



What's New in 3DCS?!

3DCS Variation Analyst

7.8.1.0
8/27/2021

What's New in 3DCS!

7.8.1.0 - August 2021

Below are a list of changes, enhancements and resolved issues based on the entire 3DCS suite or a specific CAD system available with 3DCS. Please review the list of changes and don't hesitate to ask about a specific change.

Any text written with a teal highlight refers to any Simulation Output change. In other words, some calculation changes were made to either a distribution, a measurement output or DLL result. This could result in minor changes to a previous Model Simulation output.

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Batch Processor

Enhancements

Best-Fit move - Originally from the X-Plane move in the Xform DLL, The Best-Fit move is similar to the Six-Plane move except that it can have more than six pairs of locators defined. Like the Six-Plane move, each pair of locators needs a direction defined. Then, each object feature is best-fit to each target plane. Each target plane is defined by the target feature and the direction.

Pattern-Fit move - The Pattern-Fit move is designed to rearrange multiple parts relative to the fixed parts and relative to each other, by using hole/pin Hole Sets and point to point Constraint Pairs.

Dimensioning Location enhancements

- The first feature in the Feature list will be set as the Origin. Up and Down arrows in the dialog will allow users to switch between one or the other feature listed.
- Users can select Features of Size (Cylinders, Spheres) and select their Minimum, Maximum or Center edge as the feature. A Current value to measure was added in the options for reference.
- Only two features can be selected when created. Users can use the newly added Combined Feature is multiple features are needed for either the origin and/or the non-origin Feature.

Combined Feature - The Combined Features allows users to specify if multiple features are referenced in a Dimensioning Location tolerance.

General

- Added capability for the points at the ends of the "axis" of a sphere to also vary in the axial direction as the sphere size changes. (69792)
- Enhanced the Relationships Tree when using Slots that are used in GD&T and are defined by Feature Points. (69265)
- Added support to save output files and reports with periods "." in the file name. (69546)
- Fixed an issue with Read from Excel to create Tolerances and include points defined in the Excel file. (69712).

Monte Carlo Analysis

- Added support for the Simultaneous Requirement for Datum Shift on Feature Control Frames with like DRFs. I.e. all Feature Control Frames with A|B(M)|C(M) will now "shift" together. (69198)
- Fixed a regression. Changing the USL and LSL option in the simulation option will now instantly update the histogram chart.(69693)
- The Model freeze issue on running simulation on Feature Measure is fixed.
- The Iteration loop regression issue is now fixed.(69745)

GeoFactor

- Enhanced the GeoFactor Worst Case Analysis to sum the contributions coming from the items on a Multi-Frame DRF taking the GeoFactor into account rather than simply taking the value of whichever one has the larger range. (69466)
- Fixed a bug where GeoFactor and Contributor Analysis would ignore the Projected Tolerance Zone setting in GD&T. GeoFactor and Contributor Analysis values will now take the Projected Tolerance Zone setting into account. (69468)
- Fixed a bug that prevented GeoFactor Worst Case to work correctly with Point Based Features. (69480)

GD&T

- Enhanced the Datum Shift tool to also take into account a size change that comes from a Dimensioning Location distance between two faces rather than only just a Size tolerance working to trigger a Datum Shift contributor. (69275)
- Added the capability to use Dimensioning Location to or from the ends of a Feature of Size rather than always using the Center Points as the origins of the deviation. (69359)
- Enhanced the Projected Zone tool to work more similarly with how our usual features work. (69470)
- Added a Max/Min/Center feature option for the Dimensioning Location tool. The option can be extracted as Max/Min or manually set for a Spherical Feature.
- Enhanced the new Dimensioning Location function to also take Profile into account as a possible way to adjust the size of a Feature of Size. (69796)
- Added an option to the GD&T Options tab for Projected Tolerance zone. This option will allow users to switch the referenced direction. (69831)

- Default Distribution for Spherical Tolerance Zone changed to Normal instead of Right-Skew. (69636)
- Position with spherical zone and multiple spherical features will correctly be extracted and set to Spherical zone. (69625).
- Fixed a issue where Relationship wizard was wrongly showing a warning for inactive Datums as Datums not referenced.(65985)
- Smart Search GD&T will now extract GD&T for Slot Features also if it is used in any Moves, Measures.(69424)
- Revised the Dimensioning Location GD&T by adding a setting to change the orientation of cylindrical features.
- Fixed issues with applying the Process Capability Database to GD&T. Users will not be able to edit the tolerance range or offset values in the GD&T dialog. (69671)
- Limited the Feature selection for Dimensioning Location GD&T to only 2 features. Also added warning to catch if more than 2 features are selected. (69782)
- The GD&T Offset setting to be hidden if the GD&T DRF setting is set to "No DRF" and also if the frame is made composite. (66203)

Moves

- In the Best-Fit move the object and target features will be selected in pairs; once the user selects an object feature, will be prompted to select the corresponding target feature. (69726)
- The Pattern move with Float-Hole-slot-Pin setting detects failed assemblies and reports them in the Run Log. (69319)

Measures

- Added "As Output" to the Dimension Distance Measure Dialog. (69825)

Tree

- Slave features will now be displayed in the tree with a unique mask icon. (67953)
- The On/Off Output is now added to the measure groups in the Navigation Tree RH-menu. (69820)

Dialog

- The 3DCS License will now be displayed in the About dialog. (632014)
- The Feature Move dialog will now display the correct units for Feature of Size . (69567)

- Removed Local Coordinate information from the Feature Info dialog for Surfaces, Slots and Edges.(69577)

Display

- Fixed the histogram graph size be independent and not related to the Statistics list. (69739)
- Improved the Histogram graph sizing ratio to correctly re-size on expanding the Analysis dialog. (69788)
- The Min Max and Center Location will be shown correctly now in the graphics on the features for Dimensioning Location GD&T and Dimension Distance Measure. (69783)

Report

- Added Statistics column on/off option to the Report Page which the user can activate and deactivate depending on the requirement.(68961)

Preferences

- Updated the default Mesh Density values in each Platforms. (69642)
- The "Middle mouse button closes dialog" is added to Preferences, defaulted ON.

User-DLL

- Enhanced the Raw Data Tolerance tool to show the GD&T deviations. (69574)
- Removed the following DLLs from the Add-ins folder: dcu_FeatureMs.dll, dcu_Isqgeotl_ms.dll, dcu_gdt_ms.dll, dcu_av_gap.dll, dcu_featureMv_ms.dll, dcu_runout.dll, dcu_CheckMs.dll (64819)
- Using the User-DLL RAW Tolerance Data file will be saved to the Model Report directory. (69296)

Issues Resolved for 3DCS - CREO:

General

- Fixed the Feature recognition issue. The Cylinder features will now get identified correctly.(69451)
- Fixed the GD&T creation from right click menu which was adding the wrong GD&T Type. (69701)
- Fixed the default unit issue always defaulting to inches. Now the 3DCS Creo install will default to the system units or the user defined units(69583)
- 3DCS Data (Mesh and Points) of the Excluded Parts in a Rep will now be hidden from the Graphics also. (69225)

Preferences

- The 3DCS Preferences dialog will show the scroll bar for each page. (69619)
- Enhanced the Chordal Height mesh control based on units of the part or the assembly. (69692)

Display

- Fixed the Legacy Labels Flicker Issue(69696)
- Fixed a Slot display issue to toggle the display in graphics correctly on doing hide/show parts from right click menu.(69889)

Issues Resolved for 3DCS - NX:

Report

- Fixed an issue with HTML report causing a crash in NX 1953 (69880)

Dialog

- Added Replace Extracted GD&T option to the Extract GD&T dialog. (69332)
- Fixed the GD&T creation from right click menu which was adding the wrong GD&T Type. (69701)

Display

- Fixed a Slot display issue to toggle the display in graphics correctly on doing hide/show parts from right click menu.(69889)

Issues Resolved for 3DCS - SOLIDWORKS:

General

- Fixed the icons for Point on Plane and Point on Line Joints in the Ribbon.(69620)
- Fixed the GD&T creation from right click menu which was adding the wrong GD&T Type. (69701)
- Fixed a crash in saving the Model with single tree node,(69677)

Issues Resolved for 3DCS: CATIA V5:

General

- Fixed a bug that prevented Slot selection in Moves and Measures. (69866)
- Object and Target Labels will now get displayed next to the Point Labels.(69759)
- Fixed an issue with Point and Feature Labels: When a second model was opened, labels were not available to be selected or dragged. (69860).

Preferences

- All display modes will correctly show Color Contour. (69514)

Issues Resolved for 3DCS for 3DEXPERIENCE:

General

- Fixed a bug that prevented Slot selection in Moves and Measures. (69866)
- Object and Target Labels will now get displayed next to the Point Labels.(69759)
- Fixed an issue with Point and Feature Labels: When a second model was opened, labels were not available to be selected or dragged. (69860).

Visualization Export

- In V6 the Visualization Export Dialog has a "Save to Results" check box. When checked, the xml file produced when pushing OK is add to the Results area of the catia tree.(68844)

Preferences

- All display modes will correctly show Color Contour. (69514)

Issues Resolved - Multi-CAD:

General

- Right-clicking on the new draggable labels will now reset the label to its default position. (69318)
- Fixed the icons for Point on Plane and Point on Line Joints in the Ribbon.(69620)
- Fixed the GD&T creation from right click menu which was adding the wrong GD&T Type. (69701)
- Fixed a crash on when Save Management dialog not closing properly in MC. (69689)
- Open Dialogs gets hidden on report creation to make the report images look good. (69704)

Advanced Analyzer and Optimizer

7.8.1.0 - August 2021

Enhancements and Resolved Issues (7.8.1.0)

Datum Optimizer

- Datum Opt calculation is improved for flat parts to match the LockDOF/Soft Clamp results. (69680)
- Datum Opt now detects the mass matrix if it's already loaded with Load FEA move. (69602)

Sequence Optimizer

- The Join or Clamp operations can be selected at the sub assembly level as well in the Sequence Optimizer. (69505)
- The user is prompted to NB when clicking Run Evaluations if the model is not built. (69524)
- Sequence Optimizer is enhanced with the new user-defined joining order option. (68843)

Critical Tolerance Identifier (CTI)

Enhancements and Resolved Issues (7.8.0.0)

Datum Optimizer - a new tool designed to determine the optimal datums from a candidate set with the goal of minimizing the rigid part variation or compliant part deformation.

Sequence Optimizer - a new tool designed to reduce lead and launch time by eliminating or minimizing manual join/clamp sequence studies. The Sequence Optimizer determines the optimal join/clamp sequence from a candidate set of joins/clamps. Users may optimize clamp sequence or joining sequence.

Critical Tolerance Identifier (CTI):

- Enhanced CTI to function when only Contributor Analysis has been run. (68286)

Enhancements and Resolved Issues (7.7.1.0)

Critical Tolerance Identifier (CTI)

- The Critical Tolerance Identifier window will apply the Factor Precision to the Range and the measure results. (68000)

Enhancements and Resolved Issues (7.7.0.0)

General

- Hole/Pin Floats and Size tolerances will be locked when running Tolerance Optimizer. (65122)
- Removed Auto Generate Button from the ribbon and added this function inside GeoFactor Analyzer dialog with a button "Run Analysis". (65848)
- The Size range will be displayed correctly in the Critical Tolerance Identifier, Fixed the scaling issue.(67882)
- Datum Optimizer is now available in the AAO module to help users select the optimum datums for the part, rigid or compliant.

GeoFactor Matrix

- GeoFactor Matrix in AAO will now create an HLM file, rather than a GF2 file. This file can also be imported into the Simulation dialog (Contributor Analysis only). (64525)

Sequence Optimizer

- Inactive join moves will not be shown in the Sequence Optimizer.
- Seq Opt Travel Path can be shown [in] inches as well as [mm].
- The Sequence Optimizer Grouping window does not automatically scroll to the top anymore. (67956)
- A message is added for Sequence Optimizer when only soft clamps are selected to be optimized, warning the user that since these clamps do not over-constrain the part, their order may not matter. (67493)
- When selecting a new part the Candidates are eliminated and the user is prompted to select new points. (67893)

FEA/Compliant Modeler

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Enhancements and Resolved Issues (7.8.0.0)

General

- Items can be multi-selected and deleted from the Force Measure Dialog.(69484)
- Thermal move is supported with NX Nastran solver. (56329, 63974)

Enhancements and Resolved Issues (7.8.0.0)

Dialog

- The All Rotations box remains checked if all rotations are activated. (68672)
- The warning message showing that the DOF setting in StiffGen does not match the DOF in the mesh file was removed. (64998)
- The force value is now correctly displayed in [N] instead of [mN]. (68187)
- Mass matrix for MSC Nastran with different DOFs that the stiffness matrix can now be loaded in 3DCS. (69039)

Enhancements and Resolved Issues (7.7.1.0)

Dialog

- The All Rotations box remains checked if all rotations are activated. (68672)
- The warning message showing that the DOF setting in StiffGen does not match the DOF in the mesh file was removed. (64998)

Enhancements and Resolved Issues (7.7.0.3)

StiffGen

- The pch file coefficients containing a "D" character are now read correctly in StiffGen. (67129)

- Part name is now compared instead of the global ID to validate the Thermal Moves. (68188)
- MSC Nastran is supported in StiffGen for Thermal file generation. (68016)
- The *.bdf mesh file for MSC Nastran now works in StiffGen. (67899)
- The warning message showing that the DOF setting in StiffGen does not match the DOF in the mesh file was removed. (64998)
- For MSC Nastran, the RBEs associated with LCS will cause the coefficients in the stiffness matrix to be assigned to different degrees of freedom than expected. No LCS should be used for RBEs for accurate information in stiffness matrix. (66794)

Enhancements and Resolved Issues (7.7.0.0)

General

- The *.lis file format is added to the Load FEA move for ANSYS mesh file.
- Mass matrix is now generated with MSC Nastran when multiple materials are listed in the mesh file.
- Warning message added to StiffGen to remove parentheses used in the part name, otherwise the Nastran solver will not launch.
- MSC Nastran RBE2 dependent nodes will not be selected for stiffness matrix file; ANSA mesh file reading with StiffGen has been altered to avoid it.
- Correct Force units are shown in the Analysis results, matching the units selected in Preferences.

StiffGen

- StiffGen can generate FEA for multiple files in sequence. All selected parts will have FEA files generated. 'Copy Files to Model Directory' will apply to all selected parts. Parts must have same units and ASET DOF.
- Ansys mesh file is now supported with StiffGen in 3DCS.(50061)

Force Measure

- Force calculation is updated with the Max Magnitude option. Max and Min Absolute Force as well as Reaction Force options are deemed obsolete.
- The max required force of all runs is now displayed in the Run Log when a join or clamp move with a finite force is insufficient to close the gap.

Mechanical Modeler

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Enhancements and Resolved Issues (7.8.1.0)

General

- Fixed the Pressure Angle Measurement in Gears to show in degrees. (69899)

Enhancements and Resolved Issues (7.8.0.0)

Gear Modeling - is a new Dialog-based utility to facilitate the gear modeling and calculate Angle and Axial Backlash.

Collision Detection - Is a new tool which automatically generates Part Distance measurements that calculates the Min Distance, Interference and Clearance between the selected parts.

Part Distance Measure - Is a new measure to measure the distance between 2 or more parts between the parts in "From" list and "To" List and gives the minimum distance between them. It internally uses all the meshed features on each part, calculating the distance between each feature and each mesh node.

General

- Fixed a feature selection error from the MM Dialog.(68455)
- Removed the "Default" Drop Dof setting and defaulted the setting to "No".(69126)

Issues Resolved (CATIA V5)

Dialog

- Float Angle Random#2 won't change from 360 to 1 when editing or creating a Joint or Constraint type move. (65317)

Issues Resolved (Solidworks)

Dialog

- Fixed the Mechanical Help Icon disappearing bug in Solidworks. (68285)

Enhancements and Resolved Issues (7.7.0.0)

Moves

- Nominal Build will build to the Motion Move's Beginning Position. (66142)
- The Range and Offset values for Rand 2 will be displayed correctly for Mechanical Moves. (65315)
- Model Nominal Position will build the model to Motion Move's Beg_Pos.(64630).
- Use Point As option is now hidden in the setting tab for all Joints.(67832)
- Revolute and Prismatic Joint will now use Planes to define direction. (67817)
- Sub Assembly constraints extraction will automatically create a break Part constraint to make 3DCS Moves work similar to CAD