Preparing to Use Karma Test Runner

The Karma 🔗 test runner supports executing unit tests against the *Node.js* server. The tests themselves can use Jasmine 🔗, QUnit 🔗, or Mocha 🔗 libraries in *Karma*-specific edition.

Besides running unit tests, with *Karma* you can measure how much of your code is covered with tests. For more details, see Monitoring Code Coverage for JavaScript. To run tests with coverage, you need an additional *Karma*-related package.

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Prerequisites

1. Download and install Node.js 🔗. The framework is required for two reasons:

   - The Karma test runner is started through *Node.js*.

   - *NPM*, which is a part of the framework, is also the easiest way to download the Karma test runner.

   For details on using *Node.js* in IntelliJ IDEA, see the section Node.js

   > Alternatively, you can define Node.js 🔗 as an external tool, as described in the section Configuring third-party tools. This approach is helpful, when you need facilities that are missing in the plugin, for example, the possibility to pass certain parameters as wildcards.

2. If you are going to use the command line mode, make sure the following paths are added to the PATH variable:

   1. The path to the parent folder of the *Node.js* executable file.

   2. The path to the npm folder.

   This enables you to launch the Karma test runner and *npm* from any folder.

3. Install and enable the *NodeJS* repository plugin.

   The plugin is <u>not</u> bundled with IntelliJ IDEA, but it is available from the JetBrains plugin repository 🔗. Once enabled, the plugin is available at the IDE level, that is, you can use it in all your IntelliJ IDEA projects. See Installing, Updating and Uninstalling Repository Plugins and Enabling and Disabling Plugins for details.

4. Install and enable the *Karma* repository plugin.

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Installing the Karma test runner

The easiest way to install the Karma test runner is to use the *Node Package Manager (npm)*, which is a part of Node.js 🔗.

Depending on the desired location of the Karma test runner executable file, choose one of the following methods:

- Install the test runner *globally* at the IntelliJ IDEA level so it can be used in any IntelliJ IDEA project.

- Install the test runner in a specific project and thus restrict its use to this project.

- Install the test runner in a project as a development dependency.

In either installation mode, make sure that the parent folder of the Karma test runner is added to the PATH variable. This enables you to launch the test runner from any folder.

IntelliJ IDEA provides user interface both for *global* and *project* installation as well as supports installation through the command line.

Installing the Karma test runner globally

Global installation makes the test runner available at the IntelliJ IDEA level so it can be used in any IntelliJ IDEA project. Moreover, during installation the parent folder of the test runner is automatically added to the PATH variable, which enables you to launch the test runner from any folder. To install the test runner *globally*, do one of the following:

1. Run the installation from the command line in the *global* mode:

    1. Switch to the directory where *NPM* is stored or define a PATH variable for it so it is available from any folder, see Installing NodeJs.

    2. Type the following command at the command line prompt:

       ```
       npm install -g karma
       ```

       The -g key makes the test runner run in the *global* mode. Because the installation is performed through *NPM*, the Karma test runner is installed in the npm folder. Make sure this parent folder is added to the PATH variable. This enables you to launch the test runner from any folder.

       For more details on the *NPM* operation modes, see npm documentation &. For more information about installing the Karma test runner, see https://npmjs.org/package/karma &.

2. Run *NPM* from IntelliJ IDEA using the **Node.js and NPM** page of the **Settings** dialog box.

    1. Open the project settings and then click **Node.js and NPM**.

    2. On the **Node.js and NPM** page that opens, the **Packages** area shows all the Node.js-dependent packages that are currently installed on your computer, both at the *global* and at the *project* level. Click +.

    3. In the **Available Packages** dialog box that opens, select the karma package.

    4. Select the **Options** check box and type -g in the text box next to it.

    5. Optionally specify the product version and click **Install Package** to start installation.

Installing the Karma test runner in a project

Installing the test runner in a specific project restricts its use to this project. To run *project* installation, do one of the following:

■ In the command line mode, switch to the project root folder and type the following command at the command line prompt:

```
npm install karma
```

■ Run *NPM* from IntelliJ IDEA using the **Node.js and NPM** page of the **Settings** dialog box.

1. Open the project settings and click **Node.js and NPM**.

2. On the **Node.js and NPM** page that opens, the **Packages** area shows all the Node.js-dependent packages that are currently installed on your computer, both at the *global* and at the *project* level. Click ➕.

3. In the **Available Packages** dialog box that opens, select the `karma` package.

4. Optionally specify the product version and click **Install Package** to start installation.

Project level installation is helpful and reliable in template-based projects of the type *Node Boilerplate* or *Node.js Express*, which already have the `node_modules` folder. The latter is important because *NPM* installs the Karma test runner in a `node_modules` folder. If your project already contains such folder, the Karma test runner is installed there.

Projects of other types or *empty* projects may not have a `node_modules` folder. In this case *npm* goes upwards in the folder tree and installs the Karma test runner in the first detected `node_modules` folder. Keep in mind that this detected `node_modules` folder may be *outside* your current project root.

Finally, if no `node_modules` folder is detected in the folder tree either, the folder is created right under the current project root and the Karma test runner is installed there.

In either case, make sure that the parent folder of the Karma test runner is added to the `PATH` variable. This enables you to launch the test runner from any folder.

Configuring testing frameworks in a project

1. Download the *Jasmine*, *QUnit*, or *Mocha* framework. The easiest way is to use the *Node.js Package Manager*:

   1. Choose **File | Settings** and in the **Settings** dialog box that opens, click **Node.js and NPM**.

   2. On the Node.js page that opens, click **Install** in the **Packages** area.

   3. In the **Available Packages** dialog box that opens, select `karma-jasmine`, `karma-qunit`, or `karma-mocha` package and click **Install Package**. Close the dialog box when ready. IntelliJ IDEA returns to the **Node.js** page, where the selected package is added to the **Packages** list. Click **OK**.

2. To enable IntelliJ IDEA to resolve references to the downloaded framework and provide code completion and other types of coding assistance, configure the framework as a IntelliJ IDEA JavaScript library.

See Also

Procedures:

■ Preparing to Use JSTestDriver Test Runner

■ Running JavaScript Unit Tests in Browser

Web Resources:

■ Developer Community 🔗