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# IBM WebSphere® Application Server V6

*Cell, Deployment Manager, Nodes and Node Agents*

*Configuration*



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This presentation will focus on the basics of configuration of the Cell, Deployment Manager, Nodes, and Node Agents in IBM WebSphere Application Server V6.

## Goals

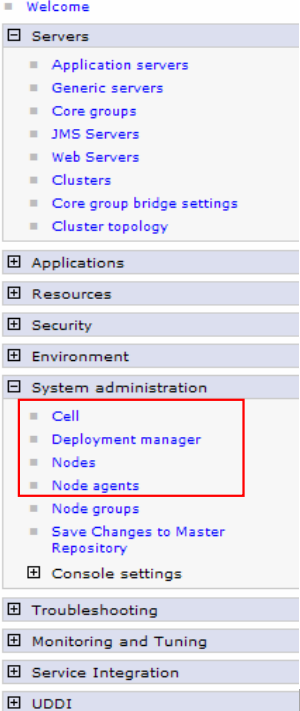
- Learn to Configure
  - ▶ Cell and Deployment Manager (DMgr)
  - ▶ Nodes and Node Agents

The goals of the presentation are to learn how to configure the cell, Deployment Manager, nodes, and Node Agents.

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## Agenda

- Configuration of:
  - ▶ Cell
  - ▶ Deployment manager
  - ▶ Nodes
  - ▶ Node agents



- Welcome
- ▣ Servers
  - Application servers
  - Generic servers
  - Core groups
  - JMS Servers
  - Web Servers
  - Clusters
  - Core group bridge settings
  - Cluster topology
- ▣ Applications
- ▣ Resources
- ▣ Security
- ▣ Environment
- ▣ System administration
  - Cell
  - Deployment manager
  - Nodes
  - Node agents
  - Node groups
  - Save Changes to Master Repository
  - ▣ Console settings
- ▣ Troubleshooting
- ▣ Monitoring and Tuning
- ▣ Service Integration
- ▣ UDDI

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This presentation deals with the administration of Cell, Deployment Manager, Node and Node Agents. The Administrative Console lists these tasks under the System Administration headings as shown in the panel on the page.

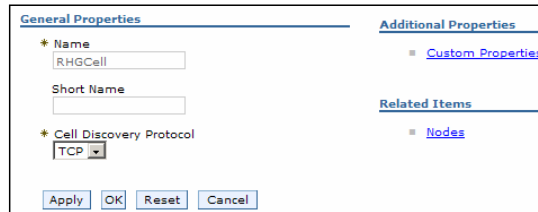
## Section

# ***Cell and deployment manager administration***

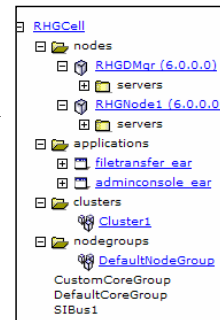
This section will focus on the administration of the cell and Deployment Manager

## Cell administration: Administrative console

- Configuration tab
  - ▶ Cell Discovery Protocol
    - TCP (Default)
    - UDP
  - ▶ Link to nodes of the cell



- Local Topology tab
  - ▶ Expandable tree-view of
    - Nodes and servers
    - Applications
    - Clusters
    - Node Group
    - Core Groups
    - Service Integration Bus



There is not a lot that is usually configured at the cell level. Basically, you can change the Cell Discovery Protocol – how the Deployment Manager locates running nodes when it is started. The Local Topology tab, allows you to have a tree view of the hierarchy of the cell and follow the links to the Node Agents, nodes, and application servers and applications for a particular node.

## Deployment manager configuration

- Process Definition – JVM parameters, etc.
- Core Group Service – DMgr's core group
- Ports - ports used by DMgr
- Administration Services – SOAP or RMI connectors & settings
- Custom Services – Extension point
- ORB Service – ORB Timeout, cache, NoLocalCopies, tunneling, and so on
- Diagnostic Trace Service – start/stop trace
- Logging and Tracing – Configure log locations, view logs
- HTTP transports – Host, Port and SSL configuration for transport

The screenshot shows the 'Server Infrastructure' configuration tree. Under 'Process Definition', the 'Additional Properties' section is expanded to show 'Ports'. A table below lists the following ports:

Name	Port	details
CELL_DISCOVERY_ADDRESS	7277	
BOOTSTRAP_ADDRESS	9809	
DRS_CLIENT_ADDRESS	7989	
SOAP_CONNECTOR_ADDRESS	8879	
ORB_LISTENER_ADDRESS	9100	
SAS_SSL_SERVERAUTH_LISTENER_ADDRESS	9401	
CSIV2_SSL_MUTUALAUTH_LISTENER_ADDRESS	9402	
CSIV2_SSL_SERVERAUTH_LISTENER_ADDRESS	9403	
WC_adminhost	9060	
DCS_UNICAST_ADDRESS	9352	
WC_adminhost_secure	9043	

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The Deployment Manager is itself an Application Server process. It is limited by hard-coded constraints so that no end-user enterprise applications may be installed on this process. In the Administrative Console, The state of the Deployment Manager is displayed... however, if the state were anything but started, you wouldn't be able to get to this panel. On the configuration tab, you can configure several additional properties, listed here. Custom Services, for example, allows customers to add in custom Java™ classes that run on application server startup and shutdown. The Init and Shutdown methods of the classes must return control to the application server, and no work is dispatched into the server instance until all custom service initialize methods return. There are other restrictions documented in the Information Center. The ORB Service is another item that allows several configuration options. Selecting "Pass By Reference" has been described as setting NoLocalCopies – this setting improves performance, but has ramifications if applications were not written to work with Pass By Reference enabled.

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## Node configuration

- Add, Remove, Synchronize (delta or full), Stop nodes
  - ▶ AddNode options
    - Application Server on the Stand-alone node must be running
    - Include applications (applications on node move to cell)
- On individual nodes, configuration includes
  - ▶ Discovery Protocol
  - ▶ Node group properties
  - ▶ Node installation properties
    - Product version, OS, deployed features

The screenshot shows a web-based interface for node configuration. At the top, there are buttons for 'Add Node', 'Remove Node', 'Synchronize', 'Full Resynchronize', and 'Stop'. Below these is a table with columns: 'Select', 'Name', 'Version', 'Discovery Protocol', and 'Status'. The table contains two entries: 'RHGDMgr' and 'RHGNode1', both with version '6.0.0.0' and 'TCP' as the discovery protocol. Below the table, there is a 'General Properties' dialog box for 'RHGNode1'. It has fields for 'Name' (RHGNode1), 'Short Name', and 'Discovery Protocol' (set to TCP). A dropdown menu for 'Discovery Protocol' is open, showing options: TCP, UDP, and MULTICAST. There are 'Reset' and 'Cancel' buttons at the bottom of the dialog.

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Node Administration includes adding, removing, and stopping nodes. Remotely starting a node agent is an operating system specific task, and at this point, it is left under manual control. Again, the configuration changes are limited – to the discovery protocol, as with the cell. The ports used by that protocol are configured on the Node Agent and on the Deployment Manager. Click on End Points and look for CELL\_DISCOVERY\_ADDRESS, NODE\_DISCOVERY\_ADDRESS, or MULTICAST\_DISCOVERY\_ADDRESS as needed. UDP is User Datagram Protocol. Multicast, a communication between one sender and multiple receivers, is one of the packet types in the Internet Protocol version 6 (IPv6). By default, a node uses Transmission Control Protocol (TCP). You will likely not need to change a node's protocol configuration from TCP. However, if you do need to change the discovery protocol value, here are some guidelines: For a managed process, use multicast. A Managed Process supports multicast only because multicasting allows all application servers in one node to listen to one port instead of to one port for each server. A benefit of using multicast is that you do not have to configure the discovery port for each application server or prevent conflicts in ports. A drawback of using multicast is that you must ensure that your machine is connected to the network when application servers other than the node agent launch. This is because a multicast address is shared by the network and not by the local machine. If your machine is not connected to the network when application servers launch, the multicast address will not be shared with the application servers. For a node agent or deployment manager, use TCP or UDP, rather than multicast.

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## Node agent configuration

Stop or Restart Node Agent  
Restart all Servers on the Node → Stop Restart Restart all Servers on Node

**List of Node Agents**

Select	Name	Node	Version	Status
<input type="checkbox"/>	nodeagent	RHGNode1	6.0.0.0	⊗
Total 1				

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**Individual Node Agent Configuration**

Define all Ports used by Node Agent – you can modify them

Define JMX settings (SOAP/RMI), Extension MBeans

Define extension point to plug custom Java classes that get started and stopped with the Application Server

**Server Infrastructure**

- [-] Java and Process Management
  - Process Definition

**Additional Properties**

- [-] Core\_group service
- [-] Ports
- [-] File\_synchronization\_service
- [-] File\_transfer\_service
- [-] Administration\_Services
- [-] Custom\_Services
  - [-] ORB\_Service
  - [-] Performance\_Monitoring\_Service
  - [-] Diagnostic\_Trace\_Service

Define JVM and process configuration like JVM parameters, process UIDs, ...

Define File Synch. settings between DMgr and Node Agent

Define ORB retries, connection cache, tracing, thread pools, ...

Define Performance. Monitoring Instrumentation for performance. debug

The Node Agent is itself an Application Server process. It is limited by hard-coded constraints so that no end-user enterprise applications may be installed on this process. The configuration tab will present a sub-set of the configuration options that pretty much matches the deployment manager's options. The runtime tab will display cell and node names and states, and an operating system Process ID.



## Summary

- Covered configuration of WebSphere Cell, Deployment Manager, Nodes and Node Agents

In summary you were shown the configuration of the cell, Deployment Manager, node, and Node Agents through the Administrative Console.

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