

# Environment Setup

- [In a nutshell](#)

# In a nutshell

Here's a detailed guide for setting up your development environment with the listed software and configuration steps:

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## 1. Visual Studio Code (VS Code)

VS Code is a lightweight yet powerful source code editor, popular among developers for its robust feature set and plugin support.

### Installation Steps:

1. Go to the [Visual Studio Code download page](#).
2. Choose the installer for your operating system (Windows, macOS, or Linux).
3. Run the installer and follow the on-screen instructions.
4. During installation, select options to:
  - **Add "Open with Code"** action to the right-click menu (recommended).
  - **Add to PATH** (very important for terminal usage).
5. Once installed, launch VS Code and customize the settings as per your preferences.

### Extensions to Install:

- **Prettier** for code formatting.
  - **ESLint** for JavaScript linting.
  - **GitLens** for enhanced Git capabilities.
  - **Debugger for Chrome** for debugging frontend applications.
  - **Ionic/Angular Essentials** (for Ionic and Angular projects).
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## 2. Git and Git SCM

Git is a version control system that tracks changes to files. Git SCM provides a graphical interface for Git.

## Installation Steps:

1. Go to the [Git download page](#).
2. Download the installer for your operating system.
3. Run the installer and follow the steps. During the setup:
  - Choose the **default editor** used by Git (select VS Code if installed).
  - Select **Git from the command line and also from third-party software**.
  - Enable **Git Credential Manager** for managing credentials.
  - Configure **line ending conversions** as per your preference.
4. Finish the installation.

## Verify Installation:

Open a terminal or command prompt and type:

```
bash
```

```
git --version
```

This should display the installed Git version.

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## 3. Generate SSH Key using `ssh-keygen`

SSH keys are used for secure communication with services like GitHub.

### Steps to Generate SSH Key:

1. **Open PowerShell** as Administrator.
2. Run the command:

```
bash
```

```
ssh-keygen -t ed25519 -C "your_email@example.com"
```

  - Replace `"your_email@example.com"` with your email address used for GitHub.
3. Press **Enter** to accept the default path.
4. When prompted, enter a **passphrase** (optional but recommended for security).
5. This will create two files in the specified directory:
  - `id_ed25519` (private key)
  - `id_ed25519.pub` (public key)

## Add SSH Key to GitHub:

1. Copy the content of your **public key** using:  
bash  
`cat ~/.ssh/id_ed25519.pub`
2. Go to your **GitHub account**:
  - Click on your profile picture.
  - Navigate to **Settings > SSH and GPG keys**.
3. Click **New SSH Key**.
  - Provide a **title** (e.g., `My Laptop`).
  - Paste the **public key**.
4. Click **Add SSH Key**.

## Test SSH Connection:

Run the following command in PowerShell:

```
bash
ssh -T git@github.com
```

You should see a message saying:

```
vbnet
Hi username! You've successfully authenticated, but GitHub does not provide shell access.
```

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## 4. Node.js

Node.js is a runtime environment for executing JavaScript code outside a web browser.

### Installation Steps:

1. Go to the [Node.js download page](#).
2. Download the **LTS version** for stability.
3. Run the installer and follow the instructions.
4. Once installed, open **PowerShell** and verify the installation:

```
bash
node -v
npm -v
```

This should display the versions of Node.js and npm (Node Package Manager).

### Manual Installation (using prebuilt binaries):

1. Download the **prebuilt binaries** from the Node.js website.
2. Extract the files to a folder (e.g., `C:\Program Files\nodejs`).
3. Copy the **extracted folder path**.
4. Go to **System Environment Settings**:
  - Right-click **This PC > Properties > Advanced System Settings**.
  - Click on **Environment Variables**.
  - Find the **Path** variable under **System variables**, and click **Edit**.
  - Add the **Node.js binary path** to the list (e.g., `C:\Program Files\nodejs`).
5. Click **OK** to save and restart your terminal.

## Enable Script Execution in PowerShell:

By default, PowerShell restricts the execution of certain scripts.

1. Run PowerShell as **Administrator**.
2. Execute:  
bash  
`Set-ExecutionPolicy Unrestricted`
3. Confirm with **Y** (Yes).

## Unblock npm Files:

If you encounter execution issues, unblock npm files with:

bash  
`Unblock-File "path_to_npm"`

Replace `path_to_npm` with the path to the npm file in your Node.js directory.

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# 5. Install Ionic CLI and Nodemon Globally

Ionic CLI helps in building hybrid mobile apps, and Nodemon is used for automatically restarting the server during development.

## Installation Steps:

1. Open PowerShell and run:  
bash

```
npm install -g @ionic/cli nodemon
```

- `@ionic/cli`: The CLI for developing Ionic applications.
- `nodemon`: A utility that monitors for any changes in your source code and automatically restarts your server.

## Verify Installation:

Run:

```
bash
```

```
ionic --version
```

```
nodemon --version
```

This should display the installed versions.

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## 6. MySQL

MySQL is a popular relational database management system.

### Installation Steps:

1. Go to the [MySQL download page](#).
2. Download the **MySQL Installer Community**.
3. Run the installer and choose the **Full** setup type.
4. Follow the on-screen instructions to install:
  - **MySQL Server** (mandatory)
  - **MySQL Workbench** (optional, recommended for GUI management)
  - **MySQL Shell** (optional, for advanced users)

### Initial Configuration:

1. Configure the **root** password during installation.
2. Optionally, create a **new user** with limited privileges.
3. Set the **default server** as the **MySQL instance**.

### Verify Installation:

1. Open MySQL Workbench or the **MySQL Command Line Client**.
2. Connect using the **root** credentials.
3. Execute:

```
SHOW DATABASES;
```

This should list the system databases.

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By following these steps, your development environment will be fully set up and ready for project development. Let me know if you need further assistance or want to add more configurations!