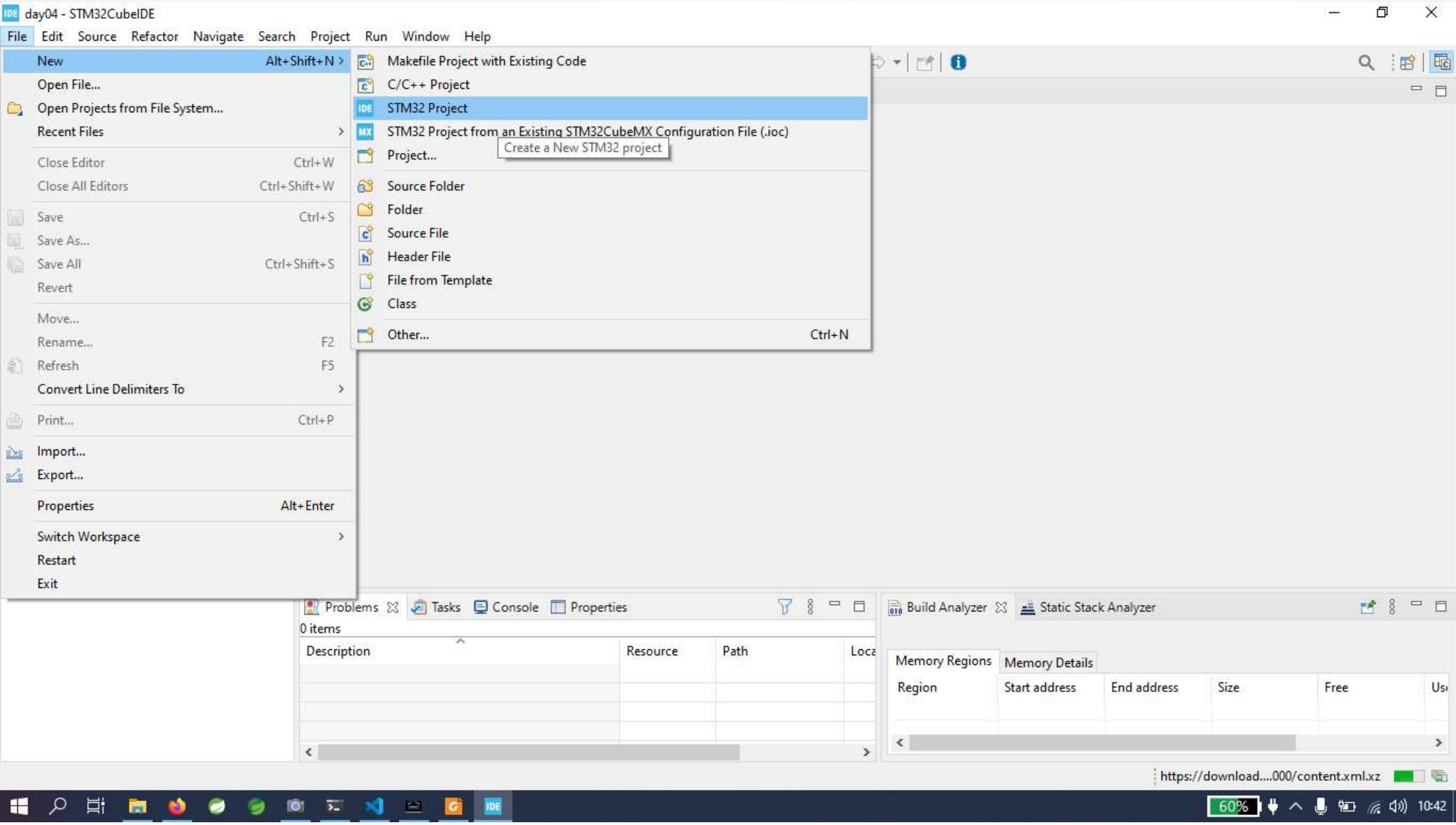
FreeRTOS in STM32CubeIDE

PG-DESD @ SUNBEAM INFOTECH


day04 - STM32CubeIDE
File Edit Source Refactor Navigate Search Project Run Window Help
New Alt+Shift+N
Open File...
Open Projects from File System...
Recent Files
Close Editor Ctrl+W
Close All Editors Ctrl+Shift+W
Save Ctrl+S
Save As...
Save All Ctrl+Shift+S
Revert
Move...
Rename... F2
Refresh F5
Convert Line Delimiters To
Print... Ctrl+P
Import...
Export...
Properties Alt+Enter
Switch Workspace
Restart
Exit
Makefile Project with Existing Code
C/C++ Project
STM32 Project
STM32 Project from an Existing STM32CubeMX Configuration File (.ioc)
Project...
Create a New STM32 project
Source Folder
Folder
Source File
Header File
File from Template
Class
Other... Ctrl+N
Problems Tasks Console Properties
0 items
Description Resource Path
Build Analyzer Static Stack Analyzer
Memory Regions Memory Details
Region Start address End address Size Free
https://download....000/content.xml.xz
60%
10:42

STM32 Project

Target Selection

Select STM32 target or STM32Cube example

IDE

MCU/MPU Selector | Board Selector | Example Selector | Cross Selector

Board Filters

Commercial Part Number: STM32F407G-DISC1

Vendor

Type

Check/Uncheck All

- [x] Discovery Kit
- [ ] Evaluation Board
- [ ] Evaluation Kit
- [ ] Nucleo USB Dongle
- [ ] Nucleo-144
- [ ] Nucleo-32
- [ ] Nucleo-64
- [ ] Nucleo-RF Kit

Features | Large Picture | Docs & Resources | Datasheet | Buy

STM32F4 Series

STM32F407G-DISC1 — **STMicroelectronics STM32F407G Discovery Kit Board Support and Examples**

ACTIVE Active
Product is in mass production

Part Number : STM32F4DISCOVERY
Commercial Part Number : STM32F407G-DISC1

Unit Price (US$) : **19.89**

Mounted Device : STM32F407VGTx

The STM32F4DISCOVERY Discovery kit leverages the capabilities of the STM32F407 high-performance microcontrollers, to allow users to develop audio applications easily. It includes an ST-LINK/V2-A embedded debug tool, one ST-MEMS digital accelerometer, one digital microphone, one audio DAC with integrated class D speaker driver, LEDs, push buttons, and a

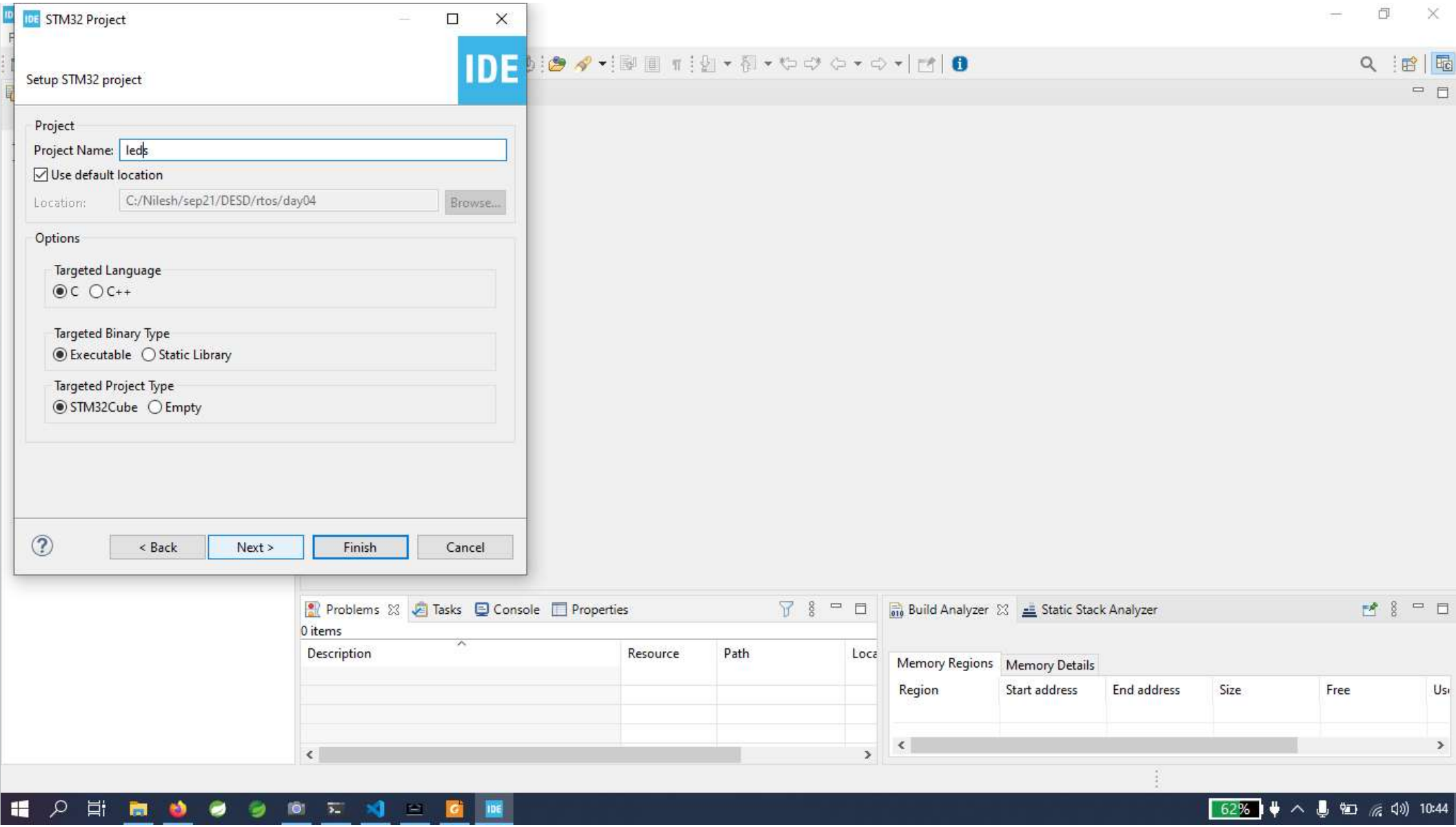
Boards List: 1 item

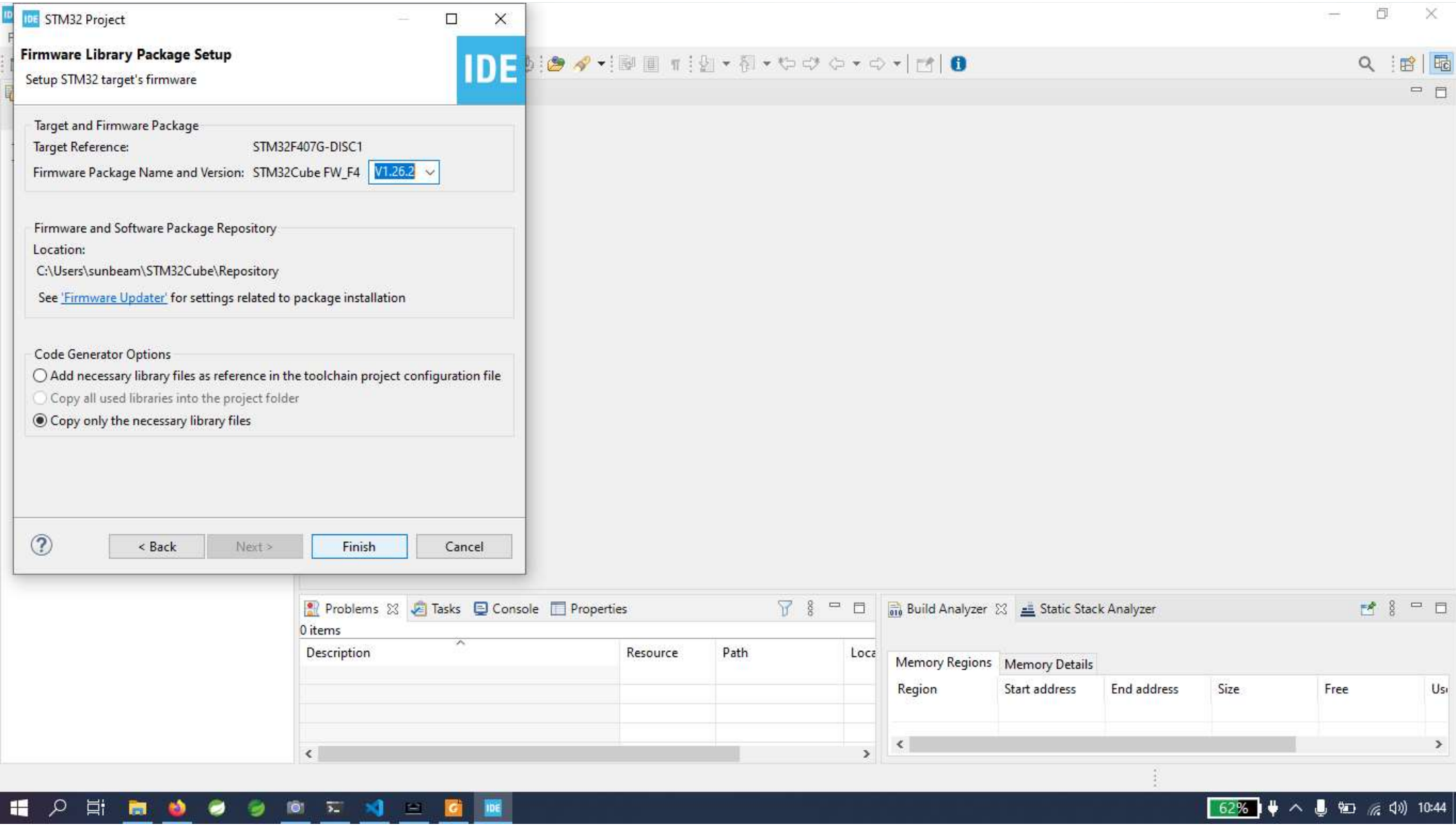
Export

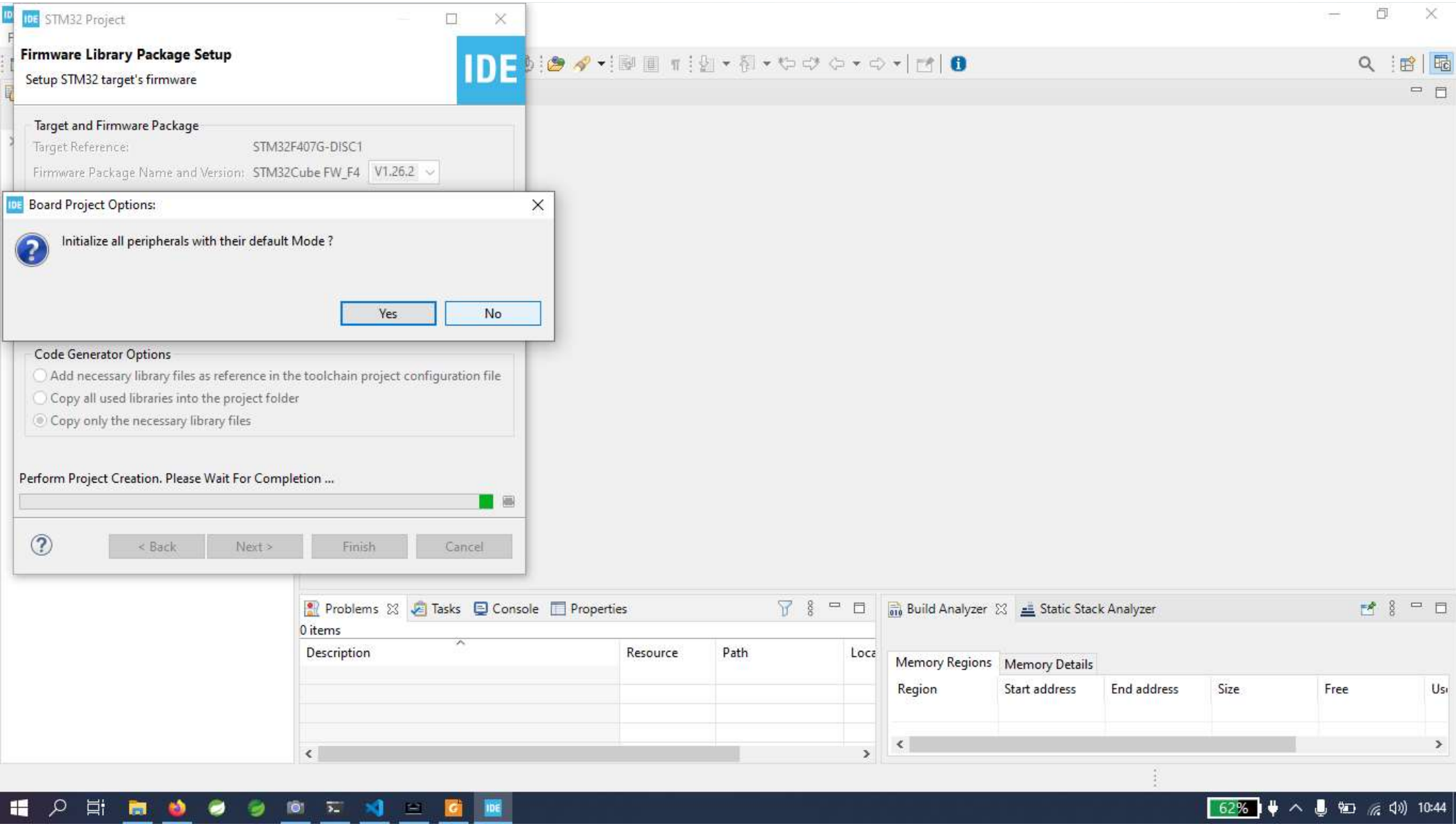
*	Overview	Commercial Part ...	Type	Marketing Status	Unit Price (US$)	Mounted Device
☆		STM32F407G-DISC1	Discovery Kit	Active	19.89	STM32F407VGTx

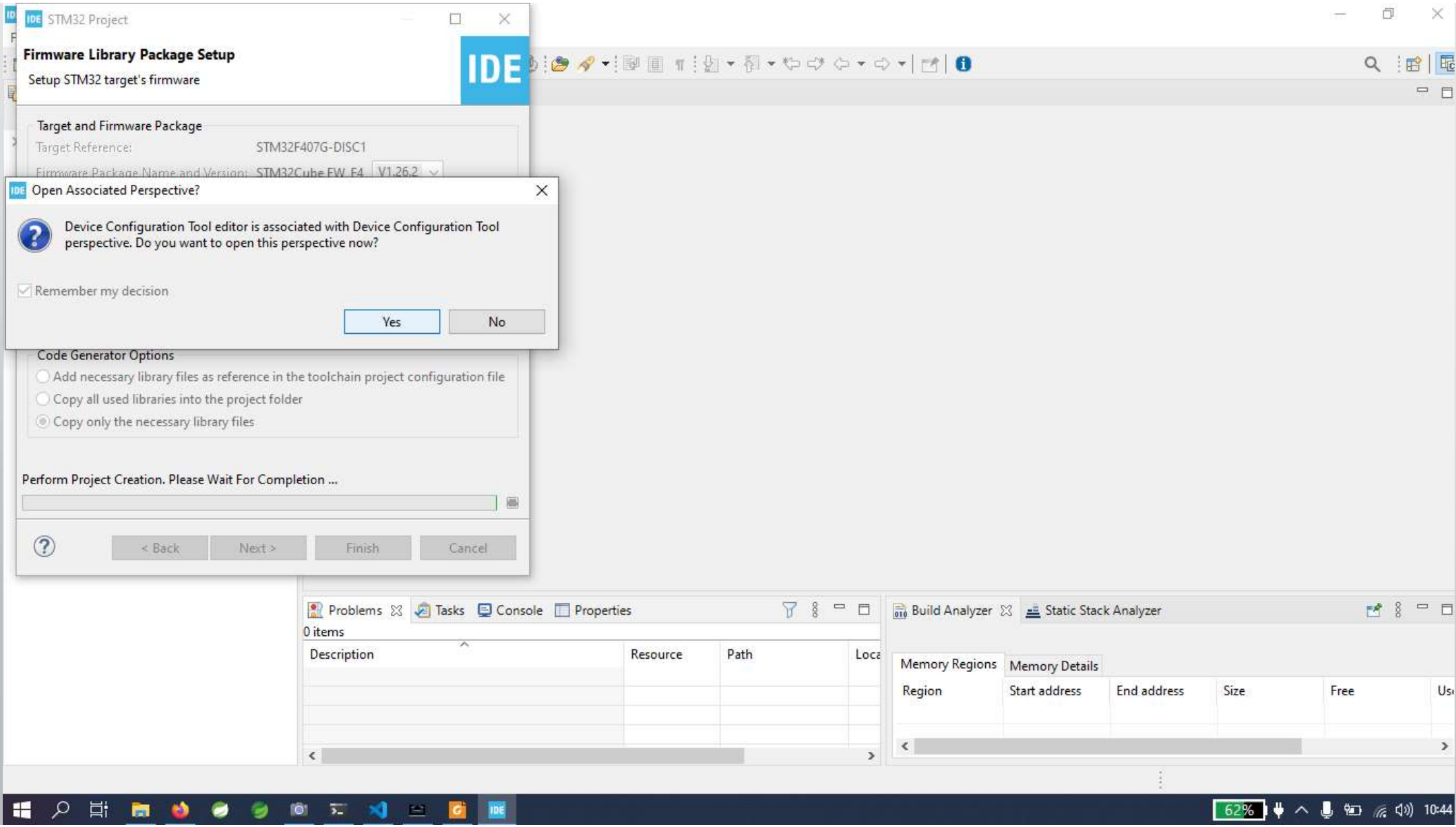
< Back | Next > | Finish | Cancel

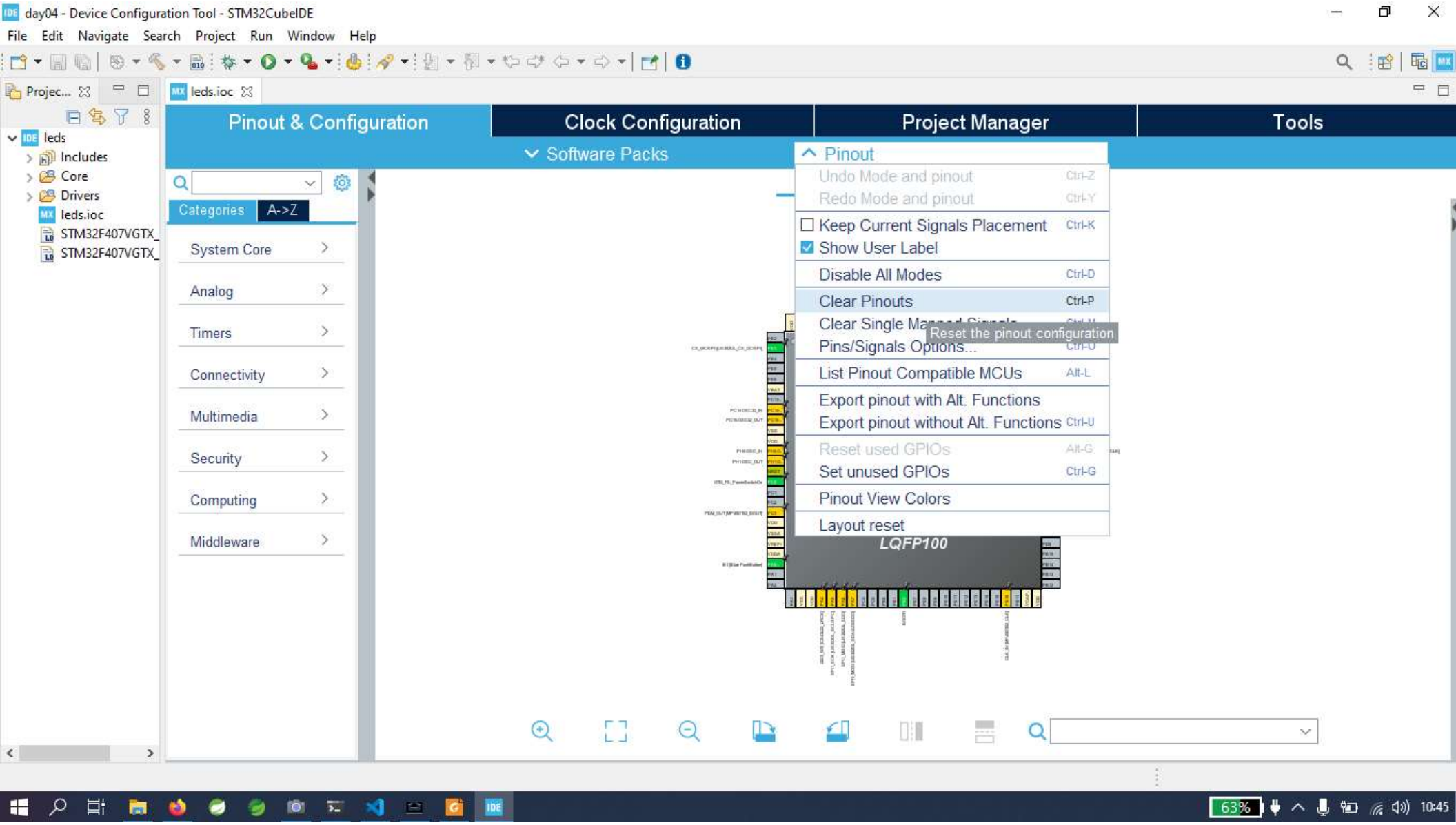
61% 10:43

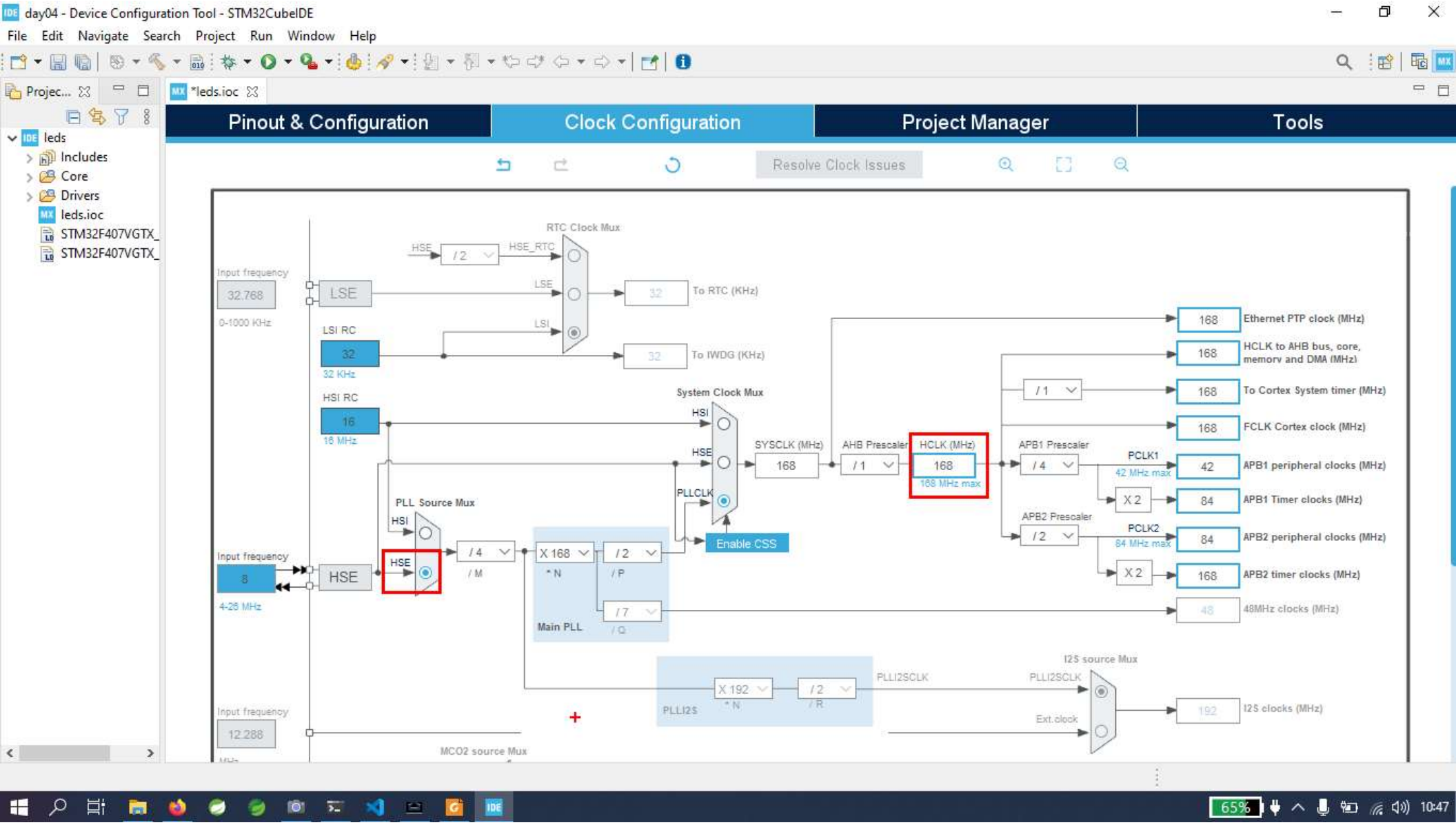

STM32 Project
Setup STM32 project
IDE
Project
Project Name: leds
Use default location
Location: C:/Nilesh/sep21/DESD/rtos/day04
Browse...
Options
Targeted Language
C C++
Targeted Binary Type
Executable Static Library
Targeted Project Type
STM32Cube Empty
< Back
Next >
Finish
Cancel
Problems
Tasks
Console
Properties
0 items
Description
Resource
Path
Build Analyzer
Static Stack Analyzer
Memory Regions
Memory Details
Region
Start address
End address
Size
Free
62%
10:44


STM32 Project
Firmware Library Package Setup
Setup STM32 target's firmware
IDE
Target and Firmware Package
Target Reference: STM32F407G-DISC1
Firmware Package Name and Version: STM32Cube FW_F4 V1.26.2
Firmware and Software Package Repository
Location:
C:\Users\sunbeam\STM32Cube\Repository
See 'Firmware Updater' for settings related to package installation
Code Generator Options
Add necessary library files as reference in the toolchain project configuration file
Copy all used libraries into the project folder
Copy only the necessary library files
< Back
Next >
Finish
Cancel
Problems
Tasks
Console
Properties
0 items
Description
Resource
Path
Build Analyzer
Static Stack Analyzer
Memory Regions
Memory Details
Region
Start address
End address
Size
Free
62%
10:44


STM32 Project
Firmware Library Package Setup
Setup STM32 target's firmware
IDE
Target and Firmware Package
Target Reference:
STM32F407G-DISC1
Firmware Package Name and Version:
STM32Cube FW_F4
V1.26.2
Board Project Options:
Initialize all peripherals with their default Mode ?
Yes
No
Code Generator Options
Add necessary library files as reference in the toolchain project configuration file
Copy all used libraries into the project folder
Copy only the necessary library files
Perform Project Creation. Please Wait For Completion ...
< Back
Next >
Finish
Cancel
Problems
Tasks
Console
Properties
0 items
Description
Resource
Path
Build Analyzer
Static Stack Analyzer
Memory Regions
Memory Details
Region
Start address
End address
Size
Free
62%
10:44


STM32 Project
Firmware Library Package Setup
Setup STM32 target's firmware
IDE
Target and Firmware Package
Target Reference:
STM32F407G-DISC1
Firmware Package Name and Version:
STM32Cube FW_F4
V1.26.2
Open Associated Perspective?
Device Configuration Tool editor is associated with Device Configuration Tool perspective. Do you want to open this perspective now?
Remember my decision
Yes
No
Code Generator Options
Add necessary library files as reference in the toolchain project configuration file
Copy all used libraries into the project folder
Copy only the necessary library files
Perform Project Creation. Please Wait For Completion ...
< Back
Next >
Finish
Cancel
Problems
Tasks
Console
Properties
0 items
Description
Resource
Path
Build Analyzer
Static Stack Analyzer
Memory Regions
Memory Details
Region
Start address
End address
Size
Free
62%
10:44


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
Projec...
leds
Includes
Core
Drivers
leds.ioc
STM32F407VGTX_
STM32F407VGTX_
leds.ioc
Pinout & Configuration
Clock Configuration
Project Manager
Tools
Software Packs
Categories
A->Z
System Core
Analog
Timers
Connectivity
Multimedia
Security
Computing
Middleware
Pinout
Undo Mode and pinout Ctrl-Z
Redo Mode and pinout Ctrl-Y
Keep Current Signals Placement Ctrl-K
Show User Label
Disable All Modes Ctrl-D
Clear Pinouts Ctrl-P
Clear Single Ma
Reset the pinout configuration
Pins/Signals Options...
List Pinout Compatible MCUs Alt-L
Export pinout with Alt. Functions
Export pinout without Alt. Functions Ctrl-U
Reset used GPIOs Alt-G
Set unused GPIOs Ctrl-G
Pinout View Colors
Layout reset
LQFP100
63%
10:45


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
Projec...
*leds.ioc
leds
Includes
Core
Drivers
leds.ioc
STM32F407VGTX_
STM32F407VGTX_
Pinout & Configuration
Clock Configuration
Project Manager
Tools
Resolve Clock Issues
RTC Clock Mux
HSE
/ 2
HSE_RTC
LSE
LSI
Input frequency
32.768
0-1000 KHz
LSE
LSI RC
32
32 KHz
To RTC (KHz)
To IWDG (KHz)
HSI RC
16
16 MHz
System Clock Mux
HSI
HSE
PLLCLK
SYSCLK (MHz)
168
AHB Prescaler
/ 1
HCLK (MHz)
168
168 MHz max
APB1 Prescaler
/ 4
PCLK1
42 MHz max
APB2 Prescaler
/ 2
PCLK2
84 MHz max
Ethernet PTP clock (MHz)
HCLK to AHB bus, core, memory and DMA (MHz)
To Cortex System timer (MHz)
FCLK Cortex clock (MHz)
APB1 peripheral clocks (MHz)
APB1 Timer clocks (MHz)
APB2 peripheral clocks (MHz)
APB2 timer clocks (MHz)
48MHz clocks (MHz)
PLL Source Mux
Input frequency
8
4-26 MHz
HSE
/ 4
/ M
X 168
* N
/ P
/ Q
Main PLL
Enable CSS
I2S source Mux
PLLI2SCLK
X 192
/ R
PLLI2S
Ext.clock
I2S clocks (MHz)
Input frequency
12.288
MCO2 source Mux
65%
10:47

day04 - Device Configuration Tool - STM32CubeIDE

File Edit Navigate Search Project Run Window Help

Projec... *leds.ioc

leds
Includes
Core
Drivers
leds.ioc
STM32F407VGTX_
STM32F407VGTX_

Pinout & Configuration | Clock Configuration | Project Manager | Tools

Software Packs | Pinout

Categories | A->Z

System Core
DMA
GPIO
IWDG
NVIC
RCC
SYS
WWDG

Analog
Timers
Connectivity
Multimedia
Security
Computing
Middleware

SYS Mode and Configuration

Mode

Debug Disable

System Wake-Up

Timebase Source TIM1

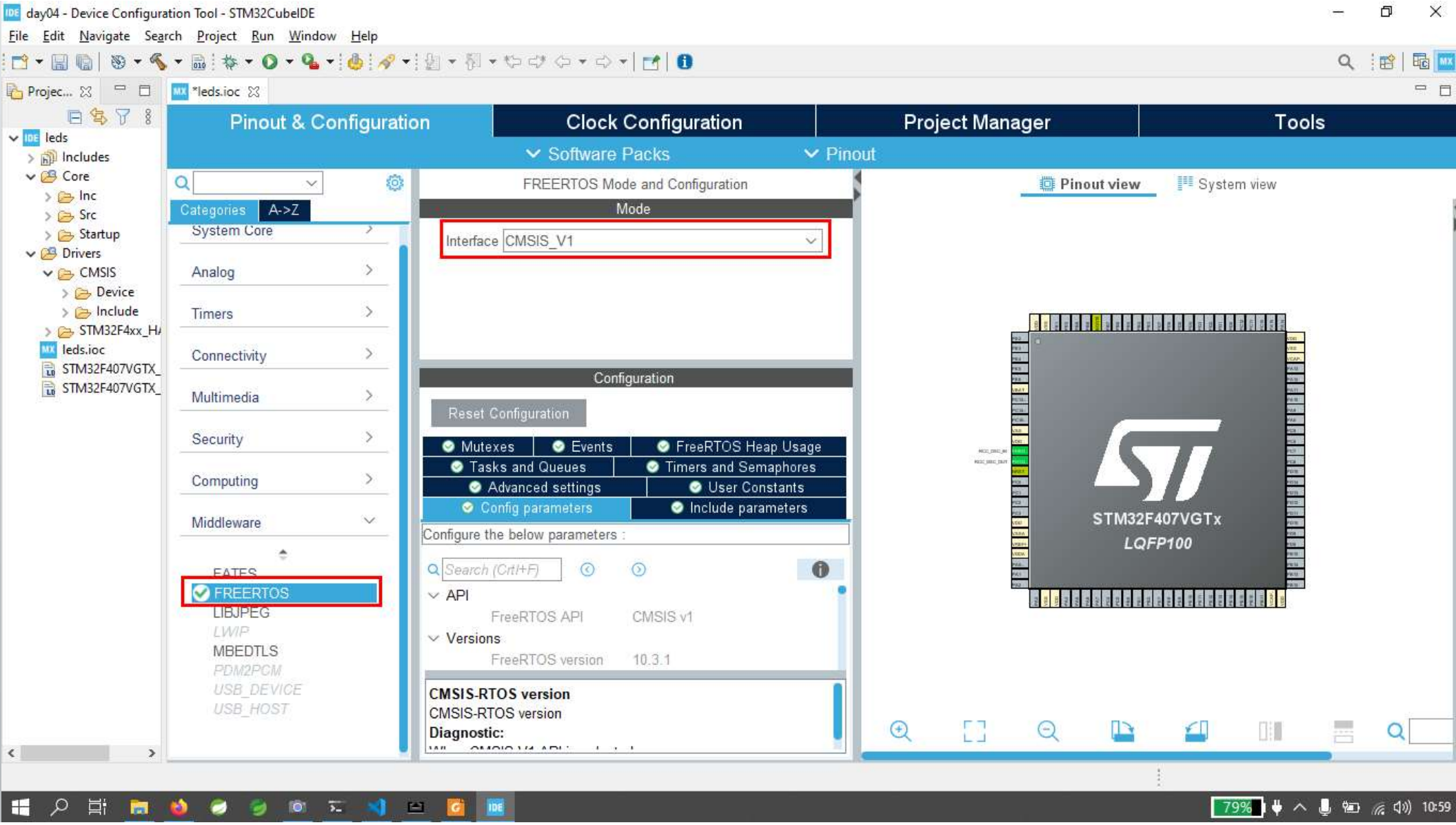
Configuration

/arning: This peripheral has no parameters to be config

Pinout view | System view

STM32F407VGTx
LQFP100

67% 10:48


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
Projec...
leds
Includes
Core
Inc
Src
Startup
Drivers
CMSIS
Device
Include
STM32F4xx_HA
leds.ioc
STM32F407VGTX_
STM32F407VGTX_
*leds.ioc
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FREERTOS
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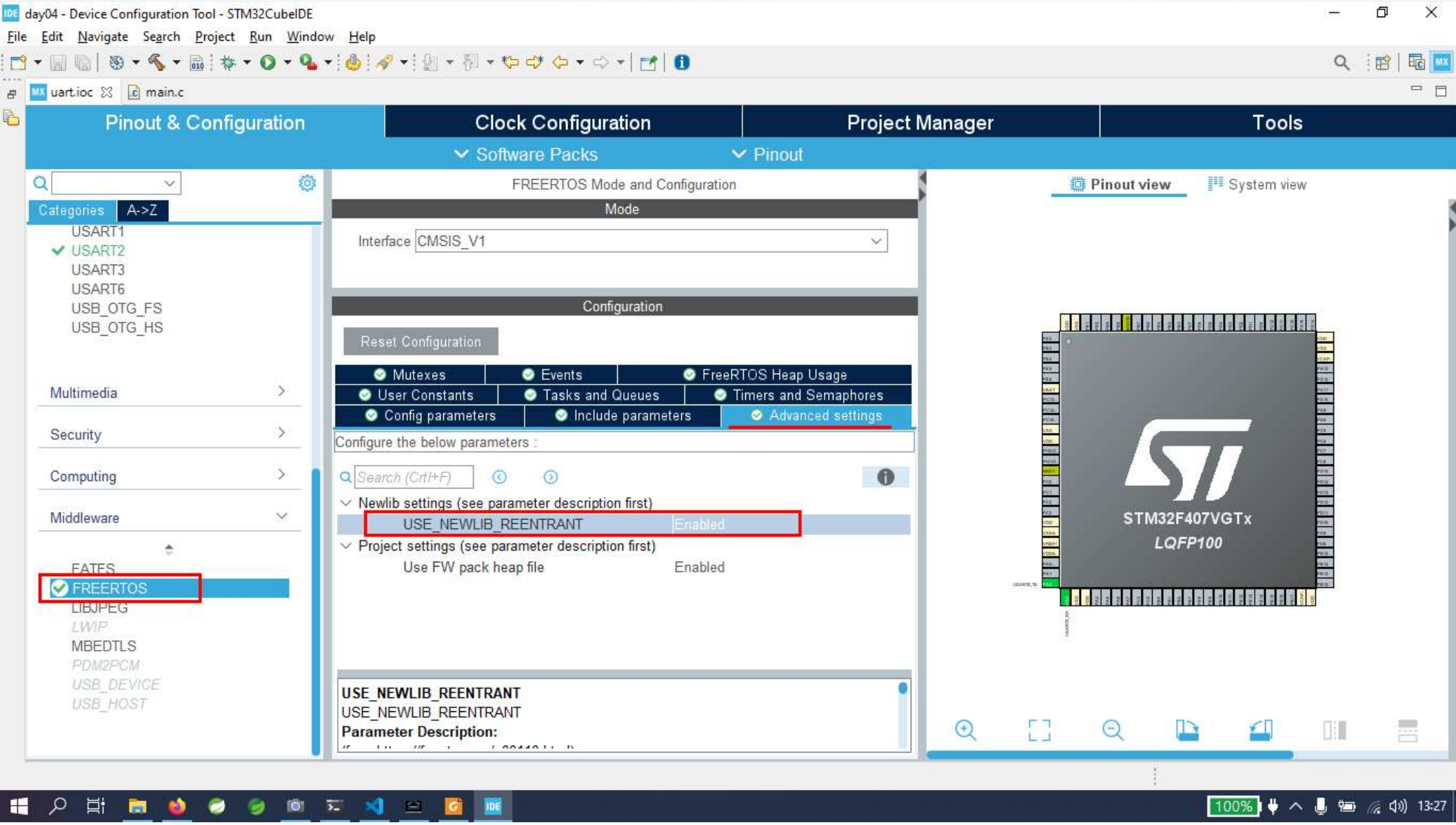
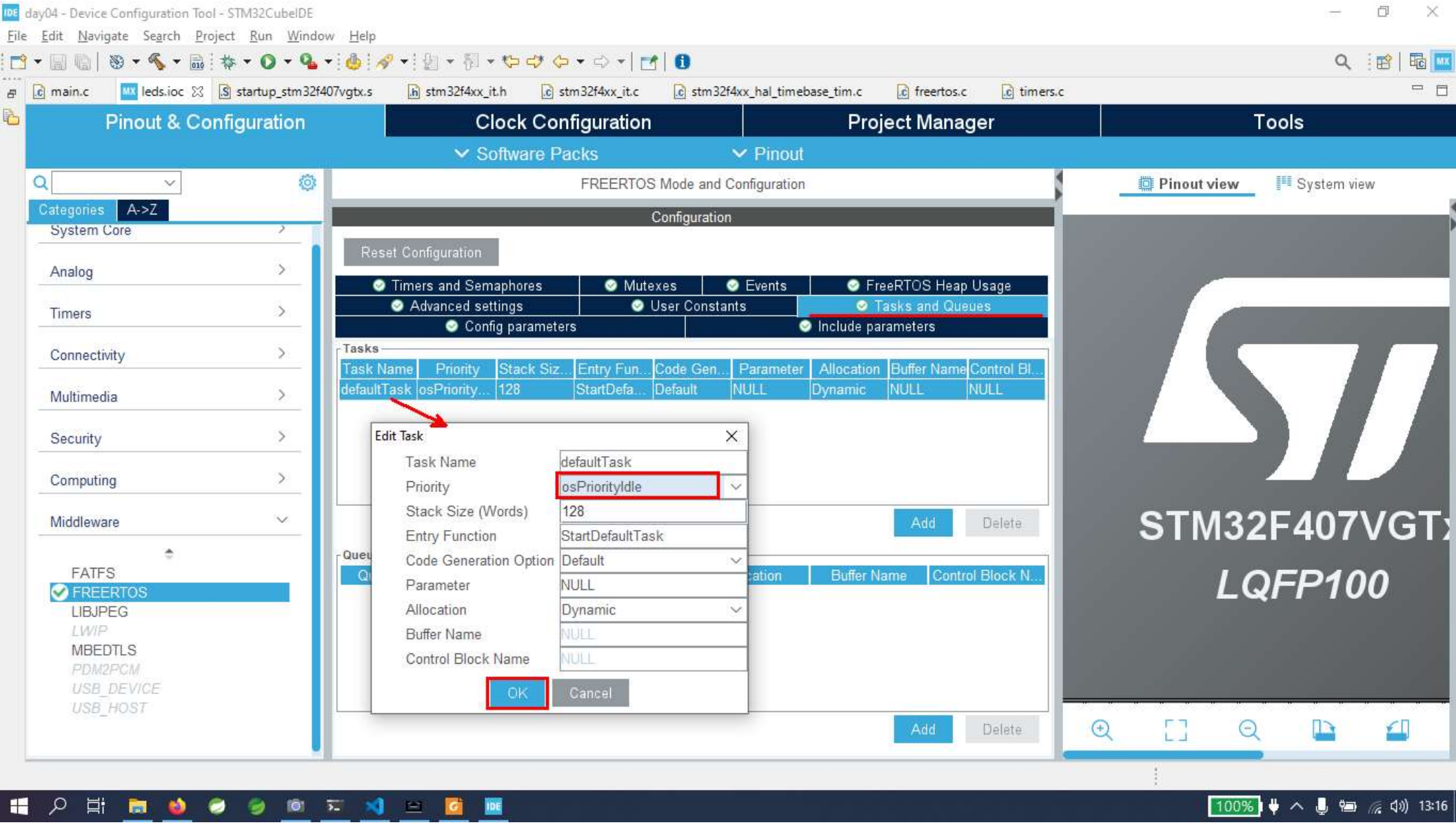
PDM2PCM
USB_DEVICE
USB_HOST
FREERTOS Mode and Configuration
Mode
Interface CMSIS_V1
Configuration
Reset Configuration
Mutexes
Events
FreeRTOS Heap Usage
Tasks and Queues
Timers and Semaphores
Advanced settings
User Constants
Config parameters
Include parameters
Configure the below parameters :
Search (Crtl+F)
API
FreeRTOS API CMSIS v1
Versions
FreeRTOS version 10.3.1
CMSIS-RTOS version
CMSIS-RTOS version
Diagnostic:
Pinout view
System view
STM32F407VGTx
LQFP100
79%
10:59


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
uart.ioc
main.c
Pinout & Configuration
Clock Configuration
Project Manager
Tools
Software Packs
Pinout
Categories
A->Z
USART1
USART2
USART3
USART6
USB_OTG_FS
USB_OTG_HS
Multimedia
Security
Computing
Middleware
FATFS
FREERTOS
LIBJPEG
LWIP
MBEDTLS
PDM2PCM
USB_DEVICE
USB_HOST
FREERTOS Mode and Configuration
Mode
Interface CMSIS_V1
Configuration
Reset Configuration
Mutexes
Events
FreeRTOS Heap Usage
User Constants
Tasks and Queues
Timers and Semaphores
Config parameters
Include parameters
Advanced settings
Configure the below parameters :
Search (Crtl+F)
Newlib settings (see parameter description first)
USE_NEWLIB_REENTRANT Enabled
Project settings (see parameter description first)
Use FW pack heap file Enabled
USE_NEWLIB_REENTRANT
USE_NEWLIB_REENTRANT
Parameter Description:
Pinout view
System view
STM32F407VGTx
LQFP100
100%
13:27


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
main.c
leds.ioc
startup_stm32f407vgtx.s
stm32f4xx_it.h
stm32f4xx_it.c
stm32f4xx_hal_timebase_tim.c
freertos.c
timers.c
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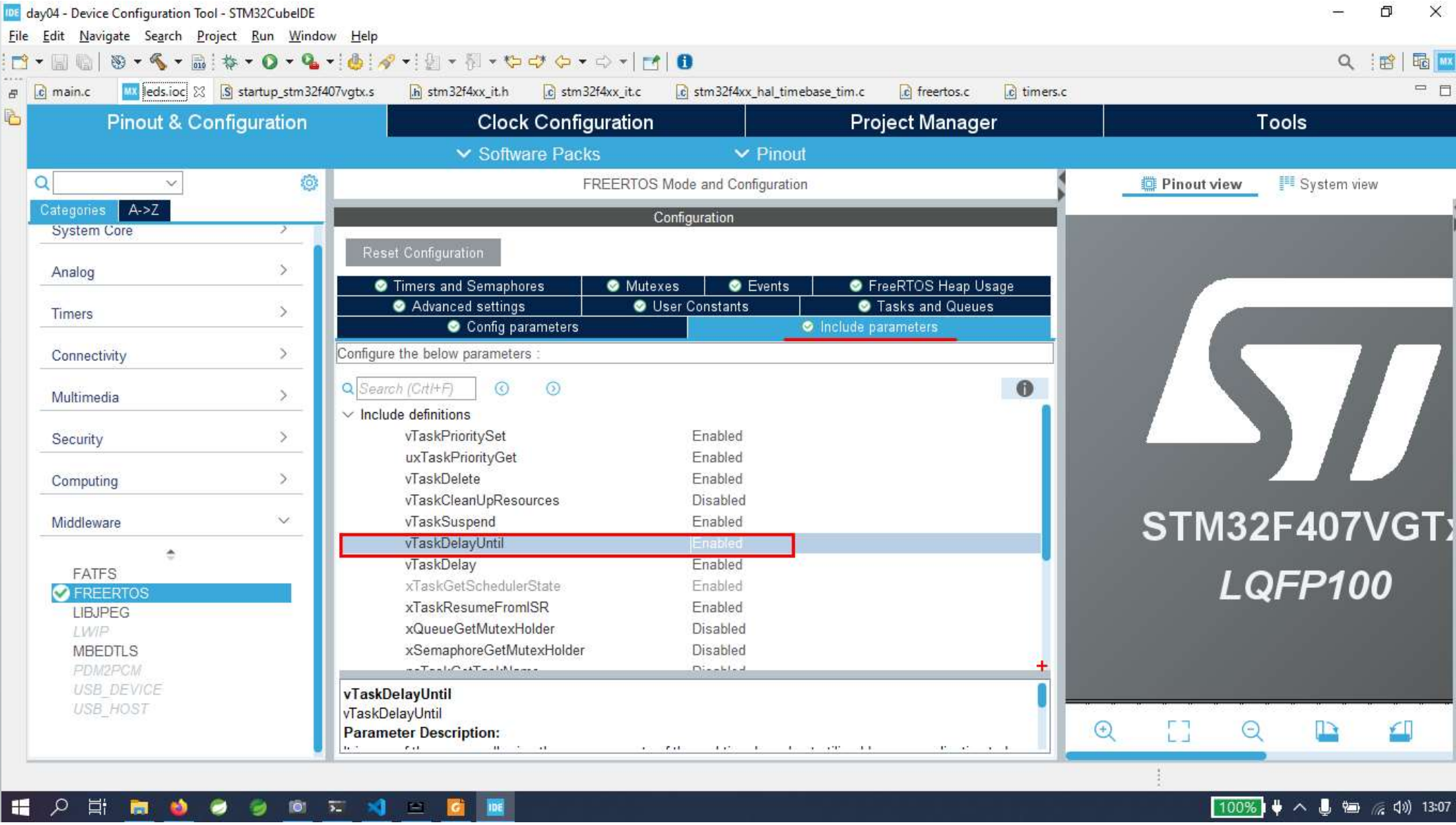
FREERTOS
LIBJPEG
LWIP
MBEDTLS
PDM2PCM
USB_DEVICE
USB_HOST
FREERTOS Mode and Configuration
Configuration
Reset Configuration
Timers and Semaphores
Mutexes
Events
FreeRTOS Heap Usage
Advanced settings
User Constants
Tasks and Queues
Config parameters
Include parameters
Tasks
Task Name
Priority
Stack Siz...
Entry Fun...
Code Gen...
Parameter
Allocation
Buffer Name
Control Bl...
defaultTask
osPriority...
128
StartDefa...
Default
NULL
Dynamic
NULL
NULL
Add
Delete
Edit Task
Task Name
defaultTask
Priority
osPriorityIdle
Stack Size (Words)
128
Entry Function
StartDefaultTask
Code Generation Option
Default
Parameter
NULL
Allocation
Dynamic
Buffer Name
NULL
Control Block Name
NULL
OK
Cancel
Buffer Name
Control Block N...
Add
Delete
Pinout view
System view
STM32F407VGTx
LQFP100
100%
13:16


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
main.c
leds.ioc
startup_stm32f407vgtx.s
stm32f4xx_it.h
stm32f4xx_it.c
stm32f4xx_hal_timebase_tim.c
freertos.c
timers.c
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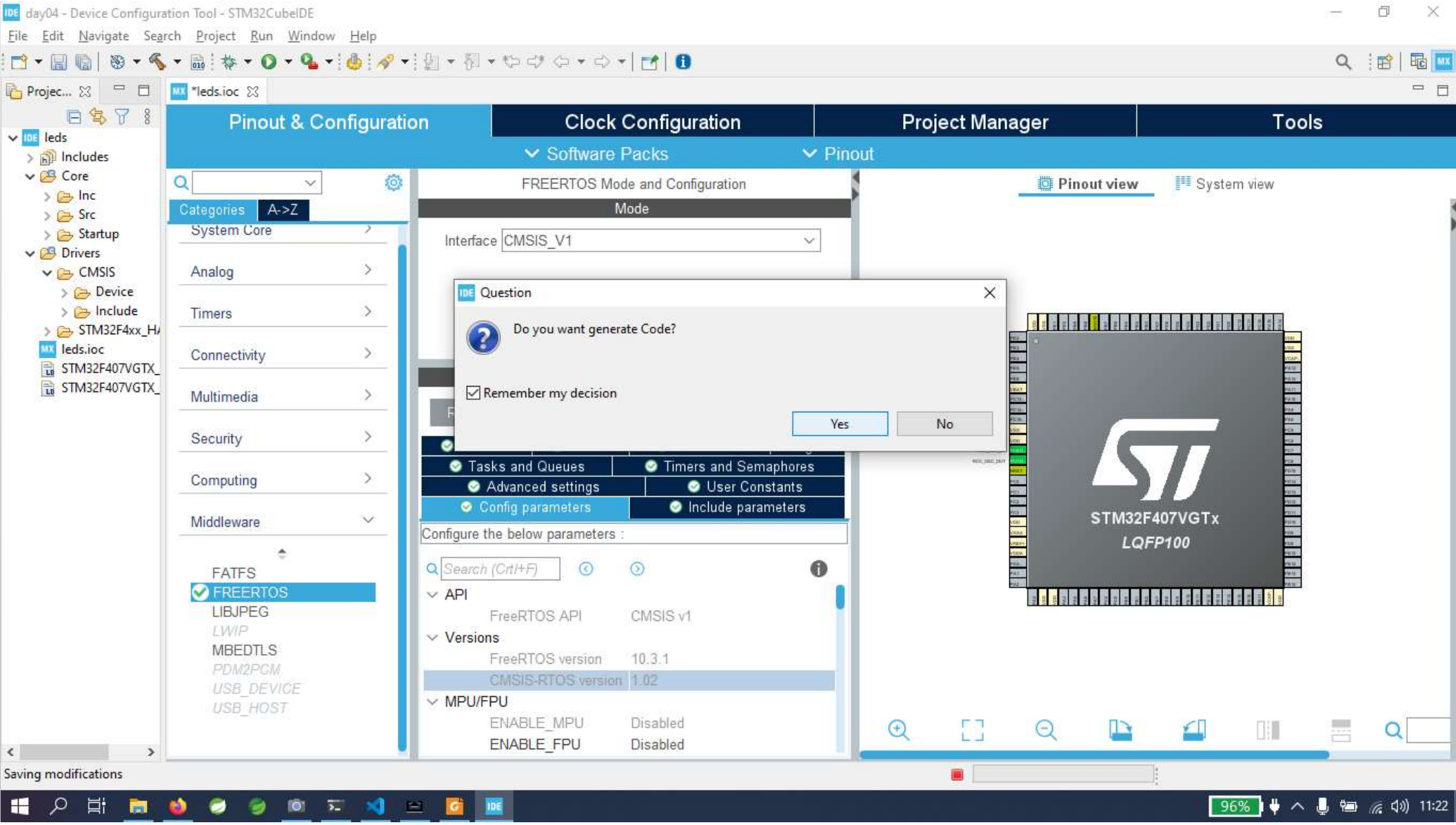
LWIP
MBEDTLS
PDM2PCM
USB_DEVICE
USB_HOST
FREERTOS Mode and Configuration
Configuration
Reset Configuration
Timers and Semaphores
Mutexes
Events
FreeRTOS Heap Usage
Advanced settings
User Constants
Tasks and Queues
Config parameters
Include parameters
Configure the below parameters :
Search (Crtl+F)
Include definitions
vTaskPrioritySet Enabled
uxTaskPriorityGet Enabled
vTaskDelete Enabled
vTaskCleanUpResources Disabled
vTaskSuspend Enabled
vTaskDelayUntil Enabled
vTaskDelay Enabled
xTaskGetSchedulerState Enabled
xTaskResumeFromISR Enabled
xQueueGetMutexHolder Disabled
xSemaphoreGetMutexHolder Disabled
vTaskDelayUntil
vTaskDelayUntil
Parameter Description:
Pinout view
System view
STM32F407VGTx
LQFP100
100%
13:07


day04 - Device Configuration Tool - STM32CubeIDE
File Edit Navigate Search Project Run Window Help
Projec...
leds
Includes
Core
Inc
Src
Startup
Drivers
CMSIS
Device
Include
STM32F4xx_HA
leds.ioc
STM32F407VGTX_
STM32F407VGTX_
*leds.ioc
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FATFS
FREERTOS
LIBJPEG
LWIP
MBEDTLS
PDM2PCM
USB_DEVICE
USB_HOST
FREERTOS Mode and Configuration
Mode
Interface CMSIS_V1
Question
Do you want generate Code?
Remember my decision
Yes
No
Tasks and Queues
Timers and Semaphores
Advanced settings
User Constants
Config parameters
Include parameters
Configure the below parameters :
Search (Crtl+F)
API
FreeRTOS API CMSIS v1
Versions
FreeRTOS version 10.3.1
CMSIS-RTOS version 1.02
MPU/FPU
ENABLE_MPU Disabled
ENABLE_FPU Disabled
Pinout view
System view
STM32F407VGTx
LQFP100
Saving modifications
96%
11:22