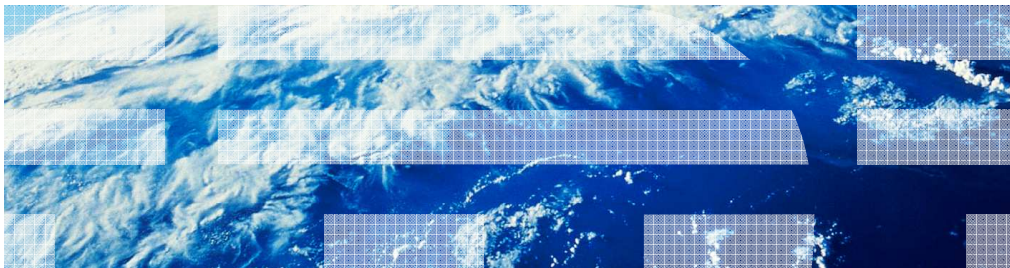

IBM WebSphere Application Server V8.5

Administering Liberty profiles using the job manager



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This presentation describes support for administering Liberty profiles using the job manager included in IBM WebSphere® Application Server Network Deployment V8.5.

Overview

This section provides an overview of using the job manager to administer Liberty profiles.

Job manager background, WebSphere Application Server V7.0

- Profile type to support flexible management
- Use of administrative agent to register base server profiles with a job manager
- To manage multiple cells, register deployment managers with job manager directly
- Use job manager to queue jobs for registered profiles
- Registered profiles retain autonomy and can be managed without the job manager
- Scales to support large number of registered profiles

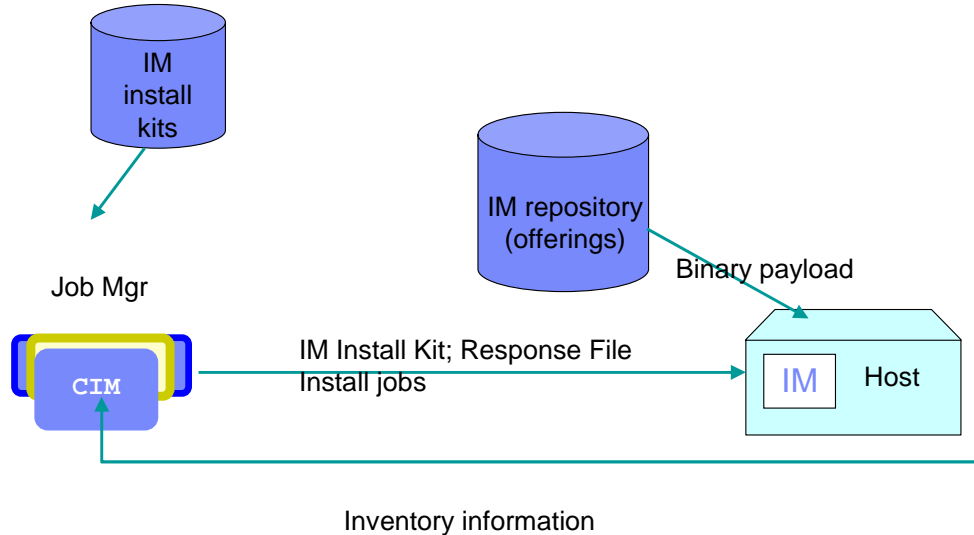
The job manager was introduced in WebSphere Application Server version 7 as an administration point for a loosely-coupled collection of cells and stand-alone application servers. The job manager is a server type that was added to support flexible management. In contrast to a deployment manager in a network deployment environment, a job manager supports a loosely-coupled, asynchronous style of management. 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. The jobs can be submitted as available immediately or at a scheduled time and date.

A job manager doesn't maintain a central repository of configuration information for distributed resources. Nor does its console provide a view of configuration settings or current resource status. Instead, a job manager maintains a repository of management operations for distributed resources that have registered with it. Once registered with a job manager, each base node or deployment manager is a "managed target" on that job manager.

The job manager and the deployment manager also differ in center of control. In Network Deployment topologies, the deployment manager is the center of control; administrative actions initiated on the deployment manager are pushed out to federated application server nodes. In a job management topology, control resides with the managed targets. Jobs are submitted at the job manager and managed nodes periodically check for available jobs in the queue. If a target finds an available job for it, it pulls it down and runs it.

Job manager background, WebSphere Application Server V8 CIM in Job manager

Separation between Job Manager, Target Hosts and IM repositories



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In WebSphere Application Server version 8 the job manager was extended to support the Centralized Installation Manager (CIM) feature. A key aspect of this support was the introduction of a new target type: an agentless remote host. Since a remote host has no agent, the jobs for the host are run at the job manager using a secure remote command execution facility. In this way CIM jobs can send installation packages to the remote host and install the packages or uninstall existing products from the remote host. Also in version 8, in order to make the CIM feature available in the deployment manager, the job manager functionality is enabled to run in the deployment manager process.

Administering Liberty profiles by way of the Job manager

- Centralized remote management of Liberty profiles
- Uses remote host capability of job manager
- Existing job types apply to Liberty profiles
 - Inventory and Status
 - Distribute file and Collect file
- New job types
 - Install / Uninstall Liberty profile resources
 - Start / Stop Liberty profile servers
 - Generate merged plug-in configuration
- New resource types
 - Server
 - Application
 - Runtime
 - SDK
 - Project

Version 8.5 once again extends the job manager in order to support Liberty profiles using the same agentless remote host capability that is used for CIM. Some existing job types apply to all targets, including Liberty profiles. These include inventory, status, distribute file and collect file jobs. There are also new job types specifically to support Liberty profiles: install and uninstall Liberty profile resources, start and stop Liberty profile servers, and generate merged plug-in configuration. In addition, new resource types are introduced and used in Liberty profiles. Server and application resource types have been available on managed node targets since version 7, but are now also available on remote host targets. For remote hosts, a server is a Liberty profile server and an application is one that can be configured to run in a Liberty profile server. A runtime resource is a Liberty profile runtime. Each server must be associated with a runtime. An SDK is the Java SDK that the server and runtime need. A project is an optional resource type that can be used to group the other resources and is useful when multiple Liberty instances are required on a host.

Preparing

This section discusses the necessary preparations for using the job manager to administer Liberty profiles.

Preparing to manage Liberty profiles

- Create a job manager or deployment manager profile
- Create a remote host target
- Define variables / host properties for path names
 - WLP_WORKING_DIR
 - WLP_SHARED_DIR
 - WLP_ADDITIONAL_DIRS
 - WebSphere variables apply to all hosts defined to the job manager
 - Host properties are specific to a host
- Package Liberty profile resources into one or more compressed files

There are a few steps needed to prepare for managing Liberty profiles. First create a job manager or deployment manager profile and then create a remote host target. These steps are unchanged from the previous release.

You must also define one or more WebSphere variables that control how the job manager installs, locates, and administers Liberty profile resources. These variables include WLP_WORKING_DIR, WLP_SHARED_DIR, and WLP_ADDITIONAL_DIRS. WLP_WORKING_DIR is the root directory where self-contained Liberty profile installations and isolated Liberty profile servers are installed on remote hosts. WLP_SHARED_DIR is the root installation directory for resources that are to be shared amongst Liberty profile servers. Shared resources can include Liberty profile runtimes, software development kits (Java Runtime Environments), and applications. WLP_ADDITIONAL_DIRS specifies additional search paths, delimited by semicolons, that define directories in which the job manager will search for additional Liberty profile resources. You must configure the additional search paths to enable the job manager to locate pre-installed software development kits or to search for any consumable server resources located outside of the default directories defined by WLP_WORKING_DIR and WLP_SHARED_DIR.

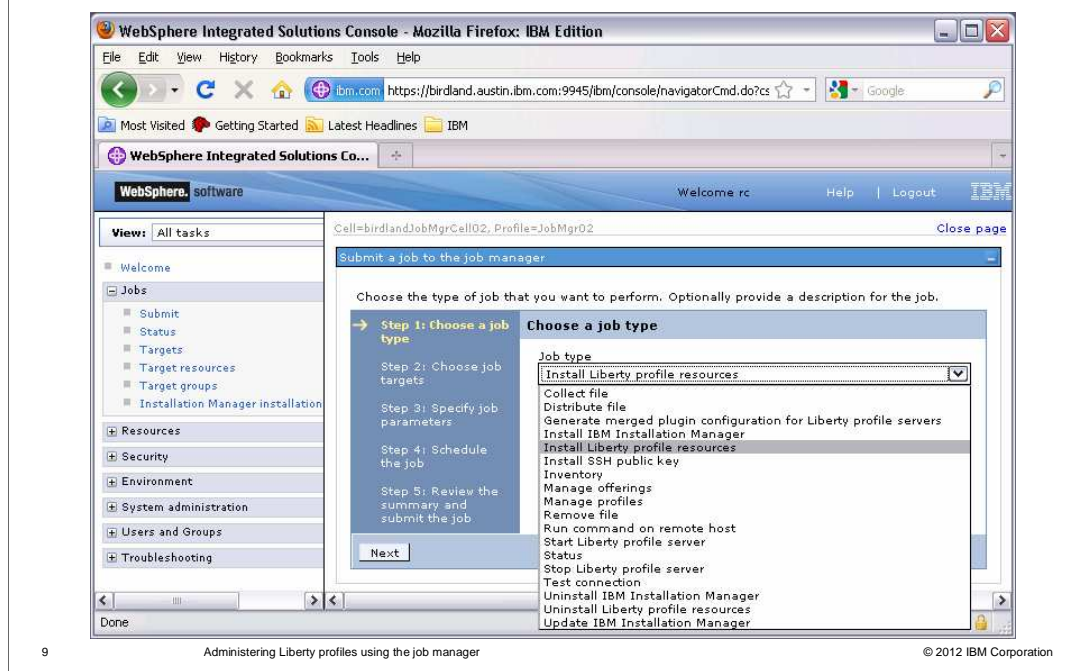
These three variables apply to all remote hosts known to a job manager. If your hosts are all configured to have Liberty profiles installed at identical paths then these variables will suffice. If some hosts use different paths, you can set host-specific values for these variables.

You will also need to create one or more Liberty profile compressed (.zip) files to install on your hosts. You can use the package command provided with the Liberty profile server to create an archive for a self-contained, single server install. You can also use a zip tool to create an archive with any combination of Liberty resources.

Managing with jobs

This section discusses the job types and features available for using the job manager to administer Liberty profiles.

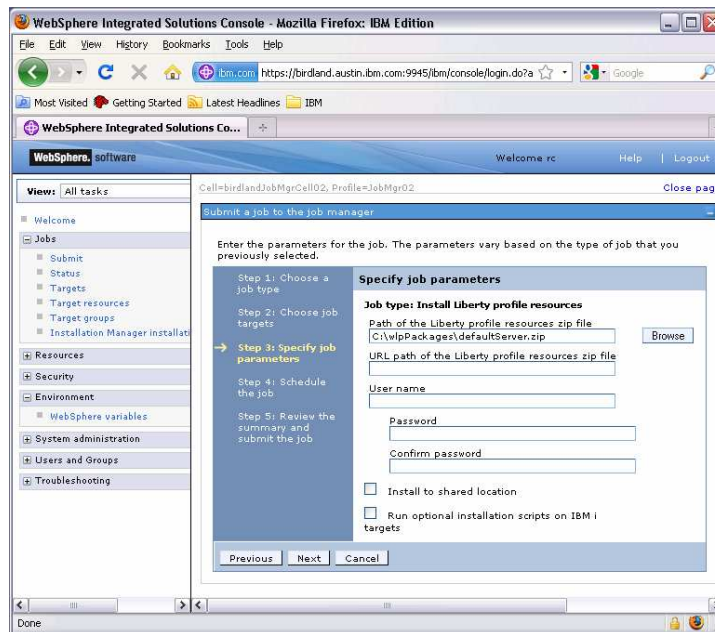
Submitting jobs



The basic process for submitting jobs is the same as in past releases, only there are new job types available for remote host targets. The first page of the job submission wizard requires you to select a job type such as Install Liberty profile resources. The wizard then requires you to choose the targets for the job, specify the job parameters, and schedule the job.

For the new Liberty profile job types, the only variation is the job specific parameters, which these slides will discuss.

Job type: Install Liberty profile resources



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Administering Liberty profiles using the job manager

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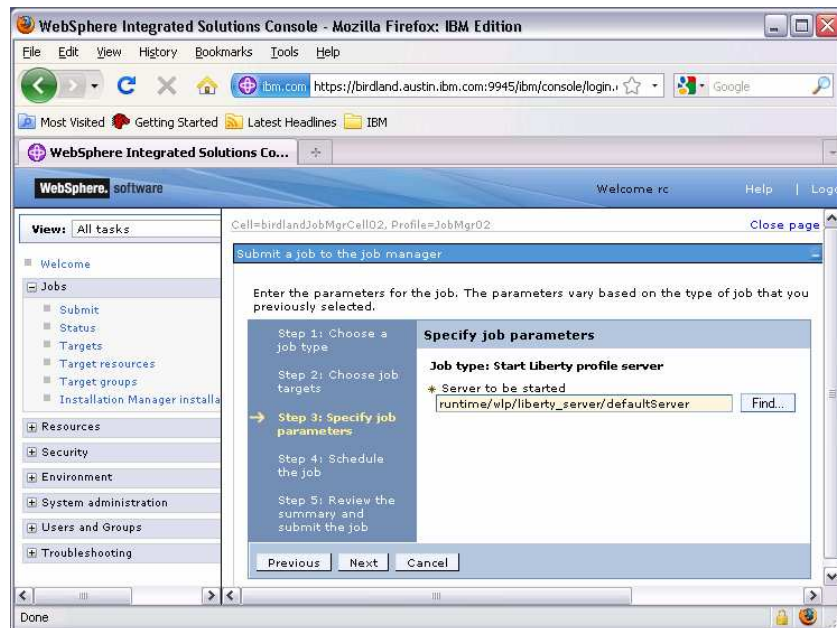
The slide includes the Specify job parameters page of the Install Liberty profile resources job wizard. If the archive file containing the Liberty profile resources resides on the job manager server, for Path of the Liberty profile server resources archive file, specify the full path name for the archive file. If the archive file that provides the Liberty profile does not reside on the job manager server, for URL path of the Liberty profile server resources archive file, specify the URL path for the archive file. The supported scheme names for the universal resource locator (URL) include http, https, ftp, and file. Note that to use URL path of the Liberty profile resources .zip file with a protocol other than file, the target host must have a wget utility. Select an http, https, or ftp remote download protocol that the wget utility on the target host supports. If the wget utility does not support your selected protocol, then the job cannot install the resources.

If the archive file that provides the Liberty profile resources does not reside on the job manager server and the URL is password-protected, specify a user name and password.

If the resources in the archive are to be installed to the WLP_SHARED_DIR location on each target, check the box for Install to shared location. If not checked, the resources are installed to the WLP_WORKING_DIR location on each target.

To run optional IBM i scripts that authorize the Liberty profile installation and its embedded servers, select Run optional installation scripts on IBM i targets.

Job type: Start Liberty profile server



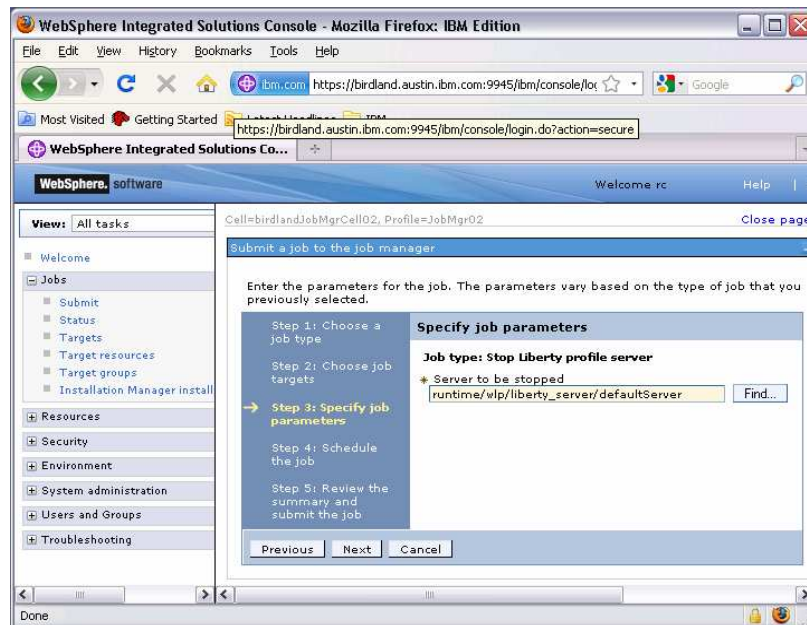
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When submitting the Start Liberty profile server job type, you must specify the fully-qualified resource ID of the server resource. You can use the Find dialog to locate the server to start.

Job type: Stop Liberty profile server



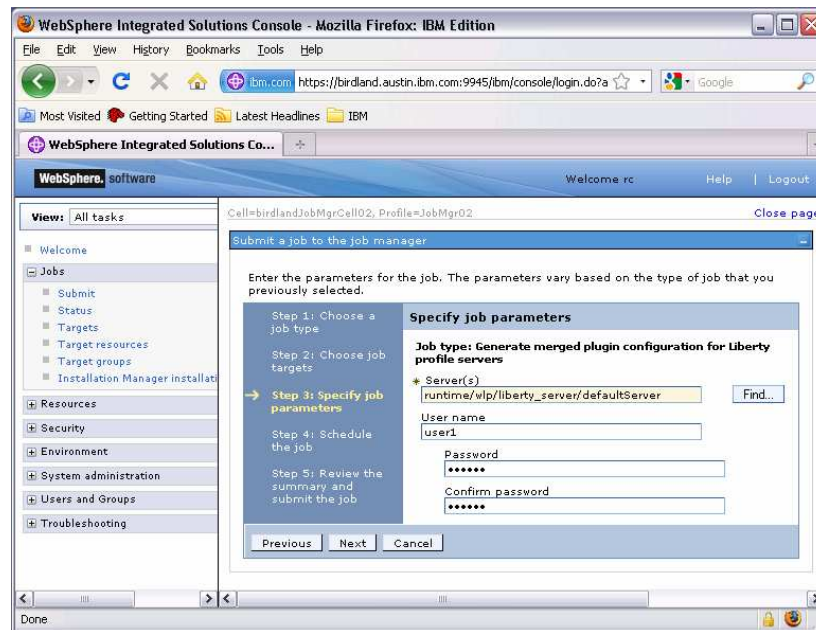
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When submitting the Stop Liberty profile server job type, you must specify the fully-qualified resource ID of the server resource. You can use the Find dialog to locate the server to stop.

Job type: Generate merged plug-in configuration



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Administering Liberty profiles using the job manager

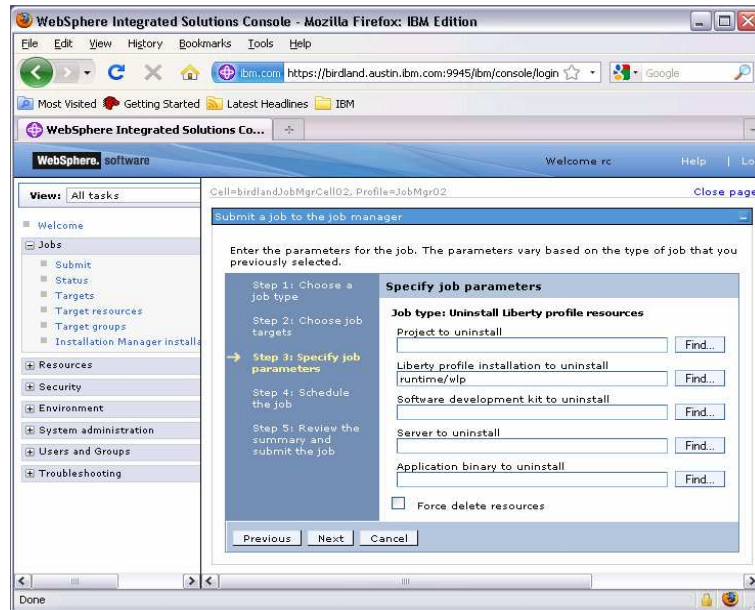
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The Generate merged plug-in configuration for Liberty profile servers job generates a web server plug-in configuration file for the named server on each job target and then generates a merged web server plug-in configuration file at the job manager. In addition to specifying the resource name or the fully-qualified resource ID of a server, you can also specify a pattern containing wildcards to identify one or more servers.

This job type initiates a connection to the Liberty profile server by way of the local JMX connector or the REST connector. These connectors are not enabled by default. Each Liberty profile server must be configured with the localConnector-1.0 feature or the restConnector-1.0 feature.

The user name and password parameters are required when one or more instances of the server include only the REST connector. Conversely, if every instance of the server includes the local connector feature, the user name and password parameters are not required.

Job type: Uninstall Liberty profile resources



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The Uninstall Liberty profile resources job will uninstall one Liberty profile resource from a selected set of target hosts. You can use the Find dialog to locate the resource to remove. Use the Force delete resources option to uninstall resources even if the status of the server resources cannot be detected or the servers cannot be stopped.

Liberty profile server - automatic status feature

- Automatic status reporting
 - No need to run status or inventory to update resource status
 - Sends status update to job manager on start / stop of Liberty profile server
 - Status not updated for lock ups or kills
- Liberty profile server feature
 - `<feature>serverStatus-1.0</feature>`

The automatic status feature is an optional feature for a Liberty profile server. This is not a function of the Job Manager, but a feature that can be enabled in a Liberty profile server. This feature gives a server the ability to update its status in the Job Manager without the need to run a Job Manager job. It is an agentless function that is available for any Liberty profile server with the feature enabled, and that is pulled into the inventory of one or more job managers.

Once enabled, the feature will send the status of the Liberty profile server to one or more job managers when the server starts and stops. The status is not updated if the server enters a failed state or is stopped by an operating system level kill-type command. The feature is enabled in a server by adding the feature definition to the server.xml of the server: `<feature>serverStatus-1.0</feature>`

Summary

This presentation described using the job manager to administer Liberty profiles including jobs that install, start, stop, and uninstall Liberty profiles. It also explained how to use the Generate merged plug-in for Liberty profile servers job and the automatic status feature of a Liberty profile server.

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