

J-Link unable to download code

**Questions:**

In terms of circuit board design, the SWD method is used to download programs in order to save space, and only the SWCLK, SWDIO and GND are connected to J-Link in the hardware design, which may cause a failure in downloading code.

This problem is only for the following J-Link drivers:

J-Link version: HW: V8.00 dll: V6.20c (or above)

Only SWCLK, SWDIO and GND is connected to J-Link.

**Answer:**

When downloading code, J-Link determines the level output on data line and clock line according to the voltage value on the J-Link pin1. For older version J-Link (V8 in this case), its internal pin1 and pin2 are not shorted;

In terms of connection mode between J-Link and MCU, only the SWCLK, SWDIO and GND are connected to J-Link, but the reference voltage of MCU is not linked to the J-Link pin1, causing no voltage input on the J-Link pin1. In this case, code download error may occur because of J-Link unable to detect the reference voltage of MCU.

When J-Link is used as SWD interface, the connectors are defined as follows:

VTref	1 ● ● 2	NC
Not used	3 ● ● 4	GND
Not used	5 ● ● 6	GND
SWDIO	7 ● ● 8	GND
SWCLK	9 ● ● 10	GND
Not used	11 ● ● 12	GND
SWO	13 ● ● 14	*
RESET	15 ● ● 16	*
Not used	17 ● ● 18	*
5V-Supply	19 ● ● 20	*

**Solutions:**

1. If the hardware circuit board supports modification, you can connect MCU's VDD (normally 3.3 V) to J-Link pin1.
2. If the hardware circuit board does not support, you can short the pin1 and pin2 of J-Link (provided that the internal jumper of pin2 is shorted to 3.3 V)

**Notes:**

1. This problem may also occur in other MCUs, with an error message indicating that MCU cannot be found.
2. For the new J-Link (like V8.3), the pin1 is shorted to pin2 internally, so this problem won't happen.
3. It is recommended that J-Link should be connected to RST signal while connecting to the target board. In other words, connect VDD, VSS, GND, SWDIO and SWCLK to RST signal.

**Type:** Development tool

**Applicable products:** All MCUs

**Main function:** None

**Minor function:** None

**Document revision history**

Date	Revision	Changes
2022.2.16	2.0.0	Initial release

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