



COURSE OUTLINE

Introduction to REST APIs and Blue Planet Orchestrator APIs

Instructor Led Training/Virtual Instructor Led Training (ILT/VILT)

C855, Revision B

Course Overview

This course is a conceptual and practical overview of REST and REST based API's as well as Blue Planet Orchestrator API's. Learners will learn about the need for REST, REST Architectural goals, REST Features, and REST benefits. Learners will also understand what an API is, what a REST API is, and how to interact with various BPO API's.

Objectives

Upon successful completion of this course, students should be able to:

- Understand Services
- Define REST
- Define API
- Identify the characteristics of REST APIs
- Identify the key benefits of REST APIs
- Understand BPO API's
- Understand Core BPO API's
- Work with the Authentication API
- Work with the Market API
- Use core networking tools including Swagger and cURL
- Perform exact string filtering of API data

Conditions***Classroom***

- The maximum number of students for this course is 12.
- Demonstrations and exercises will be conducted in the classroom and training lab.
- Students receive course material and product documentation via download.
- Reference documents are available on the Ciena portal, refer to <https://my.ciena.com>.
- Course methodology is lecture/discussion and performance/demonstration.

Virtual Classroom

- For technical requirements and support, please refer to <http://cienalearning.freshdesk.com/>

Prerequisites

To be successful in this course, learners should have a fundamental knowledge about how Browsers, and the World Wide Web, work. Learners should have a knowledge about packet structure, and the function of packets in a network. Learners should have a working knowledge of Client/Server architecture. Learners should have the fundamental concepts of the TCP/IP or OSI Networking models. Knowledge of HTTP is a bonus and extremely helpful to understand this course.

Students will also need access to an instance of Blue Planet Orchestrator. If students do not have access to an instance of Blue Planet Orchestrator, then they may download and install the DevOps Toolkit from the Blue Planet DevOps exchange in order to complete the course.

Duration

The duration of this training course is typically 1 day for on-site classes. The duration may vary for students with prior Blue Planet training or extensive software development experience.

Course Outline

Lesson 1. Blue Planet Orchestrator Overview

- Understand Orchestrator Concepts
- Understand Orchestrator Terminology

Lesson 2. Introduction to REST and APIs Objectives

- Services and Rest
- What are API's
- What is REST
- What are REST Constraints (Features)
- What are REST Benefits

Lesson 3. Services and Rest

- Internet Based Services
- Data Exchange and Open Interaction
- Services and REST

Lesson 4. What are API's

- What Is An API?
- What is a REST API?

Lesson 5. What is REST

- What is REST?
- Resource Based System
- Resource Representations
- The Need For REST
- The HTTP Object Model

Lesson 6. What are REST Constraints (Features)

- REST Constraints (Features)
- The Uniform Interface Constraint
 - Identification of resources
 - Manipulation of resources through representations
 - Self-descriptive messages
 - Hypermedia as the engine of application state (HATEOAS)
- Uniform Interface Client Calls
- Example: Uniform Interface Client Call
- Uniform Interface Server Responses
- Uniform Interface Server Response Headers

- Example: Uniform Interface Server Response – Response Body Data
- The Stateless Constraint
- Stateless summary
- The Client-Server Constraint
- The Cacheable Constraint
- The Layered System Constraint
- The Code On Demand Constraint (optional)

Lesson 7. What are REST Benefits

- RESTful Architecture Benefits
- Identify the key benefits of REST APIs
- Client / Server Separation
- Reliability, Scalability, Visibility, Simplicity
- Modifiability, Portability

Lesson 8. Blue Planet Orchestrator API Overview

- What does BPO do?
- API Groups

Lesson 9. Connecting to Blue Planet API's

- Introducing Swagger
- Introducing cURL
- URL Format for REST calls
- Common URL Patterns
- HTTP Request Types
- HTTP Status Codes

Lesson 10. REST API Interaction Tools

- How to use cURL
- cURL Command line syntax
- Common cURL switches
- Swagger UI
- Displaying Blue Planet Orchestrator API's in Swagger

Lesson 11. API Authentication

- API authentication methods
- HMAC Authentication
- Token Authentication
- No Auth

- API Authentication
- Demo Authentication API's
- Authentication API labs

Lesson 12. Core API's

- Intro to BPO API's
- Discuss Core API's
- Discuss Core Components

Lesson 13. Market API's

- Discuss Market API's
- Demo Market API's
- Market API labs
- Discuss Filtering
- Use Exact Match Filtering