



CheckMate for SOLIDWORKS® Changes

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GENERAL

Version - 1511

Improvements - General to 1511

1. Browser window location (and SW windows locations) can be saved and restored with /#CMU,GETWP, and /#CMU,SETWP.
2. /#CMU,WEB,'<url>' will display a web page using the user's default browser. For example: /#CMU,WEB,'https://info.originintl.com/resources/video-library-assembly-analysis-0'
3. New utility /#CMU,DELHIT will delete surface measurement reporting entities with hit error (actual sideways from nominal)
4. Continued memory management changes for VS2022
5. Changes.PDF added to Installation
6. Level isolation (right click on level in level control tab).
7. Forces uninstall of CheckMate before installing a new version.
8. Copywrite dates changed to 2023
9. cmUtil.exe SuperPro key reading425 error now written to CMSW_LOG.TXT
10. Updated PCM ribbon
11. Has a second phone number in the header for customer/supplier/engineer/mathdata/programmer

Fixes - General to 1511

1. Fixing Browser colors
2. SW2022 workaround for dimension balloon numbers being lost on save/load
3. GTM/programming browser display of several spherical diameter related items fixed.
4. GTM/programming browser display colors.

PROGRAMMING

Version - 1511

Improvements - Programming to 1511

1. Probe dialog made more novice-user friendly:1) when more than one probe is present and one needs to be selected, dialog prompt highlights in yellow 2) when disabled, the probe position list control wasn't greying-out causing confusion. Now it's hidden until it becomes active.
2. There is REVO/PH20 HEADCS/PCS capability in the probe dialog. (A user won't see this until we add a mechanism to mark a probe as REVO/PH20.)
3. MeasAll improvements for moving cylinders into measurable position.
4. MeasAll improvements for moving cylinder touch points onto complex faces.
5. Progress bar repaint improved (asking SW to set the progress bar isn't enough, you have to explicitly get the SW window to repaint via its HWND).
6. Progress bars for AA and CD made finer (was based on number of threads still running, now accumulation of percent-complete of each thread)
7. That Renishaw block you sent me has some degenerate plane in the +X direction causing the grid measurement to appear to hang. Grid measurement now gives up easier on faces like that.
8. Meas-all direction filtering for cones implemented.

9. Meas-all direction filtering for cylinders improved. The central obstruction in the Renishaw block was causing valid cylinders to be filtered-out because their centers were inside the solid.
10. WYSIWYG circle/cylinder/cone/torus/sphere: all points displayed not just 3/6/6/9/4.
11. WYSIWYG simulation.
12. Helical scans for cylinder and cones.
13. DMIS program output (“,PCS,” should not appear unless probe has been manually marked as PH20 (attribute PH20 = 1) or REVO (attribute PH20 = 2)
14. QIF import and output (libraries are new with VS2022)
15. Units issue with simulation of probe rotations fixed. Affected collision detection.
16. Programming browser right click “Selection dialog” now has a tri-state check box for filtering selections by measured or constructed feature direction (check all directions that you want to select). If checked, then trim edge direction, and line direction are used to filter. If greyed, then trim surface direction, and line surface direction are used to filter.
17. QIF cylinder: Code to back off cylinder measurement from bottom of cylinder improved to handle special case where cylinder center is inside a boss.
18. QIF complex holes: If depth tolerance is ± 0 (tolerance set to NONE in SW before QIF export) then it is ignored, diameter tolerance is transferred from group feature to cylinder feature, and group feature and cone feature are deleted.
19. With REVO probe, accessibility analysis of plane feature will use first probe position at 30 degrees to plane as first try.
20. /#CMU,AUGJOIN now updates references on associated ballooned tolerances, ballooned tolerance tie line and text also update (e.g., 13X goes away when 13 surfaces joined into one.)
21. /#CMU,AUGJOIN now updates associated faces for highlighting
22. REVO simulation of cylinder outer now justifies automatic REVO angle to point mostly in AOB0 direction rather than opposite Accessibility analysis with REVO probe enabled by replacing all axis touches with 3 axis touch for now. (this is only for AA calculations, not for simulation animation)
23. CMREPLACE updates associated ballooned tolerance tie lines to point at new feature
FormatWorks implementation of complex holes different than that from MBDVidia causing hole depth to be missing. Now both handled.
24. AutoMBD support added for SW22024 (u) profile upper disposition symbol as <CL-U>, in previous SW versions was <MOD-U>
25. AutoMBD support added for SurfaceOfRevolution feature type. More of a workaround really, it comes across as swDimXpertFeatureType_unknown.
26. QIF support for PC-DMIS canned features added (major planes, major axes, and origin) in distance and angle between tolerances.
27. productivity improvements for Automatic Sheet metal.
28. productivity improvements for Automatic Sheet metal. The stepback from edges setting has been abandoned for now. Slows things down too much. The body line spacing for trims has been made separate from that for surfaces. Trim spacing logic improved.
29. productivity improvements for Automatic Sheet metal. Surface filtering moved until after hole/slot and trim analysis has excluded edge faces (speeds up “edge consition” handling hugely)
30. Speed optimization for ckmt_sw.dll disabled. Was causing crashes on virtual machines, cm_swDLL.dll remains optimized for speed. The lion’s share of CheckMate’s heavy calculations is in cm_swDLL.

31. AutoMBD trim measurements completed
32. Surface hit for relative hole and slot measurements offset to avoid accessibility analysis failures for holes/slots in concave curved surfaces
33. productivity improvements for collision resolution
34. productivity improvements for accessibility analysis and collision detection.
35. sides of sheet metal part are now measured.
36. issue with 4-line/4-arc slots.
37. Automatic sheet metal measurement has been improved
38. QIF cylindrical segment features are now handled like QIF cylinder features in sheet metal mode: i.e., hole measurements are moved to an edge.
39. /#CMU,SMAUDIT (sheet metal audit) was erroneously flipping some plane measurements and offsetting by material. Now checks to make sure planes are on a surface and not on an edge (inside slot) before doing that.
40. /#CMU,SMAUDIT now turns down approach/retract on opposite planes inside slots
41. /#CMU,SMAUDIT now checks to see if surface hits for a hole are on CAD, and if not, the hole gets converted to a circle-inner.
42. /#CMU,INPUT has a new SheetMetal tab per video below. Command to invoke dialog directly is /#CMU,INPUT,SHEETMET
43. The main change is the change to QIF schema files to get around the VS2022 build crash associated with adding elements to unbounded choice compositors (replaced with substitution groups)
44. PCDMIS loader, EQUATOR output related:
 - TEXT/OPER, TEXT/MAN, SNSLCT/ now only appear in first pass
 - TEXT/OUTFIL now only appears in second pass
 - BF of cylinder from 2 circles converts to PTS construction
 - added support for ASME_TOLERANCE_COMMAND position, circularity, flatness, perpendicularity, parallelism, total runout
 - added support for per-unit straightness and flatness tolerances
45. A lot of changes related to 5-axis (PH20 + REVO) but that's not ready for prime time yet
46. PC-DMIS loader support added for CONST_EXTREME_POINT
47. PC-DMIS loader support added for GENERIC_CONSTRUCTION for cylinder, cone, and sphere
48. Auto probe names implemented for DMIS output. For example, if output is set to PC-DMIS, probe names will be of the form T1A90B45 regardless of the user-defined names
49. DMIS loader support for PPG CONE defined by half-angle added
50. QIF loader: if a cylinder is measured on a complex face (>4 adjacent faces) then the measurement is converted to multi-point+construction. This eases AA and CD. Such a complex face is likely to have obstructions that need to be avoided. In the future a switch to WYSIWYG free-form measurement will allow for internal probe moves (and rotations) within a feature. Expediency dictated to simpler solution.
51. AutoMBD support added for dimXpert "Notch" feature as parallel planes
52. AutoMBD assembly, maybe general, issue with slot measurement fixed
53. CMM-Manager output of construct point PIERCE fleshed out for line-cylinder and line-circle
54. PC-DMIS loader polar coordinates for XYMINUS, YZMINUS, and ZXMINUS workplanes corrected
55. CMM-Manager PTMEAS offset by DEPTH setting
56. Tolerance shared suffix (CMDEF) can now be turned off in addition to 6 previous choices
57. CMM-Manager output of carriage return/linefeed using DMIS CHR intrinsic function filtered out at output time

58. CMM-Manager missing (ENDPROG) jump label for SoftOrient added
59. QIF loading of extruded cross section feature now creates a (marked) gsurf measurement (instead of planes)
60. QIF loader captures lower tier balloon number from feature definition (upper tier is on feature nominal). Capvidia-ism.
61. QIF loader adding of tolerance suffix for duplicate tolerances expanded to include balloon numbers (tri-state switch)
62. QIF loader width on parallel planes was not being captured in on-feature tolerance mode, fixed
63. QIF loader composite position were not being captured in on-feature tolerance mode, fixed
64. QIF loader second position tolerance on a feature was overwriting first in on-feature tolerance mode, fixed
65. Natural probe angles accessibility analysis in place for VS2022 build
66. MeasureAll dialog reworked per suggestions
67. The QIF loader examine feature type for diameter/position/perpendiculariy/etc and if the tolerance feature is a QIF group feature then the tolerance reference is re-assigned to a child feature of the group (typically the cylinder in a cylinder-cone group). This prevents a flagged tolerance from appearing and the DMIS output will be valid. (The group features usually end up getting deleted because they no longer have any applied tolerances.)
68. adds a utility that copies SW sketch points to ADX points: /#CMU,SKETCHPTS. The new points are the same color as the SW points and in groups and on levels based on the sketch point type (SW has 11 sketch point types).
69. added support for ASME_TOLERANCE_COMMAND position, circularity, flatness, perpendicularity, parallelism, total runout
70. added support for per-unit straightness and flatness tolerances
71. The QIF loader examine feature type for diameter/position/perpendiculariy/etc and if the tolerance feature is a QIF group feature then the tolerance reference is re-assigned to a child feature of the group (typically the cylinder in a cylinder-cone group). This prevents a flagged tolerance from appearing and the DMIS output will be valid. (The group features usually end up getting deleted because they no longer have any applied tolerances.)
72. Dually balloon number support for composite position and profile added.
73. handling of patterns rewritten to prevent duplicate feature measurements
74. circular angle between work around in place
75. crash associated with /#CMU,BALLOON and the presence of a circular angle between fixedTrim measurements penciled-in for AutoMBD sheetmetal mode. At this point I'm more concerned with trims being correctly detected rather than details of measurement point placement. Currently, a single measurement is placed in the middle of each BREP edge. This will certainly need to be changed before the enhancement is ready for prim time. Video:
<https://www.dropbox.com/scl/fi/0w5fdbf6641nh8juaaqc/AutoMBD-trims.wmv?rlkey=mxr35js747o2f429b16s550wg&dl=0>
76. Undesired interaction between Pris2D/Sheetmetal and complex hole depths fixed. Essentially to do complex hole depths you need to be in Pris3D mode.
77. Circular angle between create flagged program note to indicate manual programming required
78. When measuring a trim a surface measurement can be picked last for replacement (and vice versa)
79. /#CMU,TOLREDEF can be used to assign a tolerance to new features. Useful when manually programming to address flagged features and tolerances
80. /#CMU,DELMOVROT now deletes internal probe moves from cylinder/cone/sphere etc. (previously only worked for surface and planes)
81. Added CSMENU modifier to CMTRANS

82. Popup menu dialog prompt now automatically word-wraps (important for regional language support)
83. cmUtil.exe has new command line parameter -DELTEMP which deletes all temporary unlock codes from registry for all uses ("cmUtil.exe -DELTEMP" must be run as administrator)
84. PC-DMIS loader support added for GBK Chinese and Shift-JIS Japanese character encoding
85. Calypso loader support added for Shift-JIS Japanese character encoding (GBK encoding fixed, was being corrupted by UTF-8 mapping)
86. PC-DMIS loader ASME_TOLERANCE_COMMAND datums as numbers fixed (was assumed 2=A, 3=B, etc. Instead number represented order in which datums were defined)
87. PC-DMIS loaded ASME_TOLERANCE_COMMAND datum feature-of-size tolerances now captured (cause tolerance evaluation at output avoiding Modus error)
88. GeoMeasure loader now creates a simulated uncorrected hit point at depth for alternate QIF output
89. QIF output now has an option for translating circle nominals to measurement depth
90. Added support to the Scan data loader for concentricity, symmetry, and circular and total run out.
91. AutoMBD issues related to multiple surface profile on same feature fixed as are multiple balloons on one line for same.
92. Level isolation revised: level displays even if hidden, level list background changes.
93. TOL/CORTOL on constructed plane to became TOL/CORTOL on first point used in construction.
94. Zeiss Calypso DMIS TOL/PERP,PARLEL,ANGLR etc now use FA() instead of DAT() for datum reference (if feature was a COMPOUND feature, then first feature referenced by COMPOUND feature is referenced).
95. Zeiss Calypso DMIS CONST/PARPLN is now CONST/PLANE...MIDPL.
96. Zeiss Calypso DMIS TOL/WIDTH on a constructed PARPLN becomes a TOL/DISTB between two planes.
97. Flattening Cylinders to a major aXis for true position.
98. Collision avoidance clearance moves fixed for parallel planes.
99. DMIS output screen "Use probe names" now a 3-state switch with new choice "Auto probe names".
100. Version history info implemented for QIF 2.1 and 3.0 (was in place for 2.0), all now switched by "Document revision history".
101. The handling of complex features (blind hole and slot with depth, chamfer, countersink and counterbore) from AutoMBD is complete in both on-feature and ballooned tolerance modes.
102. DMIS output for Capvidia complex features via QIF in place for all but chamfer features.
103. Datum target support added to AutoMBD (not accessible via dimXpert API, had to do it the old fashioned way).
104. Master/sub from cylinder/cylinder/plane and cylinder/cylinder/point (all parallel in both cases) support added.
105. AutoCS completed support when connectors turned off.
106. The complex hole measurement (blind hole, countersink, counterbore) stuff in place for the QIF workflow.
107. New PC-DMIS button added to probe edit dialog for loading info from .PRB and .RESULTS files .PRB –displays Build_list.txt showing components in probe build up .RESULTS – probe angles and configurations populated. You can select all .PRB and .RESULTS file in one go.
108. Probe edit now supports a variety of probe index parameters beyond 7.5° increments
109. Counterbore tolerance from QIF captured as flavored note diameter2 and width (TODO: measurements and constructions at output need more work)
110. Blind hole depth from QIF captured as flavored note length (TODO: measurements and constructions at output need more work)
111. (TODO, the above but via AutoMBD)
112. AutoMBD forces an empty segment before beginning (if open segment is empty it is used, otherwise a new segment is opened)

113. MeasAll cylinder vectors are now justified based on blind hole bottoms or closest bounding box wall.
114. Chamfer tolerances from QIF captured as flavored note width and angle tolerances (still TODO: measurements and constructions at output)
115. Counterbore tolerance from QIF captured as flavored note diameter2 and width (TODO: measurements and constructions at output need more work)
116. Blind hole depth from QIF captured as flavored note length (TODO: measurements and constructions at output need more work)
117. (TODO, the above but via AutoMBD)
118. AutoMBD forces an empty segment before beginning (if open segment is empty it is used, otherwise a new segment is opened)
119. MeasAll cylinder vectors are now justified based on blind hole bottoms or closest bounding box wall.
120. QIF Loader and Dmis output has been enhanced for complex features like slots and countersink holes
121. Flick mode can be enabled/disabled on a per-feature basis for circle/cylinder/cone. Having PH20 unchecked disables flick mode for all features. Modus only for now.
122. ParPLN removed from PC-DMIS output and substituted with planes and a distance between.
123. Comments added for PC-DMIS TOL/POS
124. New DMIS flavor for handling TOL/POS in PC-DMIS 2022 and later
125. First cut at AutoMBD, etc. avoiding fixtures when selecting target points for testing.
126. AutoMBD fillet measurements improved
127. More update Calypso from 7.2 to 7.4 - plane measurements not coming through/
128. The probe radius for the new binary geoactuals is taken from the "actuals file", it is now Calypso to Equator ready* - update Calypso from 7.2 to 7.4
129. Support added for binary format geoactual data- update Calypso from 7.2 to 7.4 (we'll need to see more of these as time goes by, they're not a fixed format)
130. If PH20 selected on the output program screen, Modus DMIS add ALLAXESTOUCH to circle and cylinder PTMEAS.
131. Support for formulas in Calypso loader.
132. Safety plane support improved in Calypso loader.
133. Third datum on second tier of QIF composite position supported in programming browser
134. Header setup "Math Data" tab re-titled as "CAD/MBD".
135. QIF loader nominal angle for angularity determined from referenced feature and datum if nominal is -1.0 (FormatWorks idiosyncrasy)
136. Added more support for extracting datum names from feature names for the Calypso Program loader.
137. Add automatic reordering of multi point measurements.
138. Added ALL, DME, 'TOLERANCE_NAME' for DMIS VFORM caused tolerance names to be used in place of usual characteristic identifiers in Modus .RES and .RTF (a .RES or .RTF created with this option will not load into CheckMate reporting. The DMIS format .OUT file will still load into CheckMate reporting.)
139. Added support for per-unit flatness tolerances to AutoMBD (per-unit straightness still requires extra work)
140. Per-unit flatness now supports rectangular (non-square) zones like 0.01/10X5 and circular zones like 0.01/Ø8 (enter -8 or d8 to specify circular)
141. PC-DMIS loader enhancement to convert trims to surface at depth
142. PC-DMIS DMIS output now emits SNET/DEPTH for FEAT/EDGEPT (trims)
143. Modus DMIS: DATSET with FA(s) now makes a temporary datum(s) and replaces FA with DAT
144. Measure-line with multiple picks now straightens picks with first and last pick used as reference
145. Support for profile of a surface on cylinder/cone/torus/sphere enabled (manual programming using ballooned tolerance)

- 146.Support added for per-unit flatness and straightness for planes, lines, plus ballooned tolerances in edit feature/tol dialog
- 147.Support added for per-unit flatness and straightness DMIS output
- 148.Support added for per-unit flatness and straightness QIF output
- 149.Support added for per-unit flatness and straightness DMIS program loader
- 150.Support added for per-unit flatness and straightness QIF loader
- 151.Handles MBD reference features (lines and planes) as CheckMate nominal references features
- 152.Tolerance names from AutoMBD now preserved on reference features (includes datum label)
- 153.Invalid plane selections for CMPARPLNI, CMPARPLNO, CMSYMLPLNI, CMSYMLPLNO now locked-out, warning issued to user
- 154.DMIS loader support added for GeoDMIS TOL/HAPEX
- 155.SW2022/SW2023 generated composite tolerances now handled in AutoMBD
- 156.MCosmos Pure DMISpak DMIS flavor outputs a comment line after every DMIS GOTO/ statement to workaround the Pure DMISpak translator bug where it ignores some GOTO/ statements.
- 157.Auto-mixed measurement strategy now ignores inside filet radii for automatic boundary turn-down
- 158.Measurement point removal now support for PARPLN/SYMLPLN
- 159.PC-DMIS PERP/PARLEL/ANGLR now reference FA() instead of DAT()
- 160.Accessibility analysis auto point removal implemented for PARPLN/SYMLPLN
- 161.If no automatic coordinate systems are created from DRFs, CheckMate now tries to create one from the first three datums
- 162.PC-DMIS tol position appears first in OUTPUT statement
- 163.Calypso loader support for programable stop added
- 164.Calypso loader support for pre/post messages added
- 165.Has some QIF loader enhancements to handle FW balloon numbers on notes.
- 166.AUTOMBD AND QIF2SEG - Cylinder depth now based on default setting and not 1/3 of the way into the cylinder.
- 167.Allows duplicate group members (green linked icons) to be removed from segment using "Delete" popup menu item.
- 168.output added for constructed sympln
- 169.Circular GOTOs button invisible (until implemented).
- 170.QIF loader: clearance distance set to approach + 1mm for circle/cylinder/cone/sphere features.
- 171.QIF loader: Jumps into independent segment mode when loading (so all datums will be created/recreated in current segment).
- 172.'C' + left-click to determine if face has associated CheckMate measurement improved: deselects anything in browser first.
- 173.'J' + left-click shortcutkey added to join two adjacent surface, plane, trim measurements by picking connector between them.
- 174.'B' + left-click shortcutkey added to break surface/trim measurement at picked location.
- 175.'V' + left-click shortcutkey added to reverse picked augmented line ('R' taken by SW for recent files).
- 176.CMRENAME now handles prefixes like SP.PT, SP#PT, in addition to SP. And SP, i.e., brought into parity with CMPREFIX (help document will need updating)
- 177.Added being able to copy segment while preserving Label names.
- 178.Added Convert POS Tol to Comp Tol from Legacy Programs.
- 179.Added CMCRECALL/REFFEAT support for Cylinders,Spheres,Cones etc.
- 180.QIF loader/AutoMBD:If a feature is flagged and the user is happy with it as is, there is a new popup menu choice to un-flag it.

181. QIF loader/AutoMBD: Flagged features can be selected using the Select popup menu pull-right or selection dialog.
182. QIF loader/AutoMBD: If there is a problem with the generated program, Features will be flagged showing that they need to be looked at.
183. Fixes crash with long comments (>63 characters) in feature edit dialog
184. Ballooned notes now loaded from QIF
185. Multi-face parpln outer features QIF loader now handles scrambled face order
186. The QIF document clearly has cone features where the adjacent cylinders make more sense. New switch added to QIF loader to replace cone with diameter tolerance with adjacent cylinder.
187. Diameter tolerances on cones suppressed (some did not have adjacent cylinders). TODO-need to explore what the intent here is. Possibly diameter of cone-plane intersection?
188. Length tolerances on cones suppressed. TODO-need to explore what the intent here is. Possibly distance between cone-plane intersection and cone-cylinder intersection?
189. MMC on position applied to cones suppressed for LK-DMIS
190. Elongated cylinder measurements replaced with slot measurement at top measurement level for LK-DMIS (diameter tolerance becomes width tolerance)
191. Parallelism/perpendicularity/angularity of a cone not supported in LK-DMIS, cone is used to construct an axis line and the tolerance is applied to that line instead
192. Construction of parallel planes from points of two planes measured with different probes failed (probe sizes do not match error). Using midplane instead worked but failed later when a parallelism/perpendicularity was applied (measurement point set needed error). So now parallel planes features are constructed from the points of two planes with each point going through a CONST/POINT...MOVEPT,0,0,0 to remove the probe size from the equation
193. Elongated cylinder added to selection popup menu
194. Message about number of items selected/de-selected added
195. Select Child Items menu item added (selects only directly dependent tolerances/constructions/coordinate systems, does not recurse)
196. In AutoMBD and QIF loader screens all post-load automations can be disabled as a group (or re-enabled as a group remembering previous selections)
197. Improves AutoMBD loading: pos+composite pos, tangent plane, controlled radius
198. QDAS results loader improved to handle more K2009 tolerance types
199. QDAS results loader mines K2002 comment field for feature name
200. QDAS results loader mines K2002 comment field for tolerance type (to be overridden by K2009 field if present)
201. Global edit now includes tabs for XYZ,diam,etc. for global editing balloon tolerances (previously, on-feature tolerances were used to update ballooned tolerances for XYZ,diam,etc.)
202. Calypso loader support for multi-level slot measurement added
203. Program browser handling on non-tolerance notes improved (FCF column populated)
204. Balloon number can be applied to a datum definition
205. Balloon number can be applied to a non-tolerance program note
206. <tol_balloon> tag and column added to CSV tols program output.
207. FCF for CSV tols now uses same code as browser/edit screen (STD_GDT font).
208. Dually approach/retract/search default now sticking for trim measurements.
209. Trim measurement defaults now used for edge points.
210. Trim measurement global edit now used for edge points.
211. Edge points now display with dually approach/retract.

- 212. Surface end of edge point now displays white (to differentiate from trim surface which is grey), edge end displays yellow.
- 213. integration of tolerance balloon numbers into CheckMate browsers.
- 214. feature names #.#.# no longer truncated at second decimal place.
- 215. fixed issue with relative probe move on slot pick from browser.
- 216. tangent plane modifier for orientation tolerances add to programming FCF.
- 217. controlled radius support added to programming FCF and DMIS output.

Fixes- Programming to 1511

1. Modus DMIS output for CONST/CYLNDR PTS mode fixed for circle referenced when move holes/slots to surface enabled.
2. Fixes the issue with output of the surface hit on trim measurements.
3. Infinite loop in accessibility analysis fixed.
4. AutoMeas FLOW option now attaches face associations to multi-face measurement.
5. QIF loader was chucking faces larger than the user-set small surface limit. Fixed.
6. Cylinder helix point generation fixed. Was flipping normal on each edit.
7. Left-shift+click dragging of probe changes was acting like right-shift+click. Fixed.
8. Simulation of surface scan drag-only fixed for sideways scans showing unnecessary splits.
9. CAD pick and 2-pick workplane probe angle selection fixed. Was sometimes getting inverse angle.
10. Helical measurement of cylinder fixed (cone pending).
11. Fixes the bug with the QIF importer in VS2022 Release builds.
12. PC-DMIS A1/A2 angle output reworked to avoid projecting a line to a plane. PC-DMIS was complaining line was perpendicular to plane when it was 23 degrees off normal. Now points used to construct line are projected to the plane and then the line is constructed.
13. QIF issue with erroneous </CheckDetails> element in output of constructed lines fixed
14. Fixed similar QIF issue with some constructed points
15. Ultra-fast simulation on some (virtual) systems fixed
16. Existing files with redundant face names now handled correctly
17. Bug introduced with addition of SheetMetal tab fixed. Running a one-pane /#CMU,INPUT dialog (AutoMBD, QIF loader) would sometimes crash
18. Probe angle edit dialog update-name-on-angle-edit fixed
19. DMIS loader issue with PPG SPHERE and CONE touch point transformation fixed
20. CMTRANS bug with Y, Z, YZ only offsets fixed
21. MeasALL code for detecting blind holes changed to handle counterbores
22. QIF loader issue with hole (as opposed to circle) diameter tols being incorrectly flagged fixed
23. QIF output VS2022 crash associated with component ids, actual component ids, and asm paths fixed
24. PCDMIS loader, EQUATOR output related: fixed issue with RMEAS circle related statements creeping into second pass
25. PCDMIS loader, EQUATOR output related: fixed issue with 0-length constructed cylinder
26. LK-DMIS issue with no output for trim surface hit fixed (NSG)
27. CMRENAME user defined prefix for tolerance names ending with '.' will cause tolerance names like PREF1, PREF2... instead of PREF001, PREF002...
28. DMIS loader RECALL option added for post-load CMTRANS using alignment file specified in first RECALL/D(...),DISK statement

29. CMM-Manager DATSET to features now DATSET to datums via creation of temporary datums (PC-DMIS, Calypso, MLB align to features, not datums)
30. Fixed issue in PC_DMIS loader with incremental probe move vector
31. fixes an issue where an infinite loop can occur when calculating runout/concentricity.
32. glitches ironed out of WYSIWYG.
33. fixed issue with RMEAS circle related statements creeping into second pass
34. TEXT/OPER, TEXT/MAN, SNSLCT/ now only appear in first pass
35. TEXT/OUTFIL now only appears in second pass
36. fixed issue with 0-length constructed cylinder
37. BF of cylinder from 2 circles converts to PTS construction
38. Fixes a Modus DMIS issue with 0-length cylinders.
39. Edit dialog balloon number support for composite position and profile fixed
40. Issue with tolerances applied to constructed features in cases where profile measured as surface/then feature constructed from measured points fixed
41. AutoMBD issue with compound position not coming in properly of preceded by form tolerance fixed
42. AutoMBD issue with tolerance names not matching tolerance types fixed.
43. AutoMBD support for multiple user balloons in multi-level FCF added
44. Crash in AutoMBD due to complex compound hole fixed
45. PC-DMIS ballooned width of measured and constructed parallel planes feature fixed to be distance between child planes
46. cmMenuPrep language setting uncoupled from menu file setting
47. PARPLN widths, and they're not coming out in a way that will work.
48. Crash in AutoMBD due to complex compound hole fixed
49. the Calypso loader issue with constructed circle at a distance on a cone fixed
50. Fixed issue with tolerance tie line placement from AutoMBD, or more correctly from /#CMU,FEAT2BAL
51. Crash conditions caused by circular angle between worked-around
52. /#SFSA,PROG now respects insertion point feature from browser
53. replace surface with trim fixed (CMSWAP via ctrl+alt pick should now work).
54. Fixed longstanding bug in DMIS output. MCS segments converted to PCS after a relative measurement. Now conversion only happens after CS creation.
55. Fixed string overrun which could cause crash in some edit feature/tol/etc dialogs
56. Fixed intermittent crash in PC-DMIS loader triggered by saved coordinate system commands
57. CAL file correction is not done for capturing probe position in DMIS
58. Probe builder probe with rack position 1 not as first configuration now handled
59. Glitch with probe change (and others) not working with Prog Browser insertion point fixed
60. Bug fixed in PC-DMIS loader where ASME_TOLERANCE_COMMAND tolerances were being applied to extra features.
61. outputting partial primary coordinate systems in Modus that reference a feature rather than a datum.
62. addresses an issue with AutoMBD where setting the multi-surface profile to per-face messed-up complex hole measurements.
63. fixes issue where /#SFI,CSV6,TOL still uses the tolerance from the TXT instead of from the CSV on just the first feature (all other features loaded correctly with the TOL modifier).
64. fixes a DMIS loader crash if there was a blank line in a MEAS/ENDMES block.
65. CMREPLACE fixed for trim measurements (was leaving TRIMB id dangling)
66. Global edit Torus button function fixed
67. AutoMBD dimXpert Radius applied to torus now assigned to minor diameter

68. AutoMBD duplicate label suffix now supports fillet face sets
69. AutoMBD measurement of cylindrical faced fillets fixed
70. fixed AutoMBD mishandling of some specific profile callouts.
71. Fixes glitch with QIF complex feature browser display.
72. Conversion to a .PRB was failing because the SW API call to was not working. In testing I found it works fine in both SW2020 and SW2021 but not in either SW2022 or SW2023. The “obsolete” API call does work across the board and is the internal workaround.
73. issue with the release build not using the parsed text MBD for complex holes.
74. /#CMU,AUGEDIT,UVMEAS problem with multiple picks fixed
75. Datum labels are forced to uppercase.
76. /#CMU,AUGEDIT,UVMEAS problem with multiple picks fixed
77. Datum labels are forced to uppercase
78. QIF2SEG creates a major Torus Radius Nominal when QIF is calling for the minor radius.
79. View-dependence AutoMBD glitch has been fixed
80. Group surface global edit issues fixed
81. PC-DMIS missing coordinate system issue fixed
82. Issue with defined start/end angle and point generation for cylinders and cones fixed
83. DMIS output: 0,0,0 vector on constructed point related to DISTB with diameter MAX/MIN fixed (several issue fixed in that code)
84. Shift-drag/esc-delete of points on plane/surface with multiple internal probe moves fixed
85. CC on single feature or set of features going back and doing whole program on second pass fixed, now just does selected feature(s)
86. Esc-delete now works to delete picked internal probe move
87. Best-fit cone reporting entity construction fixed
88. fixes angle-between issue with QIF loader
89. AutoMBD intersection features from non-existent dimXpert features (i.e., features not attached to a face) and now skipped. Was causing action line property manager page to be left open after load
90. Auto-mixed point selection was buggy, fixed.
91. Issue with corrupted parallel planes feature after AA fixed.
92. Angle fixed on measured sympln
93. Constructed sympln fixed
94. FCF for position sympln no longer diametrical
95. Browser description of sympln pos fixed
96. QIF loader:Fixes bug with QIF width limit tolerances
97. Fixes issue with zero-setback and scan mode measurements
98. Fixes issue re too long feature names.
99. Fixes issue about MLB slot length from single-pick 6-point slot measurements.
100. QIF loader: AA crash with SLDPRTs containing surfaces in addition to solid fixed.
101. Simulation issue with plane-with-clear fixed.
102. Simulation issue with helical scans fixed.
103. If QIF2SEG finds 2 faces on a cylinder, only 1 cylinder measurement will be created.
104. Constructed Parallel Planes was not working.
105. CMRENAME invalid index error when checking for duplicate balloon labels fixed
106. CMRENAME balloon numbers now transfer to reporting entities
107. We now get the text/outfiles of the UUIDs when the 'bare min output' is selected on the output program screen.

108. /#SFI,COSMOS,(GWS) new MCosmos ASC format loader in place.
109. AutoMBD with 2022 was showing some issues with distance between.
110. BASIC diameters showing incorrect.
111. Added support for a dist between and max diameter of a cylinder.
112. Added flagging in the Prog Browser, when MBD items need additional hand work to fix.
113. QIF loader: Minor bug fixes.
114. Fixes issue with CMEDIT crash
115. Issue with QIF loading of elongated cylinder feature causing AA troubles fixed
116. General loader issue with auto approach retract turndown not sticking so simulation and vector display length did not match, AA troubles, fixed
117. QIF loader: the geoactuals dialog coming up for each measurement.
118. FA(label)=FEAT/LINE not supported. That output is now suppressed.
119. TOL/PERP on a cone not supported. Cone is now used to construct a line, and the tolerance is applied to the line instead.
120. Fixes issue with failed plane/cylinder construction with CMSFCONST
121. Fixes the release/debug mismatch with grid measurement.
122. When planes/surface/parallel planes are set to grid, a new, user-setting independent algorithm is used instead if:
123. 1) Grid point selection fails after 4 iterations.
124. 2) The face is circular with a single circular or non-circular hole, or non-circular with a single, centered, circular hole.
125. Relative move with a slot is now working.
126. reprojecting surface points not projecting correctly.
127. datums labels not being created with correct names.

REPORTING

Version - 1511

Improvements- Reporting to 1511

1. PLY output now based on display list, i.e., all entities visible in active viewport.
2. CPLYOUT implemented for exporting LWCOLMAP entities with color (future would be to add support for BDSHELL entities (STL), and maybe even whiskers are possible as PLY edge features).
3. NetInspect support for Mitutoyo Geopak 3 ASC file tolerance names
4. <ForcePositive = 1> comment in Geopak 3 ASC file causes negative coordinates to be flipped to positive side
5. PC-DMIS loader TRACEFIELD literal value replaced with variable name from previous PROMPT
6. PC-DMIS loader "fluff" removed from PROMPT and TEXT/OPER, e.g., *****, blank line, etc.
7. QIF output support for extruded cross section feature (from marked gsurf) added
8. Fixes a bug with the handling of BASIC dimension flags in results loaded in older CheckMate versions (x1329 and earlier) and reported in newer CheckMate versions (x1330 or later). Newly loaded results were not affected by the bug.
9. The whisker scale dialog has extended capabilities as shown in this video:
<https://www.dropbox.com/scl/fi/yofb7oryp0kmnln8gyak/scale-whisker-enhancements.wmv?rlkey=jj3q4eaeyn5qc7f5ryspbu3kl&dl=0>. The capabilities only appear when a user has a valid internal debug unlock code. Only Origin and Rob Johnston have internal debug codes.

10. added support for Verisurf results files and empty results files of all types.
11. /#SFI,CSV6,TOL will take tolerances from .CSV measurement file (/#SFI,CSV6 still takes tolerances from .TXT nominal file).
12. Reporting/RC/GTM Browser colours user-definable via CMREPDEF.
13. Added implicit constraints to GTM composite lower tiers.
14. The GTM now has position for planes.
15. New column in CSV tols output <ordinal> showing program order (also used for sorting duplicate balloon/tol names)
16. Composite tolerances now handled by CSV tols output
17. CSV tols output handling on non-tolerance notes improved
18. Two modes for CSV tols output: expanded = one record per each feature/tol pairing, condensed = one record per tol (on feature or ballooned)
19. integration of tolerance balloon numbers into CheckMate reports.
20. added <balloon> tag and data to CSV stats output.

Fixes- Reporting to 1511

1. Issue with reporting entities being created from colormap regardless of default setting fixed
2. PC-DMIS loader units issue fixed with intermediate probe moves, i.e., internal to feature measurement
3. PC-DMIS loader units fixed with stepback for relative hole measurement
4. Occasional string overrun in CMM results loader fixed
5. CheckMate Reporting angle tolerance output fixed for symmetric planes
6. NetInspect output of polar radius and angle fixed (PC-DMIS PR and PA from text report)
7. Fixes a bug with the handling of BASIC dimension flags in results loaded in older CheckMate versions (x1329 and earlier) and reported in newer CheckMate versions (x1330 or later). Newly loaded results were not affected by the bug.
8. Excel reports depend on % of tolerance zone used for coloring. The calculation of that percentage needed to handle the special cases of ++ and – tolerances that Howmet occasionally use.
9. issue with MFC RGB and .NET RGB byte orders being reversed. In MFC blue is the high order byte and red the low order byte. In .NET red is the high order byte and blue the low order byte. This caused red to be blue and vice versa, yellow and aqua were swapped, but magenta remained the same.
10. /#SFO,CST (Excel output feed) now strips leading spaces from all feature labels
11. fixes issue with a leader space being added to balloon summary range labels like “ feat1 / feat2”, now “feat1 / feat2”. Current excel report code interprets leading space as a blank line and skips the record.
12. Problem with using balloon numbers in label template only working for on-feature tolerances, and not ballooned tolerances.
13. Issue with PC-DMIS results loader fixed.
14. Average bonus was being calculated incorrectly, division by the number of samples was being performed twice.
15. Getting Excel error when making a multisheet report
16. This fixes the Excel out crash.
17. fixes a DMIS results loader crash with PC-DMIS files
18. When GD&T FCF mode selected for labels, frame factor set to 0.5
19. Balloon number for angle between weren't coming across.

20. excel Reports giving an error when using multiple parts and no browser open.
21. After the fact balloon Tolerance not viewing correctly in Browsers.

GEOMETRIC TOLERANCING MANAGER

Version - 1511

Improvements- GTM to 1511

1. Changes to the way GTM deviations are selected and GTM fits are displayed.
2. Profile-of-a-line implemented for GTM (in general, really, requires existing results to be reloaded)

Fixes- GTM to 1511

1. Issue with old-style report generation failing in presence of GTM fits fixed
2. datums were being included in lower tier composite tolerance fits. Their only supposed to control global rotation constraints.
3. DRF glitch with 2+ orientation tolerance datums fixed (loader issue)
4. DRF material condition on 3-datum lower tier of composite tolerances fixed
5. crash with new use GTM deviations control fixed
6. issue with new GTM control visibility fixed

SOFTFIT SOLVER

Version - 1511

Improvements- SoftFit Solver to 1511

1. RC Browser feature names color to match tolerance condition. (caution color if ambiguous)

Fixes- SoftFit Solver to 1511

2. Fixes nasty bug in fitting engine with respect to cylinder length.

POINT CLOUD METROLOGY

Version - 1511

Improvements- PCM to 1511

1. Using AUTO for “Maximum expected deviation” causes part to measure against itself to determine largest value allowable while preventing measurement of wrong, but parallel, face. If no parallel faces are present, then value set to surface approach value.
2. implements 2-pass point cloud analysis/constructions so that features can self-reference and/or features can be measured/constructed before tolerance dependencies are measured/constructed.
3. implements runout/concentricity for constructed circles
4. provides option for offsetting facet centers to surface height (reprojecting facet centers) to improve numerical accuracy beyond chordal deviation limit.
5. Added support to the Scan data loader for concentricity, symmetry, and circular and total run out.
6. /#CMSTLIN,COLOR will prompt for color of loaded mesh.
7. CMCLIPMESH

8. Added colmap default to choose among COLMAP CMM, COLMAP ALL, and COLMAP NOEDGE /#SFI options for creating reporting entities after colmap load
9. Added colmap default to replace existing reporting entities when firing /#SFI (not automatic because user may want to compare CMM/ALL/NOEDGE results)
10. Added RPL modifier to /#SFI to replace existing reporting entities with COLMAP CMM, COLMAP ALL, and COLMAP NOEDGE
11. Added Auto-delete of reporting entities when loading a new colormap
12. Implements user-defined "grey" color for colormaps and digital twin reports (CMDEF dialog).
13. New switch on colormap defaults screen to use new alternate rotation registration for finicky STL models

Fixes- PCM to 1511

1. Redundant face name capture for colormap creation fixed (was causing all and no-edge results loading from colormap to sometimes default to CMM mode)
2. Face name capture corrected when replacing an existing colormap or adding a new colormap (existing names were not being copied to new entity)
3. Colmap results loader was firing the wrong command after the first time.
4. One of the colmap plane measurements showing 1000 mm deviation in Y.
5. Initial color saturation dev in the colmap defaults won't stick
6. SW crashes when selecting the "Lock Display" button in PCM Adjust Defaults Screen
7. Fixes issue with colormap legend display

KNOWN ISSUES:

SOLIDWORKS 2022

- Balloons created for DimXpert PMI of "Hole Wizard Dimensions" are lost when the file is saved in 2022.

CAPVIDIA

Formatworks:

- Formatworks requires the font called "Y1.5-2018.ttf" to be installed, to show the DRF's correctly in the graphics area. Capvidia does not install this font so the user must install it. It is supposed to be in the folder C:\Program Files\Capvidia\FormatWorks Professional x64 Edition\fonts\

MBDVidia

- Currently does not support "Point Defined Surface" which causes errors when importing a QIF file with results data (created by CheckMate) into MBDVidia.