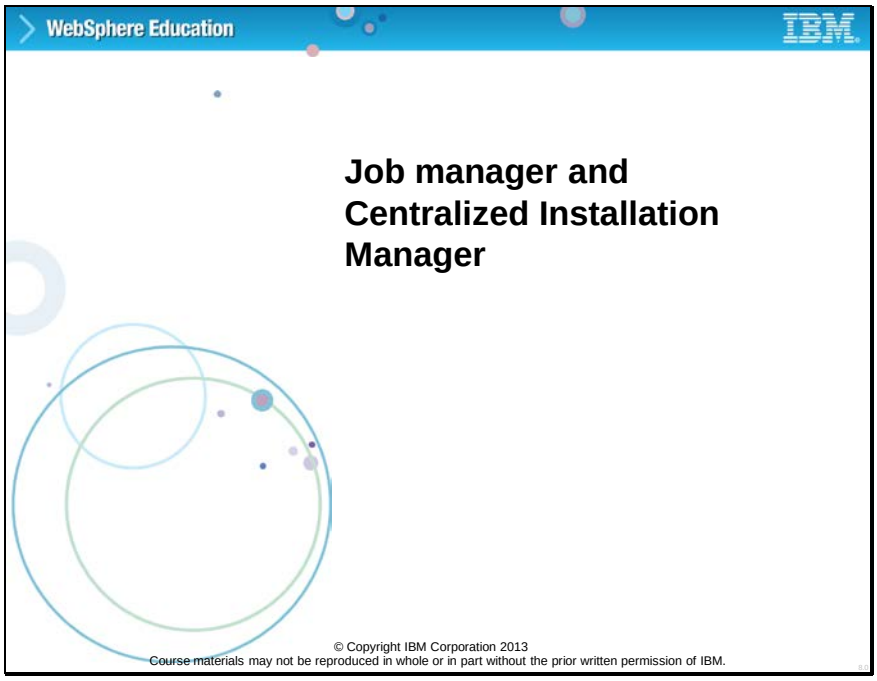
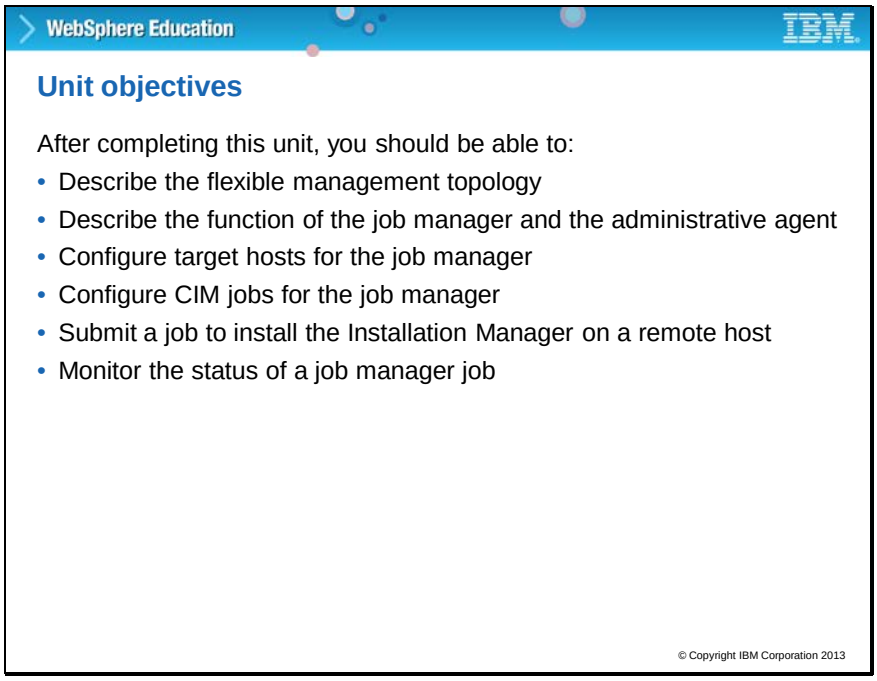
Slide 1



Unit 16: Job Manager and Centralized Installation Manager

This unit provides an introduction to the job manager and the Centralized Installation Manager.

Slide 2

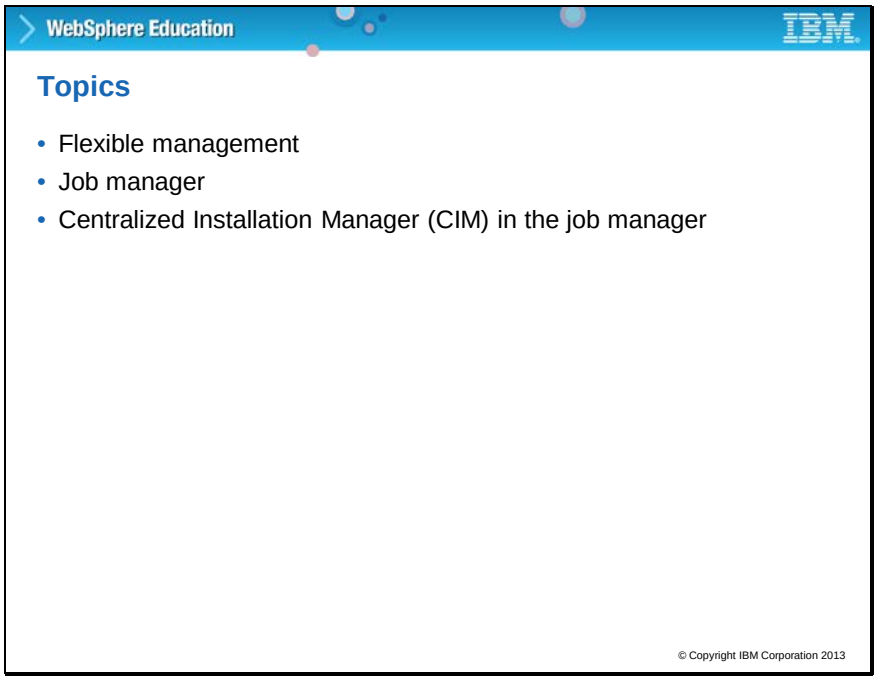


Title: Unit objectives

After completing this unit, you should be able to:

- Describe the flexible management topology
- Describe the function of the job manager and the administrative agent
- Configure target hosts for the job manager
- Configure CIM jobs for the job manager
- Submit a job to install the Installation Manager on a remote host
- Monitor the status of a job manager job

Slide 3

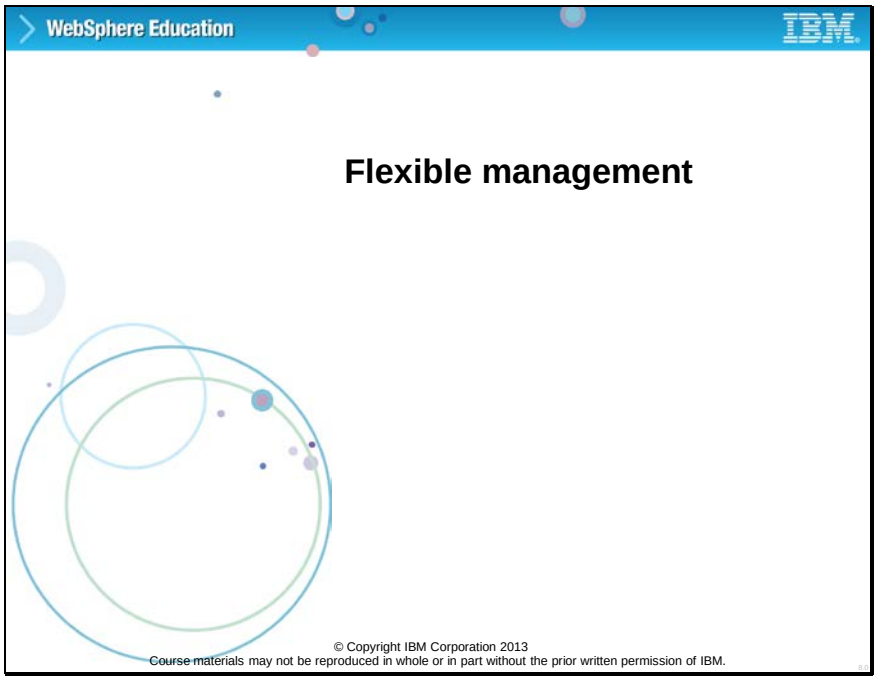


Title: Topics

This unit describes the following topics:

- Flexible management
- Job manager in version 8.5
- Centralized Installation Manager (CIM) in the job manager

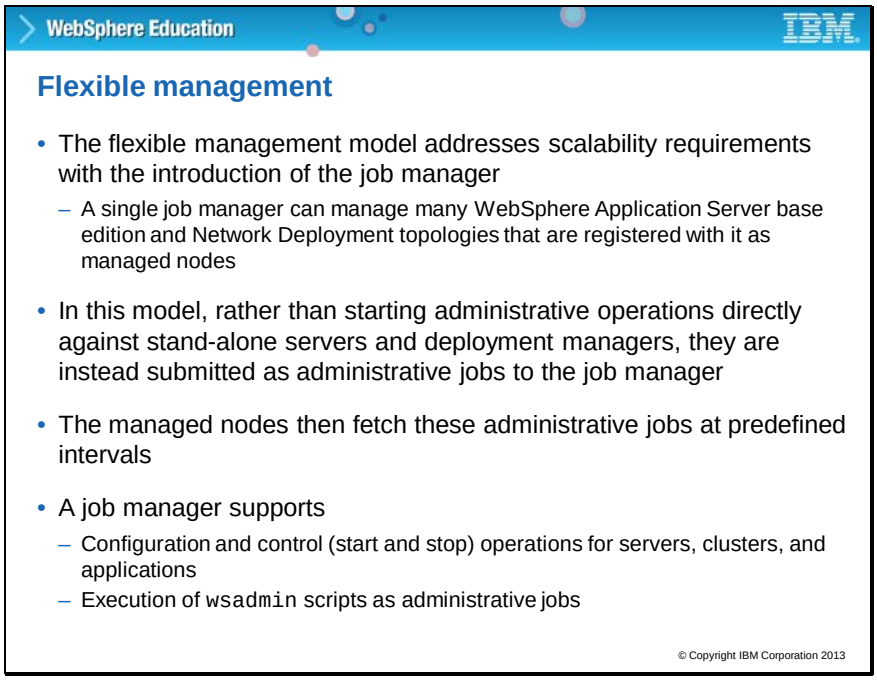
Slide 4



Topic: Flexible management

This topic describes flexible management.

Slide 5

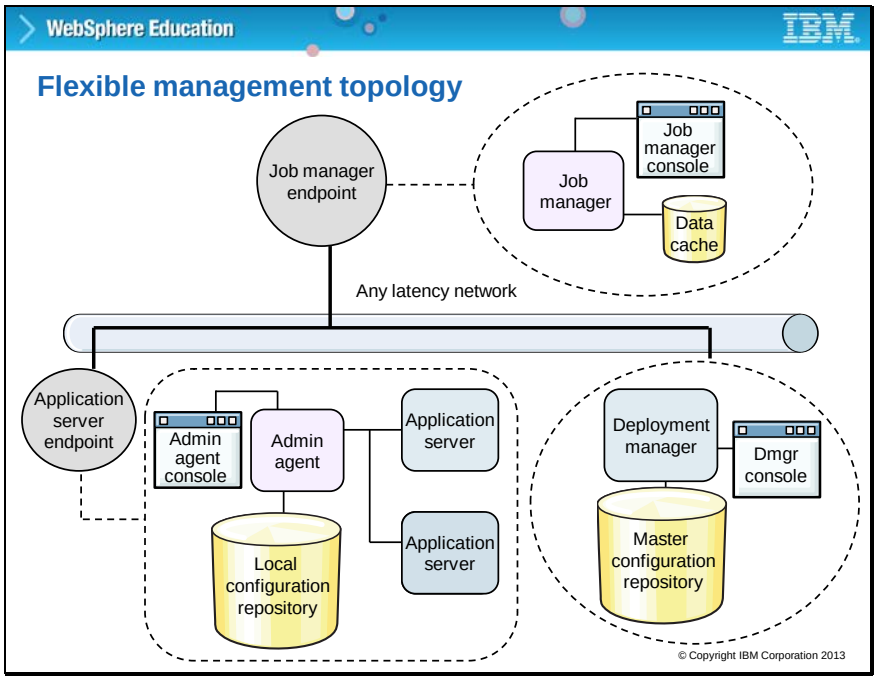


Title: Flexible management

The flexible management model addresses scalability requirements with the introduction of the job manager. A job manager allows you to submit administrative jobs asynchronously for application servers that are registered to administrative agents, for deployment managers, and for host computers. A single job manager can manage several base edition servers and network deployment cell topologies that are registered to it. Each of these servers is known as targets to the job manager. After you register these servers as targets, you can queue administrative jobs that are directed at the targets through the job manager.

Many of the management tasks that you can do with the job manager are tasks that you can already do with the product such as managing applications, starting and stopping servers, and node administration. However, with the job manager, you can aggregate tasks and run those tasks across multiple targets.

Slide 6

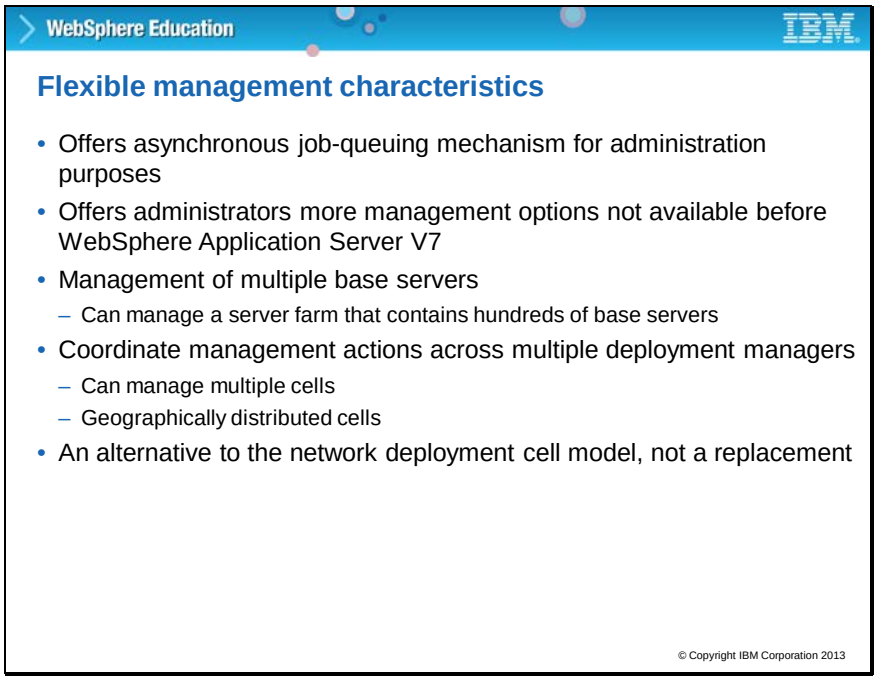


Title: Flexible management topology

This slide shows the topology that is used in a flexible management environment. In this environment, there can be one or more job manager endpoints, each containing a job manager process, and running code for a job manager console. There is also a cache of endpoint information to minimize the time that is needed to fetch some information. If there are multiple job managers, they are not clones of each other but are independent entities.

The job managers connect through a network to one or more WebSphere Application Server endpoints. Each of these endpoints contains a WebSphere node. The node contains a process that is called the administrative agent, which runs code for an administrative console that is known as the administrative agent console. The node also contains a local configuration repository and some number of application servers. It is also possible to have a job manager control one or more deployment managers, as shown in the lower right section of the slide.

Slide 7

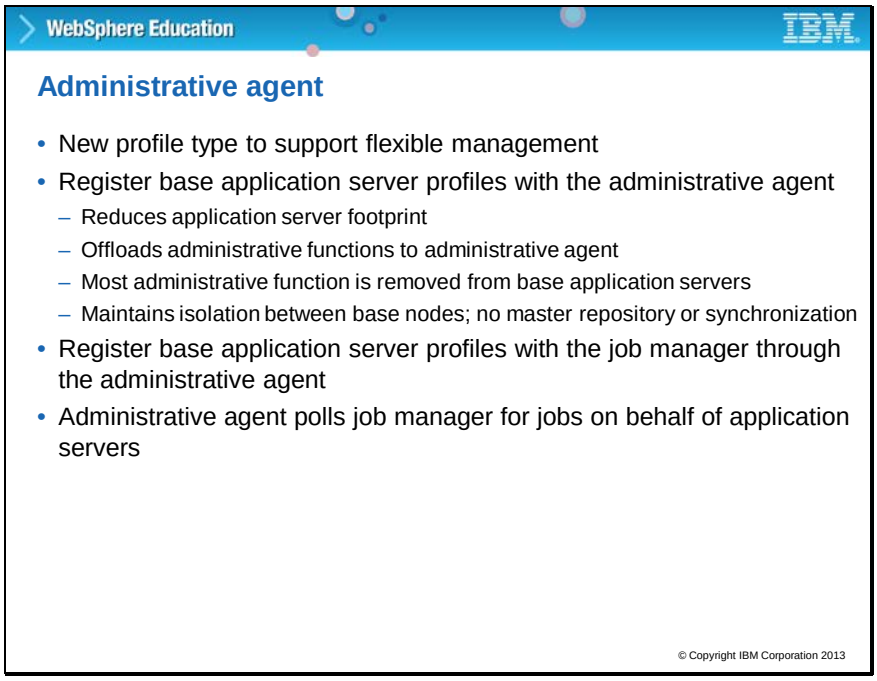


Title: Flexible management characteristics

Flexible management environments rely on asynchronous processing of work units (known as jobs) from the job manager. This approach supports large scaling and can support many application servers without degrading performance. It also reduces latency and bandwidth requirements on the network; even dialup lines to remote sites can work well without slowing down the overall system. Additionally, configuration information does not exist beyond the node level, so no bottleneck is associated with accessing a master configuration repository.

Flexible management is not a replacement for the network deployment model but can be used as an alternative to it. The two models can be combined by having a job manager coordinate management actions across multiple deployment managers.

Slide 8

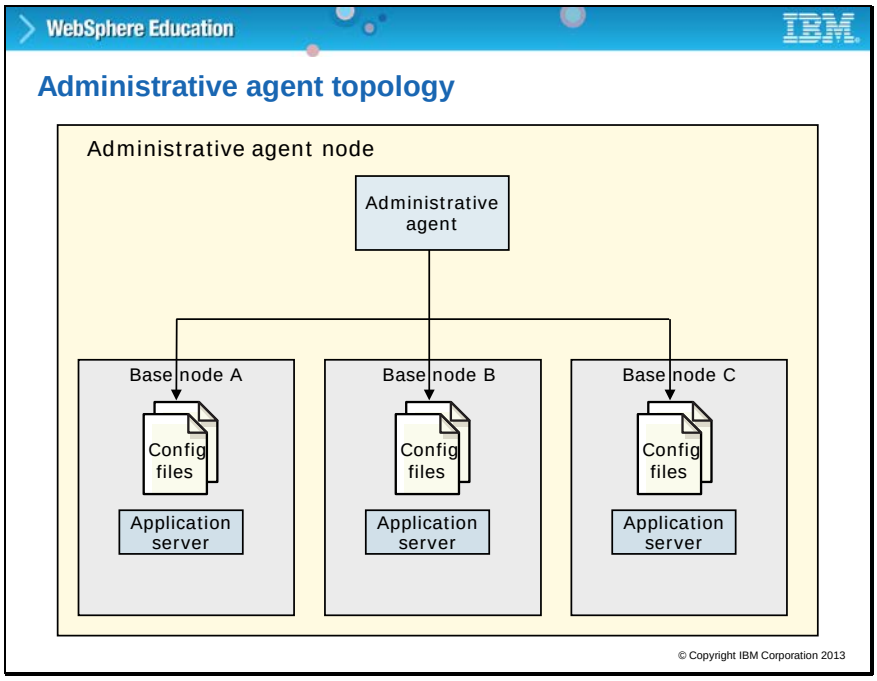


Title: Administrative agent

The administrative agent is a new server type that added in version 8 to support flexible management. It is a new profile type, and the various tools that can create profiles are modified to support creation and maintenance of this profile.

The administrative agent does many things, as shown on this slide. To participate in flexible management, base servers first register themselves with the administrative agent. When a base application server registers with an administrative agent, much of the administrative code that was in the base server, the administrative agent subsumes. Relinquishing administrative functions results in a significantly smaller and faster starting base server. When a base server registers with the job manager, it first contacts the administrative agent, which handles the registration. The administrative agent can be used to manage application servers, even in the absence or failure of the job manager. Finally, the administrative agent polls the job manager for jobs on behalf of the application servers.

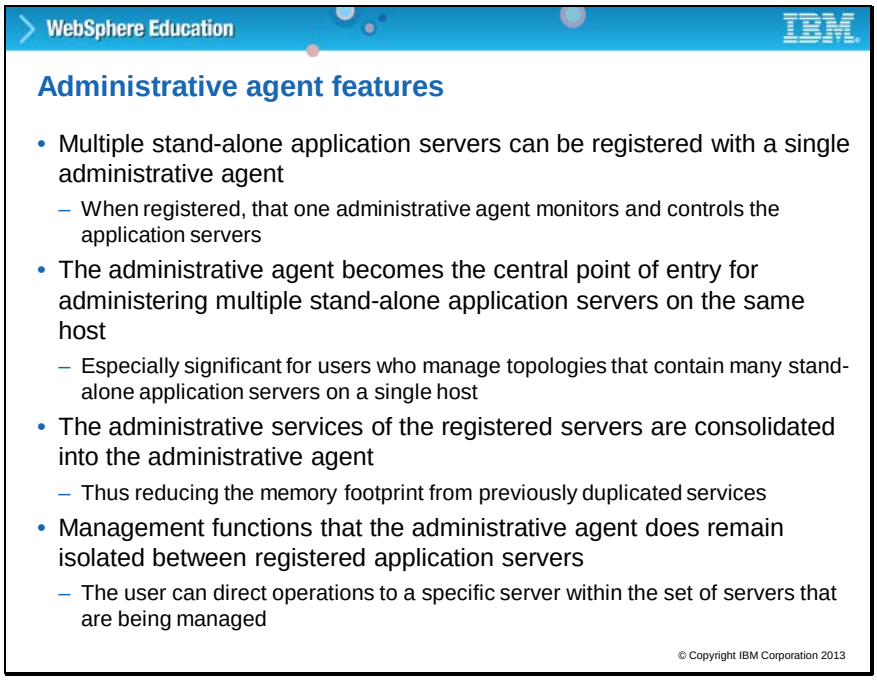
Slide 9



Title: Administrative agent topology

The administrative agent is designed as an option to complement the WebSphere Application Server base topology, in which the stand-alone application server continues to serve the application requests. Only administrative services from the server are consolidated into the administrative agent. For every WebSphere Application Server base profile registered with the administrative agent, an administrative subsystem is created within the administrative agent to represent the new administrative entry point for that profile.

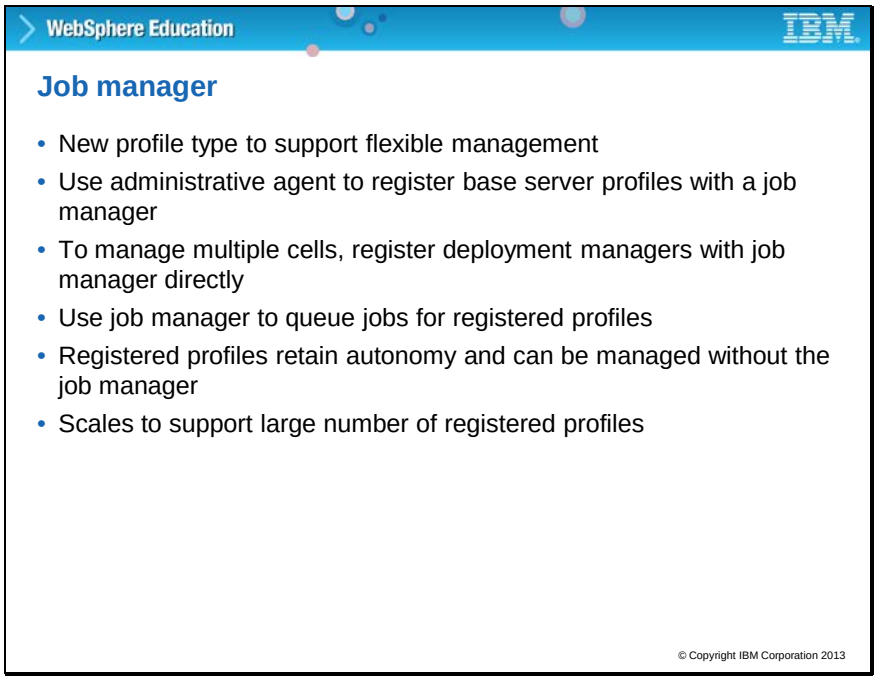
Slide 10



Title: Administrative agent features

Many customers administer application servers in their development, test, and production environments by federating the application server nodes into a cell and administering the application servers from the deployment manager. However, if you have development and unit test environments, then you might prefer to run application servers whose nodes are not federated. These application servers have some administrative disadvantages. The application servers lack a common administrative interface. Remote administration is limited to installing applications and changing application server configurations. As an alternative, you can register these application servers with an administrative agent to administer application servers from a single interface and to more fully administer application servers remotely.

Slide 11



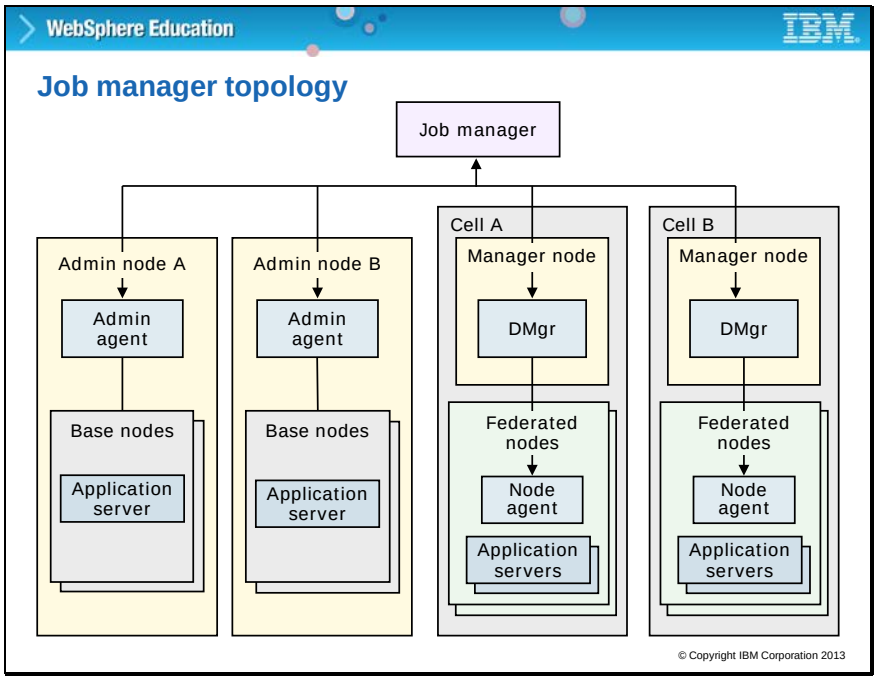
Title: Job manager

The job manager is a new server type that is added to support flexible management. It is a new profile type, and the various tools that can create profiles are modified to support creation and maintenance of this profile. The job manager is central to flexible management.

To participate in flexible management, a base server first registers itself with the administrative agent. The base server must then register with the job manager. If a deployment manager wants to participate in an environment that a job manager controls, the deployment manager registers directly with the job manager; no administrative agent is involved in this case.

The main use of the job manager is to queue jobs to application servers in a flexible management environment. These queued jobs are pulled from the job manager by the administrative agent and distributed to the appropriate application server or servers.

Slide 12



Title: Job manager topology

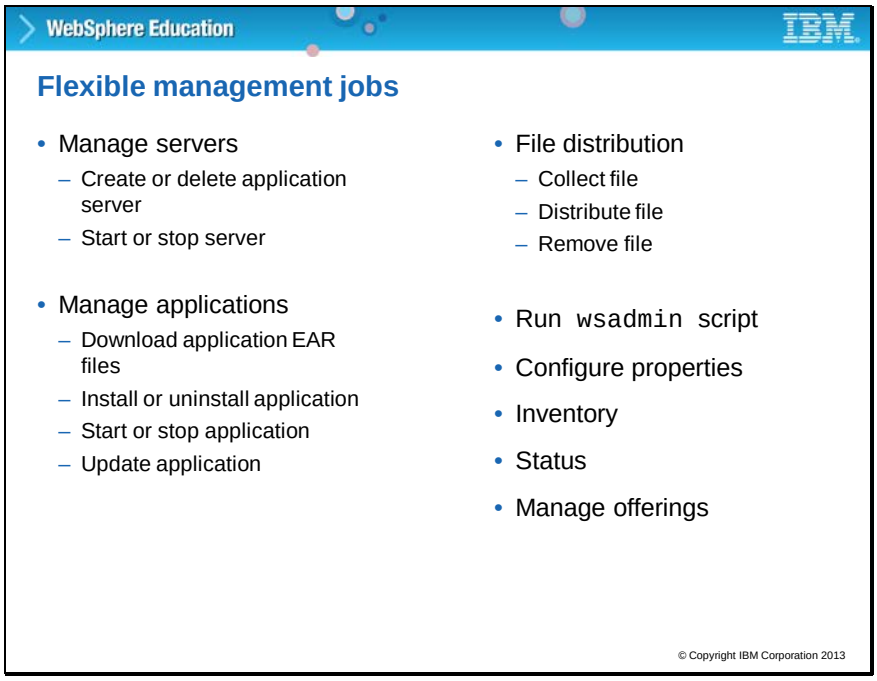
The job manager is designed to complement the Network Deployment and Base edition topologies. Existing nodes do not need to be reconfigured. A single job manager can manage hundreds of nodes, and multiple job managers can manage a single node. This model is different from having ownership of a managed node by the deployment manager in a network deployment topology.

The topologies that a job manager controls maintain their autonomy, including their security configuration, and thus they can be directly managed with existing administrative processes, such as scripts or the administrative console.

This model allows coordinated management actions across multiple managed nodes that are defined as a group.

The asynchronous job submission model facilitates the management of nodes that are geographically dispersed and reachable only through low-bandwidth, high-latency networks.

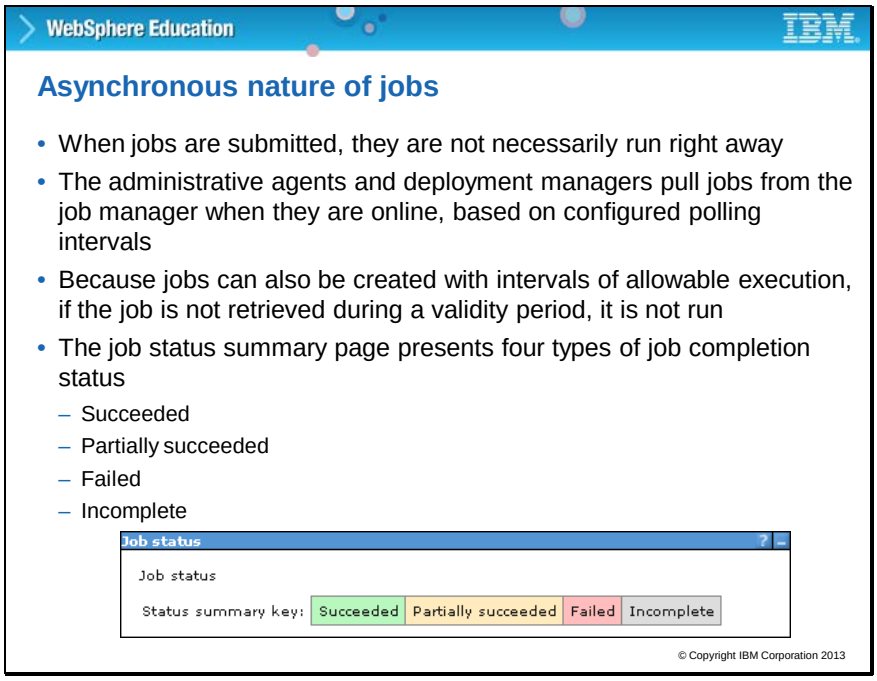
Slide 13



Title: Flexible management jobs

The flexible management environment handles units of work that are known as jobs. Examples of jobs in flexible management are listed on the slide.

Slide 14

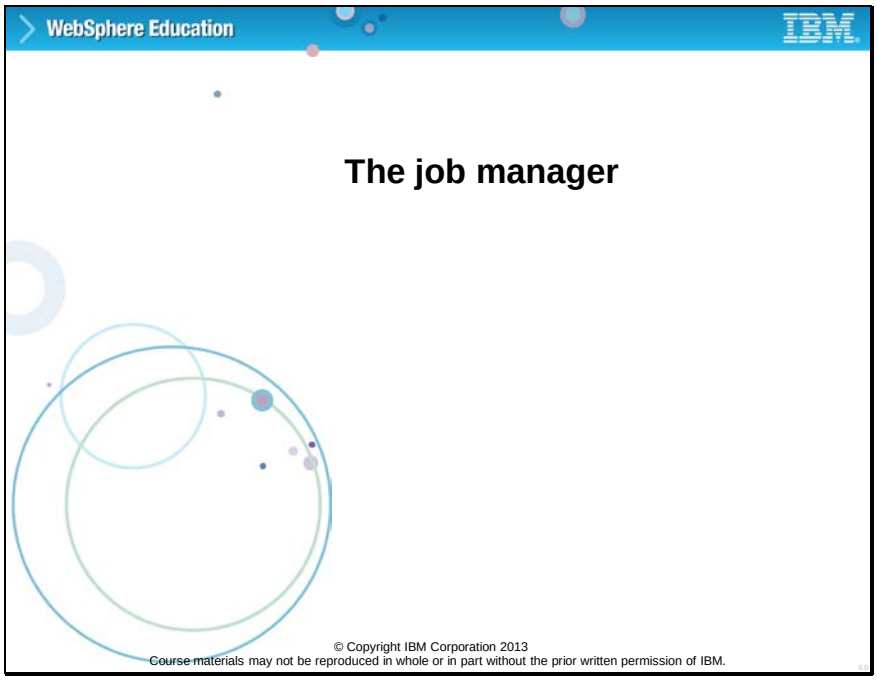


Title: Asynchronous nature of jobs

Status is displayed in a chart with which you can drill down to look at which nodes are completed under each state. The chart indicates status by color and position in the summary bar.

When you submit a job, it starts out with incomplete status. When the job is retrieved, the detailed status shows it as distributed, then in progress. The normal progression of jobs at that point is for their status to go to successful, partially successful, or failed. It takes at least two polling cycles to retrieve a job and then return results, and it can take more cycles, according to how long the job actually takes to process on the node. The polling cycle time is configurable at the administrative agent or the deployment manager. You might find that the status summary shows incomplete nodes, but when you drill down, no nodes show in the list. When you refresh the status summary, you find that the node either completed or failed in that window of time and is no longer incomplete.

Slide 15

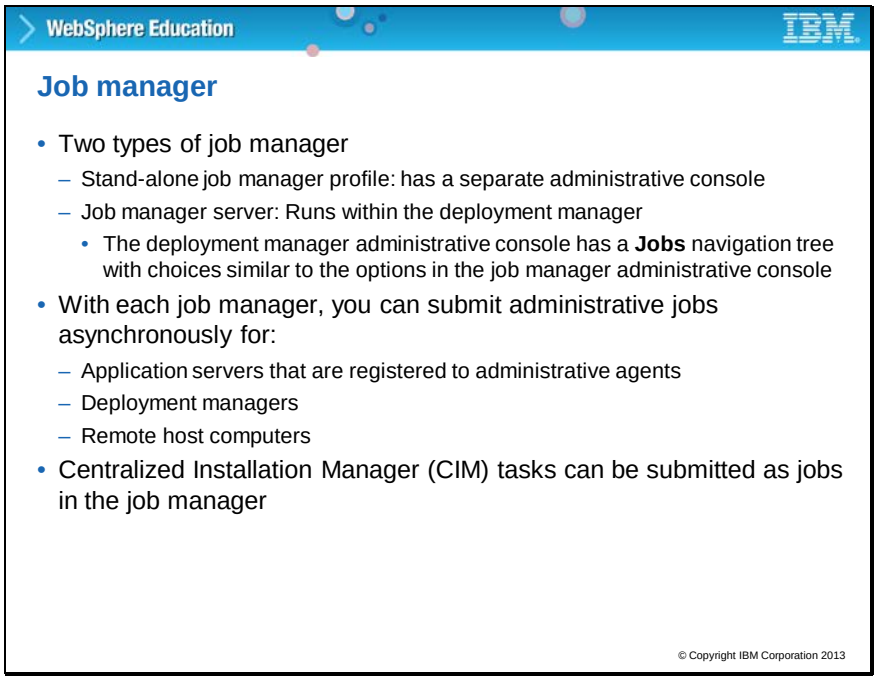


Topic:

The job manager

This topic describes how the job manager functions.

Slide 16

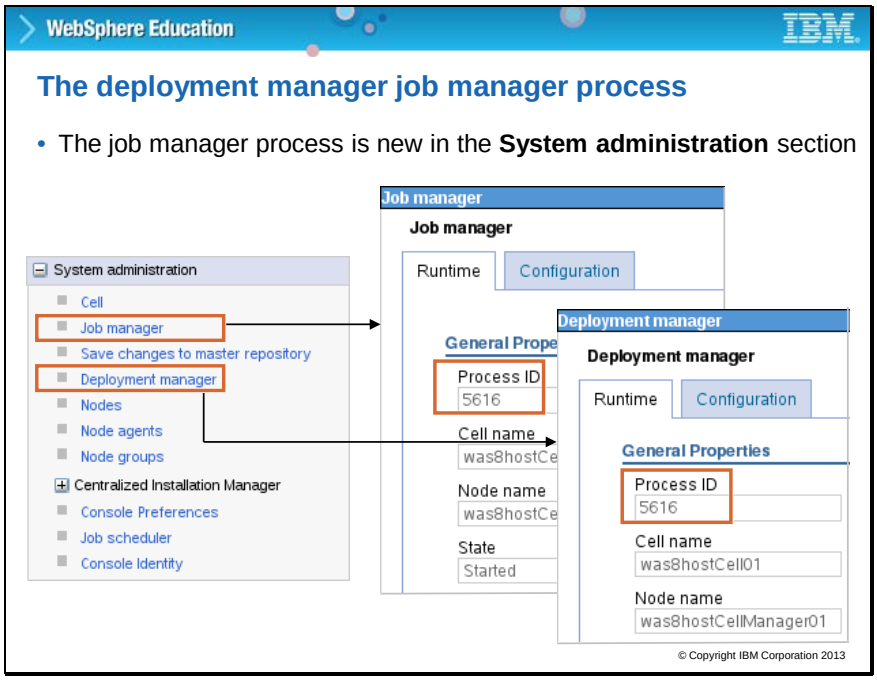


Title: Job manager

You have a stand-alone job manager profile that you can configure. The job manager has an administrative console where you can create and manage jobs. You also now have complete job manager actions and can run jobs from the deployment manager. The deployment manager administrative console has a Jobs navigation tree similar to the one in the job manager administrative console. The deployment manager runs its own job manager within the JVM.

Another new feature is that Centralized Installation Manager tasks can now be submitted as jobs to the job manager. Centralized Installation Manager functions can be accessed through either the job manager or the deployment manager.

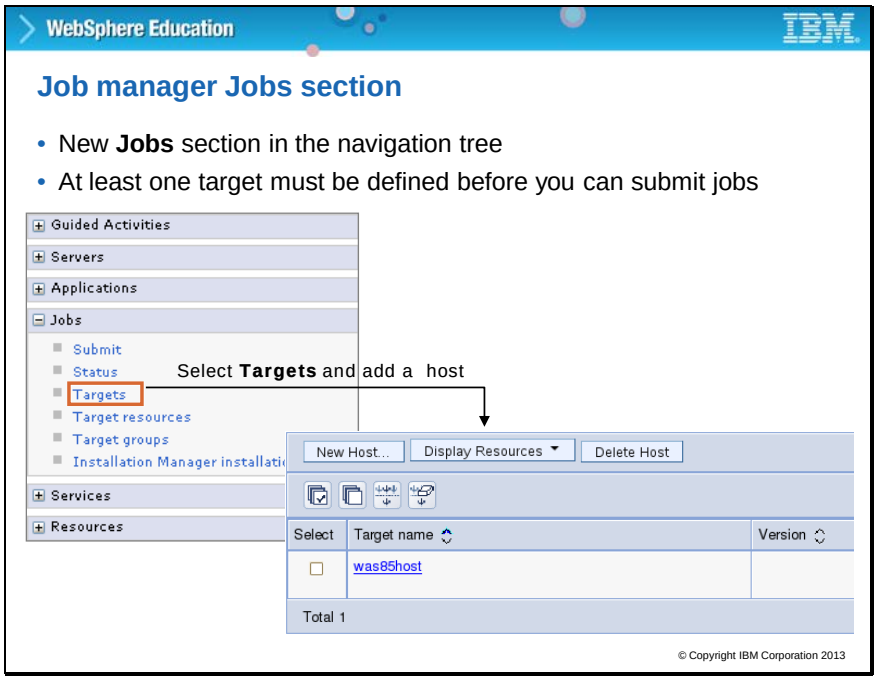
Slide 17



Title: The deployment manager job manager process

In the administrative console, under System administration, you can see links for both the job manager and the deployment manager. When you select one of these links, it provides you details about each of the processes. From the runtime panel, you can see the process ID. The process ID is the same for both of these properties since the job manager runs in the JVM of the deployment manager.

Slide 18

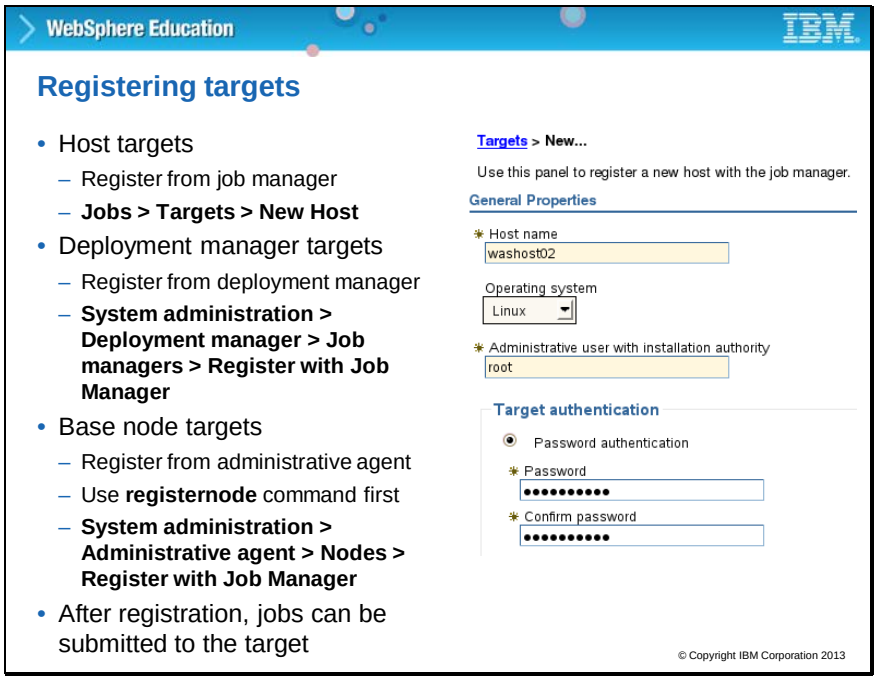


Title: Job manager Jobs section

The Jobs section is new to the navigation tree for the administrative console in version 8. From the Jobs section, you can add targets, submit jobs, and get a status on the jobs. You must define at least one target to submit jobs.

No jobs are defined for the job manager until at least one target is registered with the job manager. It is possible to register the host of the job manager as a target.

Slide 19

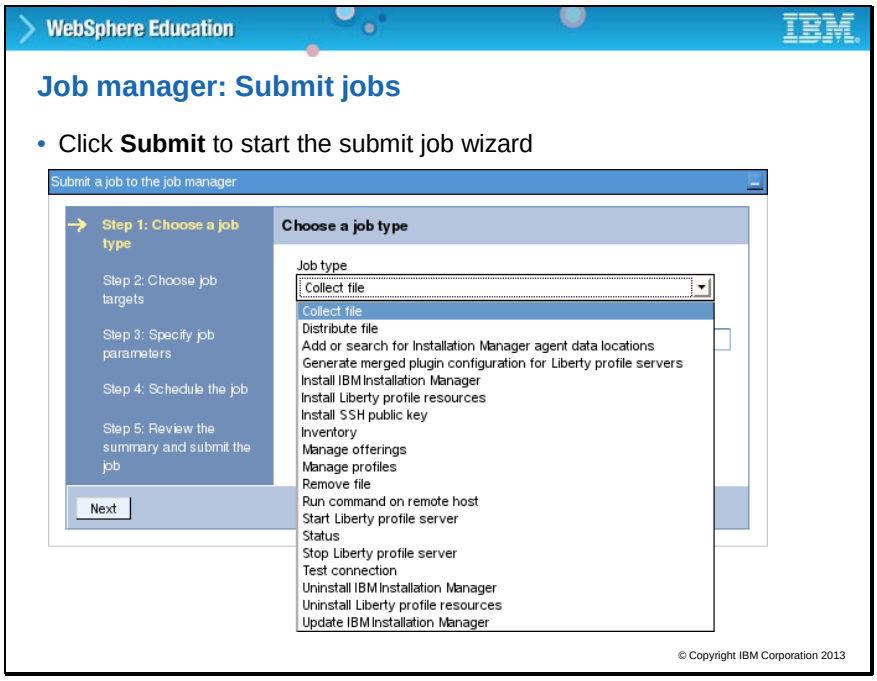


Title: Registering targets

To register a host target, click **Jobs > Targets > New Host**. On this panel, you must provide the host name, operating system, and authentication information for the target server. After you register the target, you can create jobs.

A deployment manager target is registered from the deployment manager. A stand-alone server target is registered from the administrative agent that is managing the stand-alone server.

Slide 20

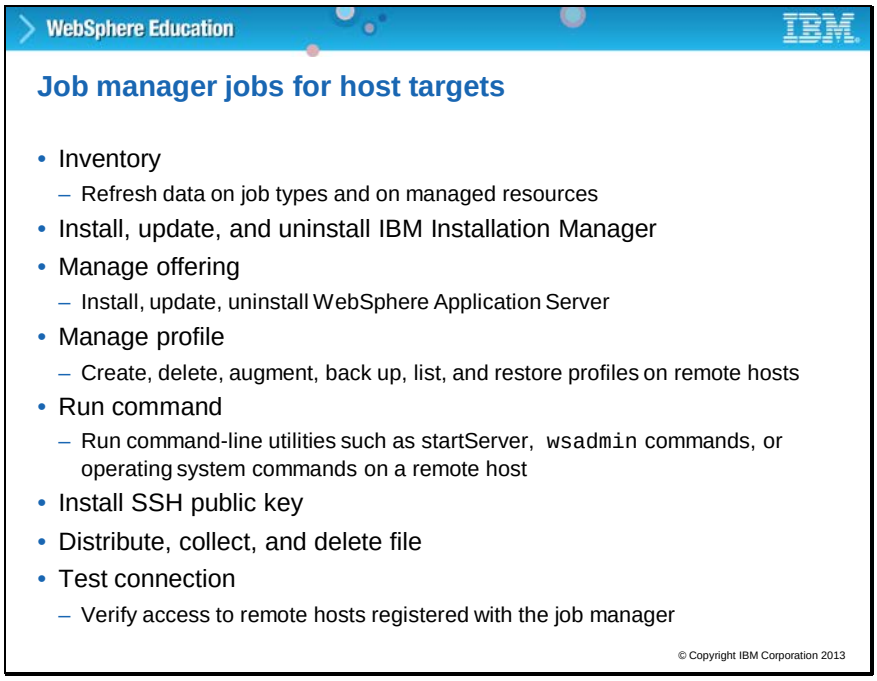


Title: Job manager: Submit jobs

The submit jobs wizard steps you through the process of choosing a job type, a target, and the schedule for the job. The menu displays some of the job types that you can select by using the wizard.

The first step in the submit job wizard is to choose a job type. The screen capture on this slide shows all the available job types that a job manager can submit to a host type target.

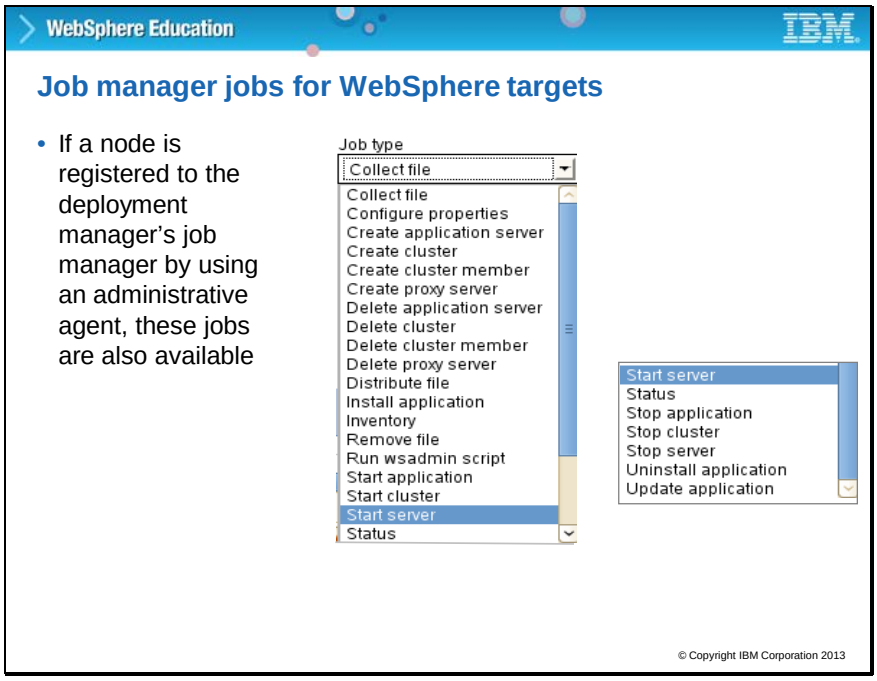
Slide 21



Title: Job manager jobs for host targets

This slide lists the general jobs and the Centralized Installation Manager-related jobs. A demonstration follows this unit that shows how some of these jobs are submitted to the job manager.

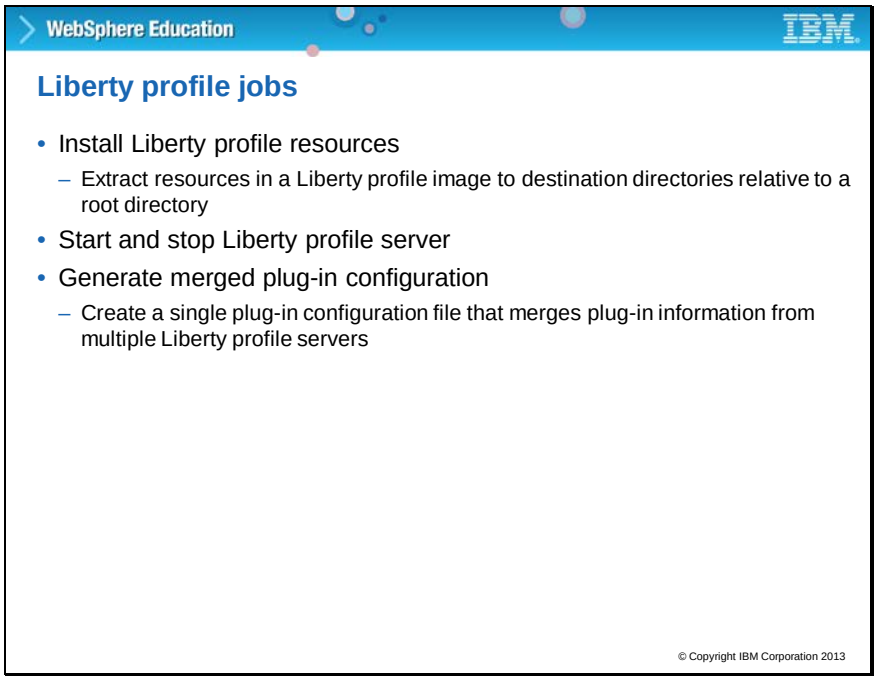
Slide 22



Title: Job manager jobs for WebSphere targets

This slide displays the menu options available for job type in the wizard when the target is a WebSphere endpoint. The jobs are different from the jobs available for a host target.

Slide 23



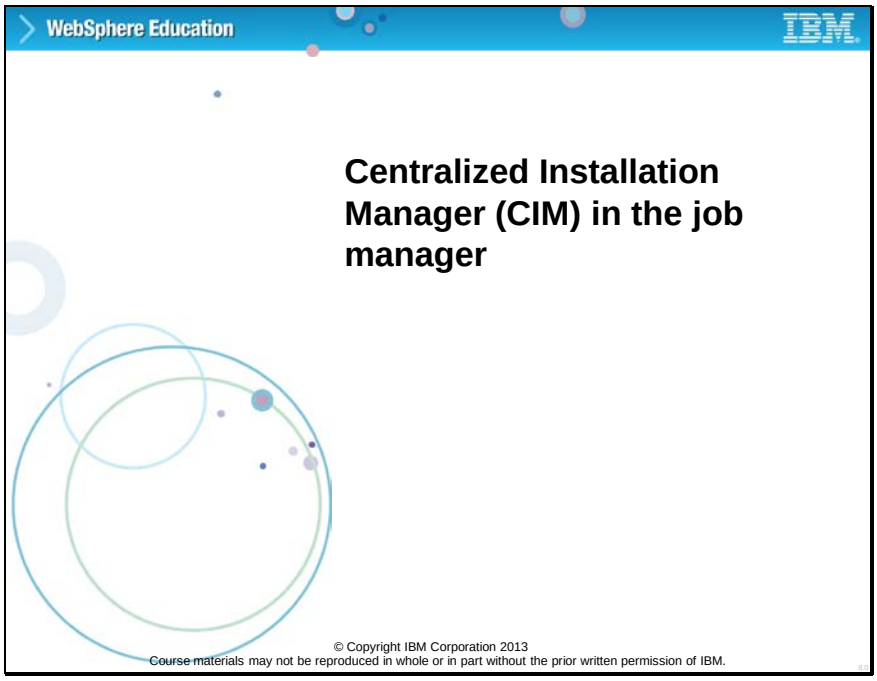
Title: New Liberty profile jobs

You can submit the Install Liberty profile resources job to extract resources in a Liberty profile image to destination directories relative to a root directory.

Before running the Install Liberty profile resources job, the following conditions must exist:

- The job manager must be running.
- A host computer must be registered with the job manager.
- The image, a compressed file, must contain Liberty profile resources in a directory structure that satisfies job manager rules.
- The root directory to install the resources on the target host must be defined. At minimum, set the `WLP_WORKING_DIR` variable to a valid directory that is on a target host.

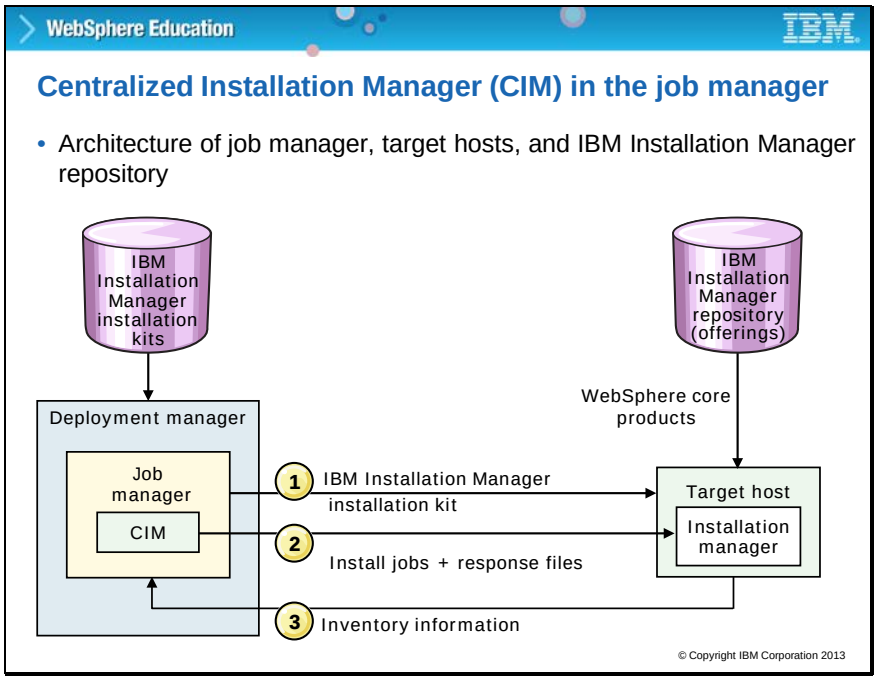
Slide 24



Topic: Centralized Installation Manager (CIM) in the jobs manager

In this topic, you learn about the Centralized Installation Manager feature in the job manager.

Slide 25

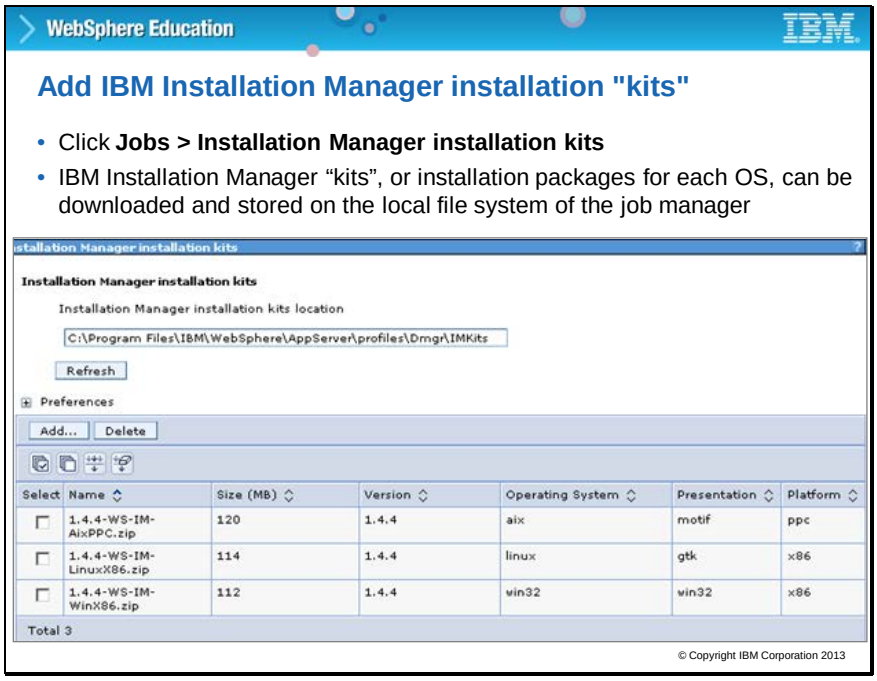


Title: Centralized Installation Manager (CIM) in the job manager

CIM function is now a series of jobs available to the deployment manager's job manager. The job manager can store IIM installation kits for different operating systems in a repository on the local file system. A job can be submitted that "pushes" the required IBM Installation Manager kit to the target node and runs the remote installation with nothing more than target identification and the required authorizations. No agents are required on the target host. Installation jobs for WebSphere Application Server can be configured along with an appropriate response file for the remote target host. When installed on the target host, the Installation Manager can pull the WebSphere code from an IIM repository.

You can submit the **Inventory job** to refresh data on job types and on managed resources of the job manager. Resources include applications and servers of each target. If you installed a product that adds job types on a managed target, run the inventory job to refresh data on job types and target resources. You can view the refreshed data in the job manager console.

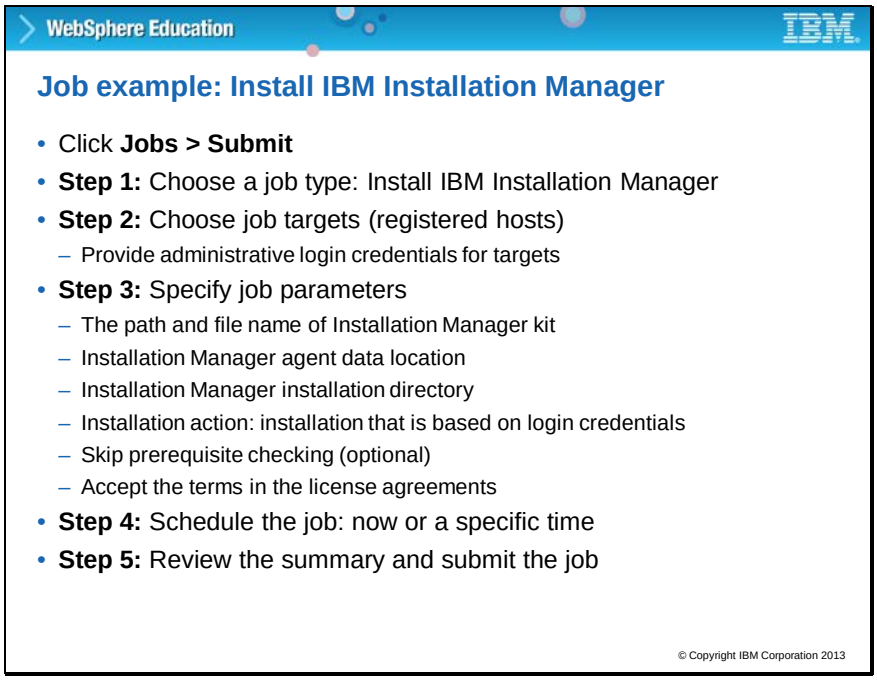
Slide 26



Title: Add IBM Installation Manager installation "kits"

To add Installation Manager installation kits by using the administrative console, **click Jobs > Installation Manager installation kits**. From this page, you can get a list of kits that are currently available in the location repository. You can download installation kits and store them on the local file system of the job manager, and then they display in this list.

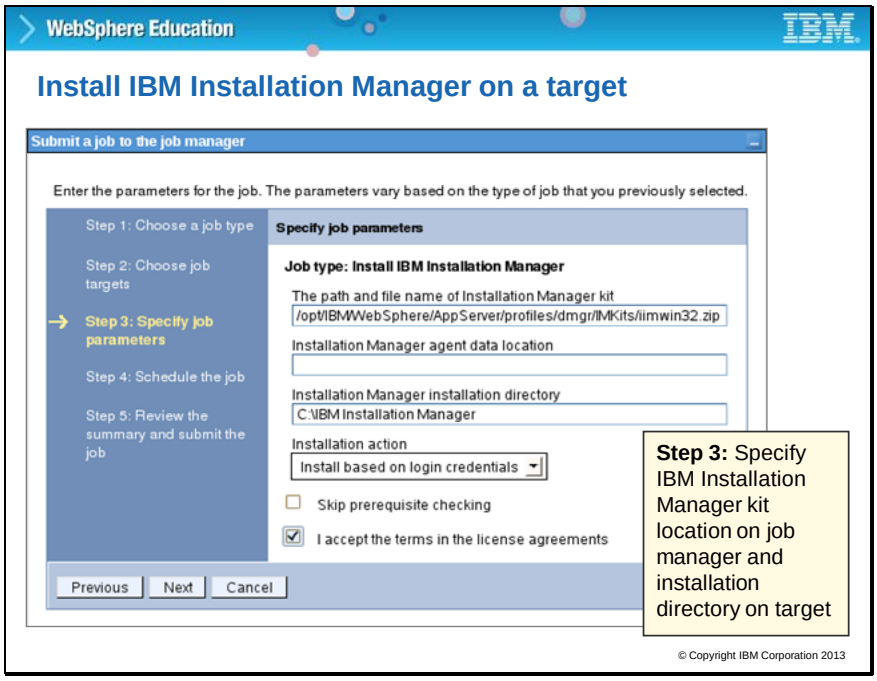
Slide 27



Title: Job example: Install IBM Installation Manager

This slide provides an example of creating a job to install the IBM Installation Manager. From the administrative console, click **Jobs > Submit**. The first step is to choose the job type of Installation Manager. Next, choose the target for the job. Each job requires various parameters such as path and file name of the kit, agent data location, installation directory, and a few others. Next, schedule a specific time for the job to run or indicate to run the job now. Review your job and submit the job.

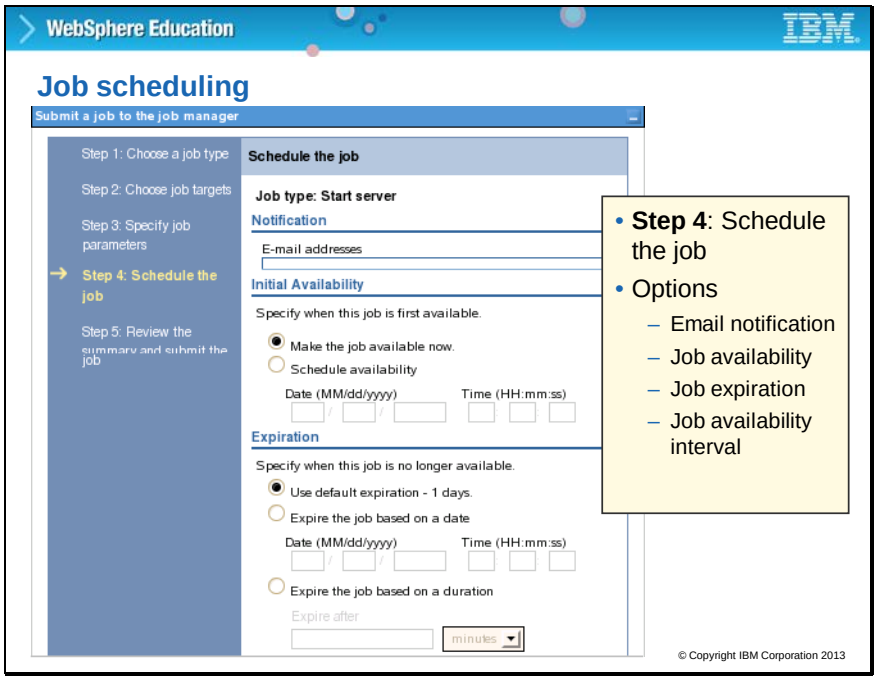
Slide 28



Title: Install IBM Installation Manager on a target

This slide shows a screen capture of the third step in the wizard where you add an Installation Manager target. From this page, you can see all the details that are required for the job parameters.

Slide 29



Title: Job scheduling

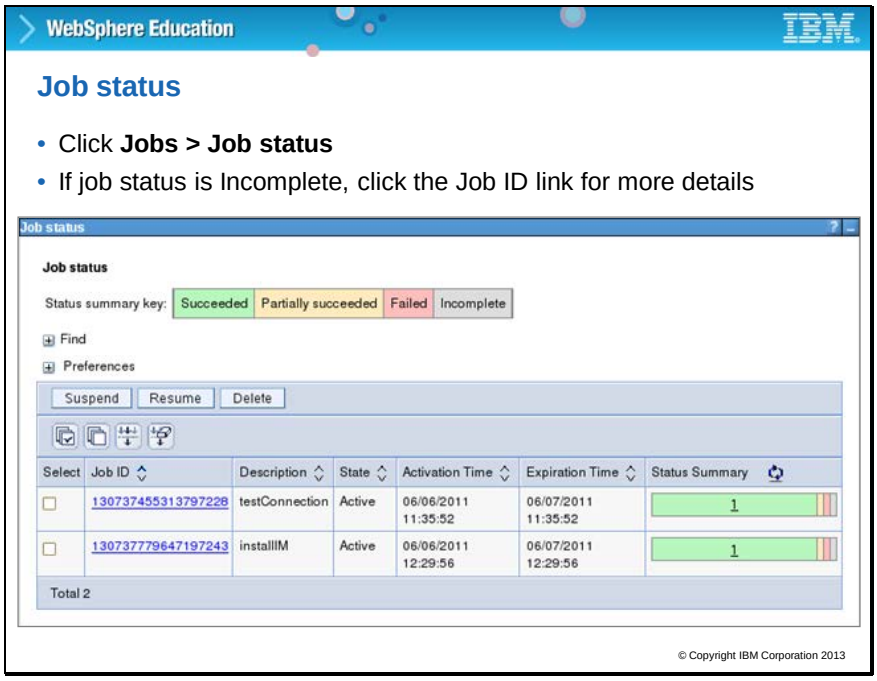
You can specify one or more email addresses where notifications are sent when the job is done.

Select when the job is available for submission. You can submit the job to be available now, or specify a time and date that the job is retrieved from the job manager.

Select the job expiration. The job expiration is the time at which the job is no longer available for nodes to run. You can use the default expiration, specify a time and date for the job expiration, or specify an amount of time in which the job expires. The default expiration is defined on the job manager configuration page.

Optionally, specify a recurring interval for the job, a start date, and time for the interval, and an end date and time for the interval.

Slide 30

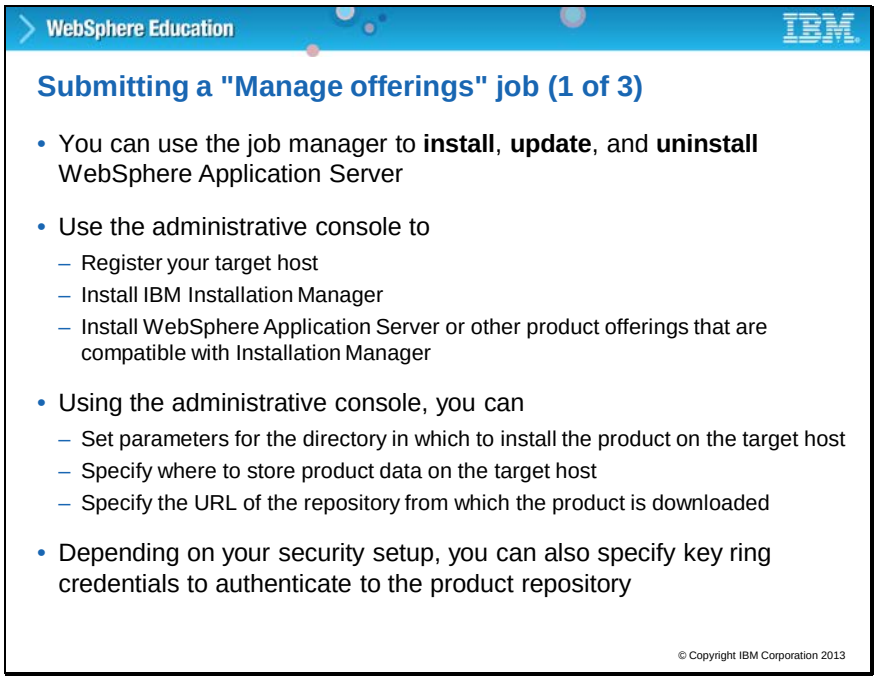


Title: Job status

All jobs can be monitored in the Job status panel.

A job that is still being processed shows a status of Incomplete. The two jobs that are listed on the screen capture have a status of Succeeded. The Active state refers to a configurable time interval over which the job can be resubmitted if it is configured to repeat.

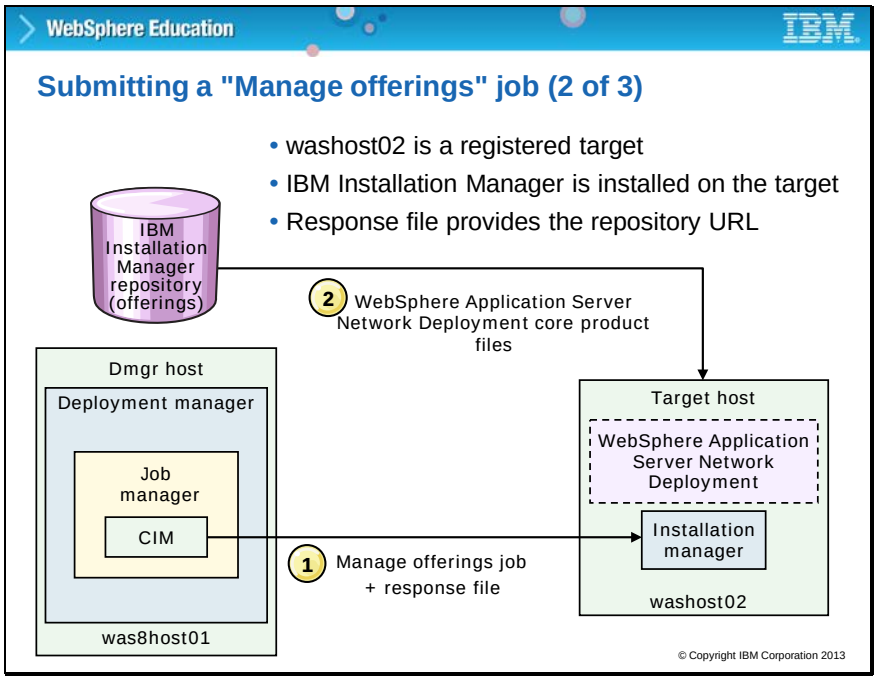
Slide 31



Title: Submitting a "Manage offerings" job (1 of 3)

After the job manager successfully completes the installation process on a remote node, it then deletes the installation image files that are in the temporary location that you specified during the installation process. If the installation is unsuccessful, the files remain in the temporary location for you to use to determine what caused the installation error. However, you can safely delete the files.

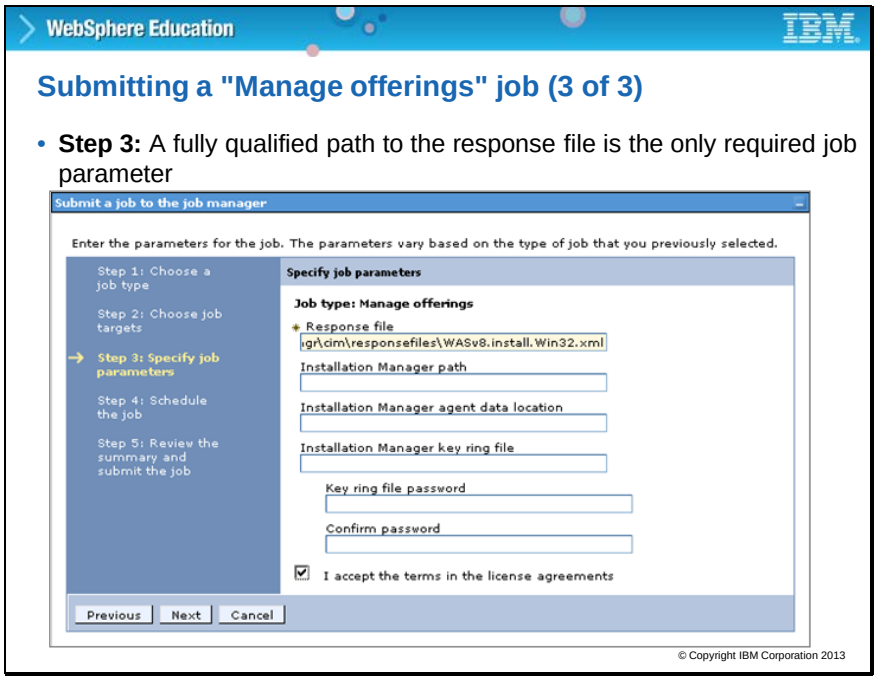
Slide 32



Title: Submitting a “Manage offerings” job (2 of 3)

When a target host is registered with a job manager, and the Installation Manager is also installed on the target, a “Manage offerings” job can be submitted to the job manager. A response file must be provided during the job configuration that specifies what product is going to be installed and how to access the binary files for that product from the IIM repository.

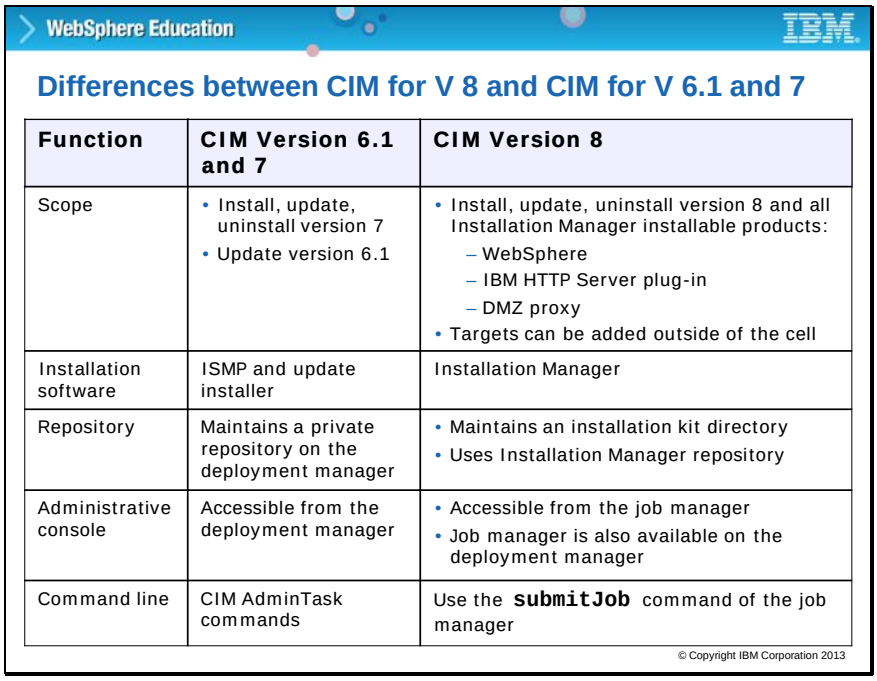
Slide 33



Title: Submitting a "Manage offerings" job (3 of 3)

A URL or a fully qualified path to the response file on the job manager host is the only required job parameter.

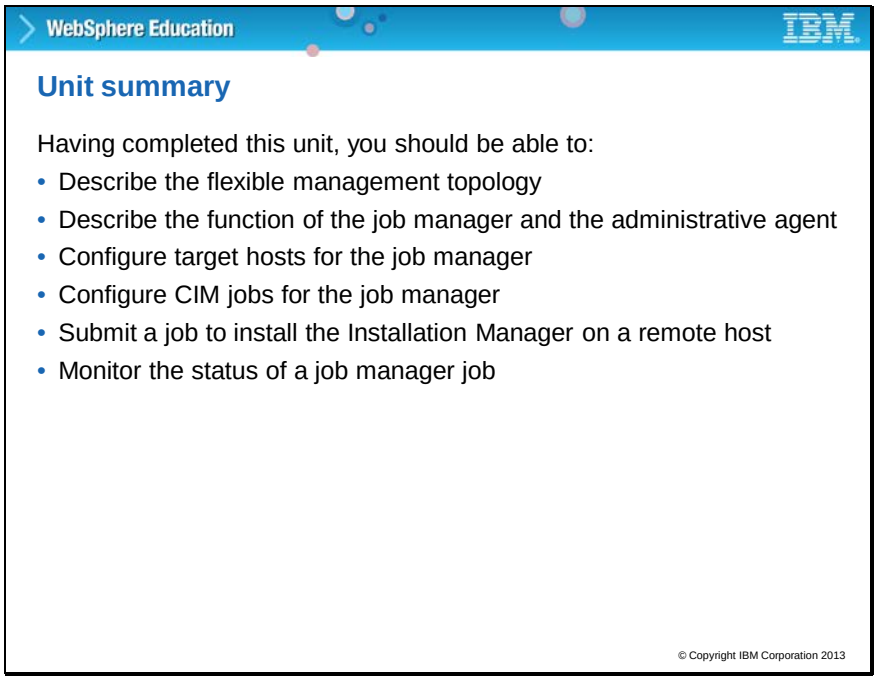
Slide 34



Title: Differences between CIM for V 8.x and CIM for V 6.1 and 7

The Version 8.5 Centralized Installation Manager (CIM) can be used to manage Version 8.5 and previous versions of WebSphere Application Server. You can use CIM to install or uninstall Version 8.5 and previous versions of WebSphere Application Server on remote systems and apply maintenance from the administrative console. In Version 8.0 and later, targets can be added outside of the cell. The process for managing Version 7.x and previous versions is different from the process for managing Version 8.x, and each process is documented separately in the information center.

Slide 35



Title: Unit summary

Having completed this unit, you should be able to:

- Describe the flexible management topology
- Describe the function of the job manager and the administrative agent
- Configure target hosts for the job manager
- Configure CIM jobs for the job manager
- Submit a job to install the Installation Manager on a remote host
- Monitor the status of a job manager job