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IBM WebSphere Application Server V8.0

Configuration migration

WebSphere software

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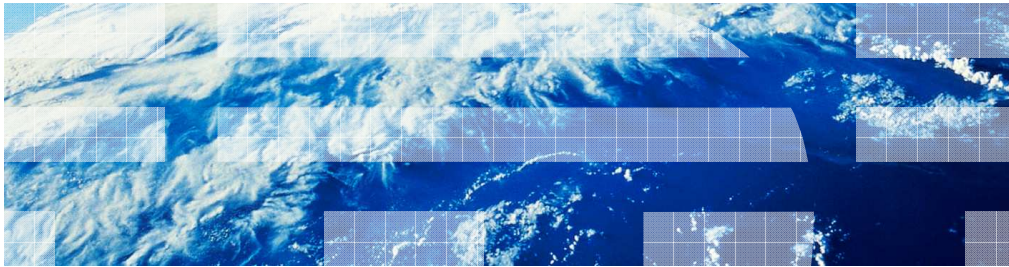
This presentation describes configuration migration for IBM WebSphere® Application Server V8.

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This presentation will cover a quick overview of migration goals and outcomes, What is new for migration in V8.0, some details on these key items and how they are being migrated, and migration views of a simple topology and a complex topology.

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Section

Overview

This is an overview on the configuration migration tools.

WebSphere configuration migration overview (1 of 6)

- Presentation covers general concepts of the WebSphere Application Server configuration migration tools and processes.
- Abbreviations
  - CMMT
    - Configuration Migration Management Tool
  - zMMT
   - z/OS® Migration Management Tool

This presentation covers general concepts of the WebSphere Application Server configuration migration tools and processes. Several abbreviations are used throughout the presentation.

zMMT refers to the z/OS Migration Management Tool, which is shipped as part of the WebSphere Customization Toolkit, or WCT.

CMMT refers to the Configuration Migration Management Tool.

WebSphere configuration migration overview (2 of 6)

- Configuration migration process includes tools, procedures, and information to reconstruct or migrate the current WebSphere Application Server configuration from one version to the next.
  - *Configuration* includes topology information, server-specific customizations, and applications with any known associated data.
- Configuration migration allows users to maintain a stable environment, while providing a path for a future implementation that includes the latest technologies delivered in a new version of WebSphere Application Server.

profile

serv1 serv2

Configuration Migration Process

profile

profile

serv1 serv2

V6.0,V6.1,V7.0

V8.0

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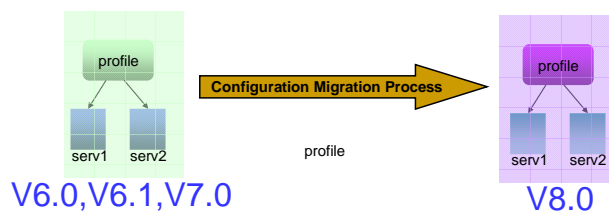
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The WebSphere Configuration Migration process provides you with the necessary tools, procedures and information to reconstruct or migrate your current WebSphere configuration from one version to the next. The "configuration" includes topology information, server-specific customizations, and applications with any known associated data.

Migration of the current configuration allows you to maintain a stable environment, while providing a path for future implementation and use of the latest technologies being delivered in the new version of the WebSphere Application Server product.

The Configuration Migration Tools provided with a new version of WebSphere Application Server are run against the profiles/nodes from the previous release. WebSphere Application Server V8.0 supports migration from versions 6.0, 6.1 and 7.0.

The migration tools include the intelligence to interpret the configuration data included in older WebSphere Application Server environments, and can successfully copy, replace, merge, or purge the data as it is migrated into profiles included in a new version of WebSphere Application Server.

WebSphere configuration migration overview (3 of 6)

- Two step process
  - Profile data from old version or source profile is captured into a migration backup directory.
  - Source data is merged into the new target profile.
- Allows users to keep their old system running until new environment is ready.
- Various options for running a migration, depending on the topology of the installations.
  - Scenarios are outlined in the WebSphere Application Server information center and white papers
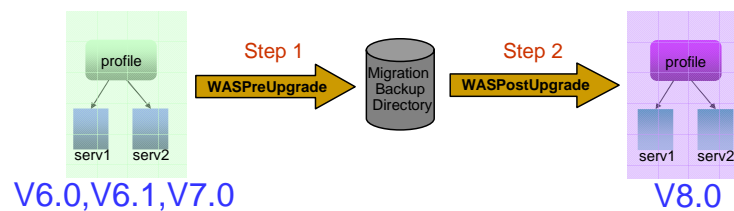
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Configuration migration is a two step process.

Profile data from the old version or source profile is captured into a migration backup directory.

Later the source data is merged into the new target profile.

This two step process allows you to keep your old system running until the new environment is ready.

There are various options for running a migration, depending on the topology of the installation.

These scenarios are outlined in the WebSphere Application Server information center and white papers.

When using the migration command line tools, it is the responsibility of the user to create the appropriate target profile in the V8.0 release.

The migration wizard will automatically detect and create the correct target profile type.

Topologies include:

StandAlone Servers

Cell Environment - A Deployment Manager and one or more Federated Nodes.

Flexible Managed Environments – A Job Manager or Admin Agents with Registered Servers.

Migration of any Flexible Management profile has certain restrictions with mixed cell environments.

See the Information Center for more information on these restrictions.

WebSphere configuration migration overview (4 of 6)

- Configuration migration is not part of the server runtime process.
  - Under certain conditions, it is not necessary to stop the old server in order to migrate.
- Migration handles one profile/node at a time.
  - Profiles in cell and flexible management topologies must be migrated in a predefined order.
- Migration process merges the old configuration data into the new configuration data, taking into account data which needs to be replaced, merged or purged.
  - Newly migrated servers behave similarly to old servers.

Configuration migration is not part of the server runtime process.

Under certain conditions, it is not necessary to stop the old server in order to migrate.

Migration handles one profile/node at a time.

Profiles in cell and flexible management topologies must be migrated in a predefined order.

The migration process merges the old configuration data into the new configuration data, taking into account data which needs to be replaced, merged or purged.

The result is a newly migrated server that behaves similarly to the old server.

Some performance benefits can be obtained by shutting down the server before migrating it.

Some migrations require the server to be shut down to release file locks and Derby database locks.

Some migrations will automatically shut down the old server unless told not to do so.

The information center contains more details on these conditions where the server must be shut down.

In a cell environment, the deployment manager must be migrated first, and then be up and running before any of the nodes it manages are migrated.

Each node will be migrated independently. It is always recommended to run the backupConfig tool before migrating any profile.

The flexible management topologies will be discussed in more detail later in the presentation.

WebSphere configuration migration overview (5 of 6)

- Migrating applications is controlled through the –includeApps parameter that includes the following options:
  - false
    - Does not migrate user applications.
  - script
    - Generates scripts so that user applications can be manually migrated at a later time. Users can select which applications to deploy in the new environment.
  - true
    - Migrates and deploys all user applications from the old profile into the new profile.
- Migration wizards are also provided to help guide users through the migration process.
  - Separate wizards are provided for z/OS and distributed platforms.

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Migrating applications is controlled through the "–includeApps" parameter and includes the following options:

"false" - Does not migrate the user applications.

"script" - Generates scripts so that user applications can be manually migrated at a later time. You can select which applications to deploy in the new environment.

"true" - Migrates and deploys all user applications from the old profile into the new profile.

Applications are migrated as-is. They are not upgraded to include any of the newly provided technologies.

Migration wizards are also provided to help guide you through the migration process. Separate wizards are provided for z/OS and distributed platforms.

The migration wizard will be covered in more detail later in this presentation.

WebSphere configuration migration overview (6 of 6)

- The migration of applications by the configuration migration tools is limited to simply copying the application from the old to the new release.
  - The application is not upgraded or modified to use any of the new technologies or features shipped with the new release.
- A separate application migration toolkit is available.
  - It assists the user in upgrading their applications to exploit the new industry standards shipped in the new WebSphere Application Server release.
  - It can also assist the user in migrating applications from some competitive application servers to run on the WebSphere Application Server.

The migration of applications by the Configuration Migration tools is limited to simply moving the application from the old to the new release.

The application is not upgraded or modified to use any of the new technologies or features shipped with the new release.

A separate Application Migration Toolkit is available.

It assists the user in upgrading their applications to exploit the new industry standards shipped in the new WebSphere Application Server release.

It can also assist the user in migrating applications from some competitive application servers to run on the WebSphere Application Server.

WebSphere Application Server V7.0 introduced many new capabilities, all handled by the V8.0 migration process.

These include, but are not limited to

       Flexible Management profiles such as

              Job Manager

              Administrative Agent

              Registered standalone application server

       New Security features such as

              Enhanced SSL

              Security Audit

              Kerberos

              Multi-Domain Security

       Business Level Applications (BLAs)

       Data Power node configuration

       And WebSphere Application Server V7.0 Feature Packs

Although other features were introduced, we are only highlighting those significant ones that affect migration.

What's new for migration in V8.0 (2 of 2)

- Migration tools provide
  – A new Eclipse-based migration wizard for distributed platforms, the Configuration
    Migration Management Tool (CMMT).
    • Handles the new flexible management profile types.
    • Provides additional control and monitoring of the migration process.
  – More robust handling of cross-platform migrations. (Distributed platforms only)
    • Allows migration to a different operating system. (iSeries®, z/OS excluded)
    • Allows migration to a different machine with the same operating system.
    • Allows dynamic creation of a JAR containing files to run the WebSphere Application
      Server V8.0 WASPreUpgrade command on a remote machine.
  – The z/OS Migration Management Tool (zMMT) has been enhanced.
    • Handles the new flexible management profile types.
    • Allows 64 bit migrations on z/OS.

In addition, the WAS V8.0 migration tools provides:

A new Eclipse-based migration wizard for distributed platform, the Configuration Migration Management Tool (CMMT).

It handles the new flexible management profile types.

It also provides additional control and monitoring of the migration process.

It has a more robust way of handling cross platform migrations. (Distributed platforms only)

It allows migration to different operating system. (iSeries, z/OS excluded)

It allows migration to a different machine with the same operating system.

It allows dynamic creation of a JAR containing the support files to run the WAS V8.0 WASPreUpgrade command on a remote machine.

The z/OS Migration Management Tool (zMMT) has been enhanced.

It handles the new flexible management profile types.

It allows 64 bit migrations on z/OS.

Key migration items for V8.0

- Flexible management
- Business Level Applications (BLAs)
- Cross platform migrations
- Migration management tools
  - CMMT
  - zMMT

The first main migration topic is the Migration of Flexible Management topologies. There are two Flexible Management profile types: Job Manager and Admin Agents. There is also a Scenario for migration on a Base Application Server registered to an Admin Agent.

Flexible management profile – Job manager

WebSphere Application Server V7.0 introduced two new profile types: job manager and administrative agent
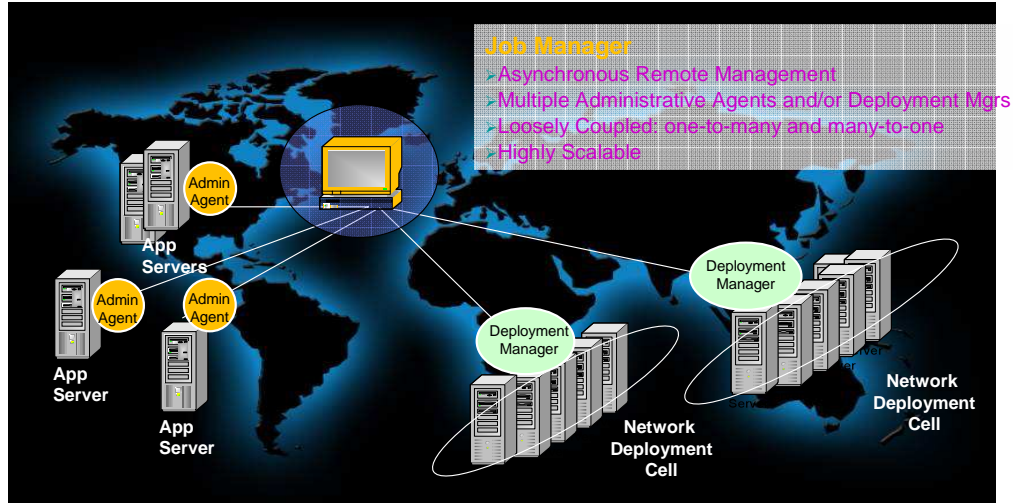
Job Manager profile was introduced in version 7 for asynchronous remote management.

In a flexible management environment, a job manager allows you to submit administrative jobs asynchronously to application servers registered to administrative agents, and to deployment managers.

You can submit these jobs to a large number of servers over a geographically dispersed area.

Flexible management migrations - Job manager

- Migrate the job manager to V8.0 before migrating any deployment managers or administrative agents which have servers registered to it.
  – Registered servers can only poll jobs from a job manager that is at the same or higher version of WebSphere Application Server.
- Notes
  – Configuration migration management tool (GUI) supports migration of job manager profiles.
  – Information center topic on migrating a job manager profile:

http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.migration.nd.doc%2Finfo%2Fae%2Fae%2Ftmig_migrate_job_mgr.html

- Next
  – Migrate the registered deployment managers and administrative agents.

Migrate the job manager to version 8.0 before migrating any deployment managers or administrative agents which have servers registered to it.

Registered servers can only poll jobs from a job manager that is at the same or higher version of WebSphere Application Server.
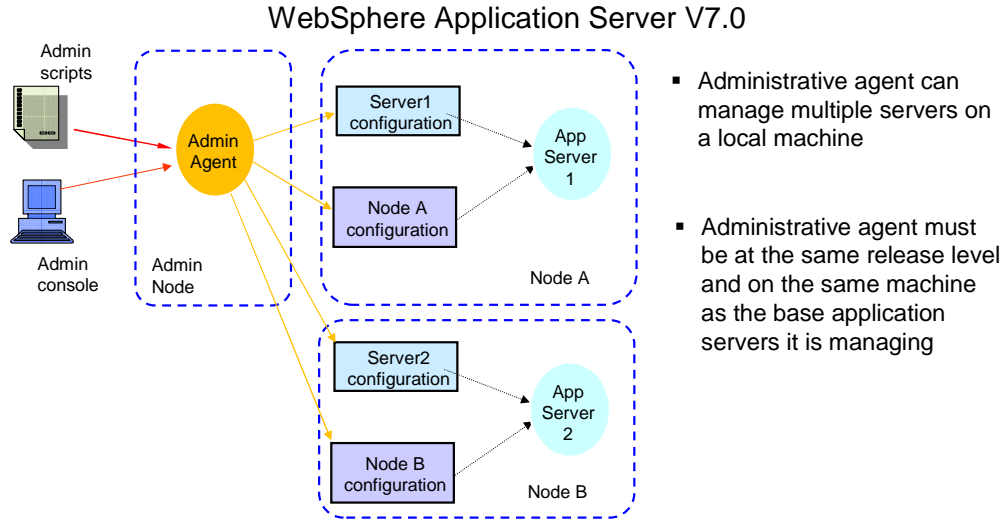Note: you may migrate the profiles being managed by a job manager before the job manager; however, these migrated servers will not be able to poll for their jobs because the job manager is at an older release level; therefore, the job manager should always be migrated first.

The job manager must be shut down before migration because of its use of the embedded Derby database.

Job managers are not allowed to undergo a machine change migration because of the URLs used by the registered servers to look up the job manager.

Flexible management profile – Administrative agent

- Improves control and eases administration

WebSphere Application Server V7.0

Admin scripts

Admin console

Admin Node

Admin Agent

Server1 configuration

Node A configuration

App Server 1

Node A

Server2 configuration

Node B configuration

App Server 2

Node B

- Administrative agent can manage multiple servers on a local machine

- Administrative agent must be at the same release level and on the same machine as the base application servers it is managing

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Administrative agent profiles manage multiple base application servers in environments such as development, unit test or that portion of a server farm that resides on a single machine.

Flexible management migrations - Administrative agent

- Since the registered base application servers and the administrative agent must be at the same version level, the migration process copies over the old configuration and creates a new set of ports.
  - Approach ensures that the base application servers can still be registered to the old administrative agent until they are ready to be migrated
- Notes
  - Configuration migration management tool (GUI) supports this task
- Information center topic on migrating an administrative agent:
  http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.migration.nd.doc%2Finfo%2Fae%2Fae%2Ftmig_migrate_admin_agent.html
- Next
  - Migrate managed base application servers

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Before you can migrate registered base application servers from version 7.0 to version 8.0, you must first migrate the Administrative Agent.

It is not a true migration – rather a cloning of the version 7.0 Administrative Agent to a version 8.0 Administrative Agent.

This cloning allows the base application servers registered to the version 7.0 Administrative Agent to be migrated to version 8.0 independently over a period of time.

As the registered base application server is migrated – it is de-registered from the version 7.0 Administrative Agent and re-registered to the version 8.0 Administrative Agent.

Once all the version 7.0 registered base application servers are migrated, the version 7.0 administrative agent can be removed.

Because of the de-registering and re-registering, the WASPostUpgrade command requires a large set of new parameters used in connecting to the old and new Administrative Agents.

It is recommended to use the migration wizard to simplify this task.

The migration user scenario in the information center will also guide you through this migration.

Flexible management migrations – Registered application server

- As a registered base application server is migrated, it is unregistered from the old administrative agent and registered with the new administrative agent.
  - As a result, migration of a registered base application server requires additional parameters in the WASPostUpgrade command.
- Before you begin
  - Make sure that the V7.0 and V8.0 administrative agents are running.
    Notes
  - Information center topic on migrating registered base application servers:
    http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.migration.nd.doc%2Finfo%2Fae%2Fae%2Ftmig_migrate_admin_agent_step10.html
  - Configuration migration management tool (GUI) supports this task.
  - The machineChange option is not valid for any of the flexible management profiles.
  - All flexible management profiles can be migrated on z/OS using the zMMT tool.

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As a registered base application server is migrated, it is deregistered from the old Administrative Agent and registered with the new Administrative Agent.

As a result, migration of a registered base application server requires additional parameters in the WASPostUpgrade command. An example of the WASPostUpgrade command can be found in the information center – it easier to copy and paste this command and fill in the details. Or use the Migration Wizard.

Key migration items for V8.0

- Flexible management
- * Business Level Applications (BLAs)
- Cross platform migrations
- Migration management tools
  - CMMT
  - zMMT

The next main migration topic is on migrating Business Level Applications or BLAs.

Migrating business level applications

- Business level applications (BLAs) were introduced in WebSphere Application Server V7.0.
- WebSphere Application Server V8.0 migrates the BLA data in concert with migrating the user applications.
- The same –includeApps parameter controls the BLA data migration.
- If a user elects to manually install applications, they must also manually install the BLA data.
  – See the install_all_BLAs.jy script located in the migration backup directory.
  – This script is generated by the WASPostUpgrade process.
  – The install_all_apps.jy depends on running the install_all_BLAs.jy first.
- More details can be found in the information center.

Business Level Applications (BLA's) were introduced in WebSphere Application Server Version 7.0.

Business Level Applications are a way to group and manage a set of associated artifacts. The group can be started, stopped and updated as a unit.

WebSphere Application Server Version 8.0 migrates the BLA data in concert with migrating the user applications.

The "–includeApps" parameter controls the migration of BLA data as well as applications.

If a user selects to manually install applications, they must also manually install the BLA data.

See the install_all_BLAs.jy script located in the migration backup directory.

This script is generated by the WASPostUpgrade process.

The install_all_apps.jy depends on running the install_all_BLAs.jy first.

More details can be found in the information center.

A customer can also hand edit these generated application or BLA install scripts and select which applications and/or BLAs they want to install or migrate to the new target profile.
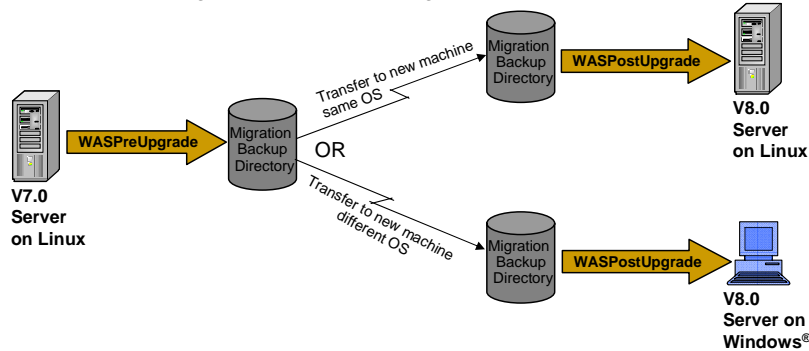
Key migration items for V8.0

- Flexible Management
- Business Level Applications (BLAs)
- *** Cross Platform Migrations**
- Migration Management Tools
  - CMMT
  - zMMT

The next main migration topic is on migrating the profile to a new machine. This new machine may or may not have a different operating system.

Currently, there is no cross-platform migration support for going to or from z/OS or iSeries.

Occasionally users want to migrate their WebSphere profiles/nodes to a new machine.

The new machine may have a different operating system installed on it.

The WebSphere Application Server Version 8.0 migration tools support these types of migrations across all distributed platforms except iSeries. Cross-platform migrations are not supported on z/OS.

Use the "WASPreUpgrade –machineChange true" command for cross platform migrations.

A cross-platform migration needs to collect additional artifacts which are not normally collected during the WASPreUpgrade command.

These artifacts include shared libraries and derby databases which are defined in the profile's configuration data.

These artifacts are collected and moved to the new machine to keep your new migrated server with its applications fully functional.

You may need to install new DLLs and/or adjust some paths in the configuration information because of the new operating system.

Steps on the old machine are:

Run the WebSphere Application Server V8.0 version of the WASPreUpgrade command with the –machineChange true parameter.

Zip up the backup directory.

Transfer this zip file to the new machine.

On the new machine:

Unzip the backup directory.

Create the appropriate target profile in the WebSphere Application Server V8.0 install.

Run the WASPostUpgrade command.

The additional files/artifacts collected during the WASPreUpgrade process will be placed in a special directory called "migrated" under the new target profile.

Cross platform migrations (2 of 2)

- The createRemoteMigrJar tool will help with cross platform migrations.
  - You do not have to perform a full WebSphere Application Server V8.0 installation on the old machine in order to run the WASPreUpgrade command.
  - The WASPreUpgrade command file can be obtained from a machine with WebSphere Application Server V8.0 installed.
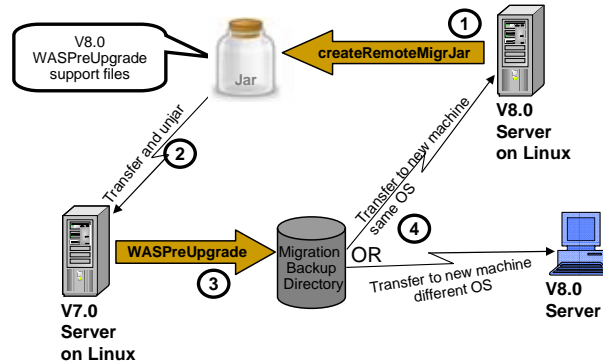
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Past releases of WebSphere Application Server provided a Supplemental CD with the WASPreUpgrade migration tool.

This special version of the WASPreUpgrade command could be run on machines which did not have the new release of WebSphere Application Server installed.

However, this tool became obsolete as soon as the first WebSphere Application Server fix pack was released.

The createRemoteMigrJar tool is provided in WebSphere Application Server V8.0 to help with cross platform migrations.

You do not have to perform a full WebSphere Application Server V8.0 install on the machine where the old WebSphere Application Server release is installed in order to run the WASPreUpgrade command.

A special version of the WASPreUpgrade command can be obtained from a machine where WebSphere Application Server V8.0 is installed.

The generated remote migration jar is operating system-specific. If you are migrating from Linux®, you must generate the jar from a WebSphere Application Server V8.0 installation on a Linux machine.

The artifacts are collected in the remote migration jar represent the current WebSphere Application Server V8.0.0 fix level.

Key migration items for V8.0

- Flexible management
- Business Level Applications (BLAs)
- Cross platform migrations
- * Migration management tools
  - CMMT
  - zMMT

The last main migration topic covers information on the migration wizards. The distributed version configuration migration management tool or CMMT has been rewritten using Eclipse. The zOS migration management tool or zMMT has been updated.

CMMT: Configuration migration management tool

- The configuration migration management tool includes the functionality that was available in the previous release.
- The tool now includes support for the three new profile configurations introduced in V7.0:
  - Job manager
  - Administrative agent
  - Registered application server
- The tool generates a list of the commands executed so that users can use the GUI to produce scripts.
- The tool also highlights key pieces of information that may have changed during the migration

The configuration migration management tool includes the functionality that was available in the previous release.

The wizard in the previous release supported; standalone, deployment manager, and federated node migrations.

The tool now includes support for the three new profile configurations introduced in WebSphere Application Server V7.0: Job manager, administrative agent, and registered application server. The tool generates a list of the commands executed so that customers can use the GUI to produce scripts.

The tool also highlights key pieces of information that may have changed during the migration.

Better monitoring of progress of each step of the migration process.

zMMT: z/OS migration management tool

- Configuration migration on z/OS is also a multi-step migration process. The zMMT is a GUI tool that users can run to specify details about their configurations and generate jobs that can be run on z/OS systems.

- The zMMT tool is shipped separately from WebSphere Application Server. It is part of the WebSphere Customization Toolbox (WCT). You will need to download and install WCT on Windows or Linux before running zMMT.

- In addition to the profiles supported in previous releases, zMMT now supports the flexible management profiles:
  - Job manager
  - Administrative agent
  - Registered application server

- zMMT also supports 64-bit migration runs to support profiles that part of larger topologies.

Configuration migration on z/OS is also a multi-step migration process.

The zMMT is a GUI tool that you can run to specify details about your configurations and generate jobs that can be run on z/OS systems.
The zMMT tools is shipped separately from WebSphere Application Server.

It is part of the WebSphere Customization Toolbox (WCT).

You will need to download and install WCT on Windows or Linux before running zMMT.

In addition to the profiles supported in previous releases, zMMT now supports the Flexible Management profiles: Job manager, administrative agent, and registered application server.

zMMT also supports 64-bin migrations.

Section

Usage scenarios

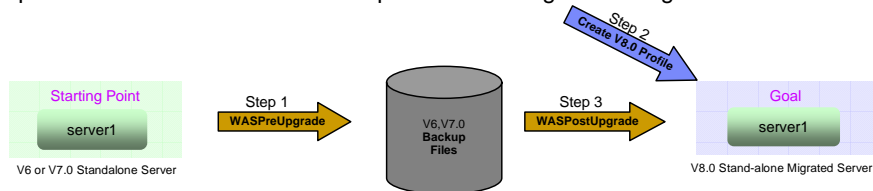This section will look at the configuration migration process for two topologies.

A simple topology consisting of a single profile, this will introduce the basic concepts in doing a migration including the three important steps.

The complex topology will build off these basic concepts and introduce additional items to be considered in planning a migration.

The complex topology will consider all the different profile types to be migrated and highlight important information to consider as each profile type is migrated.

Migration scenario – Simple topology

- Simple migration scenario:
    - a V7.0 base application server migrating to V8.0 while staying on the same machine.

- Preparation:
    - install WebSphere Application Server V8.0.
    - allocate space for the migration backup directory.

- Migration: **(these three actions are the basics for migrating any profile type.)**
    - Run the V8.0 WASPreUpgrade command against source profile.
    - Create a target profile in V8.0 (profile type must match source profile type)
    - Run the V8.0 WASPostUpgrade command pointing to target profile.

- The migration wizard will perform these three operations for the user.
    - Including determining what profile type to create.

- The profile creation command is not a part of the configuration migration tools.

Starting Point

server1

V6 or V7.0 Standalone Server

Step 1
WASPreUpgrade

V6,V7.0
Backup
Files

Step 3
WASPostUpgrade

Step 2
Create V8.0 Profile

Goal

server1

V8.0 Stand-alone Migrated Server

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The stand-alone server migration is the simplest topology to migrate and requires little planning.

The process is easy and the backout or recovery steps are simple.

The steps used in this process are common when migrating other profile types.

1. Run the WASPreUpgrade command to make a backup of the source profile configuration data.

2. Create the target profile in the new release.

3. Run the WASPostUpgrade command which merges the source profile data into the target profile.

The backout or recovery steps are:

1. Stop the new servers.

2. Restart the old servers.

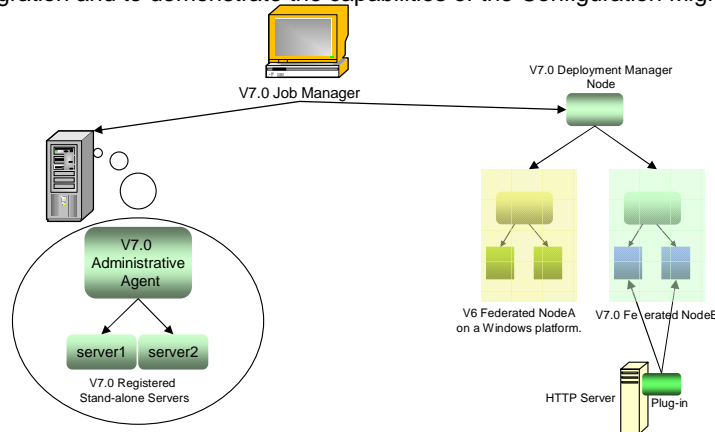3. Cleanup the new servers, correct any problems and reattempt the migration.

Additional steps may be needed when:

Migrating to a different machine or platform (Cross Platform Migrations)

Migrating Flexible Management Profile Types

Migrating a Mixed Cell environment.

A Complex Topology will be covered next.

Migration scenario – Complex topology (1 of 14)

- Complex topologies require careful planning.
- The following topology is provided to illustrate the possible items to consider when planning the migration and to demonstrate the capabilities of the Configuration Migration Tools.

V7.0 Job Manager

V7.0 Deployment Manager Node

V7.0 Administrative Agent

server1   server2

V7.0 Registered Stand-alone Servers

V6 Federated NodeA on a Windows platform.

V7.0 Federated NodeB

HTTP Server   Plug-in

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Complex topologies require careful planning and understanding what dependencies exit as well as restrictions.

The topology described here may not be typical but it is used to demonstrate some configurations which exist in a WebSphere installation.

Note that the migration tools work on a profile by profile basis.

Looking at each profile in this topology will help define what can and cannot be done to migrate that profile.

The topology includes:

A V7.0 Job Manager

A V7.0 Administrative Agent

Two V7.0 Registered Base App Servers

A V7 Deployment Manager

Two Federated Nodes.

And an HTTP Server

The Job Manager is managing the Deployment Manager.

It is also managing the two Registered App Servers through the common Administrative Agent.

The Deployment Manager is managing a mixed cell environment with a Federated node at V7.0 and the other at V6.

The V7.0 Federated Node has a web server defined and connected to the HTTP Server.

All machines hosting the above servers have the Linux platform installed except the Node at V6, it installed on the Windows platform.

This scenario will migrate all servers to WebSphere Application Server V8, and all migrated servers will be using the Linux platform.

- Things to consider and understand when migrating the profiles in the topology:
  - Always migrate the highest level profile first.
    - The job manager can only managed servers at the same release or lower.
    - The administrative agent can only register base application servers at the same release level and on the same machine.
    - The deployment manager can only manage nodes at the same release or lower.
  - Flexible management profiles do not support cross platform migrations. These include job managers, administrative agents, and registered base application servers.
  - Migrating an administrative agent actually clones the configuration to the new release.
    - Now each registered base application server can be migrated individually over a period of time.
    - Both new and old administrative agents must be running when the registered base app server is migrated.
    - It is de-registered from the old administrative agent and registered with the new.
  - After migrating a profile make sure the whole topology with the new migrated server is fully functional.
  - It is always recommended to create a backup of the profile being migrated.

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Below is a list of things to consider and understand when migrating the profiles in your topology:

Always migrate the highest level profile first.

The Job Manager can only managed servers at the same release or lower.

The Administrative Agent can only register Base Application Servers at the same release level and on the same machine.

The Deployment Manager can only manage nodes at the same release or lower.

Flexible Management profiles do not support cross platform migrations. These include:

Job Managers, Administrative Agents, and Registered Base Application Servers.

Migrating an Admin Agent actually clones the configuration to the new release.

Now each registered Base Application Server can be migrated individually over a period of time.

Both new and old Administrative Agents must be running when the registered Base App Server is migrated.

It is de-registered from the old Administrative Agent and registered with the new.

After migrating a profile make sure the whole topology with the new migrated server is fully functional.

It is always recommended to create a backup of the profile being migrated.

Migration scenario – Complex topology (3 of 14)

- Things to consider and understand when migrating the profiles in the topology:
  - Handle each profile migration individually.
    - Use the –oldProfile <profName> parameter with the WASPreUpgrade command, otherwise all profiles from the source installation will be saved in the migration backup dir.
    - Specify a unique backup directory for each profile being migrated.
  - The V8.0 Migration Configuration tools do not allow V5 profiles or earlier to be migrated.
    - If the mixed cell contains nodes before V6.0, those profiles must be migrated to at least V6.0.2 in order for them to be migrated to V8.0 later on.
    - Upgrade V6.0 and V6.0.1 nodes to V6.0.2 or later.
  - When migrating to a new platform, users will need to take into consideration the needs of their applications, database connections, and so on.
  - Cross Platform migrations requires running the V8.0 version of the WASPreUpgrade command.
   In order to provide access to the correct version of the command:
    - Either use the remote migration process.
    - Or install WebSphere Application Server V8.0 on the source machine.

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Handle each profile migration individually.

> Use the –oldProfile <profName> parameter with the WASPreUpgrade command, otherwise all profiles from the source installation will be saved in the migration backup dir.

> Specify a unique backup directory for each profile being migrated.

The V8.0 Migration Configuration tools do not allow V5 profiles or earlier to be migrated.

> If your mixed cell contains nodes before V6.0, these profiles must be migrated to at least V6.0.2 in order for them to be migrated to V8.0 later on.

> Upgrade V6.0 and V6.0.1 nodes to 6.0.2 or later.

When migrating to a new platform, you will need to take into consideration the needs of your applications, database connections, and so on.

Cross Platform migrations requires running the V8.0 version of the WASPreUpgrade command.

In order to provide access to the correct version of the command:

> Either use the remote migration process.

> Or install WebSphere Application Server V8.0 on the source machine.

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Migration scenario – Complex topology (4 of 14)

- Goals for migrating this topology:
  - Migrate all profiles to WebSphere Application Server V8.0
  - Migrate all non-Linux profiles to a Linux machine.
    - Federated NodeA is the only profile not installed on Linux
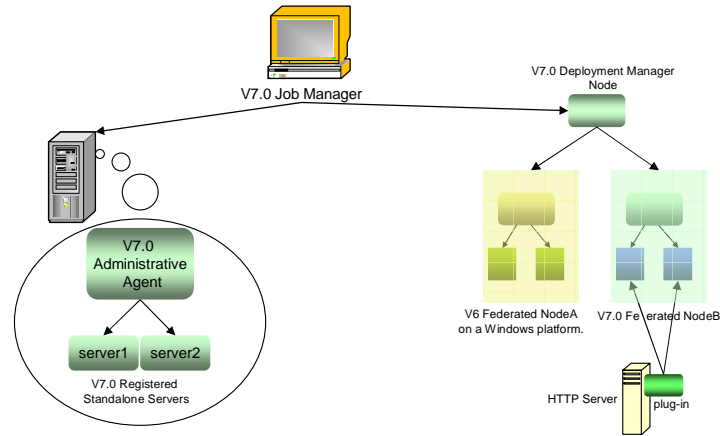
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This scenario will migrate all servers to WebSphere Application Server V8, and all migrated servers will be using the Linux platform. Only Federated Node A is currently not on a Linux machine.

Migration scenario – Complex topology (5 of 14)

- Step 1
  – Migrate Job Manager
    - Must remain on the same machine.
    - The Job Manager must be stopped when migrated.
  – Start the newly migrated Job Manager.
  – Ensure it is communicating with its registered servers.
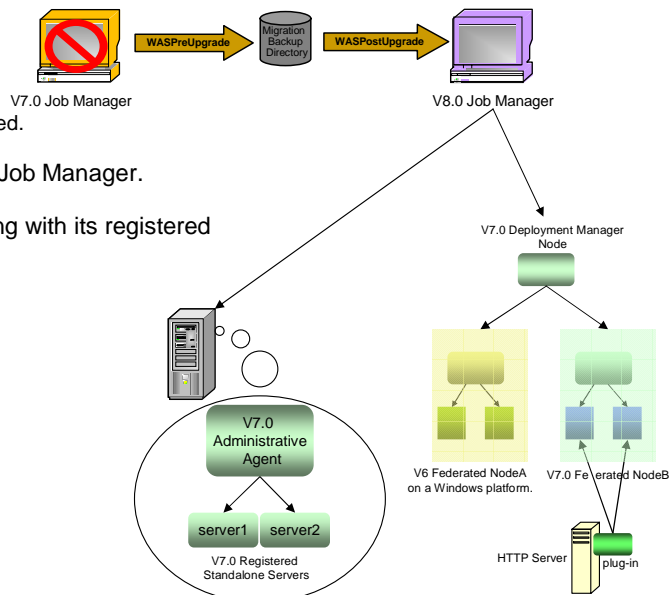
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Note: In these next profile migration scenarios, it will be assumed that the proper profile creation has already been done.

The migration icon will be represented by the WASPreUpgrade and WASPostUpgrade commands pointing to and from the migration backup directory respectively.

Step 1.

Migrate Job Manager

It must remain on the same machine.

The Job Manager must be stopped when migrated.

Start the newly migrated Job Manager.
Ensure it is communicating with its registered servers.

- Step 2
  - Migrate Administrative Agent
    - Must remain on the same machine.
    - Configuration data is cloned from V7.0 to V8.0.
    - Both Administrative agents are viable
    - New ports for endpoints were assigned

  - Start the new Administrative Agent

V8.0 Job Manager

V7.0 Deployment Manager Node

V6 Federated NodeA on a Windows platform.

V7.0 Federated NodeB

V7.0 Administrative Agent

WASPreUpgrade

Migration Backup Directory

WASPostUpgrade

V8.0 Administrative Agent

server1   server2

V7.0 Registered Standalone Servers

HTTP Server   plug-in

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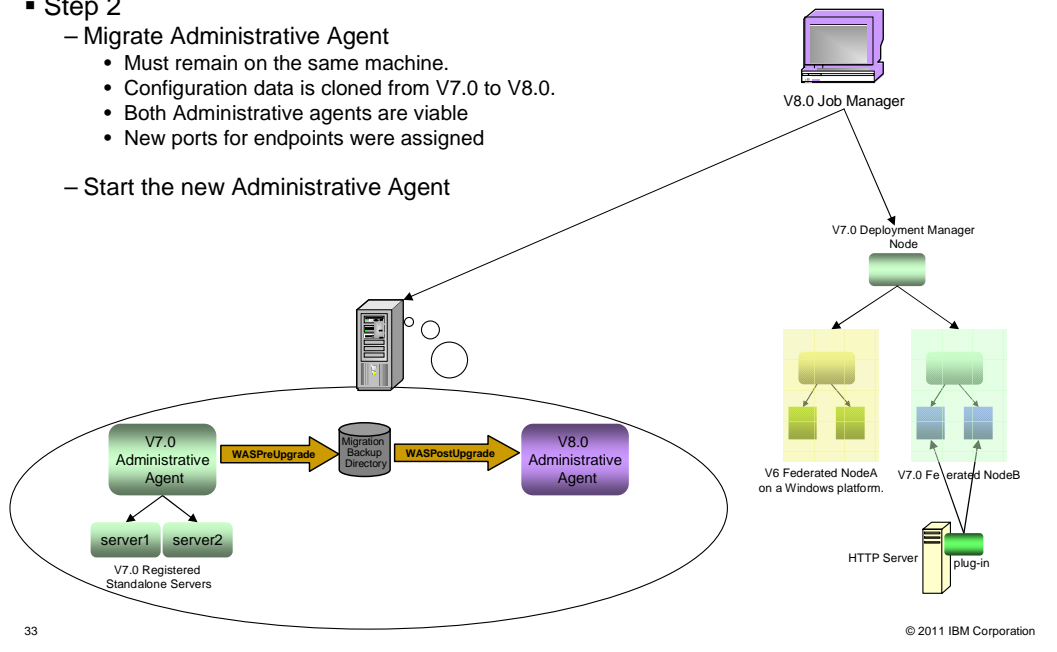
Step 2.

Migrate Administrative Agent

It must remain on the same machine.

Configuration data is cloned from V7 to V8.

New ports for endpoints were assigned.

Start the new Administrative Agent

Migration scenario – Complex topology (7 of 14)

- Step 3
  - Migrate Registered Base Application Server2
    - Must remain on the same machine
    - Both Administrative Agents must be running
    - It is de-registered with the V7.0 Administrative Agent
    - It is registered with the V8.0 Administrative Agent
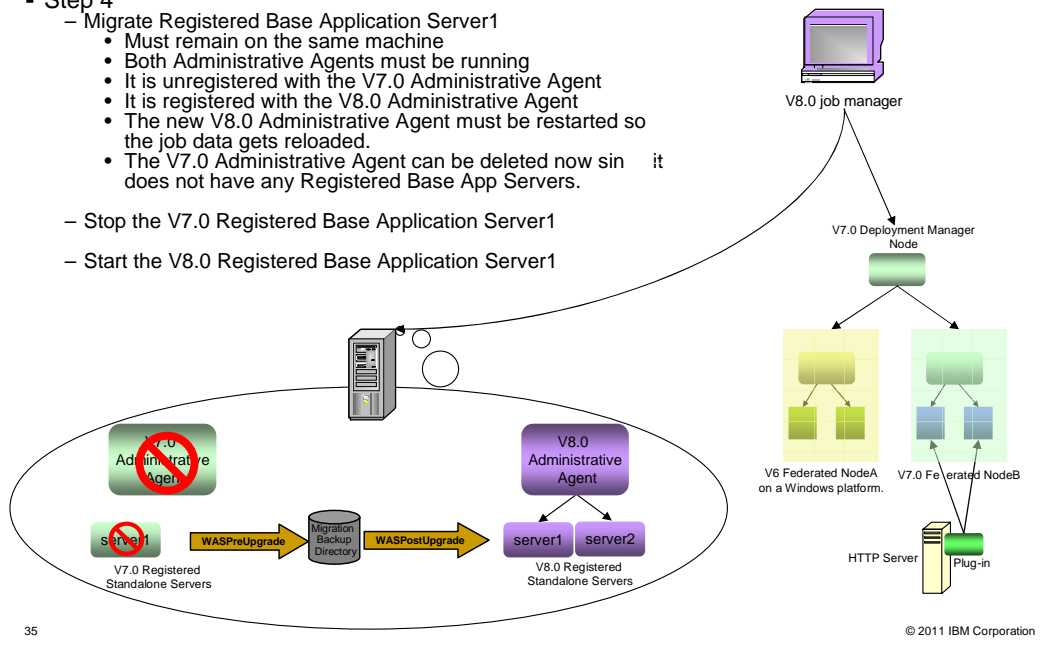   - The new V8.0 Administrative Agent must be restarted so the job data gets reloaded.
  - Stop the V7.0 Registered Base Application Server2
  - Start the V8.0 Registered Base Application Server2
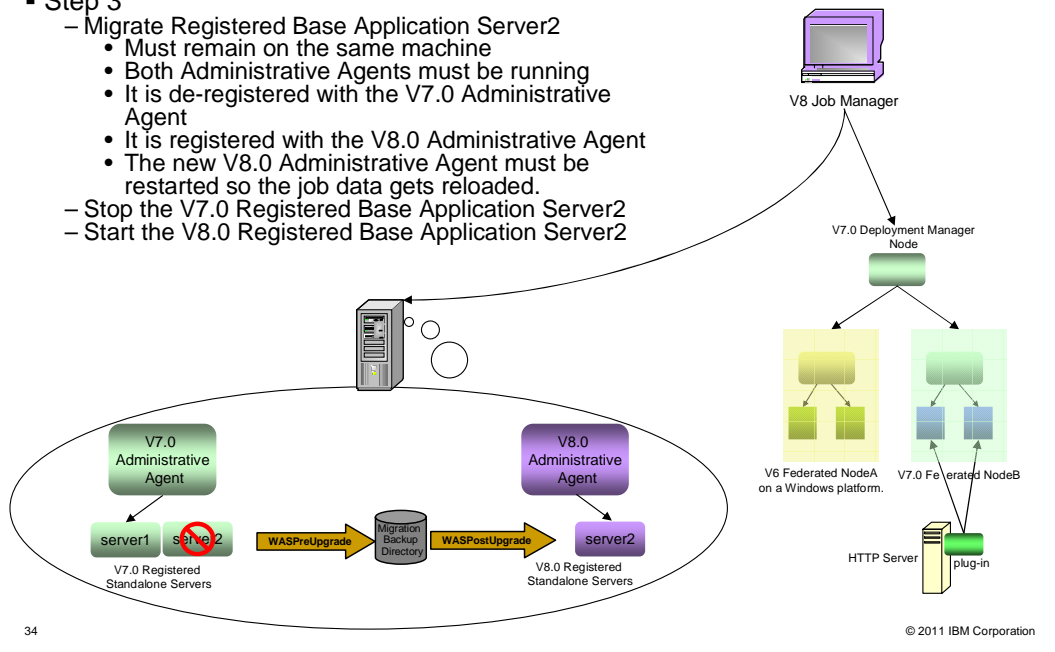
Step 3.

    Migrate Registered Base Application Server2

        It must remain on the same machine

        Both Administrative Agents must be running

        It is de-registered with the V7 Administrative Agent

        It is registered with the V8 Administrative Agent

        The new V8 Administrative Agent must be restarted so the job data gets reloaded.

    Stop the V7 Registered Base Application Server2

    Start the V8 Registered Base Application Server2

Users may use the Job Manager to start and stop the Base Application Servers.

Migration scenario – Complex topology (8 of 14)

- Step 4
  – Migrate Registered Base Application Server1
    • Must remain on the same machine
    • Both Administrative Agents must be running
    • It is unregistered with the V7.0 Administrative Agent
    • It is registered with the V8.0 Administrative Agent
    • The new V8.0 Administrative Agent must be restarted so the job data gets reloaded.
    • The V7.0 Administrative Agent can be deleted now since it does not have any Registered Base App Servers.
  – Stop the V7.0 Registered Base Application Server1
  – Start the V8.0 Registered Base Application Server1

Step 4.

Migrate Registered Base Application Server1

Must remain on the same machine

Both Administrative Agents must be running

It is de-registered with the V7 Administrative Agent

It is registered with the V8 Administrative Agent

The new V8 Administrative Agent must be restarted so the job data gets reloaded.

The V7 Administrative Agent can be deleted now since it does not have any Registered Base App Servers.

Stop the V7 Registered Base Application Server1

Start the V8 Registered Base Application Server1

Users may use the Job Manager to start and stop the Base Application Servers.

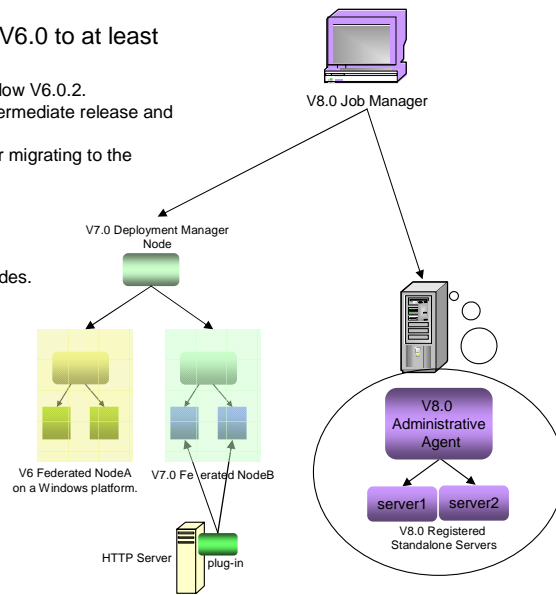- Step 5
  - Migrate any Federated Nodes below V6.0 to at least V6.0.2.
    - V8.0 does not support migrating releases below V6.0.2.
    - For those unsupported releases, select a intermediate release and migrate those nodes to that release.
   - Follow the Information Center instructions for migrating to the intermediate release.

  - Upgrade any V6.0.0 or V6.0.1 nodes to the latest release of V6.0.2
    - Use the UpdateInstaller to upgrade those nodes.

V8.0 Job Manager

V7.0 Deployment Manager Node

V6 Federated NodeA on a Windows platform.

V7.0 Federated NodeB

HTTP Server plug-in

V8.0 Administrative Agent

server1 server2

V8.0 Registered Standalone Servers

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Step 5.

Migrate any Federated Nodes below V6.0 to at least V6.02.

v8.0 does not support migrating releases below V6.0.2.

For those unsupported releases, select a intermediate release and migrate those nodes to that release.

Follow the information center instructions for migrating to the intermediate release.

Upgrade any V6.0.0 or V6.0.1 nodes to the latest release of V6.0.2

Use the UpdateInstaller to upgrade those nodes.

Migration scenario – Complex topology (10 of 14)

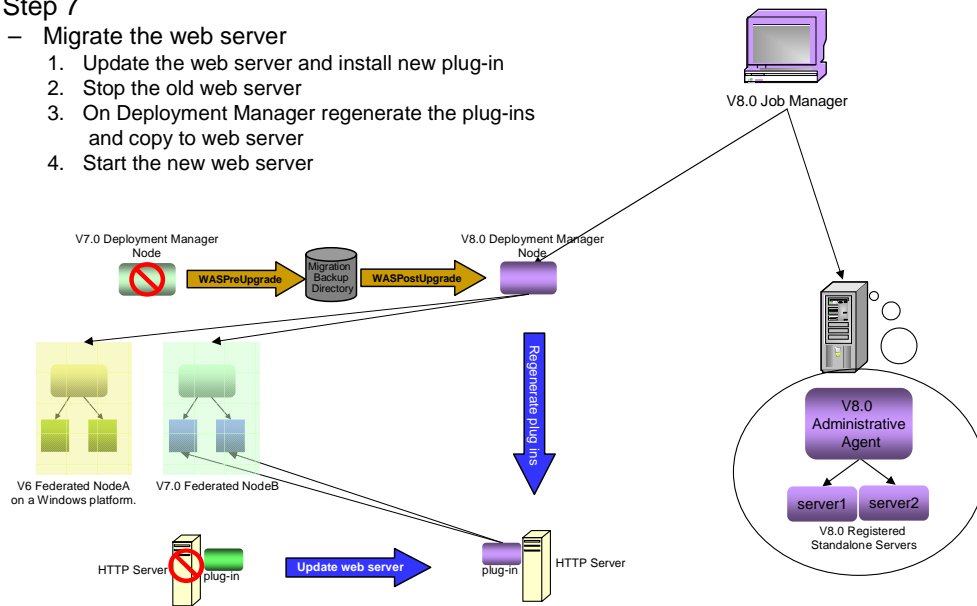- Step 6
  – Migrate the Deployment Manager
    • As part of the migration process the old Deployment Manager will be stopped and disabled.
    • Start the new Deployment Manager and have all nodes sync up with it.

  – Ensure that it is communicating with the Job Manager
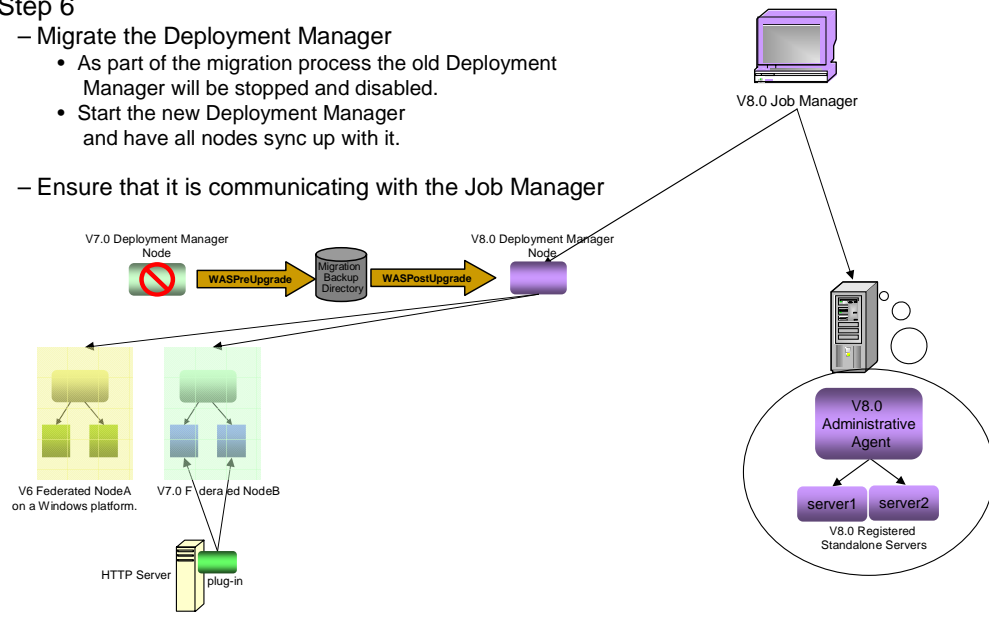
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Step 6.

Migrate the Deployment Manager

As part of the migration process the old Deployment Manager will be stopped and disabled.

Start the new Deployment Manager and have all nodes sync up with it.

Ensure that it is communicating with the Job Manager.

Migration scenario – Complex topology (11 of 14)

- Step 7
  - Migrate the web server
    1. Update the web server and install new plug-in
    2. Stop the old web server
    3. On Deployment Manager regenerate the plug-ins and copy to web server
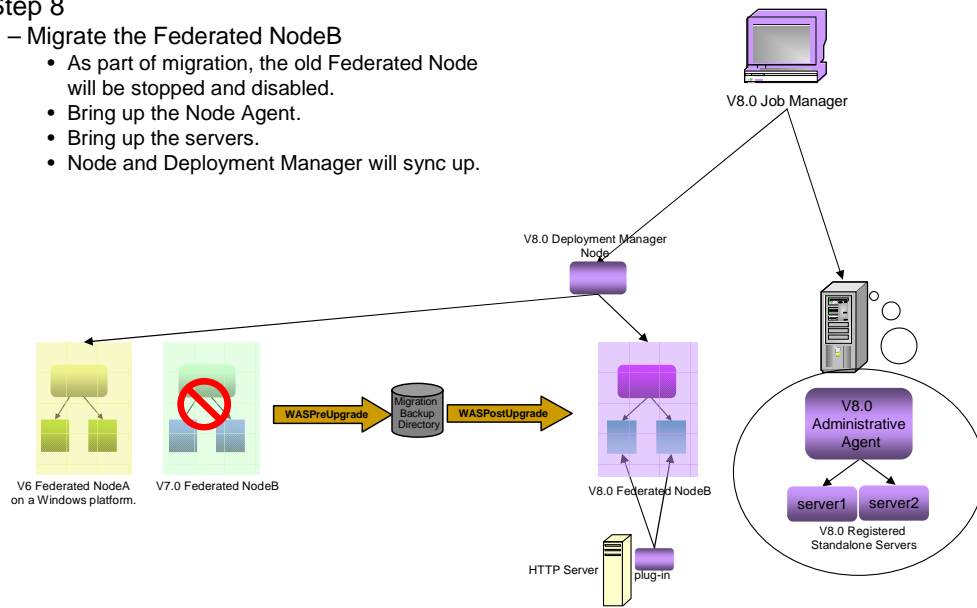   4. Start the new web server

V8.0 Job Manager

V7.0 Deployment Manager Node

WASPreUpgrade

Migration Backup Directory

WASPostUpgrade

V8.0 Deployment Manager Node

Regenerate plug ins

V8.0 Administrative Agent

server1   server2

V8.0 Registered Standalone Servers

V6 Federated NodeA on a Windows platform.

V7.0 Federated NodeB

HTTP Server plug-in

Update web server

plug-in   HTTP Server

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Step 7.

    Migrate the web server

            Update the web server and install new plug-in

            Stop the old web server

            On Deployment Manager regenerate the plug-ins
             and copy to web server

            Start the new web server

Web server Upgrade process can be found in the information center.

Migration scenario – Complex topology (12 of 14)

- Step 8
  - Migrate the Federated NodeB
    - As part of migration, the old Federated Node will be stopped and disabled.
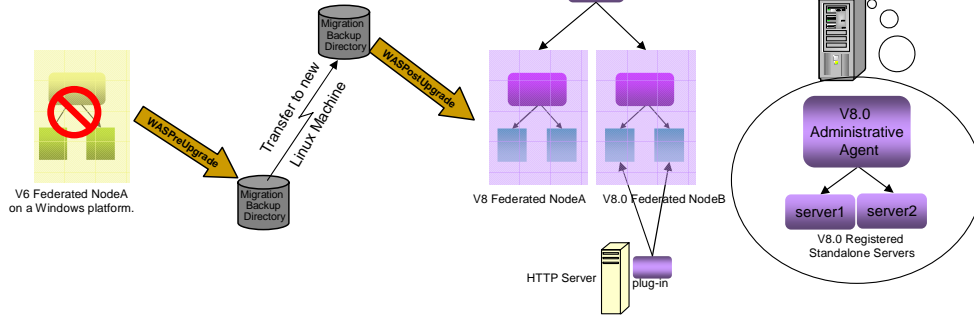   - Bring up the Node Agent.
    - Bring up the servers.
    - Node and Deployment Manager will sync up.

V8.0 Job Manager

V8.0 Deployment Manager Node

V6 Federated NodeA on a Windows platform.

V7.0 Federated NodeB

WASPreUpgrade

Migration Backup Directory

WASPostUpgrade

V8.0 Federated NodeB

HTTP Server   plug-in

V8.0 Administrative Agent

server1   server2

V8.0 Registered Standalone Servers

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Step 8.

Migrate the Federated NodeB

As part of migration, the old Federated Node will be stopped and disabled.

Bring up the Node Agent.

Bring up the servers.

Node and Deployment Manager will sync up.

Migration scenario – Complex topology (13 of 14)

- Step 9
  - Do Cross Platform Migration of Federated NodeA
    - Need to install WebSphere Application Server V8.0 on Windows.
      (Could also use the Remote Migration Process)
    - Run the V8.0 WASPreUpgrade command
    - Manually transfer backup directory to the Linux machine.
    - Run the WASPostUpgrade command
   - Manually disable the old Federated NodeA
    - Bring up the Node Agent and the servers.
    - Node and Deployment Manager will sync up.

Step 9.

Do a Cross Platform Migration of Federated NodeA. Follow the steps listed on the slide.

After installing WebSphere Application Server V8.0, Run the V8.0 WASPreUpgrade command.

Manually transfer backup directory to the Linux machine.

Run the WASPostUpgrade command

Manually disable the old Federated NodeA

Bring up the Node Agent and the servers.

Node and Deployment Manager will sync up.

Migration scenario – Complex topology (14 of 14)

- All migration are complete to WebSphere Application Server V8.0.
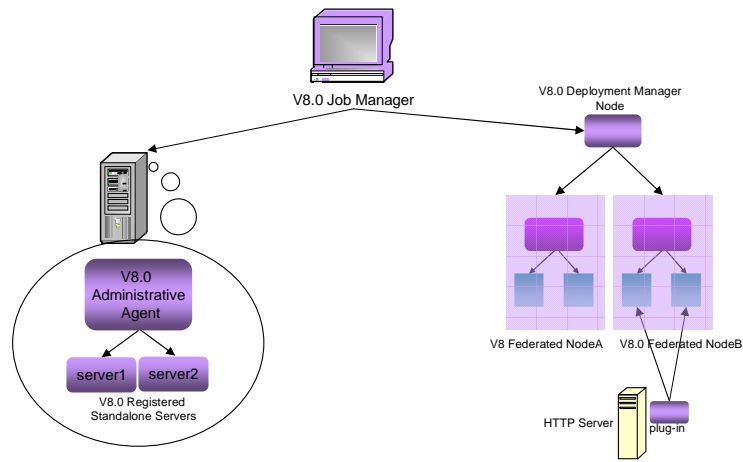
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The Migration is complete.

All profile migration could be done using either the command line tools or the migration wizards.

Migration scenarios

- The Information Center provides step by step instruction for the following migration scenarios:
  - Base Application Server
  - Deployment Manager
  - Federated Node
  - Job Manager
  - Administrative Agent
  - Cross Platform Migration of:
    - Base Application Server
    - Deployment Manager
    - Federated Nodes

- In addition to the scenarios above, there are pointers to other resources to help users plan and prepare for their migrations

The information center provides step by step instruction for the following migration scenarios:

Base Application Server

Deployment Manager

Federated Node

Job Manager

Admin Agent

Cross Platform Migration of:

Base Application Server

Deployment Manager

Federated Nodes

In addition to the scenarios above, there are pointers to other resources to help you plan and prepare for your migrations.

Summary

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This section provides a summary of this presentation.

Summary

- The WebSphere Application Server V8.0 Migration tools, procedures, and documentation can help make the transition from the older release easier.
- They support migration of the flexible management profiles.
- They migrate forward any Business Level Application artifacts and data.
- A new Eclipse-based wizard is provided for distributed platforms.
- Additional enhancements have been made to the zMMT wizard.
- More robust support for cross-platform migrations is provided.

In conclusion,

The WebSphere Application Server V8.0 migration tools, procedures, and documentation can help make your transition from the older release easier.

They support migration of the flexible management profiles.

They migrate forward any Business Level Application artifacts and data.

A new Eclipse-based wizard is provided for distributed platforms.

Additional enhancements have been made to the zMMT wizard.

More robust support for cross-platform migrations is provided.

Resources

- **WebSphere V8.0 Information Center: Migration Overview**
  http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.nd.multiplatform.doc%2Finfo%2Fae%2Fae%2Fwelc6topmigrating.html
  Search the subtopics for scenarios on migrating the different profiles and topologies.

- **Knowledge Collection: Migration planning for WebSphere Application Server**
  http://www-01.ibm.com/support/docview.wss?rs=180&context=SSEQTP&context=SSCMGN&q1=migration&uid=swg27008724

- **The WebSphere Customization Toolbox**
  http://publib.boulder.ibm.com/infocenter/wasinfo/v8r0/index.jsp?topic=%2Fcom.ibm.websphere.installation.zseries.doc%2Finfo%2Fzseries%2Fae%2Ftins_wct.html

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Here are some key resources in understanding, planning and getting started with the configuration migration process and tools.

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Configuration migration

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