster, and `<server_name>` is the well define name of the server. Use "" for the base edition.

To deploy an edition on a specific target server, issue command
`$AdminControl invoke $ca deployEditionOnServer {BeenThere "" BTDC BTDC_xdwas7}`

7. **Command `deployEditionOnCluster` – Deploys an edition to a cluster.**

Syntax: `$AdminControl invoke deployEditionOnCluster {<appName> <edition_string> <cluster_name> }` where `<appName>` is the name of the application, `<edition_string>` is the edition number, and `<cluster_name>` is the name of the cluster. Use "" for the base edition.

To deploy, an edition to a specific cluster, issue command
`$AdminControl invoke $ca deployEditionOnCluster {BeenThere "" BTDC}`

Removing the Application Edition Manager MBean configuration

The following steps show how to remove the definition of the Application Edition Manager MBean as a WebSphere Extension MBean.

1. Start the administrative console
2. Select System Administration-> Deployment Manager

- Environment
- System Administration
 - [Cell](#)
 - [Deployment Manager](#)
 - [Nodes](#)
 - [Node Agents](#)
 - [Console Users](#)
 - [Console Groups](#)
 - [Node Groups](#)
 - [Health Controller](#)

3. Select Administration Services from Additional Properties panel

Additional Properties	
ORB Service	Specify settings for the Object Request Broker Service.
Administration Services	Specify various settings for administration facility for this server, such as administrative communication protocol settings and timeouts.
Diagnostic Trace Service	View and modify the properties of the diagnostic trace service.
Logging and Tracing	Specify Logging and Trace settings for this server.
Custom Services	Define custom service classes that will run within this server and their configuration properties.
Process Definition	A process definition defines the command line information necessary to start/initialize a process.

4. Select Extension MBean Providers from Additional Properties panel



Additional Properties	
JMX Connectors	Connectors provide a communication channel between WebSphere managed processes based on a specific communications protocol.
Extension MBean Providers	A list of the libraries that contain elements that support the ExtensionMBean mechanism for extending the admin service with additional JMX MBeans.
Repository Service	The configuration data used by the implementation of the repository service.
Custom Properties	Additional custom properties for this service which may be configurable.

5. Select ApplicationEditionManagerMBean

[dmgr](#) > [Administration Services](#) >

Extension MBean Providers

A library containing an implementation of a JMX MBean, and its MBean XML Descriptor file, to be used to extend the existing WebSphere managed resources in the core administrative system. [i](#)

Total: 1			
<input type="checkbox"/> Filter			
<input type="checkbox"/> Preferences			
<input type="button" value="New"/> <input type="button" value="Delete"/>			
<input checked="" type="checkbox"/>	Name ▾	Description ▾	Classpath ▾
<input checked="" type="checkbox"/>	ApplicationEditionManagerMBean	Application Edition Manager MBean library	d:\websphere\deploymentmanager\classes\cdappmgmtmbean.jar

6. Select Delete

The following steps show how to remove the automatic startup of the Application Edition Manager MBean

7. Select System Administrator --> Deployment Manager
8. Select Custom Services from the Additional Properties panel

Additional Properties	
ORB Service	Specify settings for the Object Request Broker Service.
Administration Services	Specify various settings for administration facility for this server, such as administrative communication protocol settings and timeouts.
Diagnostic Trace Service	View and modify the properties of the diagnostic trace service.
Logging and Tracing	Specify Logging and Trace settings for this server.
Custom Services	Define custom service classes that will run within this server and their configuration properties.
Process Definition	A process definition defines the command line information necessary to start/initialize a process.
End Points	Specifies a communication endpoint used by services or runtime components running within a process.
HTTP transports	Configure the HTTP transports associated with this webcontainer

9. Select com.ibm.ws.caappdeploy.mbean.AppEditionManagerMBean



[dmgr](#) >

Custom Services

Provides an extension point for configuration data for plug-in services. Allows customers to add in custom code which will be executed during process initialization. [i](#)

Total: 1

Filter

Preferences

<input checked="" type="checkbox"/>	External Configuration URL <input type="button" value="v"/>	Classname <input type="button" value="v"/>	Display Name <input type="button" value="v"/>	Startup <input type="button" value="v"/>
<input checked="" type="checkbox"/>	-	com.ibm.ws.caappdeploy.mbean.AppEditionManagerMBean	AppEditionManagerMBean	true

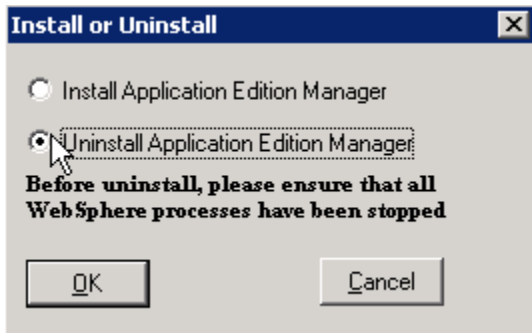
10. Select Delete.

Appendix C - Uninstall

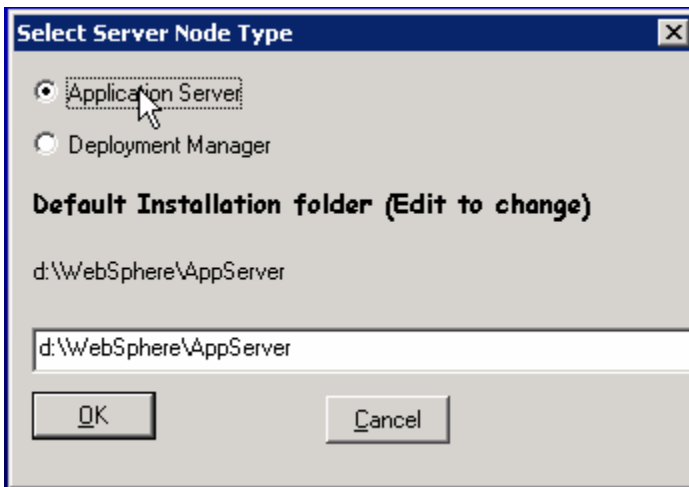
Windows

Application Server Node

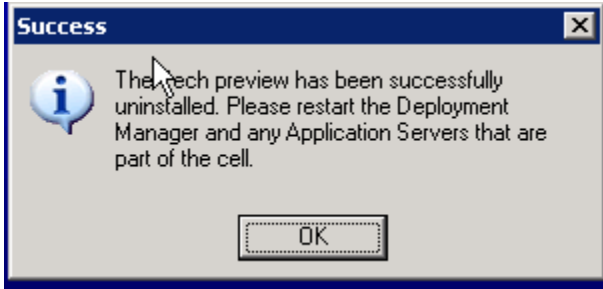
1. Launch setup.exe.



2. Select Uninstall Application Edition Manager. Select OK

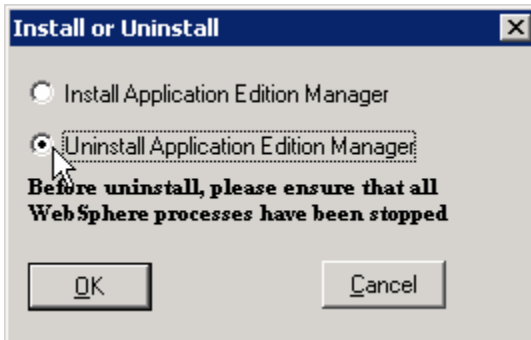


3. Select the Application Server, and ensure that the Default Installation folder is correct. If necessary, make any changes to the installation path.
4. After the files have been removed, the following dialog is displayed:

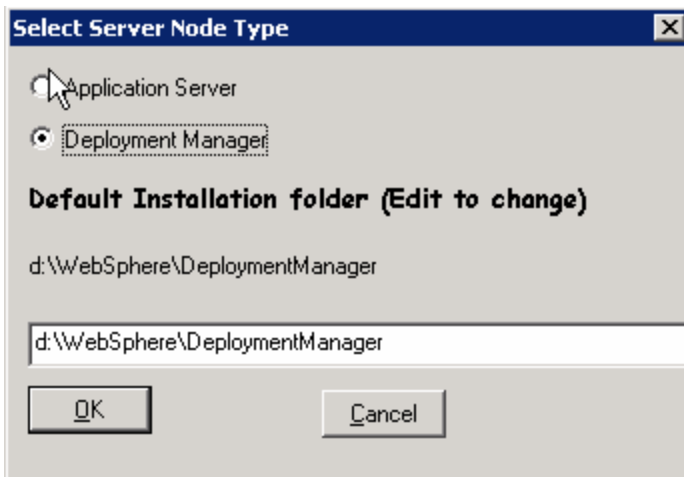


Deployment Manager Node

1. Launch setup.exe



2. Select Uninstall Application Edition Manager. Select OK.

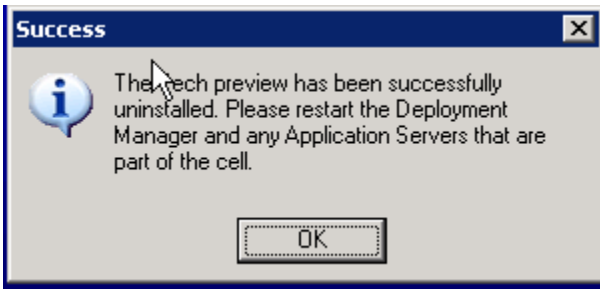


3. Select Deployment Manager, and ensure that the Default Installation folder is correct. Select OK.
4. The setup.exe launches the PluginProcessor to remove the extension from the Administrative console:



```
C:\WINDOWS\System32\cmd.exe
PLPR00021: com.ibm.ws.console.environment is currently installed
PLPR00021: com.ibm.ws.console.events is currently installed
PLPR00021: com.ibm.ws.console.guidedactivity is currently installed
PLPR00021: com.ibm.ws.console.healthconfig is currently installed
PLPR00021: com.ibm.ws.console.hmm is currently installed
PLPR00021: com.ibm.ws.console.nodegroups is currently installed
PLPR00021: com.ibm.ws.console.perftuningadmin is currently installed
PLPR00021: com.ibm.ws.console.policyconfiguration is currently installed
PLPR00021: com.ibm.ws.console.probdetermination is currently installed
PLPR00021: com.ibm.ws.console.proxy is currently installed
PLPR00021: com.ibm.ws.console.resources is currently installed
PLPR00021: com.ibm.ws.console.runtimemap is currently installed
PLPR00021: com.ibm.ws.console.security is currently installed
PLPR00021: com.ibm.ws.console.servermanagement is currently installed
PLPR00021: com.ibm.ws.console.taskconfig is currently installed
PLPR00021: com.ibm.ws.console.taskmanagement is currently installed
PLPR00021: com.ibm.ws.console.webservices is currently installed
PLPR00021: com.ibm.ws.console.wssecurity is currently installed
PLPR00021: com.ibm.ws.console.xdruntime is currently installed
PLPR00031: Opening Console Enterprise Application - C:\WebSphere\U5R1\XDDmgr\wst
emp\PluginProcessor\adminconsole.ear
PLPR00101: Uninstalling plugin id Plugin id [com.ibm.ws.console.appmanagement.ap
pedition] name [appedition] contextRoot [appedition] embedded [true]
PLPR00131: Saving Console Enterprise Application
```

5. At completion, you will see the following dialog:



Linux

Application Server Node

1. Stop all WebSphere servers including the nodeagent
2. Remove file \$WAS_HOME/classes/admin-jmx-scr-runtime.jar
3. Remove file \$WAS_HOME/classes/wjmxapp.jar

Deployment Manager Node

1. If the Application Edition Manager MBean has been configured then remove the configuration before proceeding. (**See removing the Application Edition Manager MBean configuration**)
2. Stop all WebSphere processes including the Deployment Manager
3. Remove file \$WAS_HOME/classes/appEditionDeploy.jar
4. Issue command
`$WAS_HOME/bin/PluginProcessor.sh -uninstall -pluginId com.ibm.ws.console.appmanagement.appedition`



This command will remove the Application Edition Manager plugin extension from the Administrative Console.

5. Remove file \$WAS_HOME/appedition.war
6. Remove file \$WAS_HOME/classes/admin-jmx-scr-runtime.jar
7. Remove file \$WAS_HOME/classes/wjmxapp.jar
8. Remove file \$WAS_HOME/lib/ext/xdappmgmt.jar
9. Remove file \$WAS_HOME/classes/xdappmgmtmbean.jar



Appendix D – Application Rollout Algorithm

The purpose of this appendix is to disclose the essential behavioral characteristics of the application rollout algorithm to better help you understand the operational implications on your WebSphere Extended Deployment environment.

The installation and distribution of an application edition is separate from activating it. It is activated by 'deploying' it to one or more servers in a server cluster. Deployment involves the following:

For each server, the designated edition is activated as follows:

1. The node on which the server resides is placed in maintenance mode.

This is important for two reasons:

- a. The Placement Manager will not select this node as a candidate on which to start a new server. This matters because we are in the middle of swapping one edition for another on this node and an uncoordinated server start might pick up the wrong edition.
- b. The Health Monitor will not attempt to restart the server while the Application Manager is orchestrating an edition swap. This is important, since the Edition Manager will stop and restart the server. Unpredictable results could occur if the Health Monitor was also attempting to restart to the server.

2. Work to the server is quiesced.

This is necessary and important so that no in-flight requests are prematurely terminated. The quiesce is managed in conjunction with the On-demand Router, which is aware of all HTTP/S requests sent to the server.

3. The server is stopped.

This is done to unload the application and any DLLs to which it might have active binds.

4. The server configuration is changed.

Certain state data in the configuration are synchronized to the node, such as the current edition indicator.

5. The server is restarted.

Upon restart, the server comes up with a clean JVM and activates the new edition.

6. The node is returned to normal mode.

The node is now eligible to resume performing work.