

Advanced Administering Environments with IBM Instana Observability

TN202 (Classroom)

ZN202 (Self-paced)

Course description

In this course, you learn more about the basic architecture of IBM Instana and how to install various different kinds of host agents in different modes. In addition, you learn how to optionally pin an agent to a specific version in case that is ever needed. You learn how to install agents on various platforms, such as a Docker, directly to the host, YAML, Operator, and Helm chart. This course also describes how to configure and instrument a website for End User Monitoring (EUM) along with a discussion about how to review website monitoring page metrics. You learn how to use the Web REST API to perform IBM Instana functions programmatically. And, since Instana is only capable of producing dashboards for a single Instana instance at a time, this course shows you how to integrate Grafana with one or more Instana instances to produce federated dashboards.

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

**ibm.com**/training

General information

Delivery method

Classroom or self-paced virtual classroom (SPVC)

Course level

ERC 1.0

Product and version

IBM Instana Observability

Audience

This course is designed for those who need to know how to install agents, configure website monitoring, integrating with IBM Instana programmatically, and how to use Grafana to create federated dashboards of Instana data.

Learning objectives

After completing this course, you should be able to:

* Review IBM Observability by Instana and basic architecture
* Describe various host agent configuration and installation options and platforms
* Describe version pinning
* Install and configure Infrastructure-only mode host agents as Docker containers
* Install and configure direct-to-host Infrastructure-only mode host agent
* Add custom availability zone label
* Install and configure a direct-to-host agent for a Linux-based Db2 server
* Perform post-installation configuration, such as availability zone, full monitoring, and custom tags
* Configure and deploy various kinds of Kubernetes based agents, including YAML, Operator, and Helm chart
* Describe how to remove any of the types of agents installed
* Describe the architecture of Instana Website Monitoring and instrument your websites with the Tracking Script
* View website page metrics and dashboards and analyze page metrics
* Use the Web REST API to perform Instana functions programmatically
* Create API Tokens and set token permissions
* Use the Instana OpenAPI documentation to locate API endpoints
* Configure Instana for compatibility with Grafana and configure Grafana to be able to fetch metrics from Instana as a data source
* Create Grafana dashboards of Instana metrics

Prerequisites

* Attended the TN201 Administering Environments with IBM Instana course or knowledge or experience with basic Instana architecture, using the Infrastructure view and Instana dashboards, an understanding of services and endpoints along with tracing and analytics features. Users, groups, dashboards, and alert channels are used in the Web REST API lab, so it is good to have a basic understanding of those topics.
* Fundamental understanding of distributed applications.
* Knowledge of Linux a plus

Duration

2 days

Skill level

Advanced

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 course is part of the IBM Instana Observability learning path.

Course agenda

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| Course introduction  Duration: 15 minutes |

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| Unit 1. Review: IBM Instana Observability  Duration: 30 minutes | |
| Overview | This unit explains the need for an enterprise observability and application process monitoring (APM) tool. It also explains how to sign on to the IBM Instana user interface and how to verify the status of the IBM Instana host agents. |
| Learning objectives | After completing this unit, you should be able to:   * Review how IBM Instana Observability is an enterprise observability and Application Process Monitoring (APM) tool * Sign in to the IBM Instana user interface * Verify the status of the IBM Instana host agents |

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| Exercise 1. Lab environment overview  Duration: 45 minutes | |
| Overview | This goal of this exercise is to teach you how to start and stop software on the servers. You also make simple configuration changes. |
| Learning objectives | After completing this exercise, you should be able to:   * Connecting to the Robot virtual machine * SSH into the Instanaserv host from the Robot host * Start services on the Instana server * Start services on the Robot Shop server * Verify that you can access the Instana GUI from the Robot host * Verify that you can access Stan's Robot Shop web application * Verify that the Grafana web GUI is accessible from the Robot host * Start services on the Db2 server * Start services on the Grafana server |

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| Unit 2. Installing host agents  Duration: 1 hour | |
| Overview | This unit provides general knowledge about installing host agents. It covers some basic Instana architecture as it relates to agents and sensors. It also covers the different types (Origin) of agents as well as agent modes and update intervals. The student also learns about pinning a dynamic host agent to a specific version of an agent and all its sensors. Since there are several different ways to install agents to several different platforms, this unit describes fundamental information about installation, including agent keys, sales keys, and how to install your first host agent, which is a Docker-based infrastructure-only mode agent on the Instana backend server. |
| Learning objectives | After completing this unit, you should be able to:   * Describe the basic IBM Instana architecture * Describe host agent configuration options * Describe version pinning * Install host agents * Install an Infrastructure-only mode host agent * Access logs |

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| Exercise 2. Installing a Docker Infrastructure agent on the Instana host  Duration: 50 minutes | |
| Overview | In this exercise, you install the host agent as a Docker container, then you remove it. You install a direct-to-host agent in the next exercise to replace this Docker agent. |
| Learning objectives | After completing this exercise, you should be able to:   * Log in to a Terminal Console for instanaserv * Navigate to the Installing Instana Agents page * Configure an Infrastructure-only mode Agent as a Docker container * Paste the one-liner into the instanaserv host's command line * Examine the Agent Management Dashboard page * View the host agent in Infrastructure view * Uninstall the Docker Agent |

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| Unit 3. Installing an Infrastructure agent directly on the Instana host  Duration: 20 minutes | |
| Overview | This unit describes how to install a direct-to-host Infrastructure-only mode host agent by using a command line one-liner. It also describes how to perform some basic post-installation agent configuration along with pinning the agent to a specific version. |
| Learning objectives | After completing this unit, you should be able to:   * Install an Infrastructure mode agent directly to the Instana backend * Perform post-installation configuration on a direct-to-host agent * Adjust the availability zone label |

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| Exercise 3. Installing an Infrastructure agent directly on the Instana host  Duration: 50 minutes | |
| Overview | In this exercise, you install a direct-to-host Infrastructure-only agent on the Instana backend server. You learn a different method of configuring and installing a host agent as well as learning a few other more detailed approaches for customizing the host agent configuration. |
| Learning objectives | After completing this exercise, you should be able to:   * Configuring an Instana direct-to-host agent for a DB2 server * Availability zone configuration * Configuring Db2 full monitoring * Custom tags |

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| Unit 4. Instana Db2 agent installation  Duration: 30 minutes | |
| Overview | This unit describes how to install a direct-to-host APM mode host agent for a Db2 server and how to pin it to a specific version. You learn how to perform post-installation agent configuration, such as a custom availability zone label, full Db2 monitoring, and custom tags. |
| Learning objectives | After completing this unit, you should be able to:   * Install a direct-to-host agent for a Db2 server * Configure the availability zone * Configure the Db2 host agent for full monitoring * Describe custom tags |

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| Exercise 4. Instana Db2 Agent Installation  Duration: 45 minutes | |
| Overview | In this exercise, you install and run an Instana host agent for a Linux host (non-Kubernetes) on the Db2 server. |
| Learning objectives | After completing this exercise, you should be able to:   * Install a Linux Instana host agent on the Db2 serve * Customize the Db2 agent zone * Configure the Db2 agent for full Db2 monitoring * Other custom configurations |

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| Unit 5. Installing host agents in Kubernetes  Duration: 35 minutes | |
| Overview | This unit describes several different types of Kubernetes based host agents (YAML, Operator, and Helm chart) and how to install, configure, and uninstall them. |
| Learning objectives | After completing this unit, you should be able to:   * Overview of host agents on Kubernetes * Install YAML (DaemonSet) host agents * Install Operator host agents * Install Helm chart host agents |

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| Exercise 5. Installing host Agents in Kubernetes  Duration: 1 hour and 10 minutes | |
| Overview | In this exercise, you install and run some Instana host agents for a Linux host using a Kubernetes YAML (daemon set), and a Kubernetes Helm Chart. |
| Learning objectives | After completing this exercise, you should be able to:   * Install a Kubernetes agent on the Robot server using YAML (DaemonSet) commands * Remove the Kubernetes YAML (DaemonSet) agent from Robot * Install a Kubernetes agent using the Helm Chart method on Robot * Review metrics arriving at Instana |

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| Unit 6. Website monitoring  Duration: 1 hour | |
| Overview | This unit describes how to configure a website for End User Monitoring (EUM). It covers some of the basic EUM architecture and dashboards. A main focus of website monitoring is instrumenting the monitored websites, which is covered in this unit. Also included is a discussion about how to review some of the page metrics, which might be somewhat different from the service metrics that were discussed in the previous course. |
| Learning objectives | After completing this unit, you should be able to:   * Overview of website monitoring * Describe how to Instrument monitored websites * Review some page metrics * Extra EUM monitoring details |

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| Exercise 6. Website Monitoring  Duration: 30 minutes | |
| Overview | In this exercise, you perform the tasks necessary to monitor traffic on the Robot Shop microservices web application. |
| Learning objectives | After completing this exercise, you should be able to:   * Add the Robot Shop website as a monitored website in Instana * Update the Robot Shop tracking script with the URL and key obtained in the previous section * Simulate some shopping on the Robot Shop website * Analyze page loads * Review some page metrics |

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| Unit 7. Web REST API  Duration: 35 minutes | |
| Overview | This unit describes the use of the Instana Web REST API. You learn how to create API Tokens and to set token permissions. You also learn how to use the OpenAPI documentation to locate API endpoints and how to call API endpoints. |
| Learning objectives | After completing this unit, you should be able to:   * Use the Instana Web REST API * Create API Tokens and set token permissions * Use the Instana OpenAPI documentation and locate API endpoints * Call API endpoints |

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| Exercise 7. Web REST API  Duration: 1 hour and 10 minutes | |
| Overview | In this exercise, you define a unit-specific API token for use in making API calls. You learn how to use the API documentation and its search facility. You use various ways to obtain the ID of your custom dashboard. Then, you use the API to export and save your custom dashboard configuration to a JSON file. After that, you delete your custom dashboard using the GUI. Then, you import your custom dashboard configuration back into Instana by using the saved JSON and an API call. Finally, you use the API to export a few objects, such as your custom alert channel and your group definitions so that you can import the exported group JSON back into your Instana. |
| Learning objectives | After completing this exercise, you should be able to:   * Login to Instana’s GUI * Define the REST API token * Search for an API endpoint * Get your custom dashboard ID * Exporting a custom dashboard configuration * Importing a Custom Dashboard * Alert Channels export * Export Groups * Import group |

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| Unit 8. Grafana integrations  Duration: 30 minutes | |
| Overview | This unit describes how to create Grafana dashboards using one or more Instana instances as data sources. The student learns to use the Explore Metrics tool to experiment with their queries and configuration settings. The student also learns to add custom dashboards and how to add panels to those dashboards. |
| Learning objectives | After completing this unit, you should be able to:   * Overview of Grafana * Integrate Grafana with Instana * Configure an Instana data source * Add some simple dashboards * Add a Service Level Indicator (SLI) dashboard |

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| Exercise 8. Grafana dashboards  Duration: 1 hour | |
| Overview | In this exercise, you integrate Grafana with Instana by using the plugin. You allow Grafana to pull data from the Instana backend by creating an Instana data source instance. Then you create some simple dashboards and customize them. |
| Learning objectives | After completing this exercise, you should be able to:   * Open Port 8280 on the Instana server to enable Grafana to access the Instana API * Log in to the Grafana GUI * Integration with Instana * Review the Instana Data Source * Create a Db2 Queries Dashboard in the General folder * Create a Dashboard for RobotShop microservices * Service Level Objective panel prerequisite * Build the Service Level Indicator panel * Build the Service Level Objective panel * Optional, edit your SLO to monitor the impact on your remaining error budget |

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| Unit 9. Course summary  Duration: 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 |

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