Where did the I-deas workbench go in NX?

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Transforming the process of innovation

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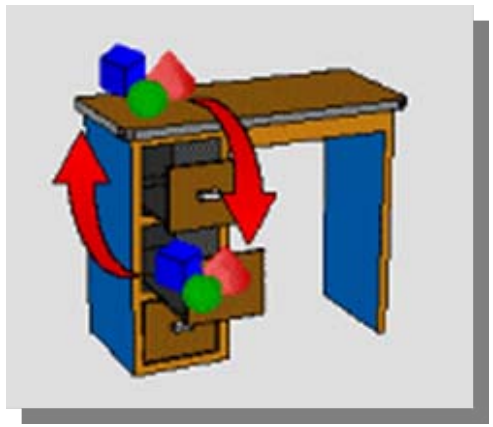
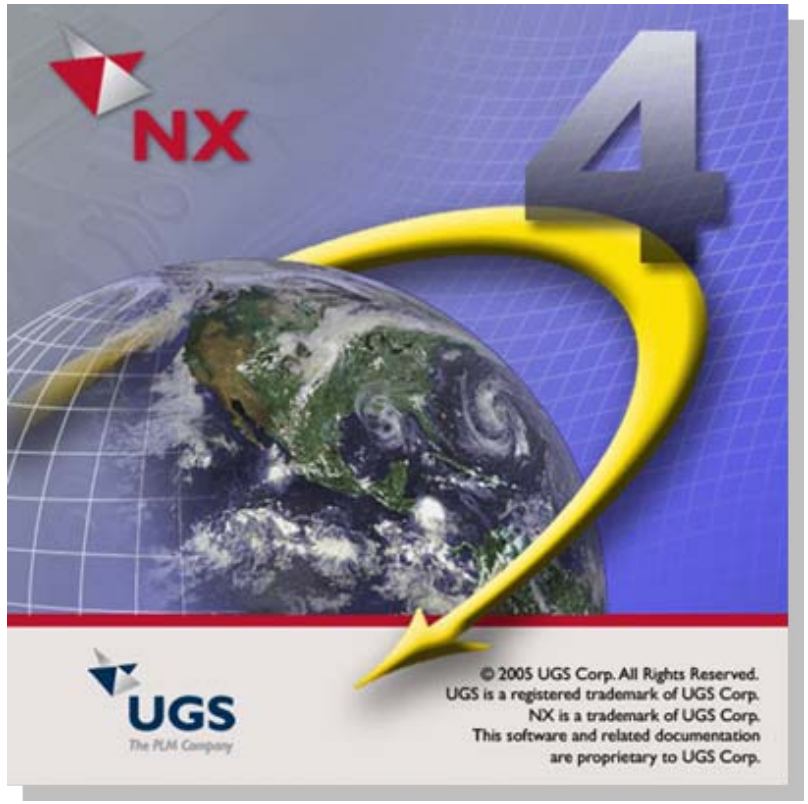


Assumptions

- Objectives:
  - Map I-deas workbench workflows to NX
- This presentation is not:
  - A presentation on NX “best practices”
  - A functional comparison between I-deas and NX
  - A “how to” class
- Audience:
  - Experienced I-deas users
- Software:
  - I-deas 12
  - NX 4



Outline

- I-deas model file, workbench concepts
- NX functions
- Workflows
- Summary

I-deas model file

I-DEAS

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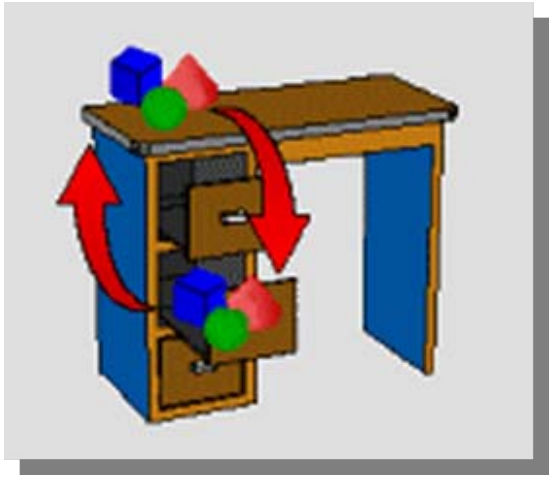
- An easy way to save work in progress from one day to the next.



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- Another layer of data management.
- Can lead to data management abuses.

I-deas workbench

I-DEAS

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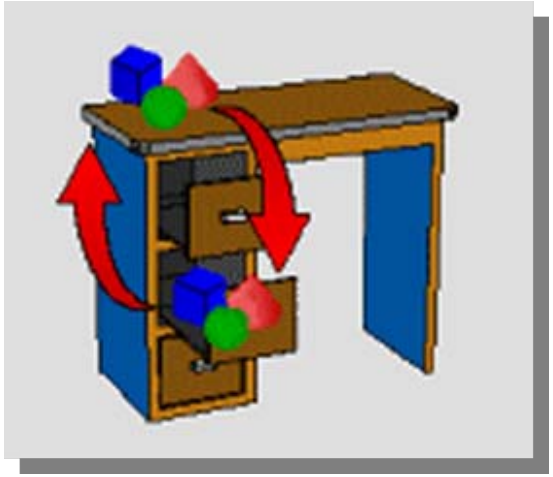
- Easily understood concept.
- You can work on multiple parts without an assembly.



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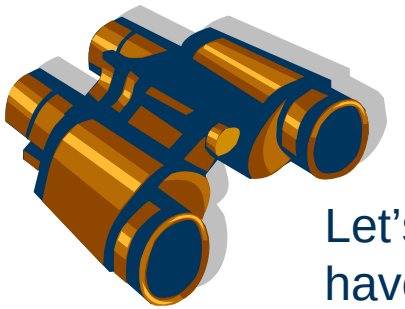
- This can lead to nonassociative modeling practice.
  - Associativity between I-deas parts requires an assembly context.
  - No positioning relationships are created if the **Relations Switch** is turned off.

Where is the workbench in NX?

NX

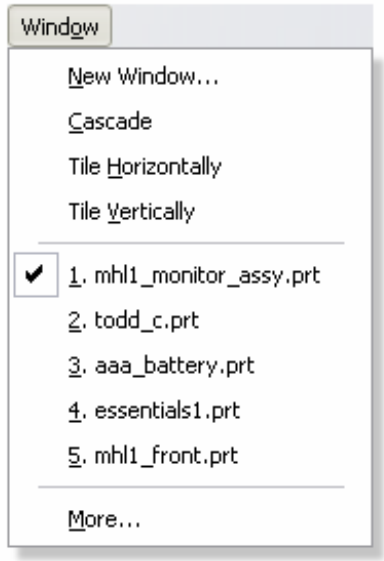
This might be the biggest conceptual difference between I-deas and NX.



Let's look at five NX functions that appear to have some similarity to the I-deas workbench:

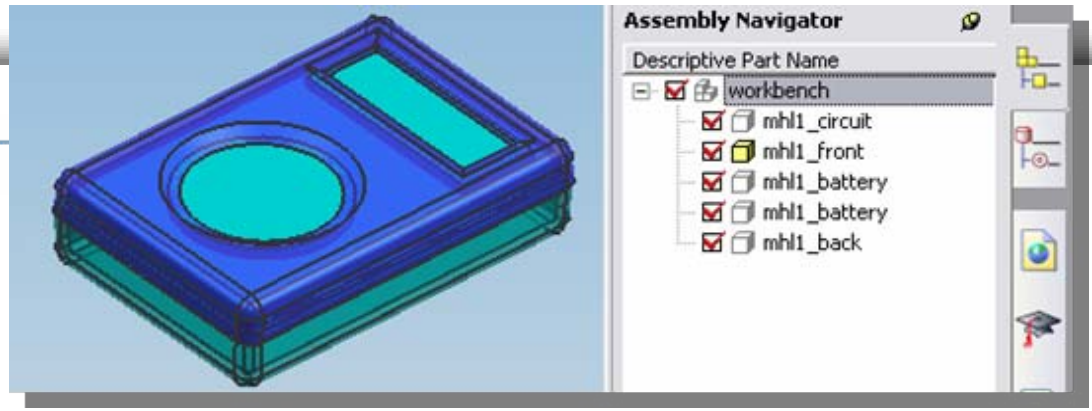
- NX session
- NX assembly
- NX bookmark file
- NX .prt file
- Teamcenter Engineering folders

NX “session”



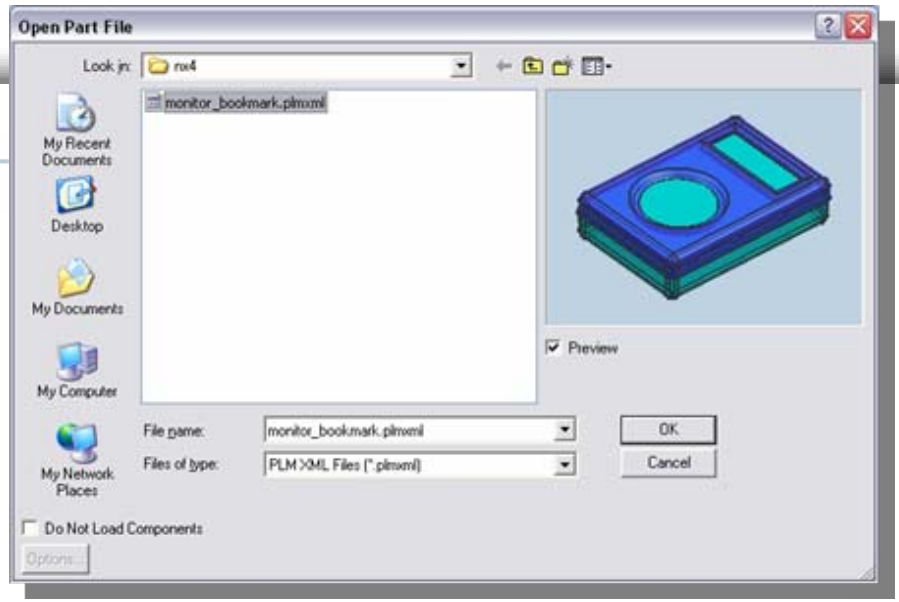
- What is it?
  - Files open in your NX session are selectable in the **Window** menu.
- How is it like a workbench?
  - Multiple files can be open in your NX session.
  - You can quickly switch between open files.
- How is it different from a workbench?
  - Only one file (part/assembly) is displayed at a time.
  - You cannot Boolean between parts like using the workbench.
  - These files need to be opened one at a time at restart.

NX “assembly”



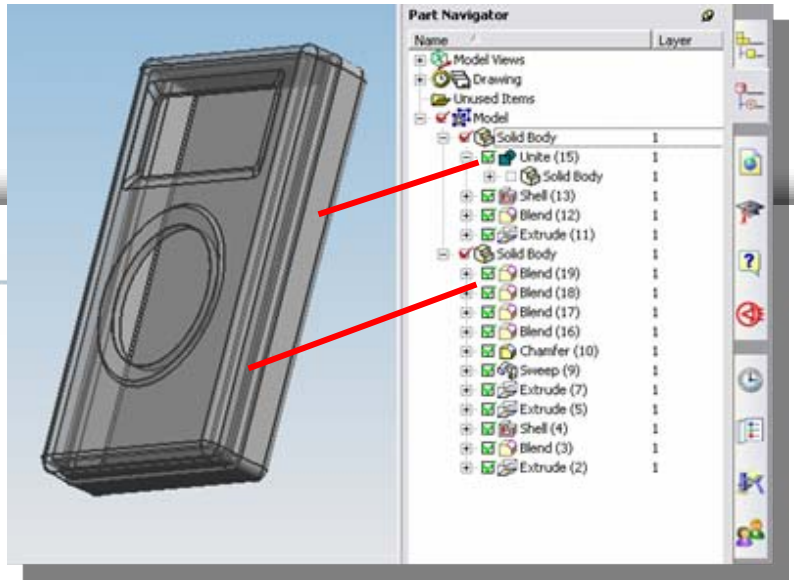
- What is it?
  - Similar to I-deas assemblies, except all files use “.prt” extension.
- How is it like a workbench?
  - You could create a dummy assembly named “workbench” to display multiple parts.
  - You can make any part in this assembly the “work part.”
- How is it different from a workbench?
  - Requires assembly techniques.
  - Does not allow direct part-part Boolean.

NX “bookmark” file



- What is it?
  - A bookmark file saves the load state of an assembly.
- How is it like a workbench?
  - You can use it to open an assembly the same way as the day before.
- How is it different from a workbench?
  - It only applies to assemblies.

NX ".prt file"



NX .prt file
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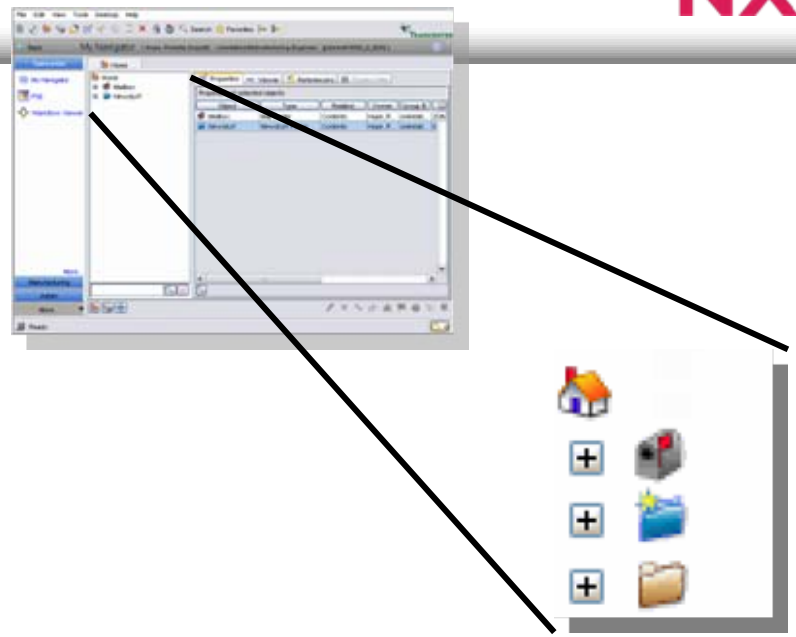
I-deas .prt file

- What is it?
  - The .prt file is a unified NX container that can hold part geometry, an assembly, and/or drawing sheets.
  - A .prt file can contain multiple solid bodies.
- How is it like a workbench?
  - You can perform the equivalent of "bushy" modeling with multiple bodies within a .prt file.
- How is it different from a workbench?
  - It is a named container for one part or assembly.

Teamcenter Engineering “folders”



- What is it?
  - Folders let you organize *aliases* to files you are working on.
- How is it like a workbench?
  - You can use folders to collect your work in progress.
  - You can use folders like model file bins to organize data.
  - You can visualize 3D models and make measurements.
- How is it different from a workbench?
  - You can only view, not model in Teamcenter Engineering.

Where is the workbench in NX?

NX

None of these NX functions is exactly like the I-deas workbench.

Let’s examine some I-deas workbench workflows to see which NX functions are used in each case.

Workbench workflows

1. Organizing work in progress
2. “Bushy tree” modeling
3. Reusing geometry between parts
    - **Extract** geometry, **Attach** or **Join** it to another part.
    - **Focus** to project from one part to another.
4. Designing new parts in a workbench context
    - Create multiple parts on the workbench, then name them.

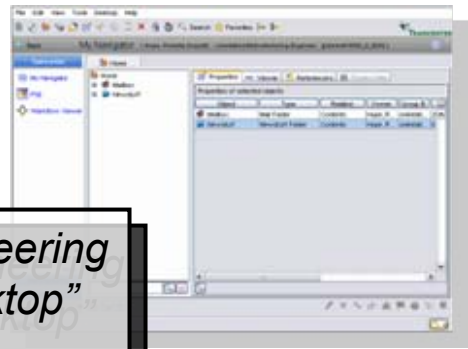
1. Organizing work in progress

I-DEAS

- Store checked out parts and assemblies in model file bins.

NX

- Use Teamcenter Engineering folders to organize models.
  - Search for items.
  - Organize working data in folders.
  - Display models before checking them out.
  - Check out models only when needed.
  - Checking out one part or assembly at a time avoids the potential “referenced but modified” condition.

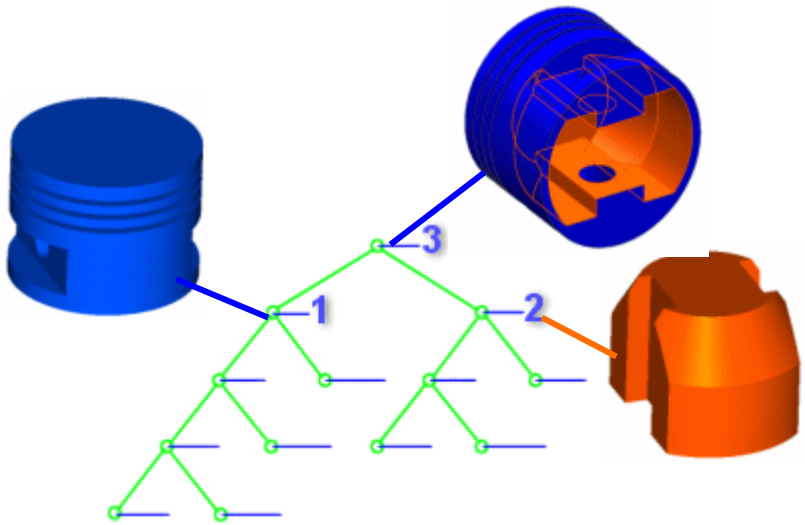


Folders in Teamcenter Engineering become an engineering “desktop” to organize work in progress.

2. “Bushy tree” modeling

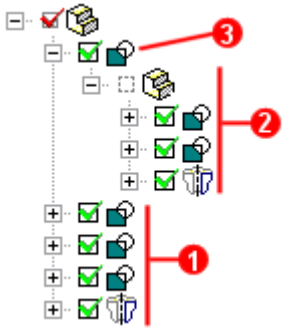
I-DEAS

- Boolean operations are performed between parts on the workbench.
  - The result is a “bushy tree.”
  - Positioning relationships are created by turning on the “**Relations Switch**.”



NX

- Boolean operations are performed between solid bodies inside a .prt file.
  - The history only looks “bushy” when **Timestamp Order** is turned off in the **Part Navigator**.



  - Positioning relationships are established when the solid body is created.

A .prt file acts like the workbench for “bushy tree” modeling.

3. Reuse geometry between parts

I-DEAS

- Reuse of geometry across parts requires the workbench:
  - **Focus** projects points and curves between parts.
  - **Extract** places geometry on the workbench.
  - **Attach** or **Join** adds it to another part on the workbench.

NX

- Reuse geometry in the same part, or in another part open in the NX session using **Copy** and **Paste**.

1. **Copy**
2. **Paste**

The session contains the clipboard used for **Copy** and **Paste**.

The NX session acts like the workbench for reusing geometry between parts.

4. New part design in a workbench context

I-DEAS

1. Create multiple parts on the workbench.
2. Name each part to create an item in TDM.

NX

1. Create multiple solid bodies in a .prt file.
2. “Push” them to new components to create separate .prt files.

The NX .prt file using assembly functionality acts like the workbench for designing new parts in context.

Summary

NX functions that replace the I-deas workbench

NX function:

Workflow:	Teamcenter Folder	Session	.prt file	Assembly
Organizing data	Search, Visualize, Checkout			
Bushy modeling			Multiple solid bodies in .prt file	
Reusing geometry between parts		Copy, Paste		
Designing new parts in context			Multiple solid bodies in .prt file	Create New Component

Summary

Other modeling methods

- This presentation showed workflows similar to those using the I-deas workbench.
  - These workflows tend to be nonassociative.
- Other workflows are available in NX using associative methods:
  - Wave Geometry Linker uses an assembly context similar to I-deas ACF.
  - Copy/Paste can create associativity.
  - User defined features (UDF) can reuse features.