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About the Tutorial

Gulp is a task runner that uses Node.js as a platform. It purely uses the JavaScript code and helps to run front-end tasks and large-scale web applications. Gulp builds system automated tasks like CSS and HTML minification, concatenating library files, and compiling the SASS files. These tasks can be run using Shell or Bash scripts on the command line.

This tutorial teaches you how to use Gulp to run front-end tasks and large-scale web applications in simple and easy steps. After completing this tutorial, you will find yourself at a moderate level of expertise in using Gulp from where you may take yourself to the next levels.

Audience

This tutorial has been prepared for beginners to help them understand the basic functionalities of Gulp.

Prerequisites

For this tutorial, it is assumed that you have prior knowledge of basic software development using Java or any other programming language. It should be of help if you have had some exposure to the software build and deployment process.

Disclaimer & Copyright

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1. Gulp – Overview

What is Gulp?

Gulp is a task runner that uses Node.js as a platform. Gulp purely uses the JavaScript code and helps to run front-end tasks and large-scale web applications. It builds system automated tasks like CSS and HTML minification, concatenating library files, and compiling the SASS files. These tasks can be run using Shell or Bash scripts on the command line.

Why Use Gulp?

- It is shorter, simpler and faster as compared to other task runner.
- Uses SASS and LESS as CSS preprocessor.
- Automatically refreshes page after editing the source files.
- Easy to understand and build the Gulpfile.js because, it uses pure JavaScript code to build the task.

History

All the documentation of Gulp is covered by the CC0 license. Initially, Gulp v1.0.0 was released on January 15, 2015, and the current version of Gulp is **v3.9.0**.

Features

- Provides minification and concatenation.
- Uses pure JavaScript code.
- Converts LESS or SASS to CSS compilation.
- Manages file manipulation in the memory and enhances speed by using the Node.js platform.

Advantages

- Huge speed advantage over any other task runner.
- Easy to code and understand.
- Easy to test the web applications.

- Plugins are simple to use and they are designed to do one thing at a time.
- Performs repetitive tasks repeatedly such as minifying stylesheets, compressing images, etc.

Disadvantages

- More number of dependencies and is a newcomer compared to Grunt.
- Using Gulp plugins, you cannot perform multiple tasks.
- Configuration is not as clean as Grunt.

2. Gulp – Installation

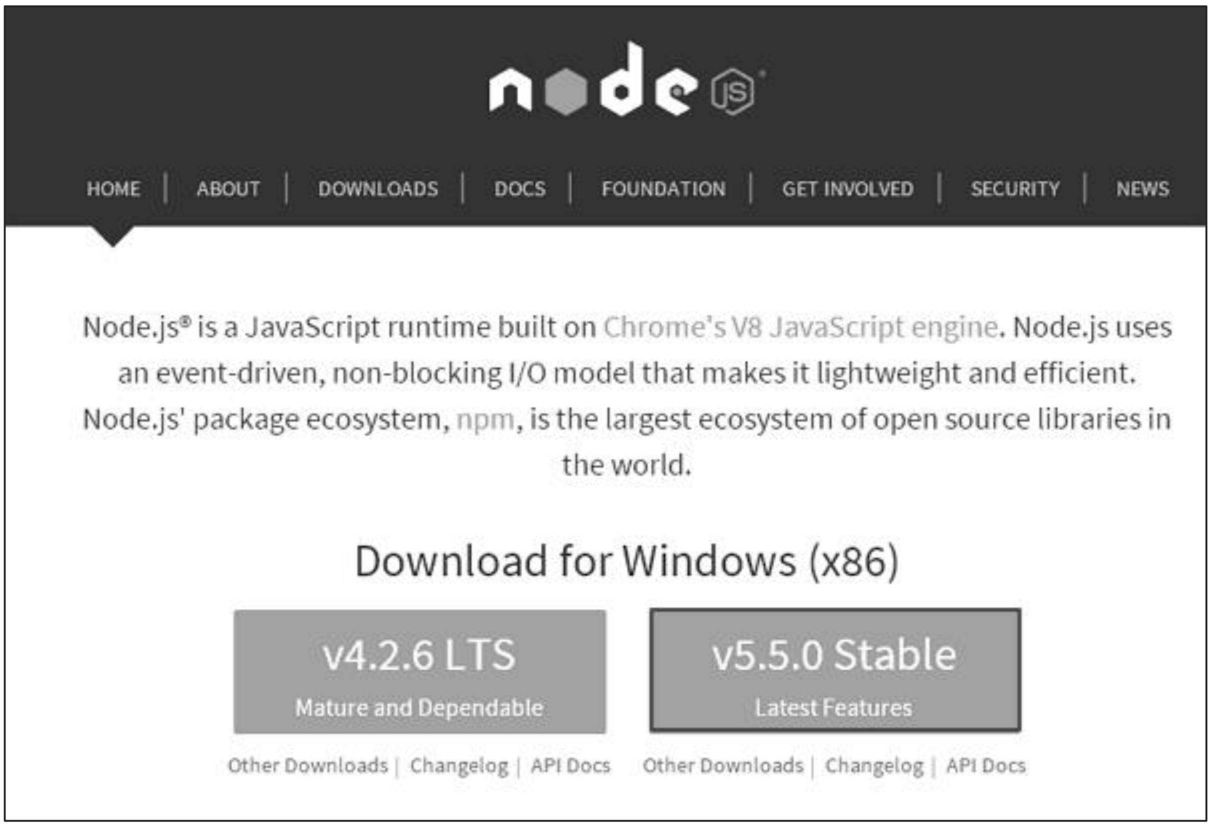
This article provides a step-by-step procedure of Gulp installation.

System Requirements for Gulp

- **Operating System :** Cross-platform
- **Browser Support :** IE (Internet Explorer 8+), Firefox, Google Chrome, Safari, Opera

Installation of Gulp

Step (1): We need Node.js to run Gulp examples. To download Node.js, open the link https://nodejs.org/en/, you will see the following screen:


node js
HOME | ABOUT | DOWNLOADS | DOCS | FOUNDATION | GET INVOLVED | SECURITY | NEWS

Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient. Node.js' package ecosystem, npm, is the largest ecosystem of open source libraries in the world.

Download for Windows (x86)

v4.2.6 LTS
Mature and Dependable
v5.5.0 Stable
Latest Features
Other Downloads | Changelog | API Docs
Other Downloads | Changelog | API Docs

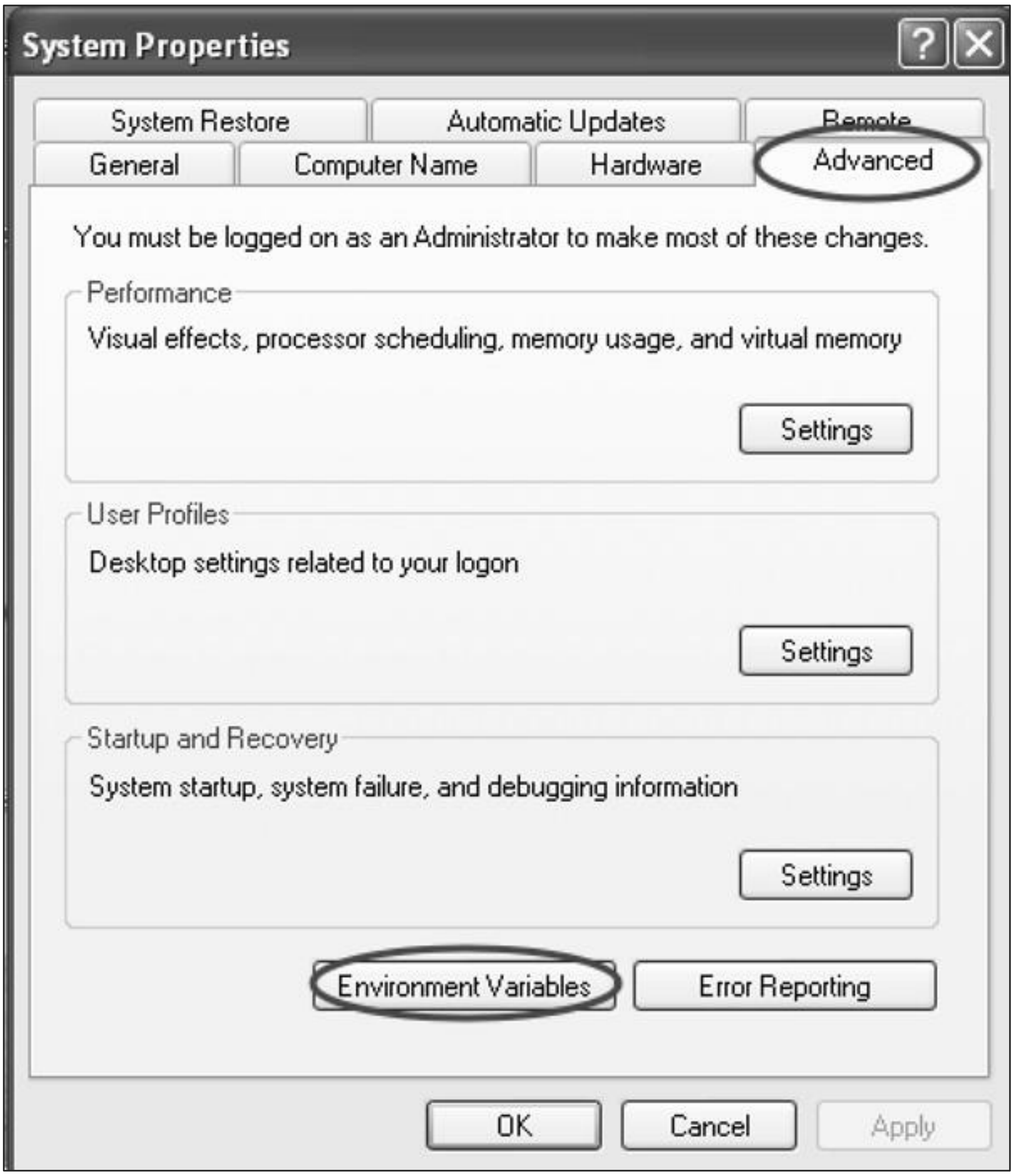
Download the latest features version of the zip file.

Step (2): Run the setup to install the Node.js on your computer.

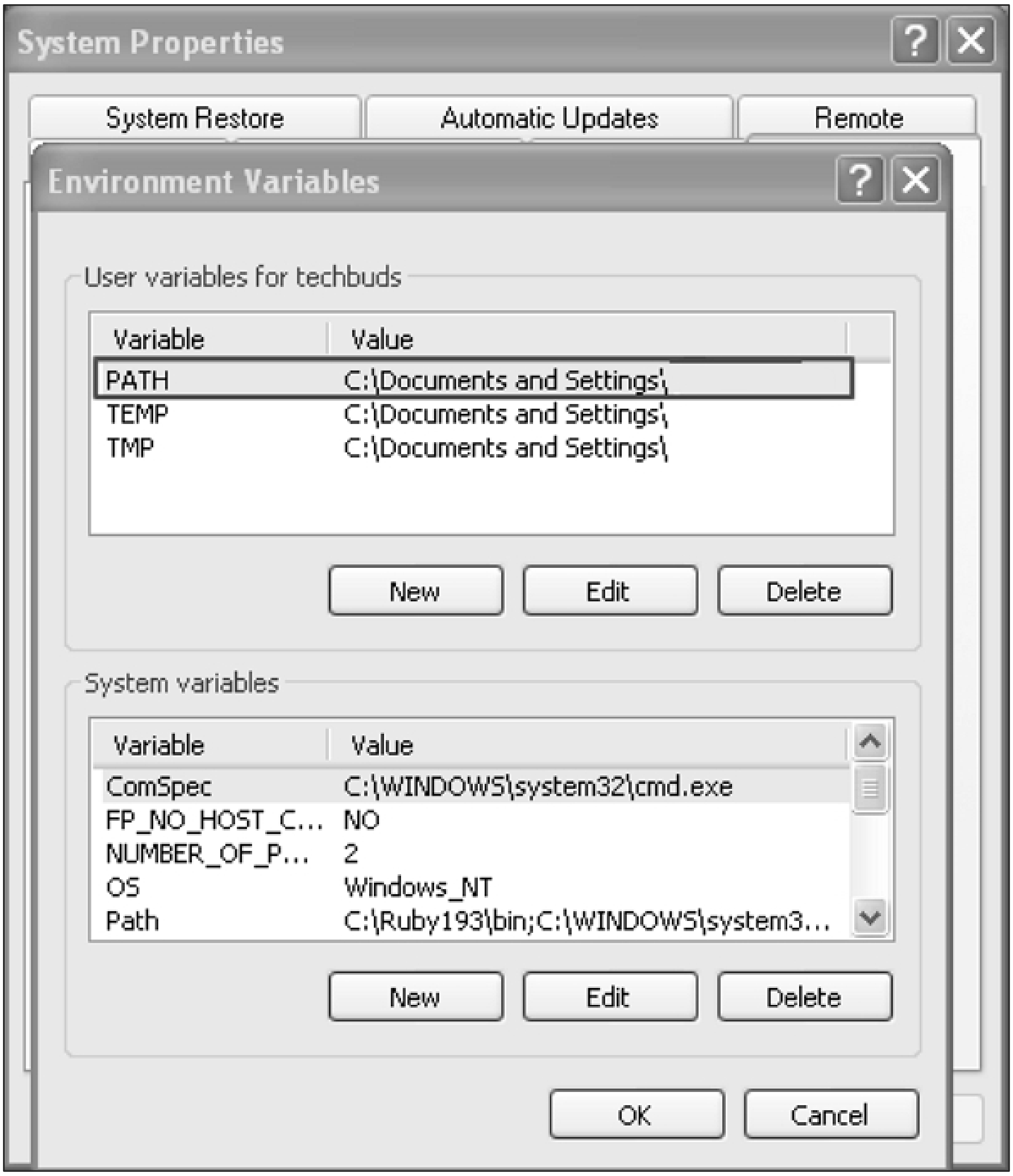
Step (3): You need to set environment variables.

Path User Variable

- Right-click on My Computer.
- Select Properties.
- Select Advanced tab and click 'Environment Variables'.


System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
You must be logged on as an Administrator to make most of these changes.
Performance
Visual effects, processor scheduling, memory usage, and virtual memory
Settings
User Profiles
Desktop settings related to your logon
Settings
Startup and Recovery
System startup, system failure, and debugging information
Settings
Environment Variables
Error Reporting
OK
Cancel
Apply

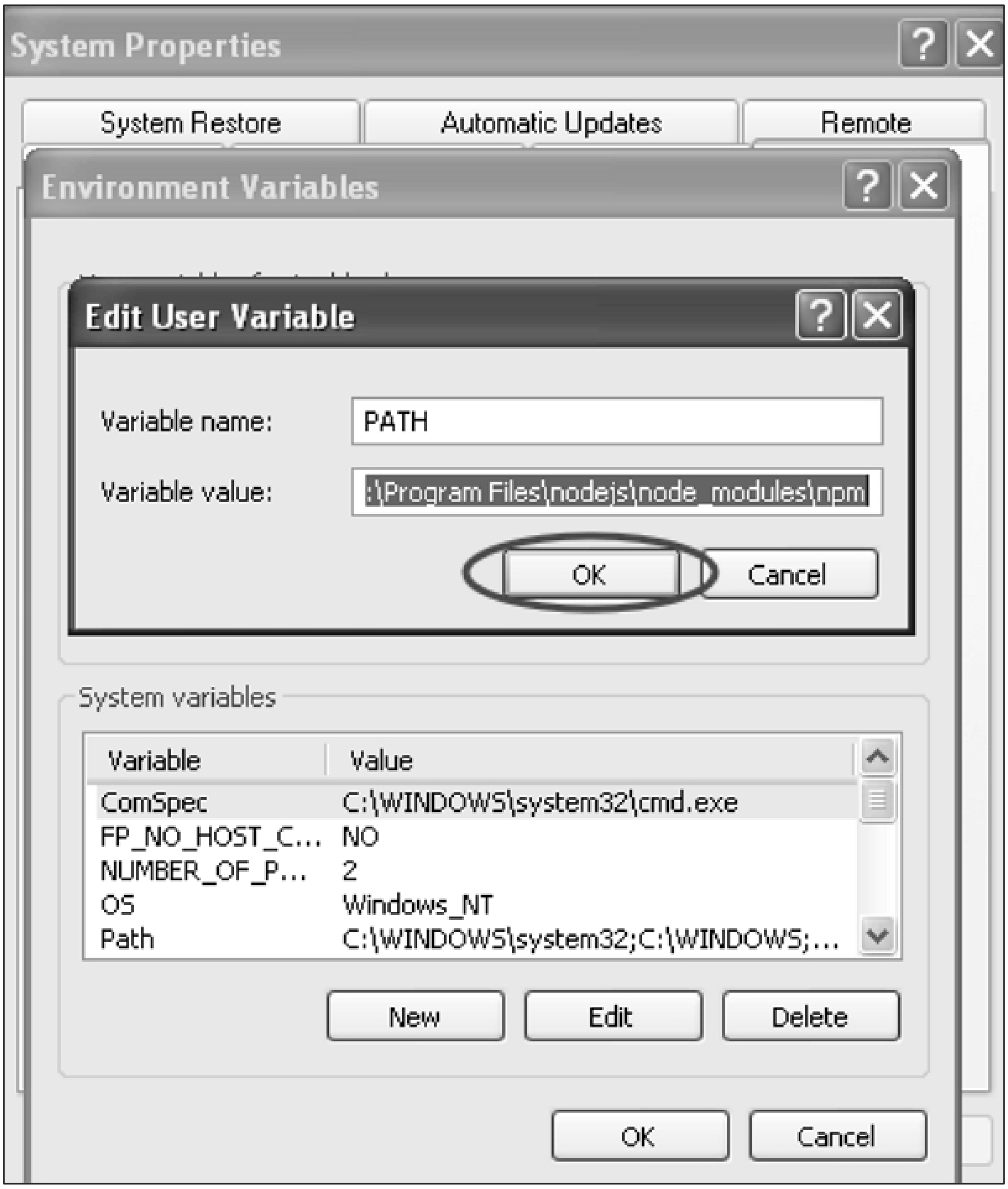
- Under Environment Variables window, double-click on the PATH as shown in the following screen.



Variable	Value
PATH	C:\Documents and Settings\
TEMP	C:\Documents and Settings\
TMP	C:\Documents and Settings\

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\Ruby193\bin;C:\WINDOWS\system3...

- You will get an Edit User Variable window as shown in the following screenshot. Add Node.js folder path in the Variable Value field as C:\Program Files\nodejs\node_modules\npm. If the path is set already for other files, then you need to put a semicolon (;) after that and add the Node.js path as shown in the following screenshot.



Variable name: PATH

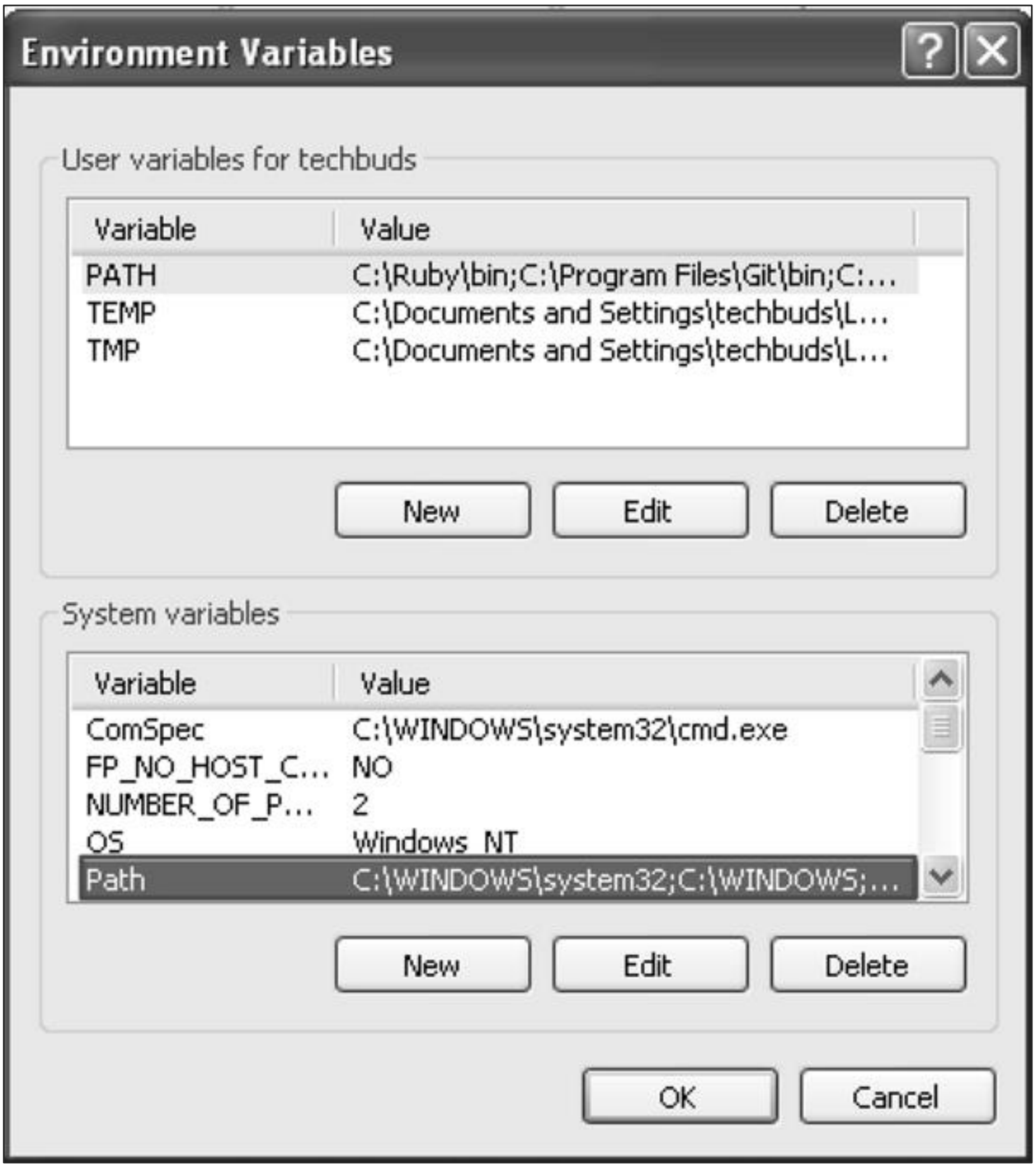
Variable value: :\Program Files\nodejs\node_modules\npm

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\WINDOWS\system32;C:\WINDOWS;...

At the end, click the 'Ok' button.

System Variable

- Under System variables, double-click on Path as shown in the following screen.



Environment Variables

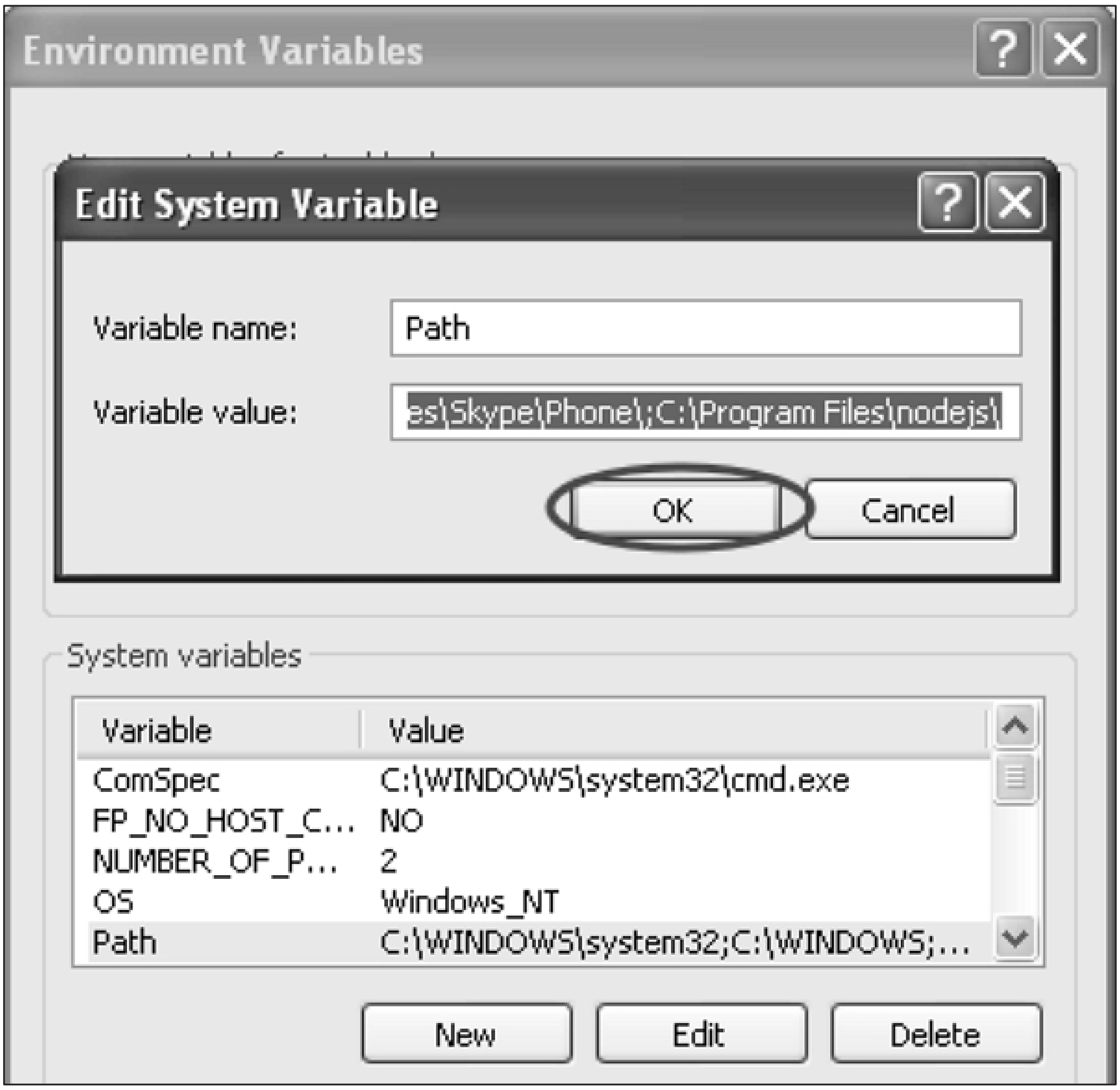
User variables for techbuds

Variable	Value
PATH	C:\Ruby\bin;C:\Program Files\Git\bin;C:...
TEMP	C:\Documents and Settings\techbuds\L...
TMP	C:\Documents and Settings\techbuds\L...

System variables

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\WINDOWS\system32;C:\WINDOWS;...

- You will get an Edit System Variable window as shown in the following screenshot. Add Node.js folder path in the Variable Value field as *C:\Program Files\nodejs\* and click 'Ok' as shown in the following screenshot.



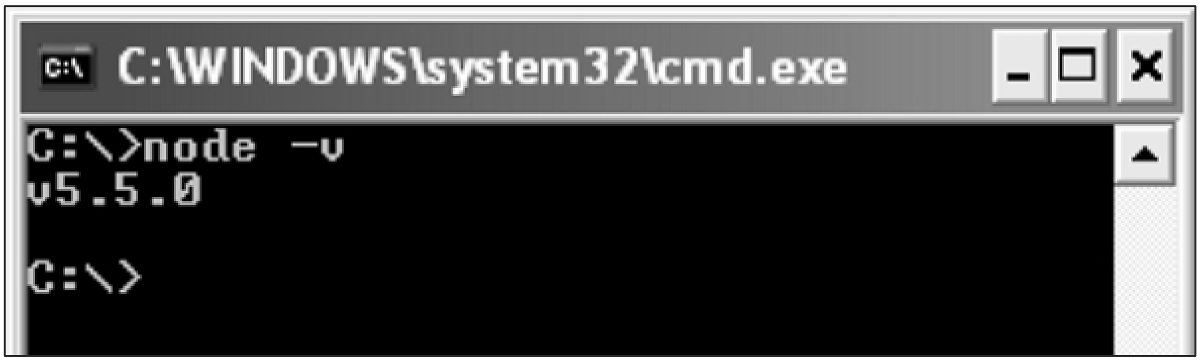
Variable name: Path

Variable value: es\Skype\Phone\;C:\Program Files\nodejs\

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\WINDOWS\system32;C:\WINDOWS;...

Step (4): Open the command prompt in your system and enter the following command. It will display the installed Node.js version.

```
node -v
```

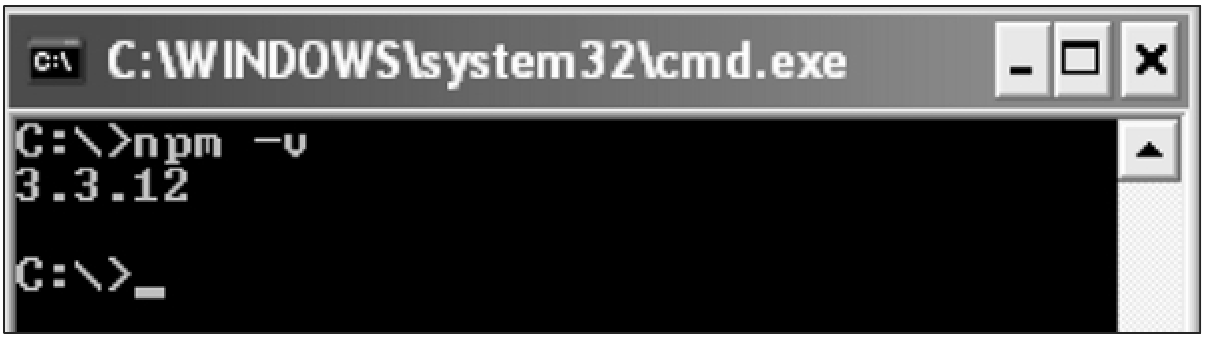


```
C:\>node -v
v5.5.0

C:\>
```

Step (5): In the command prompt, enter the following command to display the version of npm (Node.js package manager) which is used to install modules. It will display the installed Node.js version.

```
npm -v
```

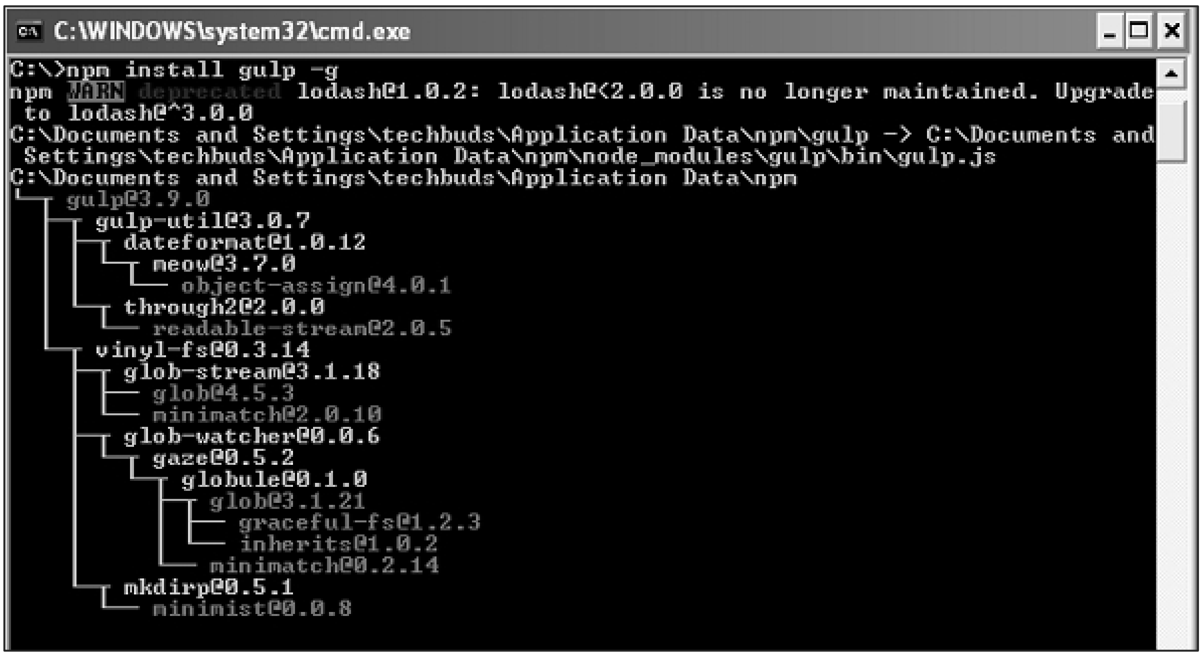


```
C:\>npm -v
3.3.12

C:\>_
```

Step (6): In the command prompt, enter the following command to install Gulp. Adding "-**g**" flag ensures that the Gulp is globally available for any project.

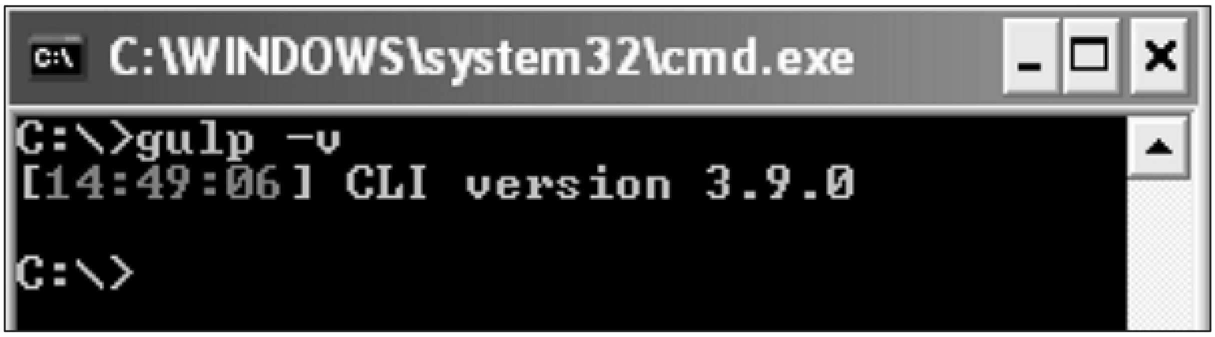
```
npm install gulp -g
```



```
C:\>npm install gulp -g
npm WARN deprecated lodash@1.0.2: lodash@<2.0.0 is no longer maintained. Upgrade
 to lodash@^3.0.0
C:\Documents and Settings\techbuds\Application Data\npm\gulp -> C:\Documents and
 Settings\techbuds\Application Data\npm\node_modules\gulp\bin\gulp.js
C:\Documents and Settings\techbuds\Application Data\npm
└─┬ gulp@3.9.0
  ├─┬ gulp-util@3.0.7
  │ ├─┬ dateformat@1.0.12
  │ │ └─┬ meow@3.7.0
  │ │   └── object-assign@4.0.1
  │ └─┬ through2@2.0.0
  │   └── readable-stream@2.0.5
  └─┬ vinyl-fs@0.3.14
    ├─┬ glob-stream@3.1.18
    │ ├── glob@4.5.3
    │ └── minimatch@2.0.10
    ├─┬ glob-watcher@0.0.6
    │ └─┬ gaze@0.5.2
    │   └─┬ globule@0.1.0
    │     ├─┬ glob@3.1.21
    │     │ ├── graceful-fs@1.2.3
    │     │ └── inherits@1.0.2
    │     └── minimatch@0.2.14
    └─┬ mkdirp@0.5.1
      └── minimist@0.0.8
```

Step (7): To verify that Gulp has been installed successfully, enter the following command to display the Gulp version.

```
gulp -v
```



```
C:\>gulp -v
[14:49:06] CLI version 3.9.0

C:\>
```

3. Gulp – Basics

In this chapter, you will get acquainted with some basics related to Gulp.

What is a Build System?

A Build System is referred to as collection of tasks (collectively called as **task runners**), which automate the repetitive work.

Following is a list of some of the tasks that can be handled using the build system:

- Compilation of preprocess CSS and JavaScript.
- Minification of files to reduce its size.
- Concatenation of files into one.
- Triggering the server for automatic reloading.
- Creation of deployment builds to store the resulting files in one location.

In modern front-end workflow, the build system works with 3 components:

- Package managers
- Preprocessors
- Task runners and build tools

Package Managers

It is used to automate the installation upgrade, removal of required dependencies, clean libraries, and packages used in the development environment. Example for package managers are **bower** and **npm**.

Preprocessors

Preprocessors are very useful for an efficient modern workflow by adding an optimized syntax and additional features that compiles into its native language.

Some of the popular preprocessors are:

- **CSS** - SASS, LESS and Stylus.
- **JS** - CoffeeScript, LiveScript, TypeScript, etc.
- **HTML** - Markdown, HAML, Slim, Jade, etc.

Task Runners

Task runners automate tasks like SASS to CSS conversion, minify the files, optimize images, and many other tasks used in the development workflow. Gulp is one of the task runner in the modern front-end work environment and it runs on Node.

Setting Up Your Project

To set your project in your computer, create a folder called "work" for example. The work folder contains following sub-folders and files:

- **Src -** Location of pre-processed HTML source files and folders.
    - **Images -** Contains images which are uncompressed.
    - **Scripts -** Contains multiple pre-processed script files.
    - **Styles -** Contains multiple pre-processed CSS files.
- **Build -** This folder will be created automatically which contains the production files.
    - **Images -** Contains compressed images.
    - **Scripts -** Single script file that contains minified codes.
    - **Styles -** Single CSS file that contains minified codes.
- **gulpfile.js -** It is the configuration file, which is used to define our tasks.

4. Gulp – Developing an Application

In the previous chapters, you have studied about Gulp installation and Gulp basics which includes build system of Gulp, package manager, task runner, structure of Gulp, etc.

In this chapter, we will see the basics for developing an application, which includes the following:

- Declaring required dependencies
- Creating task for the dependencies
- Running the task
- Watching the task

Dependencies Declaration

When you are installing plugins for the application, you need to specify dependencies for the plugins. The dependencies are handled by the package manager such as bower and npm.

Let's take one plugin called **gulp-imagemin** to define dependencies for it in the configuration file. This plugin can be used to compress the image file and can be installed using the following command line:

```
npm install gulp-imagemin --save-dev
```

You can add dependencies to your configuration file as shown in the following code.

```
var imagemin = require('gulp-imagemin');
```

The above line includes the plug-in and it is included as an object named **imagemin**.

Creating Task for Dependencies

Task enables a modular approach for configuring Gulp. We need to create a task for each dependency, which we would add up as we find and install other plugins. The Gulp task will have the following structure:

```
gulp.task('task-name', function() {
  //do stuff here
});
```

Where 'task-name' is a string name and 'function()' performs your task. The 'gulp.task' registers the function as a task within name and specifies the dependencies on other tasks.

You can create the task for the above defined dependency as shown in the following code.

```
gulp.task('imagemin', function() {
  var img_src = 'src/images/**/*',
      img_dest = 'build/images';

  gulp.src(img_src)
    .pipe(changed(img_dest))
    .pipe(imagemin())
    .pipe(gulp.dest(img_dest));
});
```

The images are located in ***src/images/**/**** which is saved in the img_srcobject. It is piped to other function created by the imagemin constructor. It compresses the images from src folder and copied to build folder by calling **dest** method with an argument, which represents the target directory.

Running the Task

Gulp file is set up and ready to execute. Use the following command in your project directory to run the task:

```
gulp imagemin
```

On running the task using the above command, you will see the following result in the command prompt:

```
C:\work>gulp imagemin
[16:59:09] Using gulpfile C:\work\gulpfile.js
[16:59:09] Starting 'imagemin'...
[16:59:09] Finished 'imagemin' after 19 ms
[16:59:09] gulp-imagemin: Minified 2 images (saved 80.81 kB - 16.9%)
```

5. Gulp – Combining Tasks

Task enables a modular approach to configure Gulp. We need to create task for each dependency, which we would add up as we find and install other plugins. The Gulp task will have following structure:

```
gulp.task('task-name', function() {
  //do stuff here
});
```

Where "task-name" is a string name and "function()" performs your task. The "gulp.task" registers the function as a task within the name and specifies the dependencies on other tasks.

Installing Plugins

Let's take one plugin called **minify-css** to merge and minify all CSS scripts. It can be installed by using npm as shown in the following command:

```
npm install gulp-minify-css --save-dev
```

To work with "gulp-minify-css plugin", you need to install another plugin called "gulp-autoprefixer" as shown in the following command:

```
npm install gulp-autoprefixer --save-dev
```

To concatenate the CSS files, install the gulp-concat as shown in the following command:

```
npm install gulp-concat --save-dev
```

After installation of plugins, you need to write dependencies in your configuration file as follows:

```
var autoprefix = require('gulp-autoprefixer');
var minifyCSS = require('gulp-minify-css');
var concat = require('gulp-concat');
```

Adding Task to Gulp file

We need to create task for each dependency, which we would add up as we install the plugins. The Gulp task will have following structure:

```
gulp.task('styles', function() {
  gulp.src(['src/styles/*.css'])
    .pipe(concat('styles.css'))
    .pipe(autoprefix('last 2 versions'))
    .pipe(minifyCSS())
    .pipe(gulp.dest('build/styles/'));
});
```

The 'concat' plugin concatenates the CSS files and 'autoprefix' plugin indicates the current and the previous versions of all browsers. It minifies all CSS scripts from src folder and copies to the build folder by calling 'dest' method with an argument, which represents the target directory.

To run the task, use the following command in your project directory:

```
gulp styles
```

Similarly, we will use another plugin called 'gulp-imagemin' to compress the image file, which can be installed using the following command:

```
npm install gulp-imagemin --save-dev
```

You can add dependencies to your configuration file using the following command.

```
var imagemin = require('gulp-imagemin');
```

You can create the task for above defined dependency as shown in the following code.

```
gulp.task('imagemin', function() {
  var img_src = 'src/images/**/*',
      img_dest = 'build/images';

  gulp.src(img_src)
    .pipe(changed(img_dest))
    .pipe(imagemin())
    .pipe(gulp.dest(img_dest));
});
```

The images are located in "src/images/**/*" which are saved in the img_srcobject. It is piped to other functions created by the 'imagemin' constructor. It compresses the images from src folder and copies to the build folder by calling 'dest' method with an argument, which represents the target directory.

To run the task, use the following command in your project directory:

```
gulp imagemin
```

Combining Multiple Tasks

You can run multiple tasks at a time by creating default task in the configuration file as shown in the following code:

```
gulp.task('default', ['imagemin', 'styles'], function() {


});
```

Gulp file is set up and ready to execute. Run the following command in your project directory to run the above combined tasks:

```
gulp
```

On running the task using the above command, you will get the following result in the command prompt:

```
C:\work>gulp
[16:08:51] Using gulpfile C:\work\gulpfile.js
[16:08:51] Starting 'imagemin'...
[16:08:51] Finished 'imagemin' after 20 ms
[16:08:51] Starting 'styles'...
[16:08:51] Finished 'styles' after 13 ms
[16:08:51] Starting 'default'...
[16:08:51] Finished 'default' after 6.13 ms
[16:08:51] gulp-imagemin: Minified 0 images
```

6. Gulp – Watch

The Watch method is used to monitor your source files. When any changes to the source file is made, the watch will run an appropriate task. You can use the 'default' task to watch for changes to HTML, CSS, and JavaScript files.

Update Default Task

In the previous chapter, you have learnt how to combine Gulp tasks using 'default' task. We used gulp-minify-css, gulp-autoprefixer and gulp-concatplugins, and created styles task to minify CSS files.

To watch CSS file, we need to update the 'default' task as shown in the following code:

```
gulp.task('default', ['styles'], function() {
     // watch for CSS changes
     gulp.watch('src/styles/*.css', function() {
       // run styles upon changes
       gulp.run('styles');
    });
});
```

All the CSS files under **work/src/styles/** folder will be watched and upon changes made to these files, the styles task will be executed.

Run Default Task

Run the 'default' task using the following command.

```
gulp
```

After executing the above command, you will receive the following output.

```
C:\work>gulp
[17:11:28] Using gulpfile C:\work\gulpfile.js
[17:11:28] Starting 'styles'...
[17:11:28] Finished 'styles' after 22 ms
[17:11:28] Starting 'default'...
[17:11:28] Finished 'default' after 21 ms
```

Whenever any changes are made to CSS files, you will receive the following output.

```
C:\work>gulp
[17:11:28] Using gulpfile C:\work\gulpfile.js
[17:11:28] Starting 'styles'...
[17:11:28] Finished 'styles' after 22 ms
[17:11:28] Starting 'default'...
[17:11:28] Finished 'default' after 21 ms
gulp.run() has been deprecated. Use task dependencies or gulp.watch task
trigger
ing instead.
[17:18:46] Starting 'styles'...
[17:18:46] Finished 'styles' after 5.1 ms
```

The Watch process will remain active and respond to your changes. You can press **Ctrl+C** to terminate the monitoring process and return to the command line.

7. Gulp – Live Reload

Live Reload specifies the changes in the file system. **BrowserSync** is used to watch all HTML and CSS files in the CSS directory and perform live reload to the page in all browsers, whenever files are changed. BrowserSync makes the workflow faster by synchronizing URLs, interactions, and code changes across multiple devices.

Installing BrowserSync Plugin

The BrowserSync plugin provides cross-browser CSS injection and can be installed using the following command.

```
npm install browser-sync --save-dev
```

Configuring BrowserSync Plugin

To use BrowserSync plugin, you need to write dependency in your configuration file as shown in the following command.

```
var browserSync = require('browser-sync').create();
```

You need to create task for BrowserSync to work with the server using Gulp. Since you are running the server, you need to tell BrowserSync about the root of your server. Here, we are using base directory as 'build'.

```
gulp.task('browserSync', function() {
  browserSync.init({
    server: {
      baseDir: 'build'
    },
  })
})
```

You can also inject new styles into the browser using the following task for CSS file.

```
gulp.task('styles', function() {
  gulp.src(['src/styles/*.css'])
    .pipe(concat('style.css'))
    .pipe(autoprefix('last 2 versions'))
    .pipe(minifyCSS())
    .pipe(gulp.dest('build/styles/'))
    .pipe(browserSync.reload({
       stream: true
    }))
});
```

Before creating task for BrowserSync, you need to install the plugins using package manager and write dependencies in your configuration file as defined in this chapter.

When you are done with the configuration, run both BrowserSync and watchTask for the occurrence of live reloading effect. Instead of running two command lines separately, we will run them together by adding *browserSync*task along with the watchTask as shown in the following code.

```
gulp.task('default', ['browserSync', 'styles'], function (){
  gulp.watch('src/styles/*.css', ['styles']);
});
```

Run the following command in your project directory to execute the above combined tasks.

```
gulp
```

After running the task using the above command, you will get the following result in the command prompt.

```
C:\project>gulp
[13:01:39] Using gulpfile C:\project\gulpfile.js
[13:01:39] Starting 'browserSync'...
[13:01:39] Finished 'browserSync' after 20 ms
[13:01:39] Starting 'styles'...
[13:01:39] Finished 'styles' after 21 ms
[13:01:39] Starting 'default'...
[13:01:39] Finished 'default' after 15 ms
[BS] 1 file changed (style.css)
[BS] Access URLs:
 ------------------------------------
       Local: http://localhost:3000
    External: http://192.168.1.4:3000
 ------------------------------------
          UI: http://localhost:3001
 UI External: http://192.168.1.4:3001
 ------------------------------------
```

```
[BS] Serving files from: build
```

It will open the browser window with the URL http://localhost:3000/. Any changes made to the CSS file will reflect in the command prompt and browser reloads automatically with the changed styles.

8. Gulp – Optimizing CSS & JavaScript

In this chapter, you will learn how to optimize CSS and JavaScript. Optimizing is required to remove unnecessary data (for e.g. spaces and unused characters) from the source files. It reduces the size of the files and allows them to load faster.

Install Plugins to Optimize CSS and JavaScript

Go to "work" directory from your command line and install "gulp-uglify", "gulp-minify-css" and "gulp-concat" plugins by using the following command:

```
npm install gulp-uglify gulp-minify-css gulp-concat
```

Declare Dependencies and Create Tasks

In your configuration file **gulpfile.js**, first declare the dependencies as shown in the following code.

```
var gulp = require('gulp');
var concat = require('gulp-concat');
var uglify = require('gulp-uglify');
var minify = require('gulp-minify-css');
```

Next, you need to create tasks for optimizing CSS and JavaScript as shown in the following code.

```
gulp.task('js', function(){
     gulp.src('src/scripts/*.js')
        .pipe(concat('script.js'))
        .pipe(uglify())
        .pipe(gulp.dest('build/scripts/'));
});
gulp.task('css', function(){
     gulp.src('src/styles/*.css')
        .pipe(concat('styles.css'))
        .pipe(minify())
        .pipe(gulp.dest('build/styles/'));
});
```

```
gulp.task('default',['js','css'],function(){
});
```

The **js** task will accepts **.js** files from **src/scripts/** folder. It concatenates and uglifies the **js** files, then produces **build/scripts/script.js** file.

The **CSS** task will accept **.css** files from **src/styles/** folder. It concatenates and minifies **CSS** files, then produces **build/styles/styles.css** file.

Run the Tasks

The configuration file is set up and ready to execute. Use the following command to run the task.

```
gulp
```

On running the task using the above command, you will receive the following result in the command prompt.

```
C:\work>gulp
[13:16:34] Using gulpfile C:\work\gulpfile.js
[13:16:34] Starting 'js'...
[13:16:34] Finished 'js' after 24 ms
[13:16:34] Starting 'css'...
[13:16:34] Finished 'css' after 6.05 ms
[13:16:34] Starting 'default'...
[13:16:34] Finished 'default' after 5.04 μs
```

9. Gulp – Optimizing Images

In this chapter, you will learn how to optimize images. Optimizing will reduce the size of the images and assist in faster loading.

Install Plugins to Optimize Images

Go to "work" directory from your command line and install "gulp-changed" and "gulp-imagemin" plugins by using the following commands.

```
npm install gulp-changed --save-dev

npm install gulp-imagemin --save-dev
```

Declare Dependencies and Create Tasks

In your configuration file **gulpfile.js**, first declare the dependencies as shown in the following command.

```
var gulp = require('gulp');

var changed = require('gulp-changed');

var imagemin = require('gulp-imagemin');
```

Next, you need to create tasks for optimizing images as shown in the following code.

```
gulp.task('imagemin', function() {
  var imgSrc = 'src/images/*.+(png|jpg|gif)',
      imgDst = 'build/images';

  gulp.src(imgSrc)
    .pipe(changed(imgDst))
    .pipe(imagemin())
    .pipe(gulp.dest(imgDst));
});

gulp.task('default',['imagemin'],function(){
});
```

The **imagemin** task will accept png, jpg and gif images from *src/images/* folder and minify them before writing it into the destination. The **changed()** ensures that only the new files are passed in each time for minifying. The *gulp-changed* plugin will only process the new files and hence utilized precious time.

Run the Tasks

The configuration file is set up and ready to execute. Use the following command to run the task.

```
gulp
```

On running the task using the above command, you will receive the following result in the command prompt.

```
C:\work>gulp
[15:55:49] Using gulpfile C:\work\gulpfile.js
[15:55:49] Starting 'imagemin'...
[15:55:49] Finished 'imagemin' after 23 ms
[15:55:49] Starting 'default'...
[15:55:49] Finished 'default' after 23 μs
[15:55:54] gulp-imagemin: Minified 1 images (saved 558.3 kB - 8.3%)
```

10. Gulp – Useful Plugins

Gulp provides some useful plugins to work with HTML & CSS, JavaScript, Graphics and some other things as described in the following tables.

HTML & CSS Plugins

Sr. No.	Plugin & Description
1	**autoprefixer** It automatically includes prefixes to CSS properties.
2	**gulp-browser-sync** It is used to watch all HTML and CSS files in the CSS directory and performs the live reload to the page in all browsers, whenever files are changed.
3	**gulp-useref** It is used to replace references to non-optimized scripts or stylesheets.
4	**gulp-email-design** It creates HTML email templates which converts CSS styles to inline.
5	**gulp-uncss** It optimizes CSS files and finds unused and duplicated styles.
6	**gulp-csso** It is a CSS optimizer, which minimizes CSS files resulting in smaller file size.
7	**gulp-htmlmin** It minimizes HTML files.
8	**gulp-csscomb** It is used to make style formatter for CSS.
9	**gulp-csslint** It specifies a CSS linter.
10	**gulp-htmlhint** It specifies a HTML validator.

JavaScript Plugins

Sr. No.	Plugin & Description
1	**gulp-autopolyfiller** It is same like autoprefixer which includes necessary polyfills for JavaScript.
2	**gulp-jsfmt** It is used for searching specific code snippets.
3	**gulp-jscs** It is used to check JavaScript code style.
4	**gulp-modernizr** It specifies what HTML, CSS and JavaScript features the user's browser has to offer.
5	**gulp-express** It starts gulp express.js web server.
6	**gulp-requirejs** It uses require.js to combine require.js AMD modules into one file.
7	**gulp-plato** It generates complexity analysis reports.
8	**gulp-complexity** It analyzes the complexity and maintainability of code.
9	**fixmyjs** It fixes JSHint results.
10	**gulp-jscpd** It is used as copy/paste detector for source code.
11	**gulp-jsonlint** It is JSON validator.
12	**gulp-uglify** It minifies the JavaScript files.
13	**gulp-concat** It concatenates the CSS files.

Unit Tests Plugins

Sr. No.	Plugin & Description
1	**gulp-nodeunit** It runs node unit tests from Gulp.
2	**gulp-jasmine** It is used to report the issues related to the output.
3	**gulp-qunit** It provides basic console output for QUnit tests and uses PhantomJS node module and PhantomJS runner QUnit plugin.
4	**gulp-mocha** It specifies the thin wrapper around Mocha and runs the Mocha tests.
5	**gulp-karma** It has been deprecated in Gulp.

Graphics Plugins

Sr. No.	Plugin & Description
1	**gulpicon** It generates sprites from SVG and converts them to PNG.
2	**gulp-iconfont** It is used with web fonts to create WOFF, EOT, TTF files from SVG.
3	**gulp-imacss** It transforms image files into data URIs and places them into a single CSS file.
4	**gulp-responsive** It generates responsive images for different devices.
5	**gulp-sharp** It is used to change and resize the orientation and background of the image.

6	**gulp-svgstore** It combines SVG files into one with <symbol> elements.
7	**gulp-imagemin & gulp-tinypng** It is used for compressing the images such as PNG, JPEG, GIF, SVG.
8	**gulp-spritesmith** It is used for creating spritesheet from set of images and CSS variables.

Compilers Plugins

Sr. No.	Plugin & Description
1	**gulp-less** It provides LESS plugin for Gulp.
2	**gulp-sass** It provides SASS plugin for Gulp.
3	**gulp-compass** It provides compass plugin for Gulp.
4	**gulp-stylus** It is used for keeping stylus in CSS.
5	**gulp-coffee** It provides coffeescript plugin for Gulp.
6	**gulp-handlebars** It provides handlebars plugin for Gulp.
7	**gulp-jst** It provides underscore templates in JST.
8	**gulp-react** It specifies Facebook React JSX templates into JavaScript.
9	**gulp-nunjucks** It specifies Nunjucks templates in JST.

10	**gulp-dustjs** It specifies Dust templates in JST.
11	**gulp-angular-templatecache** It specifies AngularJS templates in the templateCache.

Other Plugins

Sr. No.	Plugin & Description
1	**gulp-grunt** It runs the Grunt tasks from Gulp.
2	**gulp-watch** It watches the files whenever changes are made.
3	**gulp-notify** It notifies the error message whenever a task fails.
4	**gulp-git** It allows to use Git commands.
5	**gulp-jsdoc** It creates JavaScript documentation for Gulp.
6	**gulp-rev** It provides static asset revisioning to file names.
7	**gulp-bump** It increases the versions in JSON package.
8	**gulp-bower-files** It is used to inject bower packages.
9	**gulp-removelogs** It removes console.log statements.
10	**gulp-preprocess** It preprocesses HTML, JavaScript and other files based on context or environment configuration.

11	**gulp-duration** It specifies the duration for Gulp tasks.
12	**gulp-changed & gulp-newer** It runs the modified files and newer files.
13	**gulp-connect** It is used to run a web server with LiveReload.
14	**gulp-shell** It runs Shell commands.
15	**gulp-ssh** It connects by using SSH and SFTP tasks.
16	**gulp-zip** It compresses the files and folders.
17	**gulp-clean & gulp-copy** The gulp-clean plugin removes files and folders and the gulp-copy plugin copies the files from source to new destination.
18	**gulp-filesize** It specifies the file size in human readable format.
19	**gulp-util** It provides utilities for gulp plugins.

11. Gulp – Cleaning Unwanted Files

In this chapter, you will learn how to clean generated files. As we are automatically generating the files, make sure that unnecessary files should be deleted before running your build. This procedure is called **cleaning**. The **del** plugin can be used for this purpose.

Installing del Plugins

In your command line install the plugin by entering the following command.

```
npm install del --save-dev
```

Declare Dependencies and Create Tasks

In your configuration file **gulpfile.js**, declare the dependencies as shown in the following command.

```
var del = require('del');
```

Next, create a task as shown in the following code.

```
gulp.task('clean:build', function() {
  return del.sync('build');
});
```

The above task will clean entire build. The clean task clears any image catches and removes any old files present in build.

It is possible to clean only specific file or folder and leave some of them untouched as illustrated in the following code.

```
gulp.task('clean:build', function() {
  //return del.sync('build');
  return del([
      'build/temp/',
      // instructs to clean temp folder
      '!build/package.json'
      // negate to instruct not to clean package.json file  ]);
});
```

In the above task, only the **temp** folder will be cleaned leaving **package.json** untouched.