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## RTC overview



A quality version of this page, approved on *14 September 2021*, was based off this revision.

This article gives information about the Linux<sup>®</sup> RTC framework. The RTC framework is involved in precise time countdown.

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## 1 Framework purpose

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The RTC keeps the system time up to date and can wake up the system from the standby power mode at a programmed time.

A general presentation of the RTC framework is available in the Linux RTC documentation <sup>[1]</sup>.



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## 2 System overview

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### RTC framework overview

#### 2.1 Component description

- **RTC (hardware)**  
RTC dedicated hardware block in STM32MPU product.
- **rtc-stm32**  
RTC ST driver.
- **rtc**  
Linux RTC framework, it provides API to RTC driver and interfaces to user.
- **Sysfs interface**  
Sysfs interface is accessible via `/sys/class/rtc/rtcX/`.
- **Procfs interface**  
Procfs interface is accessible via `/proc/driver/rtc`.
- **Char device interface**  
Device interface is accessible via `/dev/rtcX`.
- **User application**  
The user application can be an user built application or an community application like `hwclock`.

#### 2.2 API description

API is described in Linux RTC documentation <sup>[1]</sup>.



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## 3 Configuration

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### 3.1 Kernel Configuration

Activate **rtc-stm32** driver in kernel configuration using the Linux Menuconfig tool: Menuconfig or how to configure kernel

```
Device drivers --->
  *- Real Time Clock --->
    <*> STM32 RTC
```

### 3.2 Device tree configuration

Please refer to the [RTC device tree configuration](#).



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## 4 How to use the framework

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Please refer to the [How to use the RTC](#).



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## 5 How to trace and debug the framework

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### 5.1 How to trace

Dynamic debug traces can be added using the following commands:

```
echo -n 'file rtc-stm32.c +p'>/sys/kernel/debug/dynamic_debug/control
```



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## 6 Source code location

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- rtc-stm32: drivers/rtc/rtc-stm32.c
- api: include/linux/rtc.h
- framework:
  - drivers/rtc/class.c
  - drivers/rtc/dev.c
  - drivers/rtc/interface.c
  - drivers/rtc/lib.c
  - drivers/rtc/proc.c
  - drivers/rtc/sysfs.c
- device-tree bindings constants: include/dt-bindings/rtc/rtc-stm32.h





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## 7 References

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- 1.01.1 Linux RTC documentation

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Real Time Clock

Application programming interface