**Setting Up a React Native Development Environment**

This document outlines the step-by-step process for setting up a React Native development environment. It includes system requirements, installation instructions, configuration steps, project creation, running the project, troubleshooting tips, and additional resources.

**System Requirements**

**Hardware**

* **CPU**: Intel i5 or higher (or equivalent)
* **RAM**: 8 GB or more recommended
* **Storage**: Minimum 20 GB of free disk space

**Software**

* **Operating System**:
  + Windows 10 (64-bit) or later
  + Alternatively, macOS or Linux can be used

**Installation Instructions**

**Step 1: Install Node.js**

1. Visit the [Node.js website](https://nodejs.org/).
2. Download the LTS (Long Term Support) version for your operating system.
3. Run the installer and follow the prompts to complete the installation.
4. Verify the installation by running the following command in your terminal or command prompt:

node -v

npm -v

**Step 2: Install React Native CLI**

1. Open a terminal or command prompt.
2. Run the following command to install React Native CLI globally:

npm install -g react-native-cli

**Step 3: Install Java Development Kit (JDK)**

1. Download the JDK from the [Oracle JDK website](https://www.oracle.com/java/technologies/javase-jdk11-downloads.html).
2. Follow the installation instructions for your operating system.
3. Set the JAVA\_HOME environment variable:
   * Right-click on 'This PC' > Properties > Advanced system settings > Environment Variables.
   * Under 'System Variables', click 'New' and add:
     + Variable name: JAVA\_HOME
     + Variable value: Path to your JDK installation (e.g., C:\Program Files\Java\jdk-11.0.12).

**Step 4: Install Android Studio**

1. Download Android Studio from the [Android Developer website](https://developer.android.com/studio).
2. Install Android Studio, selecting all default options.
3. Open Android Studio and install the Android SDK and necessary components via the SDK Manager:
   * Go to Configure > SDK Manager.
   * Under the SDK Platforms tab, select the latest Android version and click OK.
   * Under the SDK Tools tab, ensure the following are selected:
     + Android SDK Build-Tools
     + Android Emulator
     + Android SDK Platform-Tools
     + Intel x86 Emulator Accelerator (HAXM Installer)

**Step 5: Configure Environment Variables for Android**

1. Set the ANDROID\_HOME environment variable:
   * Right-click on 'This PC' > Properties > Advanced system settings > Environment Variables.
   * Under 'System Variables', click 'New' and add:
     + Variable name: ANDROID\_HOME
     + Variable value: Path to your Android SDK installation (e.g., C:\Users\<YourUser>\AppData\Local\Android\Sdk).
2. Add platform-tools and tools to your PATH:
   * Find the Path variable in the 'System Variables' section and click 'Edit'.
   * Add the following paths (adjust based on your installation):
     + %ANDROID\_HOME%\platform-tools
     + %ANDROID\_HOME%\tools

**Configuration Steps**

1. **Verify Java and Android SDK Installation**:
   * Open a terminal or command prompt and run:

java -version

adb --version

* + Ensure both commands return the installed version information.

1. **Set Up Emulator**:
   * In Android Studio, go to Configure > AVD Manager.
   * Create a new virtual device and select a device model.
   * Choose the system image (recommended: use a x86 or x86\_64 image).
   * Follow the prompts to finish setting up the emulator.

**Project Creation**

**Step 1: Create a New React Native Project**

1. Open a terminal or command prompt.
2. Navigate to the directory where you want to create your project.
3. Run the following command to create a new project:

npx react-native init MyNewApp

Replace MyNewApp with your desired project name.

**Step 2: Navigate into Your Project**

cd MyNewApp

**Running the Project**

**Step 1: Start Metro Bundler**

1. In the terminal, run:

npx react-native start

**Step 2: Open Another Terminal and Run the App**

1. In a new terminal window, run:

npx react-native run-android

**Step 3: Open the Android Emulator**

* If you have not started the emulator yet, start it from Android Studio's AVD Manager or use the command line.

**Troubleshooting**

**Common Issues**

* **Java version issues**: Ensure you are using JDK 11 or compatible.
* **ADB not found**: Check that ANDROID\_HOME and platform-tools are set correctly in your environment variables.
* **Build errors**: Run the command:

cd android && ./gradlew clean

Then try running the app again.

**Debugging**

* Use the Logcat feature in Android Studio to view logs and troubleshoot errors during runtime.

**Resources**

* React Native Documentation
* Node.js Documentation
* [Android Studio Documentation](https://developer.android.com/studio)
* [Stack Overflow](https://stackoverflow.com/questions/tagged/react-native)
* [React Native Community GitHub](https://github.com/facebook/react-native)