

PC-DMIS 2023.2 Featured Enhancements

New features in PC-DMIS 2023.2

Key Improvements

- Pointcloud from CAD
- Feature creation improvements
- Touch Trigger Probe User Defined Plane
- ClearanceCube improvements
- Offline animation speed Ideas Centre
- Select all hits Ideas Centre



Other new features

- Geometric Tolerance & Migration Report improvements
- ESF contact copy parameters
- ESF customisable naming rule
- ESF editing dimension tolerances
- Send report data to Nexus
- Support for AS1-XL scanner
- New branding



Pointcloud from CAD



Pointcloud from CAD

Feature Description

- Generate a pointcloud from the CAD model
- Portable CMM users can now simulate point cloud data and practice working with feature extraction and dimensioning offline
- Use nominal values or incorporate random variation
- Create pointcloud for entire model or a single surface



	-			-	
✓ Select	D	eselect	Desele	ect All	
Point Distance		1			
Add random	deviation	ns			
	Min	-0.1	May	0.1	



Pointcloud from CAD

Feature Benefits

- Simulate offline laser scanning routines that incorporate feature extraction, colourmaps and Geometric Tolerance commands
- Previously, not possible because there would be no pointcloud data until a part was physically scanned
- Useful for Application Engineers and Sales Reps that need to provide an offline demo of pointcloud handling and feature extraction when laser data is unavailable
- Great for training



Watch demo video



Measurement Strategy improvements, Quick Path & Smart Ending Offset



#1 - Measurement Strategy improvements

Feature Description

- Smarter measurement strategies available "out of the box"
- Optimised strategies based on Manual or DCC measurement
- · Optimised strategies based on sensor type
- Activates void detection with a CAD offset and applies parameters more intelligently to reduce the need for further editing.
- Parameters such as Number of hits, avoidance moves, sample hits are optimized for each strategy

Feature Benefit

- Save time, reduce effort with smarter, more efficient Measurement Strategy features
- More likely to generate a measurable path that can be executed than previously









#2 – Quick Feature widget improvements

Feature Description

- Quick Feature Widget now more configurable
 - More parameters available turn defaults on and off and access extra configuration
- New Avoidance Move options to support movement along feature vector

Measureme	ent Strategy Editor		×
incustricine			
faults		🗸 × 🛛 🛍	Ù
s Default	Restore [Default Values	
de	Sensor Type		
v	Touch Trigger		~
Circle			
Baseline_Touch Trigger Defaul	lt	v	
Set Strategy as Default	New	Delete	
Probing Path			
Touch Trigger Default		*	
On Hit Error	No	¥ .	
Circular Moves	Yes	•	
Nominals Mode	Nominals	· •	
Best Fit Math Type	Least Squares	•	
Use Pin	No		
Find Hole	Disabled	•	
Hits	5	III 🔍 🗸	
Depth	2		
Pitch	0		
Sample Hits	0		
Spacer	0		
		_	
1		Save As Save	e
		Clos	se

Group Factory De Set Group a Probe Mo DCC

۶

۵

۲

Units mn

New avoidance move options







Feature Benefit

• Extra control and flexibility for Quick Feature widget users and for probe direction when using avoidance moves

#3 – Quick Path display

Feature Description

• Visualise the probe path whilst using Quick Features

Feature Benefit

• Identify potential collisions at time of creation







#4 – Smart Ending Offset added to Auto Cylinder Contact

Feature Description

- A smart calculation of the Ending Offset parameter has been added to the Auto Cylinder Contact feature
- Previously, when programming a routine, the Ending Offset parameter value was based only on the theoretical length of the cylinder and did not consider the effective working length of the tip in use.
- Now, the smart-calculated value of the Ending Offset parameter is set and the "Smart Calculation" indication will be shown aside the calculated value itself.
- Also available in Quick Features

Feature Benefit

- Adds intelligence to programming Auto Cylinder features
 when using Contact probes
- Simplifies the fine tuning of measurement routines after offline programming



Watch demo video



Touch Trigger Probe User Defined Plane



Touch Trigger Probe User Defined Plane

Feature Description

- New touch trigger probe strategy for Auto Plane
- Added ability to insert moves in between hits e.g., to avoid fixture clamps or obstacles
- Use Auto Plane for manual and DCC alignment
- Also available as a strategy in Quick Features

† Plane	PLN2					
Feature properties	and a second					
Center: X -11.214	Surface: 1 I: 0 1	Angle: I				
Y -30	J: -1 + 0	0 ÷				
z -44.482	K: 0 [-f 0	0		17		
14. 19 1- 1	None					
00	T: 0				$, \bigcirc$	
				CEIRT DCCT		-
				in HUNS-DO		
Measurement propert	es P-m				LIN1_DCC*	
None V	ouare V		ENT			0
					10	
al det dut f						
106461	1 7 2 14 -1 4 6				11/1	
10646	1 <u>3 1- 17</u>					
Advanced measureme	D ▲ ⊫ Pr < T 1 nt options))))
Advanced measureme NOMINALS ~ LEA	D ▲ ► m ▲ T 1 nt options ST_SQR → Analysis: Pt. Size;	+ Tol: • Tol:))]) •
Advanced measureme NOMINALS ~ LEA Relative to:	D ▲ ■ 171 _ 2* 17 1 nt options ST_SQR ← Analysis: Pt. Size: 0 %*	+ Tol: - Tol: 0.01 0.01				
Advanced measurem NOMINALS ~ LEA Relative to:	b ▲ ■• PY e* T_0 1 nt options st	+ Tol: - Tol: 0.01 0.01	- Contraction			HEX
Advanced measurement NOMINALS ~ LEA Relative to:	D ▲ ■- ₩Y ≪ T 1 nt options ST_SQR → Analysis: 	+ Tol: - Tol: 0.01 0.01				
Advanced measurem NOMINALS V LEA Relative to:	D ▲ ■ • • • • · · · · · · · · · · · · · · ·	+ Tol: • Tol: 0.01 0.01				Hex
O G G G G Advanced measureme NOMINALS > LEA Relative to: O	b ▲ ■+ ₩Y def Ts 1 nt options ST_SQR → Pt. Size: 0 32 the Strategy	+ Tol: - Tol: 0.01 0.01				HEX
O G G G G Advanced measurem NOMINALS > LEA Relative to: O	b ▲ ■+ ₩Y at options ST_SQR → Analysis: Pt. Size: 0 %* we Strategy	+ Tol: - Tol: 0.01 0.01				HEX
Advanced measuremy NOMINALS > LEA Relative to: TTP User Defined Pla Scan/Hit Path X 1 -5.764	D ▲ ■+ YY Analysis: ST_SQR → Analysis: Pt. Size: 0 32 to Strategy Y -30,000	+ Tol: - Tol: 0.01 0.01				HEX
Advanced measuremy NOMINALS ~ LEA Relative to:	b ▲ ■+ PY** T_ 1 nt options ST_SQR → Analysis: Pt. Size: 0 3% we Strategy Y -30.000 -30.000	+ Tol: - Tol: 0.01 0.01 Z -4.482 -8.921				HEX
	D ▲ ⊪ YY _e ^e T 1 nt options ST_SQR Analysis: Pt. Size: 0 % se Strategy 0 % ve Strategy	+ Tol: - Tol: 0.01 0.01 Z -4.482 -8.921 -44.787 -44.787				HEX
	Y	+ Tol: - Tol: 0.01 0.01 Z -4.482 -8.921 -44.787 -44.482				HEX.
	P I I nt options Analysis: Pt. Size: 0 2 0 2 ne Strategy Y -30.000 -30.000 -30.000 -30.000 -30.000	+ Tol: - Tol: 0.01 0.01 Z -4.482 -8.921 -44.787 -44.482				HEX
	P I Y Z I nt options Analysis: Pt. Size: 0 3' ne Strategy Pt. Size: 0 3' ne Strategy	+ Tol: • Tol: 0.01 0.01 Z -4.482 -8.921 -44.787 -44.482				HEX.
	P I Y x ² T I nt options Analysis: Pt. Size: 0 3' ne Strategy Pt. Size: 3' ne Strategy 3'	+ Tol: • Tol: 0.01 0.01 Z -4.482 -8.321 -44.787 -44.482				HEX
	P I Y x ² T I nt options Analysis: Pt. Size: 0 3' ne Strategy	+ Tol: • Tol: 0.01 0.01 Z -4.482 -8.921 -44.787 -44.787 -44.482	tivate ClearanceCube Mc	pves		HEX



Touch Trigger Probe User Defined Plane

Feature Benefits

- AutoPlane now has same level of flexibility as Measured plane (used defined hits and moves)
- All round better user experience
- Users currently measure planes using *Measured Feature* Now they can use *Auto Feature* to do this this is an easier process



Watch demo video



ClearanceCube improvements



ClearanceCube improvements

Feature Description

- ClearanceCube has been available in PC-DMIS for 15 years and is useful for simple geometries.
- Previous version of ClearanceCube could not support navigation around complex parts – our competitors had this capability
- This update enables path generation for parts with more complex geometries



Watch demo video



ClearanceCube improvements

Feature Benefits

- The update makes ClearanceCube more user friendly, settings are easier to define and use
- Visual click and drag editing of parameters
- Now capable of working with more complex geometries

ClearanceCu	be Definition			
Size Con	straints			
Alignm	nent Type	CAD		
Select X:	Part Alignment Minimum -20.000	Maximum 140.000	×	
Y:	-20	84.921		
Z:	-70.010	20.004	<u>]-0</u>	
	Simple OK	Cancel	Apply	



Offline animation speed



Offline animation speed

Feature Description

- New slider control added to adjust the animation speed when executing offline routines
- Mimics the online experience where speed can be dynamically adjusted from the jogbox
- Requested by Ford Germany



eneral	Part/Machine	Dimension	Geometric Tole	rance	
D Setup	Sound Event	s Laser S	Sensor Anin	nation	
can			-		
Collision d	etection percentage	animation:	10		
Execution	percentage animat	ion:	29		
Scan anim	nate every NPts:		50		
Scan anim	nate every NPts colli	sion detection:	1		
xecution					
Offline tim	er milliseconds exe	cute next:	1		
Online tim	er milliseconds exe	cute next:	50		
Max anim	ation speed inches/	sec	19.68503	19.68503	
Animation	speed %:	1%	28%		
		- 12			
athlines					
Comment	execute override:		_] On		
Create pat	th feature count:		1		
Path line r	moving enabled:		🗹 On		
Path move	increment:		0.5		
Path move	e selection distance		4		
Disable pr	obe movement:		On		
Path lines	color RGB:				
	n color RGB:				
Tip rotatio	point color RGB:				
Tip rotatio Measure p					
Tip rotatio Measure p					





Offline animation speed

Feature Benefits

- Users can more easily review steps in an offline measurement routine – slow down at critical or problematic stages for debugging
- Easy to access from the execution dialogue and adjustable in real time



Watch demo video





Select all hits



Select all hits

Feature Description

- Added to Constructed Feature dialogue
- When creating a Best Fit or Best Fit Recompensated construction, the user is now able to "Select All Hits".
 Selected hits are shown in the feature list
- Previously the single mean position of all the points of the feature would be highlighted – these single points caused an error for Best Fit construction where multiple points are needed
- With Select all hits each hit from individual planes are easily selected and added to a Best Fit construction
- E.g. create a single plane from four individual planes (see pic) or create a circle from two halves.



HEXAGON



21 | hexagon.com

Select all hits

Feature Benefits

- The ability to "select all hits" adds greater flexibility, speed and efficiency when constructing features
- Removes the need to click on multiple points (sometimes thousands of points) saves time
- Flexibility to exclude hits by clicking on highlighted points
- Useful for creating constructions from the hits of previously measured features
- Changes also made to how the hits are presented and referenced in the edit window (best seen in command mode). This makes the syntax clearer and more concise.







Geometric Tolerance & Migration Report improvements



Geometric Tolerance & Migration Report improvements

Feature Description

- We no longer allow users to reference multiple GD&T standards within the same routine when working with Geometric Tolerance and Size commands.
- Users must select a single GD&T standard when creating the routine and can no longer toggle the GD&T standard from within the commands.
- All commands must now either reference ASME Y14.5 or ISO 1101.
- Use when creating Geometric Tolerance or Size commands
- · Legacy dimensioning is unaffected by this change







Geometric Tolerance & Migration Report improvements

Feature Benefits

- Improves the dimensional integrity of routines
- Reduces the possibility of mistakes arising from ambiguity or confusion due to use of multiple standards
- In the future we can further enhance and deliver requests from customers including:

The ability to select the GD&T standard based on a specific year (e.g., ASME Y14.5, 1994, 2009 or 2018).

Add support for more ISO modifiers, specifically those for which there is no ASME equivalent.





Geometric Tolerance & Migration Report improvements

Feature Description

- If multiple standards are detected during an XactMeasure migration, the commands are listed in the migration report
- The migrated Geometric Tolerance and Size commands are converted to a single GD&T standard – determined by whichever standard was referenced the most.
- This setting can be overridden by adding a "default standard migrates to": option
- Layout has been improved and a new 'Cancel' option restores the routine to its previous (non-migrated) state.

Migration Report	
This migration report lists commands that you may need to edit. The person responsible for creating PC-DMIS measurement routines at your facility should review it thoroughly.	
XactMeasure_Migration_Demo.PRG	
The following tolerances had different feature nominals in the tolerance than in the feature command, so the tolerance will now use the nominals in the feature	re comma
Starting with PC-DMIS 2023.2, you can no longer reference multiple GD&T standards in the same routine. Therefore, the following commands have been converted: FCFLCC1 - TO ISO 1101 - 2012/2017 FCFFERP1 - TO ISO 1101 - 2012/2017	
FCFPERP1: For perpendicularity tolerances, the nominal considered features must be perpendicular to the primary nominal datum. Feature PLN2	
<	>
OK Click this button to open the migrated measurement routine in this version of PC-DMIS. You must address any issues listed in the migration report before you can successfully execute the measurement routine.	
Cancel Click this button to restore the original measurement routine back to its previous (non-migrated) state. This allows you to continue to execute the measurement routine in the same PC-DMIS version it was created in.	



Send report data to Nexus



Send report data to Nexus

Feature Description

- PC-DMIS report data can now be uploaded directly to Metrology Reporting without using SFx desktop application.
- More user options are now available in Nexus Upload Settings dialog to provide more control on the data upload
- Operator can choose to upload or not, add a message to be prompted before upload or not, and select the data fields to upload.
- Extra feedback available to user showing success/fail of data upload

Ne)	us Settings	⊕
Met	rology Reporting Cloud Upload	-
Pror	npt Before Upload	•
Data	to upload	
~	Dimension Results	
\checkmark	Feature Data	
$\mathbf{\mathbf{v}}$	Mesh (GLB)	
~	Part Model (GLB)	
~	Reports (PDF, Excel, etc)	

Ec	lit View Insert Q	peration Wind	dow <u>H</u> elp	
4	Preferences	•	5BY100	~ "T1A0
	Graphic Display W	indow •		
5	Undo	Alt+Back		
~	<u>R</u> edo	Shift+Back		
×	Cut	Ctrl+X	8-12-	😵 - 🎲
0	Сору	Ctrl+C		×
١.,	Copy Parameters	Ctrl+Alt+C		T .
۵	Paste	Ctrl+V		· •
	Paste Parameters	Ctrl+Alt+V		A 1
	Select All	Ctrl+A)	•
	Delete	•	b	0
	Pattern			
1	Paste With Pattern)	O
	Eind and Replace	•	_	~
	Override Guess	•)	U
S	Override FindNom	IS	5	0
	Markings	•	,	
	Bookmarks		5	0
	Breakpoints	•		_
100	Expression	F2		
1	Toggle Forward	F7		
14	Toggle Backward	F8		
1	Comman <u>d</u>	F9		
la	Optimize Path		-	_



Send report data to Nexus

Feature Benefits

- Provides more control over the data uploaded – avoid sending sensitive or erroneous data to Nexus
- Much more streamlined set up no need to install SFx desktop and configure it
- Free to use with Nexus Metrology Reporting



Watch demo video



New branding



New branding

Feature Description

• Latest icons and branding have been added in the 2023.2 release

Feature Benefits

Harmonises the user experience across our software suite and wider ecosystem of products





