

**Server-side JavaScript with Node.js and Express**

**Course Number:** SCRPT-132  
**Duration:** 2 days

**Overview**

Accelebrate's Server-side JavaScript with Node.js and Express training teaches experienced JavaScript developers how to create server-side applications with JavaScript and Node.js, culminating with an MVC application built on the Express framework that queries databases and calls back-end web services.

**Prerequisites**

Node.js training attendees should have a thorough knowledge of JavaScript. They should be familiar with web server application design concepts (such as accessing databases and SOA concepts), as well as basic HTML and CSS.

**Materials**

All JavaScript training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

* A recent version of Google Chrome or Mozilla Firefox
* A local installation of Node.js
* Admin/root or sudoer privileges to install additional features during the class
* A JavaScript development tool of your choice
* Additional lab files that Accelebrate will provide

**Objectives**

* Learn why server-side JavaScript is useful
* Install Node.js
* Learn how Node.js is architected to allow high scalability with asynchronous code
* Create basic web applications with Node.js
* Automate tasks with Gulp
* Build an HTTP server using the core modules in Node.js
* Use stream I/O to efficiently serve the web pages
* Create modules to organize the server
* Test the reliability of the application with unit tests
* Convert the application to an MVC framework using Express
* Interface to a PostgreSQL and MongoDB database and a web service

**Outline**

* Introduction
* Foundation
  + The Node.js framework
  + Installing Node.js
  + Using Node.js to execute scripts
* Node Projects
  + The Node Package Manager
  + Creating a Project/Package
  + The package.json configuration file
  + Global vs. local package installation
  + Package Lock Files
  + Installing, Uninstalling, and Upgrading Packages
  + Configuring Script Commands
  + NPM and NPX Commands
* HTTP
  + The HTTP protocol
  + Using the HTTP Module
  + Building an HTTP server
  + Rendering a response
  + Processing query strings
  + Configuring TLS
* File System
  + Synchronous vs. asynchronous I/O
  + Path and directory operations
  + \_\_dirname and \_\_filename
  + Asynchronous file reads and writes
* Modules
  + Modularization
  + The CommonJS and ES2015 Module specifications
  + Defining modules with exports
  + Modules are singletons
  + Creating a package
  + Module scope and construction
* Express
  + Using Representational State Transfer
  + The Model-View-Controller pattern
  + Defining Jade (or Handlebars) templates
  + Building a Front-end Controller
  + Defining Routes
  + Creating Actions
  + Configuring Express to use Jade (or Handlebars)
  + Using REST
  + Reading POST data
  + Building Pages with Jade (or Handlebars)
  + Adding Middleware
  + Static Content
  + Request Body
  + Cookies
  + CORS
  + Writing Middleware
* Data Sources
  + How Node.js connects to databases
  + RDBMS databases and NoSQL databases
  + Connecting to RDBMS (PostgreSQL) and NoSQL databases (MongoDB)
  + Performing CRUD operations
  + Building client requests to web services
* Unit Testing
  + What is Unit Testing?
  + Unit Testing Frameworks and Libraries
  + Jest Unit Testing Framework
  + Tests and Test Suites
  + Setup/Teardown Functions
  + Assertions, Mocks, and Spies
* Deployment
  + Production Deployment of Node.js App
  + PM2 Process Manager
  + Containerization of Node.js App
* Conclusion