Administering WebSphere Application Server Liberty Profile

WA190 (Classroom)

ZX190 (Self-paced)

Course description

This course teaches you the skills that are needed to manage Liberty servers and collectives.

The course is designed for application server administrators. You learn how to use the graphical Admin Center and the command line scripting to manage servers from a collective controller. The course also covers how to deploy a cluster of packaged servers for Liberty runtimes, view the deployment environment, and view basic performance metrics.

You learn how to use the Dynamic Routing feature of Liberty to enable routing of HTTP requests to collective members. You also configure the auto-scaling and health management features for Liberty.

Finally, you learn how to secure Liberty and enable SSL communication in Liberty.

For information about other related courses, see the IBM Training website:

http://www.ibm.com/training

General information

Delivery method

Classroom or self-paced virtual classroom (SPVC)

Course level

ERC 1.0

Product and version

IBM WebSphere Application Server Liberty Network Deployment Version 16.0.0.2

Audience

This course is designed for administrators of IBM WebSphere Application Server Liberty Profile.

Learning objectives

After completing this course, you should be able to:

* Describe the WebSphere Liberty Profile architecture
* Create a Liberty profile server
* Use the Admin Center to manage Liberty servers
* Deploy clusters of Liberty servers
* Use the collective controller
* Use Jython scripts to administer Liberty servers
* Configure Dynamic Routing
* Configure the auto scaling feature and define auto scaling policies
* Configure SSL communication in Liberty
* Use the IBM HTTP and web server plug-in with Liberty servers

Prerequisites

Before taking this course, you should have a general knowledge of:

* Java Platform, Enterprise Edition (Java EE)
* Administering web servers and application servers
* The Ubuntu Linux operating system

Duration

2 days

Skill level

Intermediate

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| Classroom (ILT) setup requirements |
| Processor | Intel Pentium 2.6 GHz or faster |
| GB RAM | 8.0 |
| GB free disk space | 120 |
| Network requirements | LAN / Internet / DHCP |
| Other requirements | This course runs lab exercises on the IBM Remote Lab Platform. The remote course image can be accessed from any of the Windows, Linux, or MacOS environments. Processor requirements are different for each operating environment. The hardware requirements that are shown here are for the Windows operating system. |

Notes

The following unit and exercise durations are estimates, and might not reflect every class experience. If the course is customized or abbreviated, the duration of unchanged units will probably increase.

This is a new course.

Course agenda

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| Course introductionDuration: 15 minutes |

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| Unit 1. Introduction to Liberty administration and runtime architectureDuration: 1 hour |
| Overview | This unit describes the configurable architecture of Liberty. |
| Learning objectives | After completing this unit, you should be able to:* Describe Liberty
* Describe the composable architecture of Liberty
* Describe the Liberty configuration file
* Describe the continuous delivery of new Liberty function
* Describe the flexible deployment of applications
* Describe the dynamic nature of the configuration
* Describe the manual administration of Liberty servers and features
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| Unit 2. Multi-server managementDuration: 1 hour and 30 minutes |
| Overview | In this unit, you learn the various options for managing Liberty servers. You use the Liberty collective management model to manage servers. |
| Learning objectives | After completing this unit, you should be able to:* Describe the Liberty collective architecture
* Describe how to create and configure a Liberty collective
* Describe the use of clusters in a collective
* Describe how to configure and manage a Liberty server cluster
* Describe how the Admin Center works with different topologies
* Describe the ways that Liberty servers can be managed in cloud environments
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| Exercise 1. Managing Liberty collectives with the Admin CenterDuration: 1 hour and 15 minutes |
| Overview | In this exercise, you learn how to configure a collective controller and use the Admin Center to manage Liberty servers from the collective controller. You deploy a cluster of packaged servers, view the deployment environment, and view basic performance metrics all by using the Admin Center. |
| Learning objectives | After completing this exercise, you should be able to:* Create a collective controller
* Navigate in the Admin Center
* Deploy a cluster of packaged Liberty servers
* View the deployment environment
* View basic performance metrics
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| Unit 3. Administration and application deployment with scriptingDuration: 45 minutes |
| Overview | This unit describes how to use administration scripts to manage collectives. You learn how to deploy applications to Liberty servers. |
| Learning objectives | After completing this unit, you should be able to:* Describe the Liberty Management API
* Describe the installation of a Java-enabled runtime for scripting
* Describe the management of a collective with Jython scripts
* Describe how to deploy an application to a Liberty cluster
* Describe ways to generate the HTTP plug-in configuration for a cluster
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| Exercise 2. WebSphere Liberty administration by using Jython ScriptsDuration: 1 hour and 30 minutes |
| Overview | In this exercise, you use command line and Jython scripting tools to deploy and maintain clustered application servers centrally through the collective controller. |
| Learning objectives | After completing this exercise, you should be able to:* Deploy an application to a vertical cluster of packaged Liberty servers
* Use Jython scripts to get the status of a cluster
* Use Jython scripts to start and stop servers and clusters
* Generate a web server plug-in
* Access an application through an HTTP server
* Review whether HTTP failover occurs through the HTTP server
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| Unit 4. Dynamic RoutingDuration: 45 minutes |
| Overview | In this unit, you learn how Dynamic Routing causes web requests to be routed successfully as the routing topology changes.  |
| Learning objectives | After completing this unit, you should be able to:* Describe routing by the web server when using the WebSphere plug-in
* Describe the purpose of Dynamic Routing
* Describe benefits of Dynamic Routing
* Describe the components that are used in Dynamic Routing
* Explain how to configure Dynamic Routing
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| Exercise 3. Dynamic RoutingDuration: 1 hour and 15 minutes |
| Overview | In this exercise, you use the Dynamic Routing feature of Liberty to enable routing of HTTP requests to collective members without having to regenerate the WebSphere plug-in configuration file when the environment changes. |
| Learning objectives | After completing this exercise, you should be able to:* Dynamically route requests from the WebSphere plug-in to static clusters
* Configure separate HTTP ports for administration and applications
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| Unit 5. Auto-scaling in LibertyDuration: 45 minutes |
| Overview | In this unit, you learn how auto-scaling in Liberty provides elasticity to a clustered server environment.  |
| Learning objectives | After completing this unit, you should be able to:* Describe the purpose of auto-scaling
* Describe auto-scaling topology
* Describe the benefits of auto-scaling
* Describe auto-scaling policies
* Describe the components that are used in auto-scaling
* Explain how to configure auto-scaling
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| Exercise 4. Auto-scalingDuration: 1 hour and 15 minutes |
| Overview | In this exercise, you learn how to enable the autonomic scaling capability of Liberty servers. |
| Learning objectives | After completing this exercise, you should be able to:* Enable auto-scaling
* Configure and modify a scaling policy
* Package and deploy a dynamic cluster
* Test the auto-scaling feature
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| Unit 6. Securing LibertyDuration: 30 minutes |
| Overview | In this unit, you learn how to configure security for the Liberty server. |
| Learning objectives | After completing this unit, you should be able to:* Describe basic Liberty security
* Describe authorization in Liberty
* Describe how to configure user registries
* Describe LTPA and SSO in Liberty
* Describe how to enable SSL communication in Liberty
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| Exercise 5. Using the IBM HTTP Server with SSL to a Liberty serverDuration: 1 hour and 15 minutes |
| Overview | In this exercise, you configure Liberty, the IBM HTTP Server, and the plug-in that connects them to use SSL. You secure communication from the browser to the web server, the plug-in, and onto Liberty. |
| Learning objectives | After completing this exercise, you should be able to:* Deploy a simple application that displays protocol information
* Configure Liberty to use SSL
* Configure the IBM HTTP Server to use SSL
* Configure the plug-in between the IBM HTTP Server and Liberty
* Configure SSL between the plug-in and Liberty
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| Unit 7. Course summaryDuration: 15 minutes |
| Overview | This unit summarizes the course and provides information for future study. |
| Learning objectives | After completing this unit, you should be able to:* Explain how the course met its learning objectives
* Access the IBM Training website
* Identify other IBM Training courses that are related to this topic
* Locate appropriate resources for further study
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For more information

To learn more about this course and other related offerings, and to schedule training, see **ibm.com**/training

To learn more about validating your technical skills with IBM certification, see **ibm.com**/certify