

# Reset device tree configuration

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## Contents

1 Article purpose .....	1
2 DT bindings documentation .....	1
3 DT configuration .....	1
3.1 DT configuration (STM32 level) .....	1
3.1.1 STM32MP1 Reset node .....	2
3.2 DT configuration (board level) .....	2
4 How to configure the DT using STM32CubeMX .....	2
5 References .....	2

## 1 Article purpose

This article explains how to configure the **RCC internal peripheral** when it is assigned to the Linux<sup>®</sup> OS. In that case, it is controlled by the **Reset framework**.

The configuration is performed using the **device tree** mechanism that provides a hardware description of the RCC peripheral used by the reset-stm32mp1 Linux driver and by the Reset framework.

## 2 DT bindings documentation

The Reset device tree bindings are composed of:

- generic DT bindings<sup>[1]</sup> used by the Reset framework.
- vendor Reset DT bindings<sup>[2]</sup> used by the reset-stm32mp1 driver: this binding document explains how to write device tree files for reset.

## 3 DT configuration

### 3.1 DT configuration (STM32 level)

The STM32MP1 Reset node is same node of Clock (they share same hardware IP) and is located in the *stm32mp157c.dts*<sup>[3]</sup>. See the **Device tree** for further explanation.

### 3.1.1 STM32MP1 Reset node

We need to specify the number of cells in a reset specifier.

For the STM32MP1, reset driver request only 1 cell. This is configured by setting the property 'reset-cells' of the rcc device tree node to 1.

```
rcc: rcc@50000000 {
    compatible = "st,stm32mp1-rcc", "syscon";
    #clock-cells = <1>;
    #reset-cells = <1>;
    reg = <0x50000000 0x1000>;
    ...
};
```



This device tree part is related to STM32MP1 microprocessors. It must be kept as-is, without being modified by the end-user.

## 3.2 DT configuration (board level)

If a Linux driver needs a reset signal, it should be declared in its DT node as shown below:

resets = <phandle> : List of phandle and reset specifier pairs, one pair for each reset signal that affects the device, or that the device manages.

- Example:

```
i2c2: i2c@40013000 {
    compatible = "st,stm32f7-i2c";
    reg = <0x40013000 0x400>;
    interrupt-names = "event", "error", "wakeup";
    interrupts-extended = <&intc GIC_SPI 33 IRQ_TYPE_LEVEL_HIGH>,
        <&intc GIC_SPI 34 IRQ_TYPE_LEVEL_HIGH>,
        <&exti 22 1>;
    clocks = <&rcc I2C2_K>;
    resets = <&rcc I2C2_R>;
    ...
};
```

## 4 How to configure the DT using STM32CubeMX

The [STM32CubeMX](#) tool can be used to configure the STM32MPU device and get the corresponding [platform configuration device tree](#) files.

The STM32CubeMX may not support all the properties described in the above [DT bindings documentation](#) paragraph. If so, the tool inserts **user sections** in the generated device tree. These sections can then be edited to add some properties, which are preserved from one generation to another. Refer to [STM32CubeMX user manual](#) for further information.

## 5 References

Please refer to the following links for additional information:

1. ↑ [Documentation/devicetree/bindings/reset/reset.txt](#) , Reset device tree bindings
2. ↑ [Documentation/devicetree/bindings/reset/st%2Cstm32mp1-rc.txt](#) , STM32MP1 Reset device tree bindings
3. ↑ [stm32mp157c.dtsi](#) STM32MP157C device tree file

Operating System

Reset and Clock Control

Device Tree

Generic Interrupt Controller

Serial Peripheral Interface