Free Development Tools for Mbed Projects

If you are looking for free development tools to continue working on your old Mbed projects, here are a few options, including Mbed itself. Each tool comes with its own set of features, pros, cons, and compatibility considerations.

Available Tools

1. Mbed OS with Mbed CLI

- **Description**: The original development environment for Mbed OS, now reaching end-of-life.
- **Features**: Command-line interface for building and managing Mbed projects.
- **Compatibility**: Supports a wide range of ARM Cortex-M microcontrollers.
- **Website**: Mbed CLI
- **Pros**:
  - Direct support for Mbed OS.
  - Extensive documentation and examples.
- **Cons**:
  - Reaching end-of-life, no future updates or support.
  - Limited to command-line interface.

2. PlatformIO

- **Description**: An open-source ecosystem for IoT development with support for multiple frameworks and platforms.
- **Features**: Integrated development environment, library management, and build system.
- **Compatibility**: Supports Mbed OS and many other frameworks.
- **Website**: PlatformIO
- **Pros**:
  - Multi-framework support.
  - Integrated environment with advanced features.
  - Strong community support.
- **Cons**:
  - Requires configuration for existing projects.
  - Learning curve for new users.

3. Eclipse with GNU MCU Eclipse Plugins

- **Description**: Eclipse IDE with GNU MCU Eclipse plugins provides a powerful and flexible development environment.
- **Features**: Supports a wide range of microcontrollers and offers extensive customization through plugins.
- **Compatibility**: Can be configured to support Mbed OS through additional plugins.
- **Website**: GNU MCU Eclipse
- **Pros**:
  - Highly customizable.
  - Wide range of supported microcontrollers.
- **Cons**:
  - Requires setup and configuration.
  - Can be resource-intensive.

4. STM32CubeIDE

- **Description**: An integrated development environment from STMicroelectronics for STM32 microcontrollers.
- **Features**: Combines the STM32CubeMX graphical configurator with the Eclipse-based IDE.
- **Compatibility**: Supports STM32-based projects and can be configured to work with Mbed OS.
- **Website**: STM32CubeIDE
- **Pros**:
  - Excellent support for STM32 microcontrollers.
  - Integrated graphical configurator.
- **Cons**:
  - Best suited for STM32 projects.
  - Requires configuration for Mbed OS support.

5. Visual Studio Code with ARM Toolchain

- **Description**: A versatile code editor with support for various programming languages and platforms.
- **Features**: Can be extended with plugins for ARM development and supports debugging and other development tools.
- **Compatibility**: Can be configured to work with Mbed OS using the ARM GCC toolchain.
- **Website**: Visual Studio Code
- **Pros**:
  - Highly extensible with plugins.
  - Lightweight and fast.
  - Strong community and support.
- **Cons**:
  - Requires setup and configuration.
  - Not specifically designed for embedded development.

Comparison Summary

Platform	IDE/Toolchain	Features	Compatibility	Migration Effort	Pros	Cons
Mbed OS with Mbed CLI	Mbed CLI	Command-line interface	ARM Cortex-M, Mbed OS	N/A (original environment)	Direct support for Mbed OS	Reaching end-of-life, CLI only
PlatformIO	PlatformIO IDE, CLI	Integrated environment, library management	ARM Cortex-M, Mbed OS	Moderate (need to configure project)	Multi-framework, integrated environment	Requires configuration, learning curve
Eclipse + GNU MCU	Eclipse IDE, GNU MCU Plugins	Flexible, plugin-based	Various microcontrollers, Mbed OS	Moderate (need to install plugins)	Highly customizable, wide support	Requires setup, resource-intensive
STM32CubeIDE	Eclipse-based, STM32CubeMX	Graphical configurator,	STM32 microcontrollers, Mbed OS	Moderate (STM32-specific)	Excellent STM32	Best for STM32, requires

Platform	IDE/Toolchain	Features	Compatibility	Migration Effort	Pros	Cons
		STM32 support			support, graphical	Mbed configuration
VS Code + ARM Toolchain	Visual Studio Code, ARM GCC	Versatile, extensible with plugins	Various microcontrollers, Mbed OS	Moderate (need to configure toolchain)	Highly extensible, lightweight	Requires setup, not specifically for embedded

Migration Effort Explanation

- **Low**: Minimal changes required. Mostly involves setting up the development environment.
- **Moderate**: Some configuration and setup needed. May involve reorganizing project files and adjusting build settings.
- **High**: Significant changes required. May involve rewriting parts of the code or extensive reconfiguration.

Each of these platforms and tools offers a free option for developing and maintaining your Mbed projects. Depending on your specific needs and preferences, you can choose the one that best fits your workflow. If you have any specific requirements or need further assistance, feel free to ask!