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Technical News

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Notice of Release: MELFA API for Linux Communication Middleware for Mitsubishi Electric Industrial Robot MELFA

■Date of issue
February 2026

■Applicable models
MELFA FR series , MELFA CR series and MELFA ASSISTA series (for CR800 series controllers)

Thank you for your continued support of Mitsubishi Electric industrial robot "MELFA".
We are pleased to announce the release of "MELFA API for Linux," a communication middleware that enables direct control and monitoring of Mitsubishi Electric industrial robot "MELFA" from a Linux environment.
This API provides a highly reliable set of libraries that allow applications running on a Linux PC (Ubuntu 22.04 LTS recommended) to access CR800 series controllers via Ethernet for robot operation, information acquisition, and program control.

1 Features

(1) Seamlessly integrates into existing Linux-based systems
Traditionally, Windows environments have been primarily used for integration with PC applications. This API supports operation on Ubuntu 22.04 LTS, enabling seamless integration into embedded Linux environments and systems utilizing ROS (Robot Operating System).

(2) Enhanced development flexibility through a multilingual API
MELFA API for Linux provides an API compatible with C++ (C++17) and Python (Python 3.10). By adopting widely used programming languages, it facilitates integration with existing Linux assets and the vast open-source software ecosystem, accelerating the development of new solutions.

(3) Compatibility with ROS 2
We have documented the usage procedure for the ROS 2 (Humble) environment.
ROS 2 enables control of robot programs via service communication, and when combined with ROS 2's rich functionality, it enables flexible robot development.

(4) Rich feature set
MELFA's diverse functions can be utilized as function calls (API) from C++ and Python.

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Examples of Commands
- Retrieve robot basic information
- Retrieve program variable contents (integer/real number/string/position/joint)
- Start, stop, or reset robot program
- Override settings
- Direct execution (MELFA-BASIC VI can be written directly)

(5) Includes immediately verifiable sample programs
Sample programs for C++, Python, and ROS 2 are included. Simply follow the steps outlined in the manual to get started easily. This helps reduce the effort required for implementation verification and proof-of-concept (PoC) testing.

(6) All operations are completed on the Linux PC
Previously, when an error occurred, a teaching box was required to reset it. However, with this API, error reset can now be performed using only a Linux PC without a teaching box, making it more convenient to use. In addition to error reset, program reset and program start are also possible.
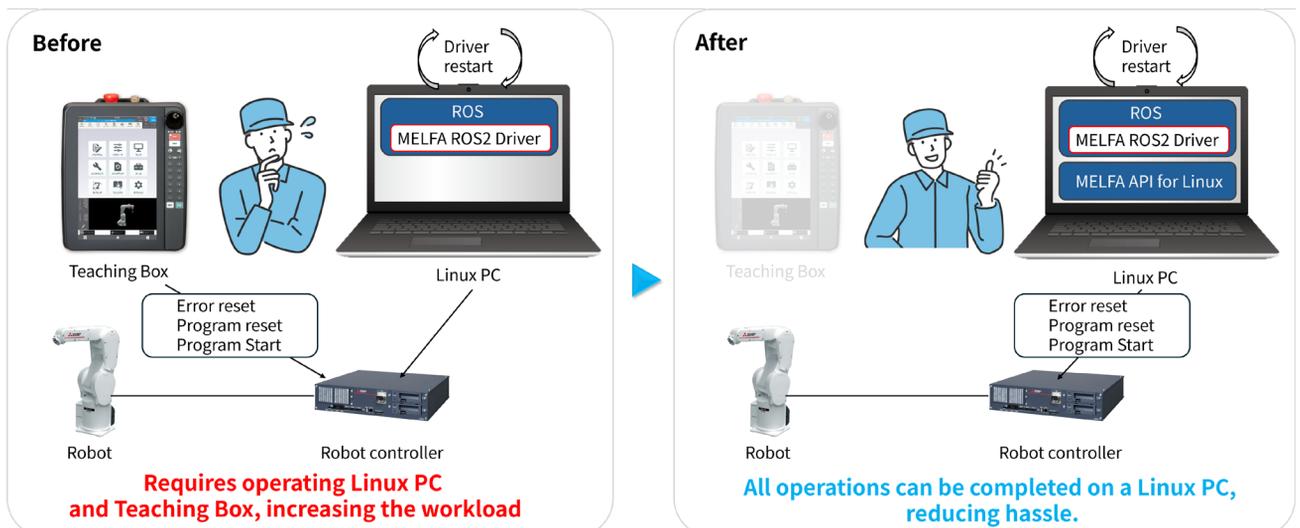
2 System Requirements

The system requirements for this API are as shown in the table below.

Item	Description
Operating system	Ubuntu 22.04 LTS
CPU / Graphics	64-bit architecture
Main memory	4 GB or more
Communication interface	Ethernet port

The robot controllers available for use with this API and their supported versions are listed in the table below.

Series	Configuration	Connection	Supported robot controller version
CR800 series	CR800-D CR860-D	USB	NA
		Ethernet (TCP/IP)	A1 or later
		GOT communication	NA
	CR800-R CR860-R	CRnQ_R communication	NA
		Ethernet (TCP/IP)	A1 or later
	CR800-Q CR860-Q	CRnQ_R communication	NA
		Ethernet (TCP/IP)	A1 or later
	Other than the above	—	NA
Other than CR8xx series	—	—	NA

When using in combination with the MELFA ROS2 Driver, please verify the compatible robots. For details, please refer to the following.
GitHub - Mitsubishi-Electric-Asia/melfa_ros2_driver: Mitsubishi Electric Industrial & Collaborative Robot MELFA ROS2 Driver

3. How to Download

This API can be downloaded free of charge from our FA website.
(https://www.mitsubishielectric.com/fa/download/software/search.page?mode=lib&kisyu=/robot)