



WHAT'S NEW

What's new in NX from NX2206 to present
Last two years, what's new in NX, and a bit more...



NX & Teamcenter User Group Event 2024

Portland, OR – Sherpa Design

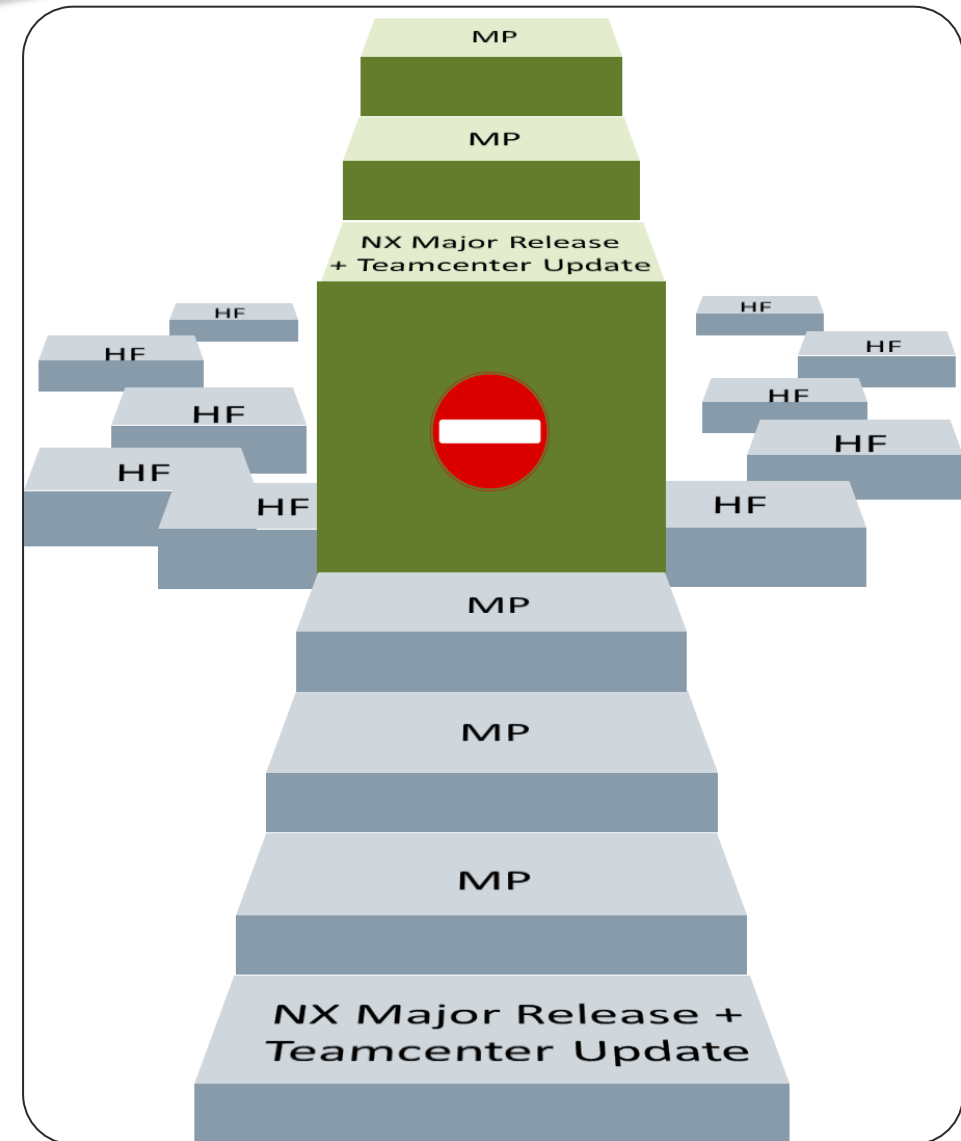


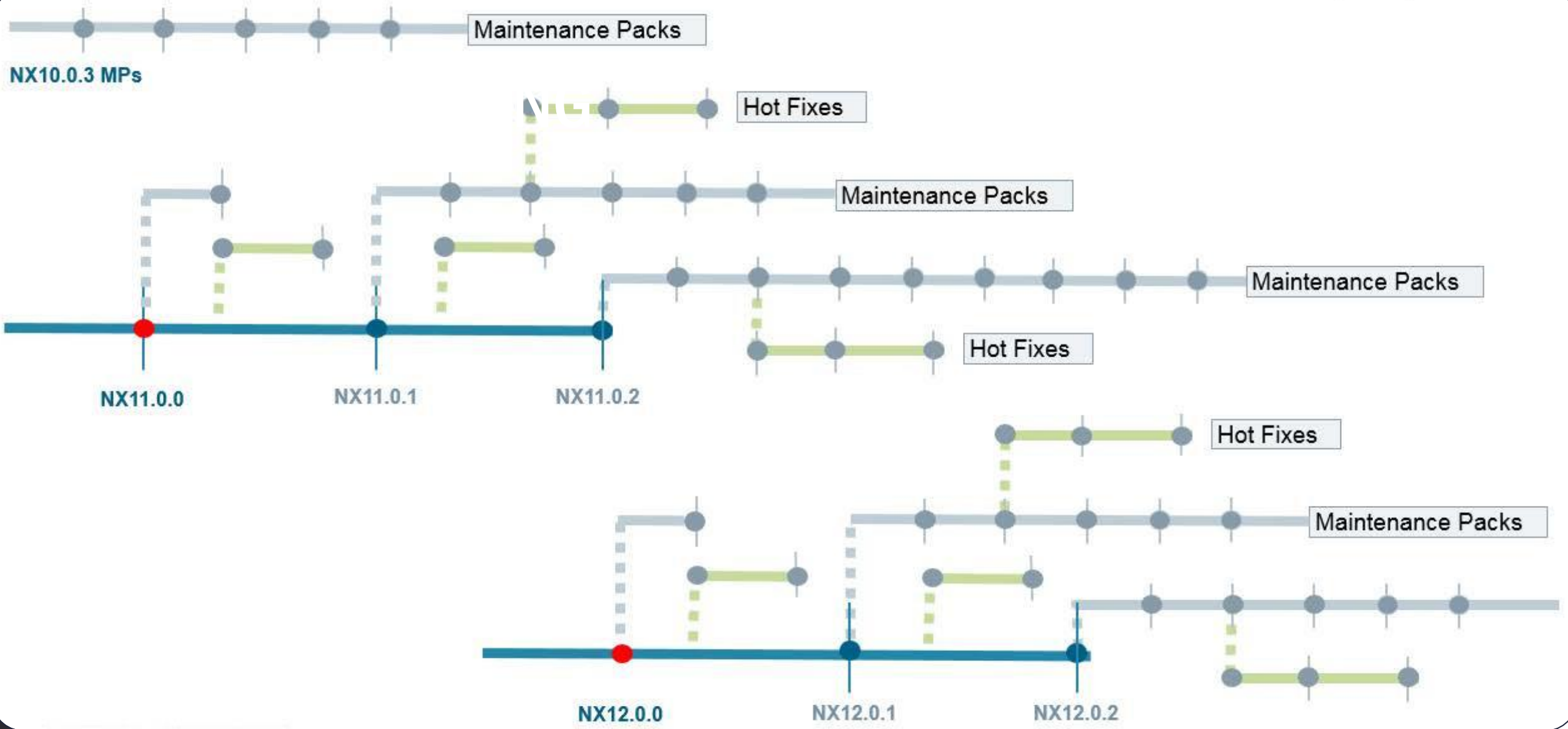
PLANNING NX UPGRADES

Potential Development Barriers:

- Perceived need for pre-deployment activities
- Perception based on history and folklore (buggy, crashes)
- Teamcenter Upgrade Alignment
- Packaging and installation logistics Tc, (AW, NX, 3rd Party Apps)
- What's-New Training – Costs\$?
- Maintaining compatibility with partners and suppliers

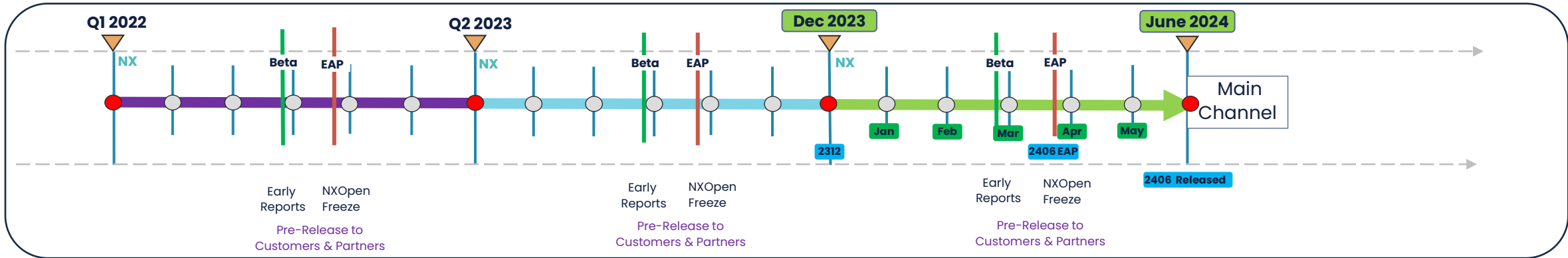
Are You Continuous?





CONTINUOUS RELEASE

Consider the NX Continuous Release Cadence



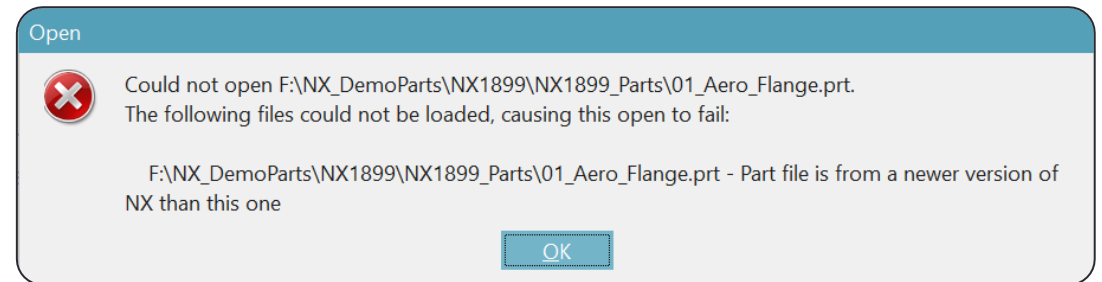
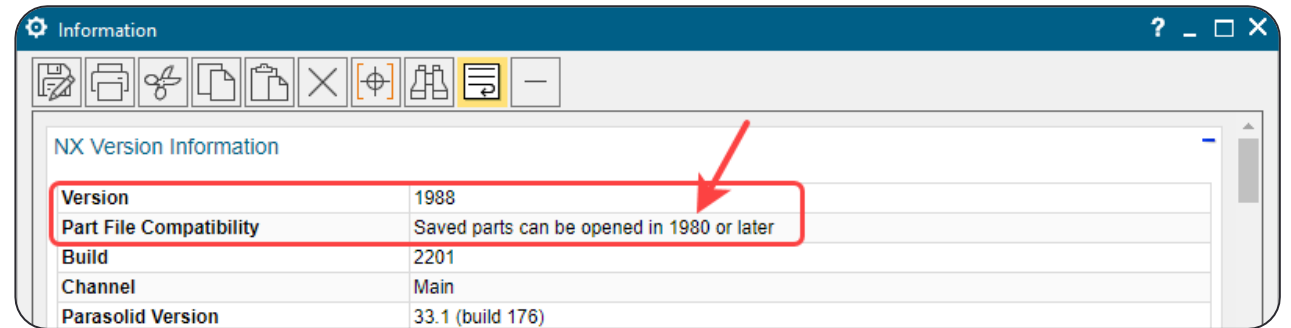
- Only 1 active main channel for NX software
- Functional Releases every 6 months ●
- Monthly Updates ●
- Beta and EAP events prior to every functional enhancement release
- Early reports, NXOpen API freeze and Pre-Release can be accessed around Beta and EAP time frame.
- Siemens Early Access Program



VERSION COMPATIBILITY

NX, as you would expect, is backwards compatible. How to you check compatibility with all these new NX versions?

Menu > Information > About will tell you the current NX version as well as Part File Compatibility and which version can open these parts.



Menu > Information > About also informs the user of the token costs for each feature in the NX Value Based Licensing Schema.



SPEEDUP NX UPGRADES

Upgrade Impact Analysis Tools

“NX Configuration and Customization Assistant”

- Leverage what's changed reports:
 - Customer Default Reports
 - NX Open API's Reports

Customer Defaults What's Changed Reports

New Customer Defaults							Removed Customer Defaults							Modified Customer Defaults							New Drafting Standards							Removed Drafting Standards								
S.No.	Application	Category	Sub-Category	Tab	Group	Preference Title																														
1	Additive Manufacturing	General		General	Profile Library Location	Native NX Unix																														
2	Additive Manufacturing	General		General	Profile Library Location	Native NX Windows																														
3	Assemblies	General		Command Part Template Type		New Component																														
4	Assemblies	General		Command Part Template Type		New Parent																														

NX Open APIs What's Changed Reports

Choose A Language

DotNet Java C++ Python

Changes That May Require Code Changes **What's New** Behavior Changes Compiler Changes

Navigator

[Deleted Items](#)
[Retired Items](#)
[Changed Signatures](#)
[Deprecated Items](#)
[Newly Deprecated Items](#)
[Changed Values](#)
[Changed Base Classes](#)

Deleted Items

S.No.	Item Type	Deleted Item	Reason this is a breaking change in the API
1	Property	NXOpen.CAE.BaseFEModel.ConnectionsRootFolder	Property was deleted in a Functional Update but the compiler was not changed. Property was deprecated in 12.0.0.0 but it is only 2007.0.0.0
2	Method	NXOpen.CAE.CylinderFaceMethod NXOpen.CAE.SmartSelectionManager.CreateCylinderFaceMethod(NXOpen.CAE.CAEBody seed, System.Double dMinCylinderRadius, System.Double dMaxCylinderRadius, System.Double dMinCylinderAngle, System.Double dMaxCylinderAngle)	Method was deleted in a Functional Update but the compiler was not changed. Method was deprecated in 11.0.0.0 but it is only 2007.0.0.0

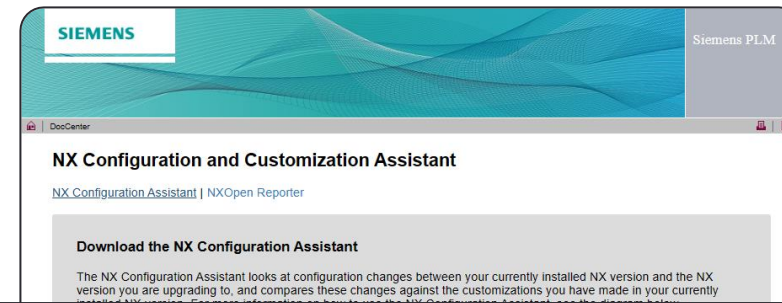
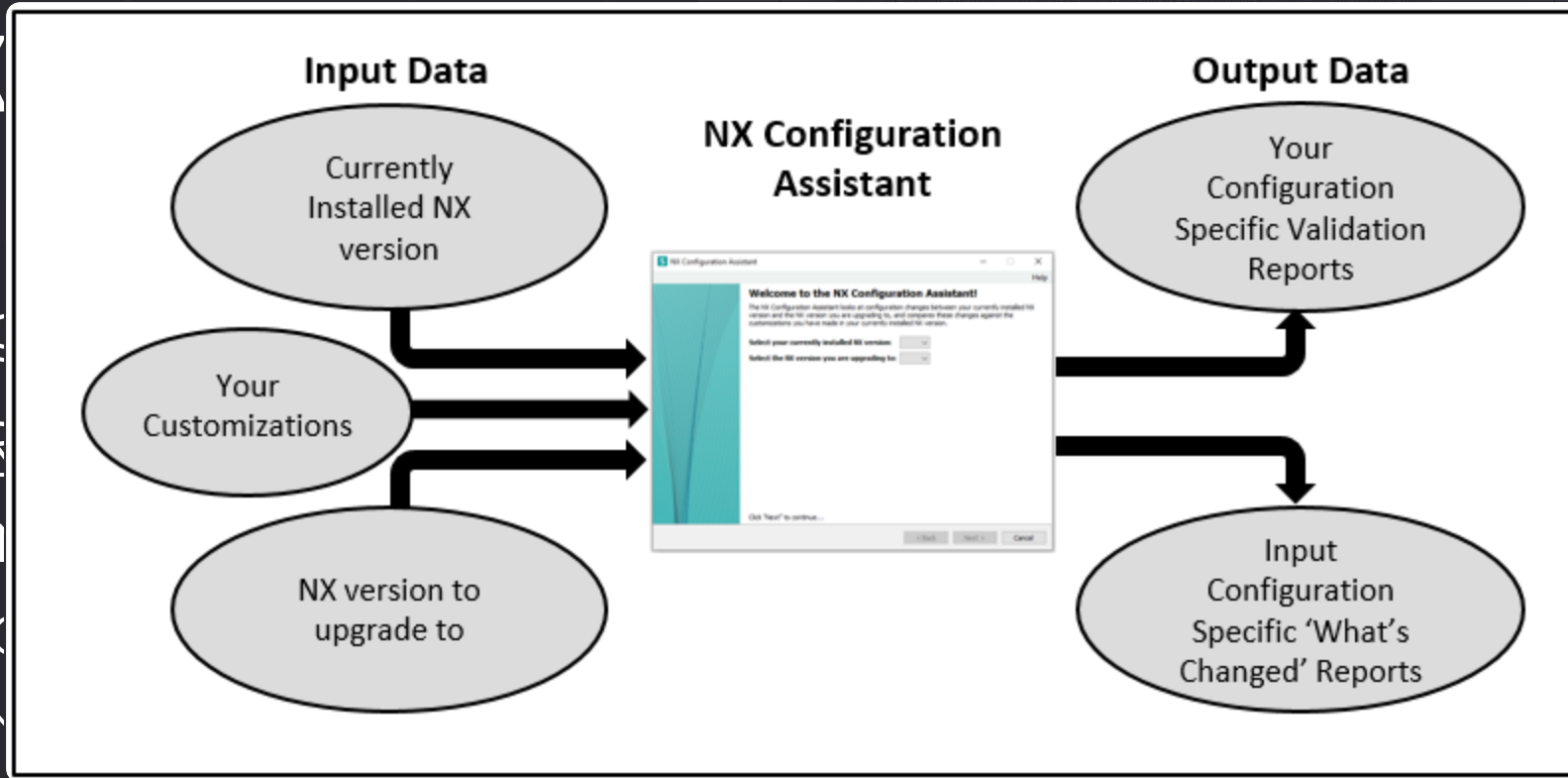


SPEEDUP

NX

Upgrade Im

- NX Config
- NXOpenR
 - DotNet
 - CPPNX
 - Python
 - JavaNXOpenReporter



2212	7d2f177b	<ul style="list-style-type: none"> • Address naming confusion for the DotNetBomGenerator (formerly DotNetBomReporter) • Add jsos for early 2212 EAP
2212	e6b388cc	<ul style="list-style-type: none"> • Add jsos for final 2212 EAP
2212	1a5d569e	<ul style="list-style-type: none"> • Bug fixes for EAP
2212	7a007328	<ul style="list-style-type: none"> • Final Freeze jsos for 2212
2306	4b15dbd1	<ul style="list-style-type: none"> • Early jsos for 2306
2306	47d256af	<ul style="list-style-type: none"> • Freeze jsos for 2306
2312	0b61e668	<ul style="list-style-type: none"> • Early EAP jsos for 2312 and some bug fixes
2312	4bff7457	<ul style="list-style-type: none"> • Freeze jsos for 2312
2406	3f0b4e4a	<ul style="list-style-type: none"> • Early Eap jsos for 2406

no work needed, rework needed (can be simple a recompile or more complicated as replacing a call), or future work needed (replacing deprecated calls with the proper replacement).

2. If work is needed now or in the future what exactly needs to be done? If rework or future work is needed, the toolset identifies what API is being used, where it is being used, and what its remediation is.

3. What NXOpen APIs does my automation use? The toolset generates a bill of materials (BOM) for your NXOpen API.

For details and usage information, contains a Readme as well as Tutorial.

[Download NXOpenReporter Toolset](#)

[Download DotNetBomGenerator](#)

[Download JavaBomReporter](#)

OSS Source Code

Where there is a license obligation to provide you with source code you can apply in writing to:

Siemens Legal (LC TE SL)
 Werner-von-Siemens-Str. 60,
 91052 Erlangen
 Germany

Alternatively, it may be found at
<https://download.industrysoftware.automation.siemens.com/open-source/>



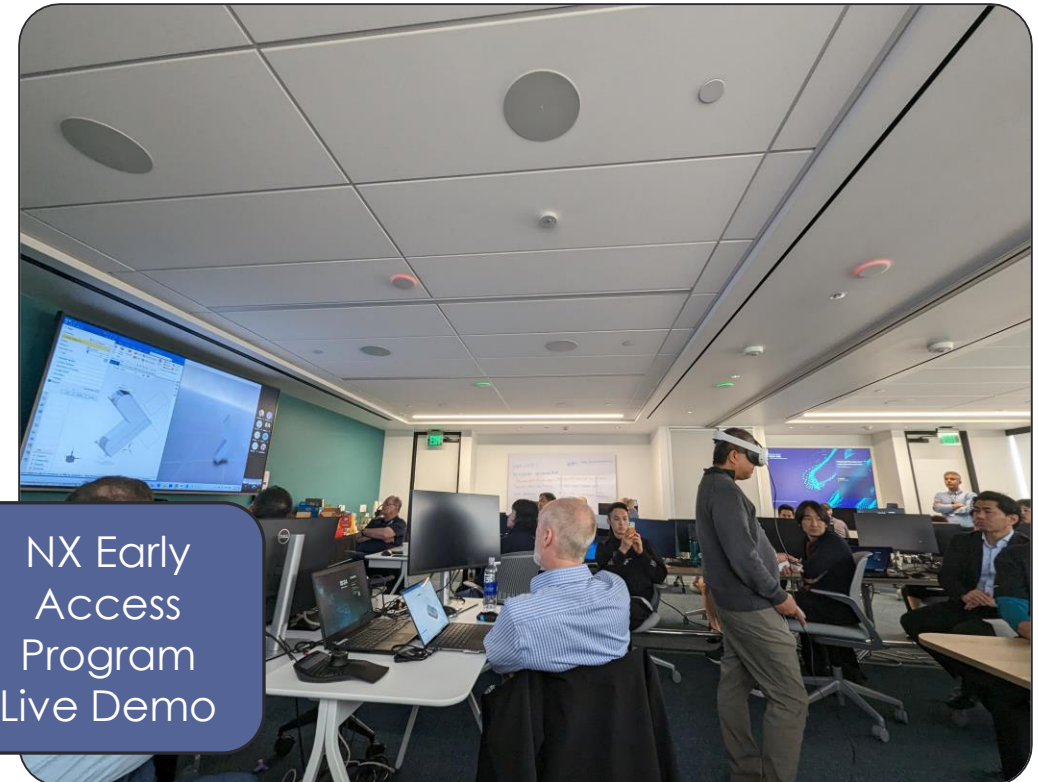
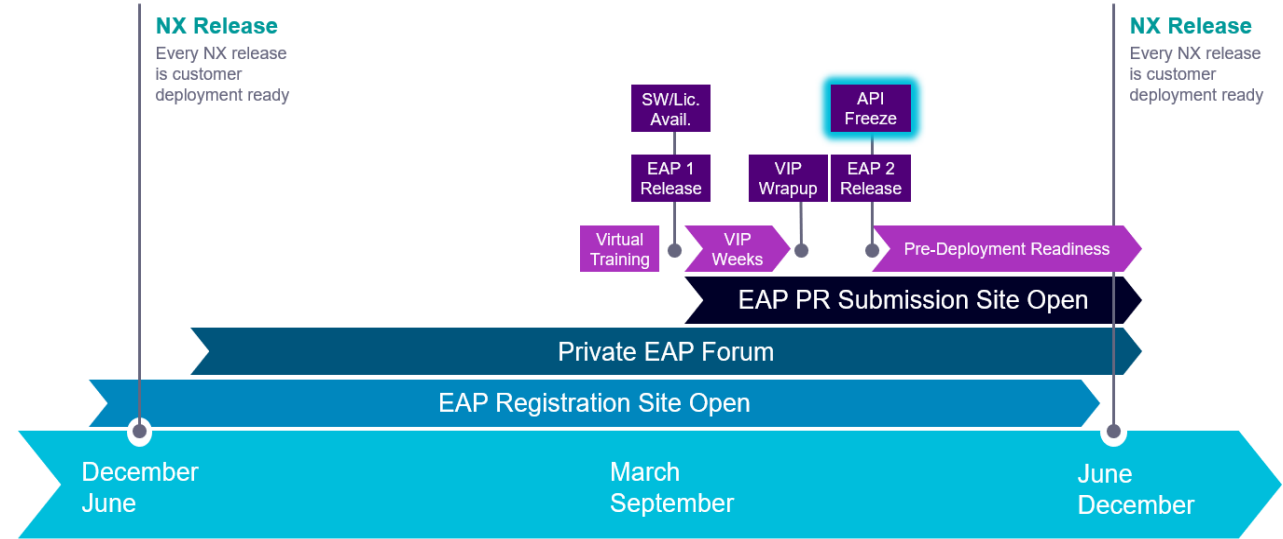
EARLY ACCESS PROGRAM

Speedup NX configuration & customization readiness & deployment.

Reduce manual testing efforts for upgrade readiness, integration and UAT.

Leverage EAP's for successful kickoff of upgrade readiness.

NX Open policy awareness for releasing custom applications and add-ons in sync with NX.



NX Early Access Program Live Demo



HARDWARE CERTIFICATION

Accelerated Graphics Req:

Starting in **NX2306**, if a GPU is not present NX displays the following message and writes to the NX syslog.

Hardware and Software Certifications

Graphics Configuration Error

This is an unaccelerated graphics configuration. NX requires accelerated graphics configurations. Perhaps the graphics device is unsupported or perhaps an unsuitable device driver is installed. Attempt to open any part may result in program termination.

Vendor	Systems	Graphics	OS	Support	Standard [see mast
HP	Z Workstations	AMD Radeon Pro	Win10	Platinum	HP AMD 21_Q3 sp13
	Z workstations (*)	NVIDIA Quadro/NVIDIA	Win10	Platinum	na
	Z2 Tower G9	NVIDIA T400, T400 4GB, T600, T1000, T1000 8GB, RTX A2000 12GB, RTX A4000, RTX A4500, RTX A5000, RTX 4000 Ada, RTX 4500 Ada, RTX 5000 Ada	Win10/Win11	Platinum	na
	Z2 SFF G9	NVIDIA T400, T400 4GB, T600, T1000, T1000 8GB, RTX A2000 12GB, RTX A4000, RTX 4000 Ada	Win10/Win11	Platinum	na
	Z2 Mini G9	NVIDIA T400, T400 4GB, T600, T1000, T1000 8GB, RTX A2000 12GB, RTX 4000 SFF	Win10/Win11	Platinum	na
	Z4 G5	T400 4GB, T1000, T1000 8GB, RTX A2000, RTX A2000 12GB, RTX A4000, RTX A4500, RTX A5000, RTX A6000, RTX 6000 Ada Gen, RTX 4000 Ada, RTX 4500Ada, RTX 5000 Ada	Win10/Win11	Platinum	na
	Z6 G5, Z8 Fury G5, Z8 G5	T400 4GB, T1000, T1000 8GB, RTX A2000 12GB, RTX A4000, RTX A4500, RTX A6000, RTX 6000 Ada Gen, RTX 4000 Ada, RTX 4500 Ada, RTX 5000 Ada	Win10/Win11	Platinum	na
		NVIDIA T400 4GB, T1000 8GB, RTX A2000 12GB, RTX A4000, RTX A4500, RTX 6000 Ada, RTX 4000 Ada,			



GRAPHICS CARD RECOMMENDATIONS



		Good	Better	Best
NVIDIA	Desktop	Quadro T1000/T2000	Quadro RTX 3000	Quadro RTX 6000 Ada
	Mobile	Quadro T1000/T2000	Quadro RTX 3000	Quadro RTX 5000 Ada
NVIDIA	AWS	Stream.graphics.g4dn.2xlarge	Stream.graphics.g4dn.8xlarge	Stream.graphics.g4dn.16xlarge
NVIDIA	AZURE	NVIDIA N12s v3 Tesla M60	NVIDIA NCasT4(T4)	NVv5 NVIDIA A10
User Profiles:		Occasional Users (managers) Small objects & assemblies About 10% of users	Regular, daily users Avg to Large objects & assemblies. About 80% of users	Pushing limits of NX Extremely large objects & assemblies Use all application features About 10% of users
AMD	Desktop	W6600	W6600	W6800
	Mobile	WX 2100	W5500M	W6600M
AMD	AZURE	NVv4-series AMD Radeon Instinct M125	NVv4-series AMD Radeon Instinct M125	NVv4-series AMD Radeon Instinct M125

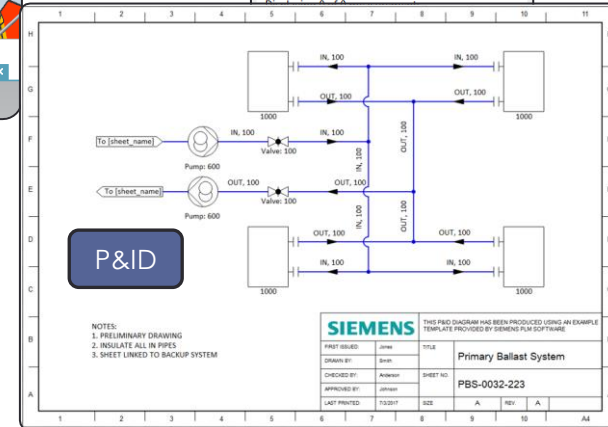
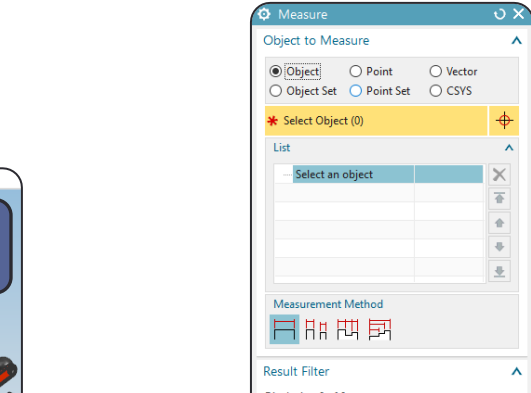
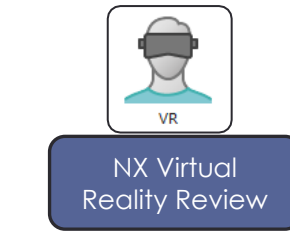
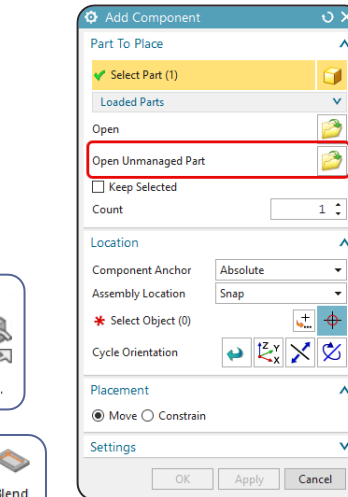
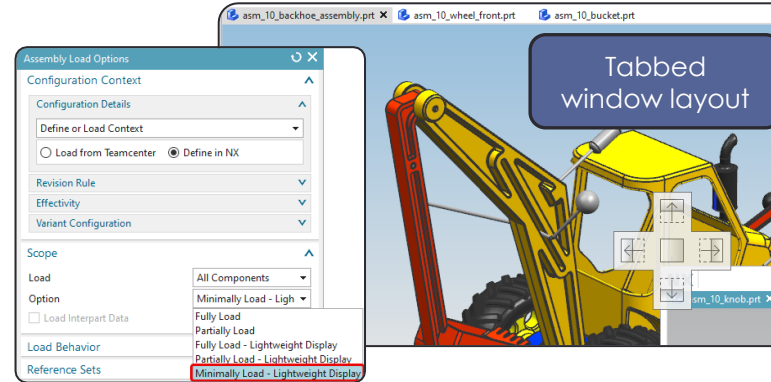
Notes:

- NX works well with a wide variety of professional graphics cards. Graphics cards mentioned here are for recommendations only.
- Professional grade cards get the most testing and support from both NX and the vendors.
- Stay up-to-date on the latest support drivers.

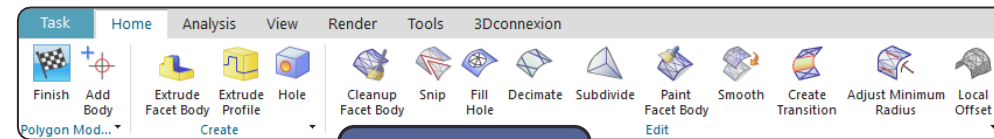
NEW TOOLS IN NX, A RETROSPECTIVE

- **NX12** – December 2017, June 2018 (12.0.2)

- Tabbed Windows Starts in this version
- Save Management (TCIN)
- Minimally Load – Lightweight Display (TCIN)
- Engineering Change Notice in NX (TCIN)
- New Measurement Tool (12.0.2)
- NX VR Review★
- Piping & Instrumentation Diagramming (P&ID)
- Digital Mockup (DMU)★
- Automation Designer ★
- Animation Designer ★
- Open Unmanged Parts
- Part_Utility.exe
- Part File Password Protection
- Polygon Task Environment
- Reflected Components (e.g. Mirror)
- Renew Feature
- UGII_ROOT_DIR obsoleted
- Aero Design Toolset



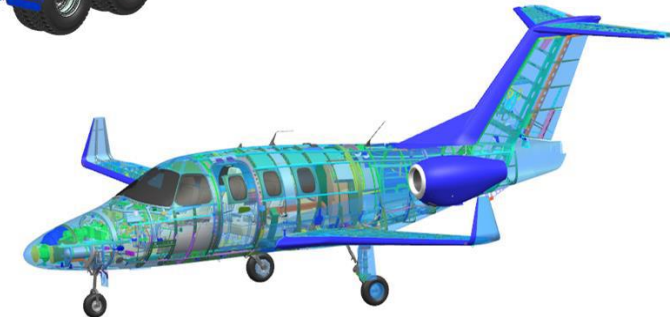
ID	Revisio	Name	Reason	Decision
1	0000479...	A TEST,ROUTI...	Manual Check Out Required	Ignore





MINIMALLY LOADED

Improved load performance with the new Minimally Loaded – Lightweight Display option.



Capabilities

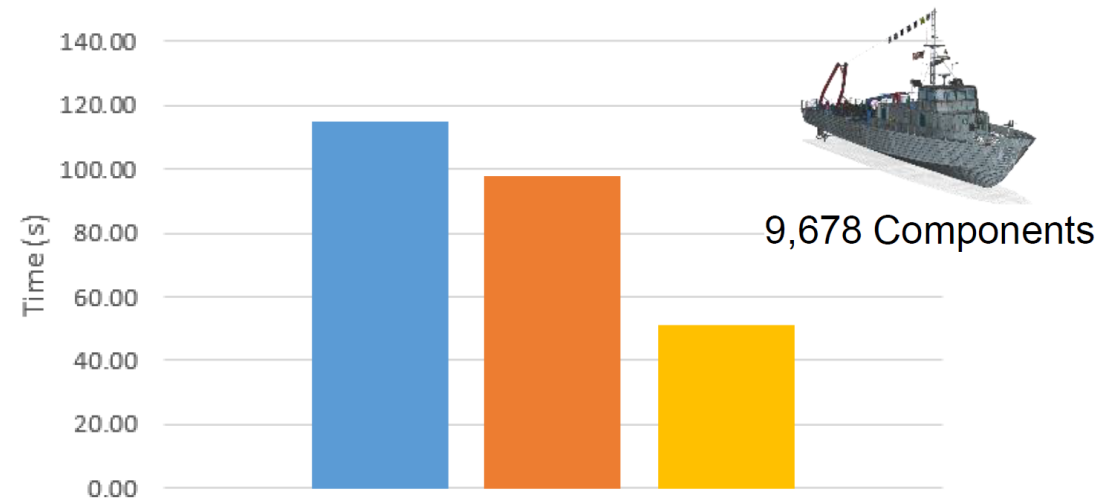
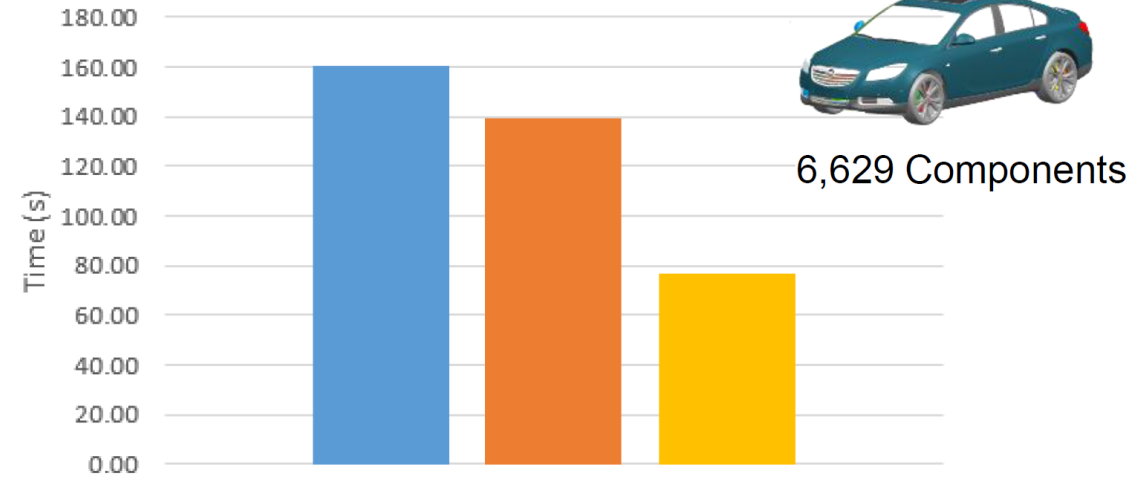
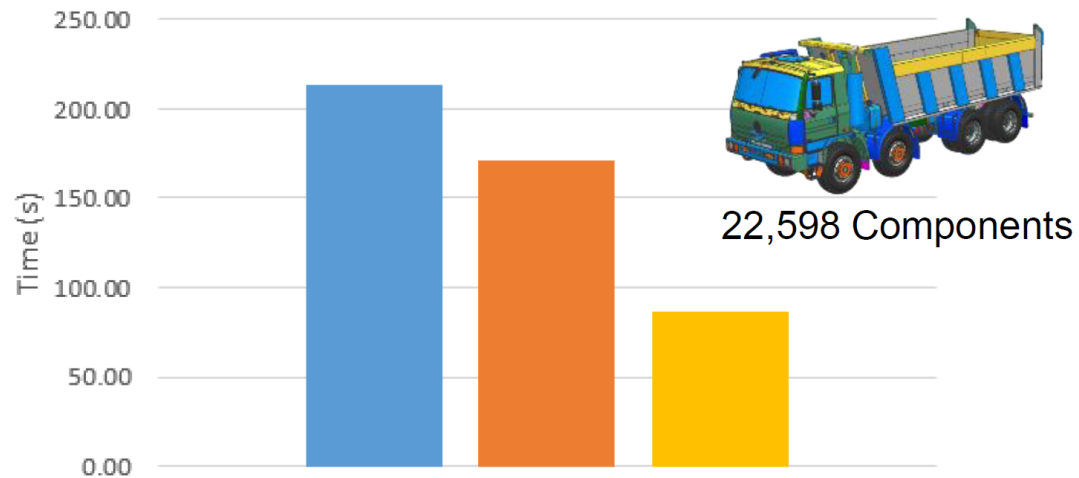
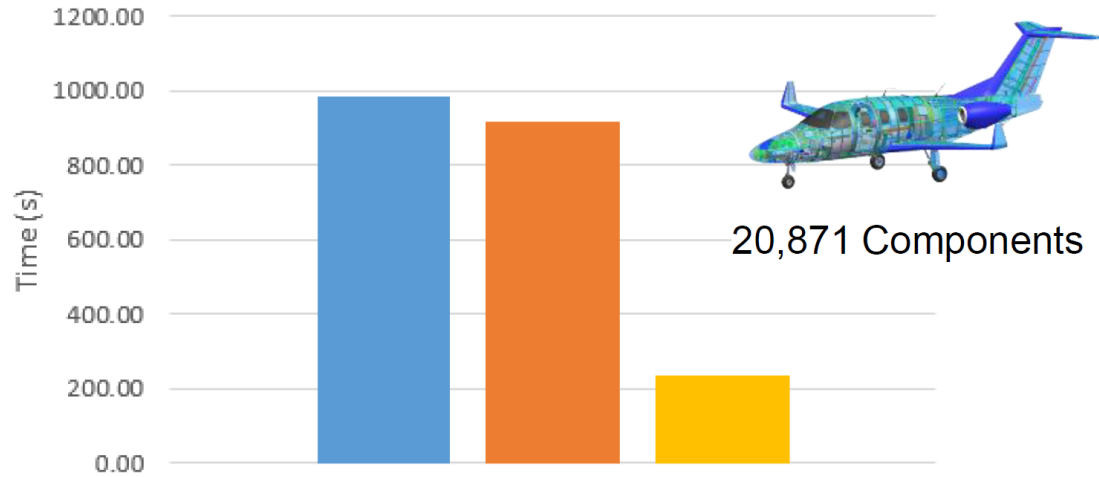
- During load process, geometry is displayed
- Direct interaction with displayed data during load
- NX & Teamcenter re-architected for optimal retrieval
- Multi-threaded loading.

Customer Value

- Reduce decision making time
- Enables large assembly workflows
 - DMU studies & Layout, Design Reviews, Assy Drawings...
- Overall load time is significantly reduced.

Performance Metrics

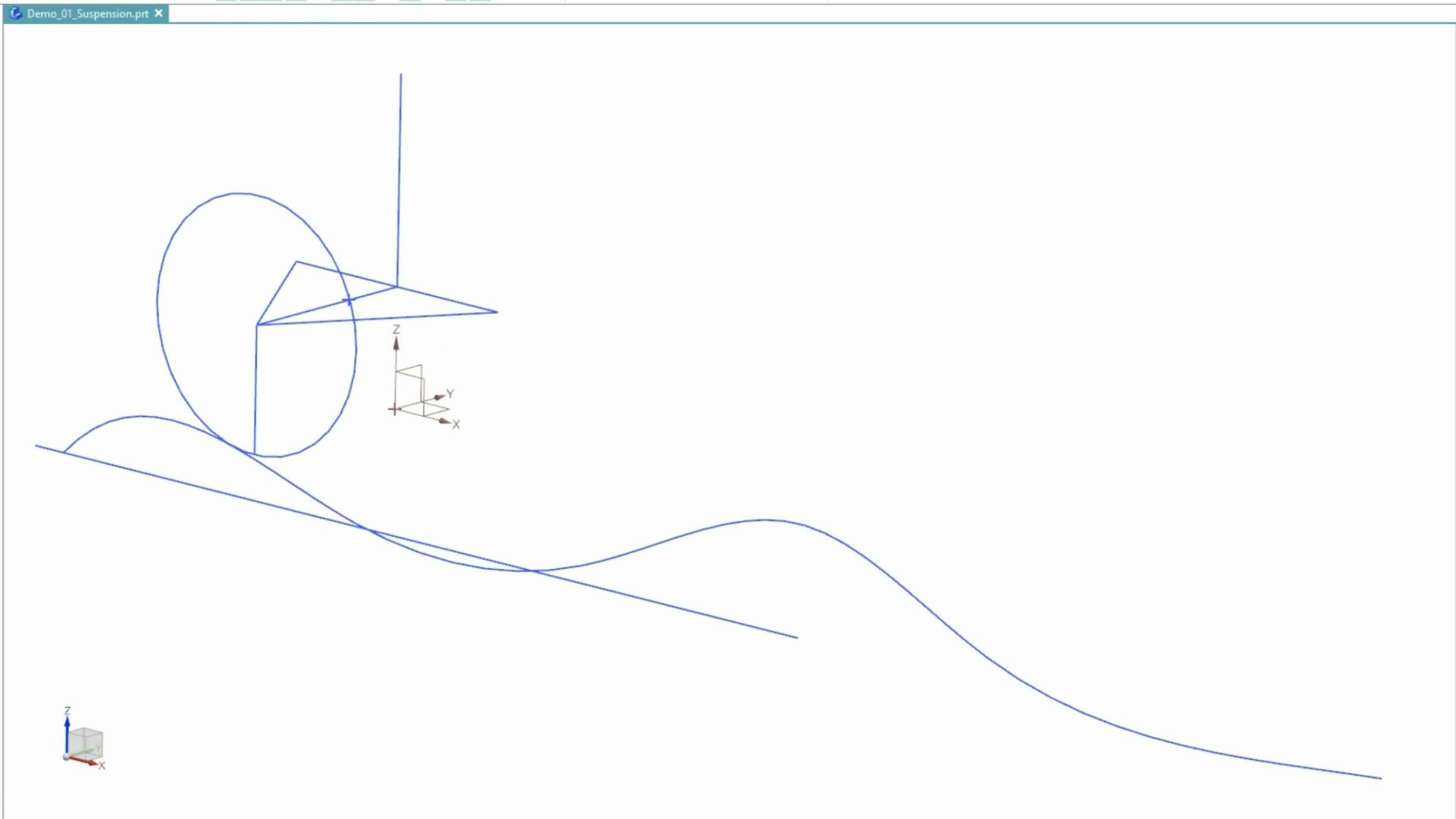
- Partial Loading Light Weight in NX 11
- Partial Loading Light Weigh NX 11 Data in NX12
- NX12 Minimally Loaded – Lightweight Display



Animation Navigator




Name	Color
Studies	
Solution 1	
Rigid Groups	
Joints	
Couplers	
Motors	
Measurements	

Dependencies



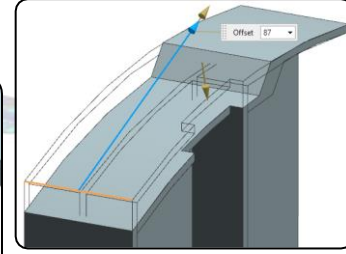
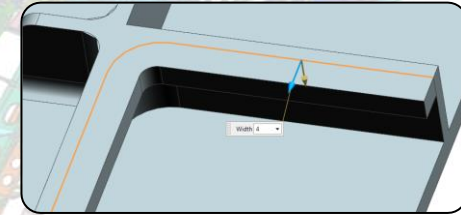
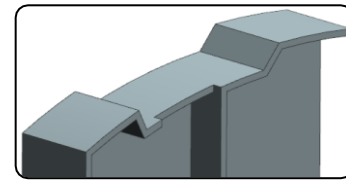
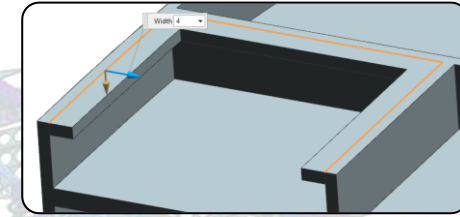
SCALABLE SIMULATION

- Integrated modeling for addressing interferences
- Easy path to NX Motion for analyzing dynamic forces
- Use animations in Mechatronics Concept Designer for virtual commissioning

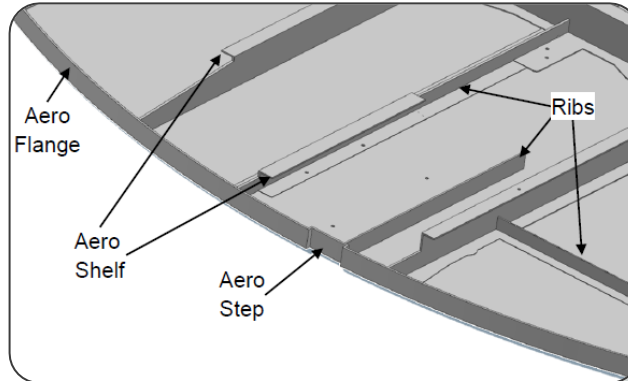
	NX Motion Solutions			
	Animation Designer 	NX Motion 	Simcenter 3D Motion	Mechatronics Concept Designer 
Common design questions	Can I test motion concepts on sketches ? Can I find interferences between moving parts? Can I leverage design into professional proposals ?	Will friction and forces alter performance? Will the product tip over ? Will the motors be strong enough ?	Will my product deform during motion? Will my product break during articulation? Will the control system work?	Can my sensors control motion? Can I verify motion from the actual hardware ? Can I get a head-start on PLC programming ?
Time-based motion	X			
Motion with forces, friction		X		
FEA integrated with motion			X	
Event-based virtual commissioning				X



AERO DESIGN TOOLSET



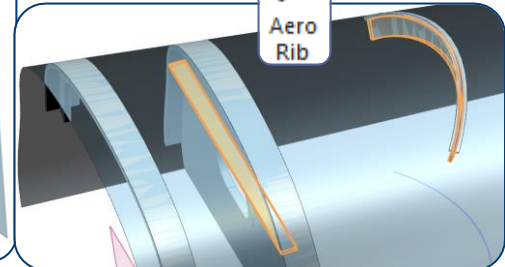
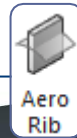
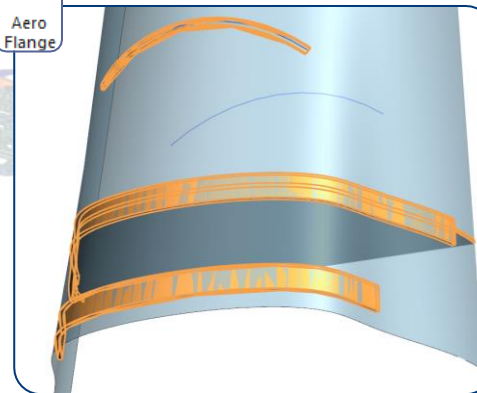
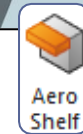
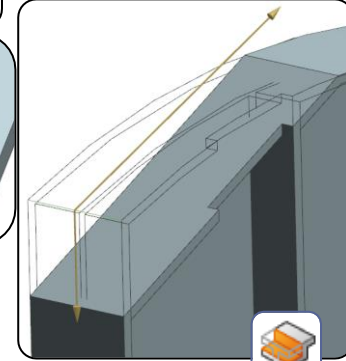
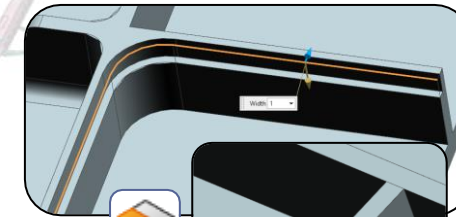
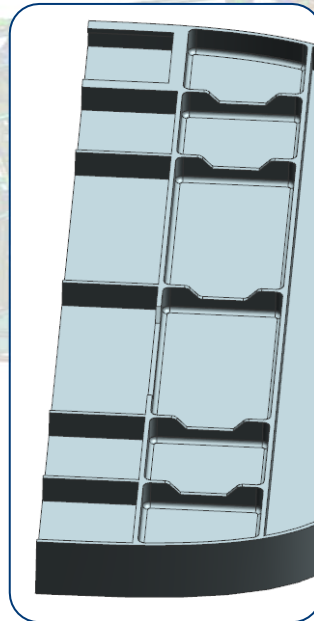
Aero Flange: use to create a flange body by offsetting a specified region of a skin which forms the exterior of a vehicle



Aero Rib: Create thin wall body by extruding a guide curve from a face change.

Aero Shelf: Create offset faces that share a common edge to form a shelf. Create positive and negative features.

Aero Step: Create a step feature for clearance to a mating part.



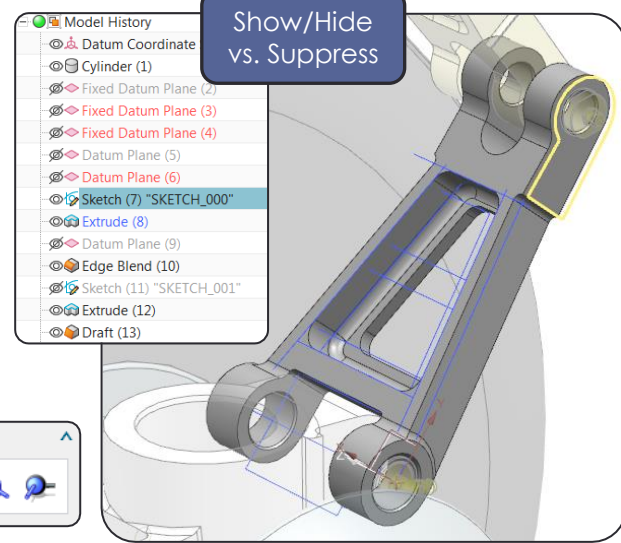
NEW TOOLS IN NX, A RETROSPECTIVE

• NX1847 – January 2019

- Publish JT on Import (TCIN)
- Technical Data Package (TDP) (TCIN) *
- CICO Policy (TCIN)
- NX Overall Icon Refresh
- New CSYS Types
- Automatic Installs & Updates
- Support for MAC OS & Linux ends**
- Extract Tube Centerline
- Assemblies > Joint Constraints
- Automatic Work Part Change
- WAVE status enhancements
- Animation Designer – Inverse Kinematics
- Associative Assembly (NX Layout)
- Lattice Structures Design *
- Unit Cell Editor, Filter Lattice, Connect Lattice
- Remesh Facet Body
- Import OBJ as Convergent
- Texture Modeling
- Command Prediction



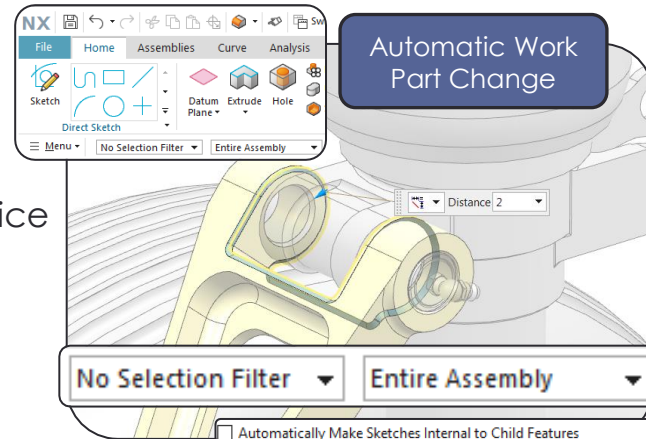
* New Module



Show/Hide vs. Suppress



Joint



Automatic Work Part Change

No Selection Filter Entire Assembly

- Automatically Make Sketches Internal to Child Features
- Transfer Object Attributes when Commands Divide or Join Objects
- Allow Automatic Work Part Change

Customer Default

Part Navigator

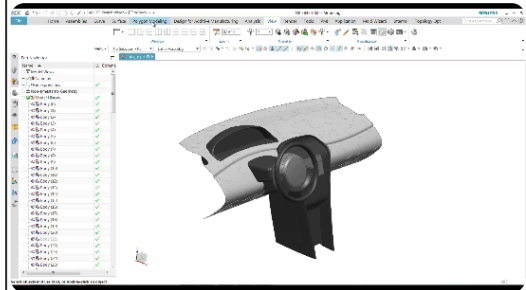
Name	Up to Date
"WAVE"	!
Linked Body (0)	?
"Wing Spar"	?
"Skin"	□

Out of Date has highest priority

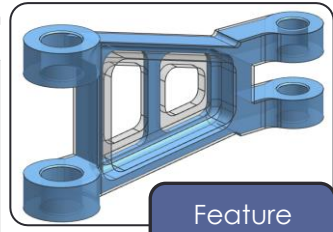
Part Navigator

Name	Up to Date	Current Feat...	Timestamp
Links			
Linked Expressions	!		
Offset "Wing Theor..."	!		
Linked Features			
"Wing Skin"	?		
Model History			
"Wing Skin"	✓		0
Datum Coordinate ...	✓		1

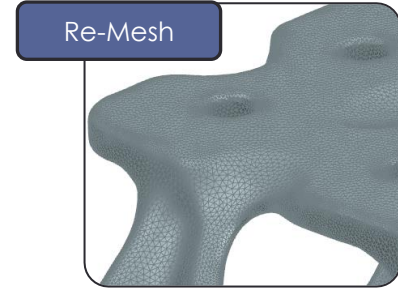
Click to Update: Interpart update for this session is delayed.



Texture Modeling



Feature Snapshots



Re-Mesh



Import OBJ

CICO Policy

- Check-out/Check-in Policy
- Automatic Check-out on Modify or Save; Check-in on Save/Close
 - Automatic Check-out on Modify or Save; Check-in on Close
 - Automatic Check-out on Save; Check-in on Save
 - Manual Check-out Required for Save; Manual Check-in
 - Manual Check-out Required for Save; Check-in on Close



SAVE MANAGEMENT: NX MANAGED

NX Save Management tracks modifications to components during the NX session, and assigns a Teamcenter defined Action on Save

- On Save, user is presented a table showing:
 - All components modified in session
 - Default Actions assigned per Item Type + Reason
 - **Action:** Save; Save-As; Revise; Ignore
 - **Reason:** Has Status; Checked Out By Another User; Not Modifiable
 - End State following save to Teamcenter;
- User may override the default Save Action
 - Also based on Item Type + Reason
- Customer creates custom behaviour using callbacks

Current State				Decision		End State				
Object Name	ID	Revisi	Name	Reason	Action	ID	Revisio	Name	Char	Proj
GTE001183	GTE00...	A	GTE001183	Released	Revise	GTE001183	* D...	GTE001183		
GTE001178	GTE00...	A	GTE001178	Released	Revise	GTE001178	* D...	GTE001178		
GTE001194	GTE00...	A	GTE001194	Released	Save As	* Double...	* D...	Double-cli...		
GTE001207	GTE00...	A	GTE001207	Released	Save As	* Double...	* D...	Double-cli...		
GTE001206	GTE00...	A	GTE001206	Released	Revise	GTE001206	* D...	GTE001206		

Current State				Decision		End State		
ID	Revision	Name	Reason	Action	ID	Revision	Name	
006320	A	006320	Released	Revise	006320	* Double...	006320	
006321	A	006321	Released	Ignore	N/A	N/A	N/A	
GTE001194	B	GTE001194	Released	Ignore	GTE001194	* Double...	GTE001194	

AUTOMATICALLY GUIDES USERS TO MANAGE DATA ACCORDING TO CUSTOMER DEFINED BUSINESS RULES.

Tc Pref: TC_NX_CM_AutomatedDecision_Actions

Values
 ObjectType=Item;Actions=Save,Revise,SaveAs,Ignore
 ObjectType=Item;Reason=Released;Actions=Revise,SaveAs,Save,Ignore
 ObjectType=Item;Reason=NotModifiable;Actions=Ignore,SaveAs
 ObjectType=Item;Reason=CheckedOutByAnotherUser;Actions=Ignore,SaveAs
 ObjectType=Item;Reason=ManualCheckOutRequired;Actions=Ignore,Revise,SaveAs,Save
 ObjectType=MdlOCConditionalElement;Actions=Save,Revise,SaveAs,Ignore
 ObjectType=MdlOCConditionalElement;Reason=Released;Actions=Revise,SaveAs,Save,Ignore
 ObjectType=MdlOCConditionalElement;Reason=EffectivitySplit;Actions=SaveAs,Revise,Save,Ignore

File Home Assemblies Curve Analysis View Render Tools Application Animation Designer

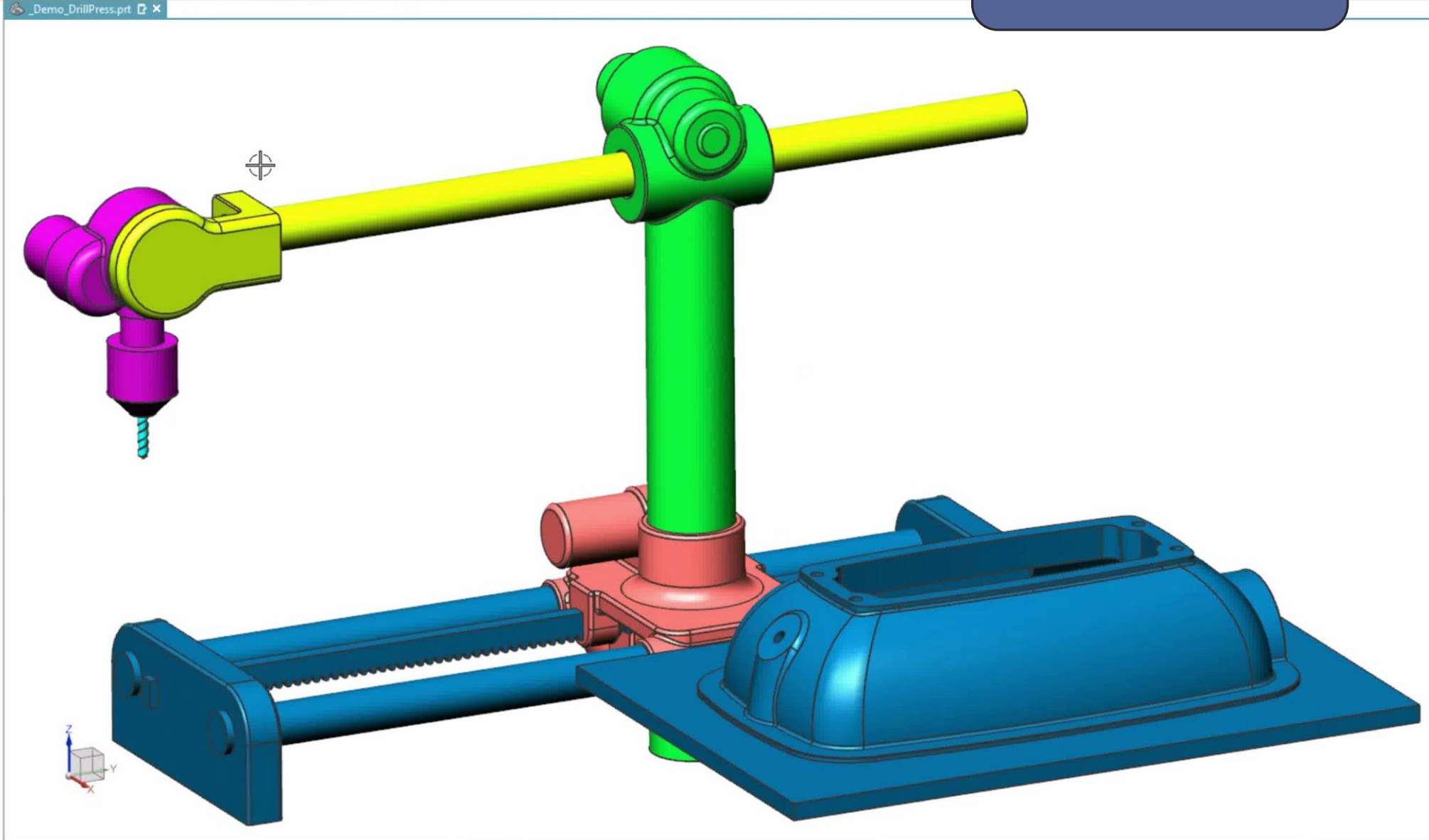
New Solution Rigid Group Contact Joint Gear Chain Belt Rack and Pinion Mechanical Cam Position Motor Speed Motor Inverse Kinematics Timeline Restart Play Stop Pause Step Repeat Capture Arrangement Movie Record Settings Rigid Group Color Move Rigid Group Collision Lightweight Measure Report

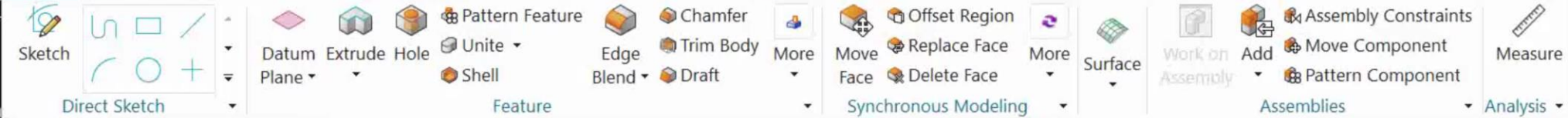
Animation Designer Inverse Kinematics

Animation Navigator

Name	Color
Solutions	
Solution1	
Rigid Groups	
Joints	
Couplers	
Motors	
Measurements	
Animated Camera	
Animated Explode	
Animated Visibility	

Dependencies





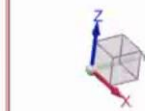
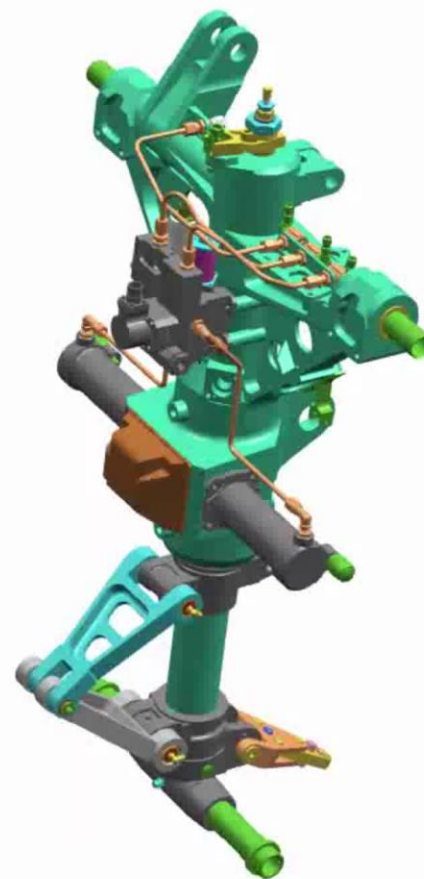
Feature
Snapshot



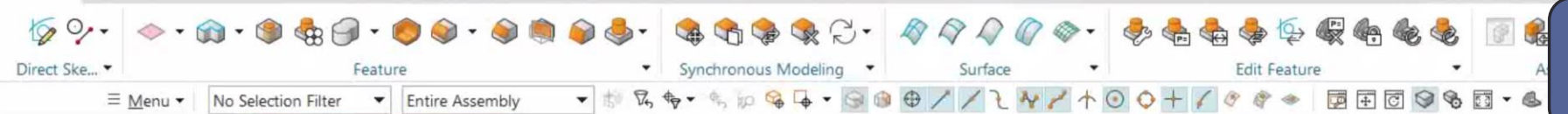
Assembly Navigator

Descriptive Part Name	Out of Date	Info
Sections		
- [x] [i] [c] asm_landing_ge...		
+ Constraints		
[x] [i] [c] upper_gear_supp...		
[x] [i] [c] axle_support-PT		
[x] [i] [c] link_upper-PT		
[x] [i] [c] axle-PT		
[x] [i] [c] rod_01		
[x] [i] [c] upper_rod_suppo...		
[x] [i] [c] linkage_part-PT		

_asm_landing_gear-AS.prt(l) linkage_part-PT rev2.prt



Trimetric WORK Camera Trimetric



Automatic Work Part Change

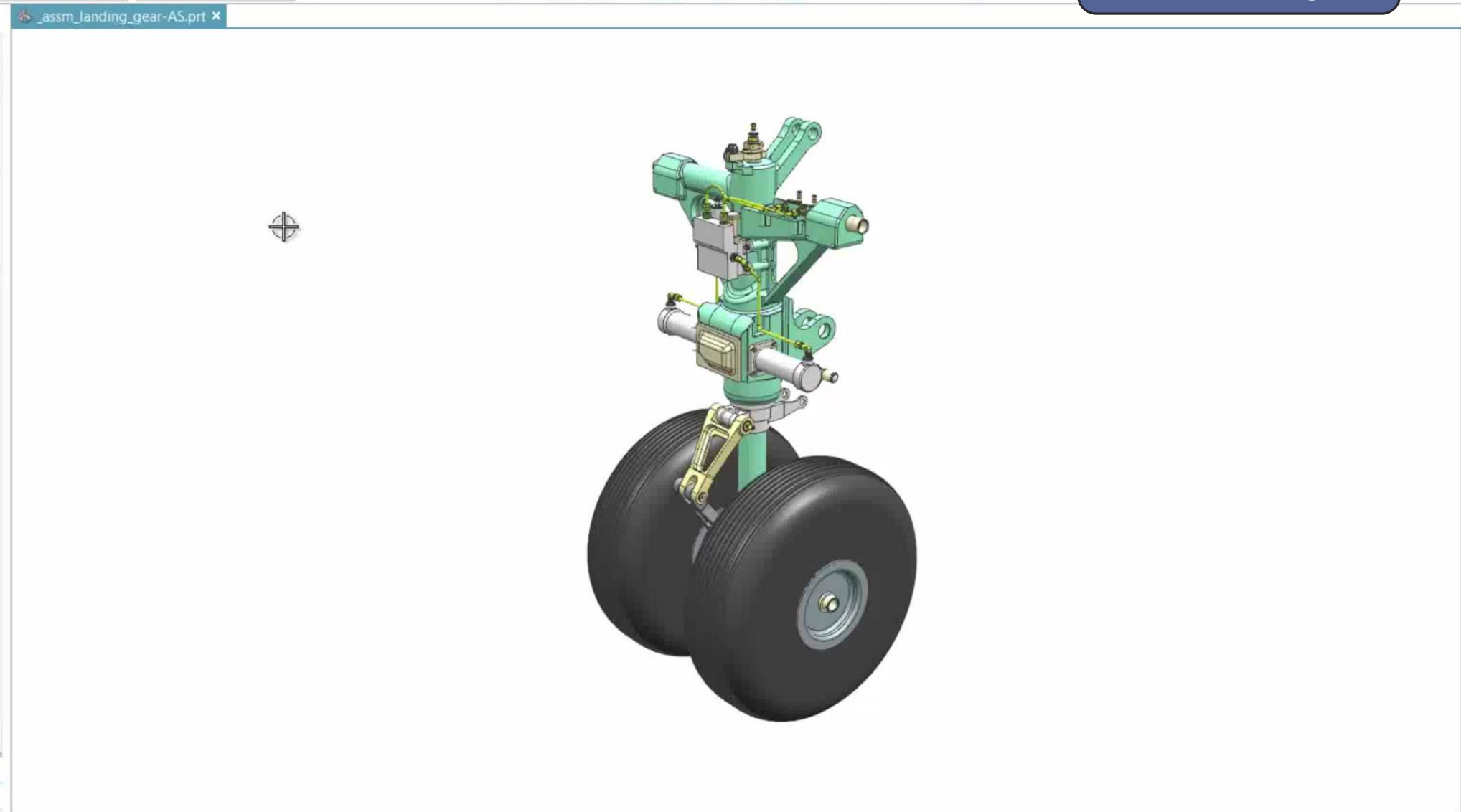
Assembly Navigator

Descriptive Part Name

- + Sections
- **_assm_landing_gear-AS (Order: Chrono)**
 - + Constraints
 - upper_gear_support-AS
 - + Constraints
 - 0123456
 - 457896
 - 455662
 - 145690 x 2
 - 457897
 - 987234
 - + Constraints
 - 657848
 - 554323
 - 223546
 - 666787
 - 666786
 - 666785
 - 666784
 - 666783
 - 332345
 - 563542 x 2
 - 776521
 - + Constraints
 - 776500
 - 7765100
 - 7765101
 - 7765102
 - 7765103

Preview

Dependencies



NEW TOOLS IN NX, A RETROSPECTIVE

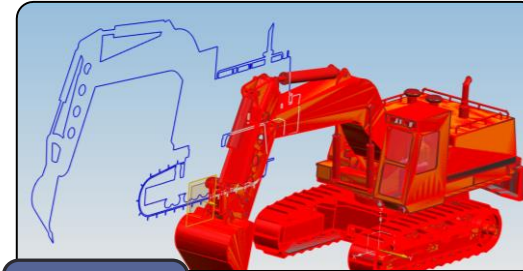
- **NX1872** – June 2019

- Launch NX in Specified Application (TCIN)
- ANT – NX Environment Column (TCIN)
- First Article Help & Visual Assistant ★
- Exclusive Selection/Background Deselect All
- NVIDIA vMaterials or MDL Library
- Denoiser – Ray Traced Studio – faster rendering
- Shadow Curve
- Texture Task Environment
- Morph Mesh Task Environment
- Minimally Load – Lightweight Display (Native)
- Assembly Couplers: Gear, Rack & Pinion, Cable
- Section Tube & Draw Cage – NX Realize Shape
- Joint Jogger & Export Movie in Animation Designer
- ANT – Navigation Order - Subassemblies

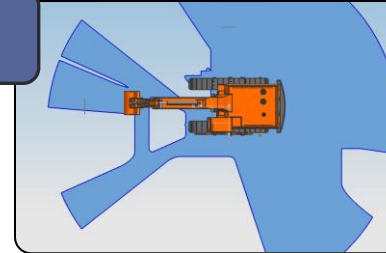
★ New Module

Descriptive Part Name	Navigator Order
[-] <input checked="" type="checkbox"/> Chopper_assys (Order: New Order 1)	New Order 1
[-] <input checked="" type="checkbox"/> Chopper_bowl_assy	New Order 2
[-] <input checked="" type="checkbox"/> Chopper_rotor	
[-] <input checked="" type="checkbox"/> chopper_bowl	
[-] <input checked="" type="checkbox"/> Chopper_bowl_cover	
[-] <input checked="" type="checkbox"/> Chopper_blade x 2	
[-] <input checked="" type="checkbox"/> Chopper_case_assy	Alphanumeric
[-] <input checked="" type="checkbox"/> Chopper_case_base	
[-] <input checked="" type="checkbox"/> Chopper_case_top	
[-] <input checked="" type="checkbox"/> Chopper_mechanics_assy	Chronological
[-] <input checked="" type="checkbox"/> Chopper_support_plate-pmi	
[-] <input checked="" type="checkbox"/> Chopper_motor	
[-] <input checked="" type="checkbox"/> Chopper_gear1	
[-] <input checked="" type="checkbox"/> Chopper_gear2	
[-] <input checked="" type="checkbox"/> Chopper_spindle	

Navigator Order

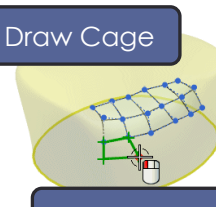


Shadow Curve

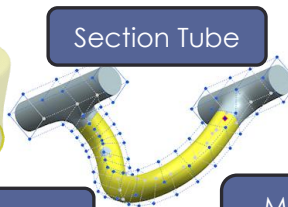


Draw Cage

Section Tube

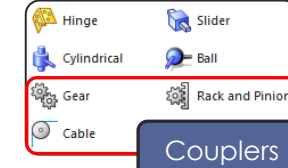
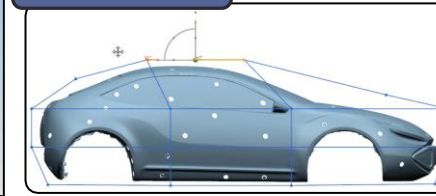


NX Realize Shape



Morph Mesh

Morph Mesh



Couplers

First Article



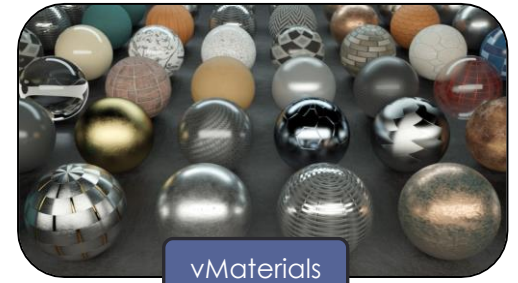
F1

Through Curves

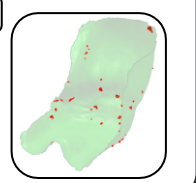
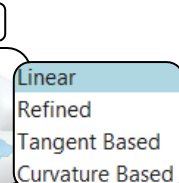
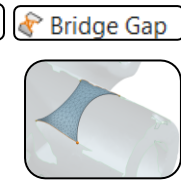
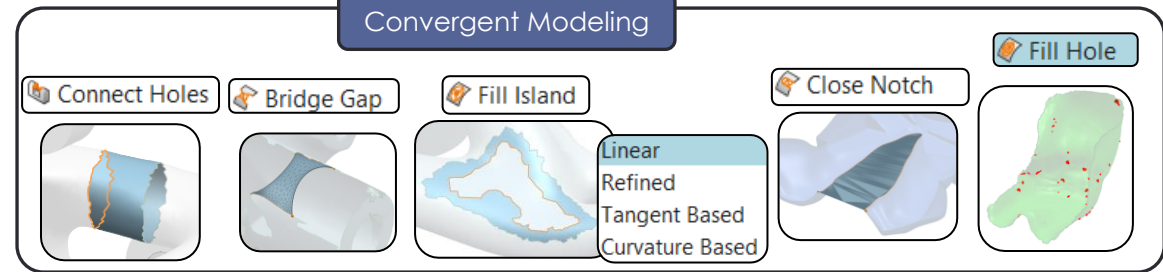


Multi-Body Thicken

vMaterials



Convergent Modeling



Linear
Refined
Tangent Based
Curvature Based



NEW TOOLS IN NX, A RETROSPECTIVE

- **NX1899** – December 2019

- Open Related Drawing (TCIN)
- Open Previous Datasets from AW (TCIN)
- User Experience: Welcome Role, One-Day Training
- Context Tab – Edit Object Display (vs. Ctrl+J)
- Default: Minimally Load – Lightweight Display
- New Line Styles
- Scene Preferences
- Design Groups
- Radiate Face
- Mesh from Cloud
- Combine Facet Bodies
- Chamfer Enhancements (Edge Blend)
- Parameter Tables
- Lattice – Connect, New Rod Thickness
- NX Analysis – Mass Properties Overhaul ★
- Envelope & Interferences – (Animation Designer)
- Teamcenter support for NX & Capital Integrations

★ New Module

Radiate Face

Mesh from Cloud

Lattice Enhancements
0.1mm
0.5mm
Varying Rod Diameter

Context Tab

Parameter Table

Tables	Tables
Flanges table	Flanges table
Baseline	Baseline
Configuration 1	Configuration 1
Configuration 2	Configuration 2
Configuration 3	Configuration 3

Part Navigator

Name	Up to Date
Back Pocket	✓
Back Ribs	✓
Cutout	✓
Datum Coordinat...	✓
"POCKETS_0:POC...	✓
Extrude (105)	✓
Extrude (106)	✓
Extrude (107)	✓
Boolean	✓
Subtract (113)	✓
Subtract (114)	✓
Subtract (115)	✓
Unite (116)	✓

Current Feature

Not Active

Design Groups

Unit Cell

Cell Type: Bitriangle
 Uniform Cube
 Edge Length: 0.75 mm
 Seed Placement

Porosity: 95%
 Stiffness in X: 22
 Stiffness in Y: 20
 Stiffness in Z: 53

Update Mass Properties **Show Mass Properties Panels**
 Mass Properties

Offset Face (11) ✓
Unite (12) ✓
Edge Blend (13) ✓
Subtract (14) ✓
Lattice (15) ✓

Mass Status and Source

Descriptive Part Name	Count	Mass (g)	Mass Status	Mass Source Type
409727_chains...	566	2685.6443	?	From Design
409657_A	3	5.5415	✓	From Design
409724_A	6	6.3356	✓	From Design
409795_A	4	4.6364	✓	From Design
409737_A	12	39.3819	✓	From Design
409668_A	4	9.4164	✓	From Design
409663_A	27	66.6848	?	From Design
409659_A	6	12.7037	?	From Design
40971...	6	5.2000	✓	Asserted
40969...	1	5.2000	✓	Asserted
40968...	1	3.8611	✓	From Design
40964...	1	3.5911	✓	From Design
40978...	1	0.0514	✓	From Design
409743_A...	7	10.2787	✓	From Design
409636_A	6	33.4236	✓	From Design
409685_A	14	108.1813	✓	From Design
409633_A	344	136.7374	✓	From Design
409779_A	33	663.2081	✓	From Design
409753_A	115	1119.5252	✓	From Design
409735_A	9	495.9044	✓	From Design
409763_A x 2	9	15.0457	✓	From Design

total 1

Descriptive Part Name	Count	Mass (g)	Mass Status	Mass Source Type
409727_chains...	566	2685.6443	?	From Design
409657_A	3	5.5415	✓	From Design
409663_A	27	66.6848	?	From Design
409659_A	6	12.7037	?	From Design
40971...	6	5.2000	✓	Asserted
40969...	1	5.2000	✓	Asserted
40968...	1	3.8611	✓	From Design
40964...	1	3.5911	✓	From Design
40978...	1	0.0514	✓	From Design
409743_A...	7	10.2787	✓	From Design
409636_A	6	33.4236	✓	From Design
409685_A	14	108.1813	✓	From Design
409633_A	344	136.7374	✓	From Design
409779_A	33	663.2081	✓	From Design
409753_A	115	1119.5252	✓	From Design
409735_A	9	495.9044	✓	From Design
409763_A x 2	9	15.0457	✓	From Design

Toggle the visibility of the Mass Properties panel

Unreliable value (cache not found), please load components and then update mass properties

Current up-to-date status for the selected component(s) displayed here

Options

Complete (& sometimes combined) Mass Properties are displayed here in the panel for selected parts &/or assemblies.

Currently selected context

409633_A : 344 Components

Name	Value	Unit	Source	From Design	Asserted	Use
1 Mass	0.1367	kg	From Design	0.1367		
2 Weight	1.3409	N	From Design	1.3409		
3 Density	1.649e-06	kg/mm ³	From Design	1.649e-06		
4 Volume	82897.5267	mm ³	From Design	82897.5267		
5 Area	104414	mm ²	From Design	104414		
6 Center of Mass (Absolute)						
10 Moments of Inertia (Centr...						
14 Products of Inertia (Centr...						
18 Center of Mass (WCS)						
22 First Moments (WCS)						

Mass Properties Options

General Settings Work Part Settings

Accuracy: Standard

Component Group: AllComponents, CurrentComponents

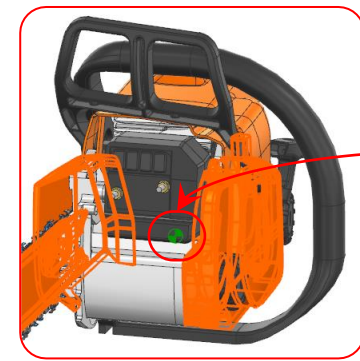
Center of Mass Symbols:

- Displayed Part
- Selected Components Combined
- Selected Components
- All Components

Source Precedence:

- User Defined 1
- User Defined 2
- User Defined 3
- Asserted
- From Design (Coated)
- From Design

 Use Precedence for Calculation



Descriptive Part Name	Count	Mass (g)	Mass Status	Mass Source Type
409663_A	27	65.6102	?	From Design
409659_A	6	11.6291	?	From Design
40971...	6	4.1254	✗	From Design
40968...	1	3.8611	✓	From Design
40964...	1	3.5911	✓	From Design
40978...	1	0.0514	✓	From Design

Outside mass limits

409694_A : 1 Component

Name	Value	Unit	Source	From Design	Asserted	User Defined 1	User Defined 2	User Defined 3	Min Limit	Max Limit
1 Mass	0.0041	kg	From Design	0.0041	0.0052	0.0054	0.0058	0.0060	0.0380	0.0600
2 Weight	0.0405	N	From Design	0.0405	0.0510	0.0530	0.0569	0.0588	0.3727	0.5884
3 Density	1.4e-06	kg/mm ³	User Defined 1		1.4e-06					
4 Volume	2946.7075	mm ³	User Defined 2		2946.7075					
5 Area	3123.2768	mm ²	User Defined 3		3123.2768					

Create an ad hoc limit by filling in the Max/Min Limit

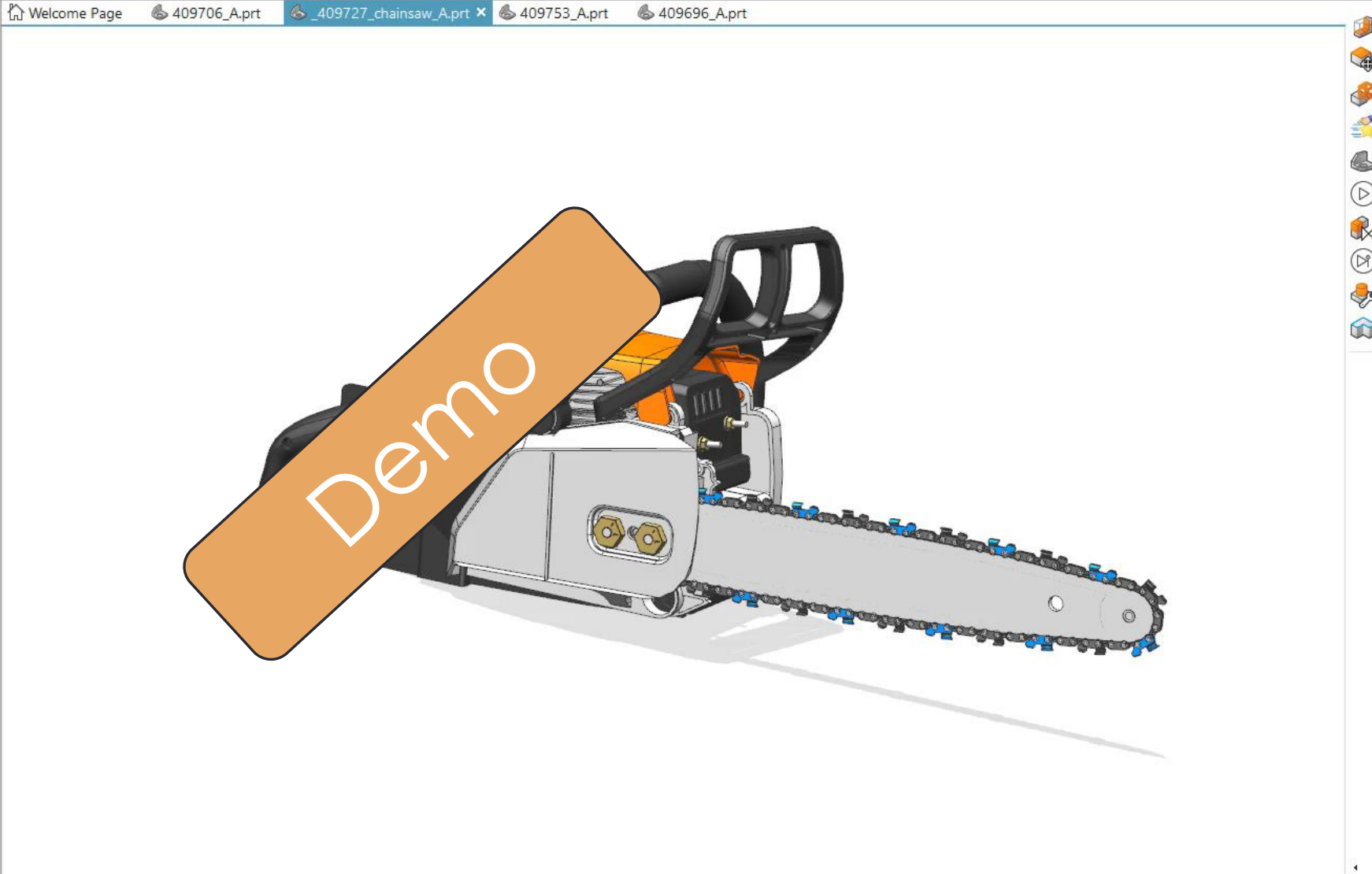
Datum Sketch Plane
 Extrude Revolve Hole Unite Subtract Trim Edge Chamfer
 Body Blend
 Draft Pattern Feature Shell Mirror Feature
 Move Delete Offset Replace Resize Blend
 Synchronous Modeling Measure Assembly Constraints

NX Analysis Mass Properties

Assembly Navigator

Descriptive Part Name	R.	M	Count	Reference Set	Mass (kg)	Mass Sta
+ Sections						
409727_chains...			567		3.7099	✓
+ 409657_A			3	Entire Part	0.0055	✓
+ 409724_A				Model ("MO...	0.0064	✓
+ 409795_A				Model ("MO...	0.0046	✓
+ 409737_A			12	Entire Part	0.0394	✓
+ 409668_A			4	Entire Part	0.0094	✓
+ 409663_A			27	Entire Part	0.0909	✓
+ 409685_A			14	Entire Part	0.1082	✓
+ 409633_A			344	Entire Part	0.1367	✓
+ 409779_A			34	Entire Part	1.6632	✓
+ 409753_A			115	Entire Part	1.1195	✓
+ 409735_A			9	Entire Part	0.4959	✓
+ 409763_A x 2				Model ("MO...	0.0150	✓

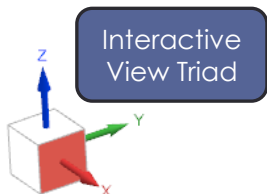
Preview
 Dependencies



Select objects and use MB3, or double-click an object

NEW TOOLS IN NX, A RETROSPECTIVE

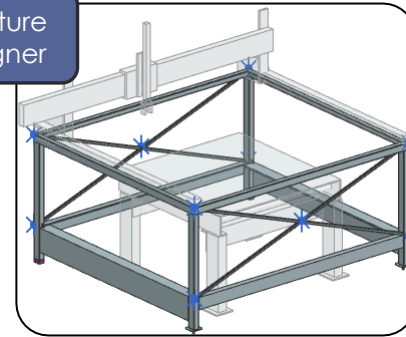
- **NX1926** – June 2020
 - Open Foreign Datasets in NX (TCIN)
 - Intelligent Part Number (IPN) – Create (TCIN)
 - Export Assembly outside Teamcenter (TCIN)
 - Enhanced Welcome Page
 - Structure Designer ★
 - NX Join ★
 - Automated Testing Studio★
 - Sketch – the change starts here...
 - Body Lattice
 - Interactive View Triad
 - Resize Hole
 - Explosions – Drafting
 - DMU – Added to NX Viewer Application
 - Expanded Color Definition Files
 - NX Draw Shape Task Environment
 - Dark Theme added
 - Streamlined QuickPick
 - Select Related Object



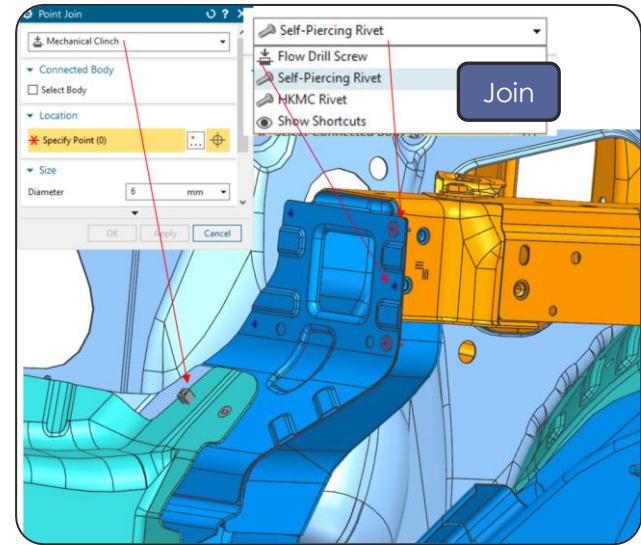
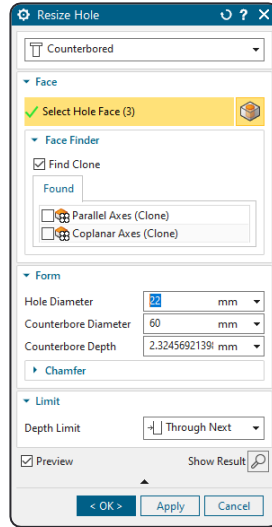
Interactive View Triad

★ New Module

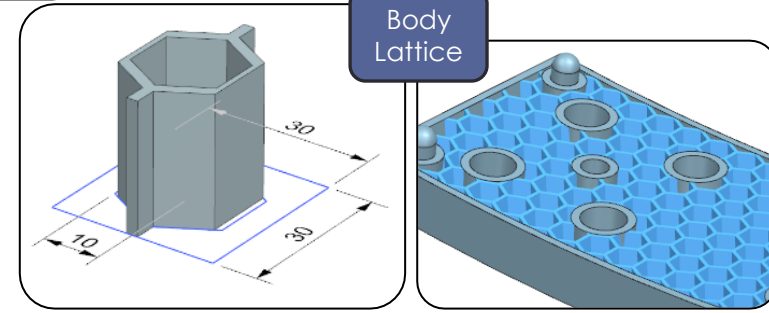
Structure Designer



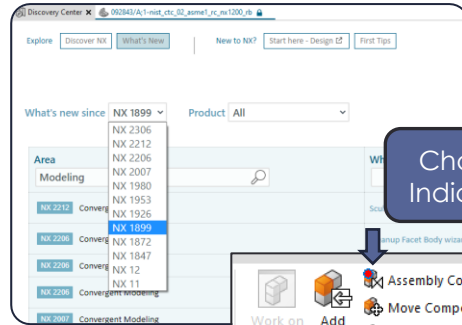
Resize Hole



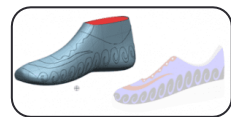
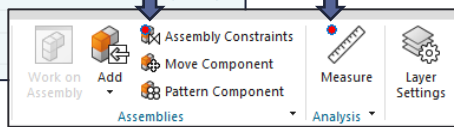
Body Lattice



Any analytic or freeform shape is now possible, expanding the engineering possibilities of lattices. 2.5 D lattices are now possible supporting various in-fill requirements.



Change Indicators



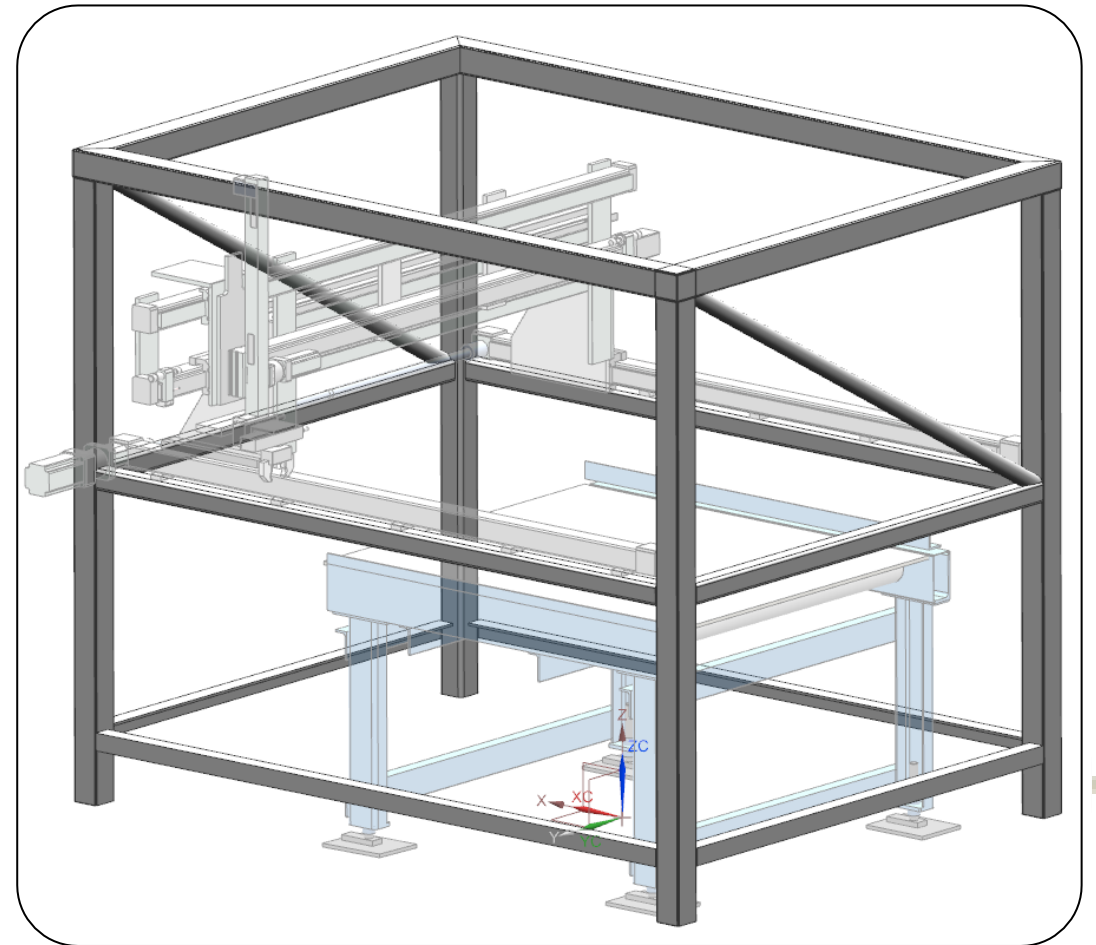
Draw Shape





STRUCTURE DESIGNER

- Easy to use structural frame modeling capability
- Rapid frame drawing assistant that creates 2D skeletons with minimal clicks
- 3D members placement are automatically oriented based on user defined rules
- Corner treatments are rules-driven and automatically added
- Create accurate designs with specialty features such as structural corner stiffeners, end caps, and mounting feet
- Cut lists in drawings for streamlining manufacturing



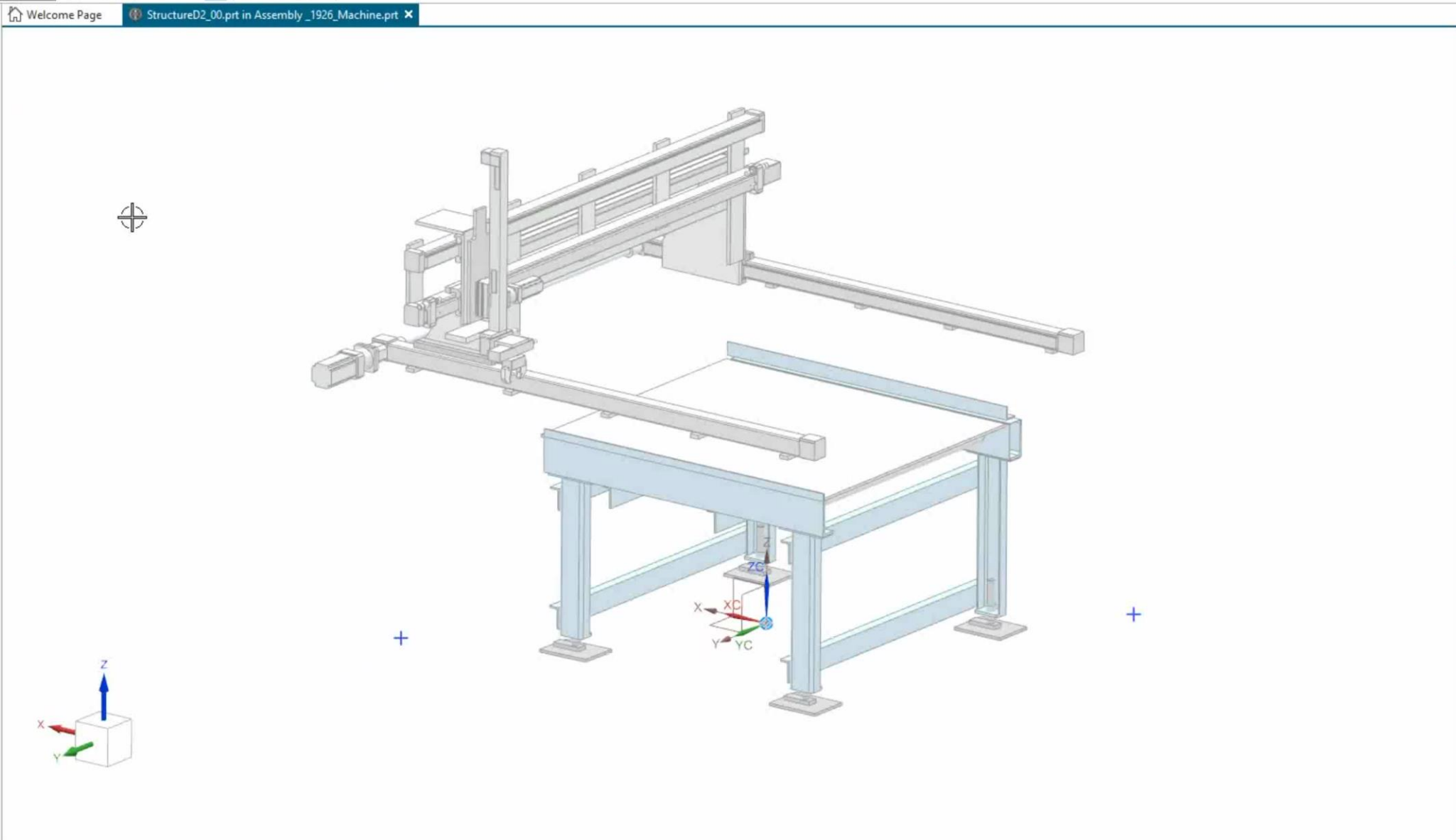
Structure Designer

New Structure
Datum Plane
Sketch
Line Point-Point
Frame
Line
Member
Edit Corner
Edit Stock
End Cap
Gusset
Structure Designer Preferences
Visual Stock Report
Show and Hide
Place Equipment

Menu No Selection Filter Entire Assembly

Structure Design Navigator

Title	Section Type
Structures	
StructureD2_00	
Construction Cur...	
Sketch (1)	
Members	
Corners	
Gusset	
End Cap	
Mounting Feet	



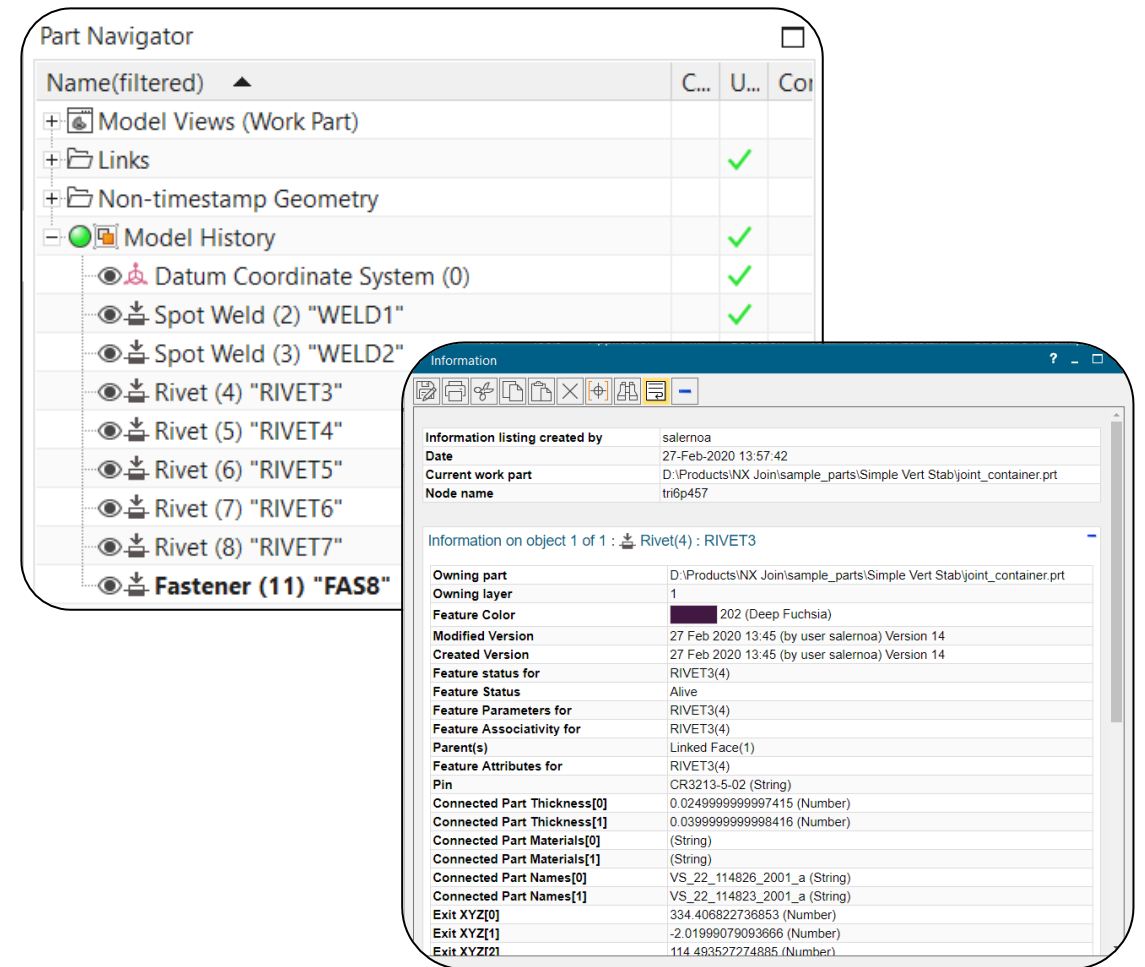
JOIN FEATURES

Each join feature is a sub class of three primary classes of joins: **point**, **line** or **face**. In this release the sub-classes are all of type point and include:

- **Rivet**
- **Fastener**
- **Spot weld**

The features appear in the part navigator
Info and property information is available from the RMB

Custom attributes can be configured



The image shows two overlapping screenshots from the NX software interface. The top screenshot is the 'Part Navigator' window, which displays a tree view of the model's structure. The bottom screenshot is the 'Information' window, which provides detailed metadata for a selected feature.

Part Navigator

Name(filtered) ▲	C...	U...	Co
+ Model Views (Work Part)			
+ Links		✓	
+ Non-timestamp Geometry			
- Model History		✓	
Datum Coordinate System (0)		✓	
Spot Weld (2) "WELD1"		✓	
Spot Weld (3) "WELD2"			
Rivet (4) "RIVET3"			
Rivet (5) "RIVET4"			
Rivet (6) "RIVET5"			
Rivet (7) "RIVET6"			
Rivet (8) "RIVET7"			
Fastener (11) "FAS8"			

Information

Information listing created by: salernoa
Date: 27-Feb-2020 13:57:42
Current work part: D:\Products\NX Join\sample_parts\Simple Vert Stab\joint_container.prt
Node name: tri6p457

Information on object 1 of 1 : Rivet(4) : RIVET3

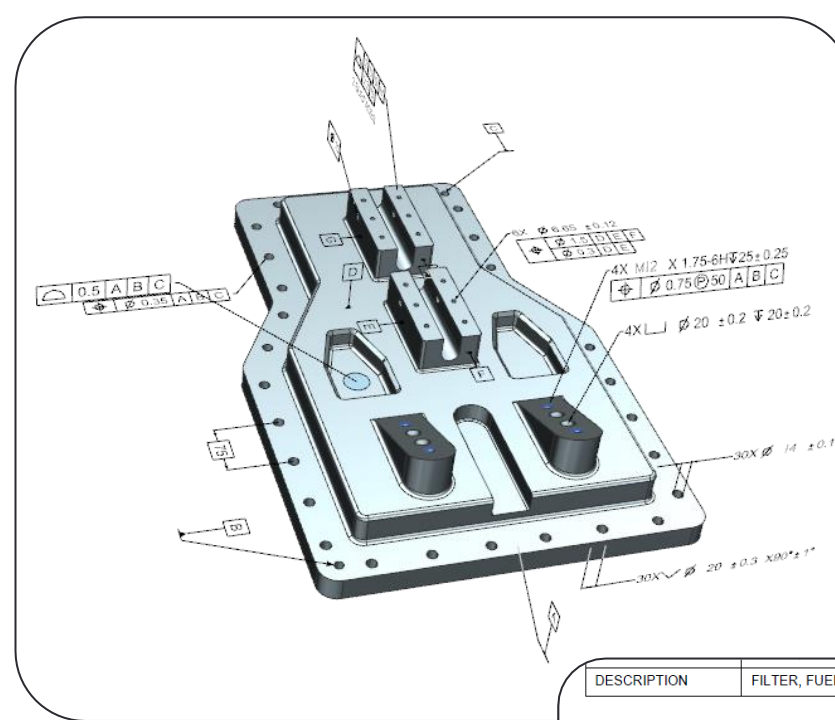
Owning part	D:\Products\NX Join\sample_parts\Simple Vert Stab\joint_container.prt
Owning layer	1
Feature Color	202 (Deep Fuchsia)
Modified Version	27 Feb 2020 13:45 (by user salernoa) Version 14
Created Version	27 Feb 2020 13:45 (by user salernoa) Version 14
Feature status for	RIVET3(4)
Feature Status	Alive
Feature Parameters for	RIVET3(4)
Feature Associativity for	RIVET3(4)
Parent(s)	Linked Face(1)
Feature Attributes for	RIVET3(4)
Pin	CR3213-5-02 (String)
Connected Part Thickness[0]	0.0249999999997415 (Number)
Connected Part Thickness[1]	0.03999999999998416 (Number)
Connected Part Materials[0]	(String)
Connected Part Materials[1]	(String)
Connected Part Names[0]	VS_22_114826_2001_a (String)
Connected Part Names[1]	VS_22_114823_2001_a (String)
Exit XYZ[0]	334.406822736853 (Number)
Exit XYZ[1]	-2.01999079093666 (Number)
Exit XYZ[2]	114.483527274885 (Number)



MODEL BASED DEFINITION

84% of products from best-in-class manufacturers achieve revenue, cost, launch and quality targets using Model Based Definition

-Aberdeen Group



DESCRIPTION	FILTER, FUEL OIL, TRANSPARENT, 100 GPH
VENDOR:	
VENDOR LOCATION:	
PURCHASE DATE:	
TECHNICAL	
MANUFACTURER PART NO	
NPT INPUT	
NPT OUTPUT	
DISPLACEMENT	
HP MAX	
ECN	
CHEMICAL RESISTANCE	
DISPOSAL	
HAZMAT?	
ECN	
DISPOSAL	
Designer	Eng
Soistmann D.	Scot

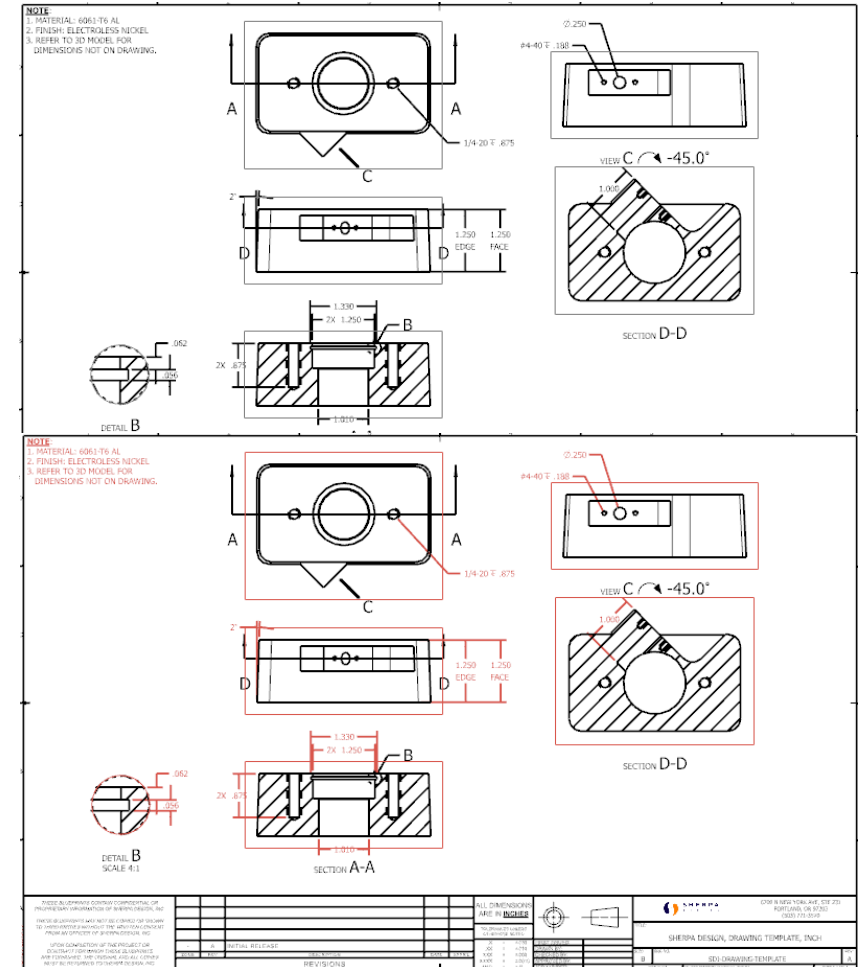
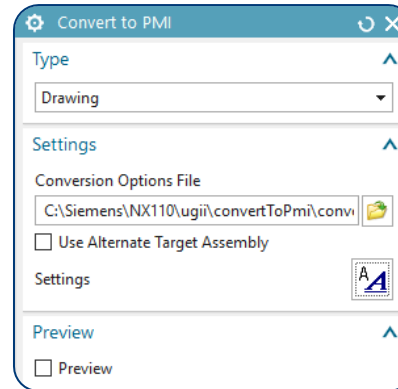
Assembly instructions:

- 2) Extract Hex Bolts (4X)
- 1) Loosen and Remove Hex Nuts (4X)

NX Technical Data Package allows for effortless publishing in NX with deep control and configuration.

UPDATE LEGACY DRAWINGS FOR PMI/MBD

- Use the Convert to PMI command to convert drafting views and objects directly to corresponding model views and PMI objects.
- You can convert specific annotations and dimensions, specific views or drawing sheets.
- Drawings can be converted for PMI in Batch Mode.

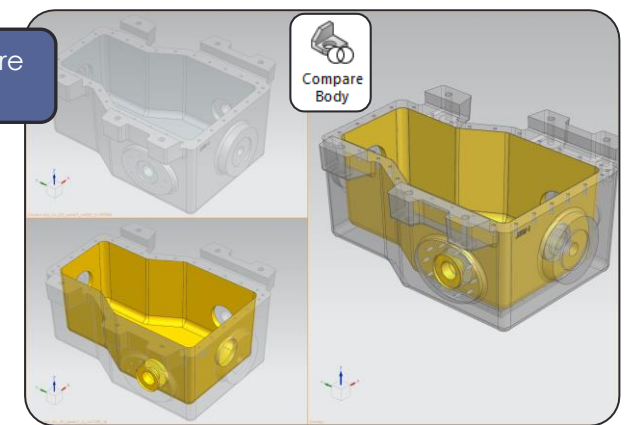


NEW TOOLS IN NX, A RETROSPECTIVE

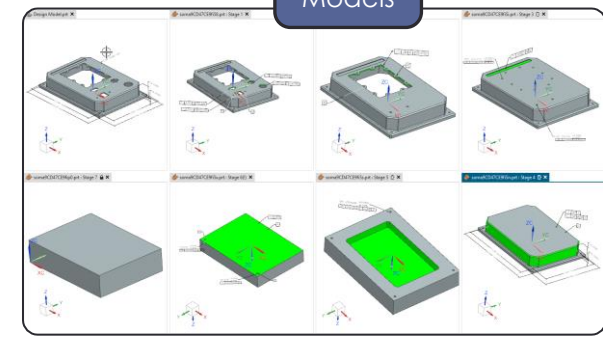
• NX1953 – December 2020

- Appearance Management (TCIN)
- Coatings & Multi-Material Part support (TCIN)
- Import JT Assembly to Teamcenter (TCIN)
- Multi-User Design Notifications (TCIN)
- Algorithmic Modeling ★
- NX Implicit Modeling Task Environment
- Voronoi Graph Lattice
- Ray Traced Movie – Animation Designer
- Staged Models ★
- MBD Logic Editor
- PMI Advisor (HD3D)
- Convergent Bodies w/Mixed Geometry
- Plug Leakage & Wrap Mesh
- Simplify Assembly ★
- Show/Hide Similar Components
- Compare Body (New)
- Routed Systems Designer (RSD) ★ (Early Access)

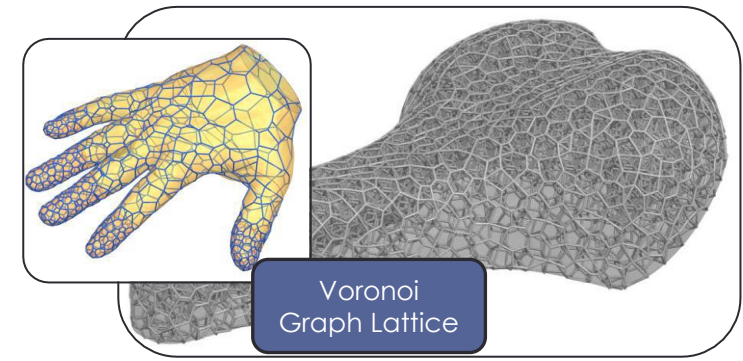
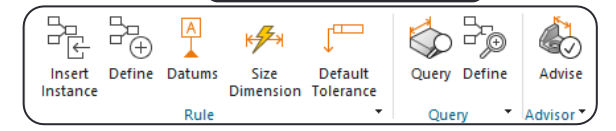
Compare Body



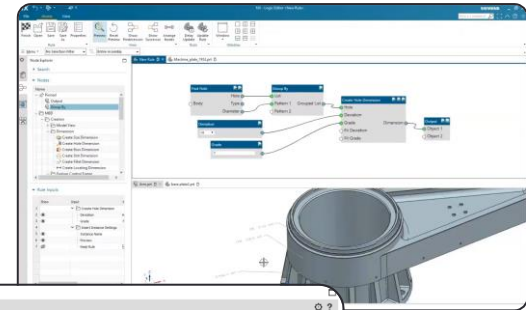
Staged Models



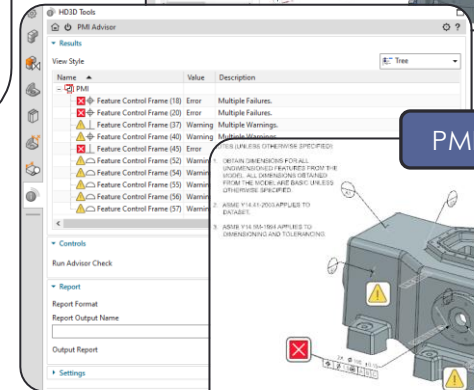
MBD Logic Editor



Voronoi Graph Lattice



PMI Advisor

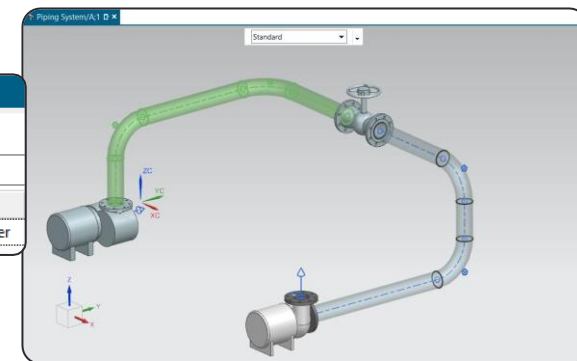


Early Access Features

Find routed

Description	State	Expires on	Restart For Activation	Group Name
Enables the Routed System Designer Mechanical application.	Off		No	RoutedSystemDesigner

★ New Module





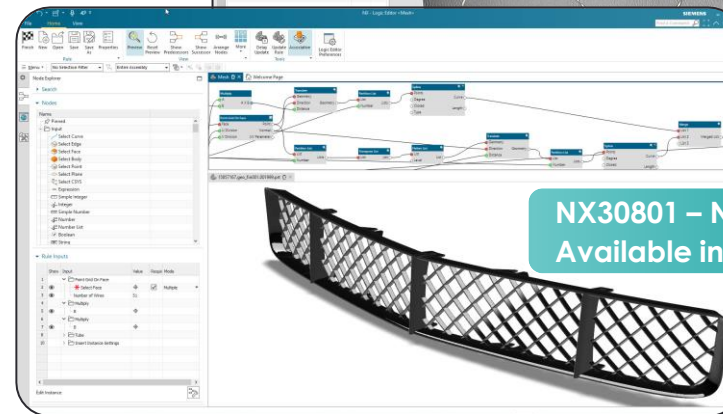
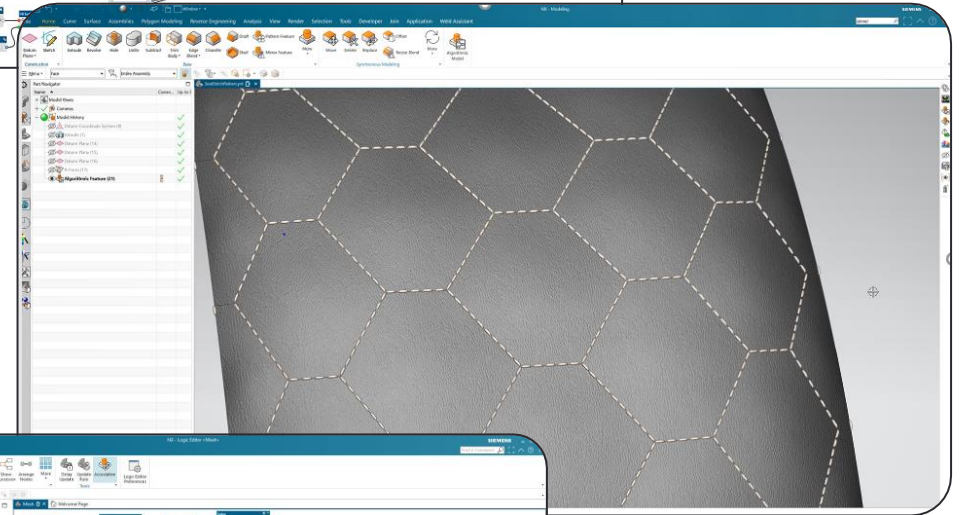
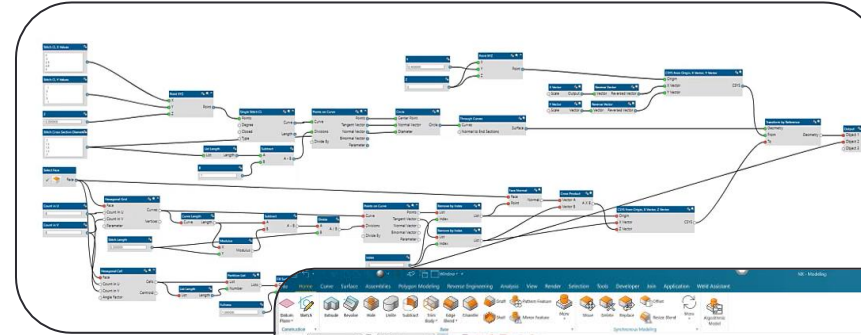
INTRODUCING ALGORITHMIC MODELING

New add-on module for the creation of algorithmically controlled designs

This release introduces new modeling automation capabilities that can be used by every designer and engineer.

- Intuitive, logic driven approach to building complex, algorithmically driven designs
- Simple creation, storage, and reuse of algorithmic driven designs as familiar NX features
- Robust
- Ideal for automation and design templatization

Designers and engineers can create complex designs previously only attainable through advanced programming knowledge.



**NX30801 – NX Algorithmic Modeling Add-on.
Available in Token pool**

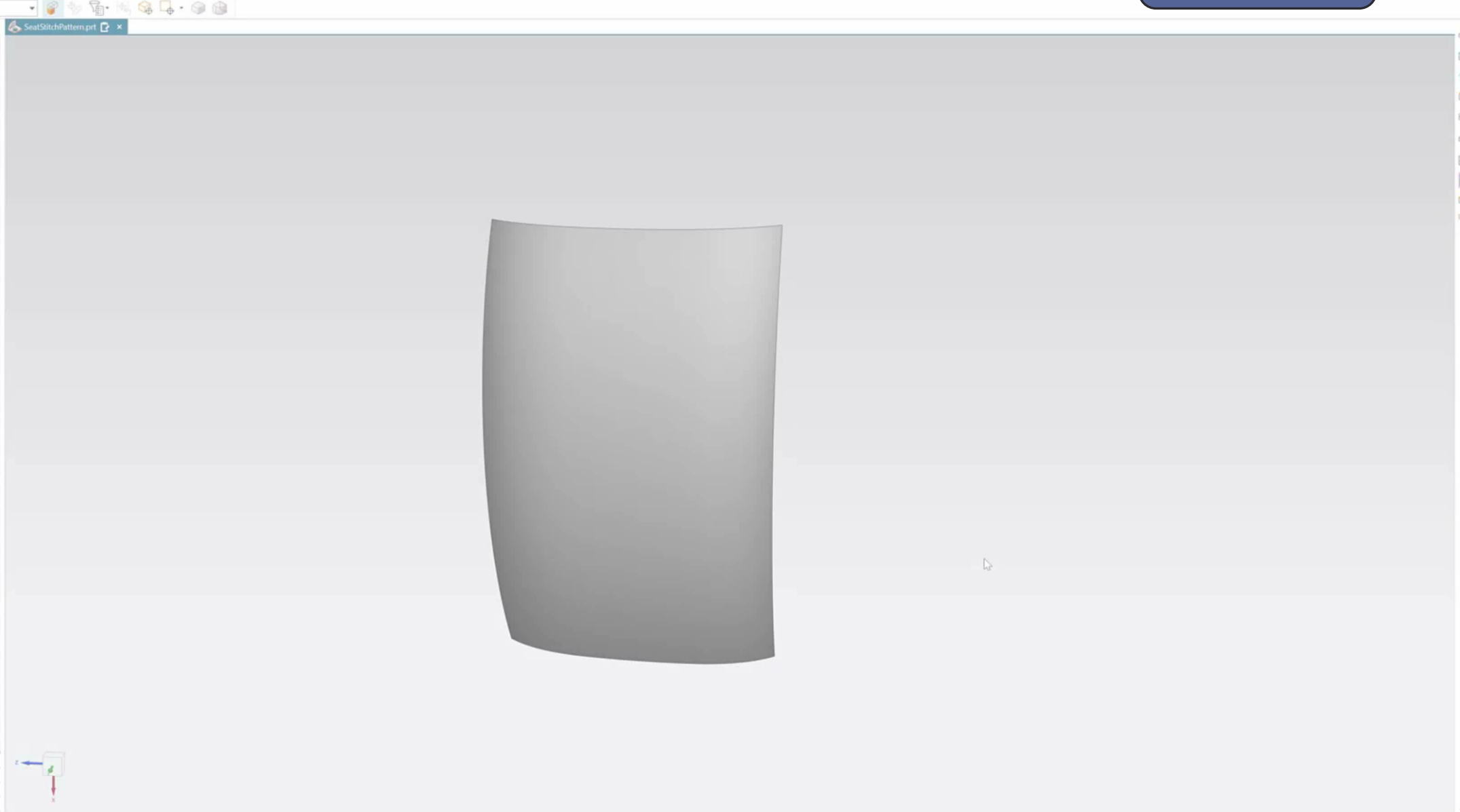
Algorithmic Modeling



Part Navigator

- Name
- Model Views
- Cameras
- Model History
 - Datum Coordinate System (0)
 - Extrude (1)
 - Datum Plane (14)
 - Datum Plane (15)
 - Datum Plane (16)
 - X-Form (17)

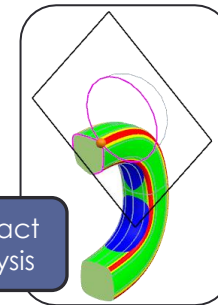
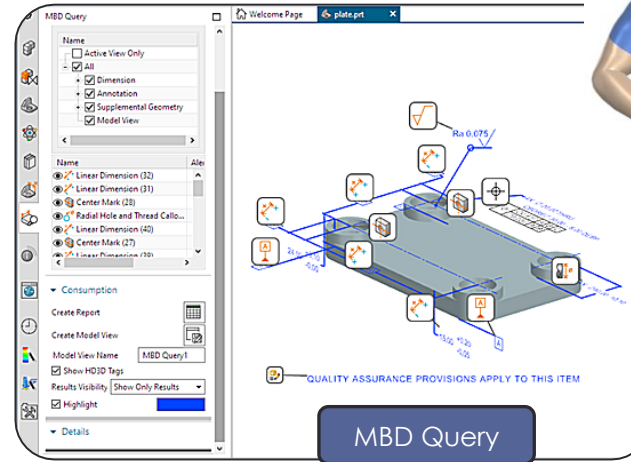
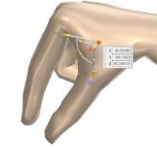
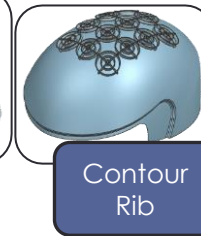
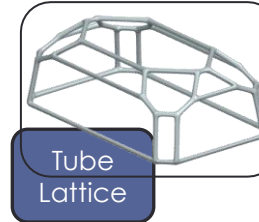
Search
Dependencies
Details
Preview



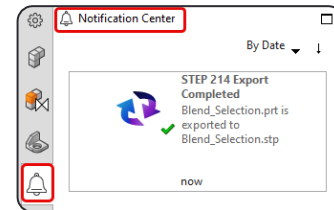
NEW TOOLS IN NX, A RETROSPECTIVE

• NX1980 – June 2021

- Part Family tab AW (TCIN)
- Coatings in AW (TCIN)
- Staged Models – Managed (TCIN)
- NX Speech Recognition ★
- Coatings ★
- NX Human ★
- Selecting Predicted Objects
- Notification Center (Resource Bar)
- Contour Rib
- Tube Lattice
- Contact Analysis - Safety
- Single Pattern
- Assemble (Devin's Session)
- MBD Query

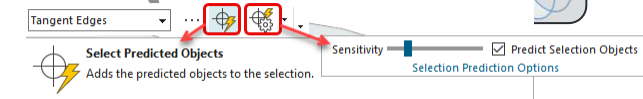
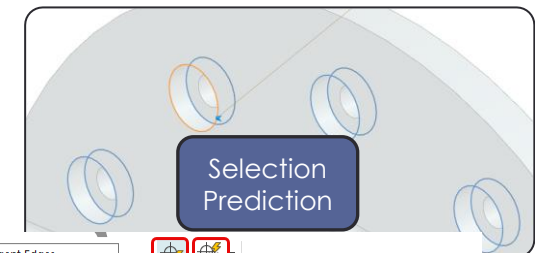


“Computer...”



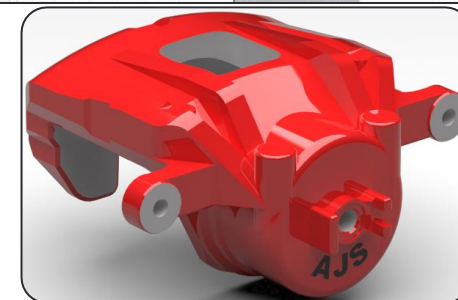
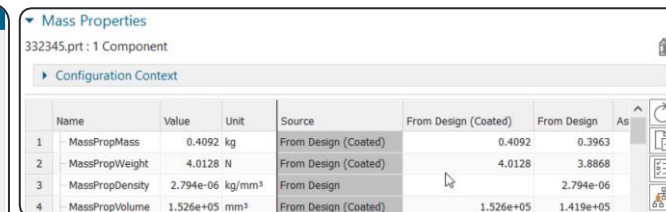
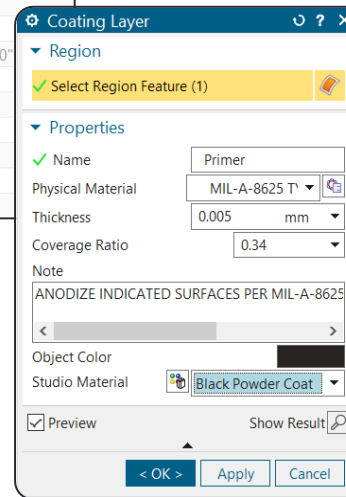
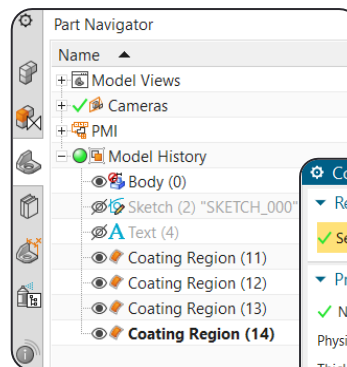
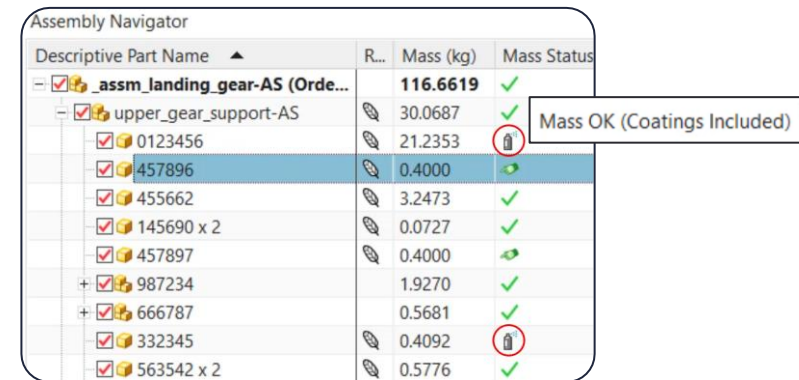
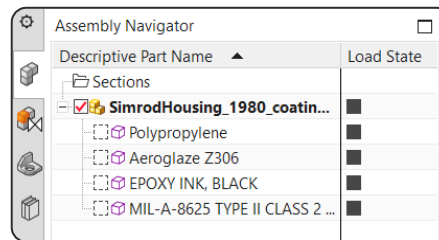
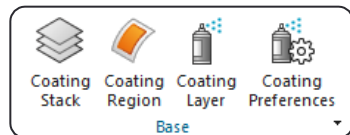
★ New Module

Title	Physical Material	Thickness	Volume	Area	Mass	Note	Objc...	Coverage...
Coatings								
Anodize stack			2.5520 mm³		0.0000 kg			
anodize2	MIL-A-8625 TYPE II CLAS...	0.0005 mm	0.8011 mm ³	1602.2249 mm ²	0.0000 kg	ANODIZE INDICATED SU...	■	0.7000
anodize	MIL-A-8625 TYPE II CLAS...	0.0005 mm	1.7509 mm ³	3501.8750 mm ²	0.0000 kg	ANODIZE INDICATED SU...	■	0.7000
Body stack			160.7171 mm ³		0.0002 kg			
Detail Ink	EPOXY INK, BLACK	0.0020 mm	0.1839 mm ³	91.9621 mm ²	0.0000 kg	INK STAMP WITH A-A-56...	■	0.7000
Paint	Aeroglaze Z306	0.0020 mm	45.8666 mm ³	22933.3091 mm ²	0.0000 kg	APPLY AEROGLAZE Z306 ...	■	3.4500
Primer	Polyethylene	0.0050 mm	114.6665 mm ³	22933.3091 mm ²	0.0001 kg	Spray polyethylene based...	■	0.3400





NX COATINGS



Save coating information to Teamcenter.

The quantity of each Paint and Coating layer is published to Teamcenter and available to downstream consumers.

- Each Material is attached to the part as a non-geometric component (NGC)
- The quantity of each Material is computed, and its volume (Liters) is captured in Quantity
- Each layer's physical properties are summarized in a new table attached to UGMASTER\UGALTREP
- The Material is created as new business object (Fnd0MaterialProxyltem) and supports reuse
- New Customer Default: Non-geometric Component

Title	Physical Material	Thickness	Volume	Area	Mass	Note	Objec...	Coverage...
Coatings								
Anodize stack			2.5520 mm ³		0.0000 kg			
anodize2	MIL-A-8625 TYPE II CLAS...	0.0005 mm	0.8011 mm ³	1602.2249 mm ²	0.0000 kg	ANODIZE INDICATED SU...		0.7000
anodize	MIL-A-8625 TYPE II CLAS...	0.0005 mm	1.7509 mm ³	3501.8750 mm ²	0.0000 kg	ANODIZE INDICATED SU...		0.7000
Body stack			160.7171 mm ³		0.0002 kg			
Detail Ink	EPOXY INK, BLACK	0.0020 mm	0.1839 mm ³	91.9621 mm ²	0.0000 kg	INK STAMP WITH A-A-56...		0.7000
Paint	Aeroglaze Z306	0.0020 mm	45.8666 mm ³	22933.3091 mm ²	0.0000 kg	APPLY AEROGLAZE Z306 ...		3.4500
Primer	Polyethylene	0.0050 mm	114.6665 mm ³	22933.3091 mm ²	0.0001 kg	Spray polyethylene based...		0.3400

Save Paint and Coating layers to Teamcenter enabling downstream work processes

Minimum: Teamcenter 13.1; Active Workspace 5.1

NEW TOOLS IN NX, A RETROSPECTIVE

- **NX2007** – December 2021
 - Unmanaged Parts - Assign (TCIN)
 - Form & BOMline Property Access (TCIN)
 - Compare Assemblies (TCIN Only)
 - VR – Oculus Rift S Support
 - Sketch – ½ Dimension Diameter
 - History Free Modeling – Completely Rebuilt
 - Revolve Outline
 - Manual Threads (Returned)
 - Heal Surface (Early)
 - Tube Cage – Branch Path
 - Topology Optimizer ★
 - Design Space Explorer ★
 - Variable Lattice Rod Sizing (SC3D)
 - Select Similar Components
 - WYSIWYG – Notes in PMI/Drafting
 - Automatic Exploded Views
 - Assemble
 - Structure Designer – Bolted Connections

★ New Module

Modeling Mode
 Changing the modeling mode to 'History-Free Modeling' will remove parameters from features in the model. Feature edit will not be available and the model will not update. Do you want to continue?
 Yes No

Assemble
 Part to Add
 ✓ Select Part (1)
 Loaded Parts
 Open
 Position Component
 Select or Drag Object (0)
 Action
 Reverse Last Constraint
 Settings

Revolve Outline

Select Similar Components
 Component to Match
 ✓ Select Component
 Similar Components to Select
 Select Component (42)
 View Style Medium
 File Name Description
 11588713_001_BOLT... 11518860_002_BOLT...
 11588724_002_BOLT... 11588740_003_BOLT...
 11588739_004_BOLT... 11519979_002_BOLT...
 Show All Components
 OK Cancel

Compare Assemblies

Lattice from SC3D
 Lattice Body Tube Filter Rod Connect Clip Unit Import
 Lattice Lattice Lattice Lattice Lattice Lattice Editor Fields

Topology Optimizer
 Design Space
 Publish Optimized Geometry
 Construction Bodies
 Validate & Verify Results
 Optimize
 Constraints, Loads & Subcases
 Shape Constraint(s)
 Objective & Constraint(s)

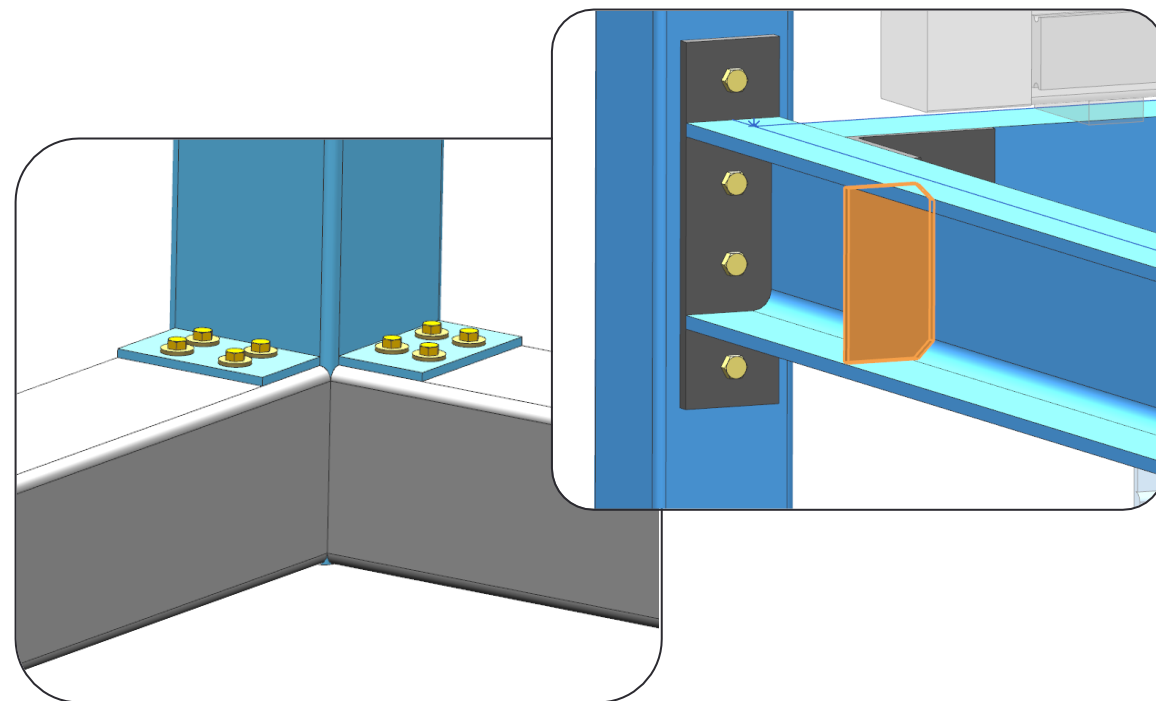
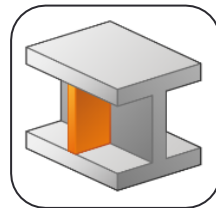
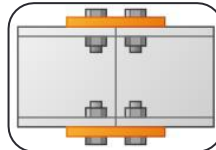
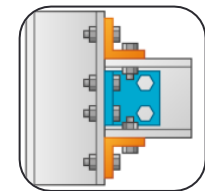
Sketch ½ Diameter Dimensions
 $\phi=391.8$ $\phi=600$ $\phi=240$ $\phi=440$ $\phi=250$





STRUCTURE DESIGNER

You can now create bolted connections to splice beams and column and add stiffening ribs associatively.

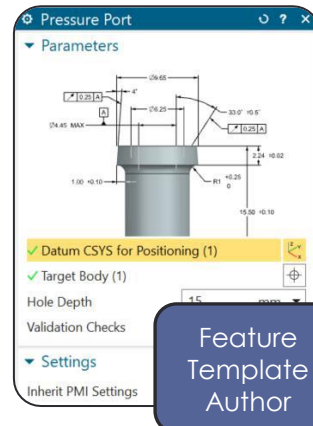


NEW TOOLS IN NX

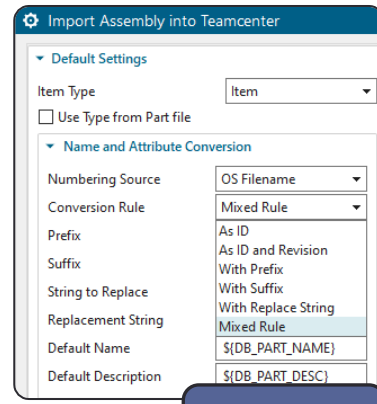
• **NX2206** – June 2022

- Geographic Location (TCIN)
- NX/Tc Discussion (Collaboration) (TCIN)
- Deep CAD Search(TCIN)*
- Mixed Rule Item ID – Import Assy (TCIN)
- Naming Convention Change
- Functional Region Recognition
- Siemens Visual Materials (SVM)
- Diagramming ★
- Feature Template Author★
- Variation Analysis★
- Import Geospatial Data
- **Mixed units Support!!!**
- SIMPLIFIED Reference Set
- Reverse Play – Animation Designer
- Design Space Explorer – SC3D Loop
- Feature Control Frame – Ribbon Tab
- 2D Edit ★
- Artificial Intelligence...

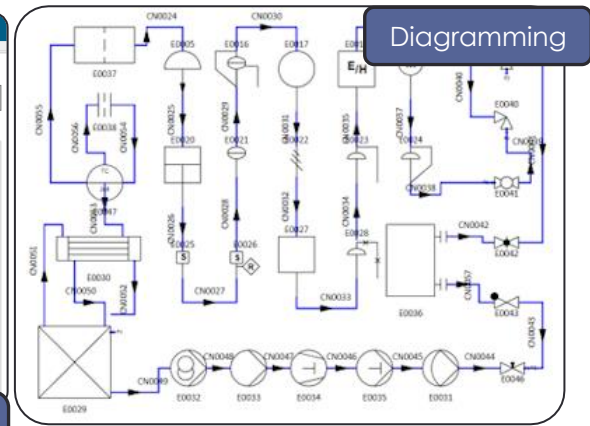
★ New Module



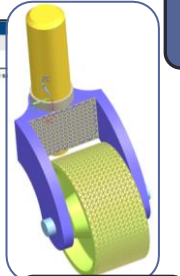
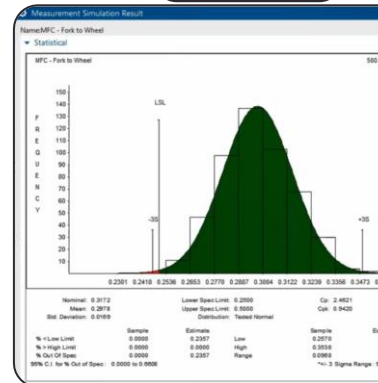
Feature Template Author



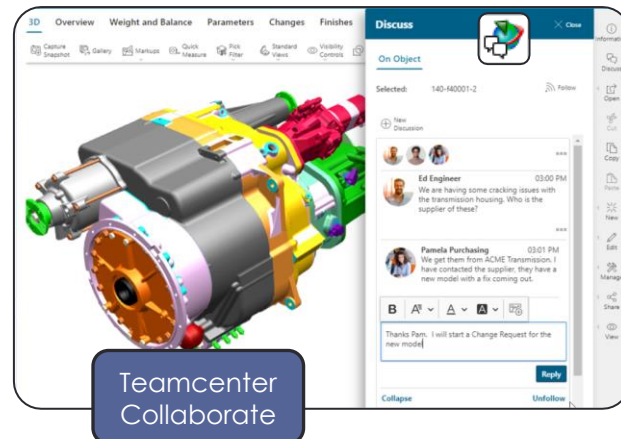
Tc Import - Mixed Rule



Diagramming



Variation Analysis



Teamcenter Collaborate

Descriptive Part Name	Units
PL-005947 (Order: Chronological)	mm
PL-005767	mm
PL-005945	mm
PL-005949	mm
PL-005851	mm
PL-005822	mm
PL-007770_f6m1_000	mm
PL-007770_f6_020	mm
PL-007770_fx_1_008	mm
PL-007770_tcp_023	in
PL-007770_z31a_s_002	mm
PL-007770_z20_f_003	in
PL-007770_z20_f_003	in
PL-007770_z20_f_003	in
PL-007770_x00_f_s_022	mm
PL-007770_m1_028	mm
PL-007770_shcs_set_033	mm
PL-007770_tooling_kinematics_D...	mm

Mixed Units

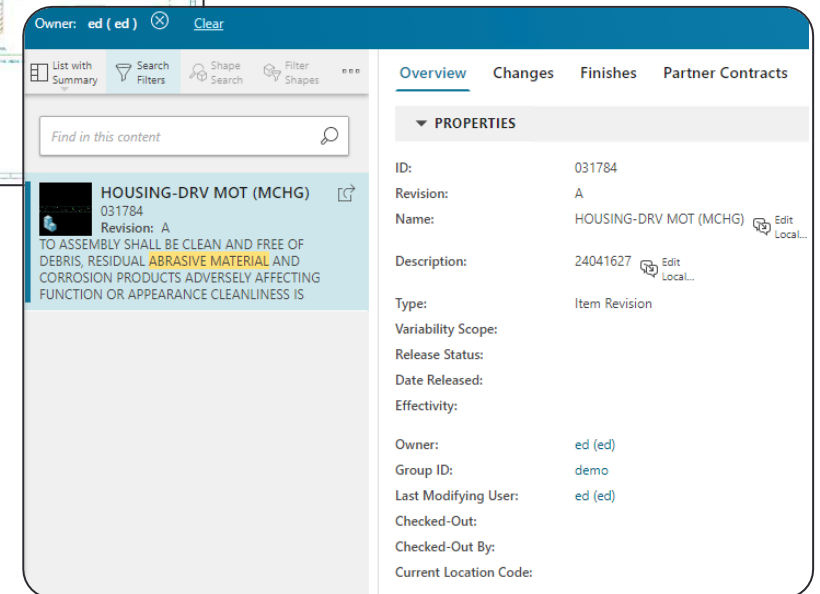
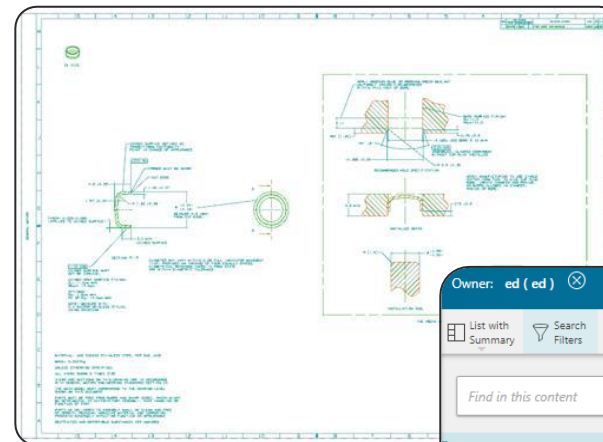
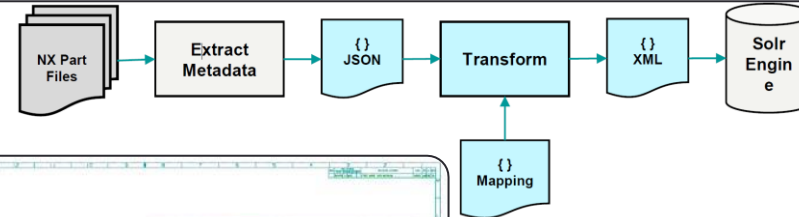
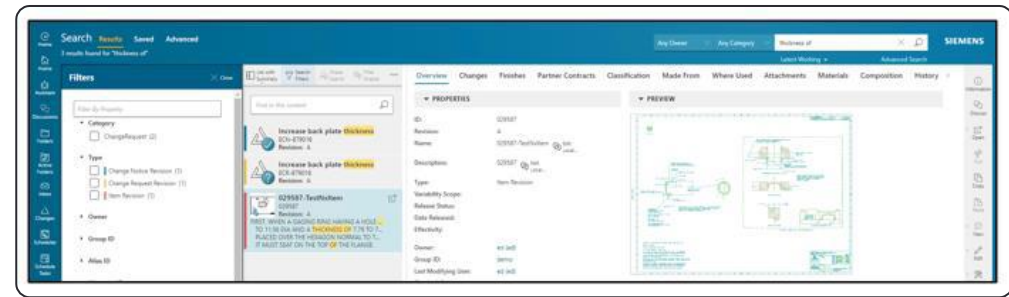
*Minimum: Teamcenter 13.0; Active Workspace 6.0



DEEP CAD SEARCH

Find CAD files efficiently in Active Workspace.

Drawing Notes, Title Blocks & Labels



***Minimum:** Teamcenter 13.0; Active Workspace 6.0

- Search
- Home
- Assistant
- Discussions
- Folders
- Active Folders
- Inbox
- Changes
- Schedules
- Schedule Tasks
- Reports
- Favorites
- Quick Access
- Settings
- Alerts
- Help
- No Active Change
- DPV

Teamcenter

Any Owner Any Category Search


SIEMENS

Latest Working Advanced Search


INBOX

0 / 0 / 0
New Total Past Due

FOLDERS



HELP



PRINTOUTS



REPORTS



FAVORITES



MY STUFF



CREATE DOCUMENT



SAVED SEARCHES



MY ACTIVE FOLDERS



ID DISPLAY RULES



CLASSIFICATION



MY GALLERY



CREATE SPECIFICATION



CREATE SIMULATION



TOOL PROGRESS MONITOR



CAE PACKAGES



SCHEDULE TASKS



SCHEDULES



SUBSCRIPTION



IMPORT SPECIFICATION



MANUFACTURING RESOURCE LIBRARY



WORKFLOW DESIGNER



SIMULATION DASHBOARDS



QUESTIONS



ASSIGNMENT LISTS



PROJECTS



LOGICAL OBJECTS



PREFERENCES



CHANGES



REPORT PROBLEM



DECLARATIONS



DPV



QUALITY MASTER DATA



PEOPLE



File Home Tools

New Open Recently Opened Parts Assemble

Standard

Menu

History

- 3 Weeks Ago
- Past Week
- Yesterday

Lego_McQueen_from... from

Machining Line Planner Manufacturing Multi Axis Deposition Inspection Mechatronics Concept Designer Ship General Arrangement

Press and Die Validation Industrial Electrical Design Line Designer Physical Architecture Modeler Ship Structures

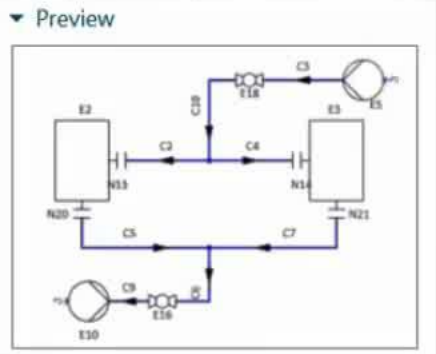
P&ID Designer Diagramming Line Designer Workareas Model Route DMU Drawing Layout Simulation Additive Manufacturing

▼ Templates

▼ Filters

Units: Millimeters

Name	Type	Units	Relationship	Owner
[-] A0 - Size	Diagramming	Millimeters	Stand-alone	PLM\wdgm...
[-] A1 - Size	Diagramming	Millimeters	Stand-alone	PLM\wdgm...
[-] A2 - Size	Diagramming	Millimeters	Stand-alone	PLM\wdgm...
[-] A3 - Size	Diagramming	Millimeters	Stand-alone	PLM\wdgm...
[-] A4 - Size	Diagramming	Millimeters	Stand-alone	PLM\wdgm...
[-] Blank	Diagramming	Millimeters	Stand-alone	none



▼ Properties

Name: A4 - Size

Type: Diagramming

Units: Millimeters

Last Modified: 02/19/2022 01:16 AM

Description: Creates 210 mm x 297 mm size sheet

▼ New File Name

Name:

Folder:

▼ Part to Reference

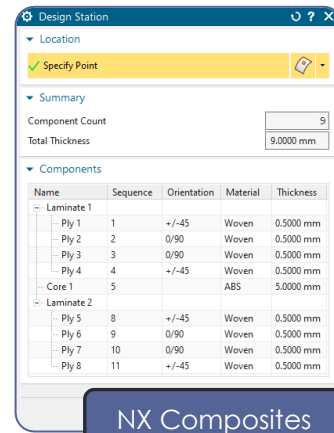
Name:

OK Cancel

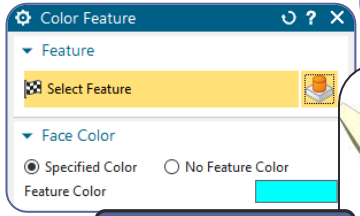
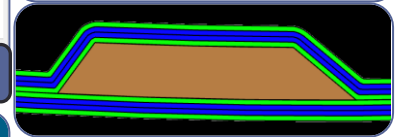
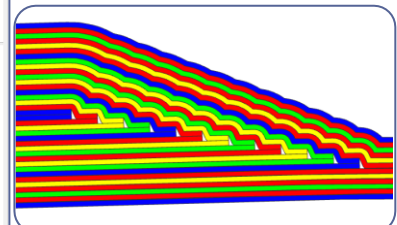
NEW TOOLS IN NX

• NX2212 – December 2022

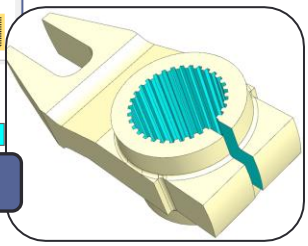
- Set Default Folder (TCIN)
- Item Revision Naming Rules (TCIN)
- Partitions (TCIN) ★
- Export Design Workset (TCIN)
- List Checked-Out Parts (TCIN)
- Teamcenter Ribbon Tab (TCIN)
- Modular Install Approach
- Licensing ugsImd >> SALTD daemon
- NX Human – Scaling Control
- Sketcher – Mechanism Mode
- WAVE Material Inheritance
- Symmetric Revolve
- Building Information Mgmt (BIM) ★
- Composites★
- Sculpt Mesh



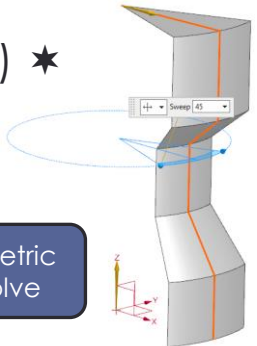
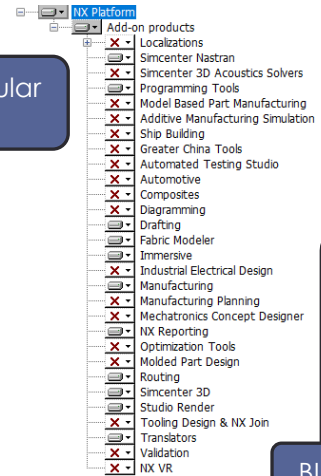
NX Composites



Color Feature



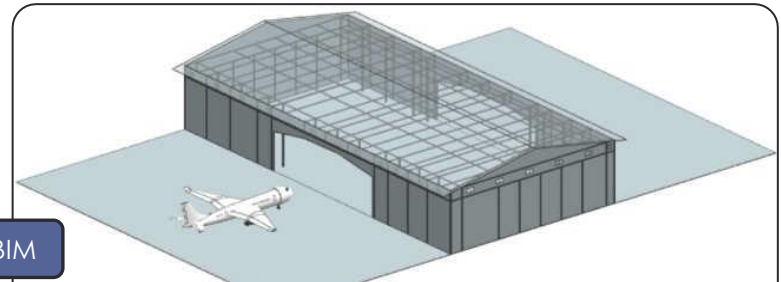
More Modular Install



Symmetric Revolve

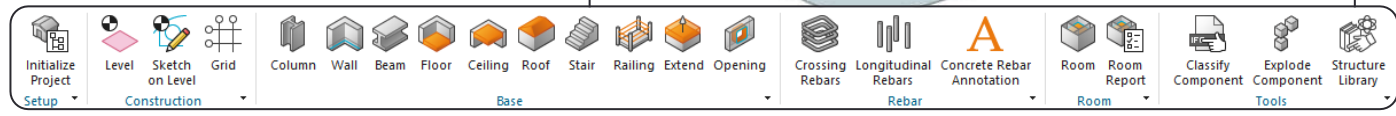


WAVE Inherit Material



BIM

★ New Module



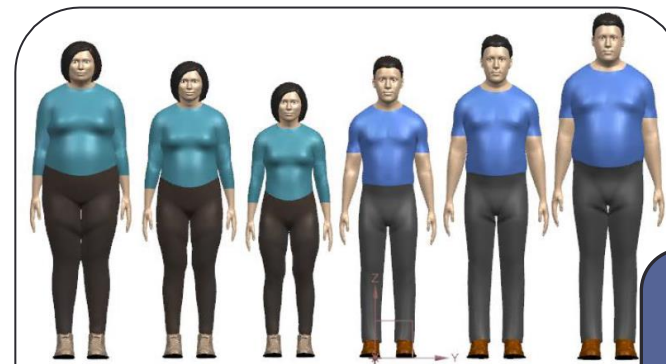


NX HUMAN

Human Factors assessment within the NX design environment.

Quickly modify figure definition, or update posture prediction and reach zones.

- Accurate Figures**
 - Deformable Skin
 - Human hands (including gloves)
 - Global Anthropometry
 - Detailed Scaling
- Posturing**
 - Posture library
 - Posture prediction
 - Inverse Kinematics
- Occupant Posture Prediction**
 - UMTRI Prediction Models
 - Class A, B, Military
 - Driver, front, rear, non-forward
 - Neutral Hand/Foot position for passengers
 - Connects to VDA Base data
- Human Analysis**
 - Eye View Windows
 - Reach Zones
 - Comfort Analysis



Database (Region)

- ANSUR
- ANSUR_II
- NHANES
- NHANES_2011_2014
- NA_AUTO
- CDN_LF_97
- CHINESE
- ASIAN_INDIAN_NID97
- GERMAN
- JAPANESE_2006
- KOREAN_2003
- MEXICAN_JALISCO

- Head Breadth
- Head Length
- Acromial Height
- Sitting Acromial Height
- Sitting Eye Height
- Buttock Knee Length
- Arm Length
- Thumbtip Reach
- Shoulder- elbow length
- Elbow - fingertip length

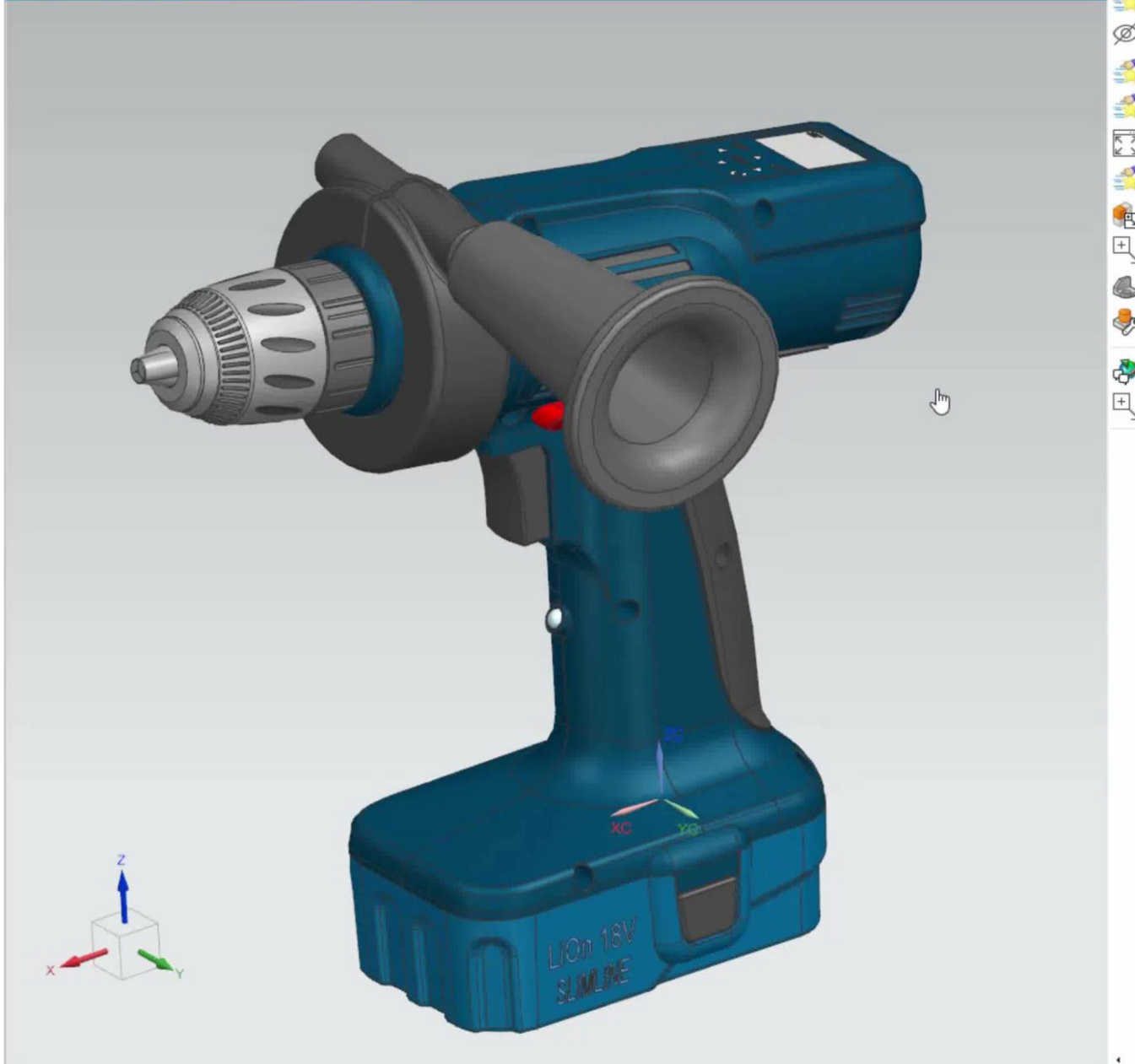
The precise representation of figure dimensions supports accurate clearance, fit, & reach studies.

Assembly Navigator

Name(filtered)	Number	Revision	Info	R..	M	Load...	P...	Precise...	Recipe Result
Sections in Workset									
Session Hand drill V with Partition (Order: Chronolo...	Session Hand drill V ...	A							
Hand drill V (pos. var.) (Organized by: None)	3-001-000305	C							
18V Brushless and (fixed) reduction	3-001-000352	B							
Grip handle	3-001-000388	A							
Housing right panel (Grip+LCD)	3-001-000386	A							
Housing right panel (Grip+LCD)	3-001-000387	A							
Screw x 8	3-001-000008	A							
Screw M2x6 ISO 7380	3-001-000248	A							
Wires for handdrill worklight	3-001-000251	A							
Wires for Brushless motor	3-001-000244	A							
Direction slider	3-001-000106	B							
Direction lever	3-001-000110	A							
Battery clip (LiOn)	3-001-000212	A							
Large LCD (G125 Connector)	3-001-000448	A							
Speed switch (proportional)	3-001-000108	B							
Wires (for LiOn battery)	3-001-000223	A							
Heatsink (enhanced)	3-001-000402	A							
Enhanced PCB (All)	3-001-000403	A							
Chuck (without seperate tool)	3-001-000077	B							
Battery LiOn 18V	3-001-000368	A							
LED worklight for handdrill	3-001-000249	B							

Summary
Dependencies

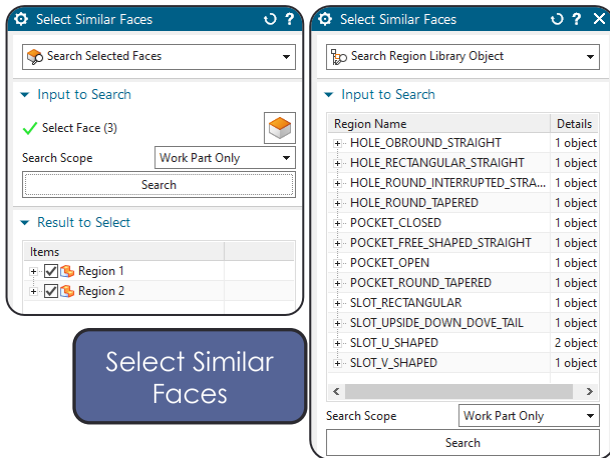
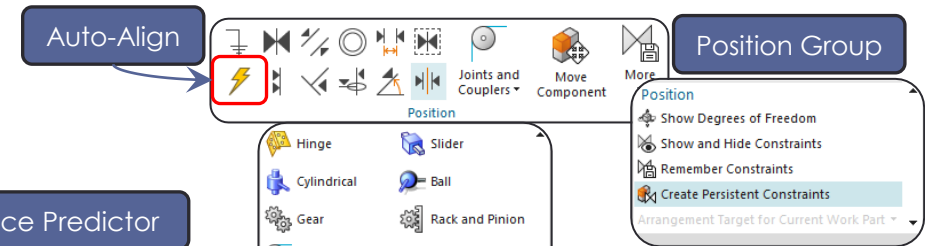
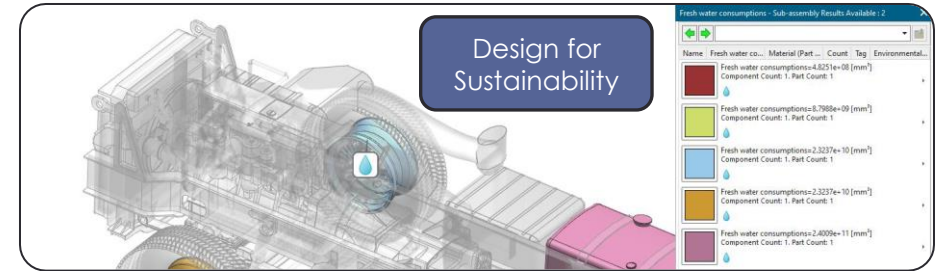
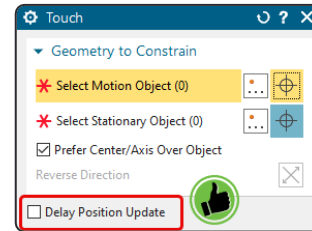
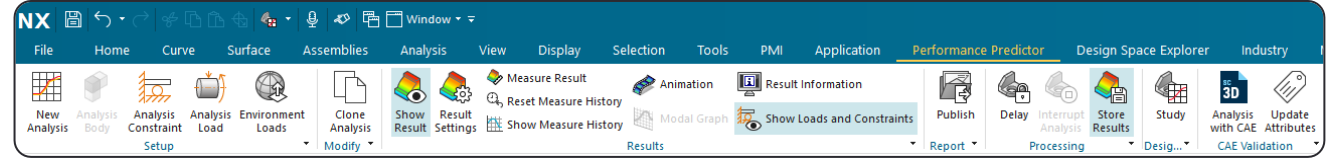
Discovery Center :: Session Hand drill V with Partition



NEW TOOLS IN NX

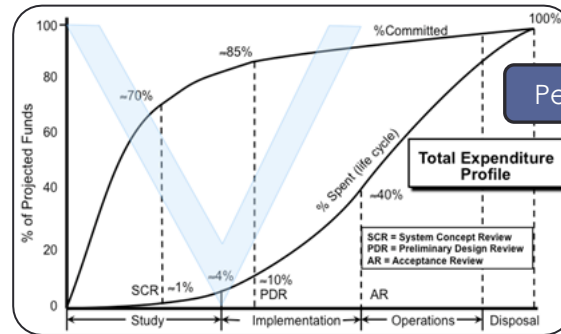
• NX2306 – June 2023

- Molded Part Designer ★
- Design for Sustainability ★
- Performance Predictor ★
- Select Similar Faces
- Legacy & New Sketch Policy Change
- Flexible Cable – Animation Designer
- Chain Drive – Animation Designer
- Assembly Constraints – User Interaction
- Assembly Constraints – Auto-Align



Select Similar Faces

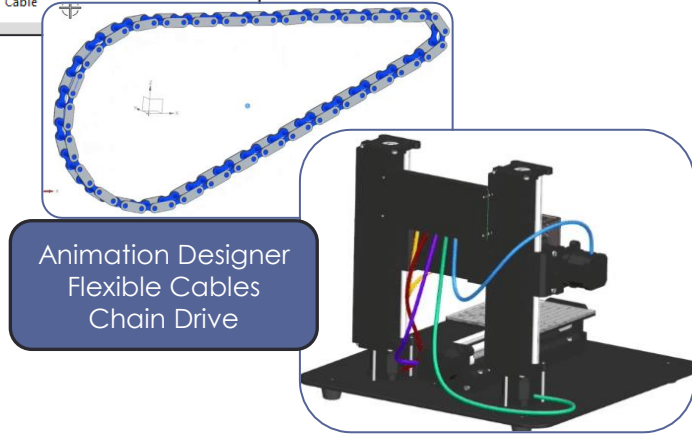
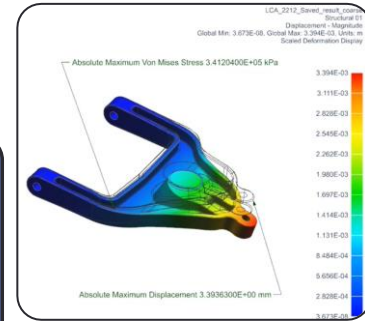
★ New Module



Performance Predictor

Engineering on the left side of the Vee typically consumes < 5% of a program's cost but determines more than 80% of the products lifecycle cost.

CIMdata 2022 Market Analysis Report



Animation Designer Flexible Cables Chain Drive



SKETCH RENEW POLICY CHANGE

Forced Renew – removed from legacy sketch when the new sketcher is active.

Edit > Feature > Renew Feature

Edit Legacy

Use Renew Feature to update Legacy Sketches to the new Sketch UI & Solver

Renew Feature...
Remove Missing Parents from Edge Blend

Recomputes a feature with the latest version of feature code.

Edit New

Datum Plane Sketch Extrude Revolve Hole Unite Subtract Trim Body Edge Blend Chamfer Shell Draft Pattern Feature Mirror Feature More Move Delete Replace Offset Resize Blend More

Construction

Base

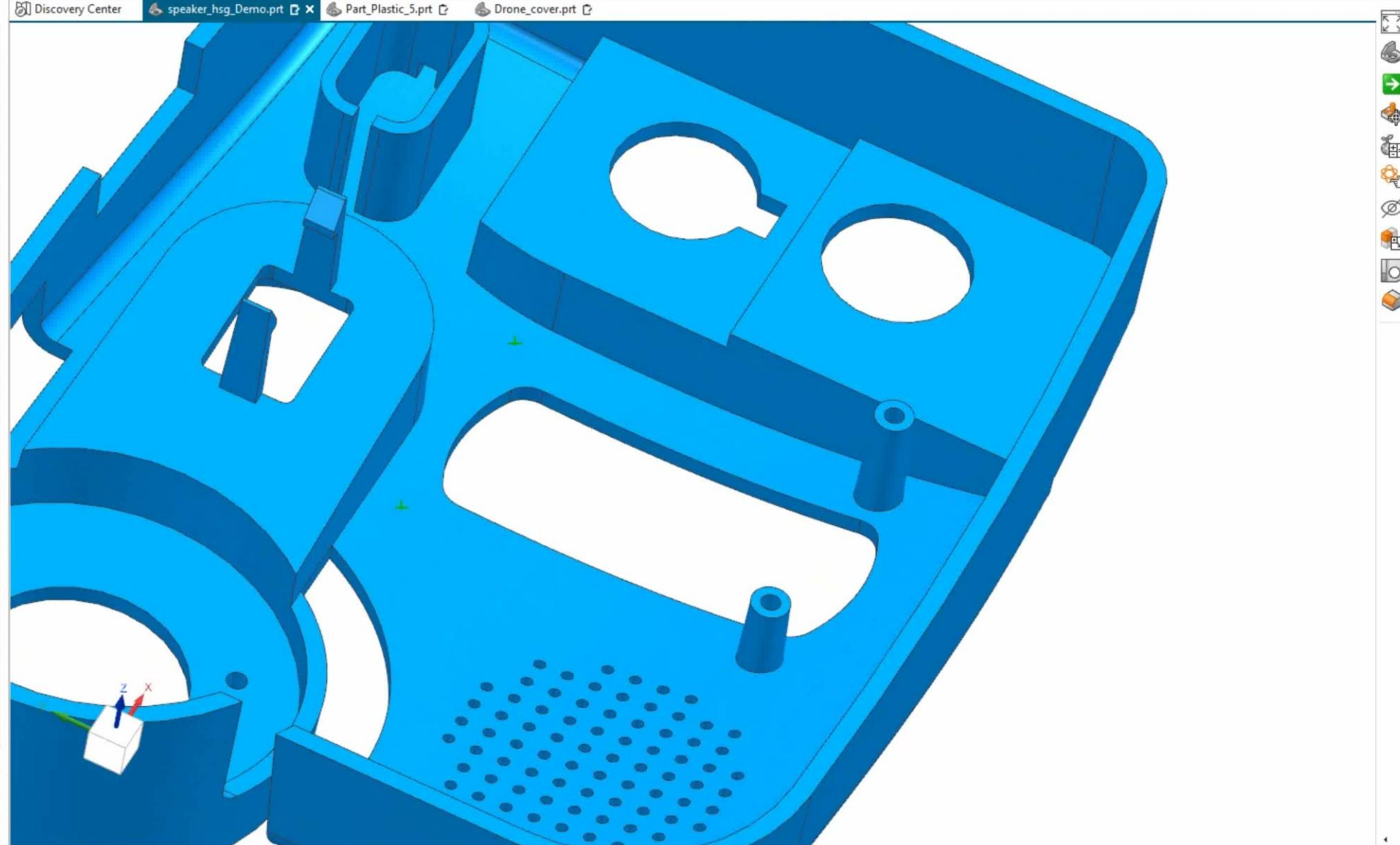
Synchronous Modeling

Select Similar Faces

Part Navigator

Name	C.	U.	Comment
History Modeling Mode			
Model Views			
Cameras			
User Expressions			✓
Model History			✓
Body (0)			✓
Extrude (438)			✓
Datum Plane (440)			✓
Sketch (441) "SKETCH..."			✓
Delete Face (442)			✓
Delete Face (443)			✓
Projected Curve (444)			✓
Mirror Geometry (447)			✓
Datum Plane (448)			✓
Sketch (449) "SKETCH..."			✓
Projected Curve (450)			✓
Datum Coordinate Sy...			✓
Datum Coordinate S...			✓

Search
 Dependencies
 Details
 Preview



NEW TOOLS IN NX

• NX2312 – December 2023

- JT creation based on Item Type (TCIN)
- Smart Discovery Index Status (ANT) (TCIN)
- Synchronous Assemblies (Early)
- Customized Tabbed Layout
- Dock Search on Resource Bar
- Lock Rotations – RMB/Select All Objects
- Thread support in Part Families
- Sketch Key Concepts? (Videos)
- Group Edge/Body
- Join Hole
- Tool Clearance Check
- Recommend Draft Angle
- Copy/Paste w/Constraints - verify
- Corrosion Risk Analysis★
- Resolve Constraints for Paste
- Product Interface Groups
- Vertical Text Support in Tables
- PMI Context

★ New Module

V	T	
e	e	
r	x	
t	i	
i	c	
c	a	
a		
B	T	T
U	R	A
S	N	P
H	I	I
I	N	N
N	G	G
G		

Key concepts: short videos

Concepts and workflow Create a new sketch Revise your new sketch Renew a legacy sketch

Assembly Navigator

Assembly Navigator

Descriptive Part Name Info

Sections

Blend_Selection

Part Navigator

Name C. U. Coi

History Modeling Mode

Model Views

Cameras

User Expressions

Model History

Datum Coordinate Sur

Stacked Navigators

blend face

All Commands Customer Defaults Preferences Discovery

Aesthetic Face Blend

Blends surfaces while applying tangential or curvature constraint at the blend tangent of the blend. The blend section shape can be circular, conic, or lead-in type.

Menu: Insert -> Detail Feature -> Aesthetic Face Blend

Surface Tab: Base Group -> More Gallery -> Blend Gallery -> Aesthetic Face Blend

In Commands -> Modeling

Face Blend

Adds tangent blend faces between faces of one or two bodies.

Menu: Insert -> Detail Feature -> Face Blend

Home Tab: Base Group -> Blend Drop-down -> Face Blend

In Commands -> Modeling

Blend Curve on Surface

Creates a fillet curve between two intersecting curves on surfaces.

Menu: Insert -> Derived Curve -> Blend Curve on Surface

Curve Tab: Derived Group -> More Gallery -> Blend Gallery -> Blend Curve on Surface

In Commands -> Modeling

Optimize Face

Filters (blend face)

Gateway (1)

Modeling (13)

OmniCAD for NX (1)

Shape Studio (2)

Reset Filters

Settings

Reveal Result in Menus and Ribbons

Exclude Duplicate Commands

Show Ribbon Path

Show Border Bar Path

Show Menu Path

Search on Resource Bar

PMI Context

MBD Navigator

Name

Contexts

Inspection

Manufacturing (Work)

Part (Default)

Model Views

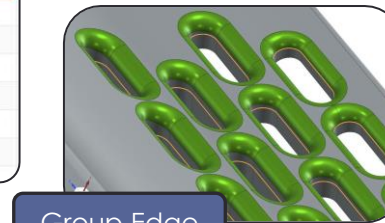
Standard

User Defined

PMI

Annotation

Dimension



Name Visible

1(Work)

2

8

Work

Visible Only

Invisible

Add to Category

Select All Objects

Selects all objects including hidden as well as not selectable.

Corrosion Risks

Corrosion analysis information

New Module

Part Navigator

Name

Product Interface

Output

Front

BH1 Support Front-Hor

BH1 Support Front-Vertical

PI Ribs

BH1 Support Backside

BH1 Support Front-Hor

BH1 Support Front-Vertical

PI Sketches

BH1 CUTOUTS

BH1 MOUNTING

BH1 POCKETS

BH1 RIB BACK

BH1 RIB FRONT

Model History

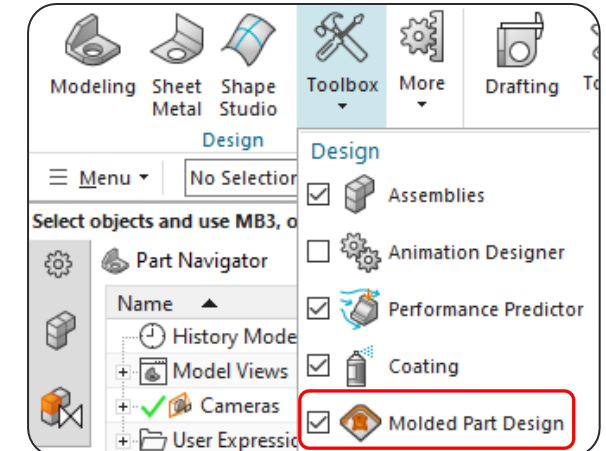
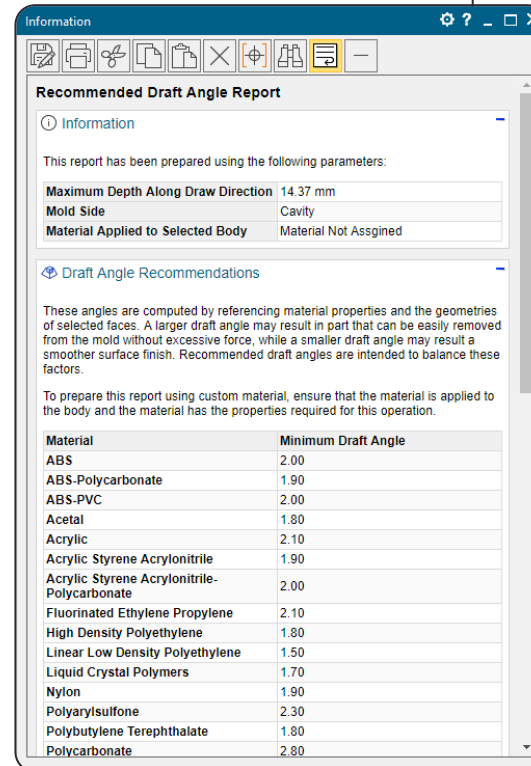
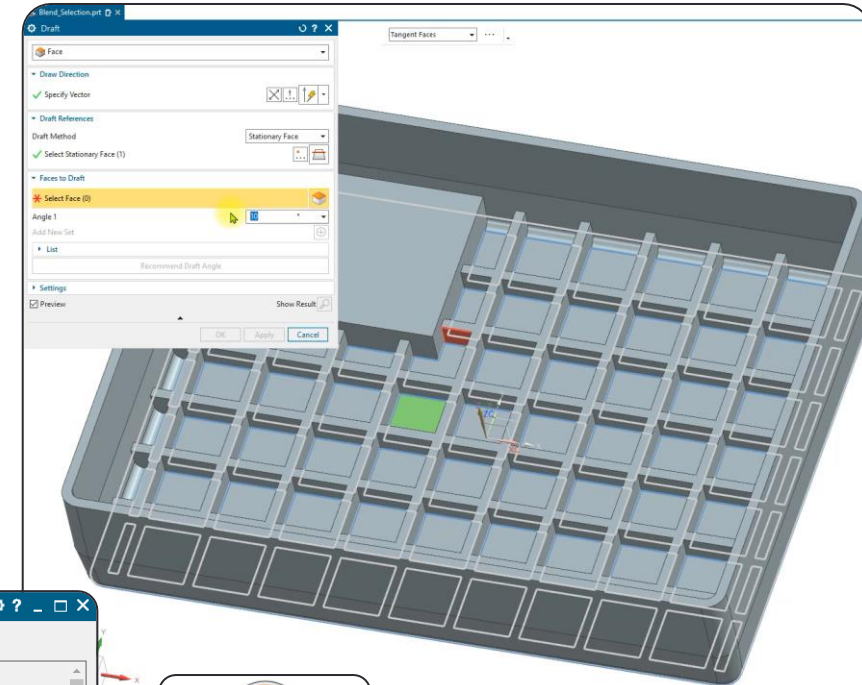
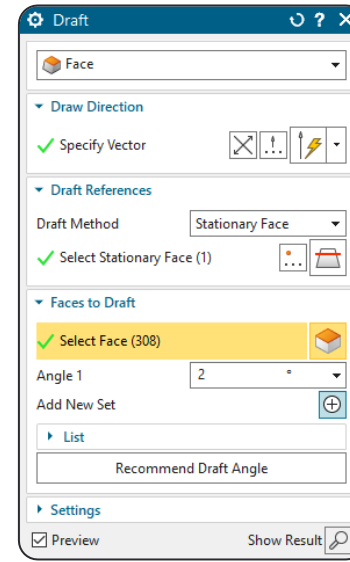
Grouping Product Interface



MOLDED PART DESIGNER

Recommend Draft Angle

OOTB trained machine learning model for predicting draft angle for injection molded parts.





CORROSION RISK ANALYSIS

Drastically reduce time needed to evaluate potential corrosion problems prior to releasing design.

Adhere to government mandates of corrosion modeling.

HD3D Tools
Corrosion Risks

Results

Name	Risk	Anode	Cathode	Galvanic Corrosion ...
3.5% NaCl				
rib5_remodel - Clip				
Rib4 - Spar_AFT		Aluminum_2024-T3_SAA+None	Titanium_Ti3Al2.5V+None	0.0000000
Clip - Spar_FWD		Aluminum_2024-T3_SAA+None	Stainless steel_304+None	0.0092203
Spar_FWD - Clip		Aluminum_2024-T3_SAA+None	Stainless steel_304+None	0.0092203
Spar_FWD - Clip		Aluminum_2024-T3_SAA+None	Stainless steel_304+None	0.0092203
Spar_FWD - Clip		Aluminum_2024-T3_SAA+None	Stainless steel_304+None	0.0092203
Spar_FWD - Clip		Aluminum_2024-T3_SAA+None	Stainless steel_304+None	0.0092203
Rib2 - Spar_AFT		Aluminum_2024-T3_SAA+None	Titanium_Ti6Al4V+None	0.0555011
Rib3 - Spar_AFT		Aluminum_2024-T3_SAA+None	Titanium_Ti6Al4V+None	0.0555011
Spar_AFT - Rib1		Aluminum_2024-T3_SAA+None	Titanium_Ti6Al4V+None	0.0555011
Clip - Rib2		Titanium_Ti6Al4V+None	Stainless steel_304+None	0.0092203
Clip - Rib3		Titanium_Ti6Al4V+None	Stainless steel_304+None	0.0092203
Clip - Rib1		Titanium_Ti6Al4V+None	Stainless steel_304+None	0.0092203
Rib4 - Clip		Stainless steel_304+None	Titanium_Ti3Al2.5V+None	0.0000000

Controls

Calculate

Risk Limits MIL-STD-889D Rating

Lower Limit (mil/year)

Upper Limit (mil/year)

Low Risk (Galvanic corrosion rate less than the Lower Limit)
Medium Risk (Galvanic corrosion rate between the Lower Limit and the Upper Limit)
High Risk (Galvanic corrosion rate more than the Upper Limit)

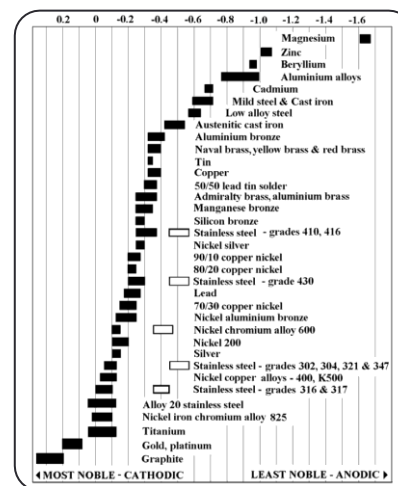
Unknown Risk

Show Only High Risk Results
 Show Only Unknown Results

Filter Level

2.0000
5.0000

Study Interference
Restore Component Visibility
Focus View on Object
Report



Corrosion Analysis Report

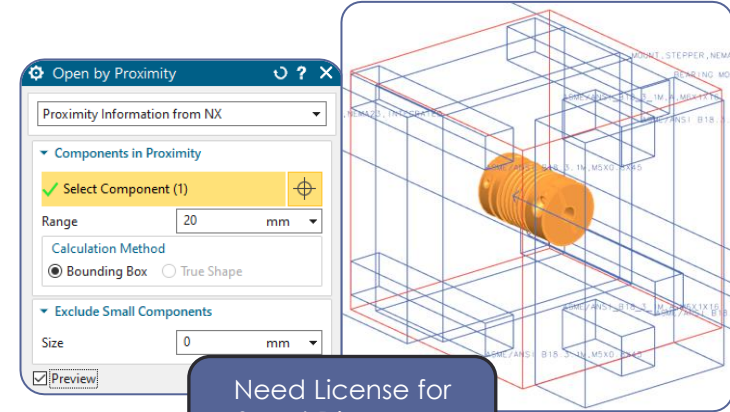
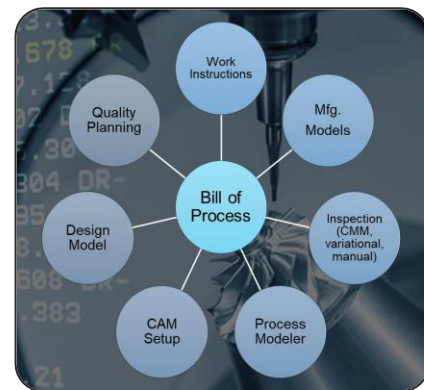
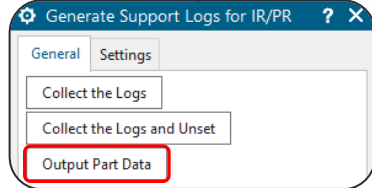
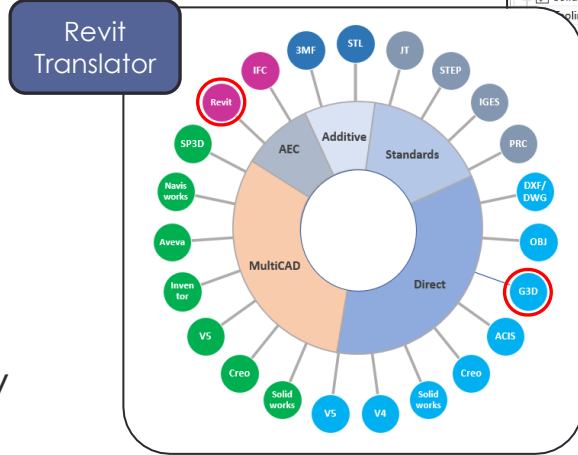
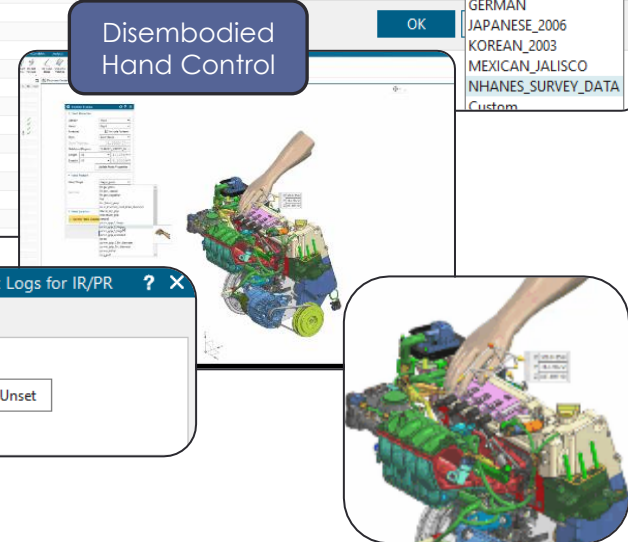
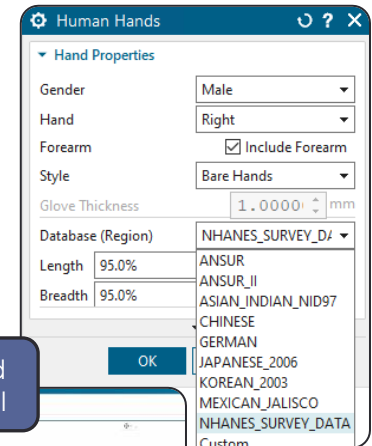
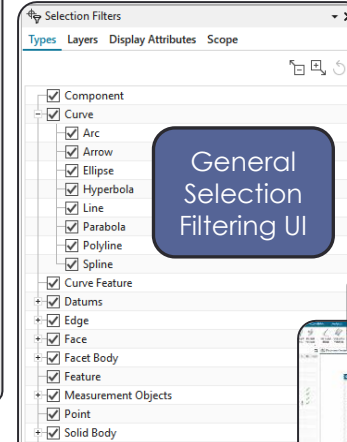
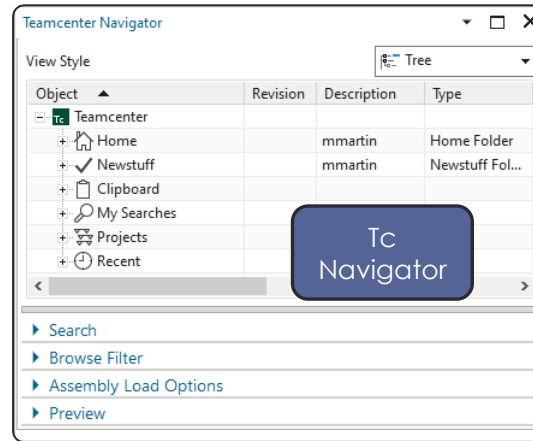
Material Group Environment 3.5% NaCl

Material 1(Anode)		Material 2(Cathode)	
Substrate	Aluminum	Substrate	Titanium
Designation	2024-T3	Designation	Ti3Al2.5V
Coating	BSAA	Coating	None
Treatment	None	Treatment	None
OCP	-0.6320V _{SCE}	OCP	-0.1750V _{SCE}
Self Corrosion Rate	5.2944000microns/year	Self Corrosion Rate	61.2560000microns/year
Galvanic Acceleration Factor	51.1596		
Potential Difference	0.4570V		
Galvanic Corrosion Rate	70.859145microns/year		
MIL-STD-889D Rating	5		

NEW TOOLS IN NX

- **NX2406** – June 2024 (Now)
 - Reference Only – Visible in Tc (TCIN)
 - Save As New Item Type (TCIN)
 - Output Part Data (IR/PR) (TCIN)
 - Tc Navigator (CD) (TCIN)
 - OOTB UOM Tc2406 (TCIN)
 - NX Author for eClass ★ (TCIN)
 - AW Dark Theme (Embedded NX)
 - Step Expression
 - eClass ★
 - Infer View Scale – Drafting
 - Open by Proximity – Tc Smart Discovery
 - NX Process Model ★
 - Model Based Part Manufacturing
 - Performance Predictor – Thermal
 - Animation Designer – Variable Paths
 - Sketch Navigator

★ New Module



Need License for Smart Discovery, Indexed, etc...

File Home Assemblies Curve Analysis Surface View Display Selection Tools PMI Application Teamcenter

Part Navigator: Model History, Datum Coordinate Sy..., Sketch (1) SKETCH_0..., Datum Plane (2), Sketch (3) SKETCH_0..., Datum Plane (4), Sketch (5) SKETCH_0...

Done Updating Features for Part: 100625/A:1

3D CAD model of a blue cylindrical part with a step. A 'Step Expression' dialog box is open, showing 'Expression: p11', 'Original Value', and a 'Value' field set to 10. A large orange 'Demo' watermark is overlaid on the model.

File Home Curve Surface Assemblies Analysis View Selection Display Tools PMI Application **Animation Designer** Search (Ctrl-Space)

New Solution Contact Flexible Cable Rigid Group Activity Operator Chain Belt Mechanical Cam Position Motor Speed Motor Goto Beginning Reverse Step Reverse Play Play Step Goto End Goto End Capture Arrangement Export Movie Repeat Capture Arrangement Export Movie Monitor Graph Envelope Adopt Assembly Constraints or Joints and Couplers Animated Visibility Animated Explode

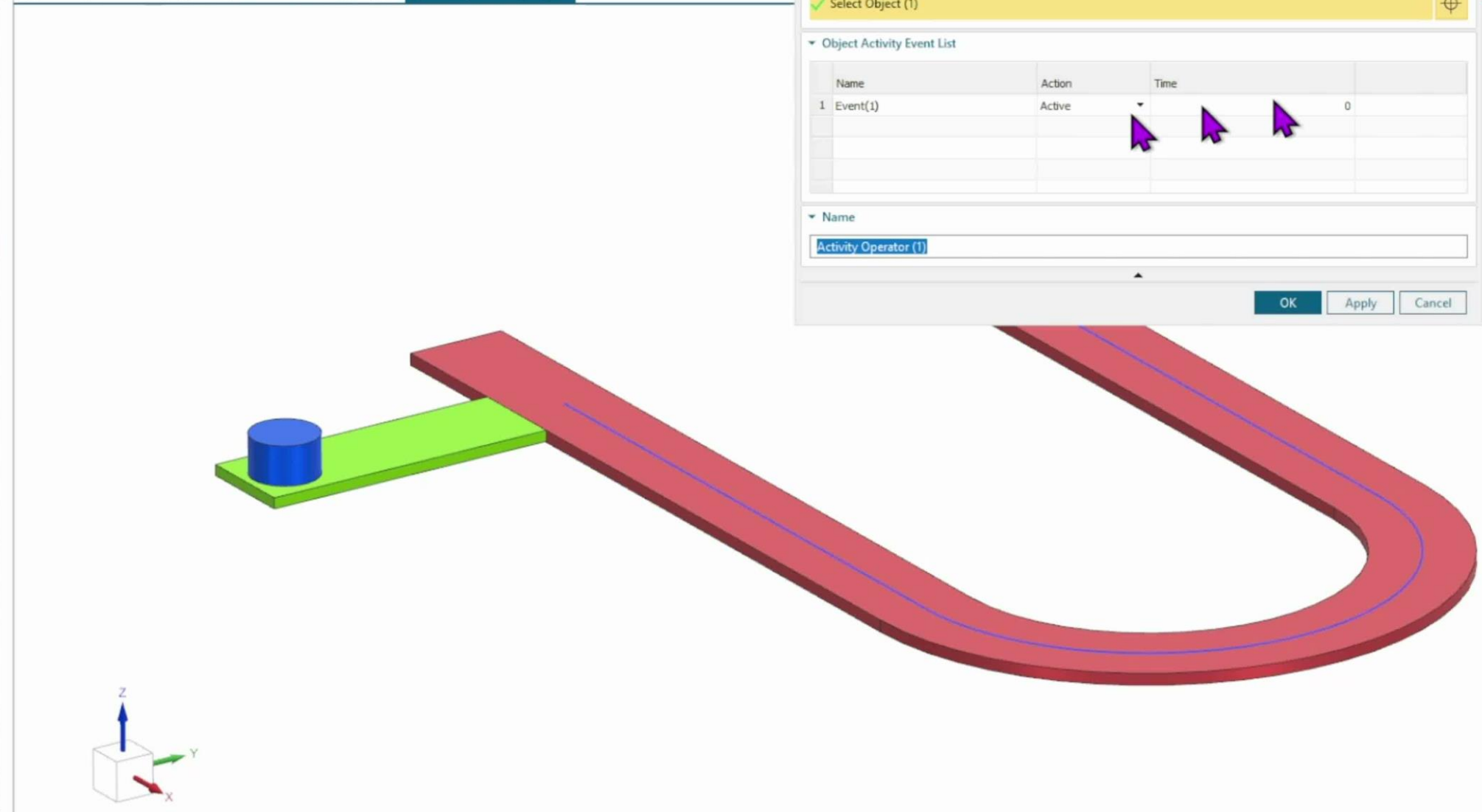
Define Relations Motion Animate

Menu No Selection Filter Entire Assembly

Animation Navigator

- Solutions
- Solution1
 - Rigid Groups
 - Part
 - X Conveyor
 - Y Conveyor
 - Joints
 - Fixed Joint (1)
 - Fixed Joint (2)
 - Point On Curve Joint (1)
 - Slider Joint (1)
 - Couplers
 - Motors
 - Position Motor (1)
 - Position Motor (2)
 - Monitors
 - Animated Visibility
 - Animated Explode
 - Animated Camera
 - Joint Joggers
 - Animated Color
 - Snapshots
 - Tracers
 - Flexible Objects
 - Behavior Objects

Discovery Center NX2406_AnimatedPartMoving.prt ConveyorModel.prt



Activity Operator

Object

Select Object (1)

Object Activity Event List

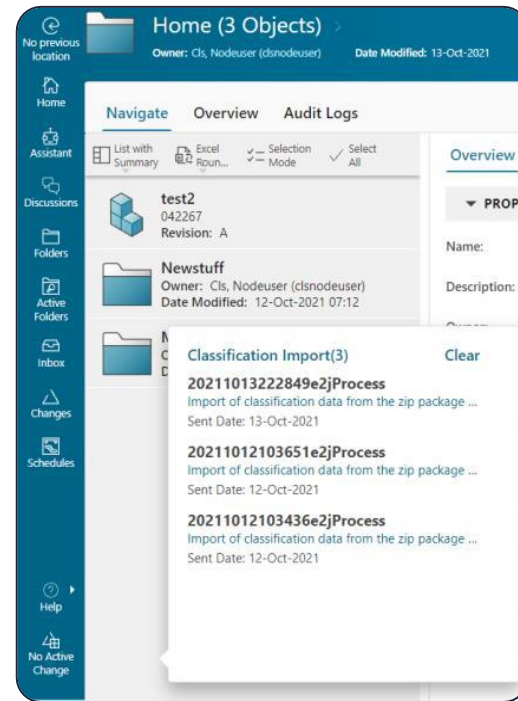
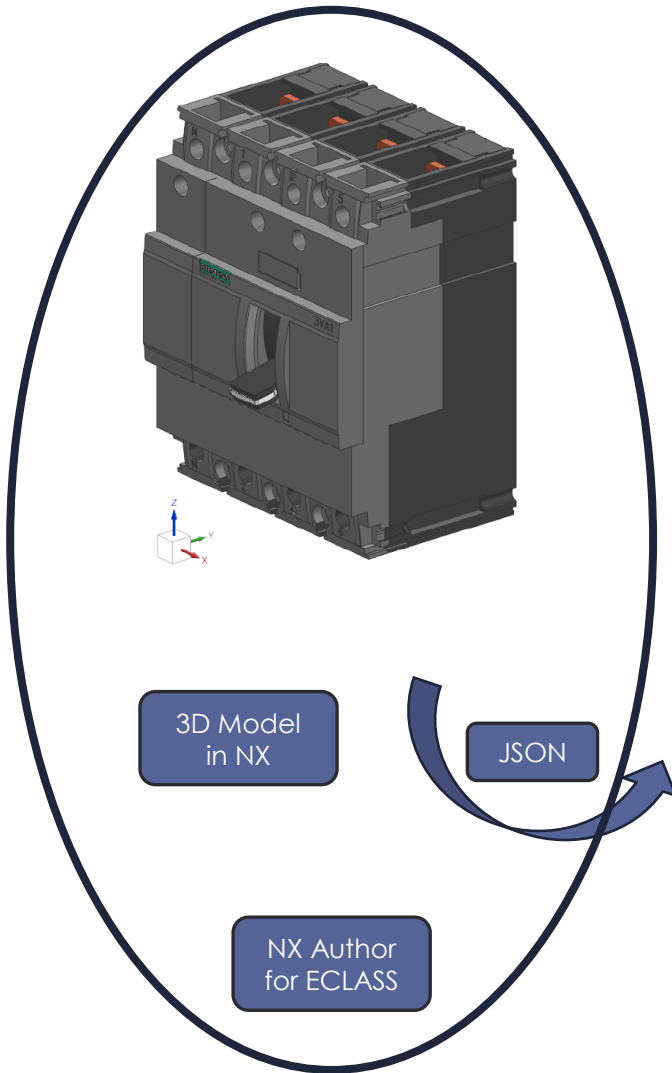
Name	Action	Time
1 Event(1)	Active	0

Name

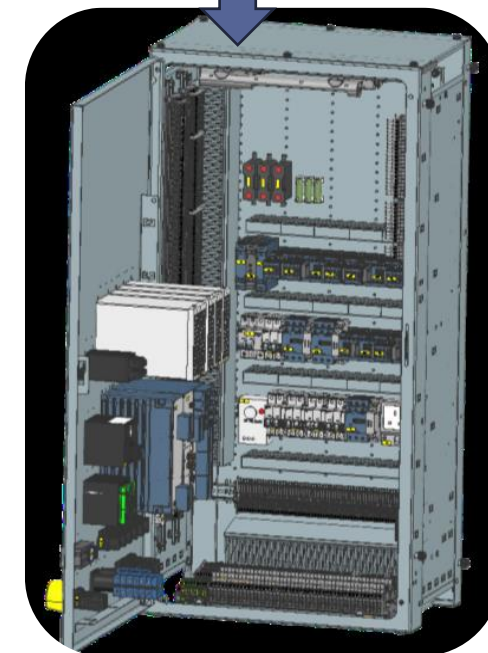
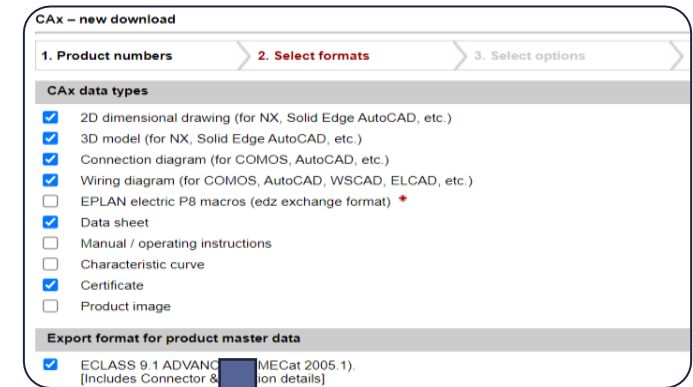
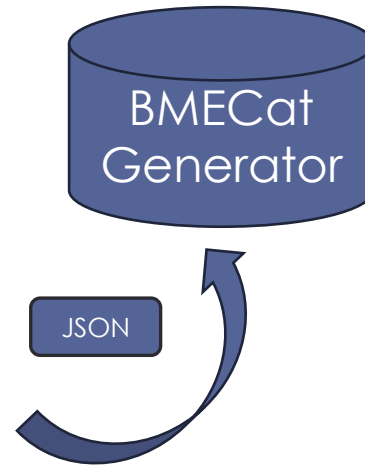
Activity Operator (1)

OK Apply Cancel

INTEGRATED ECLASS ADVANCED DATA CHAIN



CLASS



CLASS
Advanced

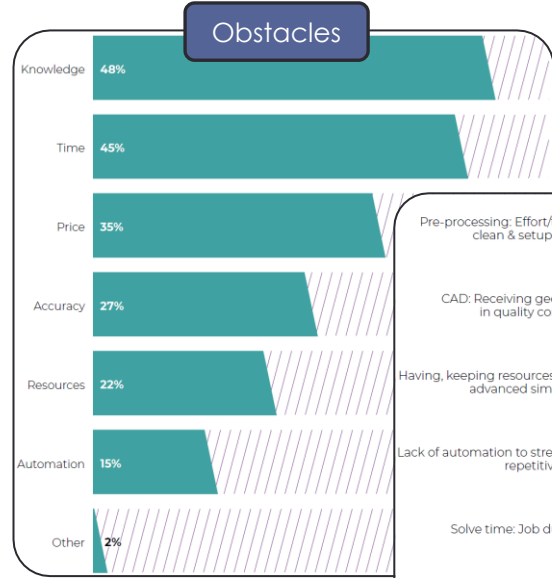
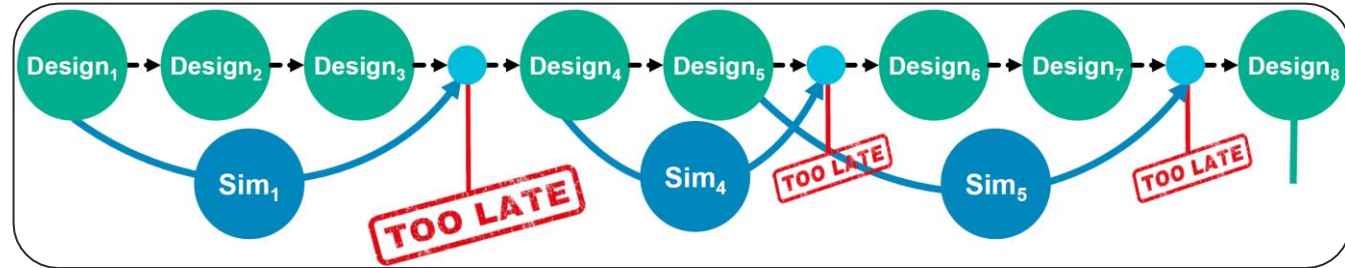
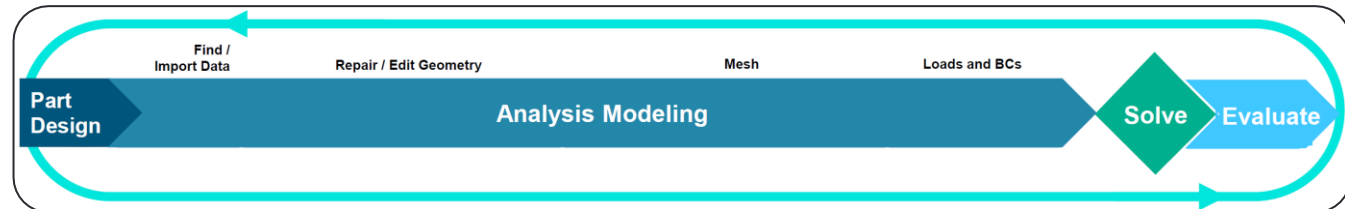


SHIFT LEFT

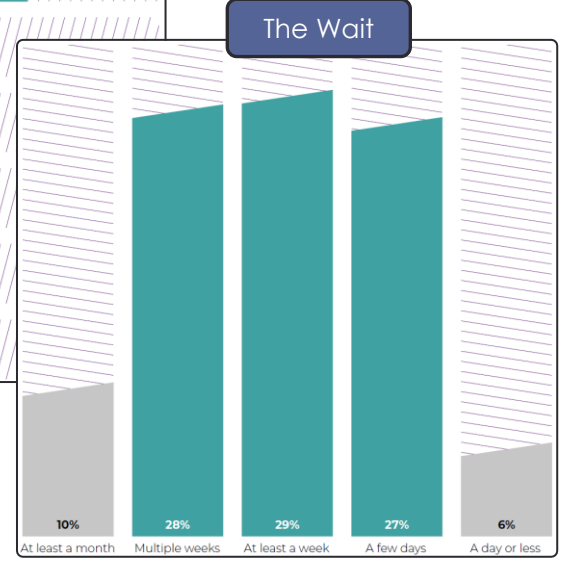
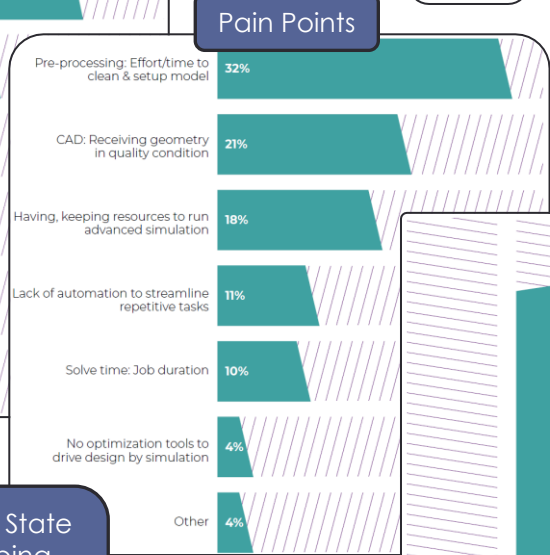
What are your pain points with Simulation?

What are your Obstacles to Simulation?

How long do you wait for simulation workflows?



Structures
Natural Frequency
Thermal
Exploration & Analytics



Research Report: The State of Simulation, Prototyping and Validation.
- Engineering.com



VALUE BASED LICENSING



NX provides a very flexible and cost-effective method for you to run a range of NX add-on modules. There are over 110 products in the token pool that you can utilize.

Core – Translators:

- **STEP AP242 translator**
- CATIA V4 translator
- **CATIA V5 translator**
- **Creo Translator**
- **ACIS Translator**
- Translator for IFC

NX Core:

- Command Prediction
- **Select Similar Faces**
- Voice – Command Assistant
- **NX Viewer**
- DMU and Markup
- Extended Reality
- Appearance Management
- Multi-user Design Notification
- Smart Context Designer

Mechanical – ID & Styling:

- Render
- Realize Shape
- Draw Shape
- Product design
- **WAVE Control**
- **Assembly Path Planning**
- **Structure Designer**
- Platform Design
- **Topology Optimizer**
- **Design Space Explorer**
- Performance Predictor

- **Advanced Sheet Metal**
- **Fabric Flatteners**
- Weld Assistant
- Drawing Automation for NX
- Physical Arch Diagram Author
- Physical Arch Diagram Viewer
- **NX Join**
- **Advanced Convergent Modeling**
- Implicit Modeling
- **Advanced Assemblies**
- **Design for Additive Manufacturing**
- **NX Composites**
- Composites Laser Projection
- NX for Sustainability

Model Based Definition:

- **Model-Based Definition**
- **NX PMI**
- PMI Effectivity
- Staged Models
- Coatings

Knowledge Reuse:

- **Algorithmic Modeling**
- Product Template Studio Author
- PTS Consumer
- Integration to Geolus



VALUE BASED LICENSING



NX 'Tokens' are purchased in 100 tokens (pack) to start you off. Then you can purchase additional 100 token packs or 50 token packs.

Design Validation:

- **Human Modeling**
- Human Posture Prediction
- Design Simulation
- **Motion**
- **Animation Designer**
- Check-Mate Runtime
- Check-Mate Author
- VDA 4955 Checker
- HD3D Visual Reporting
- **One-step Formability Analysis**

Routed Systems – Mech:

- **Diagramming**
- **Routing Base**
- **Routing Piping and Tubing**
- Routing HVAC
- Penetration Management

Routed Systems – Elec:

- **Routing Cabling**
- **Cable Router**
- **Routing Harness**
- **PCB Systems**
- **Flexible PCB**

Process – Jig, Fixture, Tooling:

- **Mold Wizard**
- Molded Part Designer
- Electrode Design
- Progressive Die Wizard

- Die Structure Design
- Die Engineering
- Molded Part Validation
- Cooling Channel Design
- Tooling Locators

Industry-Specific Applications:

- General Packaging
- Fibersim
- Mastertrim
- **Aerospace Design**
- Ship Structure Basic Design
- Ship Structure Detail Design
- Ship Structure Manufacturing Prep
- Ship Manufacturing Super Plate
- Ship Drafting
- Ship General Arrangement Design
- Rules-based Structure Welding
- **NX for BIM**
- Automation
- Mechatronic Design
- **Mechatronics Concept Designer**
- MCD Player



LICENSING

You can license an entire bundle or use Add-on licensing to extend your license pool.

NX

NX30129 – Digital Mock-Up (DMU)
NX30131 – DMU Add-on for NX Viewer
NX30149 – Routing P&ID
NX30710 – Adv Convergent Modeling
NX30171 – NX Aero Design Add-On
NX30181 – NX Virtual Reality – Review
NX30189 – NX Virtual Reality – Collab
NX30220 – Lattice Structures Design
NX30127 – WAVE Control
NX90107 – NX Layout
NX30172 – NX Layout Add-On
NX30186 – Technical Data Package
NX30174 – Realize Shape
NX30191 – Structure Designer
NX30192 – NX Join
NX30233 – NX Appearance Mgmt
NX30801 – Algorithmic Modeling
NX30802 – Implicit Modeling
NX30706 – NX Design Space Explorer
NX30707 – Topology Optimizer
NX30178 – Animation Designer
NX30919 – Structure Designer
NX31000 – Select Similar Faces
NX30237 – NX Sustainability Impact
NX30106 – NXOpen Toolkits Author
NX20104 – NXOpen for .NET Author
NX30801 – NX Algorithmic Modeling
NX30192 – NX Join
NX30195 – Automated Testing Studio

NX30282 – NX Voice – Assistant
NX30164 – NX Coatings
NX30235 – NX Render
NX30175 – NX Draw Shape
NX30711 – NX Design for Additive Mfg
NX93110 – Mach 3 Additive w/Converg
NX12300 – Cool Shape Design Bundle
NX30169 – OmniMesh Transformer
NX30170 – OmniFree Transformer
NX90108 – NX 2D Edit
NX30310 – NX BIM
NX30161 – Corrosion Risk Analysis
NX24062 – NX Integration Classification
NX34120 – NX Smart Context Designer
NX30221 – NX Lattice Designer
NX34201 – NX Molded Part Designer
NX35050 – NX Design Tokens (50)
NX35100 – NX Design Tokens (100)
NX30726 – NX Performance Predictor

Teamcenter

TC030401 – Classification User
TC030404 – Tc4eClass Data Mgmt
TC030503 – Smart Discovery
TC030501 – Context Mgmt User
TC030740 – Partitions



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