**Overview of FreeRTOS**

Today we are going to navigate the FreeRTOS documentation to get an overview of the architecture and features of FreeRTOS and the enhancement that have been added since AWS took stewardship of FreeRTOS.

FreeRTOS website: <https://freertos.org/index.html>

AWS FreeRTOS website: <https://docs.aws.amazon.com/freertos/index.html>

Here’s a short description from both websites:

*Developed in partnership with the world's leading chip companies over a 15-year period, and now downloaded every 175 seconds, FreeRTOS is a market-leading real-time operating system (RTOS) for microcontrollers and small microprocessors. Distributed freely under the MIT open source license, FreeRTOS includes a kernel and a growing set of libraries suitable for use across all industry sectors. FreeRTOS is built with an emphasis on reliability and ease of use.*

The best explanation of the connection between AWS and FreeRTOS comes from a FAQ on the FreeRTOS website:

*Amazon Web Services provide more than 100 cloud hosted services that are used by millions of customers, and in all industry sectors. A growing number of AWS services are designed for Internet of Things (IoT) applications, that is, the connection and management of internet connected devices.*

*Device manufacturers connect their MCU based devices to the cloud to innovate both their products and their business models. However, it takes time to build the security and connectivity components necessary for this connectivity into the device’s software before that innovation can start. A significant proportion of connected MCU devices already run the FreeRTOS kernel, so Amazon chose to provide the FreeRTOS project with the resources necessary to extend their offering into fully integrated security and connectivity libraries, and ensure those libraries can be developed and supported long into the future. That enables FreeRTOS developers to spend less time on library integration, and more time on innovation.*

*To ensure longevity, Amazon also ensures the wider FreeRTOS ecosystem is strong, so all FreeRTOS kernel users benefit, not just those who connect their devices to the internet. We will continue to add features and support for new architectures going forward. As always, we appreciate user feedback.*

You have been supplied with these two documents:

* *Mastering the FreeRTOS Kernel*
* *AWS FreeRTOS Reference Manual*

You should download this document (at nearly 50MB it’s too large to send via email):

* *AWS FreeRTOS User Guide*

We’ll start with the AWS documentation to get the really big picture and then dive into the FreeRTOS documentation to delve into the details of tasks, semaphores, queues, mutexes, timers, and several related RTOS concepts and considerations.

**Class Notes**