

Intro To New Selenium 4 Features

Video Playlist Link https://www.youtube.com/playlist?list=PLfp-cJ6BH8u_4AMzeLVizVfqN4SCywSTJ

Hello and Welcome, in this series, I am going to demo some features that have been added to Selenium 4. All components in the Selenium family have a new feature. Selenium IDE, Selenium WebDriver, and Selenium Grid.

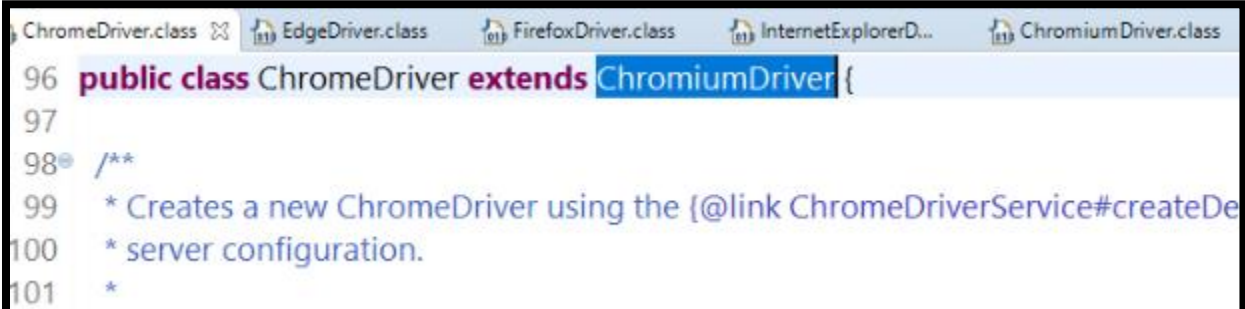
- Selenium IDE is the component that allows us to record and playback our test
- Selenium WebDriver is an API allows us to create and execute our Test Scripts by driving a browser
- Selenium Grid is a way for us to run our test in parallel across more than 1 browser, across more than 1 operating system, and across more than 1 machine

The main reason for upgrading from Selenium 3 to Selenium 4 is the W3C WebDriver Protocol. It's the new architecture for Selenium. I will discuss new features for the complete Selenium family suite: Selenium WebDriver, Selenium IDE, and Selenium Grid.

For Selenium WebDriver, I am going to explain the new Selenium 4 Architecture - W3C WebDriver Protocol then demo the Relative Locators. Relative Locators is a way to locate an element depending on the position of another element. Next, I will demo how to handle a window by switching to a new window and by switching to a new tab then take a look at getRect. getRect was implemented as a combination of getLocation and getSize. We will also take a screenshot of a WebElement. Last is the Chrome DevTools Protocol which helps us to get the Development Properties.

Although there are 3 components in the Selenium family suite, when we only say Selenium, we are referring to Selenium WebDriver.

Therefore, let's start with 2 drivers that have an update: ChromeDriver and EdgeDriver. Both drivers now extend ChromiumDriver. Also, both browsers are built on the same Chromium platform.



```

ChromeDriver.class  EdgeDriver.class  FirefoxDriver.class  InternetExplorerD...  ChromiumDriver.class
96  public class ChromeDriver extends ChromiumDriver {
97
98  /**
99   * Creates a new ChromeDriver using the {@link ChromeDriverService#createDe
100   * server configuration.
101   *

```

```

ChromeDriver.class  EdgeDriver.class  FirefoxDriver.class  InternetExplorerD...  ChromiumDriver.class
98 public class EdgeDriver extends ChromiumDriver {
99
100 public EdgeDriver() { this(new EdgeOptions()); }
101
102 public EdgeDriver(EdgeOptions options) {
103     this(new EdgeDriverService.Builder().build(), options);
104 }

```

In Selenium 3, all of the drivers including Chrome and Edge extended the RemoteWebDriver. However, with Selenium 4, FirefoxDriver, InternetExplorerDriver, OperaDriver, and SafariDriver extend RemoteWebDriver. Also, ChromiumDriver extends RemoteWebDriver. RemoteWebDriver is a way to run our test remotely but we have to configure our test.

```

ChromeDriver.class  EdgeDriver.class  FirefoxDriver.class  InternetExplorerD...  ChromiumDriver.class  FluentWait.class
66 public class FirefoxDriver extends RemoteWebDriver implements WebStorage, HasExtensions {
67
68 public static final class SystemProperty {
69
70 /**
71  * System property that defines the location of the Firefox executable file.
72  */

```

```

ChromeDriver.class  EdgeDriver.class  FirefoxDriver.class  InternetExplorerD...  ChromiumDriver.class  FluentWait.class
64 public class ChromiumDriver extends RemoteWebDriver
65     implements HasDevTools, HasTouchScreen, LocationContext, NetworkConnection, WebStorage {
66
67 private final RemoteLocationContext locationContext;
68 private final RemoteWebStorage webStorage;
69 private final TouchScreen touchScreen;
70 private final RemoteNetworkConnection networkConnection;
71 private final Optional<Connection> connection;
72 private final Optional<DevTools> devTools;

```

The benefit of ChromeDriver and EdgeDriver extending ChromiumDriver is access to the getDevTools method. Let me search for getDevTools and we see the DevTools class with getDevTools as the method. This method will allow us to diagnose problems and track what's going on in the browser.

```

158 @Override
159 public DevTools getDevTools() {
160     return devTools.orElseThrow() -> new WebDriverException
161 }
162

```

There's also a change to 2 methods in the FluentWait class. On the left is Selenium 3 and on the right is Selenium 4. The `withTimeout` method and `pollingEvery` method no longer have 2 parameters. We see long duration and TimeUnit unit but it has been replaced with only 1 parameter Duration.

```

109 public FluentWait<T> withTimeout(long duration, TimeUnit unit)
110     this.timeout = new Duration(duration, unit);
111     return this;
112 }
113
115 * Sets the message to be displayed when time expires.
120 public FluentWait<T> withMessage(final String message) {
124
126 * Sets the message to be evaluated and displayed when time expires.
131 public FluentWait<T> withMessage(Supplier<String> messageSupplier) {
135
137 * Sets how often the condition should be evaluated.
147 public FluentWait<T> pollingEvery(long duration, TimeUnit unit)
148     this.interval = new Duration(duration, unit);
149     return this;
150 }

```

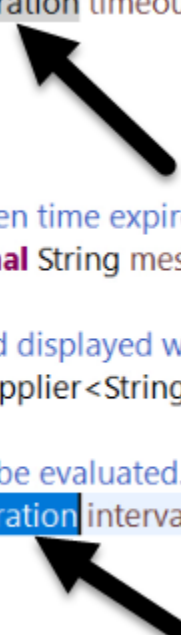
Selenium 3

```

112 public FluentWait<T> withTimeout(Duration timeout,
113     this.timeout = timeout;
114     return this;
115 }
116
118 * Sets the message to be displayed when time expires:
123 public FluentWait<T> withMessage(final String mess
127
129 * Sets the message to be evaluated and displayed wh
134 public FluentWait<T> withMessage(Supplier<String>
138
140 * Sets how often the condition should be evaluated.
149 public FluentWait<T> pollingEvery(Duration interval)
150     this.interval = interval;
151     return this;
152 }

```

Selenium 4



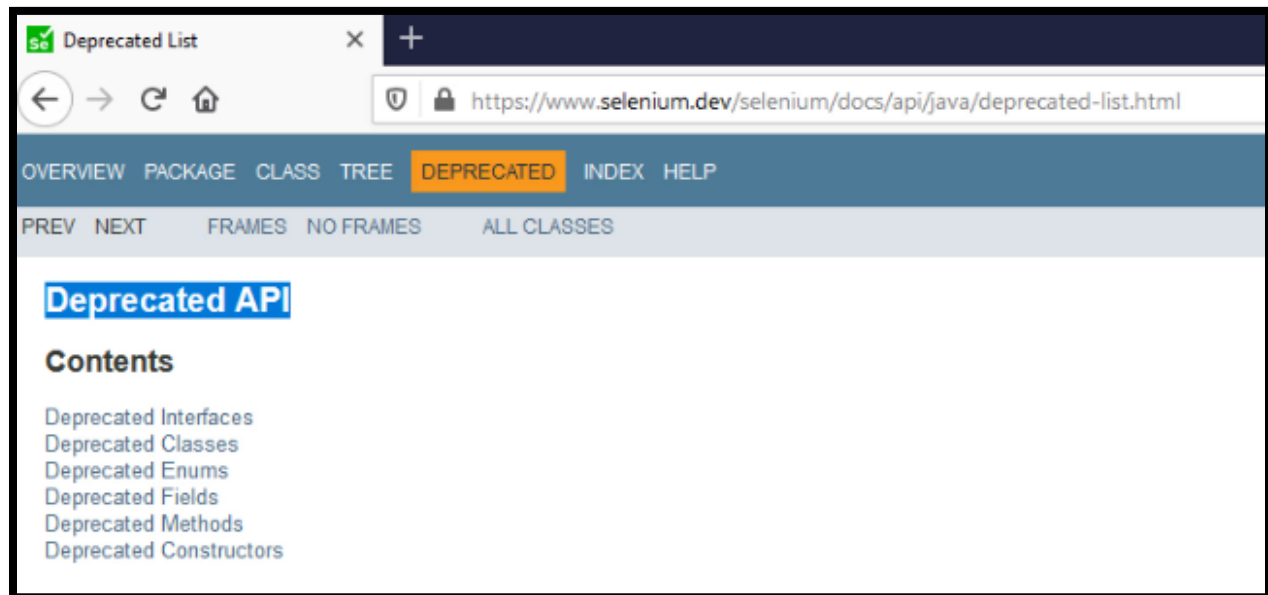
Every FindsBy Interface has been deprecated and removed from Selenium 4. The other FindsBy Interfaces FindsByClassName, FindsByCssSelector, FindsByLinkText, FindsByName, FindsByTagName, and FindsByXPath have also been removed from Selenium 4.

```

24 /**
25  * @deprecated An implementation detail of {@link org.openqa.selenium.By}. Will be removed in 4.0
26  */
27 @Deprecated
28 public interface FindsById {
29     WebElement findElementById(String using);
30
31     List<WebElement> findElementsById(String using);
32 }

```

Here's a [webpage](#) that shows more deprecated API's for Selenium. If we just scroll down, we see some of the methods we already mentioned that's been removed from Selenium 4.



Next, are the new features for Selenium IDE.

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