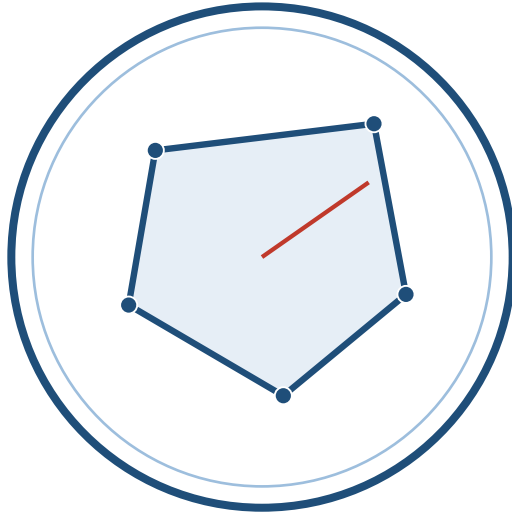




# Acheck

Parcel boundary closure & area  
with a Bearing / Azimuth toggle — for AutoCAD & Civil 3D

INSTALLATION & USER GUIDE

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## 1. What it does

Acheck computes the **clockwise boundary closure and area** of one or more parcels inside Autodesk Civil 3D – from the bearing/distance/curve **labels** already in the drawing, from courses you **type**, or from an imported **.pci** file. It is the **AreaClosure** tool with one extra capability: a **Bearing** ↔ **Azimuth toggle** for both display and entry. For every parcel it reports misclosure, allowable misclosure, perimeter, precision and area, and can write a report, an area chart, a closure-report PDF, and draw the parcel outlines back into the drawing.

Acheck runs as a modeless **palette** with two tabs – an **Editor** (build and check each parcel) and **Parcel Summaries** (select parcels and total their areas).

## 2. Requirements

- **Autodesk Civil 3D 2023 through 2027** running on Windows 64-bit. The palette ships in both .NET Framework 4.8 (2023-2024) and .NET 8 (2025+) builds and loads the right one automatically. It reads Civil 3D labels, so plain AutoCAD is not enough for the 'pick' workflow.
- For the **Pick labels** workflow, the bearing / distance / curve labels must exist in the drawing. (Typing or importing a .pci needs no labels.)
- First run on a new machine starts a **7-day free trial** automatically – no setup needed.

## 3. Installation

Acheck ships as an **autoload bundle** – a folder named `AcheckPalette.bundle`. Install it once; it then loads every time Civil 3D starts (no APPLOAD, no Startup Suite entry needed).

- 1 Close Civil 3D / AutoCAD completely.
- 2 Open this folder in File Explorer (paste into the address bar):  
`%APPDATA%\Autodesk\ApplicationPlugins` – create the `ApplicationPlugins` folder if it isn't there.
- 3 Copy the entire `AcheckPalette.bundle` folder into it, so you have  
`...\ApplicationPlugins\AcheckPalette.bundle\`.
- 4 Start Civil 3D. At the command line you should see: *"Acheck loaded. ACK = capture / resume..."*.
- 5 Type ACK to begin. The 7-day trial starts on this first run.

That's it – Acheck reloads automatically on every future start. To **update**, close Civil 3D and replace the bundle folder with the new one. To **uninstall**, delete the `AcheckPalette.bundle` folder.

## 4. Commands

| Command | What it does |
|---------|--------------|
|---------|--------------|

|         |                                                                                                                                                                                                                                             |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ACK     | The main command – opens the Acheck palette to capture (pick or type), review closure, edit, total areas, output, and draw. If a saved session exists it offers <b>Resume / New</b> ; Resume re-reads your labels so drawing edits show up. |
| ACKFIX  | Relink missing labels – run <b>before</b> ACK if you deleted or replaced a course's label in the drawing. It loads the saved data without computing and lets you re-pick any label whose text is gone, so ACK resumes cleanly.              |
| ACKINFO | Edit the <b>report-footer profile</b> (your company, address, phone, name) that prints on the PDF/area outputs. Same as the <b>My Info</b> button on the palette.                                                                           |
| ACKDCL  | The original pop-up dialog version (kept for reference). Most users only need ACK.                                                                                                                                                          |

## 5. The Editor tab

Type ACK, name the output file, and choose **Resume** or **New**. The palette opens on the **Editor** tab: a course list and live closure readout on the left, a live preview of the parcel on the right.

### Building a parcel

- **Add/Replace parcel name** – type a name and click **Add** to create a new named parcel (it becomes active), or **Rename** to rename the highlighted one.
- **Line group** – choose the quadrant (NE/SE/SW/NW), type the **Bearing** and **Distance**, click **Add line**.
- **Curve group** – quadrant, **Radius**, **Arc**, **Chord**, **Bearing**, then **Add curve**. A negative radius bulges the other way.
- **Add course (pick from drawing)** – select existing labels in the drawing instead of typing. Pick **clockwise**.
- **Course – Up / Down / Delete** – reorder or remove the highlighted course.
- **Correcting a course** – **double-click** a course in the list and its values drop back into the entry boxes (a line fills the Line boxes, a curve fills the Curve boxes). Change what is wrong, then click **Replace line** or **Replace curve** to write it back over that course instead of adding a new one. Replacing a line with a curve, or a curve with a line, is allowed – that is how you fix a course that was entered as the wrong type.
- **Inserting a course** – to drop a course *into the middle* of a parcel, highlight the course it should come after, type the new course in the **Line** or **Curve** boxes, and click **Insert line** or **Insert curve** (next to Replace). The new course is inserted **right after** the highlighted one and everything below it shifts down – so you needn't add it at the end and walk it up with Course up.
- **Clear** – empties the entry boxes. Use it if you double-clicked the wrong course: the course itself is left untouched, only the boxes are cleared.
- **Pos/Neg curve, Add bulge, Minor/Major arc** – fix a curve's sign or switch between the labelled arc and a standard minor arc.

■ **Parcel – Up / Down** – move the highlighted parcel one place up or down the list, taking all of its courses with it. Use it when a parcel was entered out of order – PART 2 typed before PART 1 – so the list reads the way the plan does. The courses and the geometry are not touched, only the order the parcels are listed and reported in.

■ **Parcel – Copy / Delete** – duplicate (auto-increments the name) or delete a parcel.

■ **Import pci** – load parcels from an existing P:Check .pci file.

## Undo

The **Undo** button at the bottom left steps back **one change at a time**, up to **20 steps**. It is there for the mistake that used to mean starting over: a course or a whole parcel deleted by accident, a value overwritten with **Replace**, or a reorder that went the wrong way.

Undo restores a deleted course to **its original place** in the list – not the end – along with the parcel that was active and the course that was highlighted at the time.

Undo covers anything that changes your data: add, insert, replace, delete, reorder, flip, bulge, sign, minor/major, copy parcel, rename, pick from drawing, and PCI import. It deliberately ignores actions that change nothing – selecting a row, switching units, PDF report, area table – so clicking around never uses up your undo history.

The closure readout shows **Misclosure, Allowable (1:5000), Perimeter, Precision** and **Area** for the active parcel, updating as you edit. **Misclosure turns red** when it is larger than the allowable, so a parcel that does not close cannot be read past.

Below it is the **Arc check**. A curve carries chord, radius *and* arc – one number more than the geometry needs – so Acheck works out the arc that the chord and radius imply and compares it with the one you entered. With nothing highlighted it checks **every curve in the parcel** and names any that disagree; highlight a curve to see its own numbers. The line turns **red** when something is out, and any course it flags is printed in the closure report as well, so a mis-read arc cannot reach a filed closure unnoticed. A cul-de-sac labelled with its major arc is not flagged, and a curve switched to a standard minor arc has nothing left to check.

## Docking the palette

The Acheck palette floats by default. Drag it to the **left or right edge** of the drawing window and it anchors there; click the **pin** on its title bar to **auto-hide** it, so it collapses to a narrow strip and slides open when you point at it. That gives the drawing the full window while Acheck stays a mouse-move away. Unpin it to keep it open, or drag it back off the edge to float again.

## 6. Bearing / Azimuth and Output Units

**Azimuth entry** (the Acheck difference): tick the **Azi** checkbox in the Line group to enter directions as a **whole-circle azimuth** (DDD.MMSS) instead of a quadrant bearing. The quadrant pickers hide, captions change to *Azimuth*, and the readout switches to azimuth. Stored geometry is identical either way – it is only how you type and read directions.

**Output Units** – the **Imperial / Metric** selector at the top of the Editor tab sets the units for the **whole tool**: the editor readout *and* the Parcel Summaries grid. Metric shows metres / m<sup>2</sup> / hectares; Imperial shows feet / sq.ft / acres. Stored data and the .pci stay metric regardless.

## 7. The Parcel Summaries tab

Switch to the **Parcel Summaries** tab to total areas across parcels:

- **Parcel Names** (left) – every parcel is listed. **Click to select; Ctrl-click or Shift-click to select several.** The footer shows the parcel count.
- **Parcel Areas** (right) – each selected parcel's area appears with a bold **Total Area** row at the bottom. Columns follow the Editor's **Imperial / Metric** choice (Sq.Metres + Hectares, or Sq.Feet + Acres).
- **Write List to File...** – save the displayed parcels + total to a text file. The save box opens already filled in: the file is named after the **drawing** (with - areas on the end, so it can't overwrite the closure report) and it points at the same **Closures** folder your other outputs go to. Just click Save, or change either one.

## Checking parts against a boundary

When one parcel encloses the others – a boundary divided into PART 1, PART 2, PART 3 – you usually want to know whether the parts add up to the whole. Any parcel with **BOUNDARY** in its name is **held out of the total automatically** – just select the boundary and all of its parts in the list, and the boundary is listed with (*not in total*) beside it. If your enclosing parcel is named something else, choose it in the **Boundary** dropdown at the top of the tab.

The boundary is then **held out of the total**, so the total is the sum of the *parts only*, and the grid shows the comparison directly:

- the **boundary** on its own line at the top,
- each **part** beneath it,
- **Total of parts** – the parts added together, with the boundary excluded,
- **Difference** – the boundary minus the parts. **Zero means the parts account for the whole boundary.** A positive figure means they fall short of it; a negative figure means they overrun it.

Leave the dropdown on (**none**) for a plain total of everything selected, as before. **Write List to File...** saves the comparison exactly as shown, ready to hand in.

The name list refreshes automatically whenever you edit parcels on the Editor tab.

## 8. Entering courses manually (PCI format)

You can build a parcel with no drawing labels by typing courses. The underlying format (also the .pci format) is:

- **Line:** Q DD.MMSS DIST – e.g. 1 67.0500 6.820 = N67°05'00"E, 6.820.
- **Curve:** Q DD.MMSS CHORD ARC RADIUS – e.g. 1 81.3815 8.787 8.914 30.000.
- **Q (quadrant):** 1 = NE, 2 = SE, 3 = SW, 4 = NW.

With **Azi** ticked you type a whole-circle azimuth instead, and Acheck converts it for you. Typed directions are solved by closure; if a course points the wrong way use the curve sign / bulge controls or re-enter it.

## 9. Outputs & files

From the palette buttons:

- **Area table** – inserts a parcel/area chart into the drawing.

- **PDF report** – writes a self-contained closure-report PDF (uses your My Info footer).
- **My Info** – set the company/name/phone that prints on the footer (or run ACKINFO).
- **Done** – finishes and writes the combined outputs.

Files are written to a **Closures** folder beside the drawing's folder:

- `<name>.txt` – the closure report (courses, misclosure, area).
- `<name>.pci` – a check file.
- `<name>.aclos` – the saved session, so **Resume** works next time.

## 10. Tips & troubleshooting

- **Pick the real start corner** so a drawn parcel lands in its true survey position.
- **Pick courses clockwise** – closure assumes clockwise travel.
- **Deleted or replaced a label?** Run ACKFIX before ACK to pick the new text for any course whose label is gone.
- **Don't see the palette / commands after install?** Make sure the bundle is at `%APPDATA%\Autodesk\ApplicationPlugins\AcheckPalette.bundle` and you fully restarted Civil 3D.
- **Summary areas show zero?** Close and restart Civil 3D so the latest tool loads.
- **Deleted something by mistake?** Click **Undo** – it steps back up to 20 changes and puts a deleted course back in its original position.
- **Palette collapsed to a strip at the edge?** That is auto-hide. Point at the strip to slide it open, then click the **pin** on its title bar to keep it open, or drag it off the edge to float.
- **Drawing opens read-only?** Delete that drawing's `.aclos` file from the Closures folder and reopen.

## 11. Trial & licensing

Unlicensed machines get a **7-day free trial** that starts on first use and runs fully offline. After the trial, Acheck asks for a licence key. Acheck is a **one-time \$300 CAD licence** (perpetual, one computer) – no subscription.

Buy a licence, start the free trial, or try the browser-based version at [thedrawingstore.ca/pages/area-closure](http://thedrawingstore.ca/pages/area-closure). Questions: [drawingroom@rogers.com](mailto:drawingroom@rogers.com) · 647-986-0053.