

TypeScript

Introduction

- Typescript was first made public in October 2012 by “**Anders Hejlsberg**”
- TypeScript is a free and open source programming language developed and maintained by Microsoft.
- TypeScript is a typed superset of JavaScript that compiles to plain JavaScript.



Latest Version: 1.6

Official website: <http://www.typescriptlang.org/>

Native Javascript Issues

- Does not have static typing
- Lack structuring mechanisms like classes, modules, interfaces

Note

static: At compile time

Dynamic: At run time

Pre-requisites

- Basic knowledge on JavaScript

Advantages

- Support standard JavaScript code with Strong /static typing
- Zero cost: Static types completely disappear at run-time
- Encapsulation through classes, modules and interfaces
- Constructors, properties and functions (public, private)
- Enums
- Lambda and generics support
- Intellisense and syntax checking
- IDE support
 - Visual Studio
 - Sublime Text, Vi, Emacs

- Eclipse, WebStorm

Disadvantages

- Even if you are writing code in the coffeescript you should know how javascript's

Installation

Assumed installed Node with packed manager npm

Install typescript :

npm install -g typescript

To know the version of Type Script :

tsc -v

File Extension : .ts

Once installed, you should have access to the tsc command, which can execute scripts.

Running the typescript file in command line:

Create a file: vi test.ts

type console.log("Hello, type script");

tsc test.ts

tsc --sourcemap hello.ts (creating js file)

tsc --declaration hello.ts (creating .d.js files)

tsd install <package> (TypeScript Definition manager)

tsd install mocha

CLI Usage

- a. To know the type script help

tsc -h or tsc

- b. Compile a single file

tsc <filename>.ts

- c. Compile multiple files

tsc <filename>.ts <filename1>.ts <filename2>.ts

- d. Concatenate a list of files into a single script:

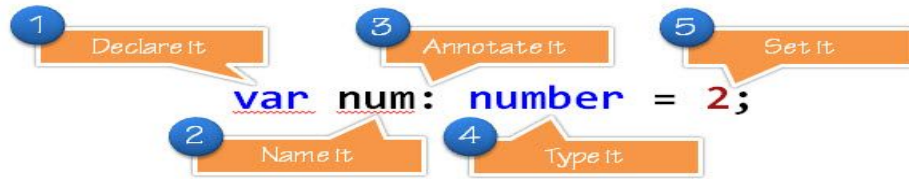
tsc *.ts --out app.js

- e. Watch a file for changes, and recompile it every time the file is saved:

tsc *.ts --out app.js --watch

Language basics with Syntaxes

Basic Type Syntax [Strongly typed language]



Type	TypeScript
Boolean	var myBoolean : boolean = true;
Number	var myNumber: number = 1;
String	var myString : string = "test";
Array	a) var list:number[] = [1, 2, 3]; b) var list:Array<number> = [1, 2, 3]; [Generic array type]
Enum	enum Color {Red, Green, Blue};
Any	var list:any[] = [1, true, "free"];

Inferred typing :

Duck-typing:

Explicit Casting:

#Todo Items

Functions

Classes

Interfaces

Generics

Modules

Mixins

Declarative Files

Common Errors and Trouble shooting

Misc

Tips with Sublime Editor

Build TypeScript with Sublime Text 2

1. Tools -> Build System -> New Build System
2. Paste the following

```
{
  "cmd": ["tsc", "$file"],
  "file_regex": "^(.+?) \\((\\d+), (\\d+)\\)": ".+$",
  "line_regex": "\\((\\d+), (\\d+)\\)",
  "selector": "source.ts",
  "osx": {
    "path": "/usr/local/bin:/opt/local/bin"
  }
}
```
3. Save file as "typescript.sublime-build"
4. Every time to build the .ts file by using **CTRL + B**

Ref:

<https://blog.appdynamics.com/devops/8-steps-migrating-javascript-typescript/>
<http://www.typescriptlang.org/Playground>
<https://cmatskas.com/getting-started-with-typescript-and-sublime-text/>
<http://www.typescriptlang.org/Handbook>
<http://learnxinyminutes.com/docs/typescript/>
<https://github.com/Microsoft/TypeScriptSamples>
http://rest.kabasakalis.tk/music_db/artist/1436/edit

<https://github.com/rstropek/Samples>
<https://github.com/czechboy0/Express-4x-Typescript-Sample>
<https://github.com/conradkleinespel/deck-node>
<https://github.com/SitePen/dts-generator>
<https://www.npmjs.com/package/tsd>
<http://definitelytyped.org/tsd/> [imp]
<https://github.com/DefinitelyTyped/DefinitelyTyped>
