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# STM32Cube and Azure RTOS Overview



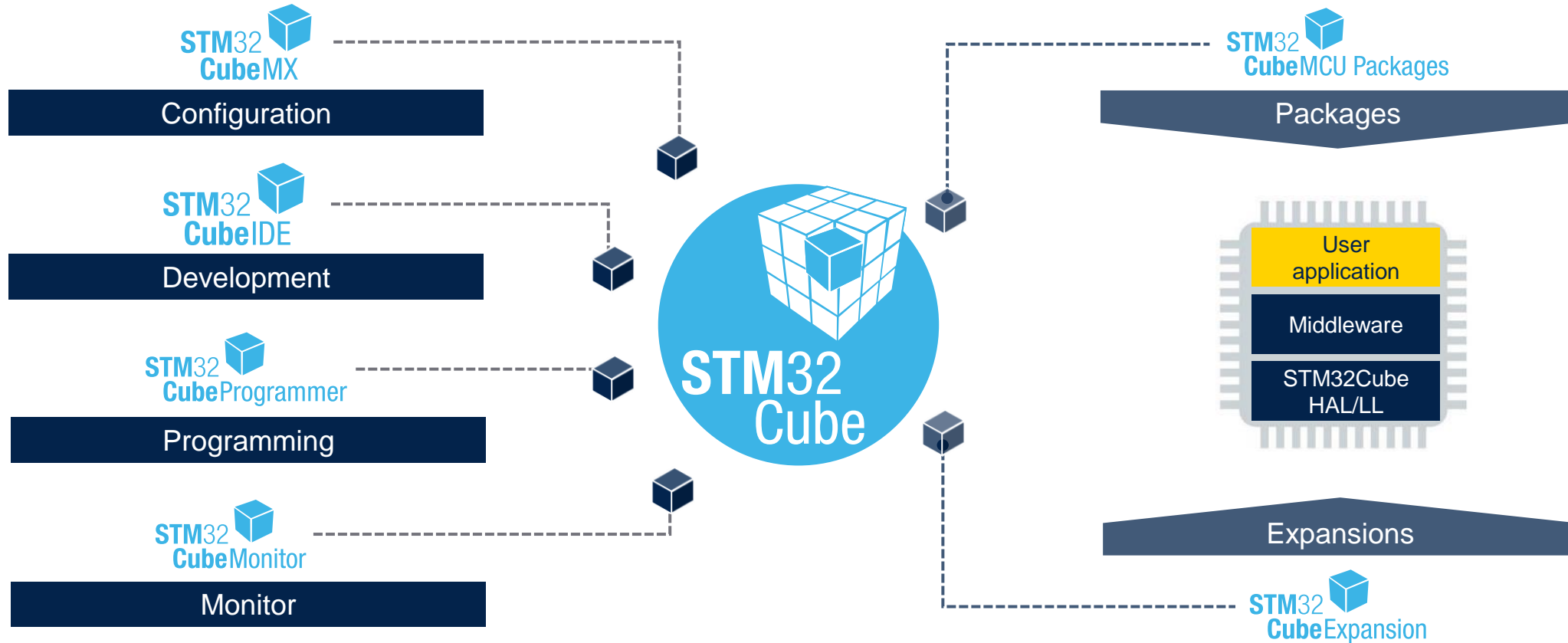


# STM32Cube Software Suite Offer

Software tools



Embedded software





# STM32Cube Software Suite (1/2)

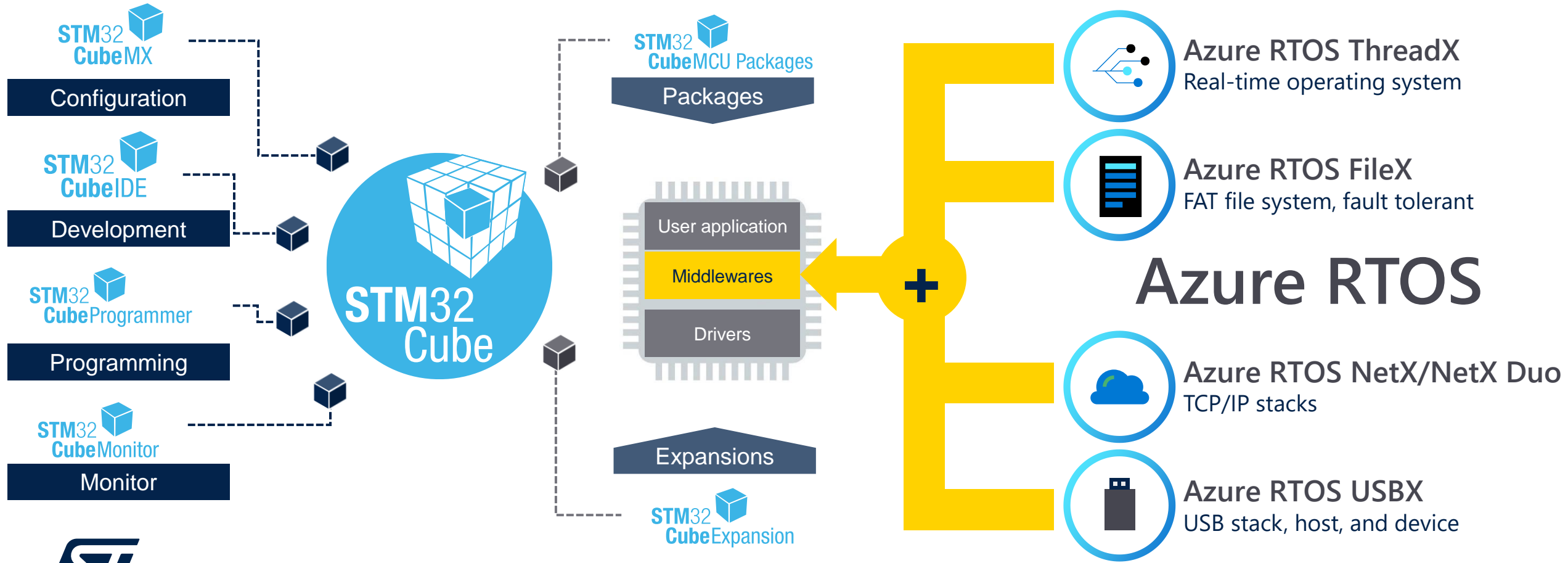
Software tools



Embedded software



Complemented with Microsoft Azure RTOS (2021)





# STM32Cube Software Suite (2/2)

Microsoft Azure RTOS bringing additional Key benefits to STM32Cube software Suite, from 2021

Software Tools



STM32  
Cube

Embedded  
Software



+ Azure RTOS

Faster & easier development

Business-friendly terms

Better quality

Fast performance

+

Complete consistent solution

Industry certifications



# Microsoft Azure RTOS: Key features

Professional grade, highly reliable and market proven middleware suite

- **Industrial-grade** networking stack: optimized for performance coming with **many IoT protocols**
- Advanced FS/FTL: **fully featured** to support **NAND/NOR Flash** memories
- **USB Host** and **Device** stacks coming with **many classes**
- **Safety documentation packages (available from Microsoft) enabling the use in application targeting IEC 61508, IEC 62304, ISO 26262**
- **High security assurance** from hardware to software, including middleware such as TLS/DTLS and cryptography
- **STM32 granted production license:**  
<https://github.com/azure-rtos/guix/blob/master/LICENSED-HARDWARE.txt>



# Azure RTOS Availability within STM32 and STM32Cube portfolio

Through STM32Cube Expansion for several existing STM32 series

Azure RTOS Deployment



Available now

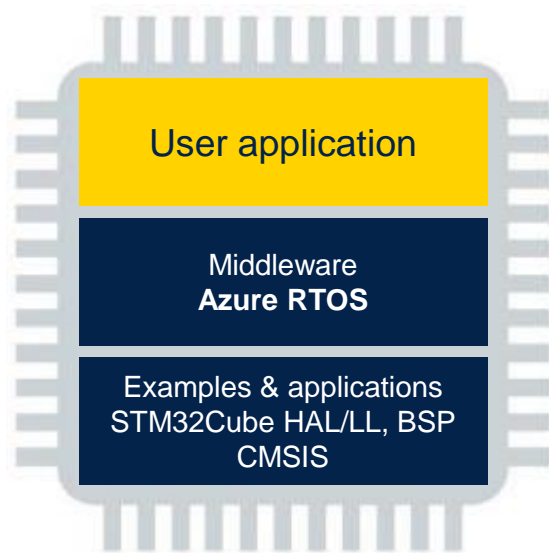
[st.com](http://st.com) or GitHub



# Azure RTOS deployment within STM32 and STM32Cube portfolio

**STM32Cube native support for all new STM32 series**

## STM32Cube MCU package



**Available now**  
st.com or GitHub



# Getting started with Azure RTOS examples

Start from STM32CubeMX or from ready-to-use examples to easily get up to speed with Azure RTOS

## Azure RTOS ThreadX



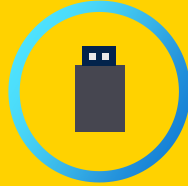
### Thread

Creation, synchronization,  
message queue

### OS wrappers

FreeRTOS™  
CMSIS OS

## Azure RTOS USBX



### Host

MSC, HID, CDC ACM  
Dual class

### Device

MSC, CDC ACM,  
HID, CDC ECM,  
HID CDC ACM (dual-class)

## Azure RTOS NetX Duo



### TCP

Server, Client

### UDP

Server, Client

### Application

Web server, MQTT client, SNTP  
client

## Azure RTOS FileX



Micro SD file edit

Multi-thread access

NOR memory File RW

NAND memory File RW

Multi-instance

In-Application-Programming

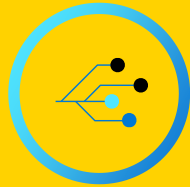




# Migrate to Azure RTOS

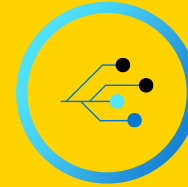
Keep your application layer, simply integrate an industry-leading real time operating system

FreeRTOS™



FreeRTOS™ compatibility layer for ThreadX

CMSIS OS



CMSIS OS compatibility Layer for ThreadX \*

\* Offer exclusive to the STM32



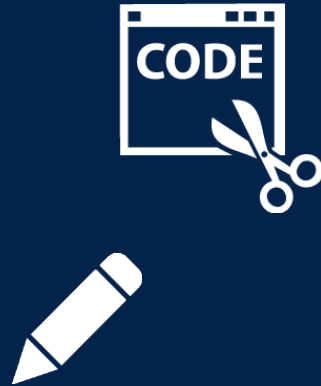
# Azure RTOS supported by STM32Cube Toolset

## Supporting Azure RTOS ThreadX-aware debugging

**Project configuration  
with STM32CubeMX**



**Code development  
Advanced IDE**



**Debugging and  
programming**



**Azure RTOS  
OS awareness**

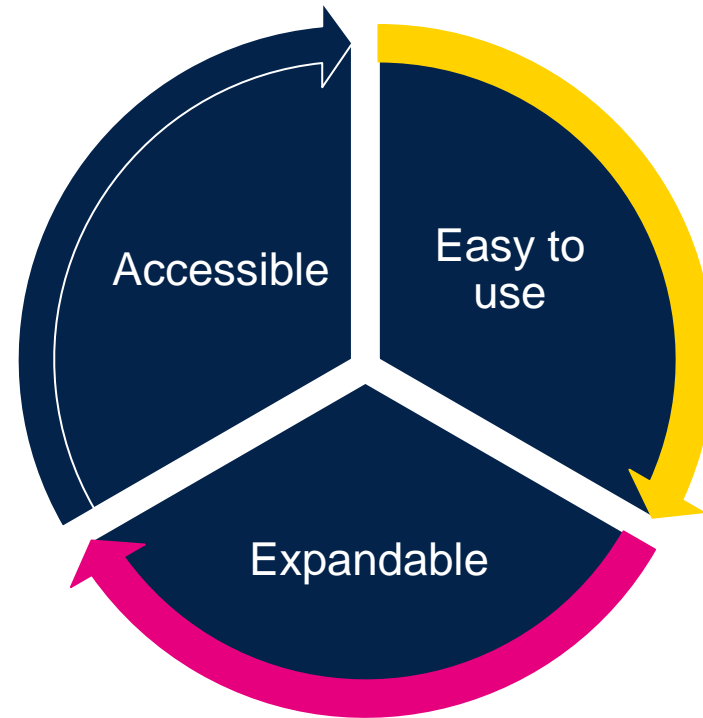




# Azure RTOS and STM32Cube: user benefits

Getting the most out of Azure RTOS and STM32 MCUs is now easier than ever with STM32Cube

Source code available  
Free of charge  
User-friendly license terms



Drastically reduced learning curve:

- Azure RTOS made compatible with ST toolset
- Many applicative examples provided  
Developers can focus on their application and differentiators

Expanding the ecosystem of existing and upcoming STM32 series by leveraging the Azure RTOS middleware

# Our technology starts with You



Find out more at [www.st.com/STM32Cube](http://www.st.com/STM32Cube)

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