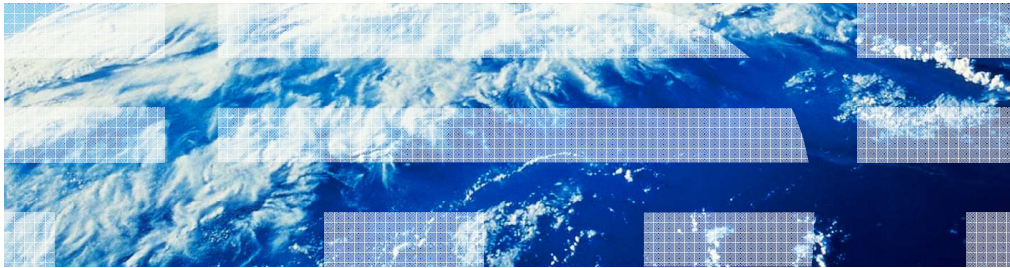




IBM WebSphere Application Server V8.5.0.0

Liberty Profile



WebSphere software

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This presentation describes support for Liberty Profile included in IBM WebSphere Application Server V8.5

Overview

WebSphere Application Server Liberty Profile is a new dynamic profile of WAS which is focused FIRST on the development and DevOps experience.

What is WebSphere Application Server Liberty Profile? (1 of 2)

- A new flexible dynamic profile of WAS which is focused FIRST on the development experience.
 - Fast
 - Lightweight
 - Simplified Configuration
- Fidelity with full-profile WAS
 - But radically refactored to focus on the development experience
- Initially focused on development and test of web, mobile and OSGi apps.

WebSphere Application Server Liberty Profile is focused first on the development experience.

Extremely rapid server start-up, simplified and shareable configuration and a small footprint server-runtime all contribute to the developer experience.

While focusing on the developers, Liberty Profile maintains fidelity with full-profile WAS, it uses the same containers and offers the same Quality of Service as full-profile WAS.

Applications can be developed and tested using Liberty Profile and then deployed on full-profile WAS.

Liberty is initially focused on dev/test of web, mobile and OSGi apps.

What is WebSphere Application Server Liberty Profile? (2 of 2)

- Support for Liberty Profile in Rational Application Developer
 - Enterprise development - advanced programming, cloud, collaboration, and quality tools
 - Available stand-alone or bundled in WAS - Tools Edition and WAS Network Deployment - Tools Edition

- Support for Liberty Profile in WebSphere Application Server Development Tools for Eclipse
 - Subset of RAD focused on core programming models
 - Simple Eclipse feature update for Eclipse 3.6 (Helios) or 3.7 (Indigo)
 - Available unsupported at no charge, or supported for a fee
 - WAS for Developers – Tools Edition for Eclipse

- Development tools can install the runtime.

- Additional platform support for z/OS and Mac OS

Developers can choose to use the WebSphere Application Server Development Tools in Rational Application Developer or in Eclipse.

The Eclipse option offers a subset of Rational Application Server's features and allows simple drag installation of the development tools. Developers may choose unsupported no charge installation or may pay for support.

If the Liberty Profile server has not already been installed the development tools can install it for you.

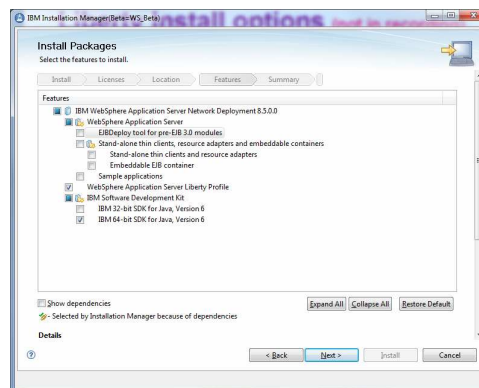
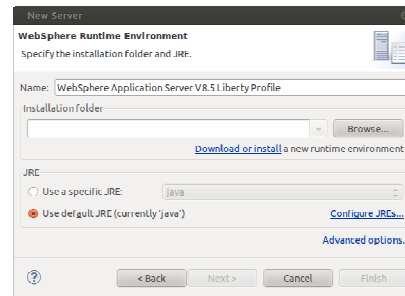
In addition to Windows, Linux and UNIX platforms, Liberty Profile server can be used on Mac OS and z/OS. In addition the tools may be used on Mac.

Usage scenarios

WebSphere Application Server Liberty Profile is used in these scenarios.

Installation options

- WebSphere Application Server Developer Tools in RTC or Eclipse
- Archive Install
- Installation Manager



A developer's first task is likely to be installation of Liberty Profile.

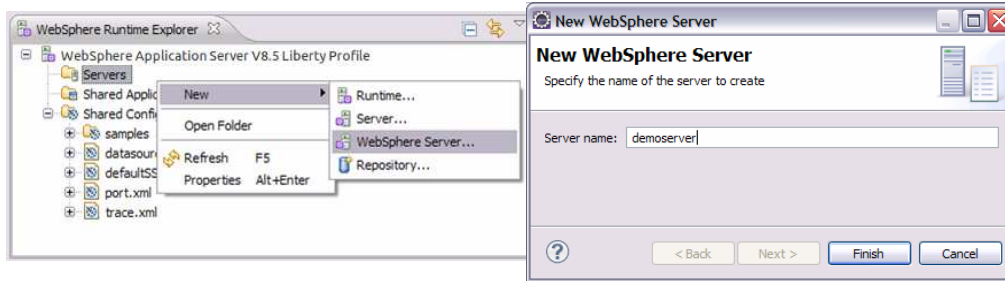
There are three options to rapidly install the runtime environment.

When a developer uses the tools to create a new server the tools will give the choice of either specifying the location of an existing Liberty Profile installation or downloading a new runtime environment. In just a few clicks the tools can download and install a new server runtime.

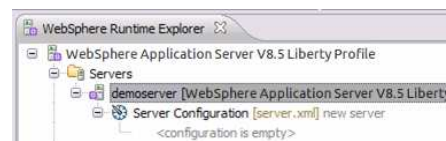
If the tools are not used then a user can download and extract an archive file of less than 50 MB.

As a final option Installation Manager can be used to manage the download and installation.

Create a lightweight WAS server in WebSphere Developer Tools



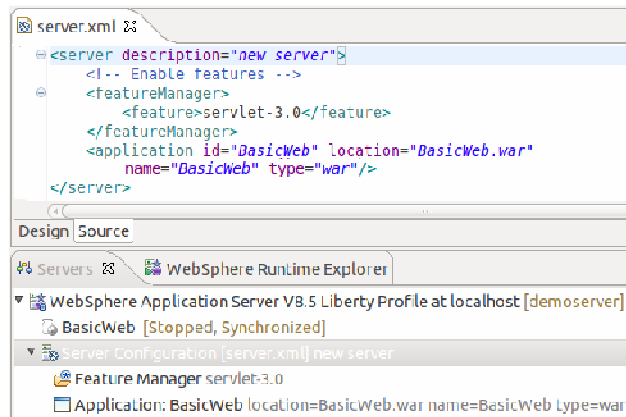
Create a lightweight WAS server configuration in seconds



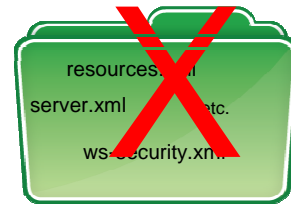
The WebSphere Developer Tools make it simple to create a WebSphere Application Server Liberty Profile configuration in seconds.

Simplified server configuration

- Simplest case: one XML file for all server configuration
- Editable within the workspace
- Exportable, shareable, versionable



No need for Admin Console, wsadmin, or enhanced EARs



The simplest configuration of a Liberty Profile WebSphere Application Server is one XML file that can be created and edited with the tools.

This further simplifies development, removing the need for external configuration tools and facilitating the use of version control and sharing.

Simplified server configuration

```

<server>
  <featureManager>
    <feature>jsp-2.2</feature>
    <feature>jdbc-4.0</feature>
  </featureManager>
  <logging trace.specification="webcontainer=all=enabled:*=info=enabled" />
  <application type="war" id="tradelite" name="tradelite" location="tradelite.war" />
  <jdbcDriver id="DerbyEmbedded" libraryRef="DerbyLib"/>
  <library filesetRef="DerbyFileset" id="DerbyLib"/>
  <fileset dir="{shared.resource.dir}/derby" id="DerbyFileset" includes="derby.jar"/>
  <dataSource id="DefaultDatasource" jdbcDriverRef="DerbyEmbedded" jndiName="DefaultDatasource">
    <properties createDatabase="create" databaseName="{shared.resource.dir}/data/product"/>
  </dataSource>
</server>

```

features control which capabilities (bundles) are installed in the server

'singleton' configurations specify properties for a runtime service like logging

'instance' configurations specify multiple resources like applications and data source definitions

Any of this configuration can be put into a separate xml file and 'included' in this 'master' configuration file

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This is another server configuration file showing some more of the configuration options.

Server configuration has been simplified to make development easier but is still extensible to allow for more detailed requirements.

If more modular configuration is required any of this configuration can be put into a separate xml file and then included from this main configuration file.

Flexible configuration

- Shareable configuration snippets

```
<server>
  ...
  <include location="http://cfgserver/global.xml" />
  <include location="{shared.config.dir}/global.xml" />
</server>
```

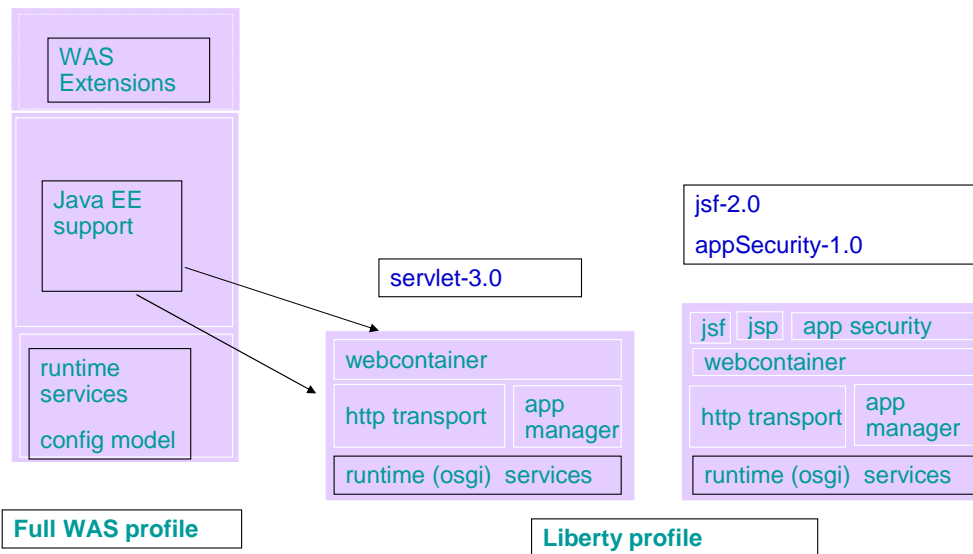
server.xml

- Configuration can be componentized at any level of granularity, from one file to many (update configuration for thousands of servers by one xml file change)
- Can use WDT to associate configuration snippets with a server configuration.
- Visualization through WDT tools as a single logical view.
- Team development: keep the application and configuration components together.

This server configuration file demonstrates the power available to a developer if they have many Liberty Profile servers and componentize their configuration.

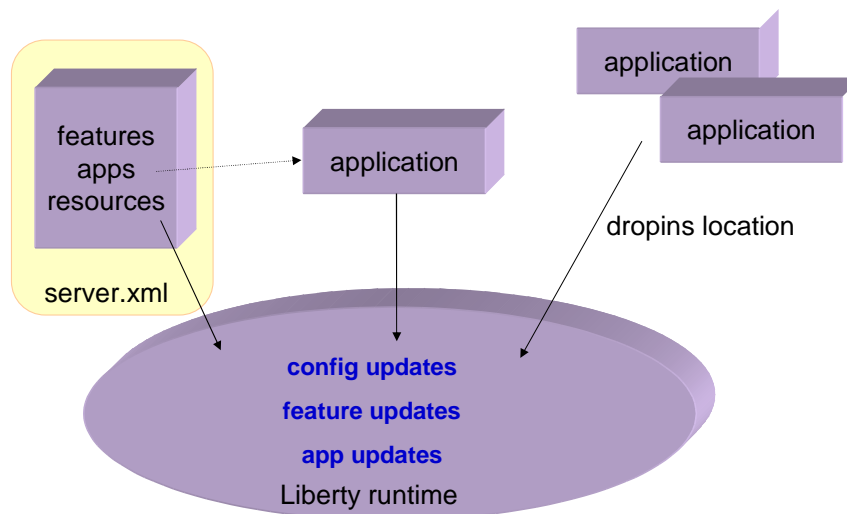
With global shareable configuration you can point thousands of servers to a remote xml file. Change one line and it takes affect on all thousands of servers right away.

Highly composable runtime based on “features”



Liberty Profile is not a single static profile, it is a dynamic, flexible profile of the WebSphere Application Server runtime that loads only what “Features” the application needs. Liberty Profile uses the same containers and offers the same Quality of Service to maintain fidelity with full-profile WAS.

Dynamic runtime



Liberty Profile provides a dynamic runtime and configuration changes and the addition, modification or removal of applications can be reacted upon immediately, without requiring a restart.

New features can be enabled by changing the configuration using the `server.xml` file or the configuration of existing features can be modified.

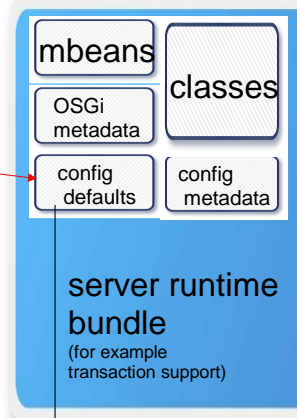
By default both the configuration file and the dropins directory are monitored for changes but if required this monitoring can be disabled.

Flexible Configuration

- Configuration defaults are specified by contributing features
- Configuration by exception – any property can be overridden in user-specified server config
- Config can be changed dynamically, changes are “observed” and are injected back into the contributing feature immediately

```
<server>
  <featureManager>
    <feature>servlet-3.0</feature>
    <feature>transaction-1.1</feature>
  </featureManager>
  <transaction timeout="30" />
</server>
```

server.xml



```
id=com.ibm.ws.transaction
name=transaction
attribute id=timeout
default=100
```

Default configuration is specified by the features so you only need to specify if you want to override the default settings. Here you have modified the default timeout from 100 to 30, but if you decide to change this setting you can just modify the server.xml and this change is immediately fed back to the contributing feature without any need for a server restart.

Liberty Profile For z/OS

- The WAS for z/OS Liberty profile is a composable application server profile of WAS with **optional** extensions for z/OS
 - Applications written for Liberty run in full profile unchanged
 - Simplified and reduced configuration for both WAS and z/OS
 - Faster development and deployment of new applications on WAS for z/OS
- Significantly improved performance
 - Server start-up time
 - Increased throughput
 - Significantly reduced real storage and disk requirements

Liberty Profile for z/OS focuses on the development experience on WebSphere Application Server for z/OS.

Fidelity is maintained with the Full-Profile application server yet configuration is simplified and performance improved. This facilitates the exploitation of System Z and z/OS through the optional extensions to components including High Availability, Workload Manager, Security and System Authorization Facility registry.

In addition to facilitating application development, the reduced footprint and startup times are valuable in production where they enable greater density and flexibility when deploying servers to a cloud.

Deployment options

- An “Embedded Server” profile is a production instance of the configured Liberty server type.
 - Package the application, configuration and server you just tested into an archive file.
 - Application centric – server pre-configured for a specific application.
- Deployment options:
 - Unmanaged install
 - Managed Network Deployment of stand-alone instances
 - “Light-touch” ND management: start and stop server
 - Server configuration uses the same simplified XML configuration created in the development environment.

Liberty Profile’s focus on simplicity and ease of use can be carried through to production.

Once developed and tested an application can be packaged with it’s configuration and server into a single file.

This allows an “Embedded Server” profile to be preconfigured for a specific application or set of applications.

This packaged “Embedded Server” can then be deployed either as an unmanaged install, by extracting the archive, or using “light-touch” Network Deployment management.

The server configuration uses the same simplified XML configuration that was created in the development environment.

Summary

To recap.

Summary

- Liberty Profile is a configurable dynamic WebSphere Application Server profile providing
 - Simplified configuration
 - Faster startup
 - Smaller footprint
- Yet maintaining fidelity with full-profile WebSphere Application Server

WebSphere Application Server Liberty Profile provides simplified server configuration, has a reduced footprint and rapid startup times. In addition it minimizes the need to restart by dynamically monitoring for application and configuration changes. This enables developers to rapidly develop applications on the WebSphere Application Server platform with the confidence that Liberty Profile maintains fidelity with the Full Profile server.

References

- WasDev the WebSphere Application Server Community site
<https://www.ibm.com/developerworks/mydeveloperworks/blogs/wasdev>
- WebSphere Application Server Library
<http://www-01.ibm.com/software/webservers/appserv/was/was-library/>

See these references for additional information about **Liberty Profile**

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