

Minimum system and network requirements

This page only specifies the requirements for running the Franka Control Interface (FCI). Additional requirements are specified in the documents that you have received with your robot.

Workstation PC

Minimum System Requirements	
Operating System	Linux with PREEMPT_RT patched kernel
Network card	100BASE-TX

Since the robot sends data at 1 kHz frequency, it is important that the workstation PC is configured to minimize latencies. For example, we recommend to [disable CPU frequency scaling](#). Other possible optimizations will depend on your particular system.

Network

If possible, directly connect your workstation PC to the LAN port of Control, i.e. avoid any intermediate devices such as switches.

! Important

The workstation PC which commands your robot using the FCI must always be connected to the LAN port of Control (shop floor network) and **not** to the LAN port of the Arm (robot network).

Having relays in between could lead to delay, jitter or packet loss. This will decrease the performance of your controller or make it unusable.

! Hint

The best performance can be achieved when connecting directly to the LAN port of Control. This requires setting up a static IP for the shop floor network in the administrator's interface beforehand. See [Setting up the network](#).

To control the robot, it must be guaranteed that the sum of the following time measurements is less than 1 ms:



- Round trip time (RTT) between the workstation PC and FCI.
- Execution time of your motion generator or control loop.
- Time needed by the robot to process your data and step the internal controller.

! Caution

If the **<1 ms constraint** is violated for a cycle, the received packet is dropped by FCI. After 20 consecutively dropped packets, your robot *will stop* with the `communication_constraints_violation` error. Current measure of communication quality can be read from the `RobotState::control_command_success_rate` field.

If a **motion generator command packet is dropped**, the robot takes the previous waypoints and performs a linear extrapolation (keep acceleration constant and integrate) for the missed time step. If more than 20 packets are lost or dropped in a row, your robot *will stop*.

If a **controller command packet is dropped**, FCI will reuse the torques of the last successful received packet. Again, more than 20 consecutive lost or dropped packets will cause your robot to *stop*.

! Hint

Measure the performance of your network (see [Network bandwidth, delay and jitter test](#)) and the control or motion generator loop beforehand.

