



IBM Software Group

IBM WebSphere Partner Gateway V6.1 Advanced and Enterprise Editions

Full Distributed Mode installation and topologies



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This presentation provides details of WebSphere® Partner Gateway V6.1 Full Distributed mode installation and the different topologies that can be created through the installation options. Once installed, the details of getting the servers started and logging into the console is shown in a separate presentation.

Agenda

- Full Distributed mode installation and topologies
- Adding additional WebSphere Partner Gateway servers (cluster members)
- Installation logs
- Resources created during installation
- Uninstall
- Summary and references



The agenda is shown here. It covers the details of full distributed mode installation options, the topologies that it can provide, and how to add additional WebSphere Partner Gateway servers to the clusters created during install. Next it covers the installation logs, failures and resources created during the installation. Last, it covers how to uninstall WebSphere Partner Gateway V6.1 distributed mode environment.

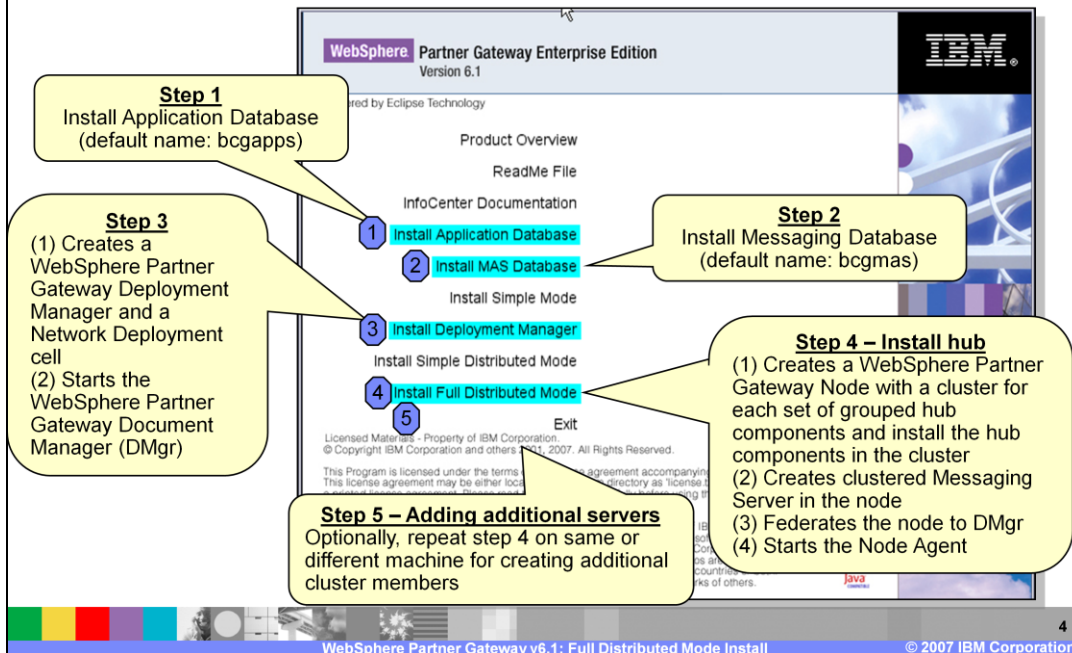
Section

Full Distributed Mode installation and topologies



The next section covers the details of the Full Distributed Mode install and the possible topologies.

Steps for Full Distributed Mode installation



Here are the installation steps. Note the pre-requisite installation steps need to be performed before installing WebSphere Partner Gateway V6.1, including setting up the shared file system and database, accessible by all machines.

The first 2 steps are related to the installation of the database for the application database and the messaging database.

Step 3 is installing the WebSphere Partner Gateway Deployment manager. As part of the installation, the Deployment manager is started. The WebSphere Partner Gateway Deployment manager is installed on top of an existing WebSphere Application Server Network Deployment installation.

Step 4 is installing the hub, namely the WebSphere Partner Gateway components, messaging server and common shared directory. By default, WebSphere Partner Gateway components are installed on their own cluster and server. You can choose to install multiple WebSphere Partner Gateway components in the same cluster by choosing to install them on the same server. This is done manually by specifying the same server name for the multiple WebSphere Partner Gateway components. This gives you the flexibility of combining WebSphere Partner Gateway components in same cluster or keeping it separate.

If additional servers are to be added to the WebSphere Partner Gateway components cluster, the hub is installed again as shown in step 5.

Activities during installation

- During install of Deployment Manager (DMgr):
 - ▶ WebSphere Partner Gateway DMgr created and started

- During install of hub in Full Distributed mode:
 - ▶ WebSphere Partner Gateway Node created in a new profile
 - ▶ WebSphere Partner Gateway Node is added to the DMgr and the Node Agent is started
 - ▶ Clustered WebSphere Partner Gateway Server is created within Node for each selected WebSphere Partner Gateway component, but not started
 - ▶ One or more WebSphere Partner Gateway components are installed in the cluster and configured
 - ▶ Clustered Messaging Server created within the Node, but not started
 - ▶ Node is synchronized with the configuration in the DMgr

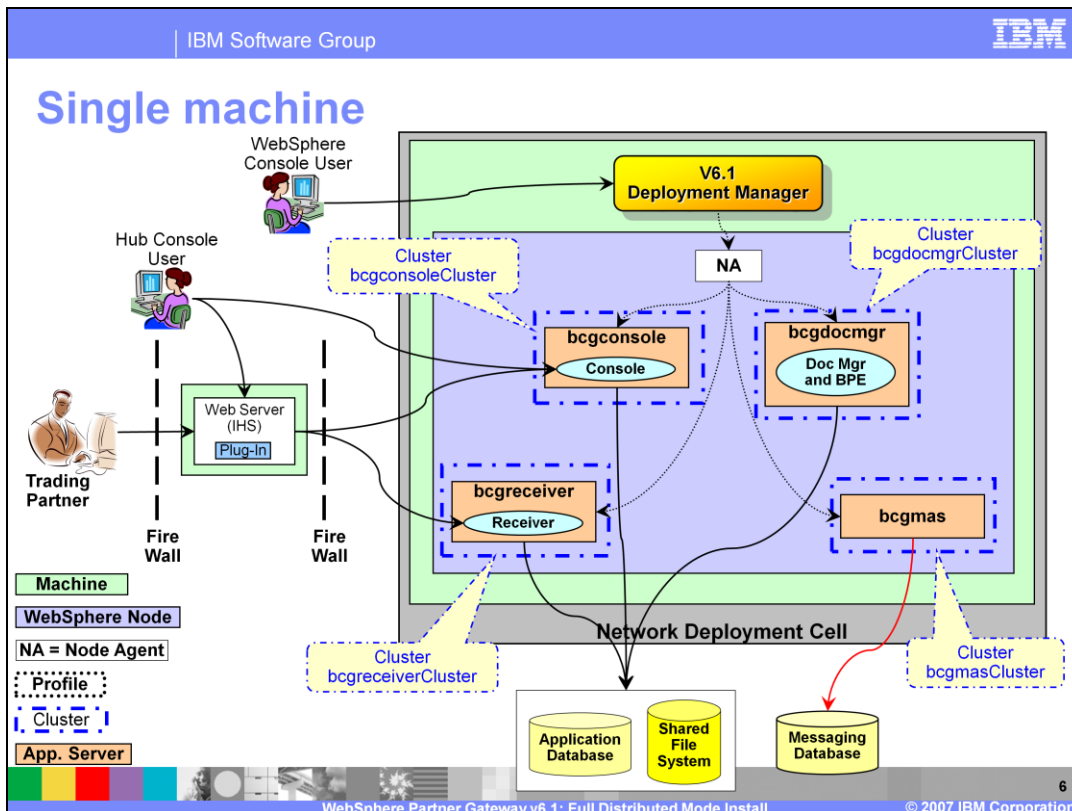
Result: 1 Node, 1 Node Agent, 2 or more Clusters containing a server each are created during hub install

Here are the high level activities that occur during the installation.

During the installation of the deployment manager, a deployment manager profile and instance are created. The profile registry of the WebSphere Application Server is updated with the new deployment manager profile. The deployment manager is started. If the deployment manager is stopped, it needs to be restarted before the hub installation.

In the installation phase of the hub, several important activities occur. The exact sequence is not important. First a new profile is created and a node, referred to as WebSphere Partner Gateway node, is created in that profile. The WebSphere Partner Gateway node is federated to the deployment manager. The deployment manager must be running for federation to be successful. Once federated, the node agent is started.

In the Node, a cluster is created for each hub component, Console, Receiver and Document Manager, selected during install, and a new server is added to the cluster. The components are installed in their respective clustered server and then configured. A new cluster is created and a messaging server is created and added to the cluster within the same WebSphere Partner Gateway node. At the end, the Node is synchronized with the changed configuration at the deployment manager.



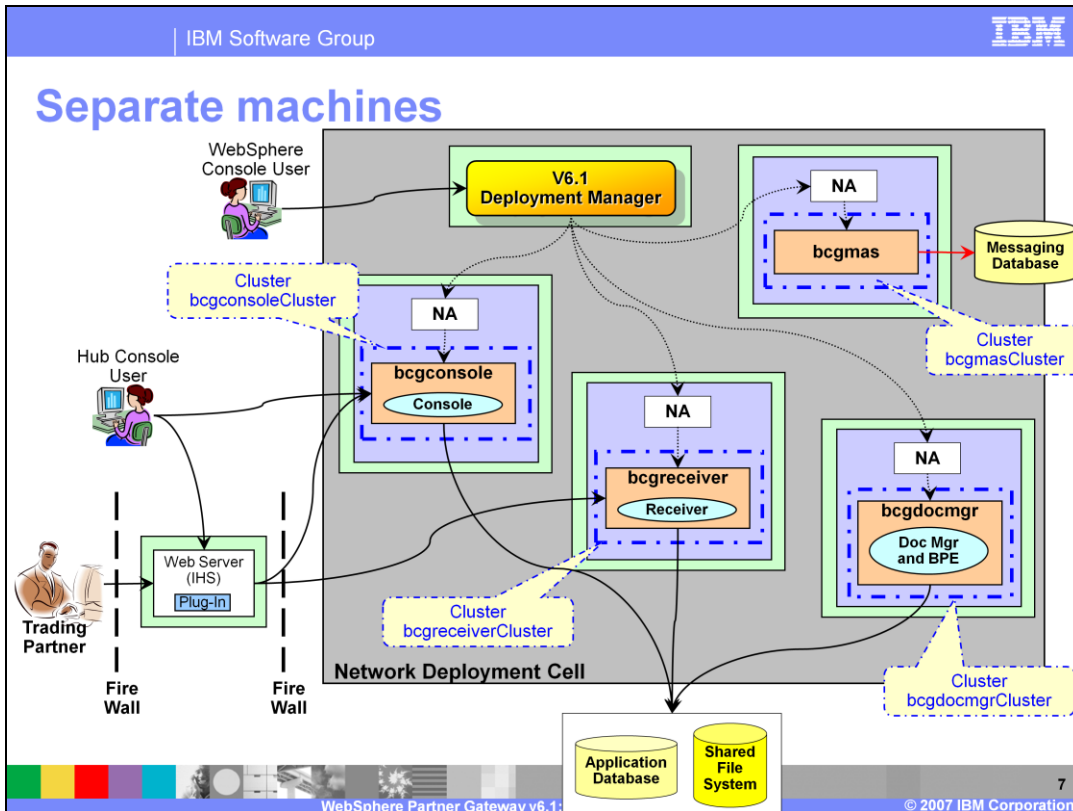
The environment shown here is a typical full distributed mode installation. with the exception that the Deployment Manager may be on the same machine or a different machine,

The WebSphere Partner Gateway Deployment manager needs to be installed before installing the hub. It can be on the same machine as the hub or a different machine.

During the hub installation, by default, a separate cluster with a cluster member is created for the messaging application server and for each WebSphere Partner Gateway component. The result is that you will have a separate cluster for Console, Receiver, Document Manager and messaging.

Adding additional cluster members for WebSphere Partner Gateway components or messaging server will make them scalable and highly available. Creating additional cluster members is discussed later in the presentation.

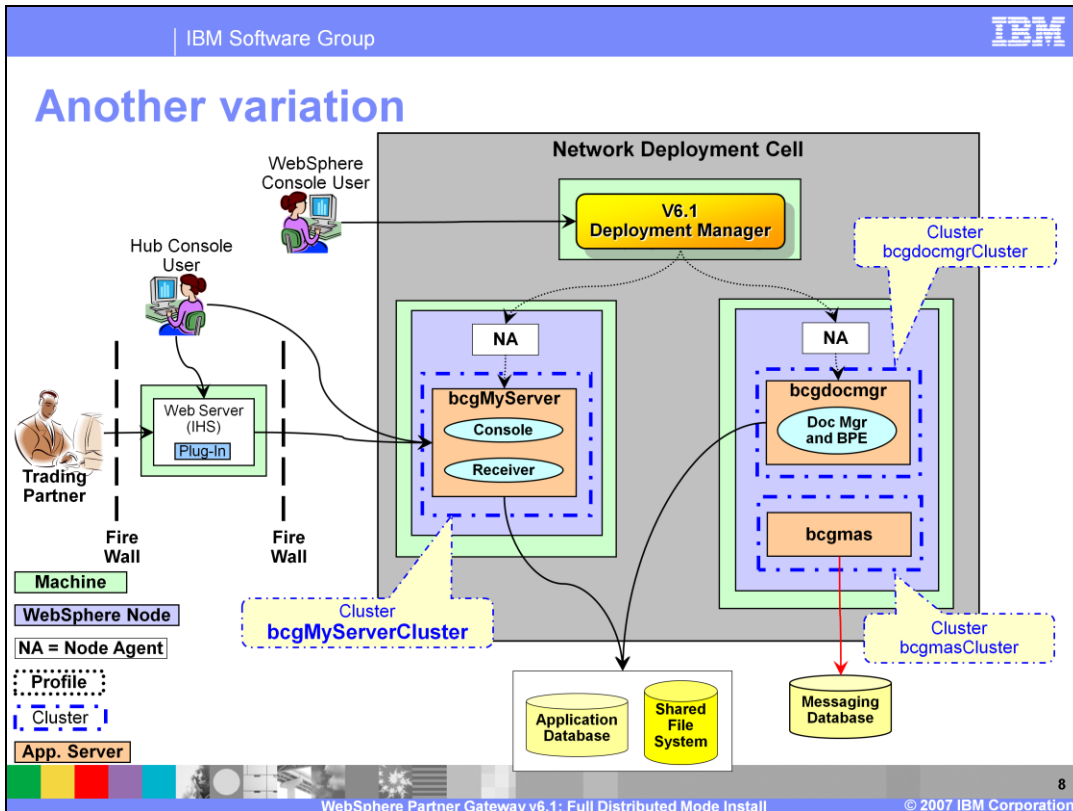
The WebSphere Partner Gateway console user connects to the Console component. The WebSphere Application Server administrator connects to the Deployment Manager administer the resources and servers in the cell.



The full distributed environment shown here has each WebSphere Partner Gateway component and the messaging server on a separate machine. The Deployment Manager is also installed on a separate server.

In the previous topology, the WebSphere Partner Gateway components were installed on the same machine, although they were all installed on separate clusters just like this one.

Create the topology by first installing the Deployment Manager. Then the hub is installed separately on each machine, selecting only the WebSphere Partner Gateway component or the messaging server to be installed.



This is a variation of the full distributed mode installation topology showing grouping of WebSphere Partner Gateway components in the same cluster. In this use case, the Receiver and Console are installed on one machine in the same cluster, whereas the Document Manager is installed on another machine along with the Messaging Application Server.

To create a group of WebSphere Partner Gateway components in the same cluster, you need to specify the same server name, during the install, for the WebSphere Partner Gateway components in the group. In the example, the server name used for Receiver and Console is "bcgMyServer". This is done manually by overriding the default server name for the 2 WebSphere Partner Gateway components.

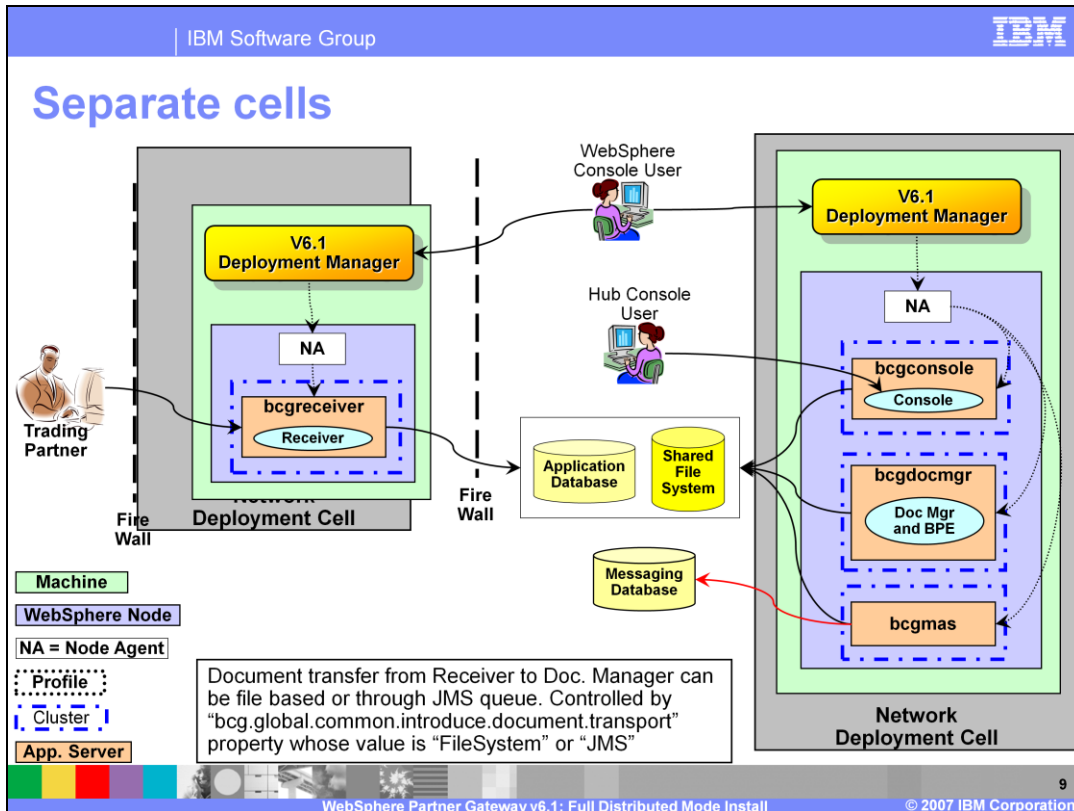
The Document Manager and messaging application server are installed on a separate machine in its own cluster.

If additional cluster members need to be created for the Console and Receiver components, you will have to install the hub. Use the same server name, bcgMyServer, for the Console and Receiver in the new WebSphere Partner Gateway hub installation.

The full distributed environment shown here has each WebSphere Partner Gateway component and the messaging server on a separate machines. The Deployment Manager is also installed on a separate server.

In the previous topology, the WebSphere Partner Gateway components were installed on the same machine, although they were all installed on separate clusters just like this one.

The topology is created by first installing the Deployment Manager. Then the hub is installed separately on each machine, selecting different WebSphere Partner Gateway component and messaging server. A separate cluster is created for each WebSphere Partner Gateway component and the messaging server.



In this deployment scenario, WebSphere Partner Gateway component is split over two Network Deployment cell.

The receiver cluster is in a Network Deployment cell within the DMZ, the console and document manager server are in another WebSphere Application Server Network Deployment cell within another zone. Essentially the Receiver is in one Cell, while the Console & Document Manager are in a different Cell which is behind DMZ firewall.

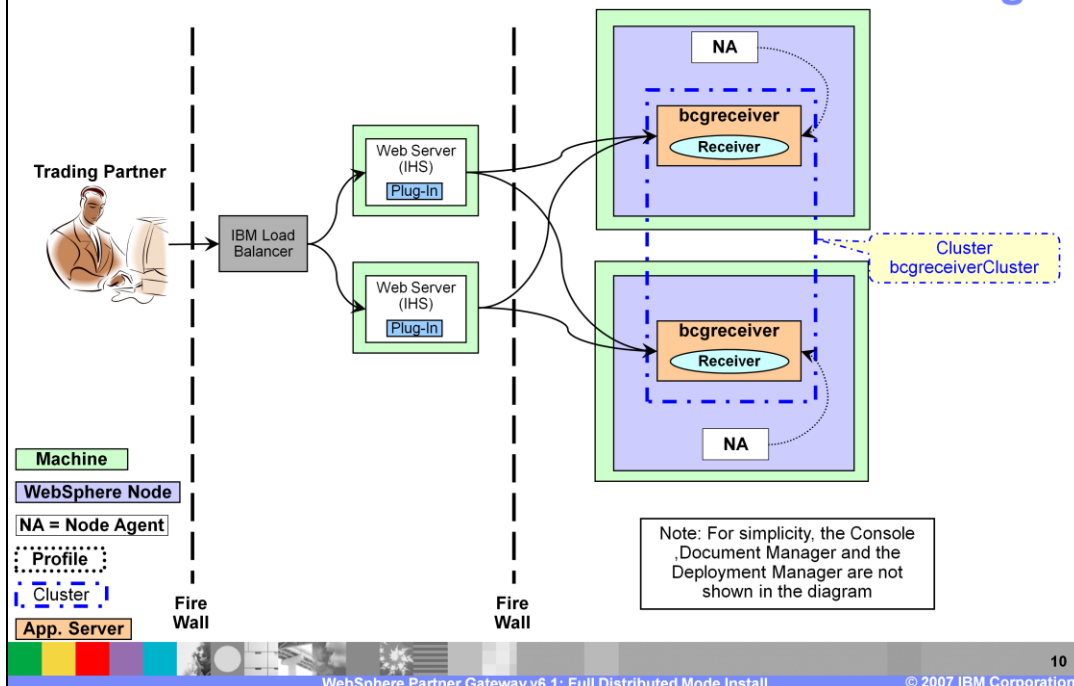
In this scenario, the Receiver upon receiving the request writes the document into the shared file system. Receiver can also write the received document to the JMS queues of the embedded messaging of WebSphere Application Server, if the necessary ports are opened at the firewall. If the ports cannot be opened for the Receiver to write to the queue then the Document Processing Interface will operate in File mode. This would be set at the environment level in the Receiver. The Receiver has a property called "bcg.global.common.introduce.document.transport" to determine the document routing transport for moving documents internally from the receiver to the Document Manager. Value is either 'FileSystem' or 'JMS'. You can modify this property from the WebSphere Partner Gateway console by selecting System Administration and selecting Common properties.

If the Receiver is not able to receive configuration change event notifications because the embedded messaging ports in the firewall are not opened then the Receivers will need to be restarted whenever configuration changes are made. The Deployment Manager Ripple start can be used.

Embedded messaging is intended for communication within the same Cell. Inter-Cell messaging communication can take place but there must be links configured between the two cells.

This is not a typical and recommended deployment, and in fact most WebSphere Partner Gateway environment would have all the components behind the fire wall.

Distributed Mode installation – Load balancing



This deployment scenario shows a cluster with two Receiver components that can be load balanced and different incoming requests being processed by the Receivers. Additionally, you can deploy multiple Web servers to provide a fail over and scalability for the Web server.

For simplicity, the rest of the WebSphere Partner Gateway environment are not shown here. The focus is on showing the multiple clustered Receivers to load balance the incoming requests.

Default ports – Full distributed

Visible ports	Console	Receiver	Document Manager
HTTP	58080	57080 57081 (internal)	56080
HTTPS	58443	57443	56443

WebSphere Application Server ports	Port #
DMgr HTTP Administration Console	58090
DMgr HTTPs Administration Console	58043
DMgr SOAP Connector	58880
DMgr BootStrap	58009

Other ports	Default port
Used to connect to DB2	50000
Used to connect to Oracle	1521
Used for SMTP connection (from router to E-mail server)	25

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WebSphere Partner Gateway v6.1: Full Distributed Mode Install

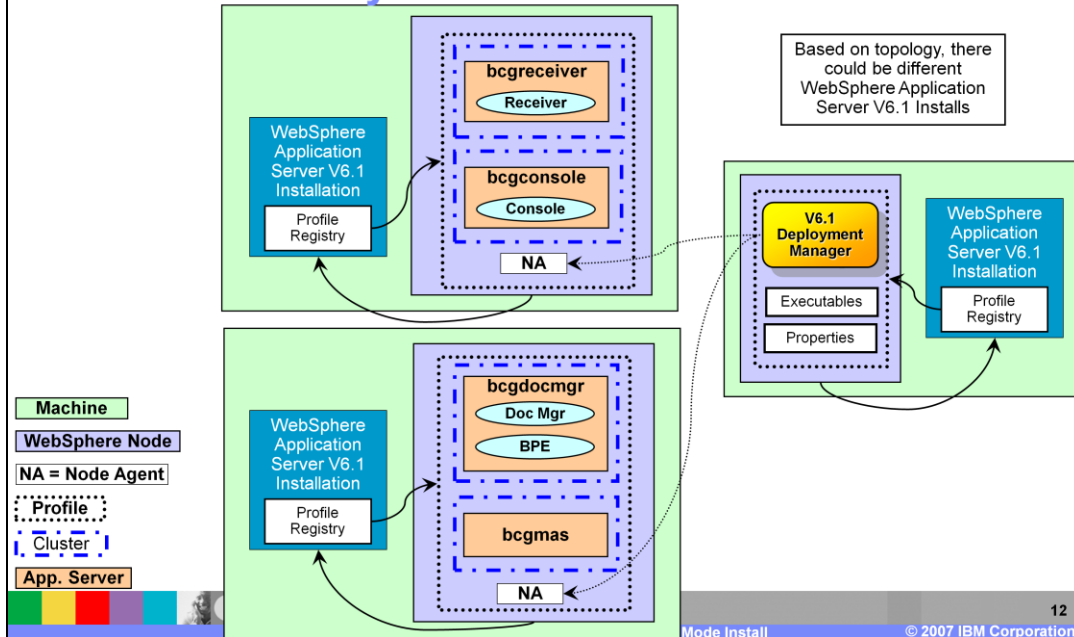
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These tables show the default ports used by WebSphere Partner Gateway components and the underlying WebSphere Application Server Deployment Manager. The important ports are the WebSphere Partner Gateway HTTP ports used for the Community Console and other WebSphere Partner Gateway components. Unlike Simple mode or Simple distributed mode, because WebSphere Partner Gateway components could be on their own servers, they have their own ports.

Receiver has an additional internal port for the synchronous responses from Document Manager.

The other important port is the WebSphere Application Server Deployment Manager Administrative console port that you may need to make configuration changes to the underlying Application Server.

WebSphere Application Server and WebSphere Partner Gateway Link: Full Distributed Mode



The relation between the WebSphere Partner Gateway installation and WebSphere Application Server V6.1 is shown here for a full distributed installation. WebSphere Partner Gateway links to runtime binaries in the WebSphere Application Server directory. The Profile Registry in the WebSphere Application Server is updated the WebSphere Partner Gateway profiles created during installation.

For the topology shown, there are two hub installations on separate machines and one Deployment Manager installation on a separate machine. Each machine uses its own copy of WebSphere Application Server installation. Hence the profile registry for that WebSphere Application Server installation contains only the entries for the specific hub or deployment manager.

Section

Distributed Mode silent installation

The next section covers the Distributed Mode silent installation.

Full Distributed Mode - Silent installation

- To perform a silent installation, run the appropriate setup.exe from the appropriate directory (DBLoader or hub)
 - ▶ **setup.exe -options "<options iss File>" -silent**
- Following separate silent installations are possible:

Silent Install of:	Sample Options File	From Directory
Application Database	SampleDBLoaderWindowsInstallOptions.iss	DBLoader
MAS database	SampleDBLoaderMASWindowsInstallOptions.iss	DBLoader
Deployment Manager	SampleHubdmgrWindowsInstallOptions.iss	hub
Full Distributed	SampleHubWindowsFullDistributedInstallOptions.iss	hub



WebSphere Partner Gateway installation supports silent installations for all the parts of the product. Silent installation involves running the installation setup program from the appropriate directory as specified, with the appropriate options file. You would specify all the installation options through the options file.

Sample options file are provided for all the installation steps, as specified in the table. You can create your own custom silent installation options file from the sample files.

Section

Creating Additional WebSphere Partner Gateway Cluster Member (Server) in the cluster



The next section covers the basics of creating additional servers (called cluster members) in a full distributed install.

Creating additional Cluster Member

- Install the hub again using Full Distributed mode
 - ▶ Recap - During the 1st install, a cluster is created for each hub component or group of hub components, with a default name of <Server>Cluster
- If using Full Distributed mode, select the hub components that you need to be scalable
 - ▶ If multiple hub components were grouped together in one cluster during the 1st install, the same grouping need to be used for this installation
- Specify the same Deployment Manager to federate this new hub
- Use the same server name as used in the 1st installation – if modified server name is used, then use that name during this installation
 - ▶ As best practice, try to use default server names
- Do not create new common directory – will need to specify the common shared directory



The steps to create additional cluster member (Server) for scalability and high availability are explained here.

Additional cluster members can be created once the initial installation of the environment using Full Distributed mode is complete.

Installing additional cluster members or servers require a new installation of hub within the same cell. The same Deployment Manager is used to federate the new hub installation.

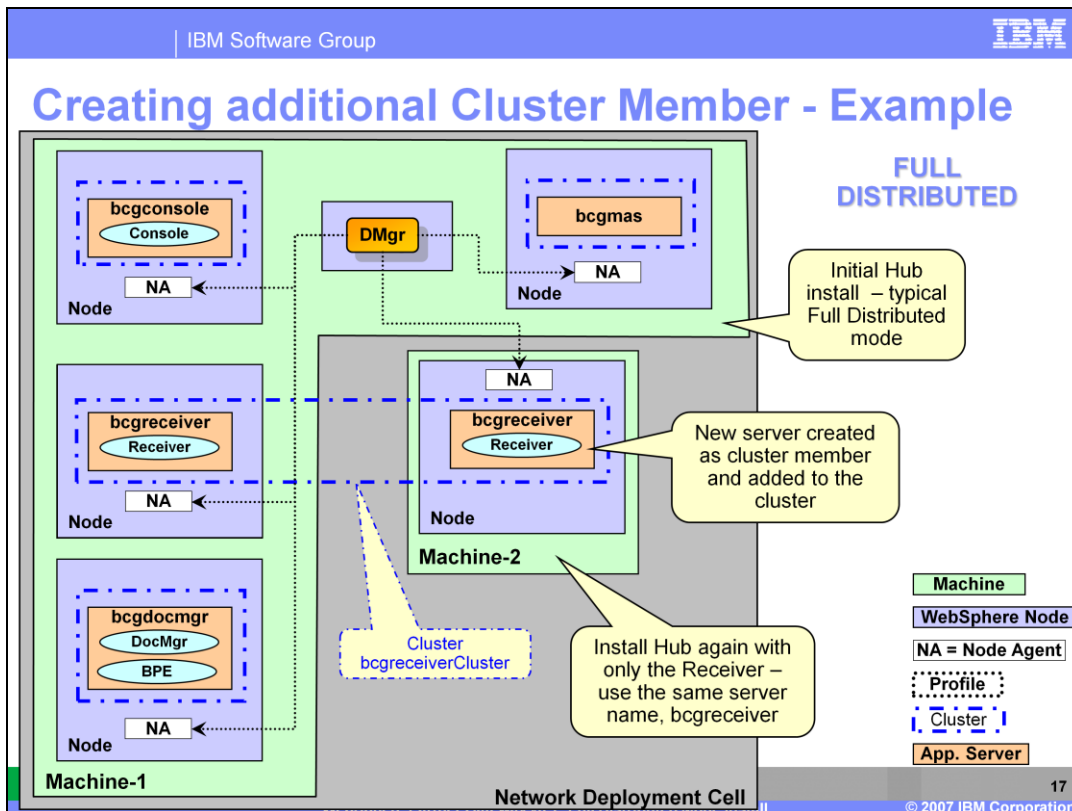
The new hub installation must be the follow the same mode as the first install of the hub. In this case, it will be full distributed mode.

During the distributed mode installation, the cluster name is derived from the server name. Hence, it is important that you use the same server names used for the first hub installation. This will let the new hub installation add additional cluster members in the existing cluster rather than creating new clusters for the hub components.

For the full distributed mode, the same grouping of hub components must be preserved in the second hub installation. As a best practice, use the default server names provided by the installation program, unless you need to group a subset of hub components in a single cluster.

During the new hub installation, do not create a common shared directory. The new hub installation needs to point to the shared common directory already defined in the first hub installation.

This result is a new cluster member added to the cluster for the selected hub components. Examples in the next page will help better understand this process.



Here is an example of adding a new Cluster member to a Full Distributed topology.

The initial environment for full distributed environment on Machine-1 is as shown. Each hub component is installed in its own separate cluster and the messaging server has its own cluster. This is the typical full distribution mode installation. Install the Deployment Manager and the hub on the same machine.

[1]

Machine-2 is a result of the new hub installation. For this example of the new hub install, only the Receiver is selected for install. The remaining 2 hub components and the messaging server are not selected for install.

By keeping the same default receiver server name “bcgreceiver”, the new hub install process adds the server as a new cluster member to the existing receiver cluster “bcgreceiverCluster”. This results in two cluster member servers for the Receiver. This allows selective scalability of the hub components.

[2]

After the hub installation the expanded WebSphere Partner Gateway Network Deployment cell is shown.

Section

Installation log files



The next section covers the installation log files to view in case of install errors.

Installation log files locations

Components	Temp (during install) log file location directory
DBLoader	<System-temp>\bcgloader\logs For Windows, system temp is C:\Documents and Settings\ <user>\Local Settings\Temp\</user>
Hub (Console, Receiver, Document Manager) and Messaging Application Server	<System-temp>\bcghub\logs
Hub	Final log file location directory
All WebSphere Partner Gateway servers and all install activities (like adding Node, creating profile,)	<WPG_INSTALL DIR>\logs\
Common	<WPG_INSTALL DIR>\logs\All
Console	<WPG_INSTALL DIR>\logs\bcgconsole
Receiver	<WPG_INSTALL DIR>\logs\bcgreceiver
Document Manager	<WPG_INSTALL DIR>\logs\bcgdocmgr
Messaging Application Server	<WPG_INSTALL DIR>\logs\bcgmas
Deployment Manager	<WPG_INSTALL DIR>\logs\dmgr
Messaging Artifacts	<WPG_INSTALL DIR>\logs\wpm

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WebSphere Partner Gateway v6.1: Full Distributed Mode Install

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This table shows the installation log file locations. These are files generated during the installation. These are separate from the runtime log files when the WebSphere Partner Gateway servers are started.

If the installation fails, look at the temporary files in addition to the final installation files. Sometimes the problem may be logged in the temporary file since they are created before the final log files.

The log is appended to the files rather than creating new files on every installation.

The application and messaging database installation log files are available only in the temporary location. These files are not copied to any final directory.

Section

Resources created during installation

The next section provides a list of resources created during WebSphere Partner Gateway installation for different modes.

Resources created during installation

Resource type	Resource detail
Hub components	Receiver, Console, Document Manager and BPE as J2EE applications
Clusters	Cluster created for each server – the server becomes a cluster member. The name of the Cluster is <serverName>Cluster
Servers	Typically, each hub component in its own cluster and each cluster having its own server
	Messaging Application cluster is created with a single server – default bcgmas

During the installation, there are several WebSphere Partner Gateway resources created within the underlying WebSphere Partner Gateway profile of the WebSphere Application Server V6.1. This page and the next page shows the kind of resources created for the different install modes, at a high level.

Hub components, as J2EE applications, are installed in the Application Server.

Clusters are created in distributed mode for the hub components and the messaging server.

Servers are created for hub components and servers become part of the cluster in distributed mode.

Resources created during installation (cont.)

Resource type	Resource detail
Application Database and Data sources	Database; bcgapps (default) Separate data sources for Receiver, Console and Document Manager to access the application database
Service Integration Bus	BCGBus
JMS Resources	Connection Factories : Separate Connection Factories for Receiver, Console and Document Manager Queues: Many queues like AlerteventQ, datalogErrorQ, datalogQ, deliveryQ, InboundQ, etc
Messaging Database	Database: bcgmas (default)

Besides applications, servers and clusters, there are several data sources created in the Application Server for hub components to connect to the application and the messaging database. The Service Integration Bus is the core of the messaging infrastructure through which all the internal messages are passed between the hub components. JMS is used with the appropriate JMS resources to connect to the Service Integration Bus. For persistence of the messages, a messaging database is used.

Section

Uninstall

The next section covers the basics of uninstalling WebSphere Partner Gateway product.

Uninstall - Distributed Mode

- Shutdown Console, Receiver, Document Manager clusters
- Uninstall the hub component servers (this will remove the node from the DMgr)
 - ▶ Run <WPG_Install>/_uninst/uninstall.exe (or .sh)
- Shutdown Deployment Manager
- Uninstall Deployment Manager
 - ▶ Run <WPG_DMGr_Install>/_uninst/uninstall.exe (or .sh)
- Uninstall DBLoader
 - ▶ Run <WPG_DBLoader_Install>/_uninst/uninstall.exe (or .sh)
- Uninstall MAS database
 - ▶ Run <WPG_MASLoader_Install>/_uninst/uninstall.exe (or .sh)



The uninstall of a Distributed mode installation has several steps.

First is uninstall of the hub. The steps are to stop the clusters and run the uninstall executable. It may be necessary to run the uninstall on the different machines where the hub may be installed. While installing the hub, the WebSphere Partner Gateway node is removed from the Deployment Manager. This is possible in case you want to uninstall a given node only, in which case you can uninstall the hub and keep the rest of the system intact.

Next is to stop and uninstall the Deployment Manager.

The hub or Deployment Manager uninstall will remove the profile from the WebSphere Application Server V6.1 Network Deployment created during install.

Next is the uninstall of the application database, DBloader. During this uninstall, there is an option to drop the database. This option is used for migrating to the a new release.

The last step is to uninstall the messaging database.

Silent uninstall

- To perform silent uninstall, run the appropriate setup.exe from the appropriate installation directory
 - ▶ **uninstall.exe -options "<options_File>" -silent**
- Silent uninstalls are available for all hub components:

Silent uninstall of:	Sample options file	From product directory
Application Database	SampleDBLoaderWindowsUninstallOptions.iss	DBLoader
MAS database	SampleDBLoaderMASWindowsUninstallOptions.iss	DBLoader
Deployment Manager	SampleHubdmgrWindowsUninstallOptions.iss	hub
Hub components	SampleHubWindowsUninstallOptions.iss	hub



WebSphere Partner Gateway supports silent uninstalls. Silent uninstall involves running the uninstall program from the appropriate directory as specified, with the appropriate options file. You would specify all the uninstall options through the options file.

Sample options file are provided for all the uninstall steps, as specified in the table. You can create your own custom silent uninstall options file from the sample options file.

Section

Summary

The next section covers the summary.

Summary

- Distributed mode installations are for more robust, scalable and highly available production environment
- It exploits the scalability features of the WebSphere Application Server Network Deployment
- Uses WebSphere Application Server V6.1 embedded platform messaging for internal messages, rather than require external WebSphere MQ



A WebSphere Partner Gateway distributed mode installation exploits the Network Deployment features, and in particular clustering to provide highly scalable and failover distributed environment. The embedded messaging is also exploited which eliminates the need to install WebSphere MQ.

References

- **System requirements**

- ▶ <http://www.ibm.com/software/integration/wspartnergateway/sysreqs/>

- **WebSphere Partner Gateway Information Center**

- ▶ <http://www.ibm.com/software/integration/wspartnergateway/library/>

- **Support**

- ▶ <http://www.ibm.com/software/integration/wspartnergateway/support/>



The System requirements, information center and other references are listed on this page.

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