

# CheckMate14 for SOLIDWORKS® changes

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## GENERAL

### Version - 1075

#### *Enhancements*

- New utility for viewing a face name, and applying a QIF id as a face name: /#CMU,FACENAME.
- Productivity enhancement for loading large results files (without balloon tolerances). 9000 point sample went from 22 min to 1 min.
- The network stats logging now includes the CheckMate version and revision number
- The folder that CheckMate stats gets saved to can be set with the environment variable or registry entry CHECKMATE\_NETSTATS\_DIR
- Added a single click on a CheckMate Feature in the graphics area to highlight it in blue (select it) as if it was single picked in the cmbrowser.

#### *Bug Fixes*

- Fixed Issue with mouse cursor going into wait mode for no reason.
- Work around in place for that nasty SW2020 SP1 mouse event OpenGL transformation matrix bug.
- fixed crash occurring when CheckMate is unloaded while the browser is open.
- View changing on file load
- Box from /HOT+,BOX etc. was not disappearing
- Occasionally Origin Software keys were not being read in Windows 8 or newer.
- Annotations always reappearing after some CheckMate commands like label dragging
- Some CheckMate toolbars/flyouts removed to eliminate the SOLIDWORKS startup errors.

### Versions up to 780

#### *Enhancements*

- Did more work on fine tuning the import/export of Layouts from CM12.1
- /DISP,FIT has a new modifier 'TIGHT' to fit the image tighter to the viewport edges.
- INFOFITS report is now scriptable
- Also new choices for hot+ with unhide, and hot+ of visible only.
- Add cheat sheet button to AutoMeas area of browser.

#### *Bug Fixes*

- Modified toolbars to prevent SW start up crashing.
- CheckMate commands stopped working after cancelling out of a CheckMate command.
- When importing 12.1 Layouts into CheckMate 14, the file opens in Model Layout and the paperspace levels should be turned off.
- When importing 12.1 Layouts into CheckMate 14, the CMMtext cannot be moved around with the shift-click feature.
- Issues with multi-threaded accessibility analysis.
- Fixed some internal code that would causing random memory crashes.
- Issue with red becoming white on CMX import.
- Loading of IGES/STEP/etc. with 3D Interconnect enabled.
- Random features turning hot randomly
- Issues with probe colour saturation when using multiple viewports.
- Issue with layers being purged when groups were deleted.
- Fixed issue with multiple selections in pop-up dialog. (the /hot-,lev would only hide the one level)
- CheckMate 14 desktop icon target fixed including SOLIDWORKS version number.

- Scan Data loader broke for scripting.
- Scripting multiple part fits and then running single parts on multiple part fits in a script not supported.
- Bug in our command processor that causes construction (and a few other) commands not to work depending on modifier order (what should have been arg[i] was arg[1] in several places, almost invisible in the font used in Visual Studio).

## PROGRAMMING

### Version - 1075

#### *Enhancements*

- Added support for PC-DMIS CONST\_WIDTH3D\_FEATURE command. This command does not appear in the PC-DMIS documentation we have. It appears to be a FEAT/PARPLN type feature constructed from 2 planes. DMIS does not support this so I went with a CONST/PLANE,...MIDPL.
- Created a new Probe builder application that supports multiple configuration to support probe changers
- AutoMBD - "Use SOLIDWORKS Inspection balloon numbers" on MBD loader screen is now a tri-state button to chose between normal and shared balloon numbers
- AutoMBD - Shared SOLIDWORKS Inspection balloon numbers become X.1, X.2 etc
- Added probe movement, probe selection, and Accessibility Analysis internal to a feature
- Added Multi-face GSURF capabilities
- Support to use SOLIDWORKS Inspection balloons as characteristic labels
- Enhancement to the output of A1/A2 angles. Changed the DMIS output to create both a +axis and -axis nominal features so that the "(supplemental)" never appears, you will still get "(absolute)"
- Added more Enhancements for Autocreating a Coordinate system from two Datum Pattern features
- implemented support for "imported curves" which is how those cross sections
- user interface for setting tolerance # of decimals
- QIF # of decimals captured
- # of decimals preserved in DMIS output
- composite profile comes out as 2 profiles in Calypso
- Forced coordinate system only update Calypso program transformation if it is the first element in the program segment.
- For QIF2Segment - Our interpretation of the "small end distance" on cone measurements was too literal resulting in the cone measurements not being on the face. We took the distance to be along the vector, it's just a non-directional distance either up or down the vector.
- For QIF2Segment - partial cone measurements implemented.
- For QIF2Segment - When a datum points at more than one cylinder we now check if these are different or the same cylinder (same location/axis/diameter/length) and if the latter we construct a cylinder instead of creating a pattern
- Completed the fine tuning of GSURF/Constructed GSURF editing.
- For constructed GSURFs I've got the point drag updating, point remove updating, and CMCREM/CMCADD updating in place.
- Improvements to collision avoidance; the probe path around the bounding box containing the collision zone has been reworked.
- Now change cylinder measurement depths during Accessibility Analysis

- for AutoMBD - a new choice for multi-face surfaces: Per face tol'd.
- for AutoMBD - add the ability to have ballooned tolerances sorted numerically at the end of the program.
- for AutoMBD - added the ability to have output as ballooned tolerances at the end of the program.
- for AutoMBD - first cut at adding the ability to have output as ballooned tolerances at the end of the program.
- Simplified the questions asked during creation of Probe Configurations.
- CheckMate now allows coordinate systems to be created from just 2 datums if the secondary is a pattern feature. The MBD loader now pays attention to the Duplicate/A/\_A/.A/\_1/.1/... switch with or without SolidWorks Inspection balloon numbers.
- The tangency dimXpert dimensions are now ignored.
- The SolidWorks Inspection balloon numbers are now associated with a 3D oblate spheroid location strategy to help find balloons out of the annotation plane.
- Improved per-face multi-surface measurements in MBD program loader.
- Added Joined/Per-face/Exploded Gsurf measurements in MBD program loader.
- Redefined nominals are output before LOCATE coordinate system for Metrologic
- PPG nominal point vector is taken from GOMEASURE/MEAS\_DIR over FEAT definition
- User interface added for circular GOTOS.
- User interface for projected tolerance zone added for (cylinder/parpln) position and orientation tolerances (parallelism, angularity, perpendicularity).
- ENHANCEMENT [PROGRAMMING] - Work around in place for picking on sketch entities imported from IGES (STEP?) where SW killed the property manager page (action line interface) for no reason.
- DISPLY/ and VFORM/ statements removed, DMESW/COMAND,'FILE/STORE... in place for MCOSMOS targeted DMIS so settings in Pure DMISPAK translator don't matter as far text results file are concerned.
- TOL/PROFP has datum reference frame suppressed for MCOSMOS targeted DMIS so isn't suppressed by Pure DMISPAK translator.
- CheckMate detects when the action line property manager page is dismissed by SOLIDWORKS (for reasons unknown) rather than by the user and restarts it transparently. This situation was found to occur when picking sketch entities from a particular imported IGES file.
- Improved simulation (AA and CD) or probe rotations. Beginning enhancement for moving the rotation of the probe itself into the kinematic simulation.
- QIF Loader Improvements - Boundary scans no longer have first and last points near each other.
- QIF Loader Improvements - Loader now pays attention to min-spacing parameter for surface and plane. (UV Settings for surface/plane) Points closer together than this minimum spacing are discarded.
- QIF Loader Improvements - If only one point remains on a surface measurement after filtering, it is moved to the center of the face.
- QIF Loader Improvements - Arcs on cylindrical segment features are now centered along the length of the cylinder
- AutoSection - Previously a section name (with open segment for each section) like "Section %d" would result in segment names "Section 1", "Section 2", etc. Also, previously a section name like "Section %d of %d" would result in segment names "Section 1 of 5", "Section 2 of 5", etc. NEW is a section name like "Section %.0f" will result in segment names "Section 800", "Section 850", etc. and a name like "Section %.2f" will result in segment names "Section 1.25", "Section 1.550", etc.
- Torus measurement corrected for interactive measurement
- QIF output of constructions more filled out (not complete)

- QIF input tolerance indirection via generic features handled
- Beginnings of implementation of multi-language not-supported logs for PC-DMIS, DMIS, Calypso import.
- Convert multipoint surface measurements to scan mode, by selecting 'Change Mode' after right clicking on the feature in the Programming Browser.
- Modus Output from CM14 to report True Position at CMM & adjust CM14 loader accordingly.
- Torus Inner measurement now has a Torus outer movement to get around a post.
- for Calypso Output - corrected start point/sweep for left-handed arc-paths.
- for Calypso Output - Created utility to poke step/points to measure 10+ points on line scans and 20+ points on arc scans. Also in the same utility to condense GTOL marked tolerances into one.
- for Calypso Output - FEAT/PATERN datum - explode to 2 datums for complete DRF in TOL/PROF.
- for Calypso Output - constructed intersection points from line and arc scans with nominal planes for TOL/PROF.
- for Calypso Output - for arc/line plane put all paths in one PAMEAS statement
- Multi-face or single face radius measurements (AutoMBD) with tri-state selection: checked = all faces, greyed = first face only.
- New MCosmos load button on probe dialog. When prompted, select all PRB\_ASC.00# files you want to import angles from (they get sorted numerically by filename)
- BF,F(label)[index] flavored for CMM-Manager to raw points + FA(label\_PT1) etc. CMM-Manager flavoring FEAT/ARC output as FEAT/CIRCLE
- Other Nikon CMM-Manager flavoring (mostly suppression of valid DMIS 3.0 commands not supported by CMM-Manager)
- Enhancements to MBD Loader - Added 'auto-mixed' to plane/surf strategy.
- Enhancements to MBD Loader - Added 'Ignore BASIC Dimensions' checkbox.
- Enhancements to MBD Loader - Added ' Measure radius dimensions as arcs' checkbox.
- Calypso Program Loader - Datum Labels are now derived from the Calypso feature label.
- Calypso Program Loader -A feature referencing a coordinate system created from itself does not cause said coordinate system to be created.
- Added ability to change the CMM Mode on selected items in the CMBrowser
- Added Hotlist and % values to the 'filter' option of /#cmu,augedit
- New "Model OR def" switch in cmdef
- /#cmu,augedit to filter/sift/etc. augmented lines (scan measurements)
- DMIS load button for probe angles in place
- PCDMIS HLL fixed
- PPG loader enhancements
- Modified the Calypso Output to add support for partial circle scans
- Modified the PCDMIS program loader to add support for Generic Constructions
- Enhanced Metrolog output - GSurf being constructed from Lines, which Metrolog is saying that the line is not point reducible
- Enhanced Metrolog output - cylinder constructions with no FA() being passed into the construction
- Modified the PCDMIS program loader to add support for point measurements in polar coordinates
- Modified the PCDMIS program loader to add support for when not specified, workplane wakes up as the XY plane
- Enhancement added vnew mixed strategy option(Plane/surf) in QIF loader (for internal testing)
- QIF Loader - Added a setting for ignoring features with a face less than a certain size

- QIF Loader - A LOG file is created in the same folder as the input QIF with the same name and \_LOG.TXT appended
- QIF Loader - The LOG file will display after the import by selecting the "display after input"Switch
- QIF Loader - Torus and Toroidal segment features use the face to override the INNER/OUTER setting if appropriate
- QIF Loader - Cylinders with a limited sweep appear off part is fixed
- Simulation/fixture colors are brighter and match SW colors more closely
- Picking a face over a facet model now keeps most up screen vector of face or facet model
- PCDMIS Loader - This update addresses the PC-DMIS N\_HITS issue. If N\_ROWS is present then the number of hits is now N\_HITS x N\_ROWS
- QIF Loader - The QIF loader captures the part number (if present) from the QIF document and populates the header default and sets the CMM report switch automatically
- A forced coordinate system will transform nominals in a "bare minimum" Calypso DMIS program. No coordinate system rotations or translations are sent to the CMM. The forced coordinate system will properly transform CMM results back into CAD space.
- Hovering over MBD annotation in graphics area highlights associated tolerance or datum in programming browser.
- Can pick a tolerance in the dimXpert tree to measure in auto measure mode
- Old fashioned trim edge picking in place
- Picking a CM entity will select it in the browser
- Added new convert functions: Cylinder to Circle, Cylinder to 2 circles, Cylinder to 2 circles + Cyl Construction, Cylinder to Line.
- Convert a cylinder into a circle
- Added ability to inherit tolerance values but not labels from a feature. (NOTLABS option to /#CMINHERIT,TOLSONLY... /#CMINHERIT,TOLSONLY,NOTLABS will inherit tolerance values but not tolerance labels)
- Added support for 2D and 3D best fit alignments as LOCATE/SoftOrient coordinate systems.
- PC-DMIS Program loader. Added support for input flavor of comment as DMIS PROMPT statement
- PC-DMIS Program loader. Added support for variable assignment as DMIS ASSIGN statement
- Added \$\$ var=ASSIGN/expression passthrough command (requires user editing)
- PC-DMIS Program loader. Added support for generic feature construction (requires user editing)
- Preliminary support for QIF->scan mode measurements.
- Enhancement to the Zeiss Calypso loader to handle the naming resulting from DMIS file import.
- Added the Intersecting of 2 cones to get a circle.
- Enhance AutoMBD with datum pattern support, just like 'QIF2Segment'.
- Completed the enhancement of adding a UUID column to the programming browser.
- Option added for curve scan with turnaround breaks.
- Added new Selection Dialog Box to the right click menu of the CMBrowser.
- Added in the Browser the ability to Uncheck all dependent Features when un-checking, hold the SHIFT key down to automatically uncheck additional items that use that feature (balloon tols, datum labels, cs's, etc etc)
- Added ability to select program entities based on reporting entities
- End-points trimmed off of AutoMeas flow and mid.
- On the Output program screen, the switch to "move holes/slots to surface" now works for Modus output.

- Performance issues addressed along with memory management improvements, any issues are output to Log file.
- AutoSection/AutoMeas recognizes splines.
- New simulation with view manipulation.
- Added support to load the OpenDMIS FEAT/GCURVE actual point data format
- Added support for CheckMate Fixtures.
- OpenDMIS flavoring: All GSURF and GCURVE forced to GCURVE...PTDATA
- OpenDMIS flavoring: Approach vector on PATH/ARC but not on PATH/CURVE
- OpenDMIS flavoring: SCNSET/DRAG,DIST at beginning of program
- TOL/DISTB on GCURVE now uses whole feature (all DMIS flavors)
- New flavoring for OpenDMIS: Translate to point coordinate system needed MEAS with 0 points
- New flavoring for OpenDMIS: PARPLN is output as 2 planes with a mid-plane construction and distance between for the width
- The material conditions on datum references are turned off if the feature isn't a feature of size, in the particular case of OpenDMIS a reference to a PARPLN datum at MMC is set to RFS because a constructed plane becomes the datum. (all DMIS flavors)
- Support added for using CMM models for simulation.
- Add ability to program constructed GSURF and GCURVE.
- Enhanced the command to Assign a Datum Label allowing all datum labels to be picked in one command execution.
- Added support for "unless-otherwise-specified tolerances" notes.
- Added support for Solidworks Inspection balloon numbers
- Added Construct cone from measured cone (making a TR copy)
- Output scanned cones with scanned surfaces as well as scanned arcs
- Can drag planar surface measurements up and down the perpendicular vector.
- Can drag individual levels of multi-level features (such as measured cylinders and cones)
- When dragging an individual hit of a multi-level feature (such as measured cylinders and cones), using the right shift key will force the same measurement on the other level(s) to be moved to the same location.

### *Bug Fixes*

- QIF2SEG - no output on Gsurfs
- MLB output crash fixed
- DirectInspect output error left file handle open, had to quit out of SW. Fixed.
- Measurements not being placed on the correct faces when dealing with suppressed faces
- MLB Angle tolerance fixed
- QIF2SEG - radius tolerance was applied to a surface
- AutoMBD - Issue with FA(HOLE\_PATTERN2\_2) being used as datum fixed
- AutoMBD - Issue with distance between missing features fixed (dimXpert label now used for hooking distance and angle between together instead of tolerance name which could be a SOLIDWORKS Inspection balloon number
- COLLISION DETECTION - A very important minus sign went missing. The probe moves were correctly added to the in-memory probe path, but not to the CheckMate segment. So the in-memory path said everything was okay
- COLLISION DETECTION - Bookkeeping issue with adding internal moves between existing internal moves
- AutoMeas Boundary/Edge crashing
- Multi-face GSURF issues with AA, optimization, add moves/rotates, and CD corrected
- Outputting a program to Calypso cause a software crash.



- QIF 2 Faced code was being activated when it shouldn't have been.
- Composite profile created by the QIF loader was not being output into the resulting DMIS Program.
- Some attributes were left around on SFORIGIN and CMMPROGxx so that if you ran the MBD loader a second time on the model, DISTBs could be missed.
- Star Probe not working correctly in Collision avoidance code.
- Not all un-ballooned annotations were being processed.
- Constructed Gsurf was not removing points when the original Gsurf points were deleted.
- MBD program loader created some cylinder measurements with the depths right next to each other.
- Fixed some Collision detection issues.
- fixed the disparity between the single-thread and multithread collision avoidance.
- Fixed redefinition of CPARLN (slot) nominal
- Fixed issues with defaults on various GD&T tolerances (cylindricity springs to mind)
- Output for probe changes without a probe rack for MCosmos was incorrect.
- Circle construction between Spheres&Cylinders and Spheres&Cones now works.
- Fixes to Accessibility Analysis and Collision detection that were giving different results between single threaded and multiple-threaded processor settings.
- measurement/construction of torus fixed.
- Construction of a slot from 2 circles- output code for Modus giving 'not enough points' error message.
- QPID only allows stringent format, CheckMate UUID allows anything, default to string attribute when format isn't legal.
- Trim SProf was getting a double \_SRF placed into the label name.
- AutoMBD went into an infinite loop and never came back.
- MLB bug in slot - extra save construction command that didn't belong needed to be removed.
- Corrected code for depth settings for Holes output to Modus.
- Edge Points feature names changed in an Inline Soft Orient Alignment. Had an extra illegal suffix on the feature name.
- Measuring circle inners with defaults set to 4 points - pick in face, result is a 4 point half circle measurement.
- did a lot of work fine tuning Arc Entities and Partial circles.
- When measuring a circle inner (default # points is set to 4), Pick on edge and everything looks fine...Pick on the inside face and all 4 points are spread out among 180 degrees. Fixed inside face picking.
- Circle (arc) measurement on toroidal faces fixed.
- did some tweaks to the surface/plane MBD auto-strategy.
- Cleaned up Accessibility Analysis - problems with Single Threaded vs Multi-Threaded giving different answers.
- Output to DMIS now supporting Probe configuration lengths correctly. AutoMBD not finding DimXpert datum labels the first time.
- hard crash when when using AutoMeas on flowlines.
- INFILL did the first measurement, ignored (and left on the hotlist and gave an error) the rest of the measurements and locked up CheckMate.
- could not change PROG mode to SCAN mode using cmbrowser.
- Removed "Model OR def" option from AutoMBD screen
- New "Model OR def" switch in cmdef was stuck on
- AutoMBD creating full Arcs. should have been partials

- MBD feature numbering fixed
- pcdmis loader issues
- CMINHERIT not inheriting TLABS
- Adding a measurement at end of collision free program causes new collisions
- After running Collision Detection on highlighted items, CheckMate continues to perform ColDet starting at the beginning of the segment
- Using x948 outputting a program from CheckMate 14, GIVES a SOLIDWORKS hard crash
- Measure ALL - missing partial cone and some out of place probe moves
- SH-DEL on an open segment folder returns the error message that the segment must be open, even when the segment is open
- SOLIDWORKS hard crash when outputting programs
- Issue with interrupted simulation path generation which causes accessibility analysis to fail
- QIF basic angle for angularity now loaded
- The template CMX loader was overwriting existing groups
- If you pre-picked features with the right click pop-up menu item "Pick+" and then did a construction you got a PTS method, instead of a BF method
- There is a new switch on the DMIS output to cause a fake feature and tolerance to appear in the CALYPSO DMIS program to transmit the part number to the \_CHR.TXT file
- Weird auto coordinate systems created when no datums defined
- Measure All - If cylinders are measured as circles then only 360° holes are measured
- Measure All - Annoying warning messages on small hole suppressed.
- Measure All - Size filtering improved
- Edge/boundary automeas functions stopped working
- PC-DMIS BAS loader coordinate system recall fixed
- Auto MBD re program leaves unresolved collisions 14.0.919
- AutoMBD giving different (poor) results with workviews other than #1
- Cylinders can have negative lengths for PC-DMIS 4.2 output.
- Issue with Datum C targets not being measured correctly when imported from QIF file.
- When Probe Move/Rot. button is selected on the Global Edit screen, SOLIDWORKS crashes
- Calypso PROGRAM loader fixes.
- DMIS loader improvements.

## Versions up to 780

### *Enhancements*

- Added option to QIF loader for Pris3D, Pris2D, and Sheet Metal
- /@AUTOCLR2 has been replaced by /@AUTOCLR3. /@AUTOCLR3 relies on accessibility to be run.
- Calypso program loader implementation of radial patterns. We were assuming the pattern and the features were all coplanar. No longer matters now.
- Add Sheetmetal Audit Utility to automatically flip and change material side based on workview.
- AutoMBD to provide options for Prismatic3D(cylinders), Prismatic2D(Circles), and Sheet Metal(Holes)
- Right-Clicking a feature in a command now gives a third option to 'pick as connector' allowing items to be inserted at beginning of segment.
- CMCORDSUBMCS creates a sub coordinate system aligned to closest machine axes without prompting.
- QIF loader support added for two-tier composite profile and position callouts.
- Add ability to program 3-point slot measurement

- AutoMBD uncheck features that can't be measured due to CMM Setup.
- DATSET (creating a coordinate system) now works with features in addition to datums.
- Side to side clearance moves in for parallel plane outers modified to work without using SW call.
- More AutoMBD enhancements towards a collision free path first go.
- AutoMBD enhanced towards a collision free path first go.
- PCDMISIN Loader missed the length and width on "contact" slots.
- PCDMISIN loader improvements.
- Equator output now has CAL file per feature support.
- PCDMISIN Loader enhanced to handle 'not seen before' format for surface measurements.
- Enhanced AutoMBD to reduce the number of probe rotations using a penalty factor.
- Enhanced AutoMBD to uncheck unmeasurable features.
- AutoMBD now supporting more than 4 Datum A targets.
- FIXED slow left click followed by a fast right click (to delete a feature from CMBrowser) causes a SOLIDWORKS crash.
- /#CMU,PVCOPY to copy vectors from one feature to another.
- CMTRANS 2-pick with coordinate systems.
- Now able to snap/pick on CheckMate WCSs for the purpose of CMTRANS.
- Added new measurement type "Edge Point" for creating 'trim' style measurements on non perpendicular edges. Procedure is the same as measuring a Trim Point, except the result is 2 surface measurements.
- Now able to select the internal and external angle for an all TOL RIBBON angle measurements.
- Output screen settings now saved on a per user basis.
- The RC Browser right-click menu items now refer to "Fit Method" rather than "Fitting Type" for consistency with the fit method column name.
- Program loader support for parentheses inside single quotes now ignored when determining () nesting level correcting problem found with unpaired () in HLL if statements
- Added support for OMGeoRadialPoint as a single point surface measurement
- Added shortcuts on numeric keypad ('/'=flip measurement normal, '-'=adjust material setting down the normal, '+'=adjust material setting up the normal, and '\*'=flip feature normal and then adjust material setting up the normal.)
- AutoMBD needs to be able to read Inspection Dimensions
- For constructed local co-ordinate system added the ability to edit the parameters.
- Added Selection box for MBD/QIF Strategies
- Moved algorithm assignment so feature algorithm at measurement is based on the first tolerance output, not the first tolerance definition encountered
- At output the original Calypso nominal is compared to the feature nominal and if different the feature is redefined before output of a TOL/CORTOL (learn mode programming leading to differences in feature nominals and tolerance nominals?)
- Use EVAL/FA instead of EVAL/FA(),T() for algorithms changes
- Added option for on-feature-profile, or group-profile for MBD
- Added support for #OMCFRunoutAxial (previously assumed to be #OMCFRunoutTotal)
- Added modifier support for INNER/OUTER for constructed cylinders/cones/circles/ellipses/tori/spheres
- Migrated Calypso path splitting used for cylinders to planes
- Added support to Edit IJK on surface and trims
- Added Grouptol,legacy and leaderloc modifiers to the AutoMBD command string.
- Can now pick points on the workplane directly above the part.
- Measure MBD- When a prismatic feature (plane, cylinder, cone or sphere) has only a profile callout, it is measurement as a surface, if it has no profile callout it is measured as a prismatic feature, new is that if it has profile AND other tolerances then it is measured as a surface and the prismatic feature is constructed from the points of the surface measurement.
- PCDMIS bas program loader - Added RMEAS support.

- Measuring a thread. Using the circle command and picking the helical edge and programming the pitch and diameter automatically.
- Added Collision detection using faceted models.

### *Bug Fixes*

- A few of the corner radius cylinders not on part for QIF to Segment.
- Symmetry and total runout because loading Calypso DMO file not loading symmetry.
- Simulation/accessibility analysis/collision detection pays attention to manual probe rotations.
- QIF cone target points corrected
- Handling when datum B feature is a pattern of multiple hole measurements and the pattern is also used as datum C, controlling the secondary direction.
- AutoMBD not using the correct feature names from the DIMXpert tree.
- Sot measurements not being created when using AutoMBD
- DMIS loader not importing Modus angle between.
- Auto moves disabling an inaccessible feature but didn't pick it first.
- AutoMBD not making datums from Parallel Planes.
- Incorrect cone angle nominals.
- Auto coordinate creation not finding all Coordinate Systems.
- Trouble getting Modus Coordinate Systems angle info.
- WorkView 'Part Orientation' setting not sticking.
- When doing a QIF load, a warning message now pops up if the WorkView has not been set.
- Clearance moves before/after probe changes causing collisions.
- Auto Probe change plane tightened up.
- After the Coordinate Systems is created, it should be saved (Renishaw Modus Output)
- AutoMeas Pris3D should be creating cylinders, not circles.
- Improvements to auto probe moves and rotations.
- 5 point slot giving cparlin error in Modus. Now CheckMate forces a 6 pt slot at output time.
- Fixed some issues with PC-DMIS Auto Mode of lengths of cylinders.
- Collision detection says no collisions, but Accessibility analysis says inaccessible.
- SLOT has length and width enabled but not outputting it in the DMIS file for Modus.
- REALLY Auto Insert Probe Moves/Rotations cause a slot measurement's normal to get changed.
- Auto Insert Probe Moves/Rotations cause a slot measurement's normal to get changed.
- Problems with Autosection creating a grid on a particular style of surface faces.
- Modus output now forces FEAT/GCURVE to add PTDATA regardless of the CheckMate setting
- Fixes the MMC and missing carriage return before the MEAS issues.
- AutoMBD was having trouble putting profile measurements on an inside groove feature.
- Spacing with midline won't get smaller than native spacing.
- Issues with SMAUDIT missing some features and flipping others that shouldn't have.
- The ? short key button was broken because the short key file was renamed.
- Fixed /@AUTOCLR3 bugs
- Viewport scale issue effecting imported programs to appear to be very tiny.
- Code that justified arcs was only firing in Pris3D and 'Sheet Metal', not Pris2D.
- QIF2SEG - Prismatic 2D causing a feature to be measured as a circle outer but be marked as a cylinder outer causing SOLIDWORKS crash.
- Prismatic 3D Lines and planes graphics look like they are not using approach/retract default settings.
- Compare statements come out in the Renishaw Modus Output. Compare statements should only be for Renishaw Modus for Equator.
- Trim error "not a point" when outputting and running 2D trim on Renishaw Modus.

- AutoMBD 'Prismatic' Cylinder inner became a Hole Inner in 'Sheet Metal' and should have been a circle outer.
- File names creating folders with extensions.
- The QIF segment loader was having trouble with some partial cylinders.
- Issue with /#CMU,JUSTIFY,ALPHA,OPTIMIZE going in circles after previous /#CMU,JUSTIFY,ALPHA (QIF loader, probably MBD loader too)
- AutoMBD unchecked features were unchecked in the cmbrowser, but graphically they were still yellow.
- PCDMISIN loader enhanced for cones when we get two diameters and a length.
- Not capturing the CMTRANS(INVERSE) for the CMX file for scripting.
- Cylinders instead of hole measurements being created when 'sheet metal' is selected for AutoMBD.
- Add ability to copy and paste vector (and point) info from edit screens.
- SOLIDWORKS crash when selecting 'inches' from the AutoMBD screen.
- PC-DMIS bas loader to handle construct reverse line (CONST\_REV\_LINE).
- Fixed a crash issue in flow line auto measurement.
- CMu,input Calypso, not generating commands correctly.
- Editing multi-point surface not updating associated reporting entities.
- Probe rotate based on a feature not selecting the suggested angle from the list.
- cmu,input causing SOLIDWORKS to crash.
- Material condition defaults not sticking with CPROFS
- CORTOL correction re-instated, somehow lost when EVAL change made.
- Corrected issue with touch point measurements being output as scans if touch point path was preserved
- Corrected fault with plane measurements with single scan
- Fixed units issue with scan path splitting in DMIS output
- Implemented popup CAD selector to select the CAD tied to a particular DimXpert Nominal Plane.
- Display of basic angle between fixed.
- Measure MBD- Angle between wasn't working.
- Measure MBD- Units issues with all angle tolerances.
- Measure MBD- Multi-frame GD&T callouts fixed (like perpendicularity + position, was getting two perpendicularity callouts called Perp1 and Pos1 and no position tolerance.
- Measure MBD- Cylinder measurements could fail because auto picked point was outside trim boundaries.
- PCDMIS bas program loader - uses a weird thing called a CONST\_ORIG\_POINT that we were handling as a constructed point. It should have been handled as a nominal reference point.
- 'Bare Min Output' for Calypso (on the output program screen) still had probe moves in the output code.
- When adding AB angles, if the B angle was negative, the angle created was 7.5 degrees less than what was selected in the dropdown.
- When double-clicking a feature in browser to edit, the sensor and checking tabs were missing.
- Make construction features work even if first and last points of the measurement are the same.
- Fixed an introduced bug with the DMIS loader changing the way variable:value was handled from variable value.

## REPORTING

### Version - 1075

#### *Enhancements*

- New loader for the QDAS ASCII transfer format. This is a characteristic-only loader suitable for Excel reports, net-inspect export, and the reporting browser, NOT 3D graphical reports or fitting.

- Enhancement to the DMIS Loader. MCOSMOS probe names were being lost because the MCOSMOS DMIS Export module lost the original names
- Enhancement to the DMIS Loader. MCOSMOS DMIS program had circle features with zero diameter causing errors during the DMIS load in CheckMate
- # of decimals preserved in Std\_Gdt column of Excel output
- Pp/Ppk, Cp/Cpk, Cpm colored in RootCause and Reporting browsers. Red means unstable process, amber means stable but non-centered, green means stable and centered.
- Pp/Ppk, Cp/Cpk, Cpm colored in graphical labels. Red means unstable process, amber means stable but non-centered, green means stable and centered.
- $\pm 3\sigma$ , min/max colored in graphical labels based on their high/low/in-tol status
- Increased the width of the field for Layout Names
- Change Modus Output from CM14 to report True Position at CMM & adjust CM14 loader accordingly.
- Rep Browser complete width is now included in a PDF Report.
- Added ability to edit an actual diameter onto a virtual feature by doubleclicking the actual field in the reporting browser.
- Simplified prompts that come up in the excel production layout form for each layout.
- PC-DMIS results loader now supports ARCS
- Colored Target plots do not support cylinders
- When importing a PC-DMIS BAS file add a prompt to have probe positions from the program overwrite the existing positions, not append to the list
- Support for Unicode text files added
- Add colored dot report
- Implemented Digital Twin Color Face reports
- Colored dot reports has been added as a flavor of whisker reports: C@N (circle at nominal)
- Added descriptions for all whisker flavors P@A = point at actual, LFN = line from nominal, etc. Updated CMDUMP to show fill and flat-to-screen anchor information
- Implemented new CheckMate Labels with colored backgrounds
- Added ability to update a Calypso \_CHR.TXT with fitted results.
- Added ability to move nominal/actuals for lines/cylinder/planes so that they match
- QIF output improvements for Capvidia.
- Calypso results loader and 3D position improvements.
- Added support for keyin dimension to PC-DMIS results loader (CME/net-inspect)
- Implemented CMMTEXT to place text on a Layout.
- EXCEL enhancements including new Title block Portrait/Landscape Templates.
- EXCEL enhancements including placing multiple images on one sheet, up to 5 sheets.
- Add additional rows to the graphics tab on Excel Defaults screen.
- Scan data loader intermediate file operations removed, point cloud sorting speed improved.
- Image Rotation added on the Excel Defaults Graphics Tab.
- Added support for model views (layouts) in CMX import/export.
- Scan data loader now supports SWL scan files.
- Added loader support for MCosmos ASC reports.
- Added comprehensive support for identifiers containing an octothop (#), affects both ASCII loader (actuals file) and Calypso loader (inspection file.
- Improved Net-Inspect loader
- Added CMMLBIN support for SELECT CASE
- Added support for Tutor (CMTUTORIN) High Level Language
- Added support to output a CM text report with an AUTO modifier to append existing CMM reports.

- You can now define the Report output path for Scripting by going to <Setup-Reporting Defaults> and in the lower right corner.

### *Bug Fixes*

- surface profile/generic surface hook-up
- Issue with the merge-to-existing-QIF-MBD-file process where the DRF table wasn't populated with existing DRFs so a new one was created (but not added to the table)
- Prompt for digital twin tolerances said 'whiskers'
- Correct colormap syncing between the RCB and the "Adjust Color Map Defaults" screen.
- Colormaps not syncing between the RCB and the "Adjust PCM Settings" settings.
- Modus RES file loader fixed.
- Digital twin painting green when it should have been painting red.
- Excel 9102 was giving a merge error when Multiple sheets were selected.
- Cannot Label the surface profile on an Edge Check from the Programming Browser.
- Digital Twin Facecoloring not coloring a couple faces correctly.
- The slot length does not import into CheckMate loading Modus reports.
- bug in the check for tolerance function introduced in x968
- Slot length from modus loaded into CheckMate but did not output to excel reports.
- Bug in the check for tolerance function introduced in x968
- Slot length from modus loaded into CheckMate but did not output to excel reports
- Getting an excel com interface error when trying to start up the excel reporting
- Some reporting browser results not showing up
- Fixed bad excel build in X928
- Disappearing label leader lines/arrowheads
- Excel reports not compensating for material condition
- Colored Dot Reports having inconsistent fill
- This addresses the colored label fill not displaying in front of the overall background (SW2018+ only)
- In/out of tol status for cylinders with true position was always in-tol (causes face color reports to be green)
- There was a blow up in multiple label drag if you picked nothing instead of a label entity.
- Reporting entities not being created for constructed parallel planes
- Label width on dimension only tolerances (non-geometric tolerances) too narrow
- Doubling of names on left-hand pre-inspection labels
- Filled label background not moving when dragged
- CMSFQ with face-color reports
- Orientation of rectangle filling on flat-to-screen labels fixed
- Extents of background rectangle on stats labels fixed
- Coloring of stats line in label now suppressed (added SR to color min/max/±3s based on tolerance, and Cp/Cpk/Cpm/Pp/Ppk based on thresholds)
- Filling of balloon backgrounds fixed for flat-to-screen
- Fixed flat-to-screen ellipse display (angled tolerance circle for canted holes)
- Frames forced to ON for tolerance-labels (/#SFL,TOLLAB) when background enabled
- Dragging of flat-to-screen labels fixed

- Fixed crash with regenerate picked labels. The command /HOT-,ALL/HOT+,PIC/#SFL,REG called the action line twice and this caused the crash. Still work to do to get multiple calls to the action line working but it no longer crashes.
- Right clicking on segment name clears the segment selection list making de-select useless.
- Items missing in RepBrowser after Importing DMIS and RTF from Modus
- The loader can now handle dis-enabled surface profile on some trims after outputting the program and before loading the results.
- After loading a PC-DMIS report, Slot position data being extracted from the RC and Rep browser were erroneously being marked as diametrical.
- Fixed problem with SETA,LAYOUT in a script causing /DISP,FIT,UNLOCK not to fire correctly.
- Excel Report Images not updating before creating report.

## Versions up to 780

### *Enhancements*

- Excel Trace utility added to CheckMate
- Internal for sfi sim using different group name.
- Internal for sfi sim to have a user definable deviation spread.
- enhanced the merging of results with QIF MBD file
- UUID column added to the reporting browser.
- Added ability to generate CSV files from fitted section point data.
- New QIF Program loader setting to explode large GSURFs into pieces for probe accessibility.
- Leading decimal places in label names now supported when loading reports into CheckMate.
- Enhancements to line thicknesses.
- /DISP,FIT,UNLOCK will unlock a layout, fit, and then re-lock the layout
- Enhanced the /#SFO,NUM report to have the option to display the out-of-tolerance amount rather than the deviation.

### *Bug Fixes*

- CSV Report being output as mm regardless of units setting.
- Layouts not being saved/restored.
- "Delete this subgroup" in reporting browser was greyed out and non functional.
- General EXCEL fine tuning all Templates.
- /#SFO,NUM,OFF,VEC numbers are no longer upside down for left hand text.
- /#sfo,plus making things on hidden levels hot
- pcdmis loader not handling labels with double quotes
- SetActiveLayout call would only work if the Levels browser tab existed, now works with or without causing the excel graphic pictures to be the same.
- Parallel Planes not loading into RCBrowser.
- After loading in an LK Cameo res report, all true positions showing zeros
- Loading in an LK Cameo report- loads in (mm) because there is a (mm) at file beginning even though the entire program is run as inches. NOW CheckMate sets the unit to whatever units are seen the most frequent.
- Moved Buttons down lower on the Excel Defaults Graphics Tab, accommodating more rows of fields.
- When using regen on some legacy labels a long string of numbers appeared in the label nominal field.
- Scan data loader with an STL file and a transformation now working.
- CM14 Layouts now export to CMX.
- Excel reports not compensating for material thickness correctly.
- Cannot edit a single keyed in value in the rep browser. multiple yes, single no.



- Trouble loading in MCosmos ASC file with no segment,
- Calypso reporting entities for Curve with profile not setting probe compensation
- Corrected fault with dummy tolerance like +/-999 coming in as +999/-99.
- Images doubling up on the Excel Defaults Graphics Tab.
- CMX loader was not running correctly with MODELVIEW data.
- Problems with Excel Sheet/Layout not functioning correctly.
- Excel failure using an old demo file.
- Errors preventing Excel from opening an Excel report upon creation.
- CMXport not supporting spaces in Layout and Level names.
- Image Rotation not working on the Excel Defaults Graphics Tab.
- Incorrect scaling of xyz's in SODL.

## SOFTFIT ANALYSIS

### Version - 1075

#### *Enhancements*

#### *Bug Fixes*

- COLMAP not updating when a fit is performed.

### Versions up to 780

#### *Enhancements*

#### *Bug Fixes*

- Repent columns in RCB showing x's when results have been loaded.
- After changing the name of a fit from the "Display Fit Results" Dialog box, the new fit names make the fits Un-usable.
- SoftFit not fitting correctly on a cylinder measurement.
- Root Cause Browser 'datum' fit method was not firing on the first press of the fit button.

## POINT CLOUD METROLOGY

### Version - 1075

#### *Enhancements*

#### *Bug Fixes*

- Colormap bug with single part fit fixed.
- Bug related to colormap displaying unmeasured as measured fixed.

## Versions up to 780

### *Enhancements*

- Pre-process point cloud/STL to auto-detect units.
- PCM Legend text now same as Label Template color.
- Speed improvements to colormap loader with STL (x2 faster), /#SFI,COLMAP and /#SFI,SCAN with STL.
- Added mechanism for setting units only for duration of results file or point cloud load.

### *Bug Fixes*

- Loading an STL colmap causing SW crash.
- Deleting a fit used by the colmap makes the colmap colors go crazy.
- When adjusting the colmap tolerance it updates once but never again.