

Uchuva AutoCAD MCP - Plugin documentation

Version: 1.1.0 (see installer/version.txt for the installer build)

Uchuva connects AutoCAD to AI assistants (Claude Desktop, Cursor, or any MCP-capable client). The assistant talks to a Python MCP server, which calls a local HTTP API inside AutoCAD (localhost:8767). The active DWG is the single source of truth.

Architecture

1. Assistant - MCP (studio) - mcp-server/autocad_server.py
2. MCP server - HTTP - Uchuva.AcadMcp.dll (runs inside the AutoCAD process)
3. Plugin - AutoCAD .NET API - open drawing

Default port 8767 (documented separately from Metrika360 on 8766).

Requirements

- AutoCAD 2024, 2025, or 2026 (64-bit Windows), AutoLoader bundle under %AppData%\Autodesk\ApplicationPlugins\Uchuva.AcadMcp.bundle\
- .NET plugin built for .NET 8 (see AcadMcp/AcadMcp.csproj)
- Python MCP: uv + mcp-server project (pyproject.toml), installed dependencies via uv sync

Installation (summary)

1. Installer (installer/quick-build-installer.bat or shipped Uchuva.AcadMcp-v*-Setup.exe): deploys the bundle, optional MCP server under %LocalAppData%\Uchuva\AcadMcp, and registers Claude Desktop if you select that component.
2. Wizard: if AutoCAD is detected, you can choose which years (2024-2026) receive the plugin; PackageContents.xml is adjusted accordingly.
3. Claude: setup_autocad_mcp.ps1 / .bat adds the uchuva-autocad MCP server entry pointing at uv.exe and the mcp-server folder.
4. Verify: start AutoCAD with a drawing open; command line should show: Uchuva - AutoCAD MCP active on port 8767.

Local HTTP API (plugin)

Base URL: http://localhost:8767/ — JSON responses, UTF-8.

GET (reads)

- GET /health - Liveness: status, port, app
- GET /drawing/info - File path, units, limits, optional full Model Space entity count (include_entity_count)

- GET /drawing/layers - All layers, colors, linetypes, state
- GET /drawing/layers/summary - Per-layer entity counts by type
- GET /drawing/blocks - Block definitions; optional per-block entity counts (include_entity_counts)
- GET /drawing/summary - Entity counts by type; optional layer breakdown (include_layer_breakdown)
- GET /entities - Filtered entity list (layer, type, text_contains, block_name, limit, offset, after_handle, include_vertices, return_meta)
- GET /entities/count - Count matching entities (same filters as /entities)
- GET /entity/{handle} - Single entity by hex handle
- GET /drawing/blocks/{name}/attributes - Attribute definitions for a block
- GET /entity/{handle}/block-attributes - Current attribute values on a block insert
- GET /elements/comparison - Normalised export for cross-app comparison (layers, block_names, types query params)

POST / PATCH / DELETE (writes)

- POST /entities - Create entity (entity_type: line, circle, arc, text, mtext, polyline)
- PATCH /entity/{handle} - Update entity (layer, color_index, text as applicable)
- POST /entity/{handle}/move - Move by deltas dx, dy, dz
- DELETE /entity/{handle} - Erase entity
- PATCH /entity/{handle}/block-attributes - Update attributes on a block insert (JSON body: tag to value map)
- POST /selection - Select/highlight entities (handles or filters)
- DELETE /selection - Clear implied selection

Note: destructive operations modify the DWG; there is no MCP-level undo.

MCP tools (Python server)

Each tool maps to the HTTP API above. Names and behaviour match mcp-server/autocad_server.py.

Diagnostics & drawing context

- autocad_health_check - Bridge and plugin reachable.
- autocad_get_drawing_info - Drawing metadata; optional full entity count.
- autocad_get_entity_summary - Counts by entity type; optional per-layer breakdown.
- autocad_get_layers_summary - Per-layer statistics (prefer summary+breakdown in one call when possible).

Layers & blocks

- autocad_get_layers - Layer table.
- autocad_get_blocks - Block definitions; optional inner counts.
- autocad_get_block_attributes - Attribute defs for a block name.
- autocad_get_block_reference_attributes - Attribute values on an insert (by handle).

Entities & selection

- autocad_get_entities - Filtered list with pagination (limit / offset or after_handle + return_meta).
- autocad_count_entities - Count with same filters.
- autocad_get_entity_by_handle - One entity.
- autocad_select_entities - Highlight by handles or filters.

- autocad_clear_selection - Clear pick set.

Comparison export

- autocad_get_elements_for_comparison - Normalised elements (e.g. vs other BIM tools in a broader stack).

Writes

- autocad_create_entity - line, circle, arc, text, mtext, polyline.

- autocad_update_entity - Partial update by handle.

- autocad_move_entity - Translate by dx, dy, dz.

- autocad_delete_entity - Erase by handle.

- autocad_update_block_attributes - Tag to value map on a block insert.

Prompts: The server also exposes suggested read and edit workflows (see autocad_server.py prompts section).

Package bundle (PackageContents.xml)

- Product: Uchuva - AutoCAD MCP; AppVersion tracks the release.

- Runtime requirements: Windows x64, AutoCAD R24.x to R26.x range in the shipped template; the installer can narrow this per selected year when AutoCAD is present at install time.

- Load: ComponentEntry loads Uchuva.AcadMcp.dll on AutoCAD startup.

Security & operations

- Traffic is localhost only; do not expose port 8767 to the network.

- Close AutoCAD (or at least save) before trusting bulk automated edits.

- Prefer health check and small count/summary calls before scanning huge drawings.

Release history

See installer/RELEASES.md in the repository for dated changelog entries.

Troubleshooting

- Cannot connect / health fails: AutoCAD open with a drawing? Plugin message on command line? Firewall blocking localhost?

- Tool errors with help / connection hints: Use autocad_health_check; confirm uv run uses the same mcp-server path as the installer.

- Slow responses: Use include_entity_count=false, pagination, and autocad_count_entities before large autocad_get_entities scans.

Generated documentation. For the latest MCP tool schemas, always refer to mcp-server/autocad_server.py.

Release history (installer/RELEASES.md)

Uchuva AutoCAD MCP — Release history

v1.1.0 - 2026-05-05

- English throughout: AutoCAD messages, API errors, MCP tool descriptions, installer wizard, and setup scripts.
- MCP connection errors now expose help and connected (replacing Spanish ayuda / conectado).
- PackageContents.xml AppVersion aligned with installer (1.1.0).

v1.0.0 - 2026-05-04

- Initial layout: .NET AutoCAD plugin + Python MCP server (based on Metrika360 architecture).