



Remote Test Automation with Selenium Grid (TT3619)

Explore Practical Test Automation with Selenium, the WebDriver API, the Selenium Server and Selenium Grid

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Course Snapshot

- **Course: Remote Test Automations with Selenium Grid (TT3619)**
- **Duration:** 4 days
- **Audience:** Experienced Web Developers or Test Engineers. Prior basic Java syntax knowledge is required.
- **Language/Tools:** Selenium is the primary focus of this course. Incoming basic Java syntax knowledge is also recommended. Java and either Eclipse or IntelliJ are used to drive the tests and capture testing results.
- **Hands-on Learning:** This course is approximately **50% hands-on**, combining expert lecture, real-world demonstrations and group discussions with machine-based practical programming labs and exercises. Student machines are required.
- **Language:** This course examples are in Java. This course is also available for Node.JS and .Net. Please inquire for details.
- **Delivery Options:** This course is available for **onsite private classroom presentation, live online virtual presentation**, or can be presented in a **flexible blended learning format** for combined onsite and remote attendees. Please also ask about our **Self-Paced / Video** or **QuickSkills / Short Course** options.
- **Public Schedule:** This course has active dates on our live-online open enrollment **Public Schedule**.
- **Customizable:** This course agenda, topics and labs can be further adjusted to target your specific training skills objectives, tools and learning goals. Please inquire for details.



Overview

Remote Test Automation with Selenium Grid provide students with a solid understanding of practical automation concepts using Selenium, the WebDriver API, the Selenium server, and Selenium Grid to drive consistent functional and non-functional tests that are performed remotely and can be parallelized. Students will learn the core API, tools, and how to work with them together to create powerful testing harnesses. Student will then migrate a set of Selenium tests into a remote testing environment, implementing parallelized testing and, eventually, using Cloud-based Grids to run the tests.

Learning Objectives

Students who attend **Automated Web Testing with Selenium Driver** will leave the course armed with the skills required to recognize how to test web applications for sufficiency. This course uses Selenium and the WebDriver interface to design and implement tests. The student will work with a sample Web Application that requires several testing scenarios.

This “skills-centric” course is about **50% hands-on lab and 50% lecture**, designed to train attendees in core Selenium and web testing skills, coupling the most current, effective techniques with the soundest industry practices. Working in a hands-on environment led by our expert practitioner students will:

- Understand web page testing needs and how Selenium meets those needs
- Analyze a web application from a functional and testing perspective
- Use Selenium constructs to locate elements on a web page
- Test web page forms and the elements in those forms
- Use test suites to organize and manage tests
- Review Java constructs needed to by testers in working with WebDriver
- Design code and run automated Selenium tests using the Java WebDriver API
- Use the WebDriver API to test advanced web features such as delayed responses and Ajax
- Using a combination of JUnit 5 features and WebDriver to consume streams of data for testing
- Focus on Best Practices for Selenium testing using the Java WebDriver API
- Work with Selenium server and webdriver-manager to run tests
- Setup and run a Selenium Grid to run a set of Selenium tests
- Setup and run Selenium tests in parallel in a Selenium Grid
- Setup and run Selenium tests in a Cloud solution (if students have internet access)
- An overview of how it all works in Continuous Integration

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional testing, Selenium, Cucumber, Gherkin, Python, TDD, BDD, programming, testing tools, test automation, QA, services, security and other related topics that may be blended with this course for a track that best suits your needs. Our team will collaborate with you to understand your needs and will target the course to focus on your specific learning objectives and goals.

Audience & Pre-Requisites

This is an **intermediate level** course, geared for Test Engineers, Quality Assurance Engineers, and their management who have prior knowledge of Selenium basics. Code examples are in a combination of the specific domain-specific languages and Java, so some experience in object-oriented development with Java is expected.

Take Before: We recommend attendees have the skills in the course listed below, or attend this course as a pre-requisite:

- TT3610 Introduction to Selenium | Selenium Web Testing (3 days)

Related Selenium Courses

- TT2190 Basic Java Syntax Primer for Selenium Users / Non-Developers (QA, Testers,) (2 days)
- TT3610 Introduction to Selenium | Selenium Web Testing (3 days)
- TT3611 Manual Web Testing with Selenium (1 day)
- TT3612 Automated Web Testing with Selenium WebDriver (3 days)
- TT3618 Test Automation Fundamentals: Selenium, Cucumber, Gherkin and Maven (5 days)
- TT3619 Remote Test Automation with Selenium Grid
- TT3620 Parallel Web Testing with Selenium Grid & Docker
- TT3650 Cucumber Essentials – Introduction to Cucumber (2 days)
- TT3654 Test Automation with BDD using Cucumber, Gherkin, Selenium & More (4 days)
- TT3540 Agile Continuous Integration, Testing, and Deployment (CI, Refactoring, GIT, BitBucket & More) (3 days)
- Please see our complete **Course Catalog** for additional related course titles and Learning Paths.

Enhanced Learning Services: Please also ask about our **Pre-Training Class OnRamp & Prep / Primer offerings, Skills Gap Assessment Services, Case Studies, Knowledge Check Quizzes, Skills Immersion Programs & Camps, Collaborative Mentoring Services and Extended Learning Support & Post Training services.**

Course Topics / Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Topics, agenda and labs may adjust during live delivery based on audience skill-level, interests and participation.

Session: Selenium Basics Quick Refresher

Lesson: Introduction to Selenium

- Selenium Concepts and Components
- Manual Testing using Selenium
- Automated Testing using Selenium
- Java, Testing Frameworks, and Selenium WebDriver
- [Lab: Running the Web Application](#)

Session: Testing with Java and Selenium WebDriver

Lesson: JUnit 5 for Selenium

- What JUnit brings to the table
- JUnit Method Lifecycle
- Test setup and teardown
- Parameterized tests
- Assertions
- [Demo: JUnit](#)
- [Lab: Reapply JUnit](#)
- [Walkthrough: Using JUnit with Selenium](#)

Lesson: Selenium WebDriver

- Working with WebDriver in Java
- Finding Spots on Web Pages
- Working with different browsers
- Built-In Locators
- [Lab: Creating and Running a](#)

WebDriver Test

- [Lab: Testing with Other Browsers](#)
- [Lab: Working with WebDriver Locators](#)
- [Lab: Adding WebDriver Tests](#)

Lesson: WebDriver Deep Dive

- WebDriver Commands for working with forms
- Working with complex form components
- Taking screenshots
- Working with alerts
- [Lab: Testing Forms using WebDriver](#)
- [Lab: Screenshots](#)

Lesson: Advanced WebDriver

- Use WebDriver to work with windows, tabs and iframes
- Utilize Actions class for mouse and keyboard actions
- Testing file uploads and downloads
- Testing AJAX elements
- Waiting for events to happen
- Feeding data sets into a testing sequence
- [Lab: Testing Wait Styles](#)

Session: Selenium Practices and Processes**Lesson: Selenium Best Practices**

- Preparation
- Managing Names
- Multiple Browser Testing
- High Quality Tests and Test Plans
- Using Whitespace
- Efficient Operations
- Establish Selenium Standards

Lesson: Testing Strategies and Patterns

- Types of web application tests
- Strategies for locating elements
- Wrapping Selenium calls
- User interface maps
- [Lab: Using Delayed Exceptions](#)
- [Lab: Automated Running of](#)

Multiple Test Cases**Session: Extending WebDriver Testing****Lesson: Page Object Model (POM)**

- POM Design Pattern
- Principles and Design of Page Object classes
- Object Repository for Locators
- Page Factory Overview
- Page Factory Caching
- [Lab: Building Page Object Models](#)
- [Build an Object Repository](#)
- [Lab: Using the Page Factory](#)
- [Lab: Testing the Bank Web Application](#)

Lesson: Introduction to Selenium Frameworks

- Automation Framework Basics
- Data Driven Framework
- Keyword Driven Framework
- Hybrid Framework

Session: Remote Testing with Selenium Grid**Lesson: Remote Testing**

- Working with Selenium Server
- Using the webdriver-manager
- Shifting from local to remote
- [Lab: Review Bank Tests](#)
- [Lab: Using webdriver-manager](#)

Lesson: Selenium Grid Basics

- Architecture of Selenium Grid
- Hub: Command and Control
- Node: Testing Instance
- Configuring and Running a Selenium Grid
- Working with RemoteWebDriver
- [Lab: Working with Selenium Grid](#)

Lesson: Running Tests in Parallel

- The Advantages of Parallelism
- The Challenges of Parallelism
- Running Parallel Tests in Grid and JUnit
- Dealing with Parallel States
- [Lab: Parallelizing Tests in Grid](#)

Lesson: Working with Grid

- Troubleshooting Grids
- Best Practices for Working with Grid
- Challenges with Windows Nodes
- When Not to use Selenium Grid

Lesson: Extending Selenium Grid

- Selenium Grid Providers and Solutions
- Selenium Grid with Docker
- Zalenium
- What is Coming in Selenium
- [Lab: Running Tests on a Cloud Solution](#)

Course Materials: Each student will receive a **Student Guide** with course notes, code samples, software tutorials, step-by-step written lab instructions, diagrams and related reference materials and links (as applicable). Students will also receive the project files (or code, if applicable) and solutions required for the hands-on work.

Hands-on Setup Made Simple! Our dedicated tech team will work with you to **ensure your student machines and learning environment is setup, tested and ready to go** well in advance of the course delivery date, ensuring a smooth start to class and seamless hands-on experience for your students. We offer several flexible student machine setup options including **guided manual set up** for simple installation directly on student machines, or **cloud based / remote hosted lab solutions** where students can log in to a complete separate lab environment minus any installations, or we can supply **complete turn-key, pre-loaded equipment** to bring ready-to-go student machines to your students or in-person facility. Please inquire for details.

For More Information

For more information about our dedicated training services, collaborative mentoring services, courseware licensing options, courseware development services, public course schedule, training management services, partner and reseller programs, or to see our complete list of course offerings and special offers please visit us at www.triveratech.com, email Info@triveratech.com or call **609.647.7572**. Our pricing and services are always satisfaction guaranteed.