

# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

This document details updates since version 20.25.00

Major items are highlighted in RED.

The major new features in this release are:

- **Multiple Step UNDO and REDO**  
It is now possible to undo several actions back or redo any undo actions.  
These 2 functions are now working in the Geometry and Nesting sections and relevant sub-sections.
- **Common Cutting ordering logic has been improved to prevent long movements between parts.**
- **JETCAM's Advanced Reports (v2) now allows use of Post's "JD2" file to display user options during NC code generation in the Advanced Reports.**
- **Screen Macro Recording (BETA), allowing you to record a series of mouse clicks/key strokes and assign them to a menu option and (optionally) a keyboard shortcut.**
- **Several updates to the "QT" user interface.**
  - Many feature enhancements and fixed "Known Issues" have been applied to this user interface.

## ENHANCEMENTS:

### General

- The JETCAM Installer (i.e. "Setup.exe") now contains the Czech language files.
- **Multiple Step UNDO and RE-DO.**
  - These buttons are now available in the Geometry and Nesting sections.
  - There is no limit to number of steps in undo history. However when there is no memory available oldest steps will become unavailable. Undo history is cleared when file is closed. When file is saved while leaving it open, undo history is preserved and actions can be undone even before file saving.
  - When undo is used even many times, "Re-do" can be used also multiple times to "Re-do" all undone actions. "Re-do" history is cleared when modifications are done.
- **"QT" user interface:**
  - Added "Tool Mask" buttons to the SIMULATOR's "Indicate Cutting Sequence" screen.
  - Changed the RCP starting menu so that truncated text is now displayed.
- **Screen Macro Recorder:**
  - Must be enabled by adding `EnableMacroRecorder=true` in the [General] section of the "JGUI.INI" file (found in '\WINJC\' folder) and restart JETCAM Expert.

# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

- Users can now record a series of keystrokes/mouse clicks associated with a given screen, which can then be repeated either by clicking the option under the Macro menu or assigning a shortcut key. An example might be to auto-tool a part, run the sequencer and then start part cutting simulation, which can now be completed with a single keystroke/click
- Please review the example videos in JETCAM University online.

Note:

This feature is currently in BETA development, with some known limitations.

If you have difficulty with creating/running screen macros, then please contact your JETCAM reseller.

## CAD

- Added support for allowing multiple "." Characters in the DXF CAD Filename.
- New Trim function was added to Geometry drawing section
  - When using this action. it is possible to select FINAL Lines/Circles/Arcs.
  - Selection is made by mouse click or mouse drag using window selection to select multiple segments at the same time. Selected is always part of Lines/Circles/Arcs between 2 cross points with other geometry. Selected geometry parts will be removed when confirmed.
- Combined action to split Line halfway and split Circle/Arc halfway to now use same feature and button.
- Combined action to split Line at point and split Circle/Arc at point, to now use same feature and button.
- Combined action to join Lines and join Arcs, to now use same feature and button.
- JETCAM's "DXF OUTPUT" file now included a "comment" entity which has the item type of "999" for items lines, circles and arcs with the following data : "CL=..., CN=...".
  - "CL=..." has the contour level of the element.
  - "CN=..." is a unique contour number in that file for each individual valid contour.

## CAM

- Added new mode for Bump Nesting called "Simplified Bump"
  - This feature speeds up the bumping of a part where there the part's outer perimeter geometry has over 100 segments. The Simplified Bump option creates simplify geometry before calculating distances. Note that It has a limitation where concave geometry cannot be bump nested in concave areas.
- Updated "Generic Suckers" Simulator Safety Overtravel Checking.
  - Changed checking for unloading items added in the Nesting where the extents of the piece to be unloaded are checked against the working area and will only be allowed to be turned yellow if the extents of the piece are legal.



# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

Unloading suckers which are flagged as "from Geometry" are only included in this checking.

Unloading suckers which are flagged as "from Nesting" are now excluded from this new checking.

Note: This change means that it is assumed that customers who add manual suckers pickups in the Nesting "know what they are doing", so the piece being picked up manually in the Nesting may now extend outside the current working area.

## Punch Specific

- New feature implemented to allow for Automatic Punch Tool Grouping during unloading.
  - When a new option under "Options" section "Group Peripheral Tooling With Unload Sequence" is enabled, then all tooling sequences on the same contour using same tool will be cut together with the unload sequence.  
This is achieved by creating a group of tooling automatically when component is automatically tooled.  
The group of tool sequences will be saved in the component file same as if it was created (grouped) manually. The order of cutting will respect the cutting direction preference and it is in the order of geometry finishing by unload sequence.  
Grouping is supported on Punch, Punch-RAS and Punch-Profiling machines. Tooling is grouped on both outer and inner contours that are unloaded by macros.
- Automatic Single Hits To Lines Of Holes Conversion
  - Updated the automatic tooling "Options" called "Automatic Single Hits To Lines Of Holes Conversion" to now have (3) options:
    - "No" means do not do any conversion.
    - "Optimized" means first path optimize all single hits, then convert the optimized single hits into lines of holes.
    - "Simple" means simply try to convert single hits to lines of holes on an "as is" basis (without performing any path optimization).

## Profile Specific

- Added new "JET-Cut" Nesting feature to determine how to cut internal contours within common cut part groups.
  - A new option called, "Cut All Internal Items In a Group First", has been added to the new Common Cut section in "JET-Optimizer & JET-Cut" Setup Screen.
    - "No" means internal holes of a common cut group will be cut individually (i.e. same as existing "Common Cutting" logic)
    - "Yes" means all the internal holes of a common cut group will be cut first and then the external contours of the group.
- Added new logic to perform "JET-Cut" Nesting feature for Common Cutting
  - This means that Common Cutting has been implemented when using "JET-Cut All" mode in the Nesting's "Profiling" Menu.

# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

- This Common Cutting logic works in similar fashion as standard common cutting with some exceptions.
  - Lead-ins are not used.
  - Part Unload pattern is applied to common cut parts groups rather than the entire nest.
  - If there are common cut parts on nest, laser beam size is determined from common cutting settings and it is used also on non-common cut parts on nest.
  - Machine offset is not supported and may be supported in future versions.
  - Nested parts are not supported and may be supported in future versions.
  - Off sheet cutting is not supported and may be supported in future versions.
  - All other common cutting options are respected.
  - Scrap created by common cut parts is correctly handled as scrap material that can tip or be destroyed. It is correctly avoided by movements once cut. Extra spacing is added when needed.
  - Scrap created by common cut parts is considered as hole and if it falls under destruction unload conditions it is destroyed as regular hole.
  - Collision detection system is allowed to enable rounded movements when cutting common cut group of parts.
- “JET-Cut” Nesting for Common Cutting supports the use of micro-joints from the component and as defined on the nest. The filtering of micro-joints follows the common cutting settings.
- “JET-Cut” Nesting for Common Cutting supports nesting parts on the sheet edge.
  - When parts or common cut groups are nested at the sheet edge, off-sheet lead-ins/lead-outs are created following the options set in the profiling setup.
  - The Sheet-Edge enabled option must be used under Automatic common cutting in order to enable edge nesting. The Edge distance is accepted.
  - Same as in standard tooling here is limitation when ARC segment is next to segment aligned with sheet edge. In such case "a2" and "b1" options are not accepted and lead-in/lead-out are created up to sheet edge.
- JET-Cut tooling is now setting the technology for different shapes as defined by the user in the Profiling options.
- “JET-Cut” Nesting has been updated use the Skeleton destruction options that apply with standard cutting.
- Added 2 new options to “Automatic Skeleton Destruction”
  - “Before All Cutting Optimized”
  - “After All Cutting Optimized”These are using optimised algorithms to order sheet destruction cutting in optimal way rather than following the pattern. The pattern is still applied to determine cutting direction. But the order of cuttings itself is done in shortest possible path.
- Improved “Off Sheet Cutting” logic for parts using Common Cutting “Sheet Edge”. Now common cut parts that are at edge of sheet correctly respect the a1/a2 and b1/b2 values as setup in Profiling Setup’s “Lead-in/Lead-out Off Sheet” settings.

# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

- Common Cutting ordering logic was improved to prevent long movements between parts.
- Profiling common cutting can now be enabled for combination machines under special conditions.  
Common cutting will be created only if a new machine variable is specified "c\_allow\_common\_cutting\_with\_microjoints=1" and all parts in the common cut group on the nest are micro-jointed.  
Note: Due to way "machine" micro-joints are processed these are not supported at the moment

## Nesting

- Rectangular Automatic Nesting (RAN) module was improved with new options to allow override of the spacing between the same components, allowing for common shearing of same components in the RAN (Rectangular Automatic Nesting) module  
There is a new option in the "Component Information" setup screen to use a custom spacing for RAN.
  - If this is set to "Yes", then the part will have spacings defined by the setup's "Size X" and "Size Y" values.
  - The spacings will be applied only between the same parts nested in the same group when performing nesting with the RAN (Rectangular Automatic Nesting) module.
  - Spacing does NOT take tooling in account and is always measured between geometry.
- Free-Form Automatic Nesting (FFAN) and Free-form High Performance Nesting (FFHPN) modules have been updated with internal logic monitors the current total memory usage by the JETCAM process during automatic nesting.
  - If the total memory usage by JETCAM exceeds roughly 2.5Gb of memory, then the automatic nesting will be stopped and the current results at that stage will be saved automatically, the MOD Orders updated and then the nesting will continue on processing the MOD Orders as usual.
  - This checking was added to help with losing nesting results after long periods of Automatic nesting (i.e. after many hours).

## Remote Control Processing (RCP)

- Updated parameters, "LAYER\_DELETE=" in "#GEO" command with new value, "256" for "delete MJ markers only (micro-joint markers only)".  
RCP was update to allow removal of micro-joint markers before part processing  
See "Remote Control Processing.txt" in the "\\WINJC\DOCS.MNU" directory.
- Added new parameter, "SAVE\_FILE=" to the "#NC\_OUT" command.  
See "Remote Control Processing.txt" in the "\\WINJC\DOCS.MNU" directory.
- Added new command, "#NES\_OPEN. This command is used to open an existing NESTING file and allows changes to various items inside the NESTING file  
See "Remote Control Processing.txt" in the "\\WINJC\DOCS.MNU" directory.
- Updated "SAVE\_AS\_NAME=" documentation parameter in "#GEO  
See "Remote Control Processing.txt" in the "\\WINJC\DOCS.MNU" directory.



# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

## Reporting

- “V2.0” Advanced Reports printing engine.
  - Added support for loading additional nest override data from the Post’s created “.JD2” files.

“JRG\_2.EXE” will first read “.JD0” file, and then “.JD2” file, if it exists.  
If the “.JD2” file contains any “override” data then it will be read it and will overwrite data previously loaded from the “.JD0” file.

NOTE :

The following data only, can be overridden by the Post’s “.JD2” file:

    1. Most data in #GENERAL section (but not all data).
    2. Nest Remarks
    3. Nest Clamps

NOTE:

Tools and sim operations data cannot be overridden in “.JD2”.  
Timings in “.JD0” file also cannot be overridden in “.JD2”.
  - The global report design date format setting now has 4 possible Date formats:
    - DD / MM / YYYY
    - MM / DD / YYYY
    - DD / MM / YYYY (HH:NN:SS)
    - MM / DD / YYYY (HH:NN:SS)
- JOC and JETCAM advanced nest reports engine was updated with 2 new report items for nests: “Sheet Loading” and “Sheet Unloading”.
  - Each will display either “Manual” or “Automatic” to indicate loading and unloading type for the nest.

Note: The Post’s “.JD2” file is responsible for outputting (during NC code creation) status of “Sheet Loading” and “Sheet Unloading”. Some post may or may not be updated. Please check “.HIS” file of post.

## New postprocessors added:

- MicroSTEP laser – MSF Series – iMSNC controller (pp77503)
- RDI Coil-Fed Laser Blanking System (pp134500)
- Nukon Laser – REX Series – Bechoff controller (pp135500)
- CY Laser – CY2D series – ECS V3+ controller (pp136500)
- CY Laser – CY2D series – ESA V2.5 controller (pp136501)
- Jinka Router – ATC 1325 – Syntec 6MB controller (pp137500)
- CNC Dynamics Router – Num Flexioum +8 Controller (pp138500)

## Updated postprocessors:

Several laser posts have been updated to allow JET-Cut code to be enabled and used:

- BLM laser post: 80501
- Prima Platino/Platino Fiber/Laser Genius - TULUS(XML format-ZIP file): 46550
- Nukon laser post: 135500



# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

Several post updated to output of "JD2" file to be used with Advanced Reports v2.0 for displaying "Gas", "Lens", "Nozzle" and other information in Advanced reports(v2):

- Mitsubishi laser posts: 71502 & 71505
- Trumpf Laser post: 6507 (Must use "Lookup" file)

Several post updated to output of "JD2" file to be used with Advanced Reports v2.0 for displaying "Manual" or "Automatic" status with "SHEET LOADING" and "SHEET UNLOADING" and other information in Advanced reports(v2):

- Trumpf Laser post: 6500, 6503, 6507, 6509
- Prima-Power post: 46550, 11550:

Trumpf punch/laser post, 6509:

- Use of "Tool\_Attribute.ini" file to disable "Tool Measure" for individual tools.
- Output of "JD2" file to be used with Advanced Reports for displaying "Manual" or "Automatic" status with "SHEET LOADING" and "SHEET UNLOADING" in Advanced Reports v2.0.
- Use of "Repo Tool Definition" file to define a "Reposition" tool that will be used if nest has NO "Standard" punch tools.
- Ability to define height value for laser off - Head down movements and maximum head down distance for head-down movements.
- Support for Sheet Master Compact unit (AK05)
- Support for Trumatic 1000 (K07)

Prima laser post, 46550:

- Support for creation/output of "FMX" file.
- Support for use of "LST" Unloading Robot

Trumpf Punch Post, 6500:

- Support for Multiple Wheel Passes with different depths per pass.

Trumpf Punch Post, 6512:

- Support for AS12 or AS18 Compact Sheet Unloader.

Mitsubishi laser posts: 71502 & 71505

- Supports "Standard" and "AGR" cutting conditions.

## FIXED KNOWN ISSUES:

- Several fixes to the Free-form High Performance Nesting logic:
  - Fixed issue where the nesting may crash on very complex nests.
  - Fixed an issue where there was a memory leak on very complex nests.
  - Fixed a crashing issue with certain parts at the highest "Nesting Performance"
  - Fixed an issue with overlapping of a part nested inside a hole of another part.
- Fixed issue where JETCAM was not copying needed ".JD2" file for Advanced Reports (V2), when "c\_nc\_dev\_output\_files=0" is set in "OPTIONS.DAT"
- Fixed issue where JETCAM was not deleting the new temporary ".JD2" file which may be created by an external post processor after its usage for Advanced Reports (V2) .



# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

- Fixed an issue where the temporary file ".JD2" in the special temporary Advanced Reports Engine directory was being deleted too early (i.e. before the Advanced Reports Engine has been called), so the Advanced Reports Engine had no access to any generated ".JD2" (by the GENERIC post) file contents when using "PRINT OPERATOR'S JOB SHEET" function in CNC Output screen.
- Fixed issue in profiling's "Automatic Micro-joints in Nesting", where there was a created double lead-in generated close together. This issue was related to arcs with a huge radius and angular tolerance compare.
- Fixed issue with Remnant logic where "Best Side or Corner" logic was not creating remnant to entire "Y" length of sheet.
- Fixed an issue introduced in v20.20.00, where when editing an entry in the material/thickness database directly from the "Setup" menu and there was no Geometry nor no Nesting file open, then it was impossible to select tools from any active tool library. This issue affected selecting tools anywhere in any material/thickness presets, including routing tools, profiling pierce tools, automatic text processing tools, special processing tools, multitool holder tools, nesting cutting tools, automatic micro-joint tools, etc.
- Fixed an issue with Automatic Tooling (Profiling) logic, when lines used for special processing were processed as open cutting instead of marking.
- Fixed an issue with Automatic Tooling (Profiling) logic, where a "double lead-in" on same contours was created.
- Fixed an issue with Automatic Tooling logic, where a micro-joint was created at a different position at the 0 degrees rotation than at the 90 degrees rotation.
- Fixed an issue with Remnant Sheets logic, where sheet remnants were not created as expected.
- Fixed an issue where in some cases the common cutting logic introduced in v20.29.00 might "hang" the software.
- Fixed an issue with "Component Simulator" issue where tools inside setup and active multitool holders for the current material/thickness were not being assigned to stations when entering the Component Simulator.
- Fixed an issue with Remnant Sheets logic, where L shaped remnants were being created instead of 2 rectangles
- Fixed issue with the Rectangular Automatic Nesting (RAN) module's "Component Information" setup screen to use a custom spacing for RAN, where X & Y were swapped internally causing unexpected results when the spacing override was enabled on components.
- Fixed an issue with "Component Simulator" issue with punch/profiling and drill/routing machines. The "common" working areas of these combination machines are now used to nest the single component used during the Component Simulator.
- Fixed an issue with Remnant Sheets logic, when the option "Rubber Band" was enabled, then the "Minimum Size X" and "Minimum Size Y" were being ignored. Now, checking the size of "Rubber Band" remnant sheets against "Minimum Size X" and "Minimum Size Y" so that "Rubber Band" remnants will now not be created if they are too small.
- Fixed a rare issue where very tiny arcs were being drawn as huge circles.
- Several Fixes to JET-Cut and JET-Optimizer logic:
  - Fixed an issue where the "Item Buffer" may get full when tooling some parts.
  - Fixed an issue where the logic was using wrong head up movements when only open cuttings only were present on component.
  - Fixed an issue where logic missed head-up movement on long movements.





# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

- Improved Tolerance for movements crossing just cut hole geometry was increased to avoid unnecessary head up movements.
  - Fixed an issue "Unable to optimize path correctly".
- Several Fixes to JET-Cut logic (Nesting):
  - Fixed an issue when an open contour was not cut by JET-Cut on the nest if the contour was alone on entire component.
  - Fixed issue with nest that had memory leak.
  - Fixed a very rare case when 2 processing of the same nest were giving different results
  - Fixed additional non necessary OFFSET LEFT in NC code in some circumstances.
  - Fixed an issue with non-shortened destroy lines if they were part of a JET-Cut Grid.
  - Fixed an issue in JET-Cut nest processing where some parts on the nest were not processed due to tight geometry.
  - Fixed an issue "Unable to optimize path correctly".
  - An issue with slow entry into simulator with JET-Cut tooling on the Nest was resolved.
  - Speed was significantly improved for Nest processing by JET-Cut with a lot of parts nested.
  - A minor issue with auto generated Micro-joints order was fixed.
  - Many other minor bug fixes and improvements.
- Several Fixes to Advanced Reports Printing (V2)
  - Fixed problem where tooling could not be printed on nest drawing even if enabled in the report design.
  - Special tool number is now printed in dimensions field for special tools on the tooling list.
  - Fixed problem where Clamps are not drawn on nest drawing when the option is enabled in the report design.
  - Fixed problem where selecting a table field no longer displays field properties that allow the user to correctly format the field in the Report Designer. So it is now possible for example to select a table field and set the decimal places (Max Decimals) property for that field.
  - The internal "just-in-Time" tool dimensions display constructor for the tool dimensions field of the tools table was updated to request the data to be rendered using the number of decimal places specified in the loaded report design.
  - Fixed problem where table totals are not displayed when printing a report. This problem also occurred on the screen preview after printing a report.
- Several improvements and fixes to the new "QT" user interface:
  - Added "Tool Mask" buttons to the SIMULATOR's "Indicate Cutting Sequence" screen.
  - Fixed known context menus/toolbars issues
  - Fixed delayed update of file lists in file dialogs
  - Fixed MOD-edited columns, where changing the quantities in Mod orders column, the modified number sometimes reverts back to the original number.
  - Changed the RCP starting menu so that truncated text is now displayed
  - Fixed 'Minor issue with JET-Cut Setup Menu' by increasing the width of a label.
  - Deleted both remapped keys (tool mask buttons) from the Simulator screen, because there are a lot of 'S?' hot keys on this screen.

# JETCAM EXPERT 20.31.00

December 24, 2019 End-User Release

- Corrected update of tool tips. Now JETCAM\_QT shows full path (or any other text of label) in auto-help balloons if there is not any prepared text in AUTOHELP.LNG file for this label)
- Fixed possible JETCAM\_QT interface crashing due to issues with old recent files lists into "JGUI.INI"
- Allowed "Enter" key and mouse "Right Click" in cases where expected answer is "Y"
- Added new settings file "WINJC/QtPlugins.MNU/fonts.txt" with the list of all viewport (black area) fonts (right now there is a default font "FONT.FNT" and a new simplified version "FONT\_S.FNT").
- Supported switching between fonts in JETCAM\_QT from the drop-down menu.
- Supported correction of distance between characters from the drop-down menu. Note: The font support is currently JETCAM dependant. So, the setting of the font is global for the currently running JETCAM.
- Corrected the saving of recent files lists into "JGUI.INI".
- JETCAM\_QT now shows all the drives, as defined in "DEVICE.DEV" with variable "c\_legal\_drives=..."
- Added a new option "c\_mouse\_wheel\_zoom\_factor=" into the "OPTIONS.DAT" file. Now users can set "c\_mouse\_wheel\_zoom\_factor=0.5" (say) if they need fast zooming. (The default value is 0.85).
- Fixed processing of key modifiers in all JETCAM dialogs (i.e. the "SHIFT" key).
- Fixed issue with UNC paths, they are now corrected automatically if they change.
- Fixed the "Clear Recent List Files" command in the main window.
- Fixed issue where the Geometry file preview was not refreshed after editing a Geometry file in MOD Orders