



IBM China Development Lab

WebSphere Application Server Overview

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WebSphere Application Server Level2 Support

Mar 2011

IBM China Development Lab WebSphere Foundation Level2 Support

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- 2.5 Installing an application
- 2.6 Enabling Diagnostic Trace

3. OpenMic Session Introduction / Survey

1. WebSphere Application Server Overview

1.1 Concepts

What is WebSphere Application Server ?

WebSphere Application Server is IBM **runtime** environment for **Java Enterprise Edition/J2EE** applications.

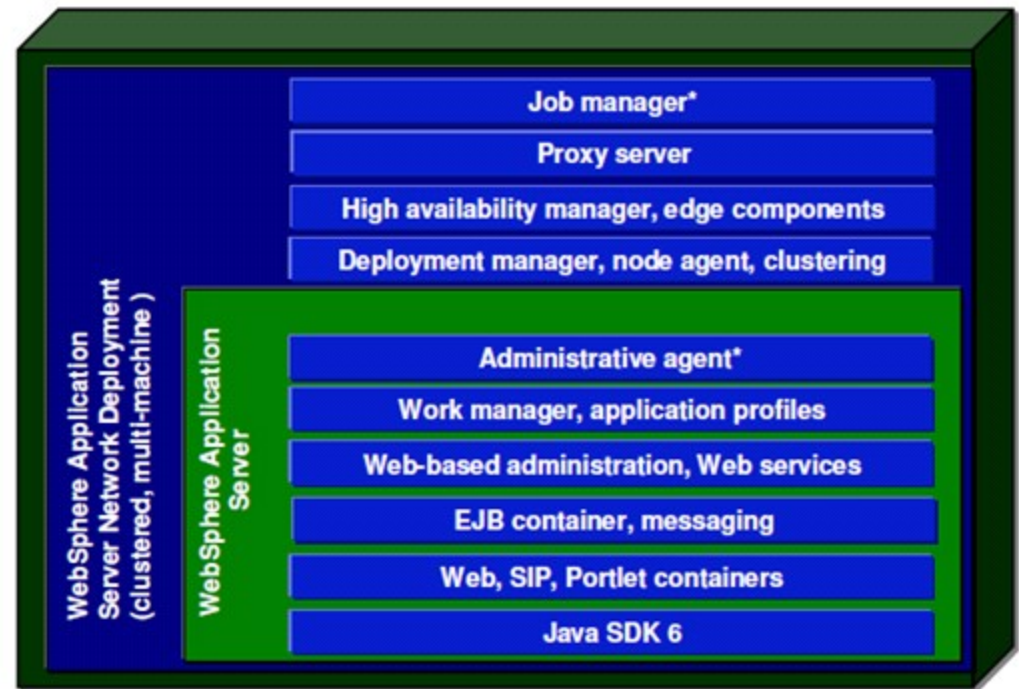
- Enterprise Applications
- Web Module Applications
- EJB
- JMS
- Web Services

1. WebSphere Application Server Overview

1.1 Concepts

WebSphere Application Server Product Family (Packaging)

- Application Server Hypervisor Edition
- Application Server Express
- Application Server Community Edition
- **Application Server Network Deployment**
- Application Server for Developers
- Application Server for z/OS

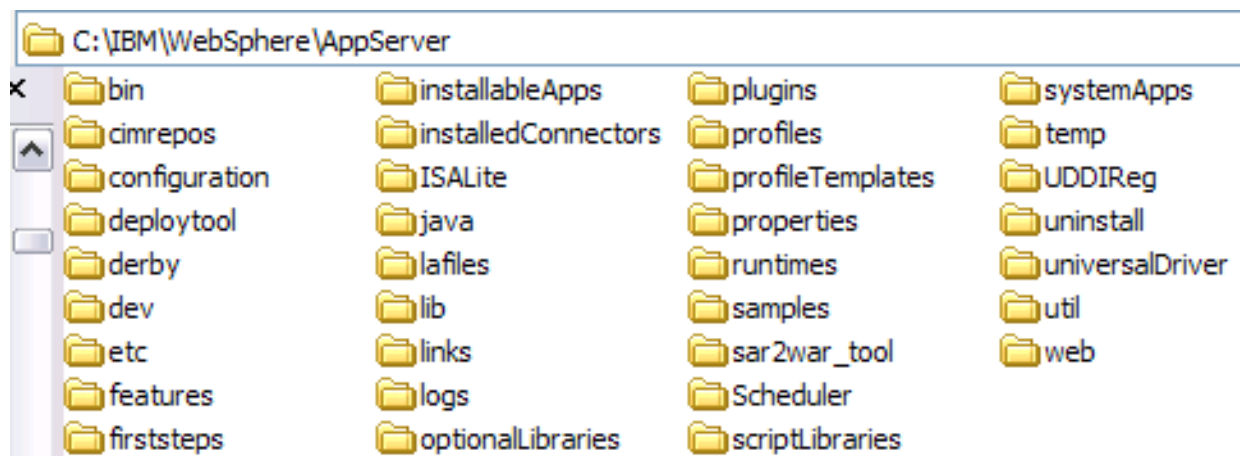


<http://www-01.ibm.com/software/webservers/appserv/wasproductline/compare.html>

1. WebSphere Application Server Overview

1.1 Concepts

WAS Installation = Core product files + User files (Profiles)



Core product files

- Application binaries for WAS

User files (Profiles)

- Customizations, including configuration files, installed applications, resource adapters, properties, log files

1. WebSphere Application Server Overview

1.1 Concepts

Profiles

A basic building block of WAS

WAS runtime environments are built by profiles

Each profile is a WAS configuration

Profile types in WAS ND 7.0

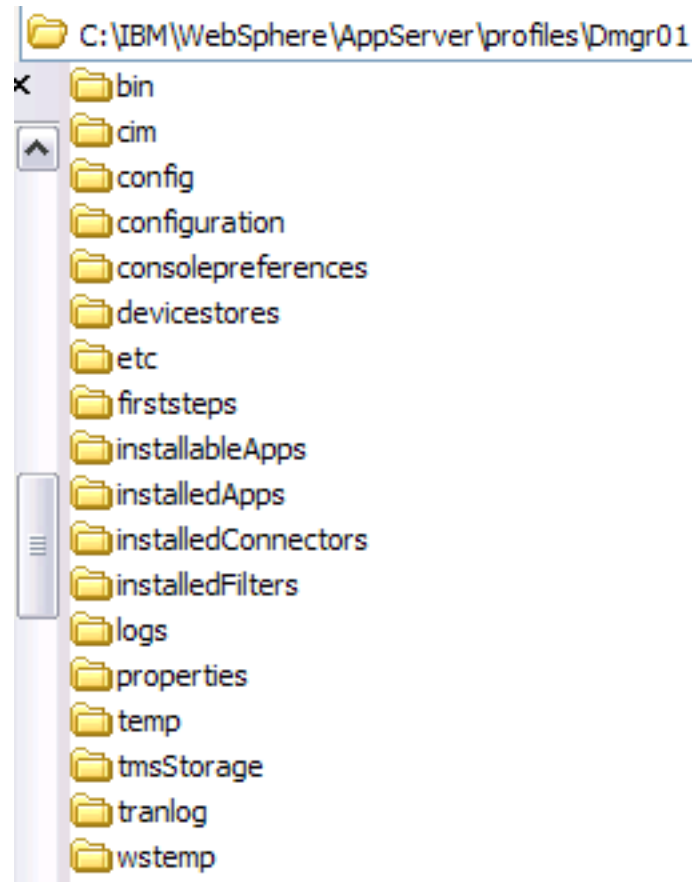
Cell (Management + Application Server)

Application Server

Management

Custom

Secure Proxy (Configuration-only)



1. WebSphere Application Server Overview

1.1 Concepts

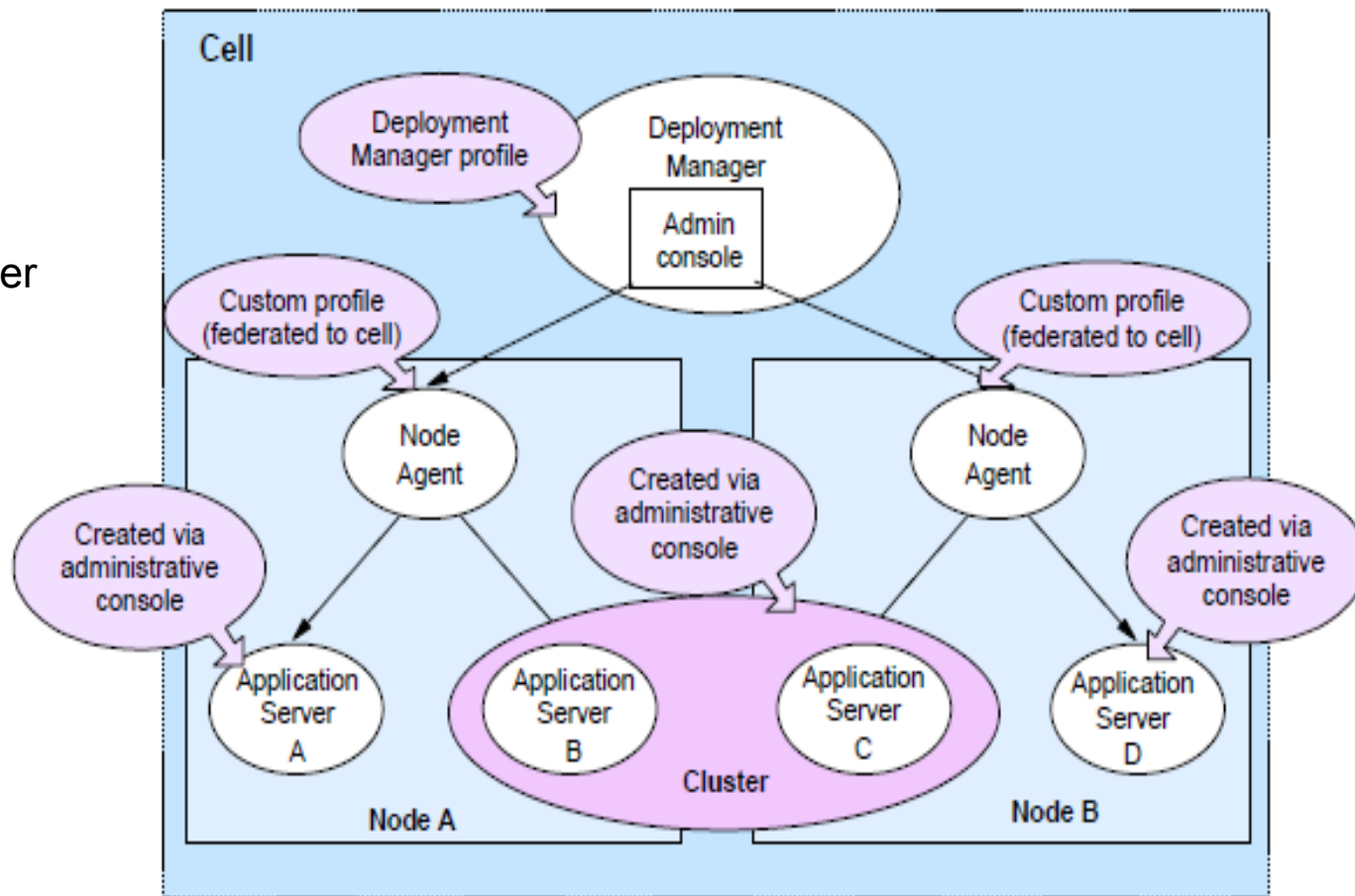
App Server

Nodes/Node agent

Deployment Manager

Cells

Cluster



1. WebSphere Application Server Overview

1.1 Concepts

Application Servers

- An application server runs one or more applications and provides the services required to run those applications.

Deployment Manager

- The central administration point of a cell that consists of multiple nodes and node groups in a distributed server configuration

1. WebSphere Application Server Overview

1.1 Concepts

Nodes

- An administrative grouping of application servers for configuration and operational management within one operating system instance

Node agents

- In distributed server configurations, each node has a node agent that works with the deployment manager to manage administration processes

Cells

- A grouping of nodes into a single administrative domain

Clusters

- A collection of servers managed together

1. WebSphere Application Server Overview

1.2 Functional Components

What can WAS do for us ?

- Web Container / EJB Container / JMS
- Session Management
- Class Loader
- Data Replication Service (DRS) / Dynamic Cache
- Database / JMS / MQ / J2C Connectivity
- Security

1. WebSphere Application Server Overview

1.3 System Administration

System Administration Facilities

Administrative Console
Scripting Client (wsadmin)

Administrative roles

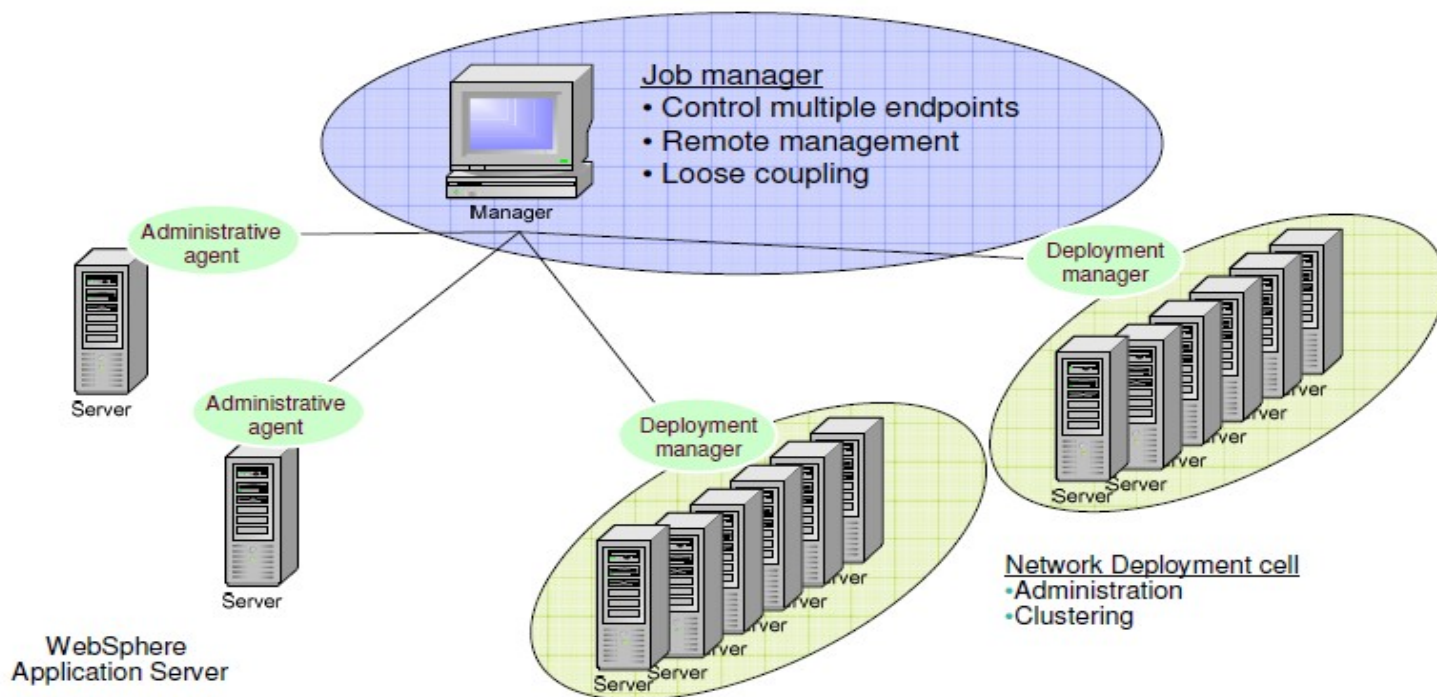
Monitor
Configurator
Operator
Administrator
Isadmins
Deployer
Admin Security Manager
Auditor

For complete administrative role description, please refer to
http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.nd.doc/info/ae/ae/rsec_adminroles.html

1. WebSphere Application Server Overview

1.4 New Features in WAS ND 7.0

Flexible management topology



2. Start working with WAS

Task 1) Core product installation

Task 2) Creating a Deployment Manager profile

Task 3) Federating a node with a Deployment Manager

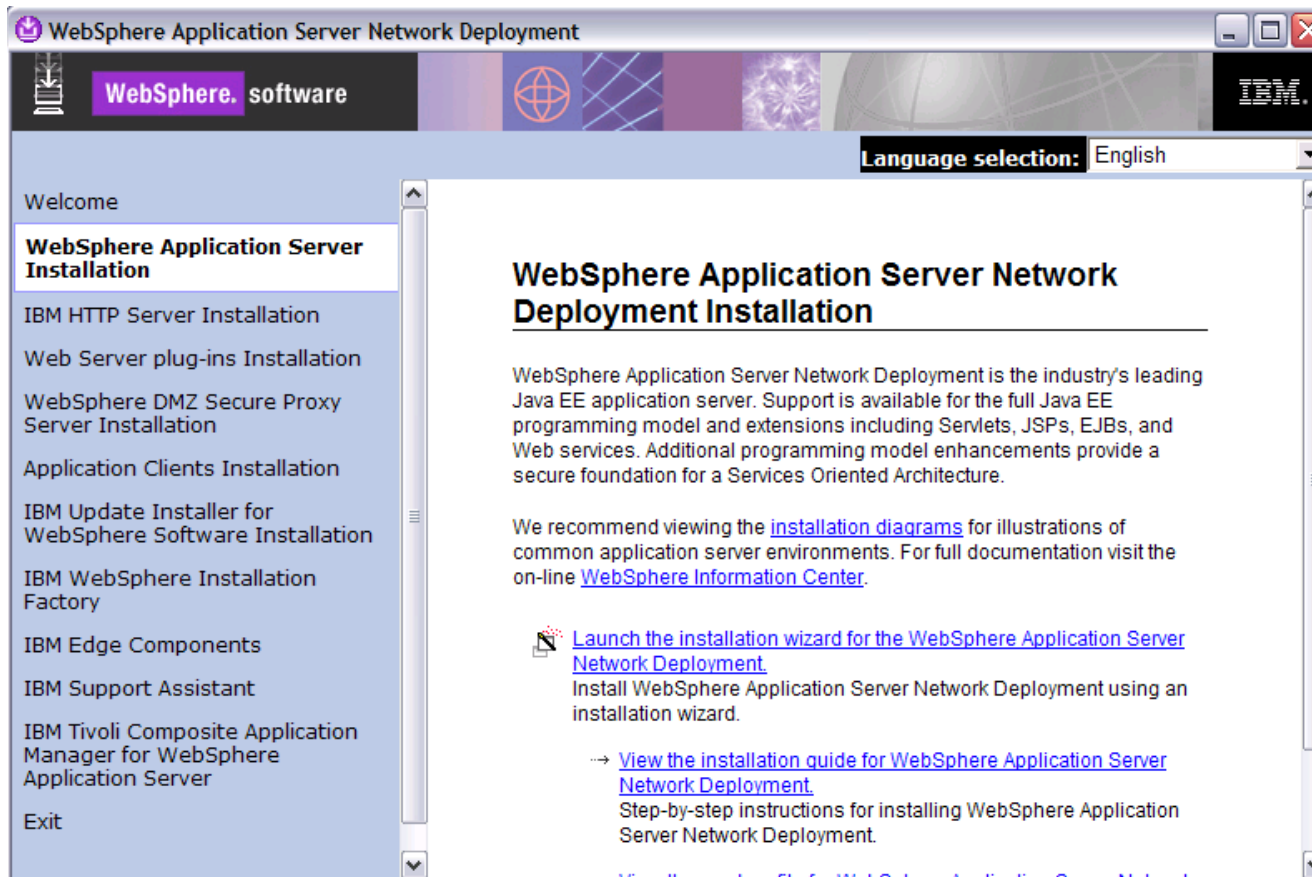
Task 4) Creating a cluster

Task 5) Installing / running an application

Task 6) Enabling diagnostic trace

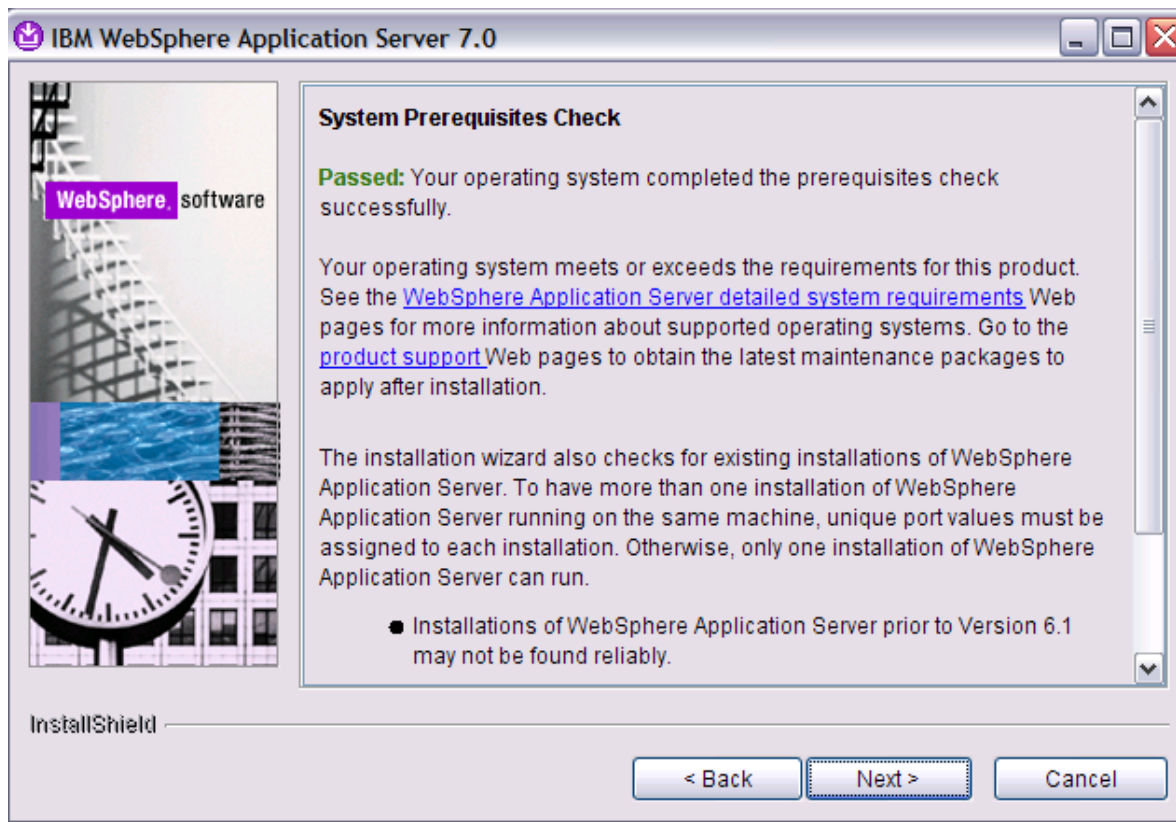
2. Start working with WAS

Task 1) Core production installation



2. Start working with WAS

Task 1) Core production installation

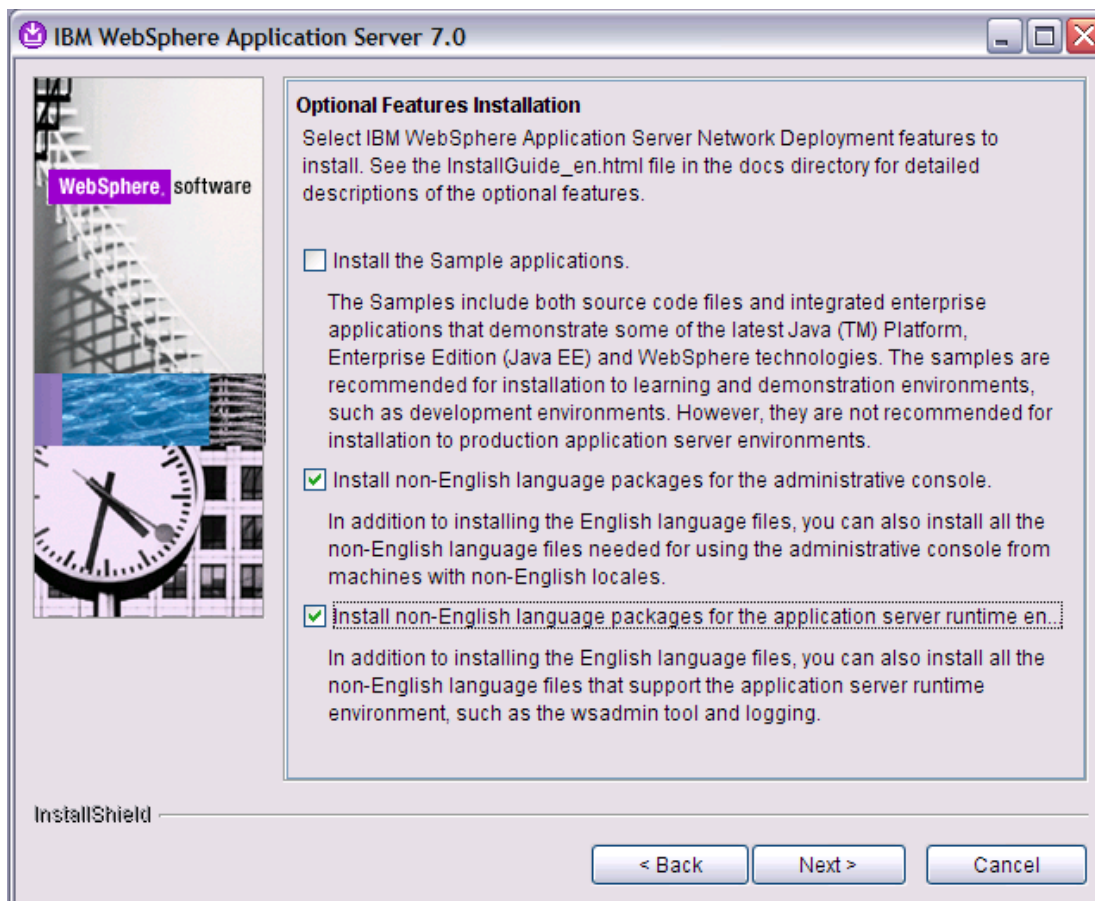


WebSphere Application Server detailed system requirements

<http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg27006921>

2. Start working with WAS

Task 1) Core production installation



2. Start working with WAS

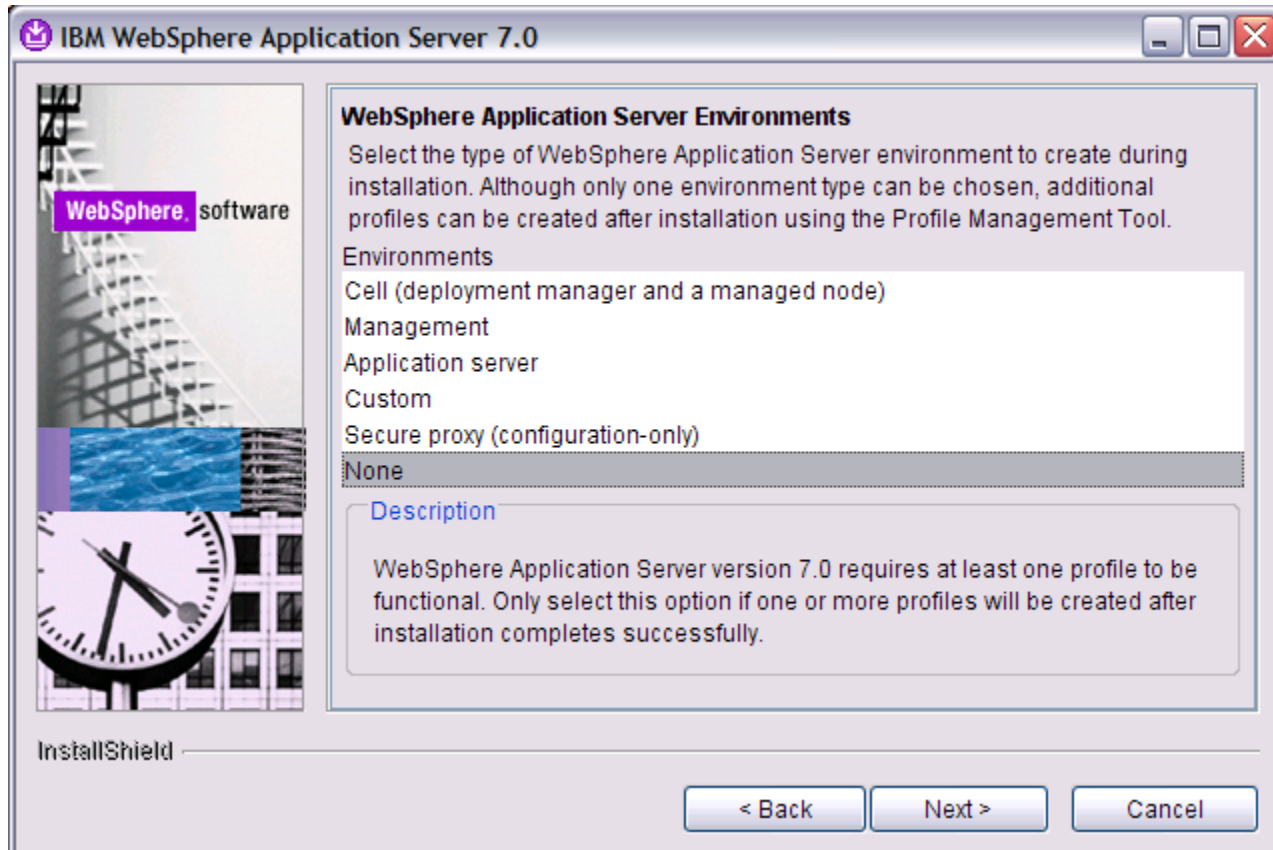
Task 1) Core production installation



Note: Please avoid blank be included in installation directory
e.g in Windows, C:\Program Files\IBM\WebSphere\AppServer\

2. Start working with WAS

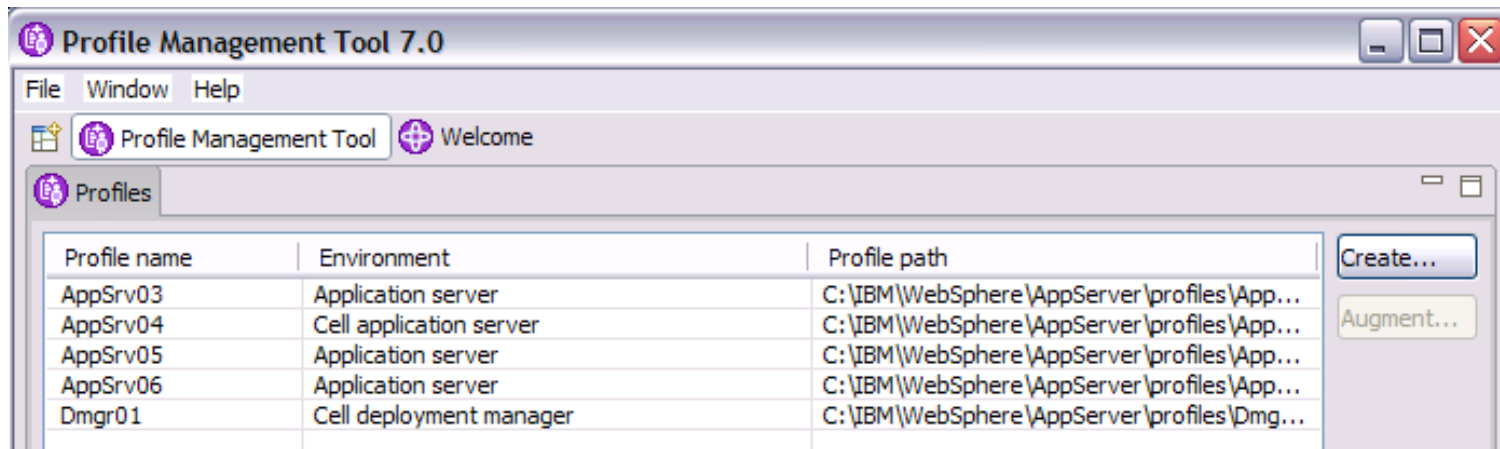
Task 1) Core production installation



2. Start working with WAS

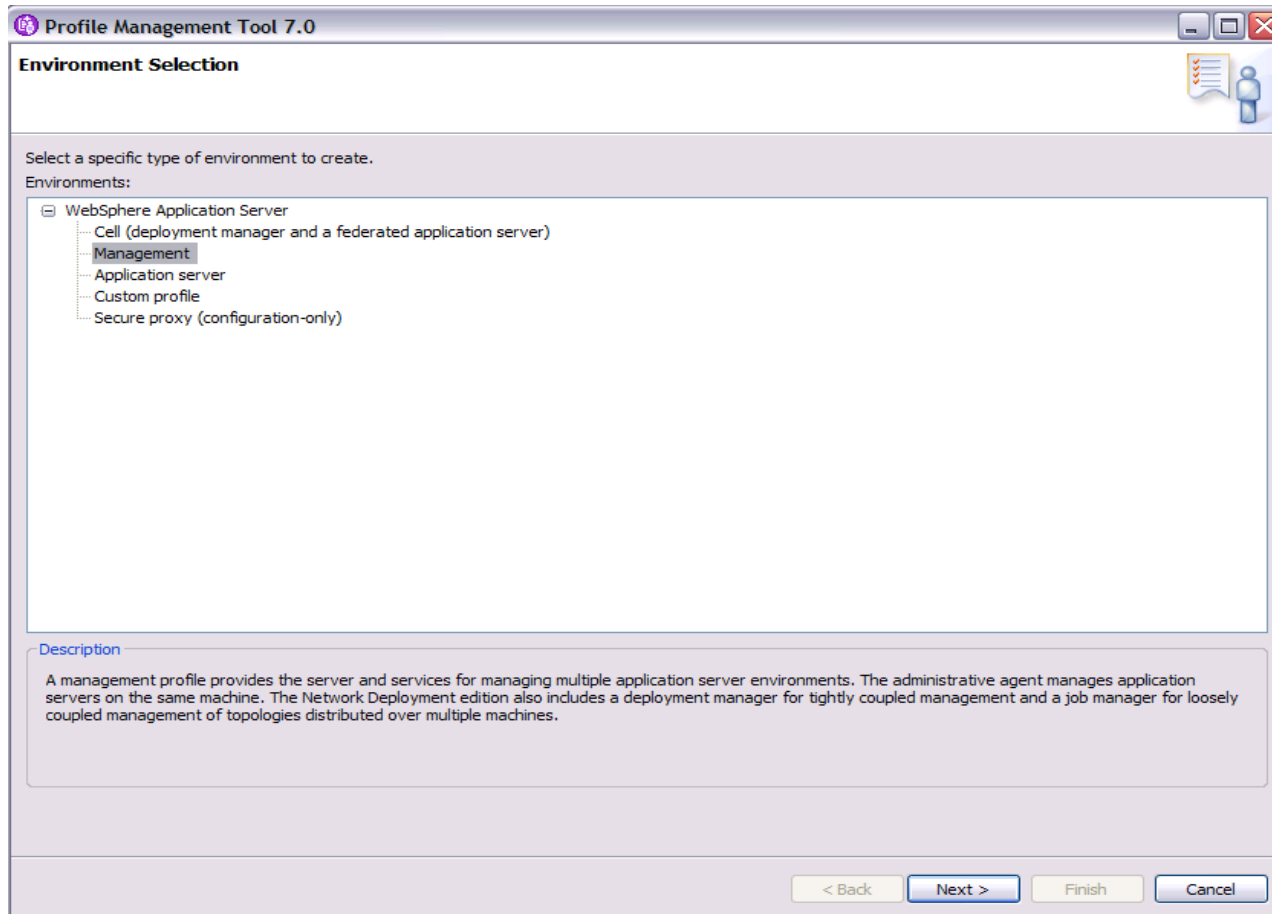
Task 2) Creating Profiles

- Profile Management Tool
<WAS_ROOT>\bin\ProfileManagement\pmt.bat (sh)
- Command line
<WAS_ROOT>\bin\manageprofiles.bat(sh) -help



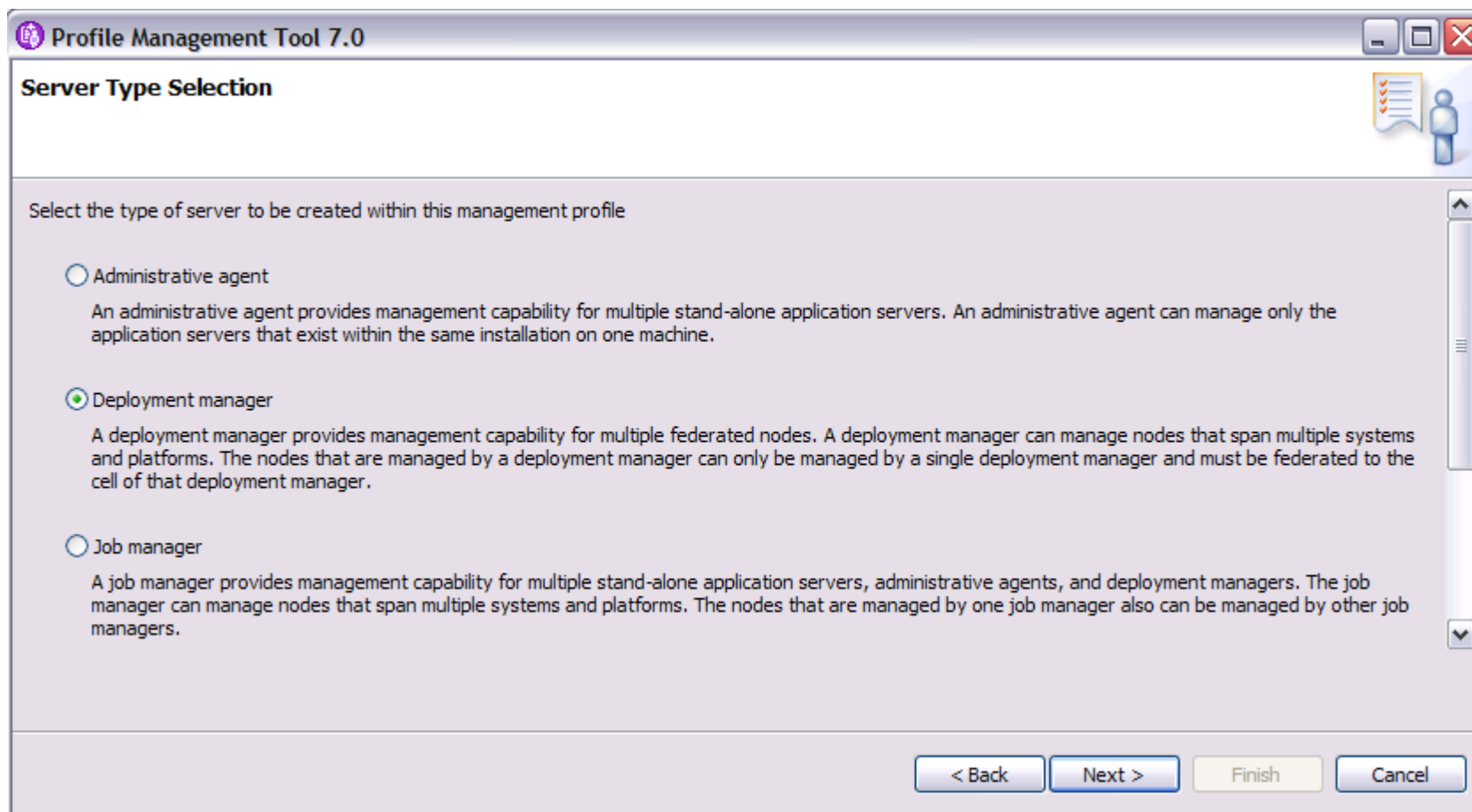
2. Start working with WAS

Task 2) Creating Profiles



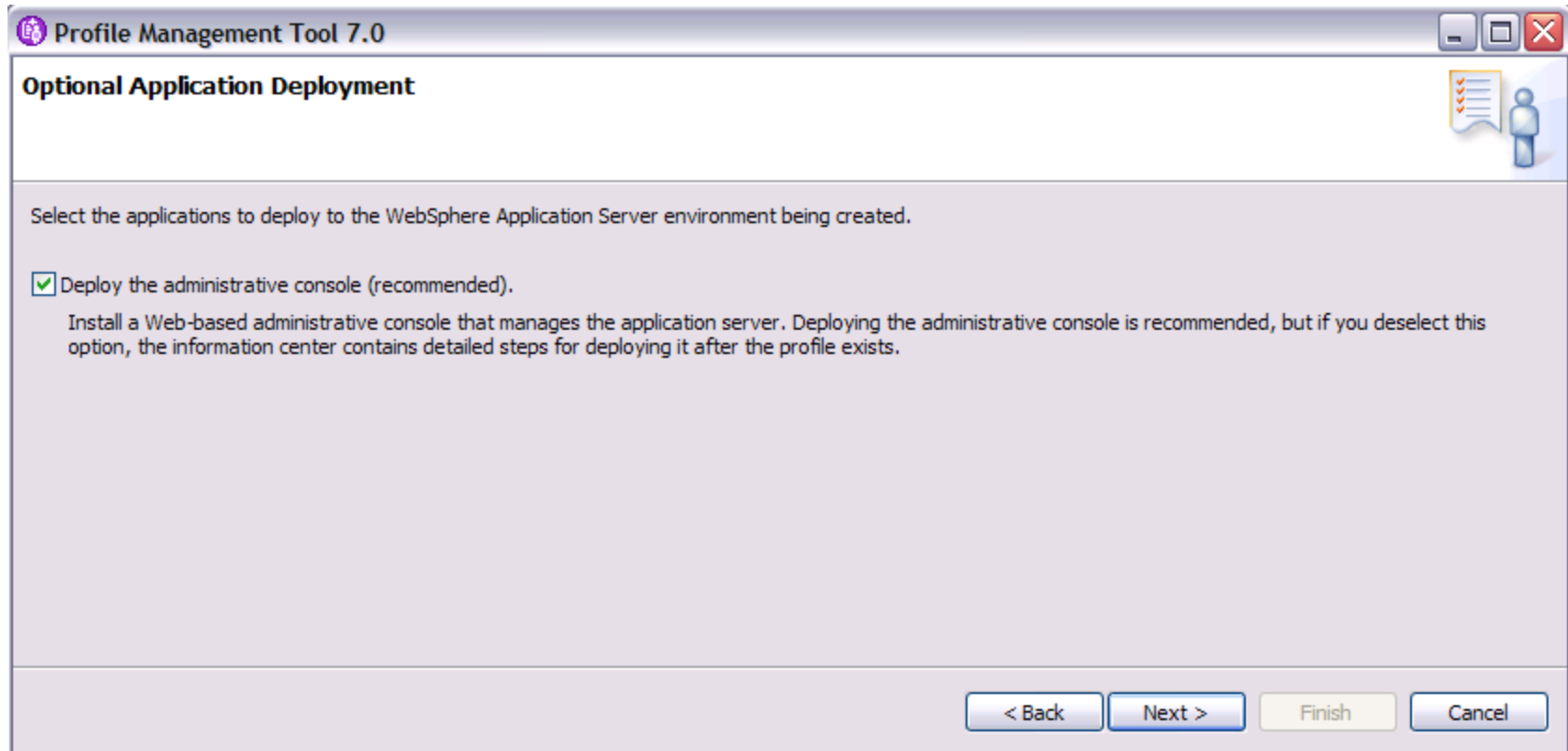
2. Start working with WAS

Task 2) Creating Profiles



2. Start working with WAS

Task 2) Creating Profiles



2. Start working with WAS

Task 2) Creating Profiles

Profile Management Tool 7.0

Profile Name and Location

Specify a profile name and directory path to contain the files for the run-time environment, such as commands, configuration files, and log files. Click **Browse** to select a different directory.

Profile name:
Dmgr02

Profile directory:
C:\IBM\WebSphere\AppServer\profiles\Dmgr02

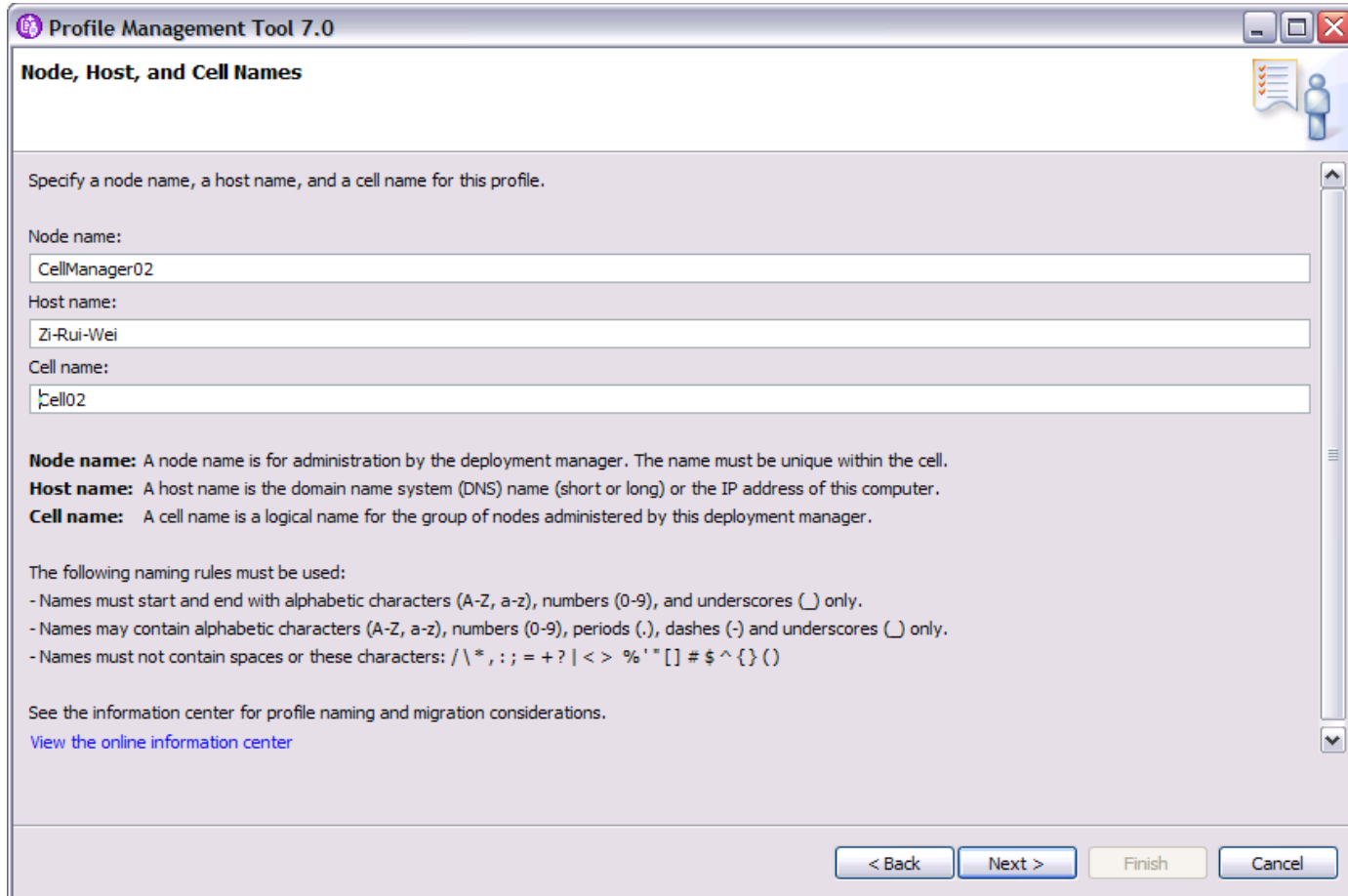
Make this profile the default.

Each installation of WebSphere Application Server always has one default profile. Commands that run without referring to a specific profile use the default profile. Select this option to make this profile the new default

< Back Next > Finish Cancel

2. Start working with WAS

Task 2) Creating Profiles



Profile Management Tool 7.0

Node, Host, and Cell Names

Specify a node name, a host name, and a cell name for this profile.

Node name:

Host name:

Cell name:

Node name: A node name is for administration by the deployment manager. The name must be unique within the cell.
Host name: A host name is the domain name system (DNS) name (short or long) or the IP address of this computer.
Cell name: A cell name is a logical name for the group of nodes administered by this deployment manager.

The following naming rules must be used:

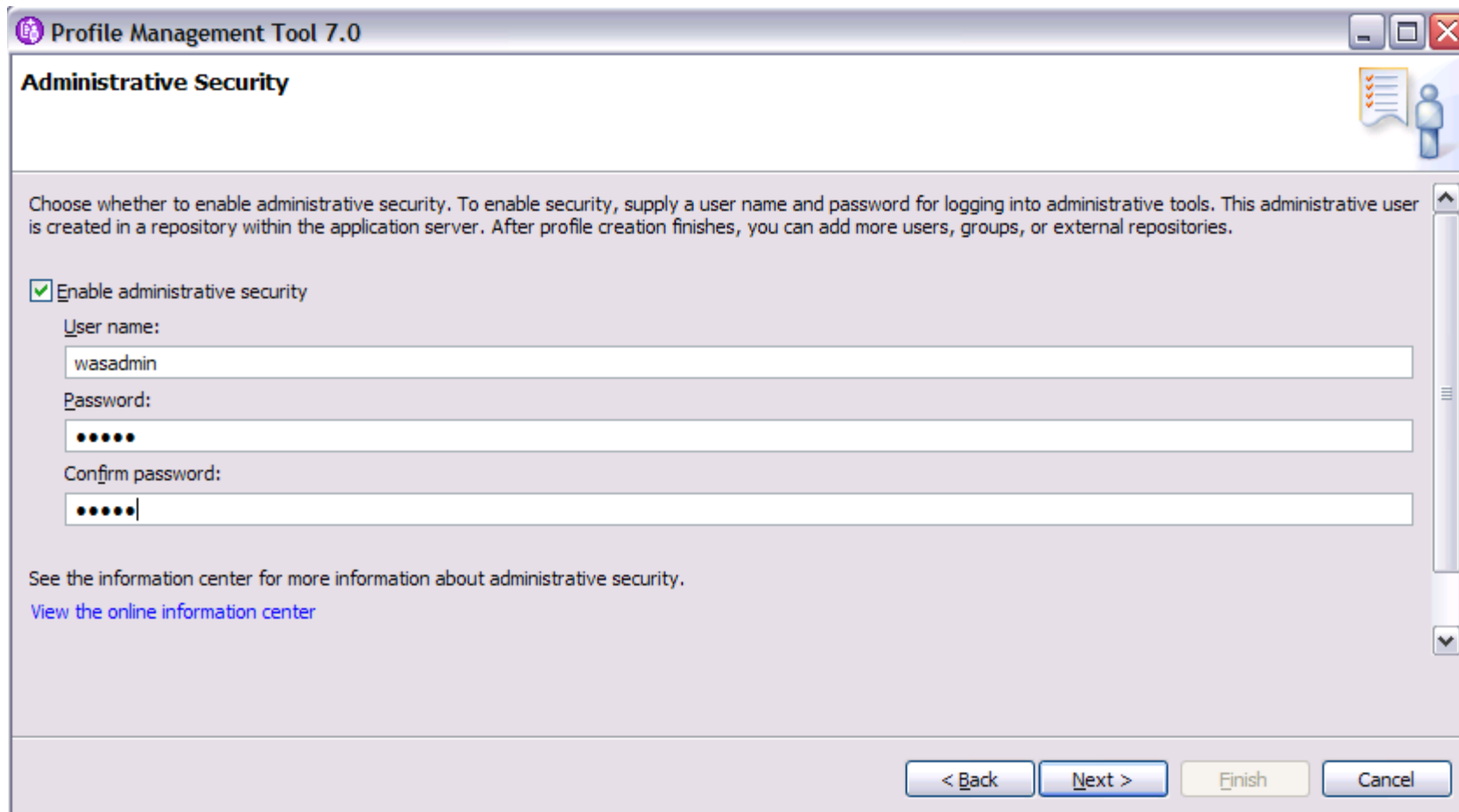
- Names must start and end with alphabetic characters (A-Z, a-z), numbers (0-9), and underscores (_) only.
- Names may contain alphabetic characters (A-Z, a-z), numbers (0-9), periods (.), dashes (-) and underscores (_) only.
- Names must not contain spaces or these characters: / \ * , ; = + ? | < > % ' " [] # \$ ^ { } ()

See the information center for profile naming and migration considerations.
[View the online information center](#)

< Back Next > Finish Cancel

2. Start working with WAS

Task 2) Creating Profiles



Profile Management Tool 7.0

Administrative Security

Choose whether to enable administrative security. To enable security, supply a user name and password for logging into administrative tools. This administrative user is created in a repository within the application server. After profile creation finishes, you can add more users, groups, or external repositories.

Enable administrative security

User name:
wasadmin

Password:
•••••

Confirm password:
•••••

See the information center for more information about administrative security.
[View the online information center](#)

< Back Next > Finish Cancel

2. Start working with WAS

Task 3) Federating a node with a Deployment Manager

1) Check Dmgr SOAP_CONNECTOR_ADDRESS Port

On Admin console or

<Dmgr_ROOT>\properties\portdef.properties

2) Federate node with Dmgr

Make sure Dmgr is running

<Profile_HOME>\bin\addNode localhost 8879

ADMU0003I: Node Node06 has been successfully federated.

Ports

Port Name	Port	Details
CELL_DISCOVERY_ADDRESS	7280	
BOOTSTRAP_ADDRESS	9809	
SOAP_CONNECTOR_ADDRESS	8879	
ORB_LISTENER_ADDRESS	9104	
SAS_SSL_SERVERAUTH_LISTENER_ADDRESS	9414	
CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS	9415	
CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS	9413	
WC_adminhost	9064	
DCS_UNICAST_ADDRESS	9352	
WC_adminhost_secure	9047	
IPC_CONNECTOR_ADDRESS	9632	
DataPowerMgr_inbound_secure	5555	

2. Start working with WAS

Task 4) Creating a cluster

Integrated Solutions Console Welcome admin Help | Logout

Cell=Zi-Rui-WeiCell01, Profile=Dmgr01

View: All tasks

- Welcome
- Guided Activities
- Servers
 - New server
 - Server Types
 - Clusters
 - WebSphere application server clusters
 - Proxy server clusters
 - Generic server clusters
 - Cluster topology
 - DataPower
 - Core Groups
- Applications
- Services
- Resources
- Security
- Environment
- System administration
- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration

Create a new cluster

Create a new cluster

→ **Step 1: Enter basic cluster information**

Step 2: Create first cluster member

Step 3: Create additional cluster members

Step 4: Summary

Enter basic cluster information

* Cluster name
TestClusterA

Prefer local. Specifies whether enterprise bean requests will be routed to the node on which the client resides when possible.

Configure HTTP session memory-to-memory replication

2. Start working with WAS

Task 4) Creating a cluster

Create a new cluster

Create a new cluster

Step 1: Enter basic cluster information

→ **Step 2: Create first cluster member**

Step 3: Create additional cluster members

Step 4: Summary

Create first cluster member

The first cluster member determines the server settings for the cluster members. A server configuration template is created from the first member and stored as part of the cluster data. Additional cluster members are copied from this template.

* Member name
member1

Select node
AppSrv03-Node01(ND 7.0.0.13) ▼

* Weight
2 (0..20)

Generate unique HTTP ports

Select basis for first cluster member:

Create the member using an application server template.
default ▼

Create the member using an existing application server as a template.
Zi-Rui-WeiCell01/AppSrv03-Node01(ND 7.0.0.13)/memberA ▼

Create the member by converting an existing application server.
Zi-Rui-WeiCell01/AppSrv03-Node01(ND 7.0.0.13)/server1 ▼

None. Create an empty cluster.

Previous Next Cancel

2. Start working with WAS

Task 4) Creating a cluster

Create a new cluster

Step 1: Enter basic cluster information

Step 2: Create first cluster member

→ **Step 3: Create additional cluster members**

Step 4: Summary

Create additional cluster members

Enter information about this new cluster member, and click Add Member to add this cluster member to the member list. A server configuration template is created from the first member, and stored as part of the cluster data. Additional cluster members are copied from this template.

* Member name

Select node

* Weight
 (0..20)

Generate unique HTTP ports

Use the Edit function to edit the properties of a cluster member that is already included in this list. Use the Delete function to remove a cluster member from this list. You are not allowed to edit or remove the first cluster member or an already existing cluster member.

Select	Member name	Nodes	Version	Weight
<input checked="" type="checkbox"/>	member1	AppSrv03-Node01	ND 7.0.0.13	2
<input type="checkbox"/>	member2	AppSrv03-Node01	ND 7.0.0.13	2
Total 2				

2. Start working with WAS

Task 4) Creating a cluster

Step 1: Enter basic cluster information

Step 2: Create first cluster member

Step 3: Create additional cluster members

→ **Step 4: Summary**

Summary

Summary of actions:



Options	Values
Cluster Name	TestClusterA
Core Group	DefaultCoreGroup
Node group	DefaultNodeGroup
Prefer local	true
Configure HTTP session memory-to-memory replication	true
Server name	member1
Node	AppSrv03-Node01(ND 7.0.0.13)
Weight	2
Clone Template	default
Clone Basis	Create the member using an application server template.
Generate unique HTTP ports	true
Server name	member2
Node	AppSrv03-Node01(ND 7.0.0.13)
Weight	2
Clone Template	Version 7 member template
Generate unique HTTP ports	true

Previous
Finish
Cancel


2. Start working with WAS

Task 4) Creating a cluster

Messages

-  Cluster repDomainCluster and all of its cluster members were deleted successfully.
-  Changes have been made to your local configuration. You can:
 - [Save](#) directly to the master configuration.
 - [Review](#) changes before saving or discarding.






An option to synchronize the configuration across multiple nodes after saving can be enabled in [Preferences](#).

-  The server may need to be restarted for these changes to take effect.

WebSphere application server clusters

Use this page to change the configuration settings for a cluster. A server cluster consists of a group of application servers. If one of the member servers fails, requests will be routed to other members of the cluster. 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.

Preferences

New Delete Start Stop Ripplestart ImmediateStop		
   		
Select	Name	Status
You can administer the following resources:		
<input type="checkbox"/>	TestClusterA	
Total 1		

2. Start working with WAS

Task 4) Creating a cluster





Replication domains ?

Replication domains

Use this page to create a list of replication domains that the session manager uses for replication of the dynamic cache service, and the stateful session bean failover components. All components that need to share information must be in the same replication domain.

⊕ Preferences

New Delete

Select	Name	Type
You can administer the following resources:		
<input type="checkbox"/>	TestClusterA	Data replication domain

Total 1

2. Start working with WAS

Task 5) Installing an application

The screenshot displays the Integrated Solutions Console interface. On the left, a navigation tree shows the 'Applications' section expanded, with 'New Application' selected. The main content area shows the 'Enterprise Applications' page with a 'Preparing for the application installation' dialog box. The dialog box prompts the user to 'Specify the EAR, WAR, JAR, or SAR module to upload and install.' It offers two options: 'Local file system' (selected) and 'Remote file system'. Each option has a 'Full path' input field and a 'Browse...' button. At the bottom of the dialog are 'Next' and 'Cancel' buttons.

Some sample and utility installable applications are available at
<WAS_ROOT>\installableApps\

2. Start working with WAS

Task 5) Installing an application

Install New Application ? -

Specify options for installing enterprise applications and modules.

→ **Step 1: Select installation options**

[Step 2](#) Map modules to servers

[Step 3](#) Provide JSP reloading options for Web modules

[Step 4](#) Map shared libraries

[Step 5](#) Map shared library relationships

[Step 6](#) Map virtual hosts for Web modules

[Step 7](#) Map context roots for Web modules

[Step 8](#) Map security roles to users or groups

[Step 9](#) Summary

Select installation options

Specify the various options that are available to prepare and install your application.

Precompile JavaServer Pages files

Directory to install application

Distribute application

Use Binary Configuration

Deploy enterprise beans

Application name

Create MBeans for resources

Override class reloading settings for Web and EJB modules

Reload interval in seconds

Deploy Web services

Validate Input off/warn/fail

Process embedded configuration

2. Start working with WAS

Task 5) Installing an application

Install New Application
?
—

Specify options for installing enterprise applications and modules.

[Step 1](#) Select installation options

→ Step 2: Map modules to servers

[Step 3](#) Provide JSP reloading options for Web modules

[Step 4](#) Map shared libraries

[Step 5](#) Map shared library relationships

[Step 6](#) Map virtual hosts for Web modules

[Step 7](#) Map context roots for Web modules

[Step 8](#) Map security roles to users or groups

[Step 9](#) Summary

Map modules to servers

Specify targets such as application servers or clusters of application servers where you want to install the modules that are contained in your application. Modules can be installed on the same application server or dispersed among several application servers. Also, specify the Web servers as targets that serve as routers for requests to this application. The plug-in configuration file (plugin-cfg.xml) for each Web server is generated, based on the applications that are routed through.

Display clusters and servers in the following security domain:

All security domains

Clusters and servers:

WebSphere:cell=Zi-Rui-WeiCell01,cluster=TestClusterA
WebSphere:cell=Zi-Rui-WeiCell01,cluster=singleServerCluster
WebSphere:cell=Zi-Rui-WeiCell01,node=AppSrv03-Node01,server=server1
WebSphere:cell=Zi-Rui-WeiCell01,node=Node06,server=server1
WebSphere:cell=Zi-Rui-WeiCell01,node=Zi-Rui-WeiNode02,server=server1

	Select	Module	URI	Server
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Dynamic Cache Monitor	CacheMonitor.war,WEB-INF/web.xml	WebSphere:cell=Zi-Rui-WeiCell01,cluster=TestClusterA

2. Start working with WAS

Task 5) Installing an application

Install New Application ? -

Specify options for installing enterprise applications and modules.

[Step 1](#) Select installation options

[Step 2](#) Map modules to servers

[Step 3](#) Provide JSP reloading options for Web modules

[Step 4](#) Map shared libraries

[Step 5](#) Map shared library relationships

[Step 6](#) Map virtual hosts for Web modules

→ **Step 7: Map context roots for Web modules**

[Step 8](#) Map security roles to users or groups

[Step 9](#) Summary

Map context roots for Web modules

Context root defined in the deployment descriptor can be edited.

Web module	URI	Context Root
Dynamic Cache Monitor	CacheMonitor.war,WEB-INF/web.xml	<input type="text" value="/cachemonitor"/>

2. Start working with WAS

Task 5) Installing an application

Install New Application
?

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

Step 3 Provide JSP reloading options for Web modules

Step 4 Map shared libraries

Step 5 Map shared library relationships

Step 6 Map virtual hosts for Web modules

Step 7 Map context roots for Web modules

Step 8 Map security roles to users or groups

→ Step 9: Summary

Summary

Summary of installation options

Options	Values
Precompile JavaServer Pages files	No
Directory to install application	
Distribute application	Yes
Use Binary Configuration	No
Deploy enterprise beans	No
Application name	Dynamic Cache Monitor
Create MBeans for resources	Yes
Override class reloading settings for Web and EJB modules	No
Reload interval in seconds	
Deploy Web services	No
Validate Input off/warn/fail	warn
Process embedded configuration	No
File Permission	.*\,dll=755#.*\,so=755#.*\,a=755#.*\,sl=755
Application Build ID	WAS70.SERV1 [cf131038.08]
Allow dispatching includes to remote resources	No
Allow servicing includes from remote resources	No
Business level application name	
Asynchronous Request Dispatch Type	Disabled
Allow EJB reference targets to resolve automatically	No
Cell/Node/Server	Click here

Previous
Finish
Cancel

2. Start working with WAS

Task 6) Enabling diagnostic trace

The screenshot displays the IBM WebSphere Administration Console interface. On the left is a navigation tree with categories like Applications, Services, Resources, Security, Environment, System administration, Users and Groups, Monitoring and Tuning, and Troubleshooting. The 'System administration' category is expanded to show 'Logs and trace'. The main content area is titled 'Logging and Tracing' and shows the breadcrumb path: 'Logging and Tracing > dmgr > Diagnostic trace service > Change log detail levels'. Below the breadcrumb is a paragraph explaining log levels and their cumulative nature. There are two tabs: 'Configuration' (selected) and 'Runtime'. Under the 'Configuration' tab, there is a section for 'General Properties' and a sub-section 'Change Log Detail Levels'. This sub-section contains a table with two columns: 'Components' and 'Groups'. The 'Components' column has a value of '*=info'. The 'Groups' column is empty. Below the table, there is a link to '* [All Components]'.

For specific component trace string, please refer
<http://www-01.ibm.com/support/docview.wss?rs=180&uid=swg21145599>

3. OpenMic session introduction / Survey

Frequency: Bi-Monthly

Products: WebSphere Application Server
WebSphere MQ
WebSphere Message Broker

Candidate topics survey for year 2011

WAS

Advanced security configuration
Session management
Data source and connection pooling

MQ

MQ Introduction
MQ 7 New Feature: Topic publication & subscription
MQ clusters
Deploying & running MQ clients on WAS

Thank
YOU