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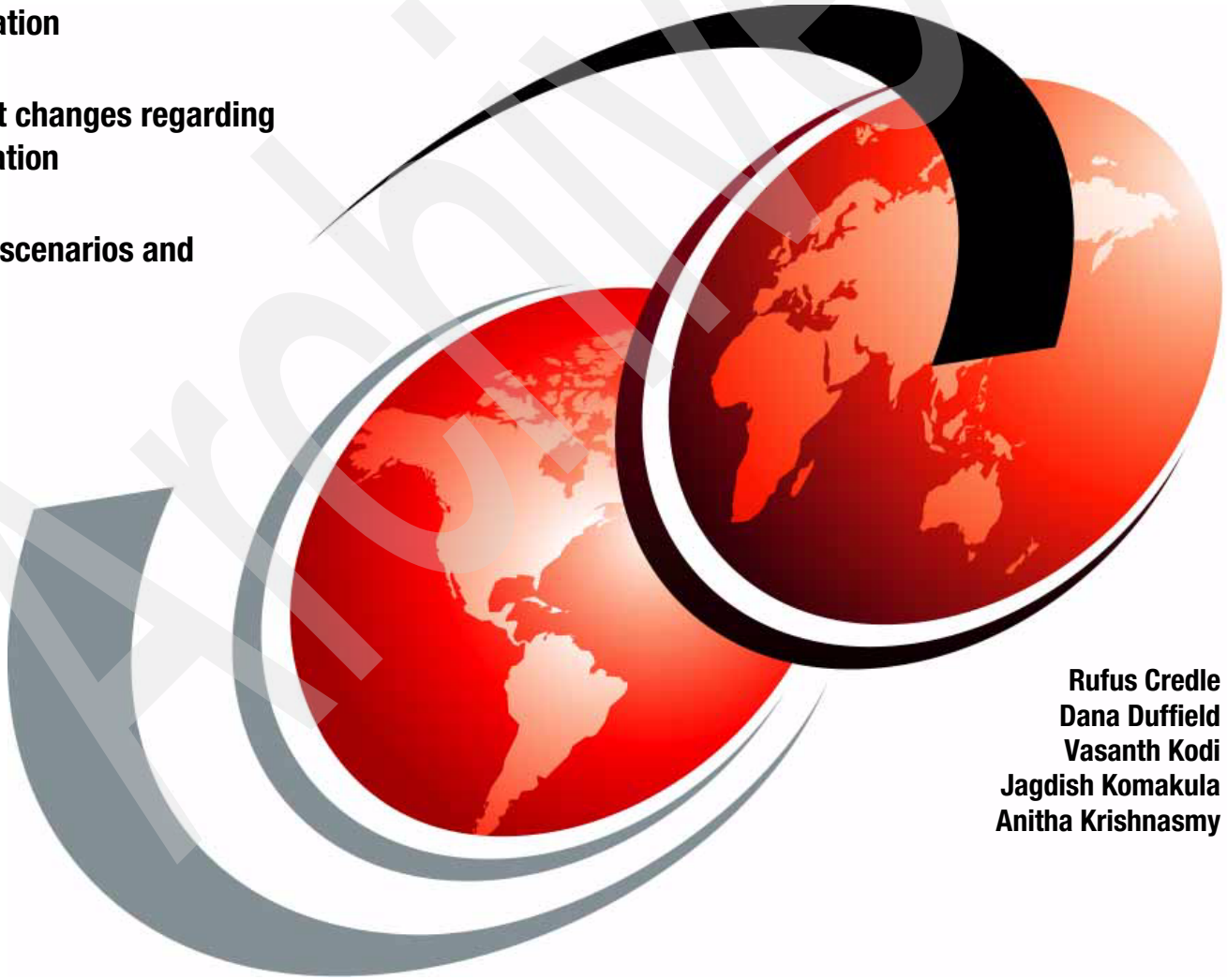
WebSphere Application Server V7 Migration Guide

- Resources for planning and performing V7.0 migration
- Significant changes regarding V7.0 migration
- Migration scenarios and examples



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WebSphere Application Server V7 Migration Guide

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Note: Before using this information and the product it supports, read the information in “Notices” on page vii.

First Edition (May 2010)

This edition applies to WebSphere Application Server V6.1 and V7.0

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Preface

This IBM® Redpaper™ publication positions WebSphere® Application Server Version 7.0 in today's marketplace and discusses the most common migration methods taking WebSphere Application Server from a V5.1 and V6.x environment to V7.0.

This paper helps you to understand the significant changes with respect to migrating to WebSphere Application Server on V7.0.

This paper provides several business scenarios that can be implemented through simple customizations. Each scenario addresses a unique requirement that can be mapped with similar business scenarios, as in the following examples:

- Migrate portions of a configuration from an existing WebSphere Application Server V5.1.x, V6.0.x, or V6.1x to V7.0.
- Migrate existing configurations and applications to WebSphere Application Server V7.0 by copy and coexistence.
- Migrate a large network deployment configuration with a large number of applications.

This paper has been developed for an experienced WebSphere Application Server design, development, and software engineering audience.

The team who wrote this paper

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1

Migration changes in IBM WebSphere Application Server V7.0

This chapter discusses the significant changes (with respect to migration) that WebSphere Application Server V7.0 has introduced on the distributed and zOS operating platforms, as compared to WebSphere Application Server V6.1.

1.1 Summary of significant changes in WebSphere Application Server V7.0 compared to V6.1

WebSphere Application Server V7.0 introduces many new features and functional enhancements beyond the features of WebSphere Application Server V6.1. However, only a few of these enhancements affect the process of migration to WebSphere Application Server V7.0. If you are contemplating a migration to WebSphere Application Server V7.0, be aware of the latest changes:

- Automatic migration utilities no longer support WebSphere V5.0 as an originating system version.
- Migrating Web Services and EJB 3.0 Feature Packs.
- Migrating from the WebSphere Connect JDBC driver.
- Restrictions on Mixed Version Cells.
- zOS Migration is supported only through zMMT- zOS Migration Management Tool.

1.1.1 Migrating product configurations

With the addition of a new release, the automatic migration utilities no longer support V5.0 as a release from which you can migrate. Table 1-1 shows the supported releases.

Table 1-1 Supported configuration upgrades

Version 5.1	**Version 6.0**	**Version 6.1**
WebSphere Application Server	WebSphere Application Server	WebSphere Application Server
WebSphere Application Server Express*	WebSphere Application Server Express*	WebSphere Application Server Express*
WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment
WebSphere Business Integration Server Foundation**	WebSphere Business Integration Server Foundation	WebSphere Business Integration Server Foundation
WebSphere Application Server for z/OS®	WebSphere Application Server for z/OS	WebSphere Application Server for z/OS
		WebSphere Application Server Web Services Feature Pack
		WebSphere Application Server EJB 3.0 Feature Pack

* WebSphere Application Server Express is not available on z/OS.
** WebSphere Application Server V7.0 supports the migration of a subset of programming model extensions (PMEs) from WebSphere Business Integration Server Foundation. For more information, read the Information Center article *Programming model extension migration*, available at the following Web page:
http://publib.boulder.ibm.com/infocenter/wasinfo/fep/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/cmig_pme.html

1.1.2 Migrating Web Services and EJB 3.0 Feature Packs

Migration of V6.1 Web Services and EJB 3.0 Feature Pack profile to a WebSphere Application Server V7.0 profile is similar to the migration of a standalone profile. Make sure that you are selecting the correct source profile during the process of migration.

Figure 1-1 shows the general process of migrating V5.1.y, V6.x.y, V6.1 Web Services, and V6.1 EJB profiles to WebSphere Application Server V7.0.

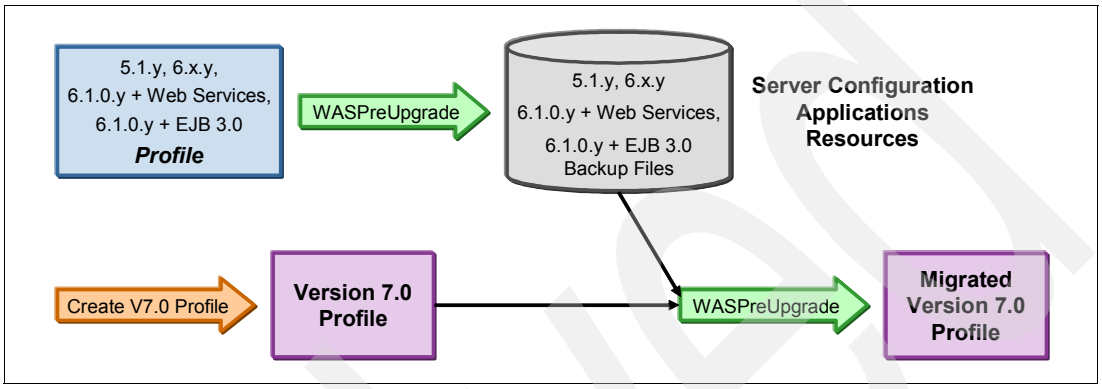

Figure 1-1 WebSphere Application Server V7.0 migration process

Migration of V6.1 Feature Pack profiles on various platforms

This section discusses the migration of WebSphere Application Server V6.1 Feature Pack profiles on the following platforms:

- zOS

  Use the zOS Migration Management Tool, shown in Figure 1-2, to create customized jobs.

Figure 1-2 zOS Migration Management Tool

- iSeries®

  Use the **WASPreUpgrade** and **WASPostUpgrade** commands on the command line.

- Distributed

  Start the Migration Wizard, as shown in Figure 1-3, or the **WASPreUpgrade** and **WASPostUpgrade** commands on the command line.

Figure 1-3 Starting the Migration Wizard that supports Feature Pack migration

1.2 Migrating from the WebSphere Connect JDBC driver

WebSphere Application Server V7.0 does not include the following Java Database Connectivity (JDBC) drivers:

- WebSphere Connect JDBC driver
- Microsoft® SQL Server 2000 Driver for JDBC
- WebSphere SequeLink JDBC driver for Microsoft SQL Server

Instead of these drivers, use the DataDirect Connect JDBC driver or Microsoft SQL Server 2005 JDBC driver.

Use the **WebSphereConnectJDBCDriverConversion** command (Example 1-1 on page 5) to migrate existing data sources from the WebSphere Connect JDBC driver to the DataDirect Connect JDBC driver or the Microsoft SQL Server 2005 JDBC driver.

The **WebSphereConnectJDBCDriverConversion** command processes `resources.xml` files. It has many options that can be specified to indicate which `resources.xml` files to process.

Example 1-1 WebSphereConnectJDBCDriverConversion.bat file

```
WebSphereConnectJDBCDriverConversion.bat
               [-profileName profile_name]
               [-driverType MS | DD]
               [-classPath class_path]
               [-nativePath native_path]
               [-pathSeparator separator]
               [[-cellName ALL | cell_name [-clusterName ALL | cluster_name] |
                  [-applicationName ALL | application_name] |
                  [-nodeName ALL | node_name] [-serverName ALL | server_name]]]
               [-backupConfig true | false]
               [-username userID]
               [-password password]
[[-traceString trace_spec [-traceFile file_name]]
```

For more information, read the Information Center article *Migrating from the WebSphere Connect JDBC driver*, available at the following Web page:

http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/tmig_jdbc.html

1.2.1 Using the WebSphereConnectJDBCDriverConversion command to migrate the data sources

In this example, we see how **WebSphereConnectJDBCDriverConversion** command is used to migrate the fvtSQLServer, fvtSQLServer2 data sources shown in Figure 1-4.

Data sources

Data sources

Use this page to edit the settings of a data source that is associated with your selected JDBC provider. The data source object supplies your application with connections for accessing the database. Learn more about this task in a guided activity. A guided activity provides a list of task steps and more general information about the topic.

Scope: =**All scopes**

Scope specifies the level at which the resource definition is visible. For detailed information on what scope is and how it works, see the scope settings help

All scopes

Preferences

New | Delete | Test connection | Manage state...

Select	Name	JNDI name	Scope	Provider	Description	Category
☐	Default Datasource	DefaultDatasource	Node=lgthp103,Server=server1	Derby JDBC Provider	Datasource for the WebSphere Default Application	
☐	fvtDB2DataSource1	jdbc/MIGR_DS1	Node=lgthp103	FVTDB2Provider	DataSource for fvtDB2DataSource1	
☐	fvtDB2DataSource2	jdbc/MIGR_DS2	Node=lgthp103	FVTDB2Provider	DataSource for fvtDB2DataSource2	
☐	fvtSQLServer	jndiname/SQLServerDataSource	Node=lgthp103	SQLServerProvider	DataSource for fvtSQLServer	
☐	fvtSQLServer2	jndiname/SQLServerDataSource2	Cell=lgthp103	SQLServerProvider2	DataSource for fvtSQLServer2	

Total 5

Figure 1-4 List of data sources on WebSphere Application Server V6.x

The data sources in Figure 1-4 on page 5 are created using the JDBC providers shown in Figure 1-5.

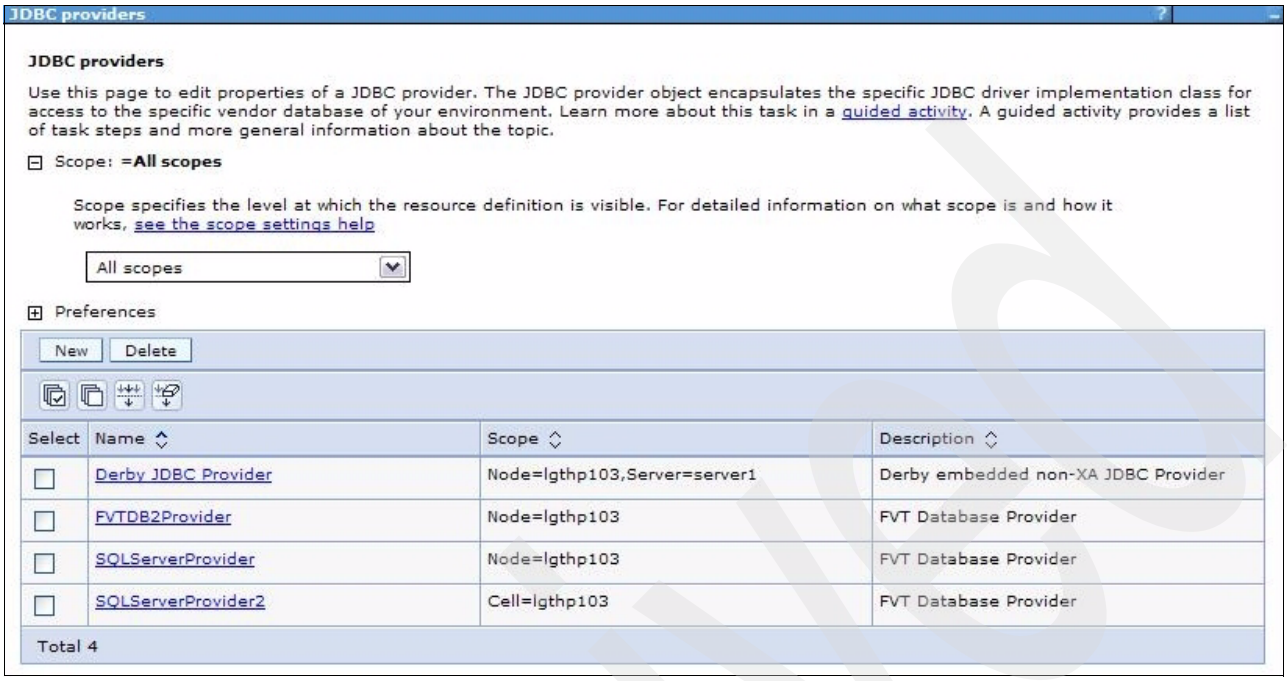

Figure 1-5 WebSphere Connect JDBC drivers on WebSphere Application Server V6.x

If you try to migrate from WebSphere Application Server V6.x to V7.0 with the existing WebSphere Connect JDBC drivers, the WASPostUpgrade Migration tool completes with the warning message shown in Example 1-2.

Example 1-2 WASPostUpgrade Migration Tool warning message

```
IBM WebSphere Application Server, Release 7.0
Product Upgrade PostUpgrade tool, Version 1.0
Copyright IBM Corp., 1997-2008

MIGRO304I: The previous WebSphere environment is being restored.
MIGRO367I: Backing up the current Application Server environment.
MIGRO434I: Will not be migrating object query.ear of type Ear File, it is already
installed.
MIGRO251I: The migration does not include object ivtApp.ear of type Ear File; it
is a Sample.
MIGRO251I: The migration does not include object DefaultApplication.ear of type
Ear File; it is a Sample.
CEIMI0006I Starting the migration of Common Event Infrastructure.
MIGRO455W: WebSphere Connect JDBC driver support has been removed. Data source
fvtSQLServer2 will need to be modified to make use of either Microsoft SQL Server
2005 JDBC Driver or DataDirect Connect JDBC driver.
MIGRO229I: The migration function is updating the attributes of SSLConfig entry
NodeDefaultSSLSettings. This entry is already defined in the existing model.
MIGRO223I: The migration function is adding JAASAuthData entry db2Alias to the
model.
MIGRO223I: The migration function is adding JAASAuthData entry sqlAlias to the
model.
```

```
MIGRO455W: WebSphere Connect JDBC driver support has been removed. Data source
fvtSQLServer will need to be modified to make use of either Microsoft SQL Server
2005 JDBC Driver or DataDirect Connect JDBC driver.
MIGRO486I: The Transports setting in file server.xml is deprecated.
MIGRO486I: The PMIService:initialSpecLevel setting in file server.xml is
deprecated.
CEIMIOOO7I The Common Event Infrastructure migration is complete.
MIGRO307I: The restoration of the previous Application Server environment is
complete.
MIGRO271W: Migration completed successfully, with one or more warnings.
```

Migrating to the DataDirect Connect JDBC driver

Use the **WebSphereConnectJDBCDriverConversion** command to migrate the fvtSQLServer2 WebSphere Connect JDBC driver data source to the DataDirect Connect JDBC Driver as shown in Example 1-3.

Example 1-3 Migrating the fvtSQLServer2 WebSphere Connect JDBC driver data source

```
/WebSphere70/profiles/default/bin/WebSphereConnectJDBCDriverConversion.sh
-driverType DD
-classPath /opt/drivers/sqlserver/370connectJDBC/lib
-cellName lgthp103 -username root -password rootpassword
```

Upon the successful migration of the WebSphere Connect JDBC Driver to the DataDirect Connect JDBC Driver, you should see the output shown in Example 1-4 in the WASDDConversion<timestamp>.log created in the logs folder by default.

Example 1-4 Migration output

```
IBM WebSphere Application Server, Release 7.0
Product Conversion Tool, Version 1.0
Copyright IBM Corp., 1997-2008
MIGRO367I: Backing up the current Application Server environment.
MIGRO472I: Converting WebSphere Connect JDBC Provider "SQLServerProvider2" to
DataDirect Connect JDBC Provider.
MIGRO473I: Converting WebSphere Connect JDBC driver data source "fvtSQLServer2" to
DataDirect Connect JDBC Driver data source.
MIGRO477I: The deployment manager's configuration has been updated. A
synchronization with the effected Managed nodes must occur before using these
updated settings.
MIGRO259I: The migration has successfully completed.
```

Migrating to the Microsoft SQL Server driver

Use the **WebSphereConnectJDBCDriverConversion** command to migrate the WebSphere Connect the **fvtSQLServer** JDBC driver data source to the Microsoft SQL Server JDBC provider as shown in Example 1-5.

Example 1-5 Migrating to the Microsoft SQL Server driver

```
/WebSphere70/profiles/default/bin/WebSphereConnectJDBCDriverConversion.sh
-driverType MS
-classPath /opt/drivers/sqlserver/sqljdbc_1.2/enu/sqljdbc.jar
-nativePath /opt/drivers/sqlserver/sqljdbc_1.2/enu/auth/x86
-nodeName lgthp103Node -username root -password rootpassword
```

Upon the successful migration of the WebSphere Connect JDBC driver to the Microsoft SQL Server driver, you should see the output shown in Example 1-6 in the `WASDDConversion<timestamp>.log` created in the logs folder by default.

Example 1-6 WASDDConversation.log

```
   IBM WebSphere Application Server, Release 7.0
   Product Conversion Tool, Version 1.0
   Copyright IBM Corp., 1997-2008

   MIGRO367I: Backing up the current Application Server environment.
   MIGRO472I: Converting WebSphere Connect JDBC Provider "SQLServerProvider" to
   Microsoft SQL Server JDBC Provider.
   MIGRO468W: Adding properties unique to the Microsoft SQL Server JDBC Driver.
   Review the default values to ensure the desired behavior.
       lastUpdateCount
       lockTimeout
       URL
       xopenStates
       failoverPartner
   MIGRO469W: Removing properties unqiue to the WebSphere Connect JDBC driver.
   These features are no longer available:
   alwaysReportTriggerResults
   codePageOverride
   connectionRetryCount
   connectionRetryDelay
   dataSourceName
   describeParameters
   enableCancelTimeout
   insensitiveResultSetBufferSize
   javaDoubleToString
   loadBalancing
   netAddress
   receiveStringParameterType
   resultsetMetaDataOptions
   snapshotSerializable
   spyAttributes
   useServerSideUpdatableCursors
   XATransactionGroup
   alternateServers

   MIGRO473I: Converting WebSphere Connect JDBC driver data source "fvtSQLServer"
   to Microsoft SQL Server JDBC Driver data source.
   MIGRO471W: Property serverName has been modified or replaced to conform to
   Microsoft SQL Server JDBC Driver requirements.  Validate changes made.
   MIGRO471W: Property enable2Phase has been modified or replaced to conform to
   Microsoft SQL Server JDBC Driver requirements.  Validate changes made.
   MIGRO471W: Property packetSize has been modified or replaced to conform to
   Microsoft SQL Server JDBC Driver requirements.  Validate changes made.
   MIGRO471W: Property programName has been modified or replaced to conform to
   Microsoft SQL Server JDBC Driver requirements.  Validate changes made.
   MIGRO471W: Property WSID has been modified or replaced to conform to Microsoft
   SQL Server JDBC Driver requirements.  Validate changes made.

   MIGRO477I: The deployment manager's configuration has been updated.  A
   synchronization with the effected Managed nodes must occur before using these
   updated settings.
MIGRO271W: Migration completed successfully, with one or more warnings.
```

After the logs are verified to have successful migration messages, you can now view and edit any of the JDBC provider properties from the Administrative Console, as shown in Figure 1-6.

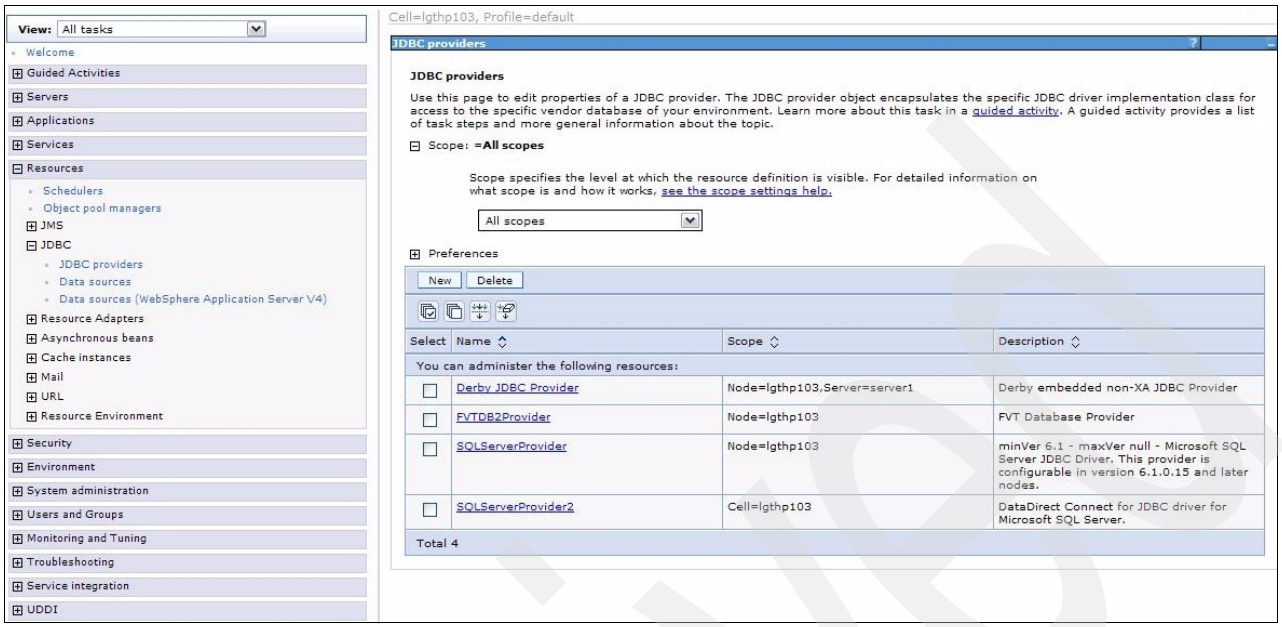

Figure 1-6 Migrated JDBC providers on WebSphere Application Server V7.0

Important Driver and Server Provider Information:

- In WebSphere Application Server V7.0, support for the Derby Network Server Provider using the Universal JDBC driver has been removed. Use the Derby Network Server using Derby Client instead.
- Support for the DB2 CLI-based Type 2 JDBC Driver and the DB2 CLI-based Type 2 JDBC Driver (XA) has been removed.

  Instead, use the DB2 Universal JDBC Driver.

1.2.2 Restrictions on mixed version cells

Table 1-2 shows the remaining restrictions on mixed version cells. See the restrictions in place for V6.1. It is still a restriction that you cannot federate a V5.x node to a WebSphere Application Server V7.0 cell.

Table 1-2 Mixed version restrictions when adding resources

	New resource to add	Supported in V7.0
Adding new nodes	Federate V6.1 node	Yes
	Federate V6.0.2 node	Yes
	Federate V5.x node	No
Adding new servers	Add server to V6.1 node	Yes
	Add server to V6.0.2 node	Yes
	Add server to V5.x node	Yes
Adding new cluster members	Add V5.x server to V5.x-only cluster	Yes
	Add V5.x server to V6.x-only cluster	No
	Add V6.x server to V5.x-only cluster	No
	Add V5.x server to mixed cluster	Yes
	Add V6.x server to mixed cluster	Yes
	Add V6.1 server to mixed cluster	Yes

1.2.3 zOS Migration Management Tool

With WebSphere Application Server V7.0, we are not using the ISPF panels for zOS migration. All configuration and migration customization is done with the workstation-based configuration tools collectively known as the WebSphere Customization Tools (WCT).

For more information, read the Information Center article *Installing WebSphere Customization Tools*, available at the following Web page:

http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.z.620.doc/doc/tins_zos_install_wct.html

For more information about migrating to WebSphere Application Server V7.0 zOS, see the *Migrating to WebSphere Application Server V7.0 zOS* Techdoc at the following Web page:

http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101329

2

Migration planning for WebSphere Application Server Web sites

This chapter consolidates the currently available resources to plan and perform WebSphere Application Server V7.0 migration and provides the reader easy access to the best material available.

2.1 New in WebSphere Application Server V7.0

Before moving to any product or version, it is important to know what is there and what is new in that product or version.

2.1.1 New in WebSphere Application Server V7.0: Information Center

The following Information Center Web page discusses what is new in WebSphere Application Server V7.0:

http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/welc_newinrelease.html

From this Information Center page, we can find separate links for developers, administrators, installers, and security specialists for the information specific for our job.

2.1.2 New in WebSphere Application Server V7.0: Meet the experts

The following developerWorks® Web page posts discussions on new features in WebSphere Application Server V7.0:

http://www.ibm.com/developerworks/websphere/library/chats/0809_was7chat/0809_was7chat.html

2.1.3 New in WebSphere Application Server V7.0: developerWorks

The following developerWorks article explains the new and improved features of WebSphere Application Server V7.0:

http://www.ibm.com/developerworks/websphere/library/techarticles/0809_alcott/0809_alcott.html

2.2 Migration planning guide

The following WebSphere Support Technical Exchange presentation demonstrates how the migration from one version of IBM WebSphere Application Server to another has improved.

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27013190

The presentation contains overall planning guidelines and the information essential to perform migration. It includes the following topics:

- Migration overview
- Migration roadmap
- Improving migration story
- Runtime migration support
- Version specific highlights

2.3 Knowledge collection: Migration planning for WebSphere Application Server

The following Web page is a starting point for migration education:

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27008724

It contains all the information and resources required for the migration between versions of WebSphere Application Server. The page has sections for planning and for the information specific to every version of WebSphere Application Server.

2.4 A quick guide for migrating to WebSphere Application Server V7.0

Migration to WebSphere Application Server V7.0 is possible through the Migration wizard and command line tools. The following Web page explains the step-by-step procedure to perform both of these methods:

http://www.ibm.com/developerworks/websphere/library/techarticles/0812_luchini/0812_luchini.html

This quick guide provides a head start to migrate from IBM WebSphere Application Server V5.1 or V6.x to WebSphere Application Server V7.0.

2.5 Product documentation: Migrating, coexisting, and interoperating

Migrating is the copying of a WebSphere Application Server configuration from a previous release of a product into a new release. *Coexisting* is running a new release of WebSphere Application Server on the same machine at the same time as you run an earlier release, or running two installations of the same release of WebSphere Application Server on the same machine at the same time. *Interoperating* is exchanging data between two systems, such as coexisting product installations. The following Information Center Web page covers all aspects of migration, coexistence, and interoperability:

http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/welc6topmigrating.html

This page has pointers to essential information for migration (such as migrating product configuration, migrating Web server configuration, migrating administrative scripts, and so forth).

2.6 IBM Education Assistant: WebSphere Application Server V7.0 installation and migration

IBM Education Assistant is a collection of multimedia educational modules designed to provide a better understanding of IBM software products. The following IBM Education Assistant Web page discusses installation and migration of WebSphere Application Server V7.0:

http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp?topic=/com.ibm.iea.was_v7/was/7.0/InstallationAndMigration.html

2.7 Support from IBM

Use the following channels to get support and assistance from IBM.

2.7.1 IBM WebSphere Developer Services

IBM WebSphere Developer Services provides developer-to-developer technical assistance to IBM Business Partners while developing applications or building solutions involving IBM WebSphere products. If you require assistance, raise a ticket called a *problem management record* (PMR). A PMR can be raised from the following Web page:

http://www.ibm.com/isv/tech/remoteEmail/entryForm.jsp

2.7.2 Passport Advantage

Passport Advantage® provides support for production issues and product bugs. The following Web page helps you to open PMRs (or a service request) with Passport Advantage:

http://www-01.ibm.com/software/support/probsub.html

The following Web page discusses the Service Request tool for managing problem management records:

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21189715

2.7.3 IBM Software Services for WebSphere

IBM Software Services for WebSphere provides hands-on support and skill-transfer activities to help deploy new WebSphere software solutions. Visit the following Web page to gather more information about IBM Software Services for WebSphere:

http://www3.software.ibm.com/ibmdl/pub/software/dw/wes/pdf/services/DevelopDeployFinal.pdf

2.8 WebSphere education

WebSphere education helps us to build and enhance our WebSphere skills. It has more than 250 courses across the WebSphere Software portfolio and service oriented architecture (SOA). It provides flexible classroom, online, and private courses. The courses are designed by award-winning instructors with first-hand product knowledge.

The role-based training path in WebSphere education assists us by defining a path to acquiring skills for specific WebSphere product offerings. Check out the following Web page to view a list of WebSphere education offerings:

http://www-01.ibm.com/software/websphere/education/

2.9 Migration to WebSphere Application Server for z/OS

WebSphere Application Server for z/OS V7.0 is the latest offering from IBM for the z/OS application server product. IBM is providing a set of utilities to migrate existing configurations to the WebSphere Application Server for z/OS V7.0 level. Migration involves running a utility job against a configuration. That utility copies from the existing configuration file system, transforms and modifies the configuration as required by WebSphere Application Server V7.0, and places the results into a new file system.

2.9.1 Migration planning for WebSphere Application Server for z/OS: Knowledge collection

The following Web page has a consolidated list of resources to plan and perform WebSphere Application Server V7.0 for z/OS migration:

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27010819

2.9.2 WebSphere Application Server V7.0 for z/OS: Information Center

The following Information Center Web page covers all aspects of migration, coexistence, and interoperability of WebSphere Application Server on z/OS:

http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.zseries.doc/info/zseries/ae/welc6topmigrating.html

2.9.3 Migrating to WebSphere Application Server for z/OS V7.0: IBM Techdocs White Paper

The white paper at the following Web page explains how an effective migration is accomplished to WebSphere Application Server for z/OS V7.0 level:

http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/wp101329

The process involves planning the migration, customizing the migration jobs, and submitting the jobs to perform the migration.

2.10 Troubleshooting

This section describes ways to troubleshoot problems while migrating WebSphere Application Server. This information saves time by providing information about the IBM support portal, the IBM Support Assistant tool, and the MustGather information to resolve the migration problem.

MustGather is explained at the following Web page:

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21141284

2.10.1 IBM Support Portal: WebSphere Application Server

The following IBM Support Portal has complete information about known issues and solutions, technotes and fixpacks of WebSphere Application Server:

http://www-947.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere_Application_Server

When facing a problem, check out this site to see if the problem is already documented or to upgrade to the latest fixpack level.

2.10.2 Exchanging information with IBM Technical Support

To have a deeper understanding of the problem and to identify the root cause of the issue, it is important to provide the necessary information to technical support from the problem environment\system. The same way the technical support also provide you the required information towards resolving the issue. The following Web page discusses how to exchange information with IBM Technical Support:

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21153852

2.10.3 MustGather: Migration problems

If you are not able to find the solution for a problem and decide to raise a ticket with IBM Support, start collecting the required data before calling IBM Support. Keeping the information ready before calling IBM Support helps with the troubleshooting process and saves time. The following MustGather link discusses what information is required to diagnose the migration problems:

http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21141284

2.10.4 IBM Support Assistant (ISA) Lite for WebSphere Application Server

Why collect the IBM MustGather files manually when IBM Support Assistant Lite can do it for you? IBM Support Assistant Lite for WebSphere Application Server knows the data files that IBM Support analysts need to identify, diagnose, and recover from occasional operational problems with WebSphere Application Server. By using IBM Support Assistant Lite, you can collect files automatically and package them for sending to IBM support or to use for your own analysis. This tool can be downloaded from the following Web page:

http://www-01.ibm.com/support/docview.wss?rs=3455&uid=swg24020502

Visit the following Web page to gather more information about the IBM Support Assistant:

http://www-01.ibm.com/software/support/isa/

3

Migrating portions of the configuration

This chapter describes a technique to migrate portions of a configuration from an existing WebSphere Application Server V5.1, V6.0.x, or V6.1x to WebSphere Application Server V7.0.

Two components are used to provide this capability:

- Runtime Migration Tools support
- Properties-based configuration

The existing runtime Migration tools support converting configuration from older versions of WebSphere Application Server. It does not provide fine-grained support for just portions of the configuration, however. For DMgr migrations, the complete cell is migrated. For federated and for standalone nodes, the complete node is migrated. These migration tools work for many cases but are too limiting for all customer scenarios. The ability to migrate selected portions of the configuration is important. For example, in many cases there might be a large number of applications on a node. Requiring all applications on that node ready for migration at the same time is not practical and is a project management challenge. A desirable alternative is to migrate individual applications (and all their required resources) selectively.

3.1 Overview

This scenario combines the capabilities of the runtime Migration tools and the new properties-based configuration support provided in WebSphere Application Server V7.0. The idea is to migrate the configuration to an intermediate profile. This profile is not used in any final deployed solution, but is used to extract portions of the configuration to move to a profile that is to be a final deployed solution.

This technique combines the capability of the runtime Migration tools to merge a given configuration from previous WebSphere Application Server versions with the capability of properties-based configuration to extract meaningful portions of configuration that can be imported to another profile.

3.1.1 Runtime migration tools

There are several runtime migration tools that are shipped with WebSphere Application Server. The following migration tools are the most commonly used:

- WASPreUpgrade
- WASPostUpgrade

These tools are used together to merge configuration from an older WebSphere Application Server version (V5.1.x, V6.0.x, or V6.1.x) into an existing WebSphere Application Server V7.0 profile, on all operating systems supported by WebSphere Application Server, except for zOS. For zOS an additional step is required to create zOS jobs that evoke these tools. This paper focuses on describing the non-zOS solution. A zOS solution is slightly different in the initial steps. This is addressed in 3.4, “Conclusion” on page 40.

See “Related publications” on page 77 for links to more information about these tools.

3.1.2 Properties-based configuration

Properties-based configuration was added in WebSphere Application Server V7.0. This enables us to export and import a profile, or portions thereof, on the target WebSphere Application Server image using property files. The vast majority of WebSphere Application Server configuration settings can be exported using this mechanism. However, the configuration of the following components are not exported:

- Business Level Applications (BLA)

  The inability to export these components is irrelevant, as BLAs did not exist prior to WebSphere Application Server V7.0.

- Federated repository configuration

  These objects would have to be created using scripting or the administrative console.

- Security certificates

  If you use the default certificates, this requires no additional work. If you have defined your own certificates, you must recreate them in the new cell.

- Service Integration Bus (SIB)

  SIBs have to be created using scripting or the administrative console.

- Web Services Policy Sets

  Web Services Policy Sets can be exported and imported using scripting commands.

See “Related publications” on page 77 for links to more information for this support.

Important: Changes were made in WebSphere Application Server V7.0.0.9 to make the properties-based configuration generated property files more portable. This makes it easier to move configuration between cells as discussed in the following example scenarios. Use WebSphere Application Server V7.0.0.9 or later for these scenarios. If earlier fix packs are used, errors can result due to conflicting ConfigurationIDs that must be manually fixed in the property files being imported.

3.2 Migration examples using an intermediate profile

This set of examples shows you how to use these tools to migrate to an intermediate profile that is used to extract configuration from for the real profile. This provides flexibility because the real profile can be built the way you want. However, remember that there is a lot of configuration entries to consider. Although this technique gives the most flexibility, it also requires the most effort and thought to build the real profile as you want. The following list details a few examples of these profiles:

- Authorization groups
- Security domains
- Node groups
- Core groups
- Clusters

3.2.1 Migration steps

The steps that to be performed are as follows:

1. Run the runtime migration tool, WASPreUpgrade, on an old WebSphere Application Server profile.
2. Create a profile on the new WebSphere Application Server image. This is a temporary profile.
3. Run the WASPostUpgrade runtime Migration tool targeting the temporary profile. One of the WASPostUpgrade options is to build, but not install, the applications from the old profile into the new profile. This option is used for these scenarios. Another option is used for the Dmgr example.
4. Create a profile on the new WebSphere Application Server, This is to be final profile.
5. Run the properties-based configuration tool to export the properties from the temporary profile. This can be done any number of times, exporting small portions of the configuration each time.
6. Run the properties-based configuration tool to import from the temporary profile the various sets of properties that were exported in step 5.
7. Install the subset of required applications that were created in step 3.

Note: Steps 5 through 7 can be done any number of times.

3.2.2 Migrating a standalone profile using command line tools

This example describes the step-by-step approach to migrate a WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x standalone profile to WebSphere Application Server V7.0 using the command line tools.

1. Install WebSphere Application Server V7.0.

   For more information, read the Information Center article *Installing the product and additional software*, available at the following Web page:

   `http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.installation.nd.doc/info/ae/ae/tins_install.html`

2. Run the **manageprofiles** command with the appropriate parameters to create a temporary standalone profile. This is a temporary profile. See Example 3-1.

Example 3-1 manageprofiles command to create temporary profile

```
C:\IBM\WebSphere70\AppServer\bin\manageprofiles.bat -create -profileName
v61tov7dmgr01 -templatePath
C:\IBM\WebSphere70\AppServer\profileTemplates\default -nodeName
saw017-sys1CellManager01 -cellName saw017-sys1Cell01
```

3. Run the **WASPreUpgrade** command, specifying the migration backup directory name and the existing WebSphere Application Server directory name. The syntax is shown in Example 3-2.

Example 3-2 WASPreUpgrade command to specify migration backup directory

```
WASPreUpgrade.bat backupDirectory
                  currentWebSphereDirectory
                  [-traceString trace_spec [-traceFile file_name ]]
                  [-machineChange true | false]
                  [-oldProfile profile_name]
                  [-workspaceRoot
profile1=user_workspace_folder_name_1;
profile2=user_workspace_folder_name_2]
                     [-requireEmbeddedDBMigration true | false]
```

Only the first two parameters are required, as shown in Example 3-3.

Example 3-3 Parameters for upgrade and backup

```
C:\IBM\WebSphere70\AppServer\profiles\AppSrv01\bin>WASPreUpgrade.bat
C:\IBM\WebSphere70\Backup61Config C:\IBM\WebSphere61\AppServer
IBM WebSphere Application Server. Release 7.0
Product Upgrade PreUpgrade tool, Version 1.0
Copyright IBM Corp./ 1997-2008

MIGR0302I: The existing files are being saved.
MIGR0385I: Starting to save profile AppSrv01.
MIGR0000I: Workspace root folder for profile AppSrv01 - wstemp.
MIGR0303I: The existing Application Server environment is saved.
   MIGR0420I: The first step of migration completed successfully.
```

The **WASPreUpgrade** tool saves selected files from the /bin directory to the backup directory specified in the command line arguments. Migration saves files from the following directories to the backup directory:

- Classes
- Config
- InstallableApps
- InstalledApps (or an alternate directory specified by the user)
- Properties

4. Run the **WASPostUpgrade** command targeting the temporary profile. For example, TempAppSrv, and specifying the migration backup directory `Backupv61Config` we created.

   The syntax for WASPostUpgrade is as shown in Example 3-4.

Example 3-4 WASPostUpgrade command for backup directory

```
WASPostUpgrade backupDirectory
[-profileName profile_name]
[-oldProfile profile_name]
[-backupConfig true | false]
[-username username ]
[-password password ]
[-traceString trace_spec
[-traceFile file_name]]
[-portBlock port_starting_number]
[-replacePorts true | false]
[-includeApps true | false | script]
[-scriptCompatibility true | false]
[-appInstallDirectory user_specified_directory
[-keepAppDirectory true | false]
   [-keepDmgrEnabled true | false]
```

Only the first parameter is required, as shown in Example 3-5.

Example 3-5 Parameter for backup

```
C:\IBM\WebSphere70\AppServer\profiles\TempAppSrv\bin>WASPostUpgrade.bat
   C:\IBM\WebSphere70\Backup61Config
IBM WebSphere Application Server. Release 7.0
   Product Upgrade PostUpgrade tool, Version 1.0
   Copyright IBM Corp., 1997-2008

   MIGRO304I: The previous WebSphere environment is being restored.
MIGRO367I: Backing up the current Application Server environment.
   CEIMI0006I Starting the migration of Common Event Infrastructure.
   MIGRO229I: The migration function is updating the attributes of SSLConfig
   entry NodeDefaultSSLSettings. This entry is already defined in the existing
   model.
   MIGRO223I: The migration function is adding JAASAuthData entry
   saw017-sys1Node01Cell/samples to the model.
   MIGRO486I: The Transports setting in file server.xml is deprecated.
   MIGRO486I: The PMIService:initialSpecLevel setting in file server.xml is
   deprecated.
   CEIMI0007I The Common Event Infrastructure migration is complete.
   MIGRO307I: The restoration of the previous Application Server environment is
   complete.
      MIGRO259I: The migration has successfully completed.
```

The **WASPostUpgrade** tool copies the environment in the backup directory to the WebSphere Application Server V7.0 standalone application server installation.

When there is more than one WebSphere Application Server V7.0 profile, use the -profileName parameter to specify which profile should be updated. This is important when you run this command from the main WebSphere Application Server directory, as opposed to the profile directory. See Example 3-6 on page 22

Example 3-6 Use of the -profileName parameter

```
C:\IBM\WebSphere70\AppServer\bin   versus
C:\IBM\WebSphere70\AppServer\profiles\AppSrv01\bin. If the command is run from
the main WebSphere Application Server directory and the -profileName parameter
is not used, the command will use the default profile, which is not necessarily
the profile whose name is "AppSrv01"
```

The *WASPostUpgrade* command can end with warnings and still be successful, so review the log files to see why there was a warning, and if any additional action is necessary. The final output from the **WASPostUpgrade** command should be either of the following messages:

- `MIGRO259I: The migration has successfully completed.`
- `MIGRO271W: Migration completed successfully, with one or more warnings.`

The **WASPostUpgrade** tool creates a backup of the WebSphere Application Server V7.0 environment prior to making any changes, and attempts to rollback any changes if an error (such as `MIGRO272E: The migration function cannot complete the command.`) occurs.

5. Create another profile, AppSrv01, on WebSphere Application Server V7.0. This is the final deployed solution.
6. Run the properties-based configuration tool to export the properties from the temporary profile.
   a. Start the wsadmin scripting tool using the Jython scripting language.
   b. Extract the application server configuration.

      Use the **extractConfigProperties** command to extract the object configuration, as the Jython example in Example 3-7 demonstrates.

      Example 3-7 ExtractConfigProperties command to extract object configuration

      ```
      AdminTask.extractConfigProperties('-propertiesFileName
      ConfigProperties_server1.props -configData Server=server1')
      ```

      The system extracts the properties file, which contains each of the configuration objects and attributes for the server1 application server.

Example 3-8 shows the generated properties file, which has the header and properties of the server1 application server.

Example 3-8 Property file with the header and properties of an application server

```
#
# Configuration properties file for
cells/saw017-sys1Node03Cell/nodes/saw017-sys1Node03/servers/server1|server.xml#
# Extracted on Thu Mar 04 02:20:08 PST 2010

# Header
# Section 1.0 ## Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}
#

# SubSection 1.0 # Server Section
#
ResourceType=Server
ImplementingResourceType=Server
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}
#
```

```
#Properties
#
shortName=null
serverType=APPLICATION_SERVER #readonly
developmentMode=false #boolean
parallelStartEnabled=true #boolean
name=!{serverName}
clusterName=null
uniqueId=null
modelId=null

#Environment Variables
hostName2=${LOCALHOST_NAME}
hostName1=*
cellName=saw017-sys1Node03Cell
nodeName=saw017-sys1Node03
hostName=saw017-sys1.itso.ral.ibm.com
serverName=server1
```

The properties file header contains the following elements:

– ResourceType

  This indicates the type of resource.

– ResourceId

  This is a name that uniquely identifies the resource or configuration object. This should only be modified when the same properties needs to be applied to another object of same type.

– ImplementingResourceType

  This indicates the class that implements the translation of attributes to properties.

The information in the header is generated automatically, and only ResourceId should ever be modified. This information is present so that the properties file-based configuration tool knows which implementation to invoke and apply properties.

The properties section contains properties of the configuration object identified by the header, in name/value pairs. Each name and value corresponds to an attribute of the configuration object.

The environment variables section contains values for variables used within the properties file. Environment-specific properties, such as cellName, serverName, nodeName, and so forth, are expressed as variables. The current values of those variables are placed at the end of the properties file.

Note: Step 6 on page 22 can be done any number of times, each time exporting small portions of the configuration (such as WebContainer, EJB Container, JDBC Provider, Data Source configuration, and so forth) as shown in Example 3-9 on page 24.

Example 3-9 Property file with the extracted properties of WebContainer

```
#
# SubSection 1.0 # WebContainer Component
#
ResourceType=WebContainer
ImplementingResourceType=WebContainer
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}:ApplicationSe
rver=ID
#ApplicationServer_1183122130078:WebContainer=ID#WebContainer_1183122130078
AttributeInfo=components
#
#Properties
#
enableServletCaching=true #boolean ( Default value false )
name=null
defaultVirtualHostName=null
server=null
maximumPercentageExpiredEntries=15 #integer
asyncIncludeTimeout=60000 #integer
parentComponent=cells/!{cellName}nodes/!{nodeName}servers/!{serverName}|server.
xml
#ApplicationServer_1183122130078 #ObjectName(ApplicationServer),readonly
disablePooling=false #boolean
sessionAffinityFailoverServer=null
maximumResponseStoreSize=50 #integer ( Default value : 100 )
allowAsyncRequestDispatching=false #boolean
sessionAffinityTimeout=0 #integer
```

7. Open the properties file, and manually edit the attribute values of interest.

   In Example 3-10, we try to export only the WebContainer configuration of the intermediate profile to our actual profile. You can also modify key-value pairs if required.

Example 3-10 Modified Property file containing the extracted properties of WebContainer

```
#
# SubSection 1.0 # WebContainer Component
#
ResourceType=WebContainer
ImplementingResourceType=WebContainer
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}:ApplicationSe
rver=ID
#ApplicationServer_1183122130078:WebContainer=ID#WebContainer_1183122130078
AttributeInfo=components
#


#
#Properties
#
enableServletCaching=true #boolean ( Default value false )
name=null
defaultVirtualHostName=null
server=null
maximumPercentageExpiredEntries=15 #integer
asyncIncludeTimeout=60000 #integer
```

```
parentComponent=cells/!{cellName}nodes/!{nodeName}servers/!{serverName}|server.
xml
#ApplicationServer_1183122130078 #ObjectName(ApplicationServer),readonly
disablePooling=false #boolean
sessionAffinityFailoverServer=null
maximumResponseStoreSize=50 #integer ( Default value : 100 )
allowAsyncRequestDispatching=false #boolean
sessionAffinityTimeout=0 #integer
```

8. Once we have the required configuration in the property file, import the following configuration to our desired profile AppSrv01:

   ```
   AdminTask.applyConfigProperties('[-propertiesFileName
   ConfigProperties_server1.props ]')
   ```

   When applying a properties file, validation is performed for the entire properties file by default. However, we can also use the following command to validate a properties file separately:

   ```
   AdminTask.validateConfigProperties('-propertiesFileName
   ConfigProperties_server1.props -reportFileName report.txt
   -reportFilterMechanism Errors_And_Changes')
   ```

9. Repeat step 6 on page 22 through 8 any number of times, exporting and importing small portions of the configuration from the intermediate profile to the actual profile.

With the required configuration imported, we can now install the required applications using the same process, one after the other, validating the migration process simultaneously.

Example: Install an application using properties file

When the properties file in Example 3-11 is applied using the applyConfigProperties command, the application specified in the properties file is installed.

Example 3-11 Property file used to install an application

```
# Header
ResourceType=Application
ImplementingResourceType=Application
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}

# Properties
Name=PlantsByWebSphere
TargetServer=server1
TargetNode=node1
EarFileLocation=C
:\IBM\WebSphere70\AppServer\profiles\AppSrv01\installableApps\plants.ear
```

3.2.3 Migrating a deployment manager profile using command line tools

This section describes how to use the command line tools to partially migrate a deployment manager profile of WebSphere Application Server V5.1x, V6.0.2.x, or V6.1.x to WebSphere Application Server V7.0 using properties-based configuration.

This cell configuration (shown in Figure 3-1) consists of a deployment manager with one or more nodes with applications deployed on a clustered configuration.

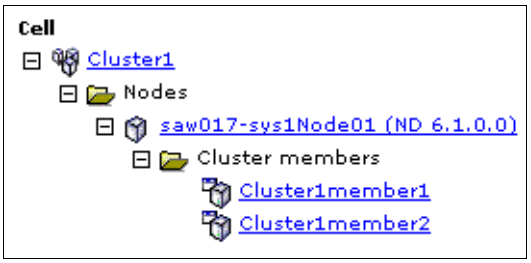

Figure 3-1 Cluster topology on WebSphere Application Server 6.1

The following procedure assumes that the previous configuration is running while the migration is in progress:

1. Run the **backupConfig** command on the deployment manager and all oldnodes:
   a. Change to the <deployment manager profile root>/bin directory.
   b. Run the **backupConfig** command with the appropriate parameters and save the current profile configuration to a file. See Example 3-12.

   Example 3-12 backupConfig command for v61dmgr01

   ```
   C:\IBM\WebSphere61\AppServer\profiles\v61dmgr01\bin\backupConfig.bat
   C:\mybackupdir\v61dmgr01backupBeforeV7migration.zip -username myuser
   -password mypass -nostop
   ```

   c. Change to the <node profile root>/bin directory for each node in the configuration.
   d. Run the **backupConfig** command with the appropriate parameters, and save the current profile configuration to a file. See Example 3-13.

   Example 3-13 backupConfig command for v61node01

   ```
   C:\IBM\WebSphere61\AppServer\profiles\v61node01\bin\backupConfig.bat
   C:\mybackupdir\v61node01rbackupBeforeV7migration.zip -username myuser
   -password mypass -nostop
   ```

2. Install WebSphere Application Server V7.0.

   For more information, read the Information Center article *Installing the product and additional software*, available at the following Web page:

   http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.installation.nd.doc/info/ae/ae/tins_install.html

3. Run the **manageprofiles** command with the appropriate parameters to create a new temporary deployment manager profile as shown in Example 3-14.

Example 3-14 manageprofiles command to create temporary profile

```
C:\IBM\WebSphere70\AppServer\bin\manageprofiles.bat -create -profileName
v61tov7dmgr01 -templatePath
C:\IBM\WebSphere70\AppServer\profileTemplates\management -serverType
DEPLOYMENT_MANAGER -nodeName saw017-sys1CellManager01 -cellName
saw017-sys1Cell01
```

A deployment manager migration has the following restrictions:

– The WebSphere Application Server V7.0 cell name must match the cell name in the WebSphere Application Server V5.1x, V6.0.2.x, or V6.1.x configuration.

  If you create a profile with a new cell name, the migration fails.

– Either one or the other of the following options must be true:

  • The WebSphere Application Server V7.0 deployment manager node name must be the same as the WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x deployment manager node name.

  • The WebSphere Application Server V7.0 deployment manager node name must be different from every node name in the WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x configuration. Otherwise, the migration fails with the message in Example 3-15.

Example 3-15 Failure message

```
MIGR0488E: The deployment manager node name in the new configuration
cannot be the same as a nodeagent node in the old configuration.
```

Remember: These restrictions for a deployment manager migration apply only to the temporary Dmgr profile, not to the actual profile created in step on page 29.

4. Run the **WASPreUpgrade** command to save the current deployment manager configuration information to a migration backup directory. See Example 3-16.

Example 3-16 WASPreUpgrade command to save configuration

```
C:\IBM\WebSphere70\AppServer\bin\WASPreUpgrade.bat C:\mybackup\v61tov7dmgr01
C:\IBM\WebSphere61\AppServer -oldProfile Dmgr01

IBM WebSphere Application Server, Release 7.0
Product Upgrade PreUpgrade tool, Version 1.0
Copyright IBM Corp., 1997-2008

MIGR0300I: The migration function is starting to save the existing Application
Server environment.
MIGR0302I: The existing files are being saved.
MIGR0385I: Starting to save profile Dmgr01.
MIGR0425I: A deployment manager migration is detected.  Before continuing with
the WASPostUpgrade process, run the backupConfig command on your federated
nodes.

MIGR0303I: The existing Application Server environment is saved.
MIGR0420I: The first step of migration completed successfully.
```

5. Verify the console output and the **WASPreUpgrade** logs for success, warnings, or failure.

   Look in the following logs for warnings or errors:

   - C:\mybackup\v61tov7dmgr01\logs\WASPreMigrationSummary.log
   - WASPreUpgrade.< timestamp >.log
   - WASPreUpgrade.trace

6. Run the **WASPostUpgrade** command to restore the saved deployment manager configuration into the WebSphere Application Server V7.0 deployment manager temporary profile that we created at step 3 on page 27. See Example 3-17.

Example 3-17 WASPostUpgrade command to restore configuration

```
C:\IBM\WebSphere70\AppServer\bin\WASPostUpgrade.bat
C:\mybackup\v61tov7dmgr01 -profileName v61tov7dmgr01 -oldProfile Dmgr01
-replacePorts TRUE -keepDmgrEnabled TRUE
IBM WebSphere Application Server, Release 7.0
Product Upgrade PostUpgrade tool, Version 1.0
Copyright IBM Corp., 1997-2008

MIGR0304I: The previous WebSphere environment is being restored.
MIGR0367I: Backing up the current Application Server environment.
MIGR0346I: Object isclite.ear of type Ear File is not migrating; it is an
administrative application.
CEIMI0006I Starting the migration of Common Event Infrastructure.
MIGR0229I: The migration function is updating the attributes of SSLConfig
entryCellDefaultSSLSettings. This entry is already defined in the existing
model.
MIGR0223I: The migration function is adding SSLConfig entry
NodeDefaultSSLSettings to the model.
MIGR0223I: The migration function is adding JAASAuthData entry
saw017-sys1Node01Cell/samples to the model.
MIGR0486I: The Transports setting in file server.xml is deprecated.
MIGR0486I: The PMIService:initialSpecLevel setting in file server.xml is
deprecated.
MIGR0339I: Application IBM Welcome Page v1.1.ear is deploying using the wsadmin
command.
CEIMI0007I The Common Event Infrastructure migration is complete.
MIGR0307I: The restoration of the previous Application Server environment is
complete.
MIGR0259I: The migration has successfully completed.
```

Requirement: Make sure that the -keepDmgrEnabled option is set to **TRUE**. This allows us to use the existing WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x deployment manager even after the migration is completed.

7. Look in the following logs for any warnings or errors:

   - C:\mybackup\v61tov7dmgr01\logs\WASPostMigrationSummary.log
   - WASPostUpgrade.<target profile name>.< timestamp >.log
   - WASPostUpgrade.<target profile name>.trace

   Once the migration has completed successfully, you can see that the WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x federatedNodes coexist with the migrated WebSphere Application Server V7.0 Dmgr profile. This is shown in Figure 3-2 on page 29 and Figure 3-3 on page 29.

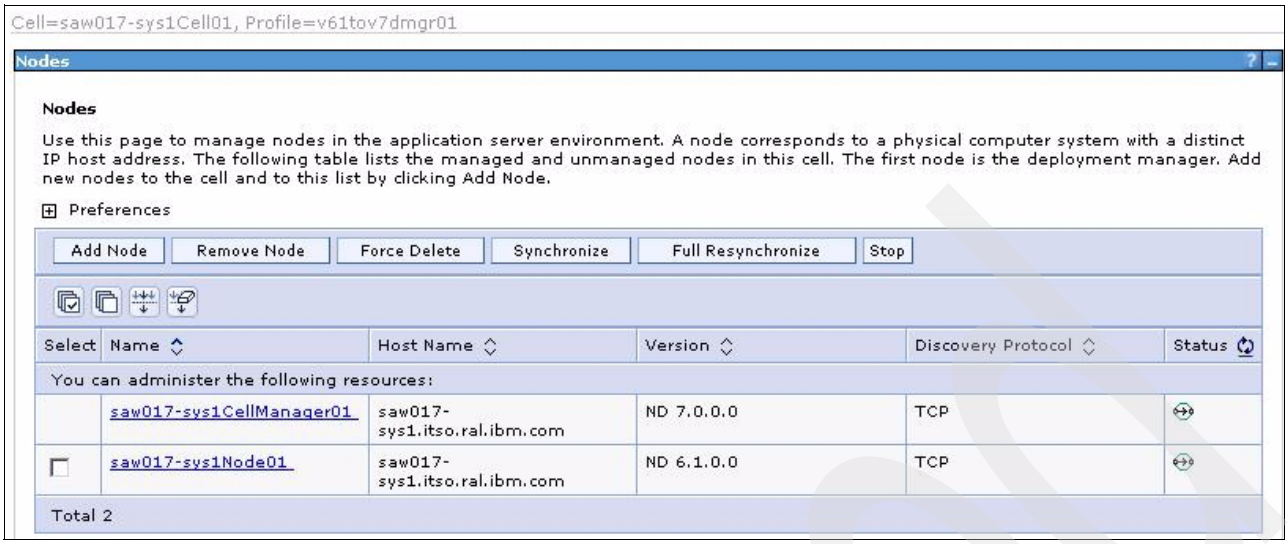

Figure 3-2 WebSphere Application Server V6.x and V7.0 nodes coexist after Dmgr Profile Migration

Figure 3-3 Cluster Topology after Dmgr Profile migration

With the required intermediate deployment manager profile available, we next partially migrate to our actual profile using properties-based configuration.

8. Create another deployment manager profile, on WebSphere Application Server V7.0, which is to be our final deployed solution. The deployment manager profile can be created by the Profile Management Wizard or using the **`manageprofiles`** command.
9. Run the properties-based configuration tool to export the properties from the temporary Dmgr profile.
   a. Start the wsadmin scripting tool using the Jython scripting language.
   b. Extract the application server configuration.

      Use the **`extractConfigProperties`** command to extract the object configuration, as the Jython example in Example 3-18 demonstrates.

Example 3-18 extractConfigProperties command to extract object configuration

```
AdminTask.extractConfigProperties('-propertiesFileName
ConfigProperties_dmgr.props -configData Server=dmgr')
```

The system extracts the properties file, which contains each of the configuration objects and attributes for the server1 application server.

Example 3-19 shows a portion of the generated properties file which has the header and properties of an object.

Example 3-19 Property file with deployment manager profile configuration properties

```
#
# Configuration properties file for
cells/saw017-sys1Cell01/nodes/saw017-sys1CellManager01/servers/dmgr|server.x
ml#
# Extracted on Mon Mar 08 11:44:38 PST 2010

# Section 1.0 ## Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}

# SubSection 1.0 # Server Section
#
ResourceType=Server
ImplementingResourceType=Server
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}

#Properties
#
shortName=null
serverType=DEPLOYMENT_MANAGER #readonly
developmentMode=false #boolean
parallelStartEnabled=true #boolean
name=!{serverName}
clusterName=null
uniqueId=null
modelId=null

# SubSection 1.0.1 # StateManageable Section
#
ResourceType=StateManageable
ImplementingResourceType=Server
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}:StateManag
eable=ID#StateManageable_1
AttributeInfo=stateManagement

#Properties
#
initialState=START #ENUM(STOP|START)
managedObject=!{serverName}
```

10. Open the properties file and manually edit the attribute values of interest.

11. If you want to start the deployment manager in development mode on our actual profile, your properties file should resemble Example 3-20. If required, you can also modify any other key-value pairs.

Example 3-20 Modified property file containing the properties of deployment manager

```
#
# Configuration properties file for
cells/saw017-sys1Cell01/nodes/saw017-sys1CellManager01/servers/dmgr|server.xml#
# Extracted on Mon Mar 08 11:44:38 PST 2010

# Section 1.0 ## Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}

# SubSection 1.0 # Server Section
#
ResourceType=Server
ImplementingResourceType=Server
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}

#Properties
#
shortName=null
serverType=DEPLOYMENT_MANAGER #readonly
developmentMode=true #boolean
parallelStartEnabled=true #boolean
name=!{serverName}
clusterName=null
uniqueId=null
modelId=null

# SubSection 1.0.1 # StateManageable Section
#
ResourceType=StateManageable
ImplementingResourceType=Server
ResourceId=Cell=!{cellName}:Node=!{nodeName}:Server=!{serverName}:StateManageab
le=ID#StateManageable_1
AttributeInfo=stateManagement

#Properties
#
initialState=START #ENUM(STOP|START)
managedObject=!{serverName}
```

12. Once we have the required configuration in the property file, import this configuration to our desired profile Dmgr01. See Example 3-21.

Example 3-21 Apply property file

```
AdminTask.applyConfigProperties('[-propertiesFileName
ConfigProperties_dmgr.props ]')
```

When applying a properties file, validation is performed for the entire properties file by default. However, we can also use the command in Example 3-22 to validate a properties file separately.

Example 3-22 Validate property file

```
AdminTask.validateConfigProperties('-propertiesFileName
ConfigProperties_dmgr.props -reportFileName report.txt -reportFilterMechanism
Errors_And_Changes')
```

13. Repeat step Figure 9 on page 29 through 12 on page 31 any number of times, exporting and importing small portions of the configuration from the intermediate dmgr profile to the actual dmgr profile.

Extracting properties examples

The following list details two more commonly used tasks for extracting properties during Cell migration:

- Extract all the properties of a cluster into a property file and import it into a new profile or reuse it to create backup clusters in the same profile. See Example 3-23.

  Example 3-23 Extract property file

  ```
  AdminTask.extractConfigProperties('-propertiesFileName
  configProperties_dmgr.props -configData ServerCluster=Cluster1')
  ```

- Extract container level properties (such as SIPContainer, PortletContainer, and so forth). See Example 3-24.

  Example 3-24 Extract container level properties

  ```
  AdminTask.extractConfigProperties('[-propertiesFileName Container.props
  -filterMechanism SELECTED_SUBTYPES -selectedSubTypes [SIPContainer
  PortletContainer ] ]')
  ```

3.3 Migrating a deployment manager profile without using an intermediate profile

Migrating a deployment manager profile using an intermediate profile gives you a lot of flexibility. At the same time, it has a lot of configuration entries to consider during the process of migration.

Complex configurations entities (such as Authorization groups, Security domains, Node groups, Core groups, Clusters, and so forth) can be created by migrating the WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x Dmgr profile to a WebSphere Application Server V7.0 Dmgr profile without using an intermediate profile during the migration process.

Later, the WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x nodes federated to this WebSphere Application Server V7.0 Dmgr profile can be replaced with the new WebSphere Application Server V7.0 nodes in smaller iterative migrations using properties-based configuration as in the following procedure.

1. Run the **backupConfig** command on the deployment manager and all oldnodes:
   a. Change to the <deployment manager profile root>/bin directory.
   b. Run the **backupConfig** command with the appropriate parameters and save the current profile configuration to a file. See Example 3-25.

Example 3-25 backupConfig command for v61dmgr01

```
C:\IBM\WebSphere61\AppServer\profiles\v61dmgr01\bin\backupConfig.bat
C:\mybackupdir\v61dmgr01backupBeforeV7migration.zip -username myuser
-password mypass
```

   c. For each node in the configuration, change to the <node profile root >/bin directory.
   d. Run the **backupConfig** command with the appropriate parameters, and save the current profile configuration to a file. See Example 3-26.

Example 3-26 backupConfigcommand for v61node01

```
C:\IBM\WebSphere61\AppServer\profiles\v61node01\bin\backupConfig.bat
C:\mybackupdir\v61node01rbackupBeforeV7migration.zip -username myuser
-password mypass
```

2. Install WebSphere Application Server V7.0.

   For more information, read the Information Center article *Installing the product and additional software*, available at the following Web page:

   http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.installation.nd.doc/info/ae/ae/tins_install.html

3. Run the **manageprofiles** command with the appropriate parameters to create a new deployment manager profile as shown in Example 3-27.

Example 3-27 manageprofiles command to create profile

```
C:\IBM\WebSphere70\AppServer\bin\manageprofiles.bat -create -profileName
v61tov7dmgr01 -templatePath
C:\IBM\WebSphere70\AppServer\profileTemplates\management -serverType
DEPLOYMENT_MANAGER -nodeName saw017-sys1CellManager01 -cellName
saw017-sys1Cell01
```

   Deployment manager migration has the following restrictions:

   – The WebSphere Application Server V7.0 cell name must match the cell name in the WebSphere Application Server V5.1x, V6.0.2.x, or V6.1.x configuration.

     If you create a profile with a new cell name, the migration fails.

   – Either one or the other of the following options must be true:

     • The WebSphere Application Server V7.0 deployment manager node name must be the same as the WebSphere Application Server V5.1x, V6.0.2.x, or V6.1.x deployment manager node name.
     • The WebSphere Application Server V7.0 deployment manager node name must be different from every node name in the WebSphere Application Server V5.1x, V6.0.2.x, or V6.1.x configuration.

       Otherwise, the migration fails with the message shown in Example 3-28.

Example 3-28 Failure message

```
MIGR0488E: The deployment manager node name in the new configuration
cannot be the same as a nodeagent node in the old configuration.
```

4. Run the **WASPreUpgrade** command to save the current deployment manager configuration information to a migration backup directory. See Example 3-29.

Example 3-29 WASPreUpgrade command to save configuration

```
C:\IBM\WebSphere70\AppServer\bin\WASPreUpgrade.bat C:\mybackup\v61tov7dmgr01
C:\IBM\WebSphere61\AppServer -oldProfile Dmgr01

IBM WebSphere Application Server, Release 7.0
Product Upgrade PreUpgrade tool, Version 1.0
Copyright IBM Corp., 1997-2008

MIGRO300I: The migration function is starting to save the existing Application
Server environment.
MIGRO302I: The existing files are being saved.
MIGRO385I: Starting to save profile Dmgr01.
MIGRO425I: A deployment manager migration is detected.  Before continuing with
the WASPostUpgrade process, run the backupConfig command on your federated
nodes.

MIGRO303I: The existing Application Server environment is saved.
MIGRO420I: The first step of migration completed successfully.
```

5. Verify the console output and the WASPreUpgrade logs for success, warnings, or failure.

   Look in the following logs for warnings or errors:

   - C:\mybackup\v61tov7dmgr01\logs\WASPreMigrationSummary.log
   - WASPreUpgrade.< timestamp >.log
   - WASPreUpgrade.trace

6. Run the **WASPostUpgrade** command to restore the saved deployment manager configuration into the WebSphere Application Server V7.0 deployment manager profile created in step 3 on page 33. See Example 3-30.

Example 3-30 WASPostUpgrade command to restore configuration

```
C:\IBM\WebSphere70\AppServer\bin\WASPostUpgrade.bat
C:\mybackup\v61tov7dmgr01 -profileName v61tov7dmgr01 -oldProfile Dmgr01
-replacePorts TRUE
IBM WebSphere Application Server, Release 7.0
Product Upgrade PostUpgrade tool, Version 1.0
Copyright IBM Corp., 1997-2008

MIGRO304I: The previous WebSphere environment is being restored.
MIGRO367I: Backing up the current Application Server environment.
CEIMI0006I Starting the migration of Common Event Infrastructure.
MIGRO229I: The migration function is updating the attributes of SSLConfig
entryCellDefaultSSLSettings. This entry is already defined in the existing
model.
MIGRO223I: The migration function is adding SSLConfig entry
NodeDefaultSSLSettings to the model.
MIGRO223I: The migration function is adding JAASAuthData entry
saw017-sys1Node01Cell/samples to the model.
MIGRO486I: The Transports setting in file server.xml is deprecated.
MIGRO486I: The PMIService:initialSpecLevel setting in file server.xml is
deprecated.
CEIMI0007I The Common Event Infrastructure migration is complete.
MIGRO307I: The restoration of the previous Application Server environment is
complete.
MIGRO259I: The migration has successfully completed.
```

7. Look in the following logs for any warnings or errors:

   - C:\mybackup\v61tov7dmgr01\logs\WASPostMigrationSummary.log
   - WASPostUpgrade.<target profile name>.< timestamp >.log
   - WASPostUpgrade.<target profile name>.trace

   Once the migration has completed successfully, you can see that the WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x federated Nodes coexist with the migrated WebSphere Application Server V7.0 Dmgr profile, as shown in Figure 3-4.

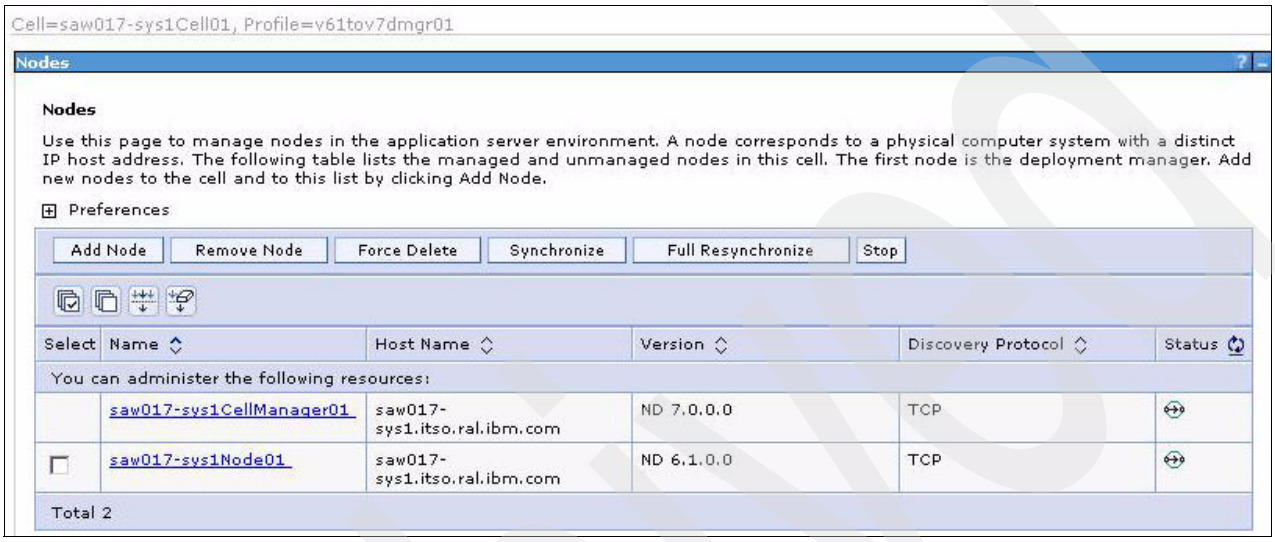

Figure 3-4 V6.1 node coexists with the migrated WebSphere Application Server V7.0 Dmgr node

8. Create one or more Version 7.0 application server nodes to be used to replace the existing WebSphere Application Server V5.1.x, V6.0.2.x, or V6.1.x nodes in smaller iterative migrations using properties-based configuration.
9. Add the WebSphere Application Server V7.0 application server nodes to the deployment manager cell. When you federate the application server node into a deployment manager cell, a node agent is automatically created. The node agent process manages the application server configurations and servers on the node.

   For more information, read the Information Center article *Add managed nodes*, available from the following Web page:

   http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/uagt_rnode_add.html

   Non-default node configurations (such as multiple node groups or security considerations applied to the previous WebSphere Application Server V5.1x, V6.0.2.x, or V6.1 nodes that are not migrated by default) need to be reconfigured for these new nodes as well.

   For more information, read the Information Center article *Migrating, coexisting, and interoperating—Security considerations*, available from the following Web page:

   http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/tsec_migrate.html
10. All the resources that exist on the WebSphere Application Server V5.1x, V6.0.2.x, or V6.1.x nodes must exist on the respective WebSphere Application Server V7.0 nodes. Use properties-based configuration to export and import the desired configuration into the WebSphere Application Server V7.0 nodes, as shown in the following examples.

Initializing resources on the new nodes

In this example, we use the properties-based configuration to export the JDBC Provider Resource Configuration of WebSphere Application Server V6.x Node (see Figure 3-5) and import into the WebSphere Application Server V7.0 Node.

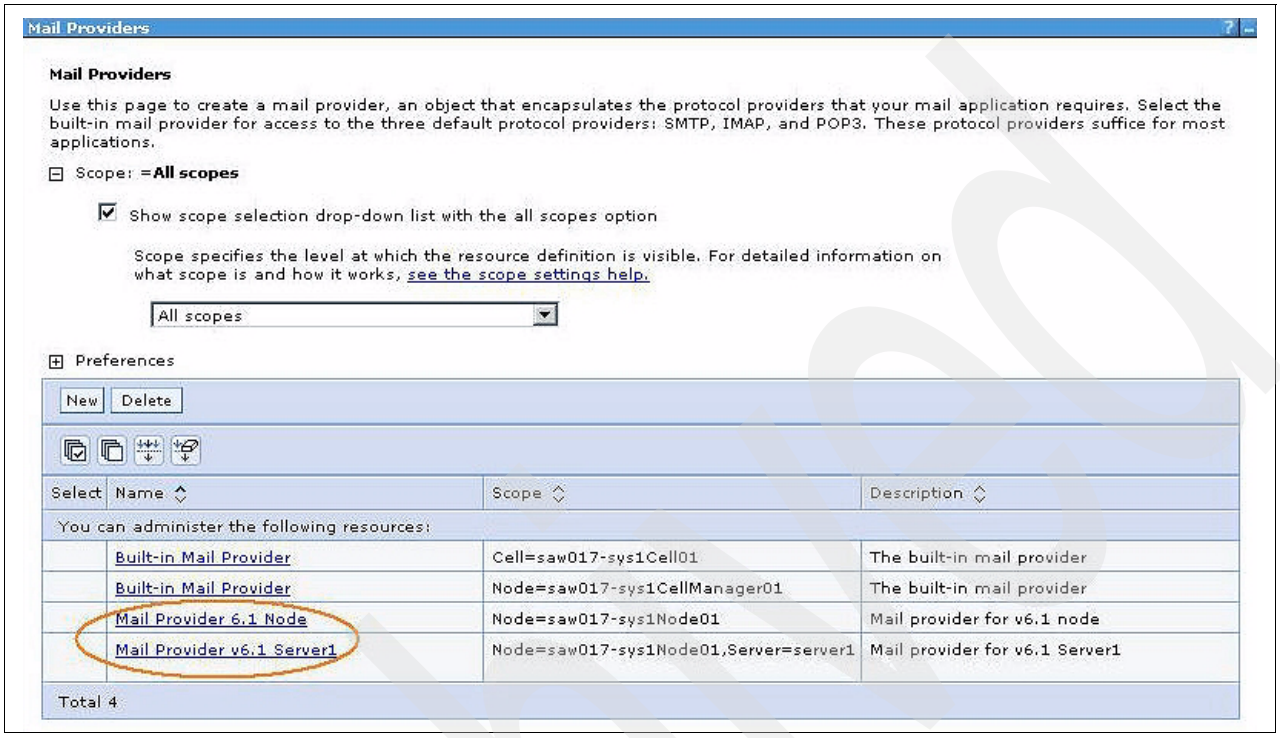

Figure 3-5 JDBC Provider Configuration of V6.1 Node

1. Start the wsadmin scripting tool using the Jython scripting language.
2. Extract the application server configuration.

   Use the **extractConfigProperties** command to extract the object configuration, as the Jython example in Example 3-31 demonstrates:

   Example 3-31 extractConfigProperties command to extract object configuration

```
AdminTask.extractConfigProperties('-propertiesFileName
ConfigProperties_JDBCP.props -configData JDBCProvider=FVTDB2Provider')
```

   The system extracts the properties file, which contains the configuration of the JDBC Provider on V6.1 Node.

   Example 3-32 shows a portion of the generated properties file with the header and properties of each JDBC Provider configuration object.

   Example 3-32 Property file generated for the JDBCProvider resource on V6.1 Node

```
# Configuration properties file for
cells/lgtwin103/nodes/lgthp103|resources.xml#JDBCProvider_1269435574531#
# Extracted on Mon Apr 12 07:02:01 EDT 2010
#
# Section 1.0 ##
Cell=!{cellName}:Node=!{cellName}:JDBCProvider=ID#JDBCProvider_1269435574531
#
# SubSection 1.0 # JDBCProvider attributes
```

```
#
ResourceType=JDBCProvider
ImplementingResourceType=JDBCProvider
ResourceId=Cell=!{cellName}:Node=!{cellName}:JDBCProvider=ID#JDBCProvider_12694
35574531
#
#Properties
#
classpath={C:\lib\drivers\db2jcc/java/db2jcc.jar,C:\lib\drivers\db2jcc\java\db2
jcc_license_cisuz.jar}
implementationClassName=com.ibm.db2.jcc.DB2ConnectionPoolDataSource #required
name=FVTDB2Provider #required
isolatedClassLoader=false #boolean,default(false)
nativepath={}
description=FVT Database Provider
providerType=DB2 Provider #readonly
xa=false #boolean,default(false)
#
```

3. Modify the properties file and change the "nodeName=" to the WebSphere Application Server V7.0 node to which we want to add this configuration, as shown in Example 3-33.

Example 3-33 Portion of the property file modified, to include the node changes

```
#Environment Variables
hostName1=*
cellName=saw017-sys1Cell01
nodeName=saw017-sys1Node02
hostName=saw017-sys1.itso.ral.ibm.com
serverName=server1
```

4. Once we have the required configuration in the property file, import this configuration by running the command in Example 3-34.

Example 3-34 Apply property file

```
AdminTask.applyConfigProperties('[-propertiesFileName
ConfigProperties_JDBCP.props ]')
```

5. When applying a properties file, validation is performed for the entire properties file by default. However, we can also use the command in Example 3-35 to validate a properties file separately.

Example 3-35 Validate property file

```
AdminTask.validateConfigProperties('-propertiesFileName
ConfigProperties_JDBCP.props -reportFileName report.txt -reportFilterMechanism
Errors_And_Changes')
```

6. Repeat these steps any number of times, exporting and importing small portions of the configuration during each iteration.

   You can also extract a larger number of configuration objects with one command instead of one configuration at a time. For example, the command in Example 3-36 extracts all JDBCProviders defined at the node and all the servers owned by that node.

Example 3-36 Extract property file

```
AdminTask.extractConfigProperties('[-propertiesFileName NodeResources.props
-configData Node=saw017-sys1Node01 -filterMechanism SELECTED_SUBTYPES
-selectedSubTypes JDBCProvider]')
```

Exporting and importing server configurations using a template

In this example, we use properties-based configurations to export the server configurations on WebSphere Application Server V6.x Node and import them into the WebSphere Application Server V7.0 Node using a property file template.

1. Generate properties file template.

   Use the command in Example 3-37 to create a properties file template that can later be used to create a new server configuration.

Example 3-37 Create property file

```
wsadmin>AdminTask.createPropertiesFileTemplates('[-propertiesFileName
server.template -configType Server]')
```

   This command creates a template file, a portion of which is shown in Example 3-38.

Example 3-38 Server Configuration Template

```
#
ResourceType=Server
ImplementingResourceType=Server
ResourceId=Server=
SKIP=true
CreateDeleteCommandProperties=true
#
#Properties
#
name=name #String,required
templateLocation=null #javax.management.ObjectName
commandName=createApplicationServer
genUniquePorts=null #Boolean
bitmode=null #String
specificShortName=null #String
clusterName=null #String
targetObject=targetObject #null,required
templateName=null #String
genericShortName=null #String
```

2. Modify the generated template file.

   Modify the generated file to create a new WebSphere Application Server V7.0 application server (myServer1) that belongs to a non-default Core Group (CoreGroup1) on the desired node (targetObject=node_name) and changing SKIP=true to SKIP=false as shown in Example 3-39.

Example 3-39 Modified server configuration template file

```
# Create parameters
# Replace the line `SKIP=true` with 'SKIP=false' under each section that is
needed
# Set necessary parameters under each command or step sections
# Invoke applyConfigProperties command using this properties file.
#
ResourceType=Server
ImplementingResourceType=Server
ResourceId=Server=
SKIP=false
CreateDeleteCommandProperties=true
#
#Properties
#
name=myServer1 #String,required
templateLocation=null #javax.management.ObjectName
commandName=createApplicationServer
genUniquePorts=yes #Boolean
bitmode=null #String
specificShortName=My Application Server1#String
clusterName=null #String
targetObject=saw017-sys1Node01 #null,required
templateName=null #String
genericShortName=null #String
#
# Step parameters
#
ResourceType=Server
ImplementingResourceType=Server
ResourceId=Server=
SKIP=false
CreateDeleteCommandProperties=true
#
#Properties
#
stepName=ConfigCoreGroup
coregroupName=CoreGroup1 #String
```

3. Apply the configuration using the modified template file.

   Use the **applyConfigProperties** command to create a new server definition as per the properties mentioned in the modified template. See Example 3-40.

Example 3-40 applyConfigProperties command to create new server definition

```
wsadmin>AdminTask.applyConfigProperties('[-propertiesFileName server.template
]')
```

Similarly, you can create objects (such as cluster, cluster members, application, authorization group, and so forth) using a template file.

> **Note:** This procedure works for servers that are not members of a cluster. Cluster members can be added either by using the section of the properties file that contains “commandName=createClusterMember”.

At this point, you have a new server defined and you can use the same technique of moving the key resources from the existing server to this new one. Examples include resource definitions defined at the server level and JVM heap settings.

4. Before you exit the wsadmin session, save your configuration changes by executing the command in Example 3-41.

Example 3-41 Admin save command

```
wsadmin>AdminConfig.save()
```

If you do not run this command, wsadmin discards your changes when you exit the session.

For more information about creating objects using a template file, see the following Web page:

http://www.ibm.com/developerworks/websphere/techjournal/0904_chang/0904_chang.html#sec6d

For more information about the PropertiesBasedConfig administrative task commands and options, see the following Web page:

http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.base.doc/info/aes/ae/rxml_7propbasedconfig.html

3.4 Conclusion

With WebSphere Application Server V7.0, we no longer use the ISPF panels for zOS migration. All configuration and migration customization is done with the workstation-based configuration tools collectively known as the WebSphere Customization Tools, or WCT.

Read the Installing WebSphere Customization Tools topic in the Information Center for more information.

For more information about Migrating to WebSphere Application Server for zOS V7.0, see the following Web page:

http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101329

4

Migrating by copying and coexisting

WebSphere Application Server V7.0 can coexist with V6.x. Depending on the previous version of WebSphere Application Server, port conflicts might exist that must be resolved. The WebSphere Application Server V7.0 migration tool uses existing configurations and applications available on older versions and copies them to the new environment and modifies them to be compatible with the WebSphere Application Server V7.0 environment. Existing application components and configuration settings are applied to the WebSphere Application Server V7.0 environment during the migration process.

The scenario in this chapter covers all aspects of migration and coexistence. *Migrating* basically means copying the configuration from a previous release of this product into a new release. *Coexisting* is running a new release of WebSphere Application Server on the same machine at the same time as you run an earlier release, or running two installations of the same release of WebSphere Application Server on the same machine at the same time.

4.1 Overview

The process of the migration task is to rebuild the earlier version of WebSphere Application Server in a nearly identical WebSphere Application Server V7.0 environment. The new cell is upgraded to the newer version, including all the federated nodes like the older version. One of the goals of coexistence is to create an environment that is not in conflict of a port number and allows the nodes of all versions to start and run at the same time and also facilitate environment rollback.

4.2 Preparation prior to coexistence

Prior to attempting to migrate from a previous version of WebSphere Application Server V7.0, the following points are to be noted.

- Software pre-requisites

  A complete list of supported software for WebSphere Application Server V7.0 for minimum version and fix level requirements for the operating system and associated software can be found at the following Web page:

  http://www-01.ibm.com/support/docview.wss?uid=swg27012373

  If the existing WebSphere Application Server V6.x installation is on an operating system version that does not meet WebSphere Application Server V7.0 prerequisites (such as AIX® 5.1 or Sun Solaris 8), an operating system upgrade is required before installing WebSphere Application Server V7.0 on that system.

- Supported configuration upgrades

  The supported configuration upgrades are detailed in the Information Center, at the following Web page:

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.iseries.doc/info/iseriesnd/ae/tmig_admin.html

- Existing configuration information

  It is important to write down the cell name and the names of all nodes in the WebSphere Application Server V6.x cell before using the **WASPreUpgrade** and **WASPostUpgrade** command line tools. These values are used when creating WebSphere Application Server V7.0 profiles for each node in the cell.

  Usage information for **WASPreUpgrade** can be found at the following Web page:

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.migration.nd.doc/info/ae/ae/rmig_WASPreUpgrade.html

  Usage information for **WASPostUpgrade** can be found at the following Web page:

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.migration.nd.doc/info/ae/ae/rmig_WASPostUpgrade.html

- Environment backup

  All WebSphere Application Server environments need to be backed-up before attempting any migration. This is critical whenever an incremental cell upgrade is done.

  The **backupConfig** command is a simple utility to back up the configuration of your node to a file.

  By default, all servers on the node stop before the backup is made so that partially synchronized information is not saved. If you do not have root authority, you must specify a path for the backup file in a location where you have write permission. The backup file is in the zip format and a .zip extension should be used.

  Use the **backupConfig** command to back up a profile. You can run this command from the `was_home/bin` directory. Use the -profileName option to specify the profile to back up. You can also execute the command from the `profile_home/bin` directory.

  The command compresses the configuration file and store it in the current directory or a specified directory. The file can be restored using the **restoreConfig** command.

  By default, the **backupConfig** command stops servers in the configuration before performing the backup. See Example 4-1 on page 43 for more usage options of backupConfig.

Example 4-1 backupConfig usage

```
Usage: backupConfig [backup_file] [-nostop] [-quiet] [-logfile <filename>]
[-replacelog] [-trace] [-username <username>] [-password <password>]
[-profileName <profile>] [-help]
```

Example 4-2 shows a example of backing up a deployment manager.

Example 4-2 backupConfig example

```
C:\Program Files (x86)\IBM\WebSphere\AppServer61\bin>backupConfig.bat
ADMU0116I: Tool information is being logged in file C:\Program Files

(x86)\IBM\WebSphere\AppServer61\profiles\Dmgr01\logs\backupConfig.log

ADMU0128I: Starting tool with the Dmgr01 profile
ADMU5001I: Backing up config directory C:\Program Files
           (x86)\IBM\WebSphere\AppServer61\profiles\Dmgr01\config to file
           C:\Program Files
           (x86)\IBM\WebSphere\AppServer61\bin\WebSphereConfig_2010-03-09.zip
ADMU0505I: Servers found in configuration:
ADMU0506I: Server name: dmgr
ADMU2010I: Stopping all server processes for node saw017-sys2CellManager01
.....................................................................
.....................................................................
.....................................................................

ADMU5002I: 429 files successfully backed up

C:\Program Files (x86)\IBM\WebSphere\AppServer61\bin>
```

4.3 Migration and coexistence of WebSphere Application Server V7.0 and V6.x

WebSphere Application Server V7.0 can be installed and configured to coexist with another installation instance of WebSphere Application Server V6.x. The assumption is that all the following are already available on the system:

- WebSphere Application Server V6.x is installed with a deployment manager and a application server instance node federated
- One sample ear file already deployed on the node
- WebSphere Application Server V7.0 product installed without any deployment manager or application server instance created
- Administrative security enabled on the WebSphere Application Server V6.x

There are two processes in the migration from WebSphere Application Server V6.x to V7.0.

- Migrate the deployment manager from WebSphere Application Server V6.x to V7.0.
- Migrate a node from WebSphere Application Server V6.x to the new V7.0 and federate it with the new deployment manager of WebSphere Application Server V7.0.

4.3.1 Migrating the deployment manager environment

Perform the following steps to migrate the deployment manager environment:

1. Start the Migration wizard.

   Go to **Start** ∅ **Programs** ∅ **IBM WebSphere** ∅ **Application Server V7.0 Network Deployment**, and click **Migration wizard**.

2. Read the Welcome panel to learn about the migration process. Click **Next**. See Figure 4-1.

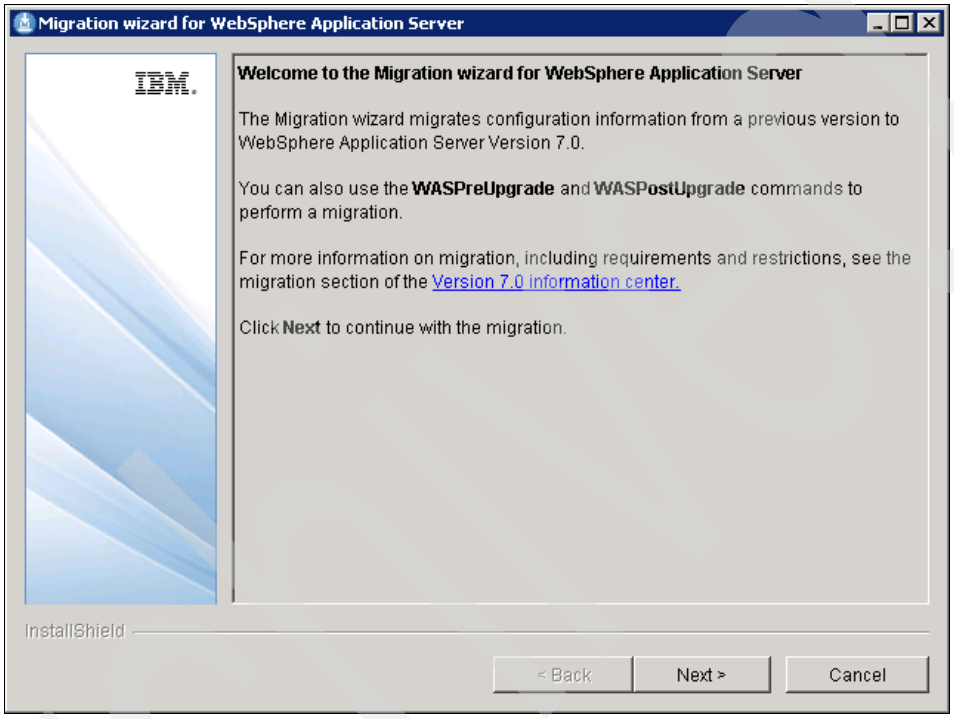

Figure 4-1 Welcome panel

3. In the “Detected versions of WebSphere Application Server” panel (Figure 4-2) select the previous version of WebSphere Application Server from which to migrate. Click **Next**.

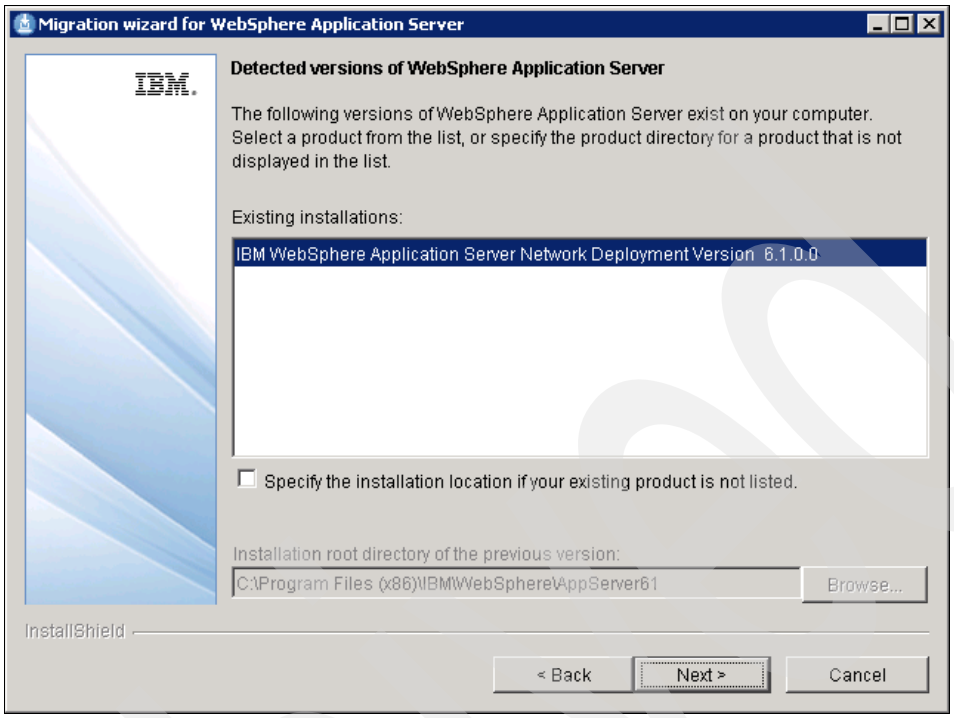

Figure 4-2 Existing version detection window

4. In the “Source profile selection” panel (Figure 4-3) select the source profile or instance that you want to migrate (for example, Dmgr02). Click **Next**.

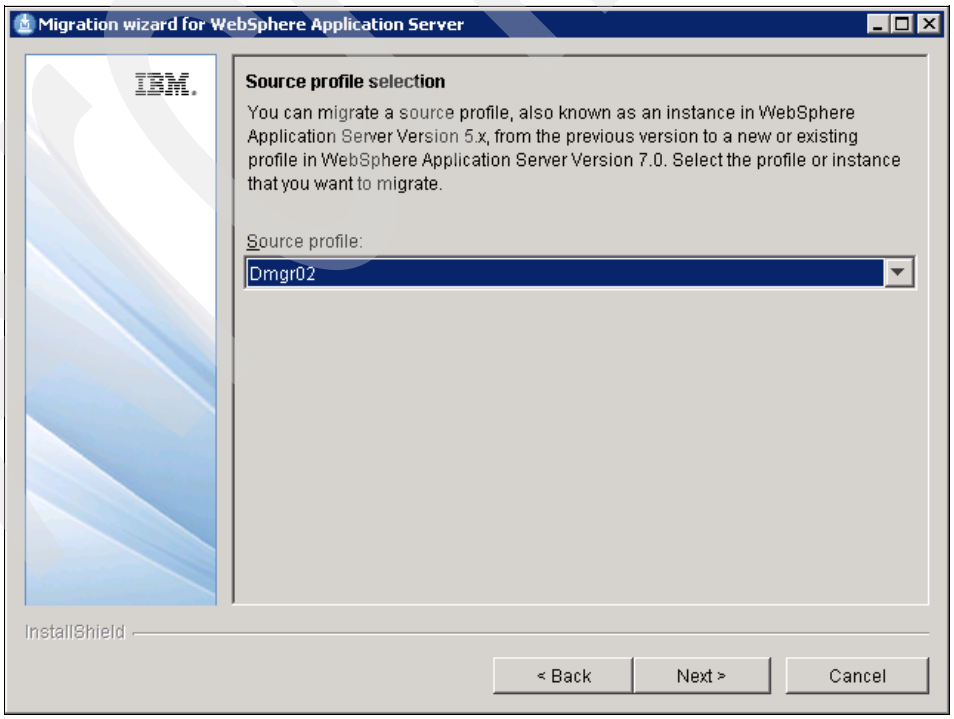

Figure 4-3 Profile selection window

5. In the “Target profile selection” panel (Figure 4-4), select **Create new profile**. Click **Next**.

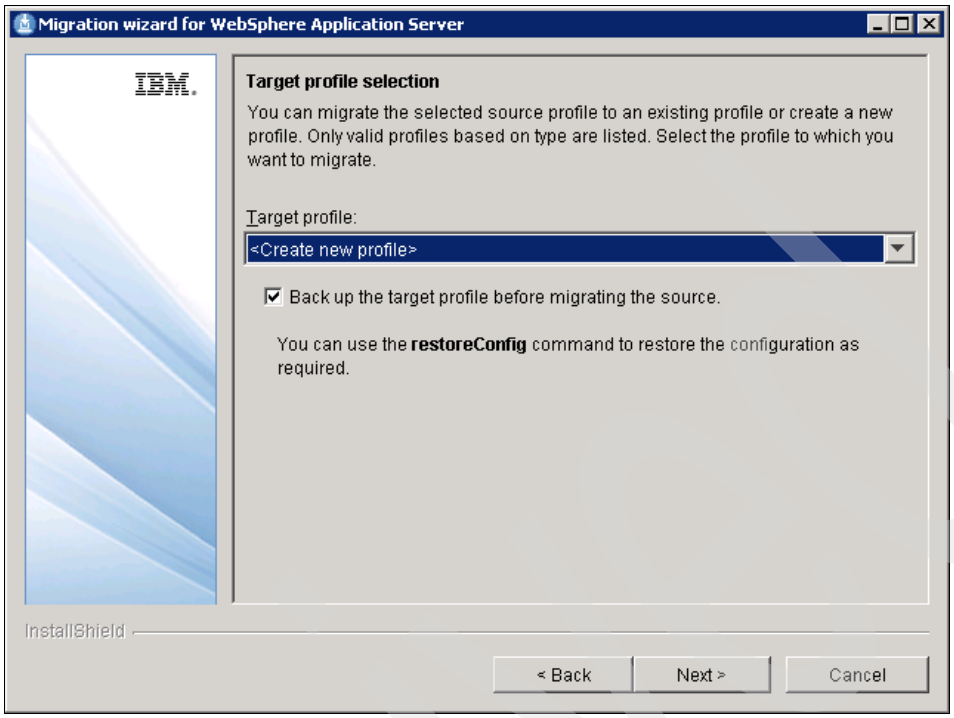

Figure 4-4 New profile creation window

6. In the “Profile creation parameters” panel (Figure 4-5), enter a node name and a host name.

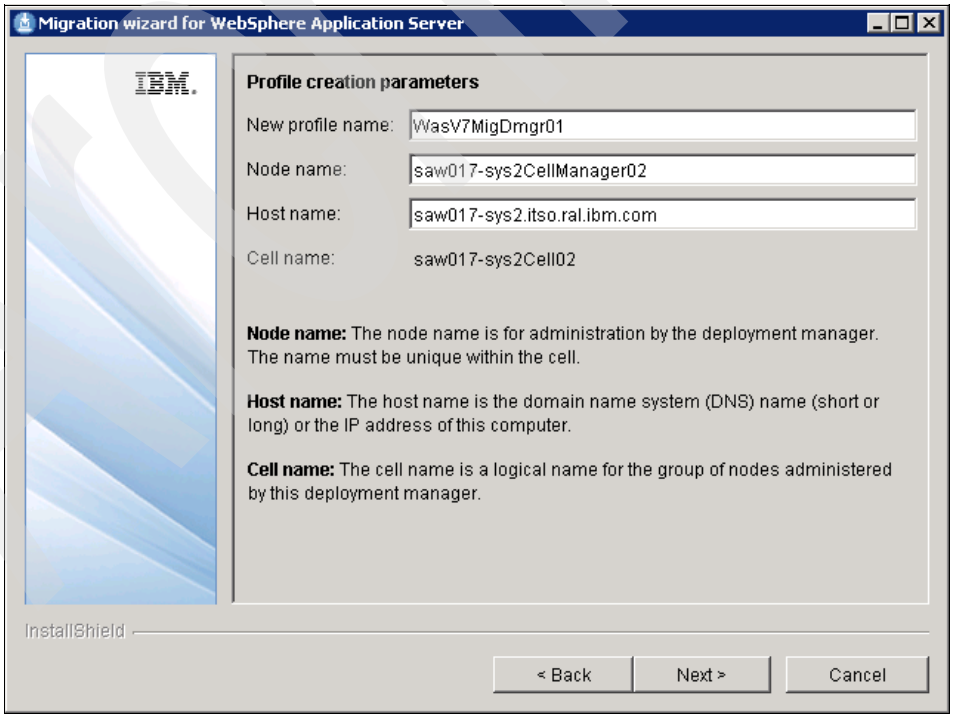

Figure 4-5 Node name and Host name parameters

Rules regarding node and host naming: One of the options should be true when entering the node name and host name:

- The WebSphere Application Server V7.0 deployment manager node name must be the same as the WebSphere Application Server V6.x deployment manager node name.
- The WebSphere Application Server V7.0 deployment manager node name must be different from every node name in the WebSphere Application Server V6.x configuration.

7. In the “Migration backup directory” panel (Figure 4-6), specify a migration backup directory in which to place a backup copy of the configuration from the previous version. The backup folder used for this scenario is `C:\Users\Adminstrator\WAS61bkpconfig`. Make sure the backup directory is writable and empty, or you might overwrite existing backup files. Click **Next**.

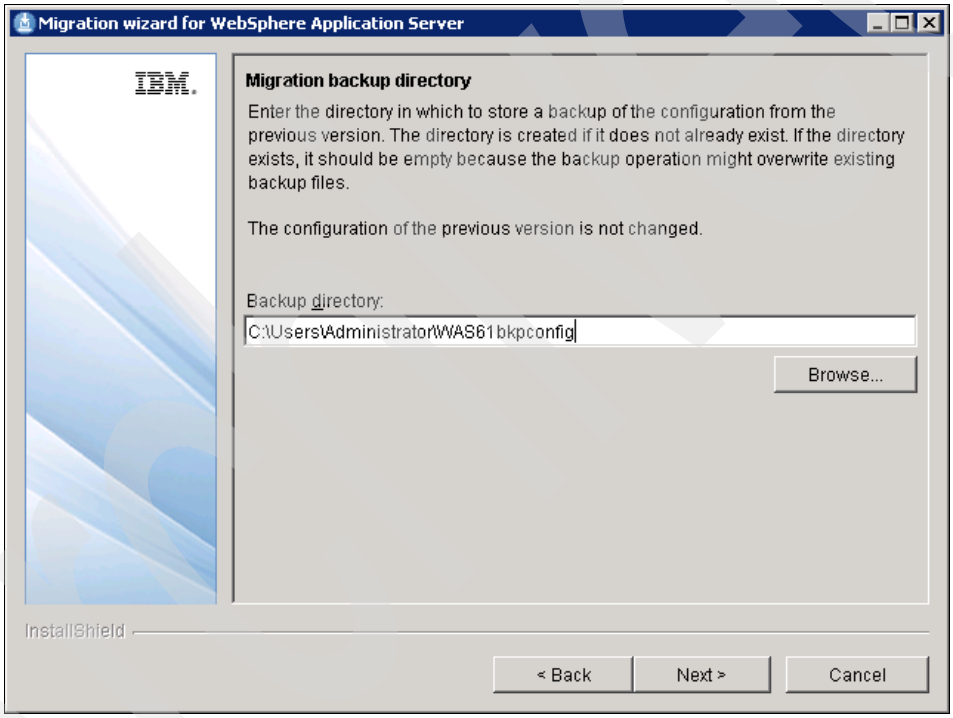

Figure 4-6 Configuration backup directory window

8. In the “Administrative security” panel (Figure 4-7), enter a username and password. This information is required to connect to the existing source deployment manager. In the example scenario, the username is `wasadmin` and the password is `wasadmin`.

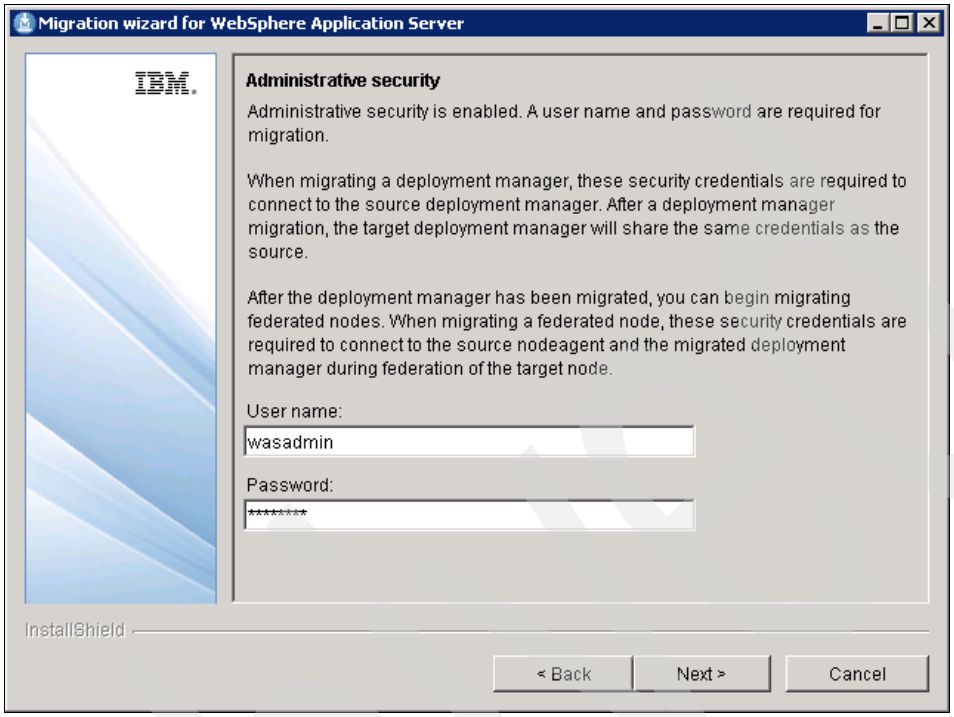

Figure 4-7 Administrative security credentials window

9. In the “Application migrations settings” panel (Figure 4-8), select the **Migrate and install the applications** check box. Click **Next**.

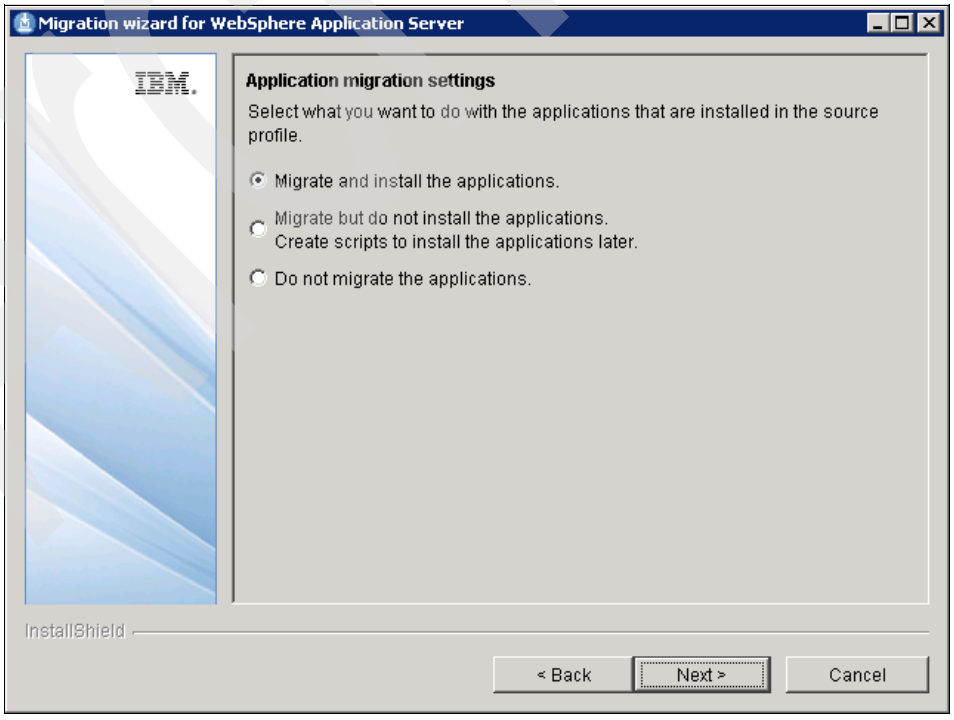

Figure 4-8 Application migration settings window

10. In the next “Application migration settings” panel (Figure 4-9), select the **Install the applications in the default directory of the target version** check box. Click **Next**.

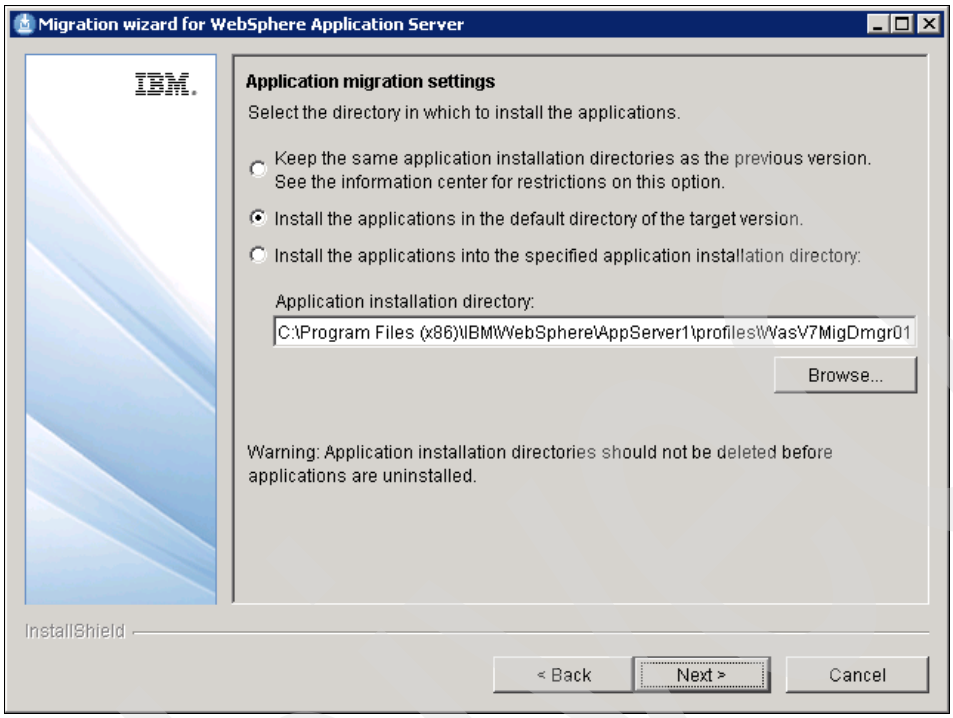

Figure 4-9 Default directory settings for the applications in the target version

11. In the “Deployment manager option” panel (Figure 4-10), select the **Do not disable the deployment manager of the previous version** check box. This keeps the deployment manager of the previous version active even after the migration is over.

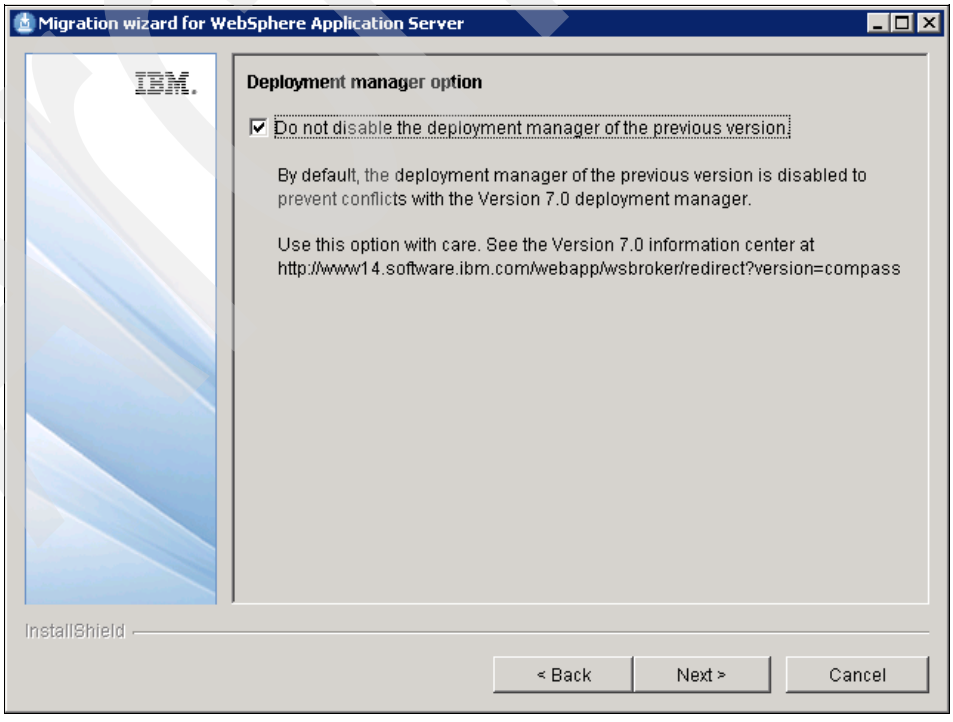

Figure 4-10 Enable the previous version of deployment manager window

12. In the “Port values” panel (Figure 4-11), select the **Use the port values assigned to the source profile** check box so that there is no port conflict with the previous version. Click **Next**.

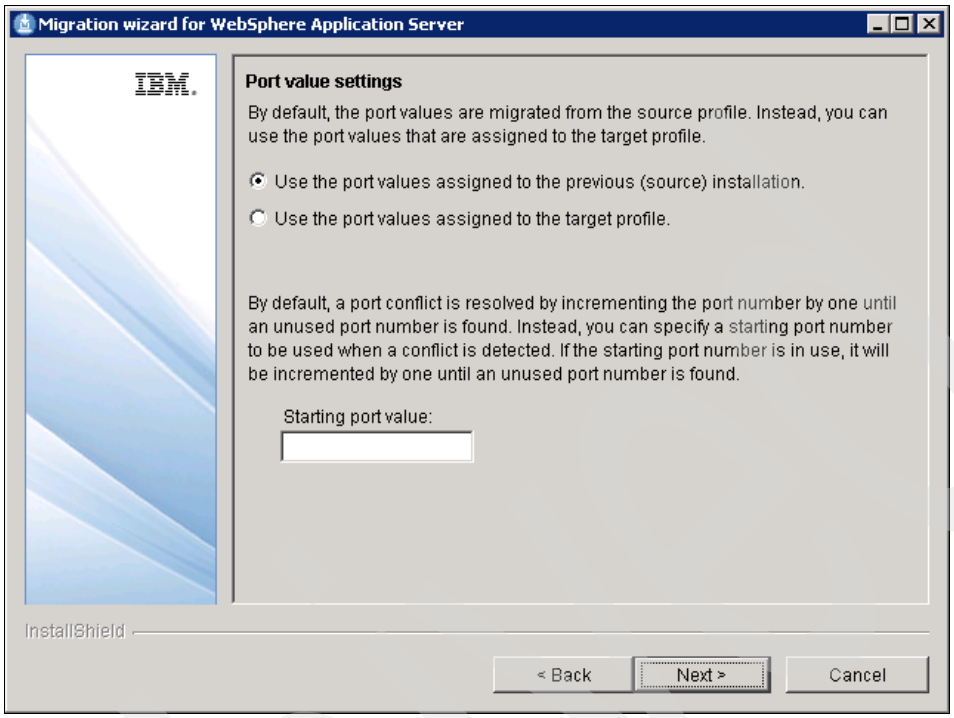

Figure 4-11 Assign port settings window

13. In the “Migrate administrative console customized ‘My Tasks’ settings” panel (Figure 4-12), select the **Use the default workspace user root location** check box to customize the location to store the MyTasks information. Click **Next**.

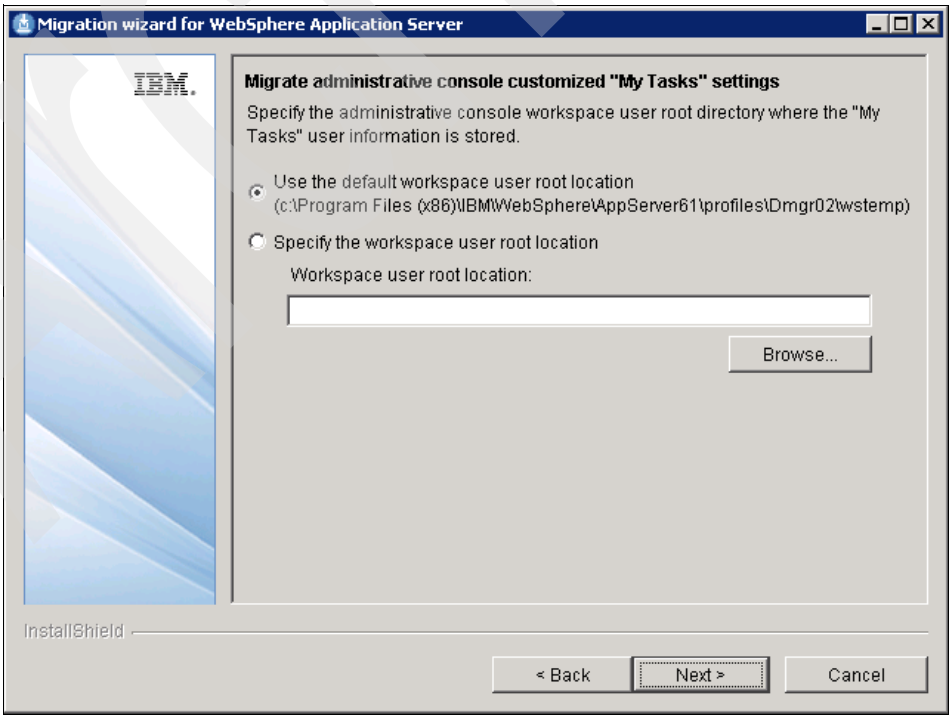

Figure 4-12 Customizing MyTasks information storage location window

14. In the “Additional migration options” panel (Figure 4-13), select the **Migrate to support script compatibility** check box to ensure that the migration scripts are compatible with the target version. Click **Next**.

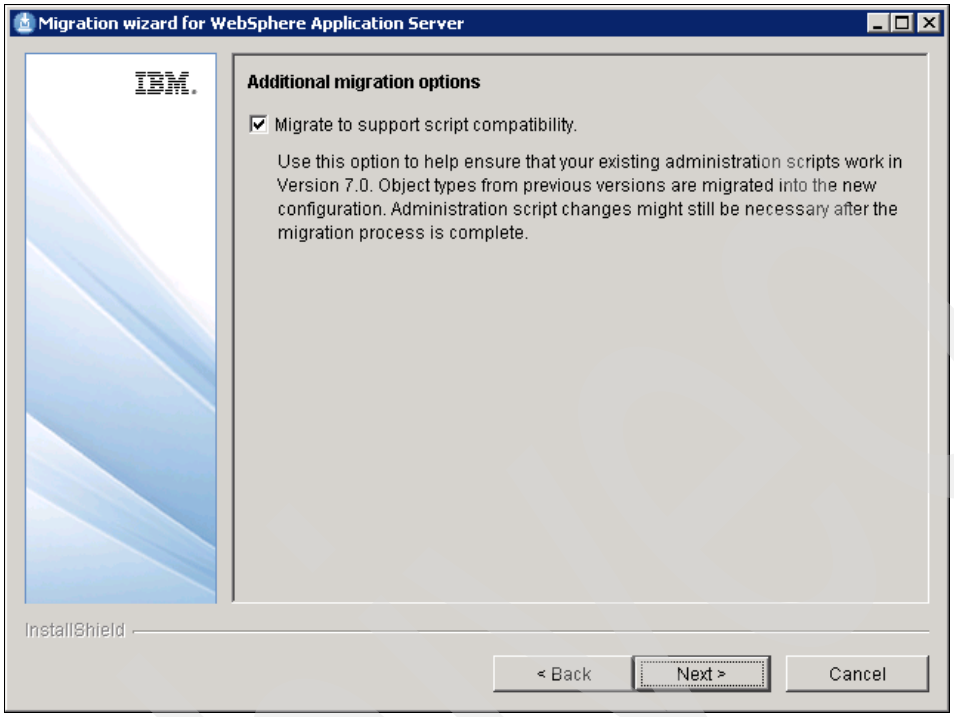

Figure 4-13 Migration script support compatibility window

The “Migration summary” panel (Figure 4-14) shows the configuration choices made in the previous steps. Verify the parameters and click **Next**.

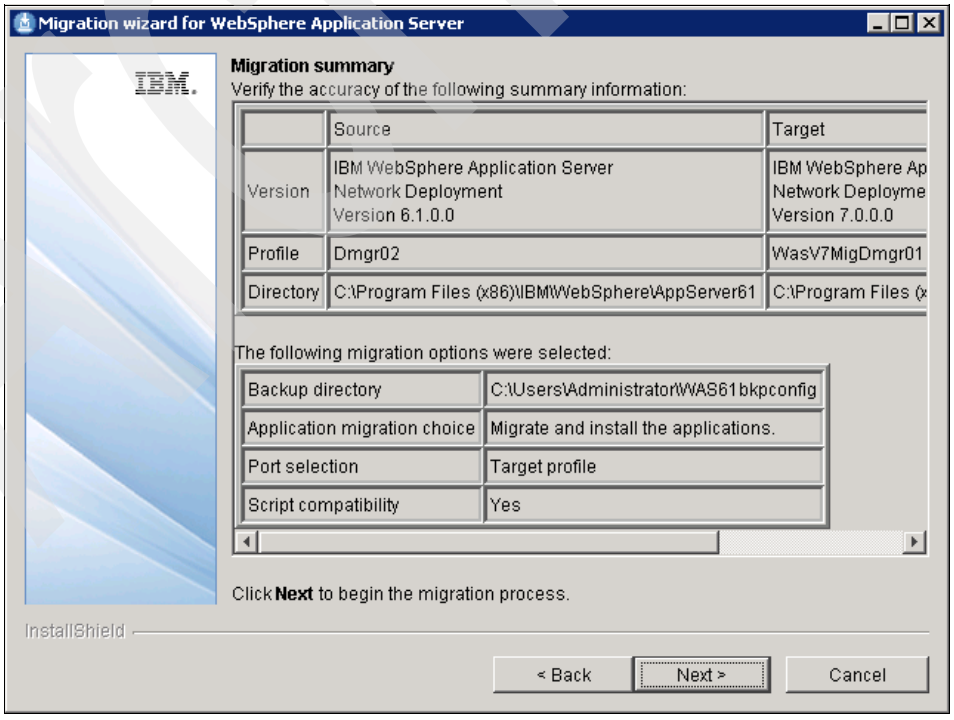

Figure 4-14 Migration Summary window

The message in Figure 4-15 appears upon successful profile creation. Click **Next**.

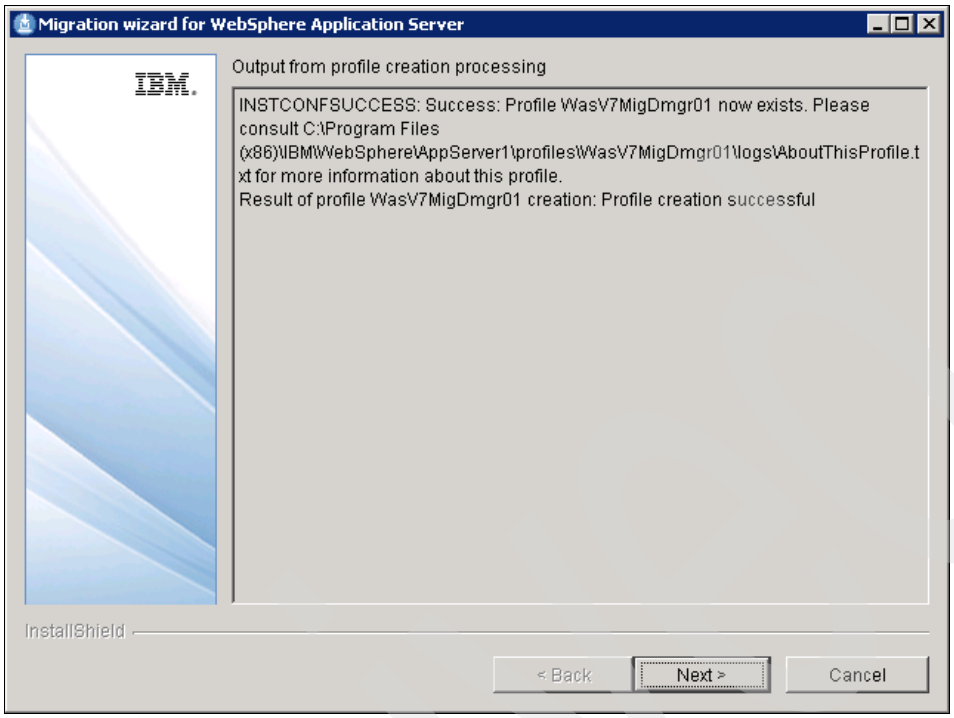

Figure 4-15 Profile creations successful

The message in Figure 4-16, indicating a successful first step in pre-upgrade migration successful message window is displayed. Click **Next**.

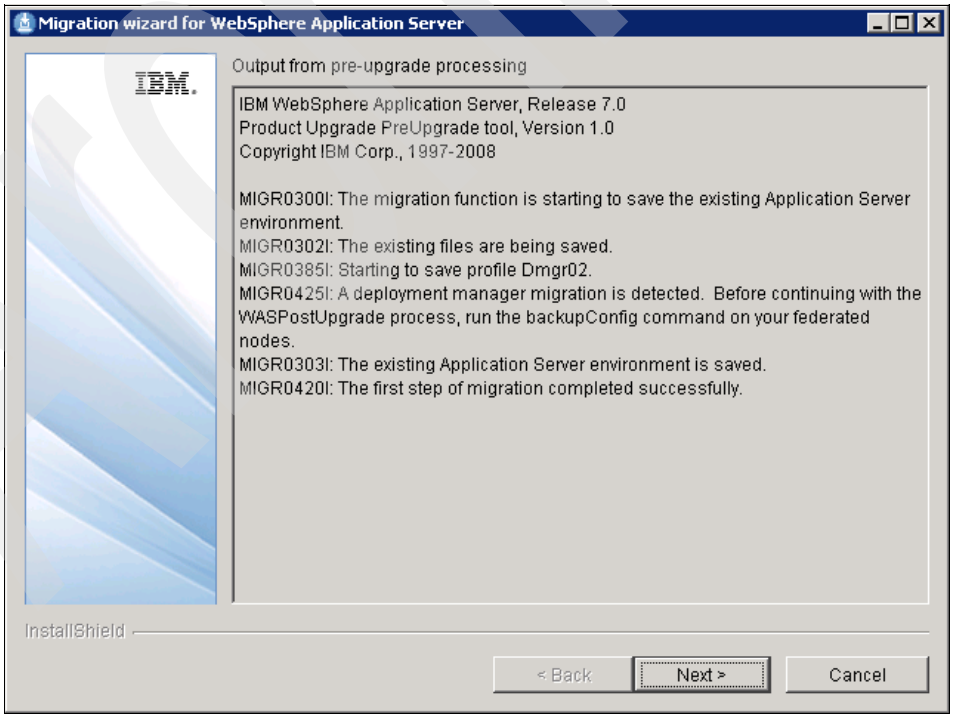

Figure 4-16 First step of migration successful message window

The message in Figure 4-17 is displayed, indicating successful migration completion. Click **Next**.

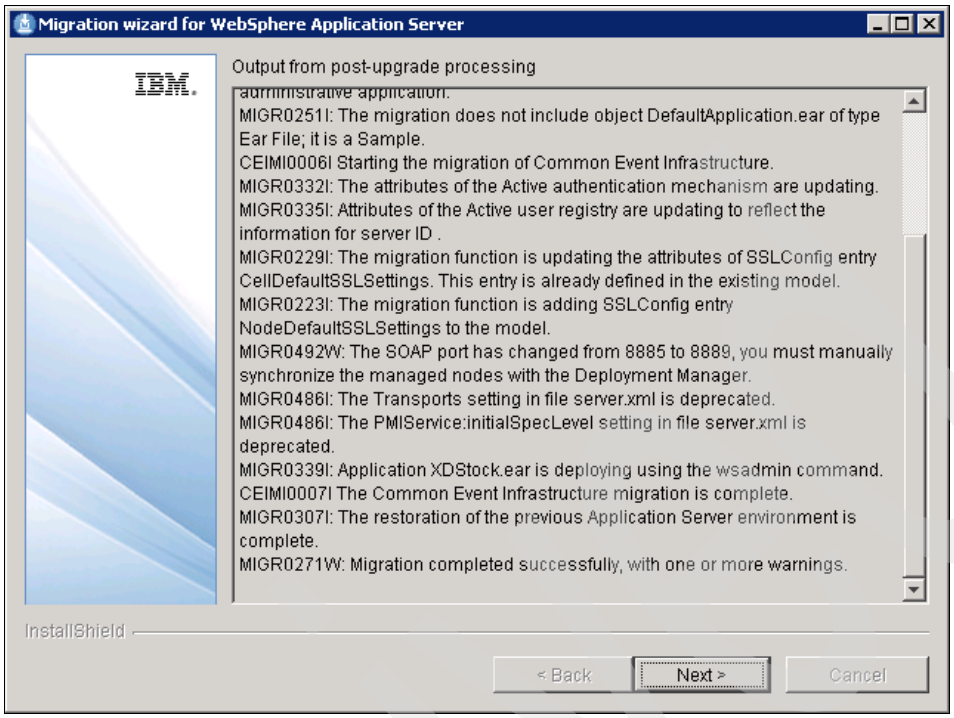

Figure 4-17 Post upgrade migration summary panel

15. In the “Migration status” panel (Figure 4-18), review the `WASPreMigrationSummary.log` and `WASPostMigrationSummary.log` for errors or warnings. The logs are available in the backup directory (for example, `C:\Users\Adminstrator\WAS61bkpconfig\logs`). Click **Next** to complete the Migration wizard.

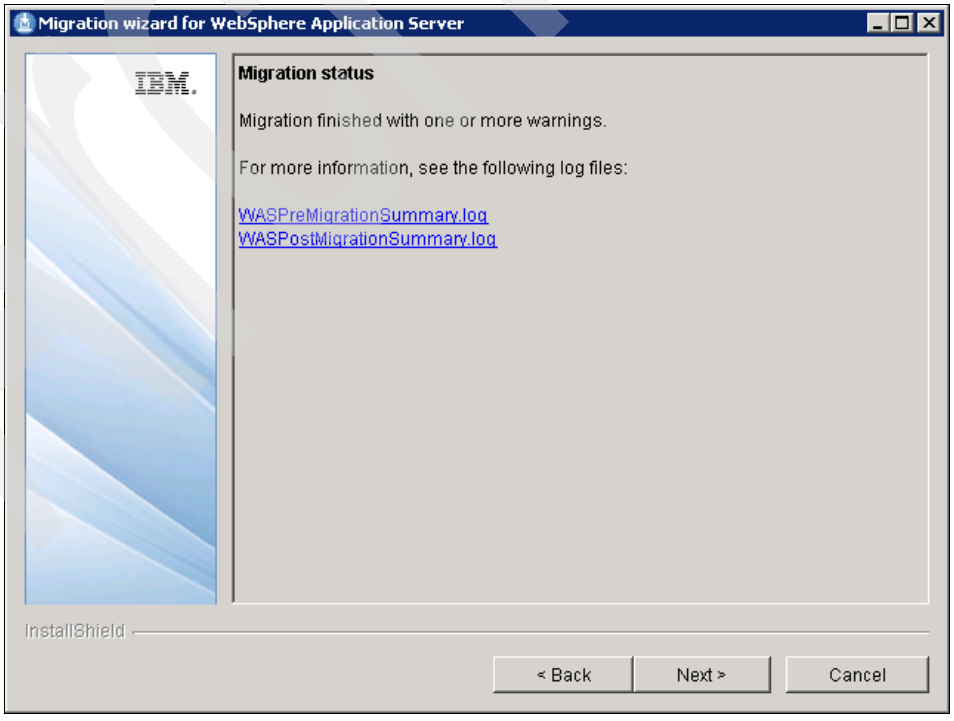

Figure 4-18 Review logs for errors or warnings

16. In the “Migration wizard next step” panel (Figure 4-19), click **Cancel** to exit the Migration wizard.

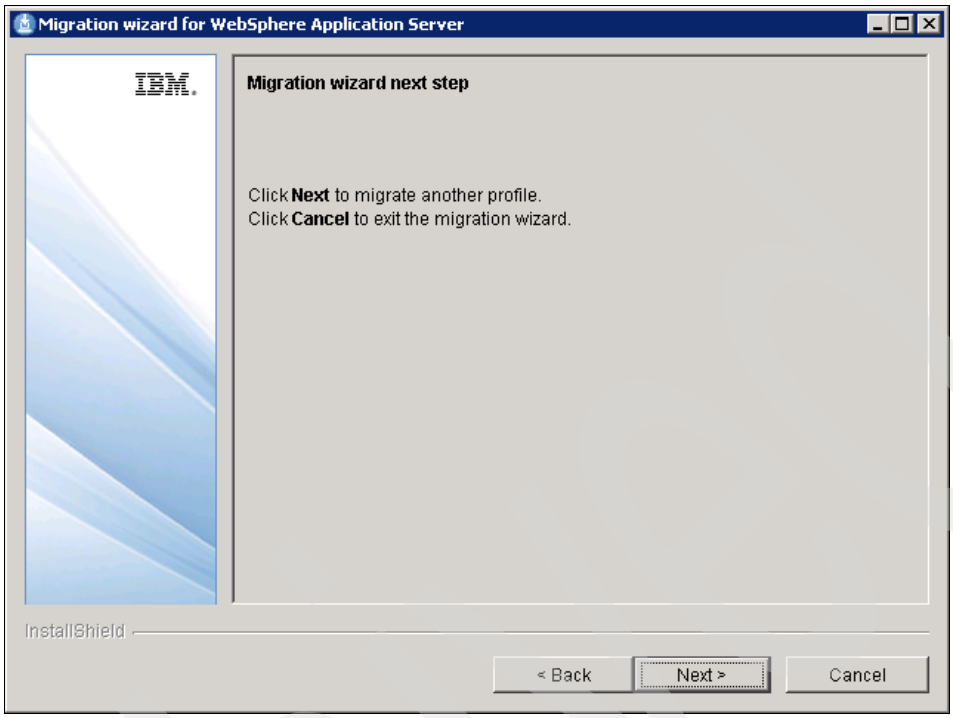

Figure 4-19 Exiting the Migration wizard

17. Click **Yes** in the confirmation window (Figure 4-20) to exit the migration wizard.

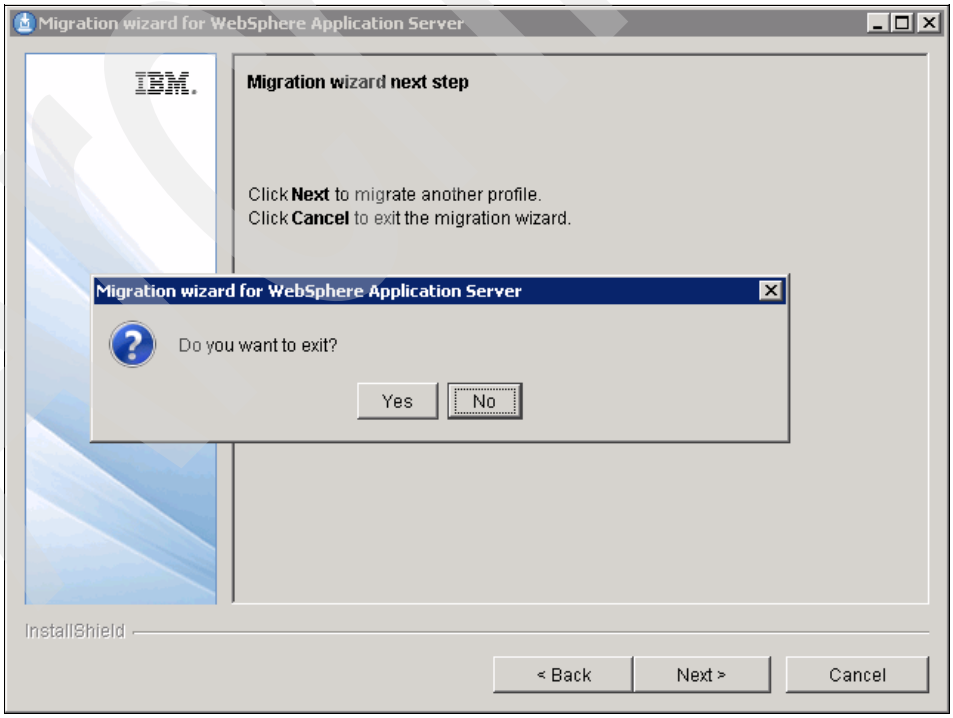

Figure 4-20 Exit confirmation

4.3.2 Verifying the migration

To verify the migration, log into the new deployment manager environment using the first step console. Go to **Start** ∅ **Programs** ∅ **IBM WebSphere** ∅ **Application Server V7.0 Network Deployment** ∅ **profiles** ∅ **Wasv7MigDmgr01** ∅ **First steps**.

1. In the “First steps” panel (Figure 4-21), click **Start the deployment manager** to start the server.

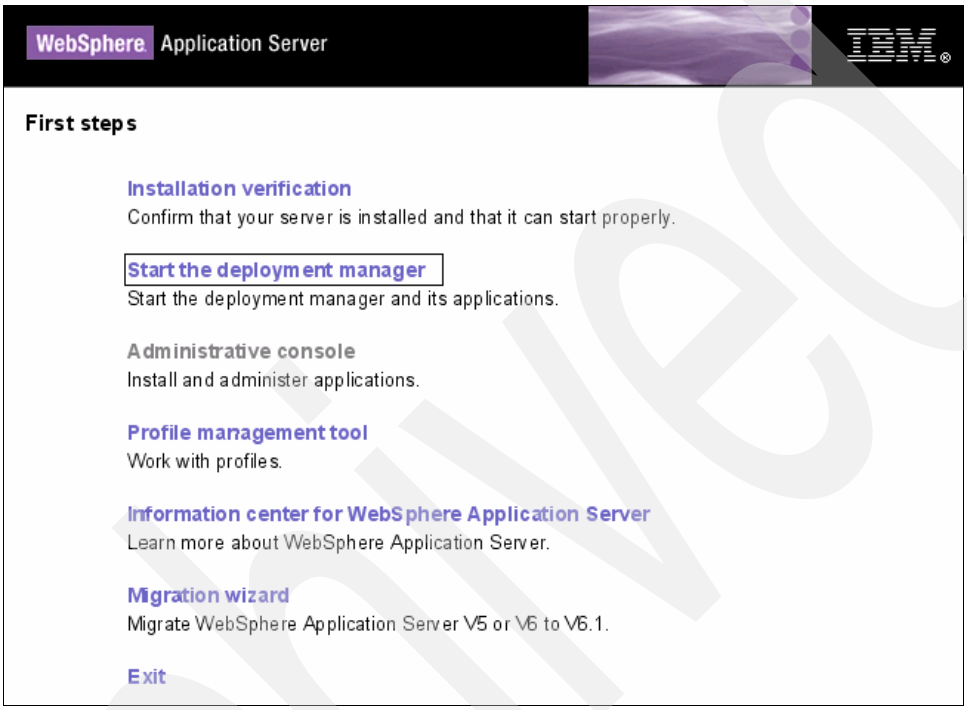

Figure 4-21 First step

2. A new console (Figure 4-22) opens with the status of the deployment manager instance displayed.

Figure 4-22 Start the deployment manager

3. Close this window and click **Administrative console** from the “First steps” panel.

4. In the “Log in to the console” panel (Figure 4-23), enter `wasadmin` for username and `wasadmin` for password. Click **Log in**.

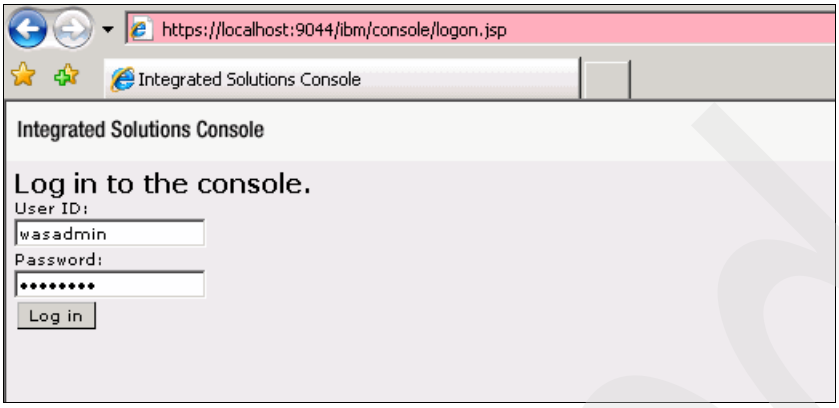

Figure 4-23 Administrative console login page

5. In the administrative console, click **System administration** ∅ **nodes** to verify the federated node of WebSphere Application Server V6.x with the new deployment manager of WebSphere Application Server V7.0. Figure 4-24 is displayed.

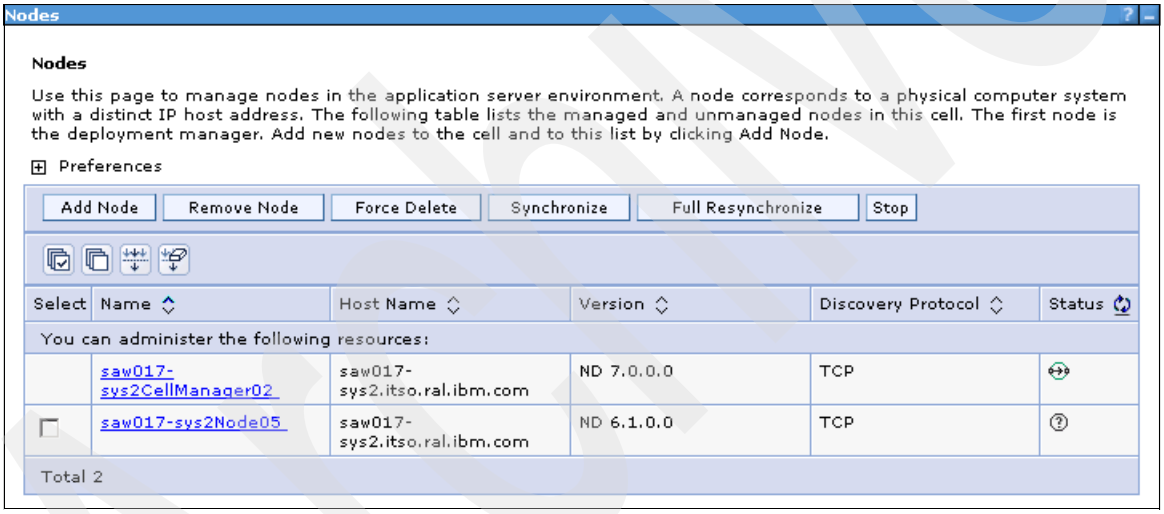

Figure 4-24 Nodes

This confirms that the new deployment manager is created properly and the existing node from WebSphere Application Server V6.x is properly federated.

To migrate the node from WebSphere Application Server V6.x to V7.0, follow the steps in 4.3.3, “Starting the migration process” on page 57.

4.3.3 Starting the migration process

To start the migration process of the node of WebSphere Application Server V6.x to V7.0, perform the following steps:

1. Issue the **backupConfig.bat** command from the node of WebSphere Application Server V6.x. The backed up config file is used to restore the configuration after the migration process. See Example 4-3.

Example 4-3 backupConfig command execution

```
C:\PROGRA~2\IBM\WebSphere\AppServer61\profiles\AppSrv02\bin>backupConfig.bat
ADMU0116I: Tool information is being logged in file c:\Program Files

(x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\logs\backupConfig.l
og
ADMU0128I: Starting tool with the AppSrv02 profile
ADMU5001I: Backing up config directory c:\Program Files
           (x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\config to file
           C:\Program Files

(x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\bin\WebSphereConfig
_2010-04-06.zip
ADMU0505I: Servers found in configuration:
ADMU0506I: Server name: nodeagent
ADMU2010I: Stopping all server processes for node saw017-sys2Node03
ADMU0512I: Server nodeagent cannot be reached. It appears to be stopped.
.....................................................................
.
.....................................................................
.
.....................................................................
ADMU5002I: 239 files successfully backed up

C:\PROGRA~2\IBM\WebSphere\AppServer61\profiles\AppSrv02
```

2. Start the Migration wizard by navigating to **Start** ∅ **Programs** ∅ **IBM WebSphere** ∅ **Application Server V7.0 Network Deployment**, and click **Migration wizard**.

3. Read the Welcome panel (Figure 4-25) to learn about the migration process. Click **Next**.

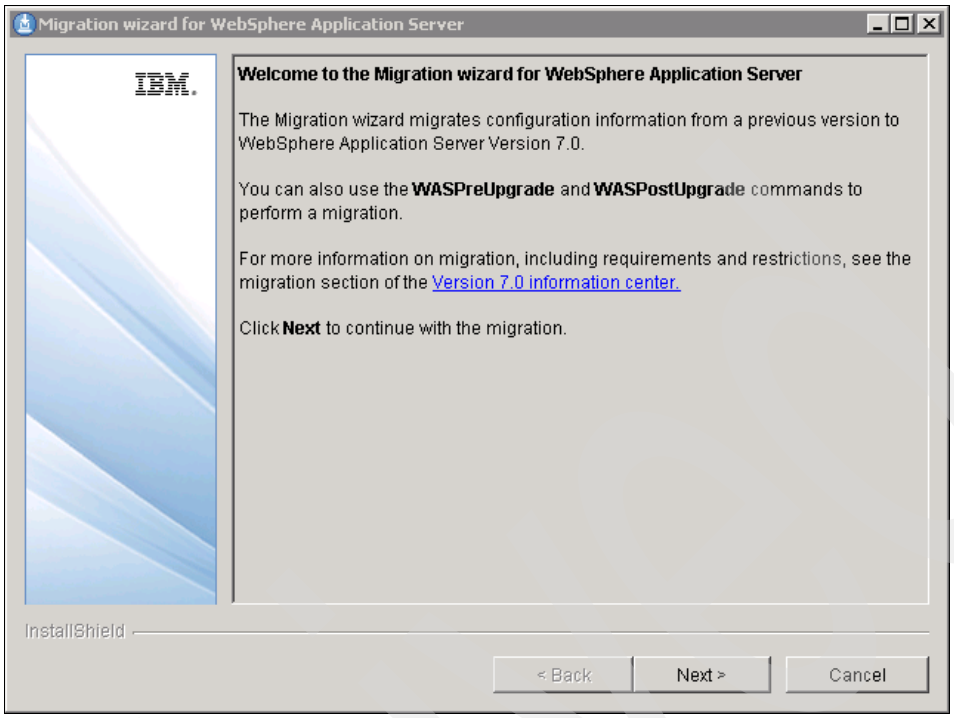

Figure 4-25 Welcome Panel of Migration Wizard

4. In the “Detected versions of WebSphere Application Server” panel (Figure 4-26), select the previous version of WebSphere Application Server from which to migrate. Click **Next**.

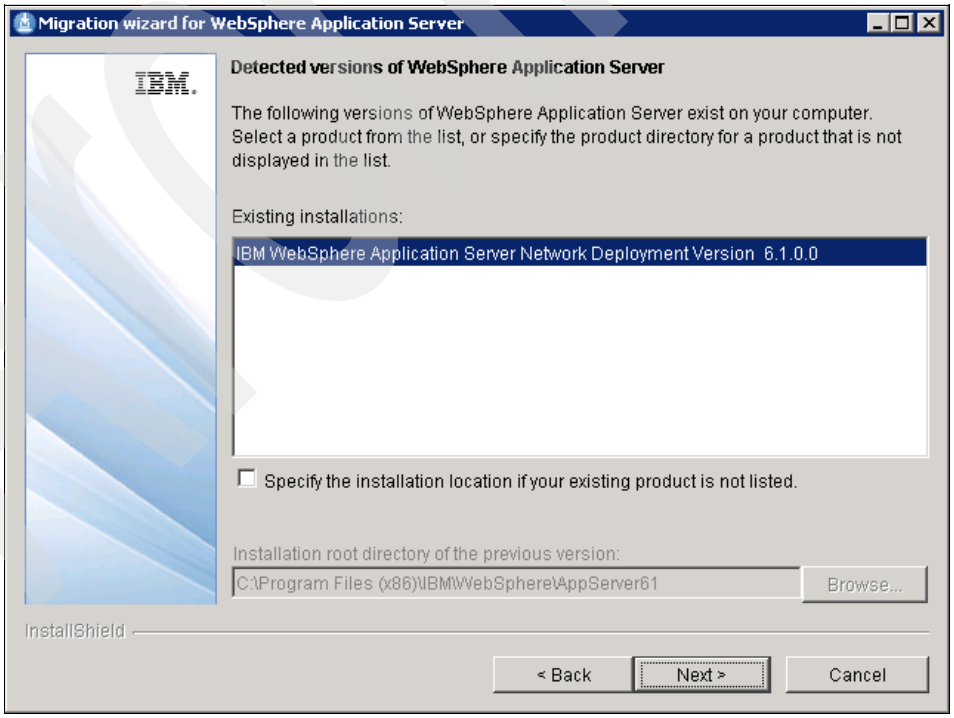

Figure 4-26 Previous version detection window

5. In the “Source profile selection” panel (Figure 4-27), select the source profile or instance, (for example, AppSrv02) that you want to migrate. Click **Next**.

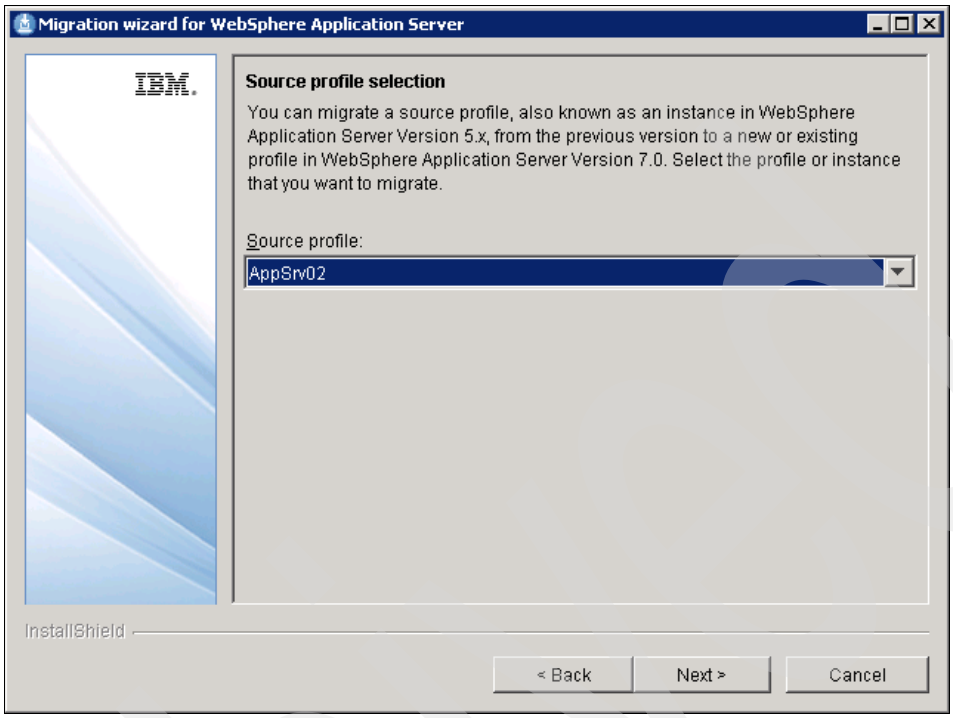

Figure 4-27 Source profile selection window

6. In the “Target profile selection” panel (Figure 4-28), select **Create new profile**. Click **Next**.

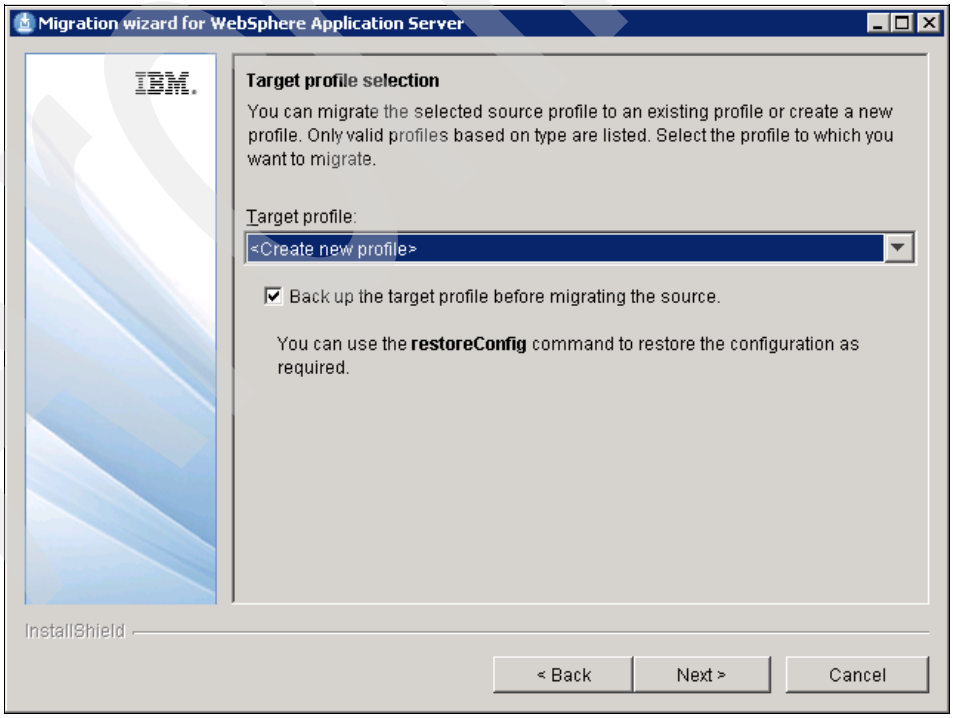

Figure 4-28 Target profile selection

7. In the “Profile creation parameters” panel (Figure 4-29), enter the profile name and host name. We used `MigV7Node05` and `saw017-sys2.itso.ral.ibm.com`. Click **Next**.

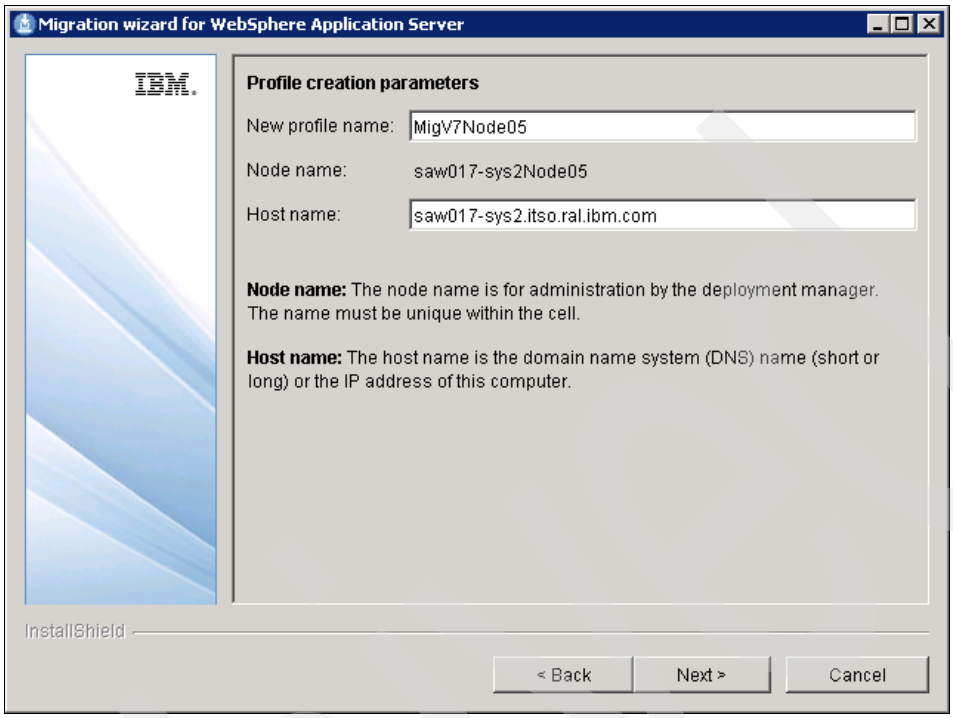

Figure 4-29 Profile creation parameters

8. In the “Migration backup directory” panel (Figure 4-30), specify a migration backup directory in which to place a backup copy of the configuration from the previous version. Click **Next**.

   The backup folder used for this scenario is `C:\Users\Adminstrator\WAS61nodebkp`. Make sure the backup directory is writable and empty or you might overwrite existing backup files.

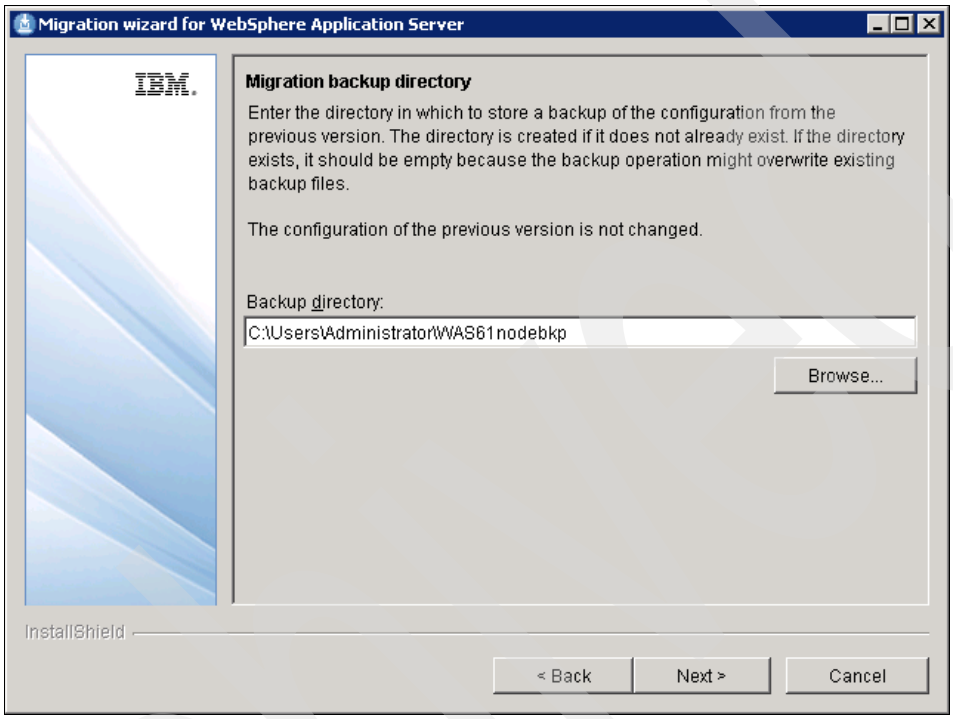

Figure 4-30 Migration backup directory

9. In the “Administrative security” panel (Figure 4-31),enter a username and password. This information is required to connect to the existing source deployment manager. For this example, we used a username of `wasadmin` and a password of `wasadmin`. Click **Next**.

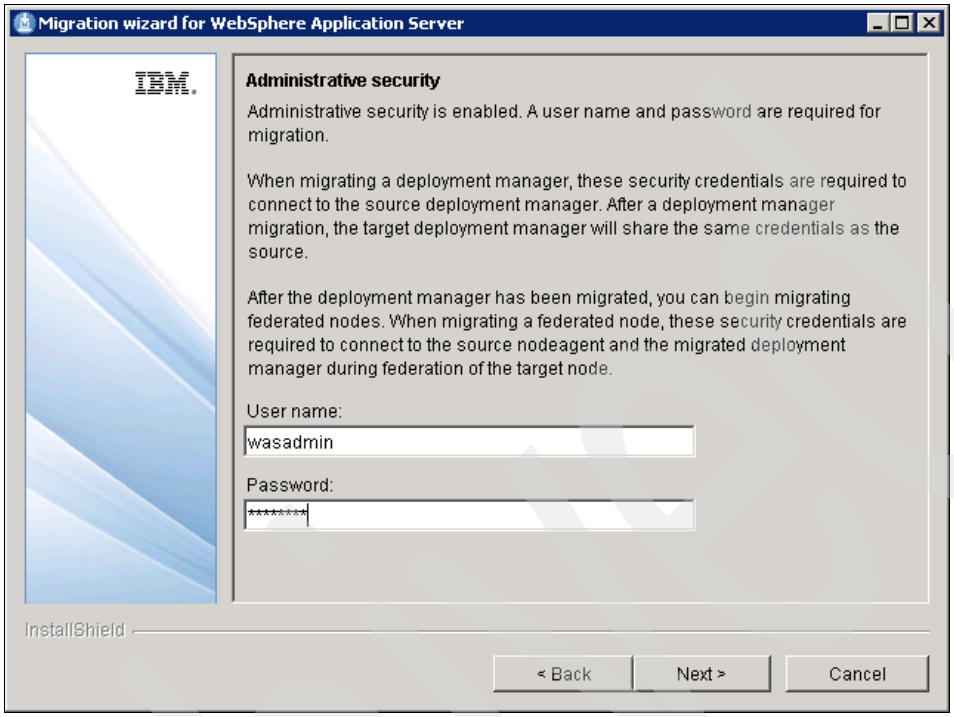

Figure 4-31 Administrative security credentials

10. In the “Application migration settings” panel (Figure 4-32), select the **Migrate and install the applications** radio button. Click **Next**.

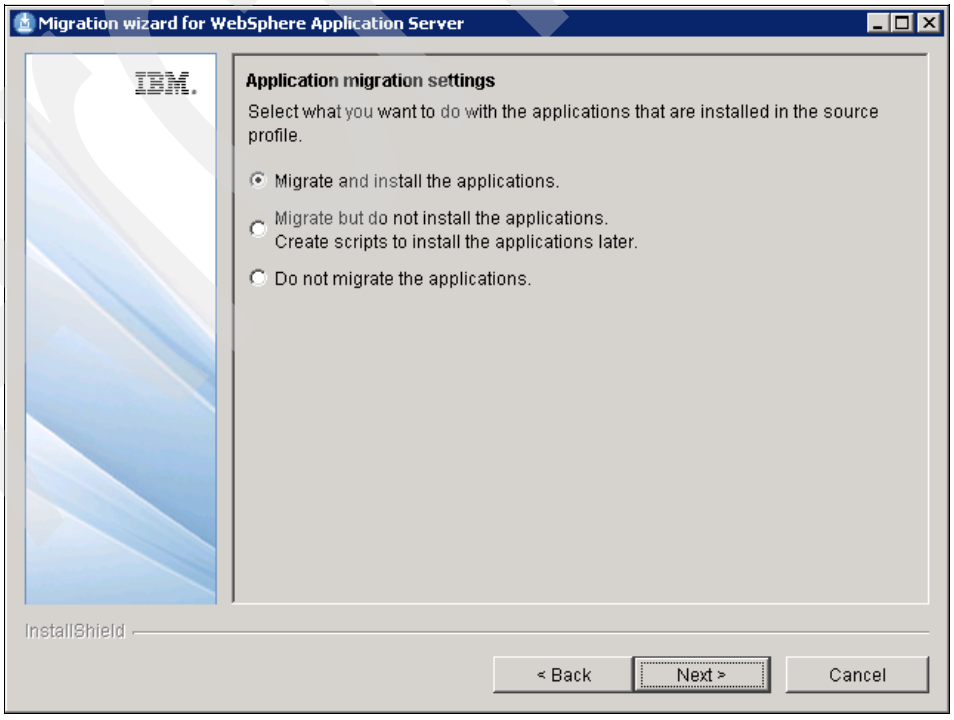

Figure 4-32 Application migration settings

11. In the next “Application migration settings” panel (Figure 4-33), select the **Install the applications in the default directory of the target version** radio button. Click **Next**.

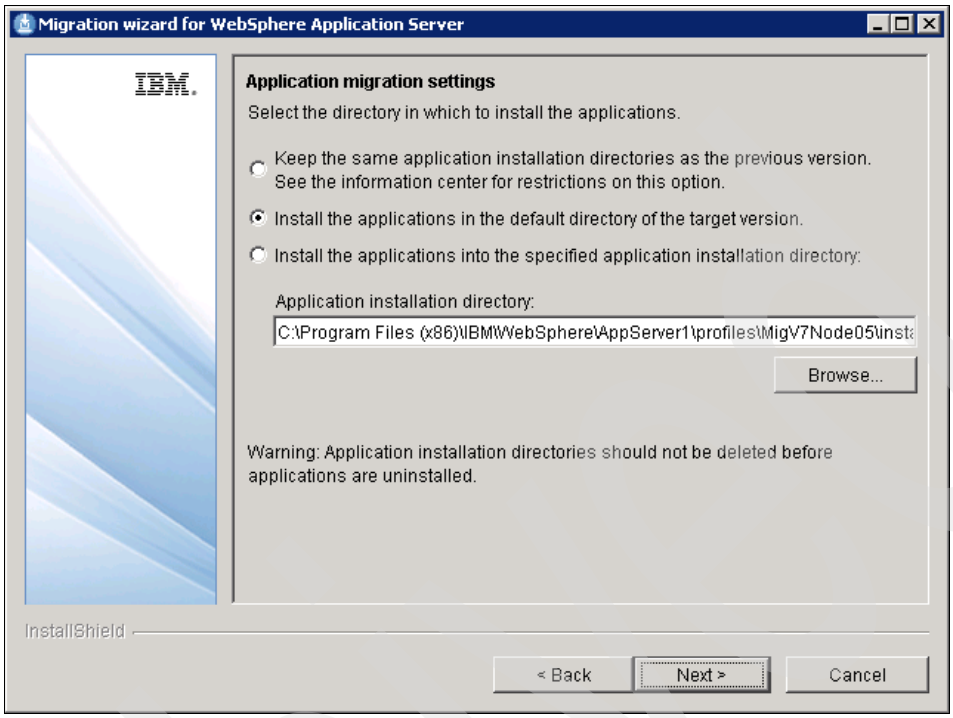

Figure 4-33 Installation default directory settings

12. In the “Port value settings” panel (Figure 4-34), select the **Use the port values assigned to the target profile** radio button so that there is no port conflict with the previous version. Click **Next**.

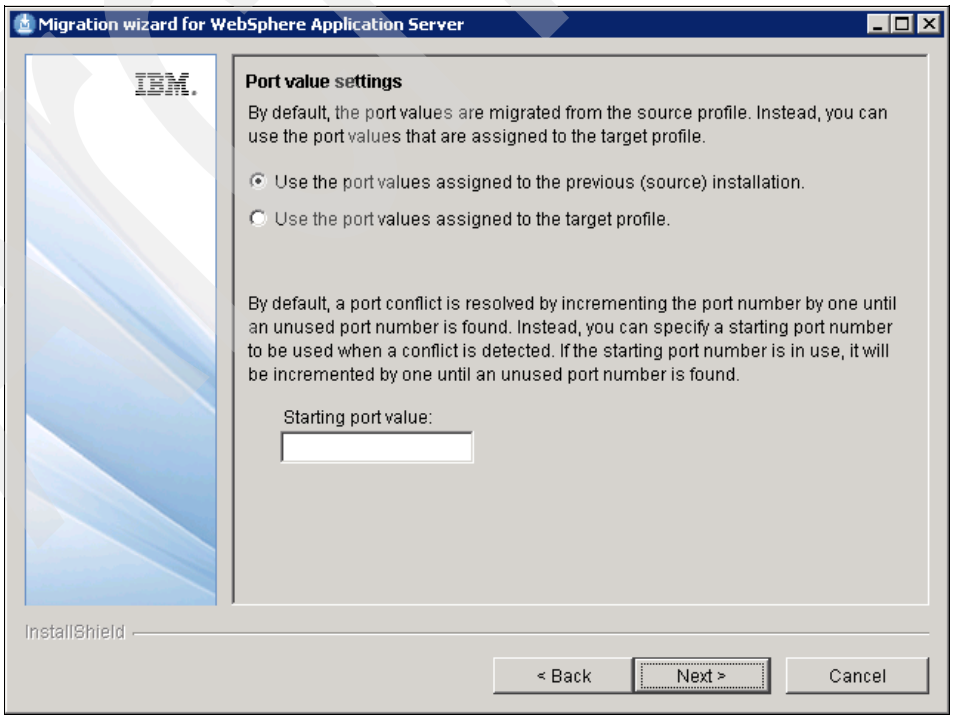

Figure 4-34 Port value settings

13. In the “Migrate administrative console customized ‘My Tasks’ settings” panel (Figure 4-35), select the default workspace option to customize the location to store the MyTasks information. Click **Next**.

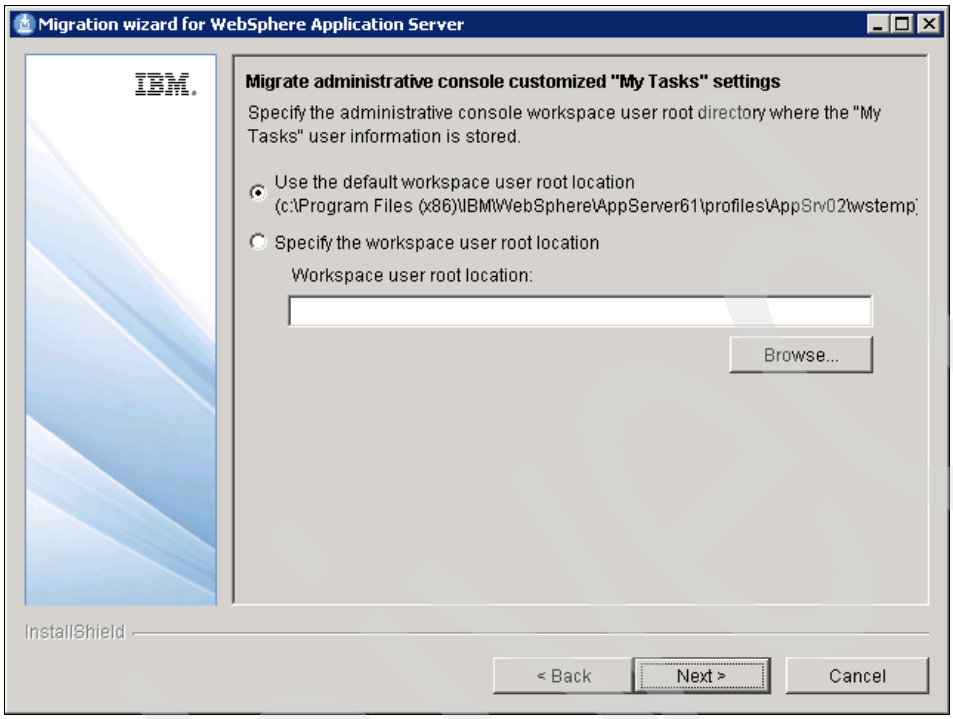

Figure 4-35 Customized My Tasks settings

14. In the “Additional migration options” panel (Figure 4-36), select the **Migrate to support script compatibility** check box as in to ensure that the migration scripts are compatible with the target version. Click **Next**.

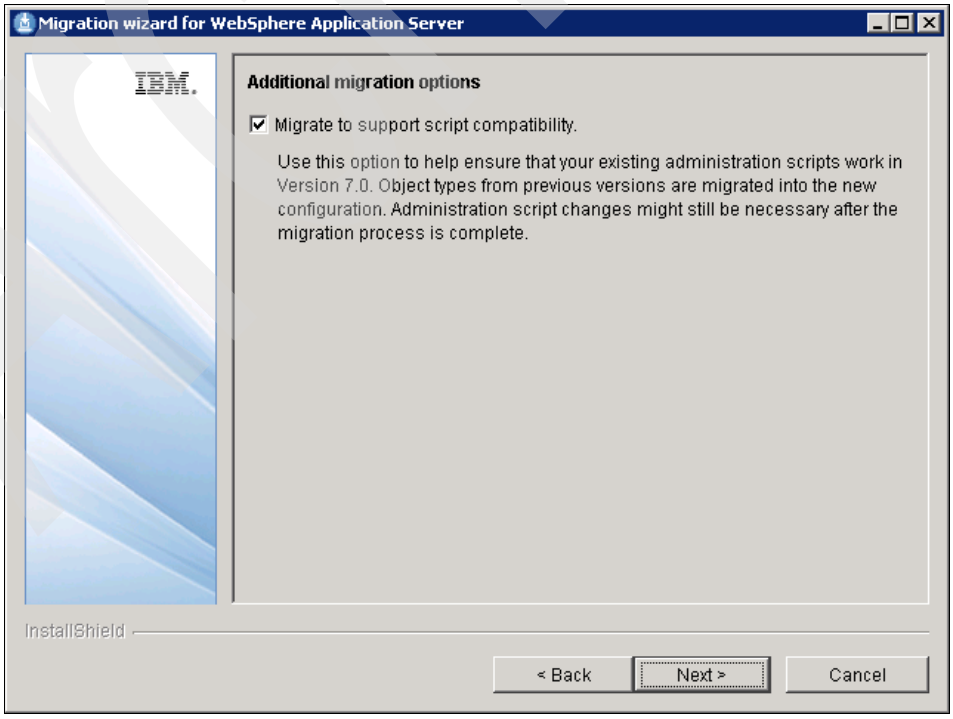

Figure 4-36 Additional migration options to support script compatibility

The “Migration summary” panel (Figure 4-37) displays the configuration choices made in the previous steps. Verify the parameters and click **Next**.

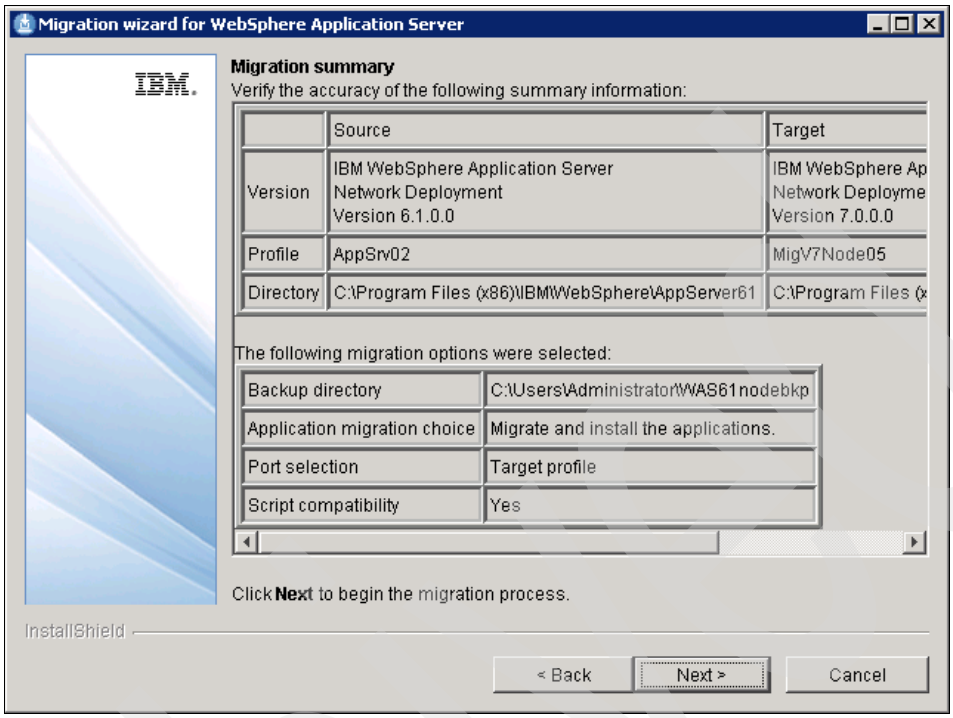

Figure 4-37 Migration summary

The message in Figure 4-38 indicating successful profile creation message displays. Click **Next**.

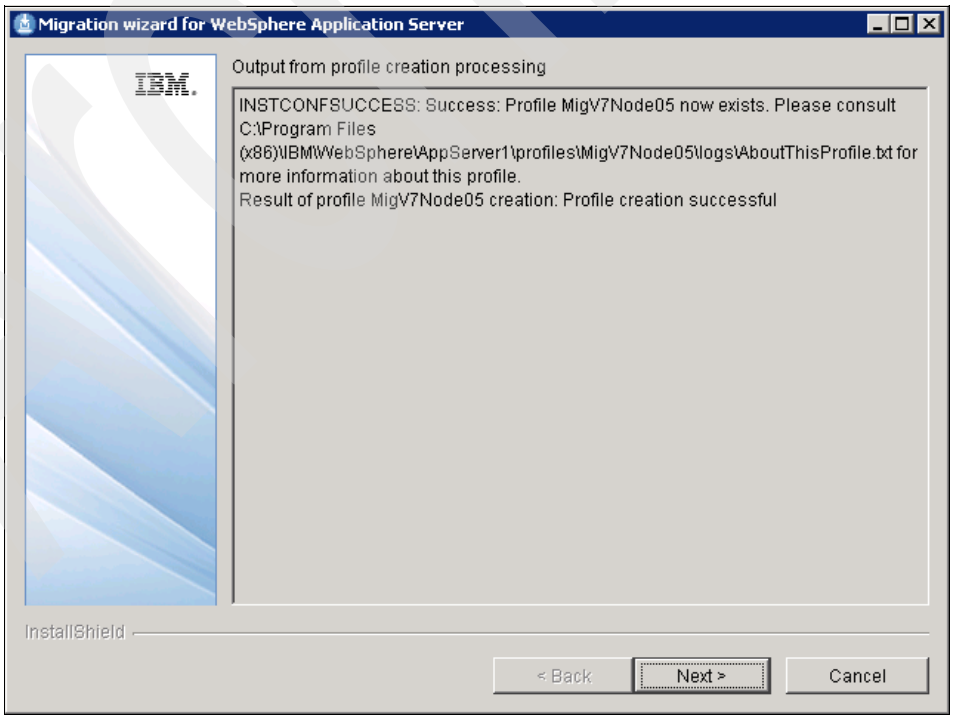

Figure 4-38 Profile creation status

The message in Figure 4-39, indicating a successful first step in pre-upgrade migration successful message window is displayed. Click **Next** to continue.

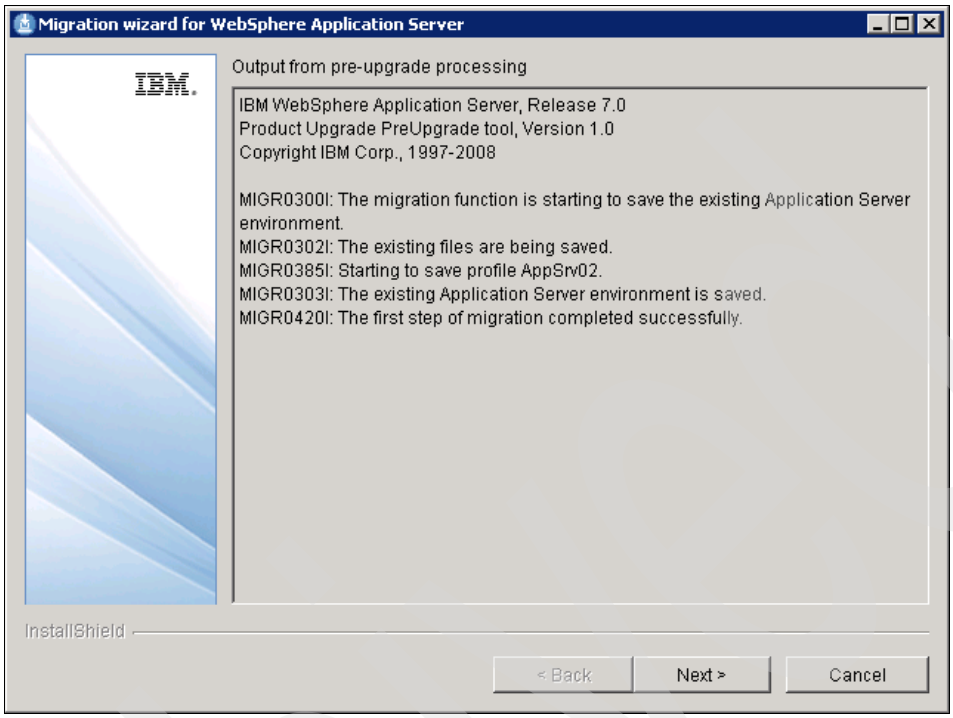

Figure 4-39 Pre upgrade status

The message in Figure 4-40 is displayed, indicating successful migration completion. Click **Next**.

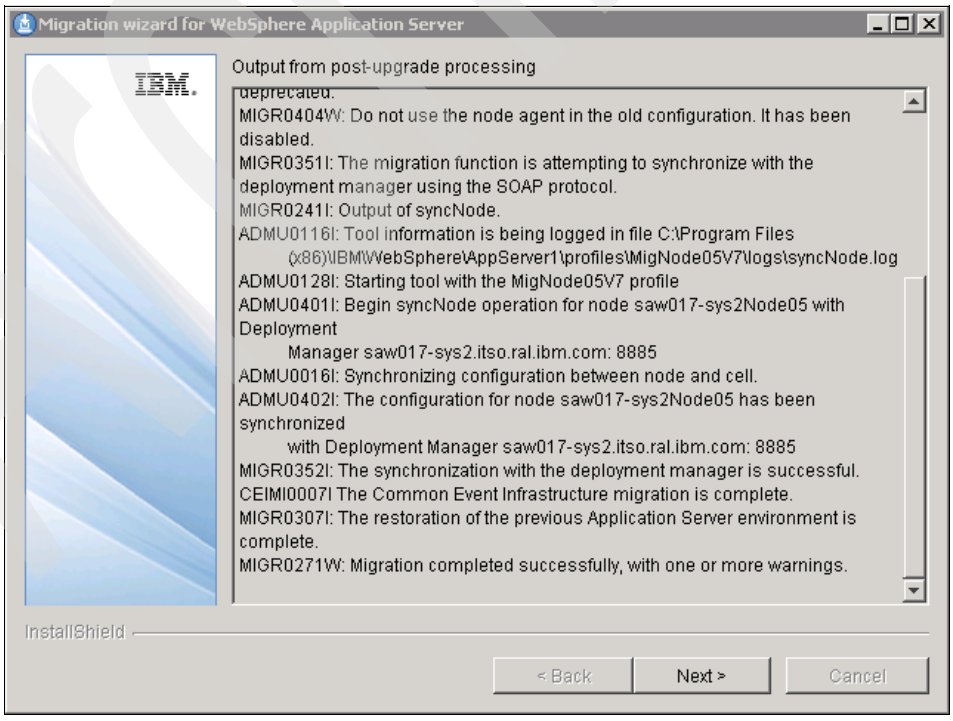

Figure 4-40 Post upgrade status

15. In the “Migration status” panel (Figure 4-41), review the `WASPreMigrationSummary.log` and `WASPostMigrationSummary.log` for any errors or warnings. Click **Next** to complete the Migration wizard.

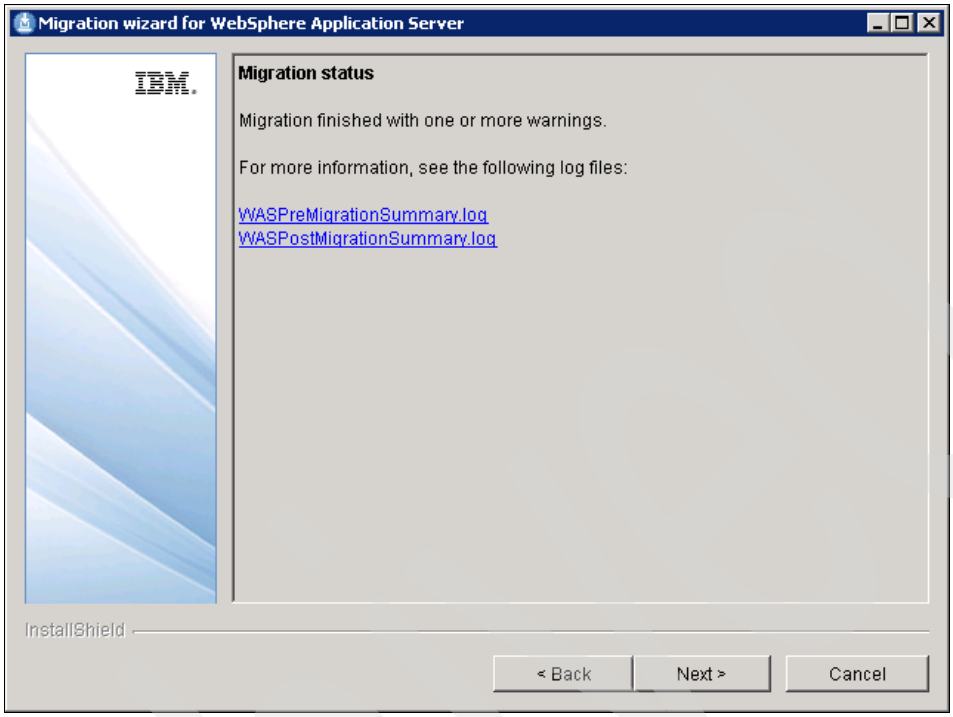

Figure 4-41 Migration status

16. In the “Migration wizard next step” panel (Figure 4-42), click **Cancel** to exit the Migration wizard.

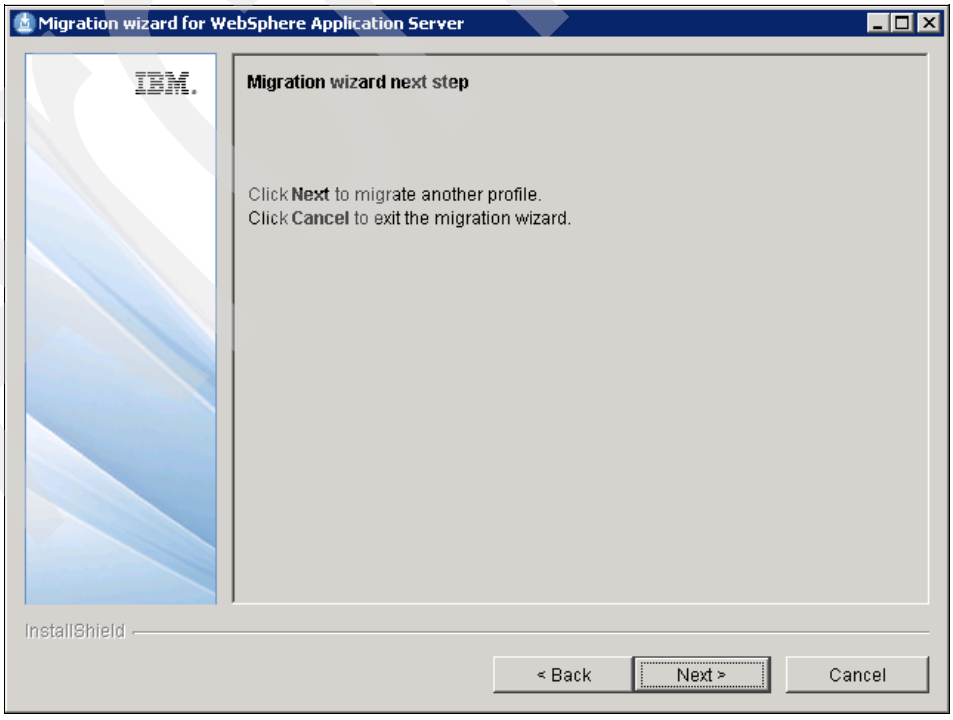

Figure 4-42 Migration wizard creation and exit window

17. Stop the deployment manager of WebSphere Application Server V7.0 and revert the port number to the original value.
18. Start the WebSphere Application Server V7.0 deployment manager and log in to the Administrative console to verify that the new node is federated to the deployment manager. See Figure 4-43 to confirm the migration of the node.

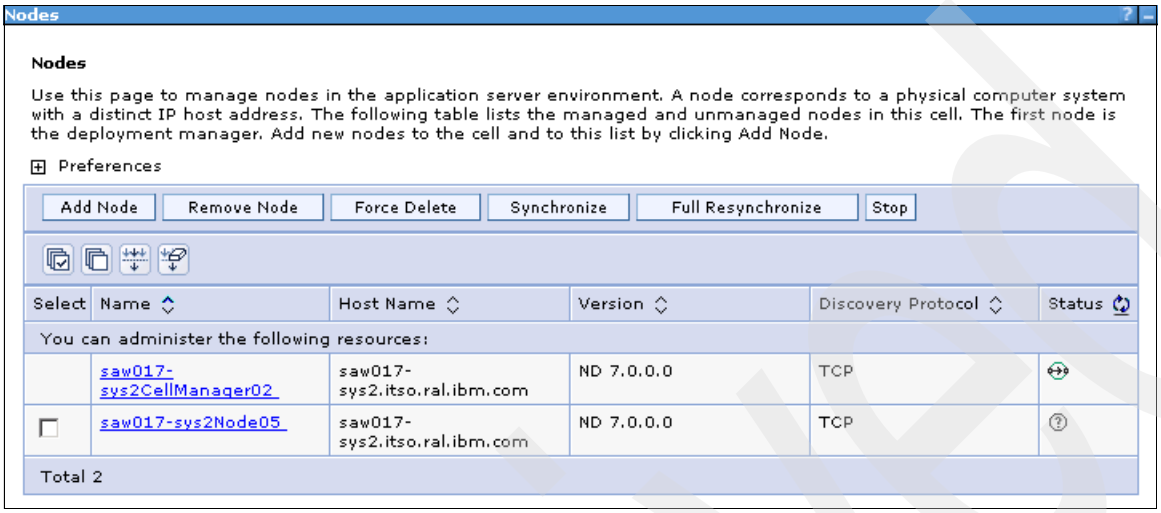

Figure 4-43 New node federated with the deployment manager of WebSphere Application Server V7.0

19. Restore the WebSphere Application Server V6.x node by issuing the **restoreConfig** command and providing the backup file name. See Example 4-4.

Example 4-4 restoreConfig command example

```
C:\PROGRA~2\IBM\WebSphere\AppServer61\profiles\AppSrv02\bin>restoreConfig.bat
We
bSphereConfig_2010-04-06.zip
ADMU0116I: Tool information is being logged in file c:\Program Files

(x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\logs\restoreConfig.
log
ADMU0128I: Starting tool with the AppSrv02 profile
ADMU0505I: Servers found in configuration:
ADMU0506I: Server name: nodeagent
ADMU2010I: Stopping all server processes for node saw017-sys2Node03
ADMU0512I: Server nodeagent cannot be reached. It appears to be stopped.
ADMU5502I: The directory c:\Program Files
           (x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\config already
           exists; renaming to c:\Program Files
           (x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\config.old
ADMU5504I: Restore location successfully renamed
ADMU5505I: Restoring file WebSphereConfig_2010-04-06.zip to location c:\Program
           Files (x86)\IBM\WebSphere\AppServer61\profiles\AppSrv02\config
.....................................................................
.
.....................................................................
.
.....................................................................
A
DMU5506I: 239 files successfully restored
ADMU6001I: Begin App Preparation -
ADMU6009I: Processing complete.
```

20. Create two properties files. These files are used to update the port numbers on the WebSphere Application Server V6.x node. The Information Center provides several ways of creating the properties files for operating systems. See the following Web page for more information:

    http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/tmig_6coexist70.html

    For our example, newport.props file is created and saved under C:/ drive. This file contains all the ports that used by the node. See Example 4-5.

Example 4-5 Example port assigned for the WebSphere Application Server V6.x node

```
WC_defaulthost=19082
WC_adminhost=19064
WC_defaulthost_secure=19445
WC_adminhost_secure=19047
BOOTSTRAP_ADDRESS=22813
SOAP_CONNECTOR_ADDRESS=28884
IPC_CONNECTOR_ADDRESS=29633
SAS_SSL_SERVERAUTH_LISTENER_ADDRESS=29418
CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS=29417
CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS=29416
ORB_LISTENER_ADDRESS=39101
DCS_UNICAST_ADDRESS=39358
SIB_ENDPOINT_ADDRESS=37278
SIB_ENDPOINT_SECURE_ADDRESS=37288
SIB_MQ_ENDPOINT_ADDRESS=45560
SIB_MQ_ENDPOINT_SECURE_ADDRESS=45580
SIP_DEFAULTHOST=45063
SIP_DEFAULTHOST_SECURE=45062
```

21. Create another properties file (named appserver.props) and set the parameters (such as WAS_HOME, was.install.root, profileName, profilePath, templatePath, nodeName, cellName, hostName, and the portsFile) as shown in Example 4-6.

Example 4-6 appserver.props file with WebSphere Application Server details

```
WAS_HOME=C:/Progra~2/IBM/WebSphere/AppServer1"
was.install.root=C:/Progra~2/IBM/WebSphere/AppServer1
profileName=AppSrv02
profilePath=C:/Progra~2/IBM/WebSphere/AppServer1/profiles/newNodev702
templatePath=C:/Progra~2/IBM/WebSphere/AppServer1/profileTemplates/default/acti
ons
nodeName=saw017-sys2Node03
cellName=saw017-sys2Cell02
hostName=saw017-sys2.itso.ral.ibm.com
portsFile=C:/newport.props
```

22. Issue the **ws_ant** command to modify the ports in the WebSphere Application Server V6.x node. See Example 4-7.

Example 4-7 ws_ant command execution to modify the ports

```
C:\PROGRA~2\IBM\WebSphere\AppServer1\profiles\newNodev702\bin>ws_ant.bat
-propertyfile C:/appserver.props -file
C:/Progra~2/IBM/WebSphere/Appserver1/profileTemplates/default/actions/updatePor
ts.ant
```

23. Open a command prompt to start the WebSphere Application Server V6.x and V7.0 nodes from their respective node directory using the **startNode** command. See Example 4-8 and Example 4-8.

Example 4-8 startNode command on WebSphere Application Server V7.0

```
C:\PROGRA~2\IBM\WebSphere\AppServer1\profiles\newNodev702\bin>startNode.bat
```

Example 4-9 startNode command WebSphere Application Server V6.x

```
C:\PROGRA~2\IBM\WebSphere\AppServer61\profiles\AppSrv02\bin>startNode.bat
```

Successfully started message should appear on both the terminals.

24. Follow these steps to migrate other nodes from WebSphere Application Server V6.x to V7.0.

5

Migrating a large network deployment configuration with a large number of applications

If you have an existing WebSphere Application Server V5.1.x or V6.x Network Deployment configuration (with large applications) and you must meet a specific maintenance window for migration, you may experience some difficulty using the standard migration scenario. If so, copy the resources in the configuration tree from a WebSphere Application Server V5.1x or V6.x deployment manager to a WebSphere Application Server V7.0 deployment manager management profile. But defer adding applications to the WebSphere Application Server V7.0 profile. This allows you to continue managing the environment using the WebSphere Application Server V5.1.x or V6.x deployment manager.

5.1 Migration scenario

This scenario consists of a significant number of large applications installed on various cluster configurations. These applications are spread across separate nodes and managed by a single Network Deployment manager of WebSphere Application Server V5.1.x or V6.x on a Windows® operating system as shown in Figure 5-1 and Figure 5-2 on page 73.

Figure 5-1 Cluster Topology with several cluster members from separate nodes

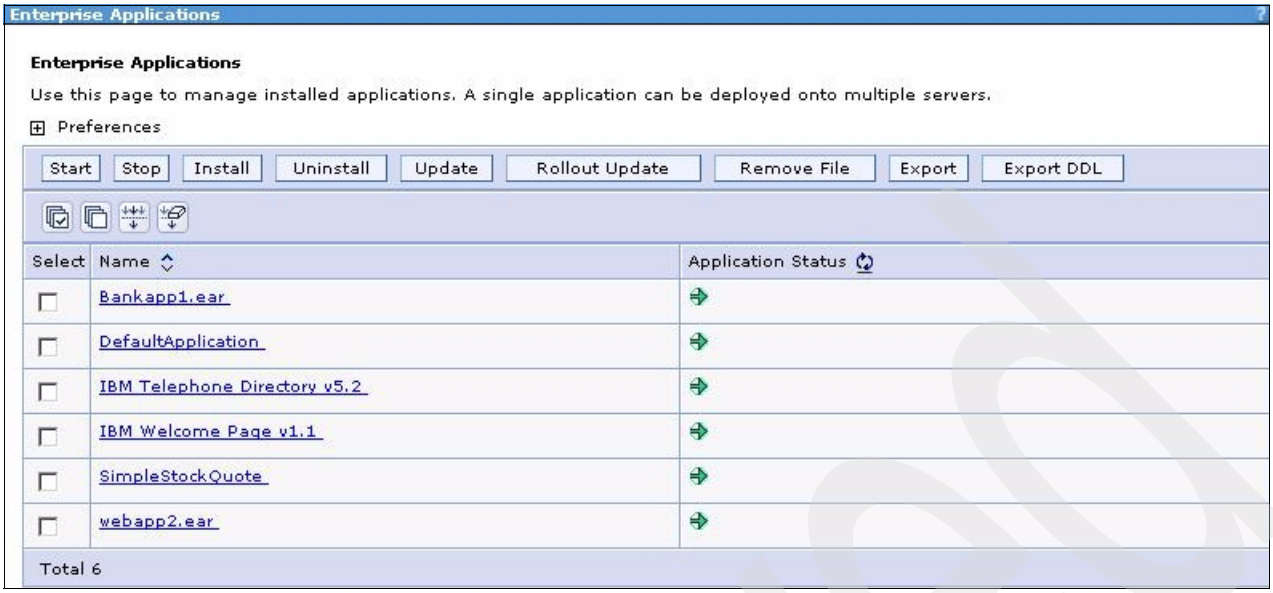

Figure 5-2 Large applications running on separate clusters and managed by a Dmgr

5.2 Migrating WebSphere Application Server V5.1.x or V6.x to V7.0 in the background

The following procedure demonstrates the migration of the current WebSphere Application Server Network Deployment configuration WebSphere Application Server V5.1.x or V6.x to V7.0 in the background. Usually carried out during the period where maintenance is addressed, while the existing topology is still running and being managed.

1. Make sure that the WebSphere Application Server V5.1.x or V6.x deployment manager is running and managing the existing environment.

   Make sure that WebSphere Application Server V7.0 deployment manager is not running. This is important to prevent two separate deployment managers from trying to manage the same environment.

2. Run the **WASPreUpgrade** command as shown in Example 5-1.

   Example 5-1 WASPreUpgrade command to backup

```
C:\IBM\WebSphere70\AppServer\bin\WASPreUpgrade.bat C:\mybackup\v61tov7dmgr01
C:\IBM\WebSphere61\AppServer -oldProfile Dmgr01

IBM WebSphere Application Server, Release 7.0
Product Upgrade PreUpgrade tool, Version 1.0
Copyright IBM Corp., 1997-2008

MIGR0300I: The migration function is starting to save the existing Application
Server environment.
MIGR0302I: The existing files are being saved.
MIGR0385I: Starting to save profile Dmgr01.
MIGR0425I: A deployment manager migration is detected.  Before continuing with
the WASPostUpgrade process, run the backupConfig command on your federated
nodes.

MIGR0303I: The existing Application Server environment is saved.
MIGR0420I: The first step of migration completed successfully.
```

For a full explanation of the **WASPreUpgrade** command and its parameters, read the Information Center article *WASPreUpgrade command*, available at the following Web page:

http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/rmig_WASPreUpgrade.html

Before you run the **WASPostUpgrade** command to avoid possible connection-timeout problems, modify the connection-timeout value of the SOAP Connector in the WebSphere Application Server V7.0 AppServer Profile:

a. Change the value of com.ibm.SOAP.requestTimeout in the `C:\IBM\WebSphere70\AppServer\profiles\AppSrv01\properties\soap.client.props` file to make it large enough to migrate your configuration. For example, the following entry would give you a timeout value of a half of an hour:

   ```
   com.ibm.SOAP.requestTimeout=1800
   ```

   Important: Select the smallest timeout value that meets your needs. Be prepared to wait for at least three times the timeout that you select: once to download files to the backup directory, once to upload the migrated files to the deployment manager, and once to synchronize the deployment manager with the migrated node agent.

b. Change the value of com.ibm.SOAP.requestTimeout in the `backupDirectory\profiles\profile_name\properties\soap.client.props` file created by the **WASPreUpgrade** command, for example, to the same value that you used in the WebSphere Application Server V7.0 file.

3. Run the **WASPostUpgrade** command.

   a. Run the **WASPostUpgrade** command from the WebSphere Application Server V7.0 `app_server_root/bin` directory.

   b. Specify the name of the WebSphere Application Server V5.1.x or V6.x migration back up directory.

   c. Specify -includeApps script.

      This does not migrate your applications. It creates scripts that you can run later to install your applications

   d. Specify -keepDmgrEnabled true.

      This allows you to use the existing WebSphere Application Server V5.1.x or V6.x deployment manager after the migration is completed.

   e. Specify any other options you might want.

      For example:

      ```
      C:\IBM\WebSphere70\AppServer\bin\WASPostUpgrade.bat
      ```

      ```
      C:\mybackup\v61tov7dmgr01 -profileName v61tov7dmgr01 -oldProfile Dmgr01
      -replacePorts TRUE -keepDmgrEnabled TRUE:
      ```

      For a full explanation of the **WASPostUpgrade** command and its parameters, read the Information Center article *WASPostUpgrade command*, available at the following Web page:

      http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/welc6topmigrating.html

      Remember: At this point, you can exit the maintenance window and still manage the environment using the WebSphere Application Server V5.1.x or V6.x deployment manager.

4. Customize the administration files present in the migration backup directory by grouping applications together. Or, specify the installed Applications directory using the installed.ear.destination parameter as shown in Example 5-2.

Example 5-2 Script generated by the migration tools to install Bankapplication on V7.0

```
earFile='C:/IBM/WebSphere70/AppServer/profiles/Dmgr01/installableApps/Bankapp1.
ear.ear'
AdminApp.install(earFile,'[-nodeployejb -appname Bankapp1.ear
-createMBeansForResources -noreloadEnabled -reloadInterval 3 -custom
enhancedEarDisableValidation=true  -MapModulesToServers [
[SessionTrackingServlets SessionTrackingCounter.war,WEB-INF/web.xml
WebSphere:cell=saw017-sys1Cell01,node=saw017-sys1Node01,server=server1+WebSpher
e:cell=saw017-sys1Cell01,cluster=Cluster1+WebSphere:cell=saw017-sys1Cell01,clus
ter=Cluster2+WebSphere:cell=saw017-sys1Cell01,cluster=Cluster3+WebSphere:cell=s
aw017-sys1Cell01,cluster=Cluster4+WebSphere:cell=saw017-sys1Cell01,cluster=Clus
ter5] ]]')
AdminConfig.save()
```

Similar Jython scripts are generated for all other applications and are stored in the backup folder, as shown in Figure 5-3.

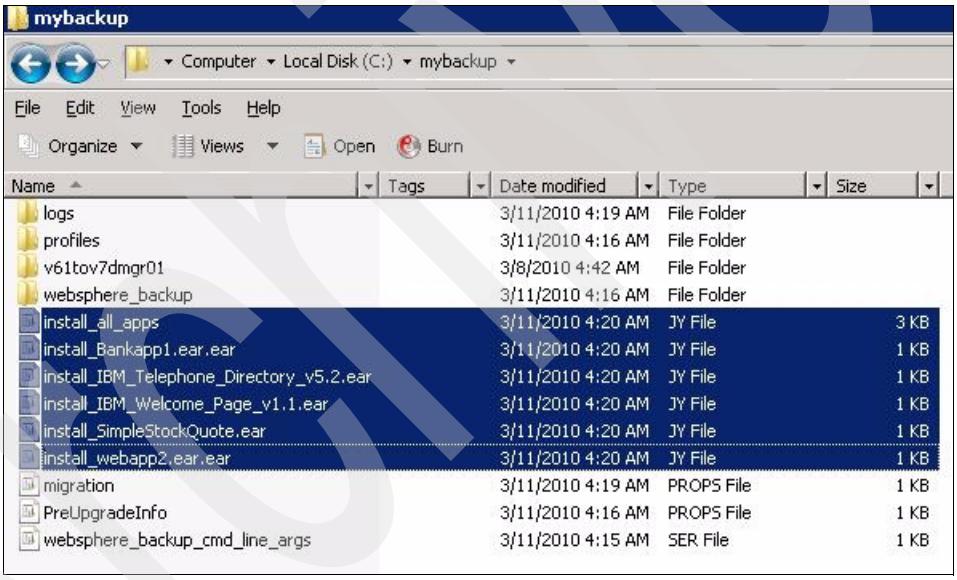

Figure 5-3 Jython Scripts generated in the backup directory during the process of migration

5. Run the **wsadmin** command to install the applications.
   a. Install the applications in the WebSphere Application Server V7.0 configuration during either normal operations or in applicable maintenance windows.
   b. Specify -conntype NONE. For example:

```
wsadmin -f install_SimpleStockQuote.ear -conntype NONE
```

After all the applications have been installed, you are ready to use the WebSphere Application Server V7.0 deployment manager.

6. Stop the WebSphere Application Server V5.1.x or V6.x deployment manager.

   This is important to prevent two separate deployment managers from trying to manage the same environment.

   You can do this in a number of ways. One easy way is to rename the `serverindex.xml` file in the node directory of the WebSphere Application Server V5.1.x or V6.x deployment manager.

7. Start the WebSphere Application Server V7.0 deployment manager from its `profile_root/bin` directory. For example:

   ```
   C:\IBM\WebSphere70\AppServer\bin\startManager.bat
   ```

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this paper.

IBM Redbooks

For information about ordering these publications, see “How to get Redbooks” on page 80. Note that documents referenced here might be available in softcopy only.

- *WebSphere Application Server V7: Concepts, Planning and Design*, SG24-7708
- *WebSphere Application Server V7.0 Security Guide*, SG24-7660
- *WebSphere Application Server V7: Packaging Applications for Deployment*, REDP-4582
- *WebSphere Application Server V7.0: Technical Overview*, REDP-4482
- *IBM WebSphere Application Server V7.0 Web Services Guide*, SG24-7758
- *WebSphere Application Server V7: Accessing EIS Applications from WebSphere*, REDP-4578
- *WebSphere Application Server V7: System Management Technical Overview*, REDP-4569

Online resources

These Web sites are also relevant as further information sources:

- Runtime Migration tools
  - Distributed

    http://publib.boulder.ibm.com/infocenter/wasinfo/fep/topic/com.ibm.websphere.migration.nd.doc/info/ae/ae/tmig_wiz.html
  - zOS

    http://publib.boulder.ibm.com/infocenter/wasinfo/fep/topic/com.ibm.websphere.migration.zseries.doc/info/zseries/ae/tmig_tools.html
  - Article

    http://www.ibm.com/developerworks/websphere/library/techarticles/0812_luchini/0812_luchini.html
- Properties Based Configuration
  - General Systems Management article

    http://www.ibm.com/developerworks/websphere/techjournal/0811_apte/0811_apte.html
  - Properties-based Configuration

    http://www.ibm.com/developerworks/websphere/techjournal/0904_chang/0904_chang.html

  - Information Center

    http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/rxml_7propbasedconfig.html

  - Importing and Exporting policy sets

    http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.express.doc/info/exp/ae/txml_wsfpimpexp.html

- Programming model extension migration

  http://publib.boulder.ibm.com/infocenter/wasinfo/fep/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/cmig_pme.html

- Migrating from the WebSphere Connect JDBC driver

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/tmig_jdbc.html

- Installing WebSphere Customization Tools

  http://publib.boulder.ibm.com/infocenter/dmndhelp/v6r2mx/index.jsp?topic=/com.ibm.websphere.wps.z.620.doc/doc/tins_zos_install_wct.html

- Migrating to WebSphere z/OS V7

  http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101329

- What's new in this release

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/welc_newinrelease.html

- Meet the experts: What's new in WebSphere Application Server V7

  http://www.ibm.com/developerworks/websphere/library/chats/0809_was7chat/0809_was7chat.html

- developerWorks: What's new in WebSphere Application Server V7.0

  http://www.ibm.com/developerworks/websphere/library/techarticles/0809_alcott/0809_alcott.html

- WebSphere Application Server Migration - Best Practices and Sources

  http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27013190

- Knowledge Collection: Migration planning for WebSphere Application Server

  http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27008724

- A quick guide for migrating to WebSphere Application Server V7

  http://www.ibm.com/developerworks/websphere/library/techarticles/0812_luchini/0812_luchini.html

- Migrating, coexisting, and interoperating

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.multiplatform.doc/info/ae/ae/welc6topmigrating.html

- IBM Education Assistant

  http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp?topic=/com.ibm.iea.was_v7/was/7.0/InstallationAndMigration.html

- IBM WebSphere Developer Services

  http://www.ibm.com/isv/tech/remoteEmail/entryForm.jsp

- Open service request

  http://www-01.ibm.com/software/support/probsub.html
- Service Request tool for managing problem management records

  http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21189715
- IBM Software Services for WebSphere (ISSW)

  http://www3.software.ibm.com/ibmdl/pub/software/dw/wes/pdf/services/DevelopDeployFinal.pdf
- WebSphere Education

  http://www-01.ibm.com/software/websphere/education/
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  http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27010819
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  http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/wp101329
- Support overview

  http://www-947.ibm.com/support/entry/portal/Overview/Software/WebSphere/WebSphere_Application_Server
- Exchanging information with IBM Technical Support for problem determination

  http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21153852
- MustGather: Migration problems

  http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21141284
- Download IBM Support Assistant (ISA) Lite for WebSphere Application Server

  http://www-01.ibm.com/support/docview.wss?rs=3455&uid=swg24020502
- IBM Support Assistant

  http://www-01.ibm.com/software/support/isa/
- Installing the product and additional software

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.installation.nd.doc/info/ae/ae/tins_install.html
- **manageprofiles** command

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.express.iseries.doc/info/iseriesexp/ae/rxml_manageprofiles.html
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- List of supported software for WebSphere Application Server deployment manager V7.0

  http://www-01.ibm.com/support/docview.wss?uid=swg27012373
- Migrating product configurations

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.iseries.doc/info/iseriesnd/ae/tmig_admin.html

- **WASPreUpgrade** command

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.migration.nd.doc/info/ae/ae/rmig_WASPreUpgrade.html

- WASPostUpgrade command

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/topic/com.ibm.websphere.migration.nd.doc/info/ae/ae/rmig_WASPostUpgrade.html

- Setting up Version 5.1.x or Version 6.x and Version 7.0 coexistence

  http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.migration.nd.doc/info/ae/ae/tmig_6coexist70.html

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WebSphere Application Server V7 Migration Guide

Redpaper™

Resources for planning and performing V7.0 migration

Significant changes regarding V7.0 migration

Migration scenarios and examples

This IBM Redpaper publication positions WebSphere Application Server Version 7.0 in today's marketplace and discusses the most common migration methods taking WebSphere Application Server from a V5.1 and V6.x environment to V7.0.

This paper helps you to understand the significant changes with respect to migrating to WebSphere Application Server on V7.0.

This paper provides several business scenarios that can be implemented through simple customizations. Each scenario addresses a unique requirement that can be mapped with similar business scenarios, as in the following examples:

- Migrate portions of a configuration from an existing WebSphere Application Server V5.1.x, V6.0.x, or V6.1x to V7.0.
- Migrate existing configurations and applications to WebSphere Application Server V7.0 by copy and coexistence.
- Migrate a large network deployment configuration with a large number of applications.

This paper has been developed for an experienced WebSphere Application Server design, development, and software engineering audience.

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