

CCToolBox for Autodesk® Inventor®

Developed by CADCon.dk

Website: <https://cadcon.dk/cctb.html>

YouTube: <https://www.youtube.com/@CADConDK>

Intro:

CCToolBox v1.01 supports Inventor® 2025-2027.

CCToolBox is available in the English language (forms/ buttons).

CCToolBox is expected to support non-English Windows/ Inventor releases, although not tested in such.

Privacy:

CCToolBox does not track any data or infringe on user privacy in any way.

Disclaimer:

Before using CCToolBox, read the disclaimer at the end of this document (page 11).

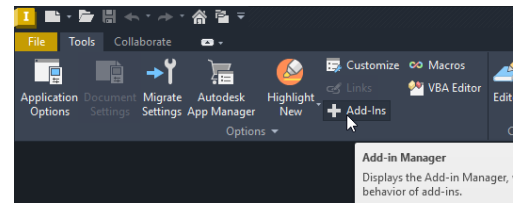
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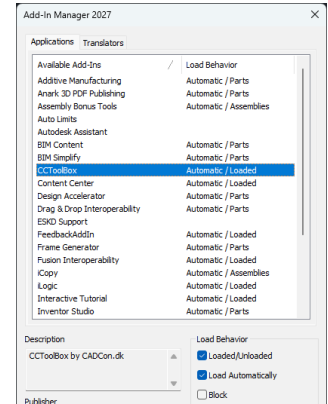
Intro:

To ensure that CCToolBox is loaded, select the following ribbon menu:

Tools - Options - Add-ins (see image).



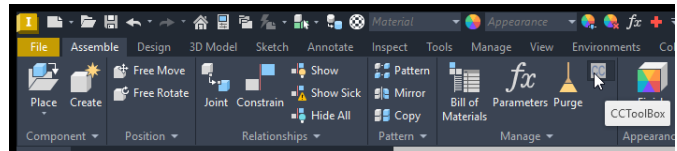
Ensure that CCToolBox is loaded and unblocked, as shown.



CCToolBox is available only in the assembly environment that is, when you have opened an existing assembly (.iam).

To launch CCToolBox, select the following ribbon menu:

Assemble - Manage - CC button (see image).

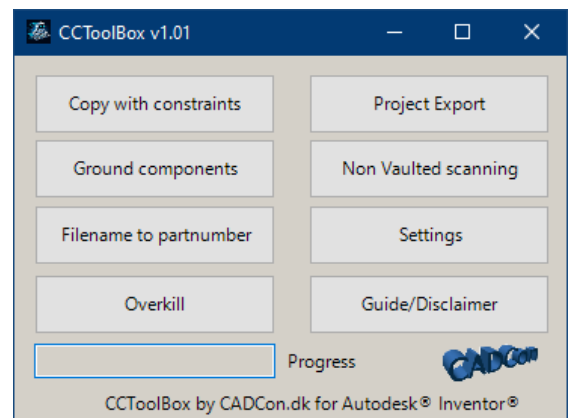


The main CCToolBox window as shown:

In general, CCToolBox operates without saving any Inventor files to disk.

The user is responsible for saving Inventor files after making changes.

Tip: Disable event-driven iLogic rules before running CCToolBox to avoid conflicts or performance loss.



Features:

Copy with constraints (CWC)

Copy with Constraints is a powerful assembly command inspired by a feature in another 3D CAD application known as "Copy with Mates". CWC is quite a game-changer for assembly productivity. To use "Copy with constraints", select one top-level component instance (sub-assembly or part).

The "CCTB Copy instance with constraints" dialog box will appear, as shown.

In the dialog box, enter the number of new instances, up to a maximum of 99.

Active Mate, Flush, Angle, and Tangent constraints will be copied with the same values or expressions.

Suppressed constraints will be ignored.

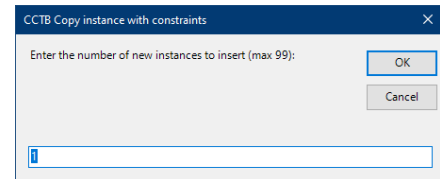
The new instances will be "instant placed" in seconds, sharing the same 3D space until you edit the constraint values / expressions in order to place them in the desired positions. New instances, including the copied constraints, will appear at the bottom of the Assembly browser.

New instances will be "instant placed" with the same active "Model State", as well as "Positional representation" for sub-assemblies and "Flexible State" disabled per default.

If needed, you can easily edit/ change constraint selections of geometry like face/ axis etc. See more in tips below.

In general all types of geometry for constraints are supported in the same way as they are for the constraint type by itself. This is valid throughout nested assembly levels: E.g.: Faces, edges, vertices, center-lines, Work features, User features (plane, axis, point) as well as sketch-lines in parts.

Joints aren't supported because copying them wouldn't be meaningful given their nature.



Tip 1: To use expressions as equations in several new component instances, begin by copying only one instance. Then edit the constraints for the copied instance #2 using the desired expressions, for example, expressions related to the source instance #1.

When finished, use CWC to copy new instances from instance #2 with the edited expressions.

After CWC "instant placing", you can edit the constraint values / expressions, in the usual way via the Assembly browser, or via the fx Parameters dialog, since the new constraint parameters will be "grouped" together in the end.

If you need to change constraint selections of geometry like face/ axis etc. you can temporarily move a component out of its location for easy access via ribbon: Assemble - Position - Free move (V)

In addition ribbon: Manage - Update - Defer Update , can be used temporarily after instant placing in order to defer updates so moved components don't jump back into position before needed via "Update".

Tip 2: If the source instance (#1) is constrained to other components for example, a bracket with fasteners constrained to it consider either of the following:

- Suppressing constraints to the fasteners to avoid inconsistent constraints later.
- Demoting the bracket and fasteners as a group into a subassembly (component). If appropriate, mark the new subassembly as "Phantom" in Document Settings to preserve the intended BOM structure.

Tip 3: Consider CWC as an alternative to patterns, due to the seamless workflow with "instant placing", where even multiple components can be copied and positioned quite fast.

In some cases, an assembly pattern may later need to be changed to an irregular pattern, or some instances may need to be replaced with "copied of components".

In such cases, placing component instances with CWC may be a better and more flexible option from the start when later design changes are possible.

With CWC, you will not lose assembly constraints between placed component instances and other components that may later be constrained to them.

Users may encounter this issue with assembly patterns when one or more individual elements must be moved to irregular positions or replaced. In that scenario, assembly constraints for components added later may fail when those components are constrained to pattern elements. Even when using the pattern option to make an element independent, you must add the constraints again.

With CWC, all instances or occurrences are truly independent but are placed using copied constraints, making later design changes easier.

Ground components

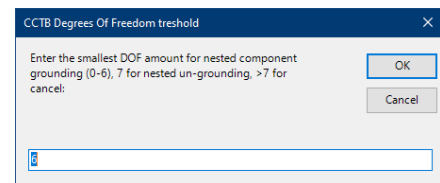
Ground Components is useful, for example, when you import and convert a STEP or SAT file into an assembly. This feature can ground all nested components in the assembly structure.

Components in patterns will be ignored.

The "CCTB Degrees Of Freedom threshold" dialog box will appear. Enter the minimum DOF threshold to use as the grounding condition.

0 DOF means fully constrained.

6 DOF means unconstrained; the component can move freely along 3 translational axes (X, Y, and Z) and 3 rotational axes.



Examples for input:

0: All components will be grounded, even if they are fully constrained (0 DOF).

6: Only unconstrained components (6 DOF) will be grounded.

3: Only components with 3 DOF or more will be grounded. For example, a component with one mate plane, flange, or flush constraint will be grounded.

7: All components will be ungrounded.

If grounding constrained components creates redundant constraints, treat this as a temporary solution until those components are constrained as intended according to best practices.

Filename to partnumber

Filename to partnumber will update partnumber and top browser node for all loaded components that do have write access (read/only file attribute cleared) in the open and active assembly.

The part number and top browser node will be set from the component filename; the part number will exclude the file extension.

For example, for the part filename: 123456.ipt

Part number: 123456

Top browser node: 123456.ipt

Tip: Consider updating or renaming all assembly browser nodes using the following ribbon menu:

Assemble - Productivity - Rename Browser Nodes

Then select the "Default" option from the drop-down list.

Note: Vault users with an active Vault project (.ipj) may be prompted to check out all component files in the assembly.

Overkill features

Overkill includes the three features shown in the "CCTB Overkill" dialog box.

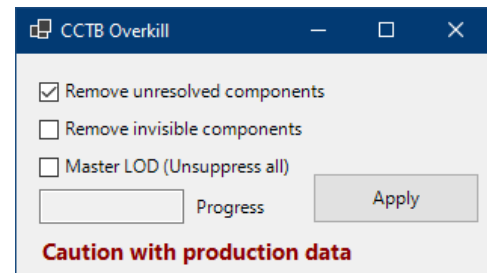
These features can have a significant impact on the assembly.

It is a good idea to have a backup before any use.

For optimal performance and stability, it's best to have only one assembly file open for these operations.

As mentioned earlier, CCToolBox does not save any CAD files, the user is responsible for saving them.

The three features are as follows:



Remove unresolved components

Removes all unresolved components from the nested assembly structure.

Unresolved components that are part of patterns are exempt. To remove them, delete those patterns manually.

This feature can be useful for assemblies in which some CAD files have been lost, allowing you to retain a workable assembly.

Remove invisible components

This powerful feature removes all nested ComponentOccurrences marked as invisible.

ComponentOccurrences will be ignored if they:

- Participate in a pattern
- Are SubstituteOccurrences
- Have missing reference files

"Remove invisible components" is an effective way to reduce the data size of a large assembly imported or converted from a STEP file, especially if kinematics must be added later.

This feature can also be used as a preliminary step before creating a shrinkwrap, because Inventor provides powerful, fine-grained selection methods for components and nested parts.

In the Quick Access Toolbar, you can choose "Selection Priority" from the default "Component Priority" to "Part Priority"

Alternatively, right-click in the 3D area and select "Selection Priority" (see top image).

As shown in the image, multiple selection methods are available.

In this case selecting "Part Priority" is quite useful.

After selecting nested part occurrences, turn off their visibility to mark them for removal.

You can also create a selection set using the "Find" feature in the Advanced Settings Menu drop-down at the upper right of the model browser (see image).

Here, you can select part occurrences by name or part number, identify ContentCenter parts, and use other search options (see lower image).

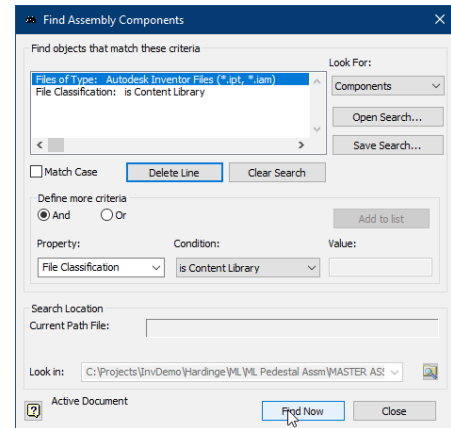
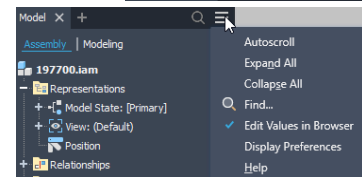
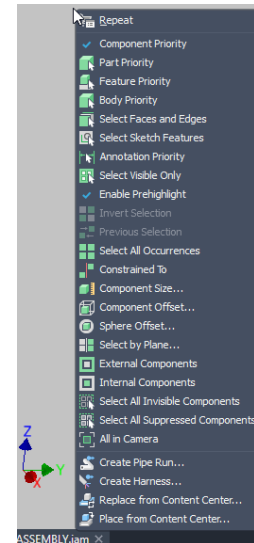
After making the desired parts invisible from the highlighted selection set, use "Remove Invisible Components" to remove those occurrences from the assembly.

The result can be a lightweight assembly that is easier to use in your design than a referenced or shrinkwrapped assembly.

Tip: It is a good idea to ground all nested components in the imported assembly via the "Ground components" feature in CCToolBox.

For components that require constraints for kinematic movement, remove grounding in the usual way.

Tip: As an alternative to shrinkwrap, export the assembly as an SMT file to create a lightweight part. SMT is based on the Autodesk® ShapeManager kernel format (formerly ACIS/SAT). When importing the SMT file, select Multi-body Part. This method removes the import history from the new lightweight part.



Master LOD (Unsuppress all)

The Master LOD feature resembles the former Inventor "Master Level Of Detail" representation, which existed through Inventor 2021. Beginning with Inventor 2022, LOD was replaced by Model States.

When the former Master LOD was activated, Inventor unsuppressed all nested components in the assembly structure.

Warning: The Master LOD feature performs the same action. Use it only when you understand the consequences. In both the top-level assembly and its subassemblies, "MLOD" activates the Primary model state and operates from there.

If the top-level assembly is either of the following:

- Opened in Express mode
- Is an iAssembly

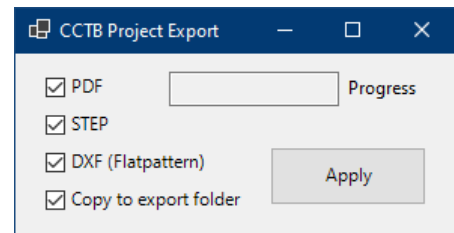
The MLOD feature will stop and display a message.

Project Export

Project Export starts from an open assembly and traverses all referenced components (.iam / .ipt).

The user can export the following file types:

- 2D PDF from idw or dwg, if one exists through a symbolic link (same path and filename, excluding the extension)
- STEP from ipt
- DXF from ipt (sheetmetal with a flatpattern)
- Optional file copy to a configured location (see CCTB Settings)



Exported files will get the same path & filename + component revision-number (2 digits), excluding the original extension.

If the component revision-number iProperty is empty, "_00" will be appended to the exported filename.

If the revision contains one digit, such as "2," then "_02" will be appended to the exported filename.

Only numeric revision values are supported.

If "Copy to export folder" is selected, CCToolBox will attempt to copy the file.

Project Export is limited to components with only one model state (Primary) whose BOM Structure is set to "Normal" or "Inseparable" in the component "Document Settings", available from the following ribbon menu:

Tools - Options - Document Settings - Bill of Materials

Set all standard components from third-party suppliers to "Purchased" in their BOM Structure. Otherwise, Project Export will attempt to export STEP or DXF files from them.

If a component is an iComponent or a ContentCenter member, it will be ignored.

Tip: If you have a library folder containing multiple standard components and you have write access to them, drag them from File Explorer into an empty, saved "dummy" assembly. Alternatively, place and select multiple components in Inventor.

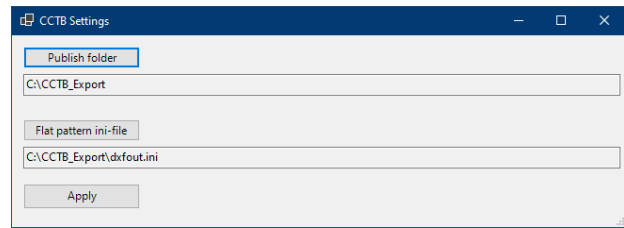
From the ribbon menu select: Assemble - Manage - Bill of Materials

Use the "BOM Structure" column to change all components to "Purchased" at once, and remember to save all components.

CCTB Settings

In the current release, CCTB Settings applies to Project Export and must be configured before using the optional file-copy feature.

"Publish folder": Specifies the folder structure used to copy exported PDF, STEP, and DXF files.



"Flat pattern ini-file": Specifies the path and filename of the sheet-metal INI configuration file used to export flatpatterns to DXF.

For better and more stable file-copy performance, consider setting "publish folder" to a folder on your local C: drive.

This can also prevent write-access errors, for example, when a user has opened a PDF file in a publish folder on a shared network drive, basically a write access denied scenario.

You can then manually copy files from the local publish folder to the publish folder on the shared network drive.

The folder structure will resemble the following example.

Publish folder set to, for example:

`c:\CCTB_Export\`

The following subfolders will then be created during a publish operation:

PDF for `c:\CCTB_Export\PDF\`

Exported PDF files will be copied to this location.

STP for `c:\CCTB_Export\STP\`

Exported STP and DXF files will be copied to this location.

Note: If the PDF and STP subfolders are configured on your local drive, they can be deleted after the published content has been safely copied to a publish folder on a shared network drive.

CCTB Settings will be stored in the following INI file:

`c:\Users\<USERNAME>\AppData\Local\CCTB_settings\CCTB_settings.ini`

Non Vaulted scanning (NVS)

The Non-Vaulted scanning feature prompts you to select a folder structure to scan for Inventor files that have never been saved to Vault.

The suggested folder is the location of the currently open, active assembly, which should be inside the workspace for your Vault project file.

NVS does not require Inventor to be logged in to Vault because the operation scans only the file structure.

NVS then scans the selected folder and its subfolders for the following Inventor file types, in this order:

.idw, .dwg, .ipn, .iam, and .ipt

Files that have not been saved to Vault will be logged.

When scanning is complete, a text-based log file will open in Notepad.

The log file will be saved in the selected folder using the following timestamp format:

[NV_YYYY-MM-DD-HHMM.txt](#)

For example: [NV_2026-06-26-1954.txt](#)

The time format follows the SI convention, making chronological sorting of multiple log files in File Explorer straightforward.

Each logged Inventor file will appear on one line with its full path and filename.

From Notepad, you can copy and paste a complete line into the Inventor Open dialog, and then check the file into Vault.

Best to start with top-level files such as .idw or .dwg files and eventually .iam files in order to check-in as many files into Vault per file open.

Guide/Disclaimer button

The "Guide/Disclaimer" button will launch this guide in HTML format in your default browser.

The CCToolBox installer will also copy the same guide in pdf format, in the CCToolBox install folder, for Windows 10/11 depending on localization, typically in:

[c:\ProgramData\Autodesk\Inventor Addins\CCToolBox\](#)

CCToolBox – Disclaimer, Limitation of Liability and Privacy Notice

1. General notice

CCToolBox for Autodesk® Inventor® is an independently developed add-in intended for use with Autodesk® Inventor®.

CCToolBox is provided by CADCon.dk / CADCon, a Danish freelance software developer and sole-owner business.

CCToolBox is not developed, sponsored, endorsed, approved, or certified by Autodesk®, Inc. or any of its subsidiaries or affiliates.

Autodesk, Autodesk Inventor, and Inventor are registered trademarks or trademarks of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the United States and/or other countries.

2. Use at your own risk

CCToolBox can read, modify, generate, automate, or otherwise manipulate CAD data: drawings, assemblies, parts, files, metadata, and related Autodesk® Inventor® content.

By installing, enabling, accessing, or using CCToolBox, you acknowledge and agree that you use the software entirely at your own risk. You are solely responsible for verifying all results produced by or affected by CCToolBox before relying on them for design, engineering, manufacturing, documentation, quotation, procurement, construction, compliance, or any other purpose.

You must ensure that all CAD files: drawings, assemblies, parts, templates, libraries, and related data are properly backed up before using CCToolBox. You are solely responsible for maintaining adequate backups and for restoring your files if required.

3. No professional engineering or design warranty

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No output, modification, automation, calculation, file change, or other result produced by CCToolBox should be treated as verified, complete, suitable, accurate, safe, compliant, or fit for production unless it has been independently reviewed and approved by a qualified person.

4. No warranty

To the maximum extent permitted by applicable law, CCToolBox for Autodesk® Inventor® is provided "as is" and "as available", without warranties of any kind, whether express, implied, statutory, or otherwise.

Without limiting the above, CADCon.dk / CADCon makes no warranty that CCToolBox:

- * will operate without errors, bugs, interruptions, or data loss;
- * will be compatible with every version, configuration, localization, update, service pack, or environment of Autodesk® Inventor®;
- * will produce complete, correct, accurate, or suitable CAD data;
- * will meet your specific requirements, workflow, business needs, engineering standards, or legal obligations;
- * will be suitable for use in safety-critical, mission-critical, medical, aerospace, automotive, structural, public infrastructure, regulated, or high-risk applications.

Any use of CCToolBox in such contexts is entirely at your own risk and must be subject to appropriate professional review, testing, validation, and approval.

5. Limitation of liability

To the maximum extent permitted by applicable law, CADCon.dk / CADCon, including its owner, shall not be liable for any loss, damage, claim, cost, expense, or liability arising out of or related to the installation, use, inability to use, configuration, performance, non-performance, bugs, errors, defects, compatibility issues, or results of CCToolBox.

This includes, without limitation, any liability for:

- * loss, corruption, alteration, deletion, or inaccuracy of CAD files or project data;
- * incorrect or unintended changes to parts, assemblies, drawings, parameters, metadata, templates, or libraries;
- * production errors, manufacturing defects, rework, scrap, delays, downtime, or business interruption;
- * loss of profit, revenue, contracts, opportunities, goodwill, or anticipated savings;
- * indirect, incidental, special, consequential, exemplary, or punitive damages;
- * losses caused by user error, incorrect settings, incompatible software environments, Autodesk® Inventor® updates, third-party software, hardware issues, or bugs in CCToolBox.

Where liability cannot be fully excluded under applicable law, CADCon.dk's / CADCon's total aggregate liability shall, to the maximum extent permitted by applicable law, be limited to the amount actually paid by you for CCToolBox during the twelve months preceding the event giving rise to the claim, or EUR 50 if no amount was paid.

6. Mandatory legal rights

Nothing in this disclaimer excludes or limits liability where such exclusion or limitation is not permitted by applicable law.

This may include, depending on the applicable jurisdiction, liability for intentional misconduct, fraud, gross negligence, death or personal injury caused by negligence, product liability, or mandatory consumer protection rights.

If any part of this disclaimer is found to be invalid, unenforceable, or ineffective, the remaining parts shall remain in effect to the maximum extent permitted by applicable law.

7. User responsibility

You are responsible for:

- * testing CCToolBox in a safe environment before using it on production files;
- * making and maintaining independent backups of all relevant files;
- * reviewing all CAD data and outputs before relying on them;
- * ensuring that your use of CCToolBox complies with applicable laws, regulations, standards, contracts, professional obligations, and Autodesk license terms;
- * ensuring that CCToolBox is suitable for your specific technical environment and workflow.

8. Privacy and data tracking

CCToolBox does not track users.

CCToolBox does not collect, transmit, sell, share, analyze, or otherwise process personal data, telemetry data, usage statistics, CAD file contents, project data, customer data, or behavioral data.

CCToolBox is intended to operate locally within the user's Autodesk® Inventor® environment. CADCon.dk / CADCon does not receive access to your CAD files, personal files, project files, business data, or Autodesk® Inventor® content through CCToolBox.

If you voluntarily contact CADCon.dk / CADCon for bug reports, feature requests, or other communication, any information you choose to provide will be used only for the purpose of responding to your request, unless otherwise agreed.

9. Third-party software and Autodesk® Inventor®

CCToolBox depends on Autodesk® Inventor® and may depend on operating system components, Autodesk APIs, Microsoft Windows components, .NET components, or other third-party software environments.

CADCon.dk / CADCon is not responsible for changes, defects, limitations, licensing terms, updates, interruptions, or compatibility issues caused by Autodesk® Inventor®, Autodesk APIs, operating systems, third-party software, hardware, drivers, security software, or other external dependencies.

10. Governing law

Unless mandatory rules in your country of residence or business location provide otherwise, this disclaimer and any dispute relating to CCToolBox shall be governed by the laws of Denmark.

Any dispute shall, where legally permitted, be submitted to the competent courts of Denmark.

11. Acceptance

By installing, enabling, accessing, or using CCToolBox, you confirm that you have read, understood, and accepted this disclaimer.

If you do not accept this disclaimer, do not install, enable, access, or use CCToolBox.