



IBM Software Group

# IBM® WebSphere® Application Server V6

## *WebSphere Profiles*



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This presentation will focus on WebSphere Profiles.

## Goals

- Describe new WebSphere Application Server V6 Profile function – the ability to create multiple independent user configurations sharing the same install binaries



The goal for this presentation is to describe the Profile functionality in the WebSphere Application Server.

## Agenda

- WebSphere Profiles Overview
- Profiles Types and Templates
- Profile instances and types
- Profile Management Tools
- Example
- Log files
- Summary



The agenda for this presentation includes an overview of Profiles and the tool used to create them, a description of the types and templates, and some examples.

## Section



# ***WebSphere Profiles***

***Used to be WebSphere instances in V5  
More functions added in V6***



This section covers WebSphere Profiles. If you know WebSphere Instances from WebSphere Application Server V5, this function will be familiar.

## WebSphere Profiles



- WebSphere V6 files are split into 2 categories
  - ▶ Product Files - shared application binaries for WebSphere
  - ▶ User data - set of user customizations for a specific runtime environment
    - Includes WebSphere configuration, installed applications, resource adapters, properties, log files, transaction log files, etc.
- Each Profile (specific user data along with the shared product binaries) define a WebSphere runtime environment
  - ▶ Stand-alone Application Server, Deployment Manager (DMgr) or Custom Profile
- Easier than multiple installations
  - ▶ Less disk space
  - ▶ Product update is simplified



To understand Profiles, start by understanding the files that make up WebSphere Application Server. There are two categories of files: Product files and user data. The Product files include the application binaries needed to run the application server. The user data contain information used by the application server. For example, this is where variables are defined, resources are configured, and so on. A Profile is a collection of user data. When combined with the shared binaries, a profile becomes a complete WebSphere Application Server runtime environment.

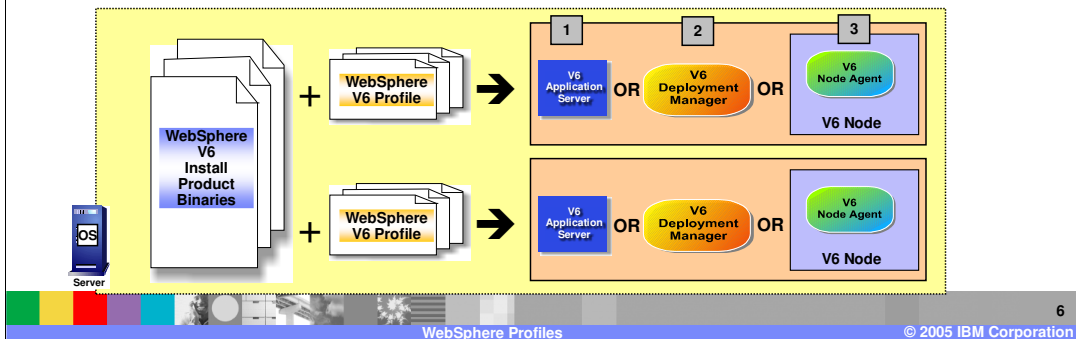
WebSphere runtime environment can be Deployment Manager process, Node Agents, and Application Servers. All these use the same binaries, but are configured differently. As a result, each is a Profile. When you create profiles, you can create it as any of these types.

This sharing of application binaries, and the separation of configuration files, is an efficient use of disk space. Also, with one set of binaries, updates to the code can be applied in one location per physical machine, even when multiple profiles are configured.

## WebSphere Profiles: Types

**Profile types:** Provides different WebSphere runtime environment

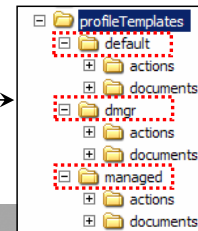
Profile Types	V6 packages	Functions
<b>Stand-alone Application Server</b>	<b>All</b>	Create a runtime environment of Stand-alone Single Application Server
<b>DMgr</b>	<b>Network Deployment</b>	Create a runtime environment of DMgr – each DMgr is its own cell
<b>Custom Profile</b>	<b>Network Deployment</b>	Provides an option to create a federated node containing no pre-defined application server definitions



The Profile Type differentiates the function of an application server process. You can create a profile to be a stand-alone application server process, complete with its own Administrative Console application. You can create a profile to serve as the Deployment Manager, with the Administrative Console application for an entire cell. Or you can create a profile to be a Managed Node, which starts out as a node agent without any application servers configured. This configuration could be used to control the IBM HTTP Server in a DMZ firewall configuration.

## WebSphere Profiles: Templates

- WebSphere provides **Profile templates** create the different profile types
  - ▶ Part of WebSphere product files
  - ▶ Each template as a set of documents and actions
    - Documents define the initial seed for the profile directory and files
    - Action defines what to do, once the documents have been laid down for a profile
- Profile template directory
  - ▶ <%WAS\_INSTALL%>/profileTemplates
    - default (stand-alone server), DMgr and managed for Managed Node



Each Profile created by the Profile tool is generated from a standard template, which is part of the standard install. The illustration on this slide shows the folder names.

## WebSphere Profiles: Instances and Registry

- Based on the profile types and templates, the administrator can create multiple **profile instances** of any profile type, using WebSphere supplied profile tools
  - ▶ Location of the Profile directory is customizable - Default is <%WAS\_INSTALL%>/profiles
- Each profile instance is registered in a registry (XML file), called **Profile Registry**
  - ▶ Profile Registry contains information for specific profile instances – information like location of the profile directory, etc.
  - ▶ Other command line tools (like startServer) looks at the registry to find the profile information
  - ▶ Location: <%WAS\_INSTALL%>/properties/profileRegistry.xml



You can create as many profiles as you like from the standard templates. These profiles are registered in a Profile Registry, and you designate one profile to be the default. The WebSphere tools consult this Profile Registry when invoked, and will act on the default profile, unless you specify otherwise. For example, StartServer Server1 would start an application server called Server1 from the default profile, even if there was another Server1 in another profile.



## Section

# ***WebSphere Profile Management Tools***



This section addresses the tools used to create and manage Profiles.

## WebSphere Profiles: Managements and Tools

- Tools are provided to manage Profiles – create, delete, list, etc. - Listed below are the tools:
  - ▶ **wasprofile** command line tool – provides complete profile management functions
  - ▶ **Profile Creation Wizard** – Tool (GUI and Silent) to create profiles
    - Calls wasprofile tool, under the covers, to create the profiles
    - Used by product install or can be launched by the user, after product install
  - ▶ Java™ API for profile management, called **wasprofile** APIs, that can be used by custom Java programs
- Profile Registry gets updated when profiles are modified



There are two methods to create a Profile – The Profile Creation Wizard, and the wasprofile command line tool. The Profile Creation Wizard includes both a graphical user interface and a silent mode. This wizard is also used by the Network Deployment Application Server installer, when the user selects the option of creating a profile.

## WebSphere Profile: Profile Creator Tool (PCT)





- Tool to create profiles in <%WAS\_INSTALL%>/bin/ProfileCreator dir.
  - ▶ pctWindows.exe for Windows™
  - ▶ pctAIX.bin for AIX®
  - ▶ ...
- GUI based or silent install using response file
  - ▶ Silent install command: pctWindows -options "myresponsefile.txt" -silent
  - ▶ Sample response files provided: responsefile.pct.NDdmgrProfile.txt, responsefile.pct.NDmanagedProfile.txt, responsefile.pct.NDStand-aloneProfile.txt
- You provide the following:
  - ▶ Profile type (based on the package), name and whether you want the new profile to be the default
  - ▶ Override to default Profile directory
  - ▶ Cell name, Node name and host name
  - ▶ Override to any ports - Non-conflicting ports displayed across all the WebSphere installations on your system are displayed – you can override the selection
  - ▶ DMgr host and port for Custom Profile (to federate the Node to the Cell)



In the bin directory of an installation directory, there is a Profile Creator directory. The executable files are in this directory. You can invoke them from the command line, and provide a response file. Sample response files are provided. Edit the specifics for your required profile, and the tool will create the profile based on your input.

The PCT tool has port conflict resolution algorithm, where it displays a list of ports which are unique across all WebSphere installations on the system. Although it is not necessary, you have the option to modify those port numbers to whatever you want.

## Profile Creator Tool (PCT) : Demo

V6 Package	Profile Types	Demo Links
<b>WebSphere Application Server V6 and WebSphere Application Server V6 - Express</b>	<b>Stand-alone Application Server</b>	 Show Me
<b>WebSphere Application Server V6 Network Deployment</b>	<b>Stand-alone Application Server</b>	 Show Me
	<b>Deployment Manager</b>	 Show Me
	<b>Custom Profile (Managed Node)</b>	 Show Me

From this slide, you can click on the Show Me icons for animated demonstrations of various Profile Creation Tool exercises.

## Profile: “wasprofile” Commands (cont.)

Command	Mandatory Parameters	Optional parameter
<b>-create</b> Create new profiles	-profileName <i>profile_name</i> -profilePath <i>full_profile_path</i> -templatePath <i>full_template_path</i> -nodeName <i>node_name</i> -cellName <i>cell_name</i> -hostName <i>host_name</i>	[-startingPort <i>starting_port</i>   -portsFile pathname] [-isDefault] - makes this profile the default profile [-debug] <b>For Windows™ Service:</b> -winserviceCheck true   false -winserviceAccountType specifieduser   localsystem -winserviceUserName <i>yourusername</i> -winservicePassword <i>yourpassword</i> -winserviceStartupType manual   automatic   disabled  If “-startingPort” is not defined, default port settings will be used
<b>-delete</b> Delete a profile	-profileName <i>profile_name</i>   -profilePath <i>profile_path</i>	[-debug]

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WebSphere Profiles

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This slide and the next two slides provide a reference for the Command Line implementation of the Profile tool. You can call wasprofile with the listed commands and options.

On the Windows platform, some additional function is provided to access the Windows Service functionality when creating new profiles. This allows you to register the application server within the profile as a Windows service, so that the operating system can stop, start, and monitor the Application Server.

## Profile: “wasprofile” Commands (cont.)

Command	Mandatory Parameters	Optional parameter
<b>-listProfiles</b> List all profiles		[-debug]
<b>-getName</b> Get profile name from profile path	-profilePath <i>profile_path</i>	[-debug]
<b>-getPath</b> Get profile path from profile name	-profileName <i>profile_name</i>	[-debug]
<b>-validateRegistry</b> Check registry integrity		[-debug]
<b>-validateAndUpdateRegistry</b> Check registry integrity		[-backup <i>file_name</i> ] [-debug]

This page describes some of the wasprofile commands

## Profile: “wasprofile” Commands (cont.)

Command	Mandatory Parameters	Optional parameter
<b>-unaugment</b> Remove profile from the registry but keep the profile so that you can refresh or augment that later	<code>-profileName <i>profile_name</i></code>	<code>[-debug]</code>
<b>-augment</b> Refresh an unaugmented profile	<code>-profileName <i>profile_name</i></code> <code>-profilePath <i>full_profile_path</i></code>	<code>[-debug]</code>
<b>-help</b> Show the commands		Can also use help on each command – example: <b>wasprofile –create –help</b>

This page describes some of the wasprofile commands

## wasprofile Command: Examples

- Create a new Stand-alone Node profile (template=default)

```
wasprofile -create
```

```
-profileName Node1
```

```
-profilePath C:\WebSphere60ND\AppServer/profiles/Node1
```

```
-templatePath C:\WebSphere60ND\AppServer/profileTemplates/default
```

```
-nodeName NyNode
```

```
-cellName MyCell
```

```
-hostName My.domain.com
```

- List all profiles

```
wasprofile -listProfiles
```

- Will return Node1

- Delete a profile

```
wasprofile -delete -profileName Node1
```



Here are some examples of wasprofile command line invocations. Note that the first example, creating a profile, would be typed as a single line.



## Profiles: Impact on other commands

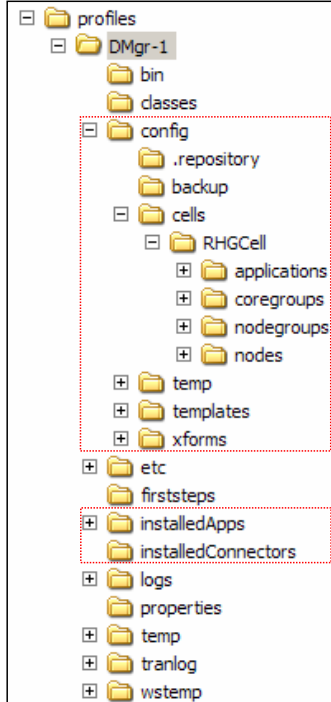
- WebSphere commands (like startServer, stopServer) will now be “profile” aware
  - ▶ There will be “-profile” option on many WebSphere V6 commands -
- If no profile is used, the default profile is assumed
  - ▶ There can be only 1 default profile (user can change the which profile is the default)
- Example:
  - ▶ startServer server1 -profile Node1
  - ▶ startManager -profile DMgr
  - ▶ stopServer server1 → assumes default profile



As mentioned earlier, WebSphere commands assume the default profile unless you specify a profile, which can be done using the dash profile parameter followed by a profile name.

## Profile directory/files - Example

- Profile Name: DMgr-1
- Main directories:
  - ▶ **bin**: contains setupcmdline script to set the environment for commands
  - ▶ **config**: WebSphere configuration file (DMgr, Stand-alone Node or Custom)
  - ▶ **installedApps** and **installedConnectors**
  - ▶ **logs**: runtime log files
  - ▶ **properties**: client, sas, soap client, etc. property files
  - ▶ **Tranlog**: transaction log files
  - ▶ **wstemp**: temporary workspace



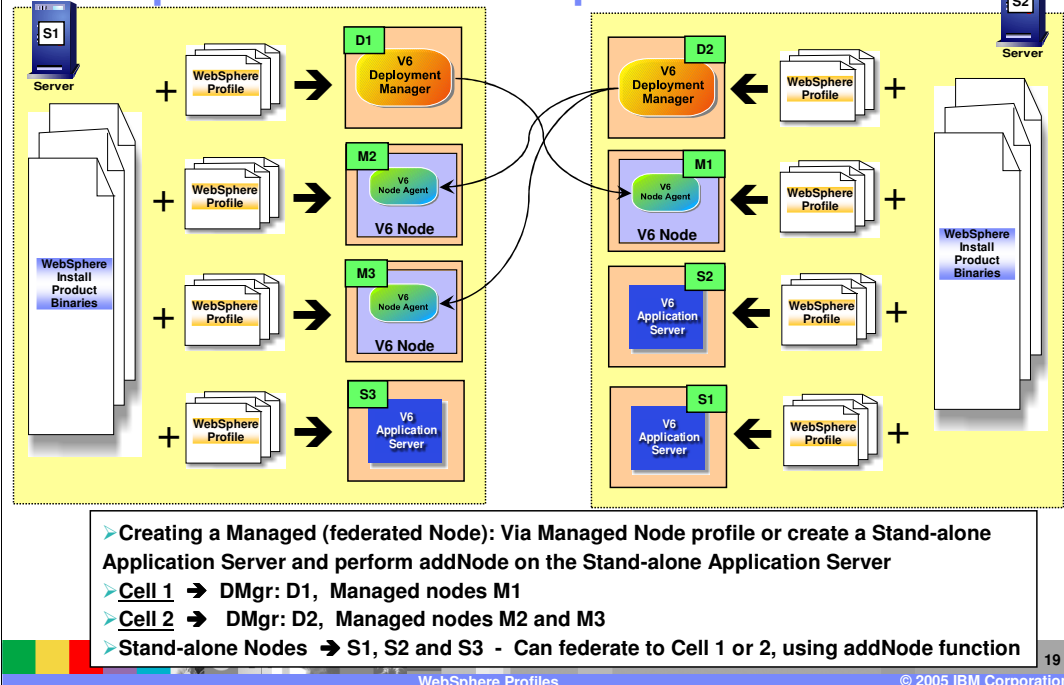
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WebSphere Profiles

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This slide illustrates the configuration structure within each profile. Folders such as the 'config' folder are familiar from Version 5, but rather than being intermingled with the application binaries, the files are now in a profiles directory.

## WebSphere Profile: Example



The diagram on this slide illustrates a possibility with Profiles. Two machines each a deployment manager, managing nodes on the other machine.

## Log files for Problem Determination

- PCT tool log files in the profile directory
  - ▶ <%WAS\_PROFILE%>/logs/pctLog.txt
- Every time wasprofile command is invoked, log files are created in <%WAS\_INSTALL%>/logs/wasprofile directory:
  - ▶ wasprofile\_<command>\_<profile\_name>.log
  - ▶ Examples:
    - wasprofile\_create\_AppServer01.log
    - wasprofile\_delete\_AppServer01.log
    - wasprofile\_listProfiles.log



Here you see the location of the log files that are specific to the profile tools. If there is any error message during profile creation, these logs will show the details associated with the event. If no error occurs, then only informational items will be logged.

## Summary

- WebSphere Profiles provides a separation between product binaries and user data
- Allows more flexibility of creating runtime instances sharing the same product binaries



In summary, this presentation has illustrated the difference between application binaries and configuration files, or user data. The use of profiles allows more flexibility and efficiency in the run-time environment.

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