CAM Agent

CAM Agent is an AI assistant for the CAM system. You control CAM through chat — toolpath calculation, tool setup, geometry management, NC program generation — while the agent drives the CAM system for you through a set of dedicated tools.

The assistant works with several AI providers, understands the project that is currently open, can look at the 3D scene, and reports every action it takes so you can approve or reject it.

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FAQ

Something went wrong. Click Report a bug in the CAM Agent menu — a bug report with logs is sent automatically.

Where are the logs? `%TEMP%\CamAgent3Logs\` — the current session log plus a `_history` folder with previous sessions.

How do I update? No manual steps — CAM Agent checks for a new version, downloads it, and restarts itself.

How do I switch the provider or model? Use the provider and model selectors in the toolbar. API keys are entered once per provider and validated before saving.

How do I reset the chat? Type `/clear` or restart CAM Agent.

How do I recognize part features? Type `/feature` or click the Feature recognition button — it appears when a STEP file is selected.

How do I machine a part automatically? Type `/yolo` — from model to NC program with minimal interaction. For a step-by-step guided workflow, type `/wizard`.

Can the assistant reorder or delete an operation? Yes — ask it to move an operation after another one, make it the first, or delete it. Before deleting, the assistant names the operation and waits for your confirmation: a deletion cannot be undone from the chat, and once the project is saved the only way back is building the operation again. Reordering does not recalculate toolpaths — ask for a recalculation when the new order changes what a later operation machines.

Features

- CAM tools — calculation, simulation, operation management (create, reorder, delete), geometry, tools, NC code, coordinate systems, and more. Full list — Agent tools.
- Semantic search across the CAM system documentation — the agent finds relevant documentation sections by the meaning of a query, not just keywords.
- Feature recognition — a built-in 3D viewer that classifies STEP file faces into 48 machining feature types (holes, pockets, slots, steps, chamfers, gears, grooves, and others). A CAD/CAM toggle in the legend switches between design and machining views; the CAM mode groups faces by machining type with parameters. Results are passed to the agent.
- Task workflows — 10 composable task-oriented workflows, each with a slash command, a quick action button, and a dedicated system prompt (see Workflows and commands).
- MRR / tool life — productivity vs tool life trade-off calculation.
- Cycle time — per-operation cycle time and machining cost estimation.
- STL analysis — geometric metrics and mesh quality checks.
- Machining result comparison — the simulation result against the target model: residual volume, maximum and average stock, gouges, surface coverage.
- AI skills — download and use ready-made skills from the server, or save your own.
- Voice input — real-time dictation with instant language switching from the toolbar.
- Image attachments — screen region screenshots, clipboard paste (Ctrl+V), file attachments.
- 3D scene analysis — the agent autonomously takes viewport screenshots of the CAM system from different angles, analyzes geometry, checks toolpaths and simulation results.
- Interactive tutorial — step-by-step onboarding via the `/tutorial` command.
- Multiple AI providers — Claude (OAuth or API key), OpenAI, Qwen, Gemini, DeepSeek, and CAM GPT. Provider and model selection from the toolbar; API keys are validated before saving.
- Conversation history — long conversations are compressed automatically, and the archive is searchable by meaning.
- Work modes — Agent / Plan, with extended thinking support.
- Effort level — Low / Medium / High / Max from the toolbar, remembered per model.
- CAM system status — a connection indicator in the title bar; click it to set the path to the CAM system executable.
- Auto-update — the assistant checks for new versions and updates automatically.

Getting started

Install

CAM Agent is installed from the Extension Store of the CAM system: open the store and install CAM Agent — a CAM Agent button appears among the utilities of the CAM system. Restart the CAM system after installing: a running instance does not pick up a newly installed extension.

First launch

1. Press the CAM Agent button among the utilities of the CAM system. If the assistant is not on the machine yet, the button offers to download it (about 480 MB) and starts it; on the first start its components are extracted to `%LOCALAPPDATA%\CamAgent3\bin\`, subsequent starts are instant. If it is already installed, the button simply opens it, connected to the CAM instance it was pressed from.
2. Sign in — the authorization screen appears: OAuth via Claude.ai (a browser window opens) or manual API key entry for any supported provider. Keys are validated against the provider before they are saved.
3. Select a project — when started from the button, the assistant is already connected to that CAM instance and the connection indicator in the title bar is green. Open an existing project file or create a new one.
4. Start working — type a request in the chat, press a Quick Action button, or run a slash command (see Workflows and commands).

Requirements

- Windows 10 or newer
- .NET 10 Desktop Runtime
- An installed CAM system

Updates

No manual steps: CAM Agent checks for a new version, downloads it, and restarts itself.

Agent tools

The agent drives the CAM system through 161 tools grouped by area. You normally do not call them yourself — the agent picks the right tool for a request and shows every call in the chat for approval — but the catalog below tells you what the assistant is capable of.

Category	Tools
Project & lifecycle	cam_info, cam_status, cam_new_project, cam_open_project, cam_save_project, cam_calculate, cam_simulate
Composite pipelines	cam_open_and_calculate, cam_calculate_and_save, cam_run_pipeline, cam_scan_project
Operations	cam_create_operation, cam_move_operation, cam_delete_operation, cam_select_operation, cam_set_params, cam_get_params, cam_set_safe_level, cam_list_operation_types, cam_reset_toolpath, cam_reset_simulation
Operation parameters	cam_list_params
Geometry	cam_import_geometry, cam_list_geometry, cam_assign_geometry, cam_export_selected_to_step, cam_add_hole, cam_add_group, cam_list_job_items, cam_set_job_item
Sketcher	cam_add_point, cam_add_line, cam_add_normal_line, cam_add_polyline, cam_add_spline
Tools	cam_list_tools, cam_list_library_tools, cam_add_tool, cam_assign_tool, cam_get_tool_properties, cam_set_tool_properties
Machine	cam_set_machine, cam_list_machine_connectors, cam_setup_workpiece, cam_get_machine_config, cam_set_machine_config, cam_get_approach_return,

Category	Tools
	cam_set_approach_return, cam_set_tool_connector, cam_add_fixture, cam_set_cs
NC code & saving	cam_generate_nc, cam_save_cldata, cam_save_machining_result
Simulation method	cam_set_simulation_method, cam_get_simulation_method
Simulation panel	cam_simulation_goto_error, cam_simulation_get_current_frame, cam_simulation_read_frames, cam_simulate_to_current_frame, cam_get_tool_position
Macros	cam_list_macros, cam_macro_schema, cam_create_macro, cam_run_macro, cam_delete_macro
Macro recording	cam_macro_record_start, cam_macro_record_capture, cam_macro_record_add_step, cam_macro_record_add_recognize_feature, cam_macro_record_status, cam_macro_record_save, cam_macro_record_discard
View	cam_rotate_view, cam_zoom_all, cam_zoom_to_point, cam_set_work_mode, cam_screenshot, cam_get_visibility, cam_set_visibility
Kinematics	cam_compute_workpiece_matrix
Utilities	cam_list_utilities, cam_run_utility
Feeds & speeds	cam_list_feeds_speeds, cam_query_feeds_speeds, cam_calculate_mrr_toollife,

Category	Tools
	cam_estimate_cycle_time, cam_collect_operation_times
Documentation	cam_list_docs, cam_search_docs, cam_read_doc, cam_search_docs_semantic
Feature recognition	cam_find_features, cam_select_entities
Segmentation (ML)	cam_brep_classify, cam_smart_override_segment, cam_segment_step, cam_aagnet_segment, cam_cadnet_segment
AI skills	skill_search, skill_get, skill_list, skill_update, skill_upload, user_skill_add, user_skill_delete, user_skill_list, user_skill_import
Projects	project_index, project_search, project_list
History	conversation_search, conversation_store, conversation_sessions, conversation_cleanup
Standalone	cam_analyze_stl, cam_compare_result, cam_list_system_data, cam_list_supplement
Export & logs	cam_export_info, cam_collect_logs
Operator	ask_human, ask_human_choice
Health	cam_ping, cam_is_alive, cam_operator_activity, rag_ping

Postprocessor development (pp_)

17 tools for driving the postprocessor IDE: open or create a postprocessor, read and edit its structure and code, compile it, run it over CLData, and manage IDE instances.

Category	Tools
Postprocessor	pp_open_post, pp_create_post, pp_get_structure, pp_get_code, pp_set_code, pp_delete, pp_get_registers, pp_set_registers, pp_open_cld, pp_translate, pp_run
IDE instances	pp_launch, pp_instances, pp_select_instance, pp_close, pp_kill
Health	pp_ping

CLData inspection (cld_)

15 tools for inspecting CLData projects: structure, commands, parameters, machine info.

Category	Tools
Projects	cld_open_project, cld_close_project, cld_list_projects
Structure	cld_list_files, cld_get_skeleton, cld_get_unique_command_names
Commands	cld_list_commands, cld_get_command, cld_find_command, cld_command_code
Parameters	cld_get_parameter, cld_find_parameter, cld_get_project_parameter
Machine & export	cld_get_machine_info, cld_dump_json

External references

Related resources for CAM Agent.

Installation

CAM Agent is installed from the Extension Store inside ENCY: the store keeps the assistant paired with your ENCY instance and up to date.

Related resources

Reference	URL
ENCY portal	https://encycam.com/
ENCY Academy — training courses	https://learn.encycam.com/
ENCY technical documentation	https://docs.encycam.com/portal/

Workflows and commands

Task workflows

Ten composable, task-oriented workflows. Each has a slash command, a quick action button in the chat area, and a dedicated system prompt that focuses the agent on the task.

Command	Workflow
`/tutorial`	Interactive tutorial — learn CAM Agent basics step by step
`/setup`	Setup helper — machine, material, geometry
`/feature`	Feature recognition — part analysis in the built-in 3D viewer
`/yolo`	Full automatic pipeline from model to NC program
`/scan`	Review the current project
`/wizard`	Technology wizard — operations, simulation, NC program
`/check`	Troubleshooting
`/feeds`	Feeds and speeds — cutting parameters
`/tools`	Tool picker — tool library
`/cost`	Cycle time and cost estimate

System commands

Command	Action
`/open`	Open a 3D model or project file
`/camdir`	Select the CAM system executable
`/index`	Scan the project structure
`/explain`	Describe the current configuration

Command	Action
`/clear`	Start a new conversation

Commands are filtered by the project state: some appear only when a project is loaded or ready.

Keyboard shortcuts

- `Ctrl+O` — open a model
- `Ctrl+V` — paste an image from the clipboard
- `Enter` — send the message; `Shift+Enter` — new line