

Constraint Conversion in NX 6/7/7.5

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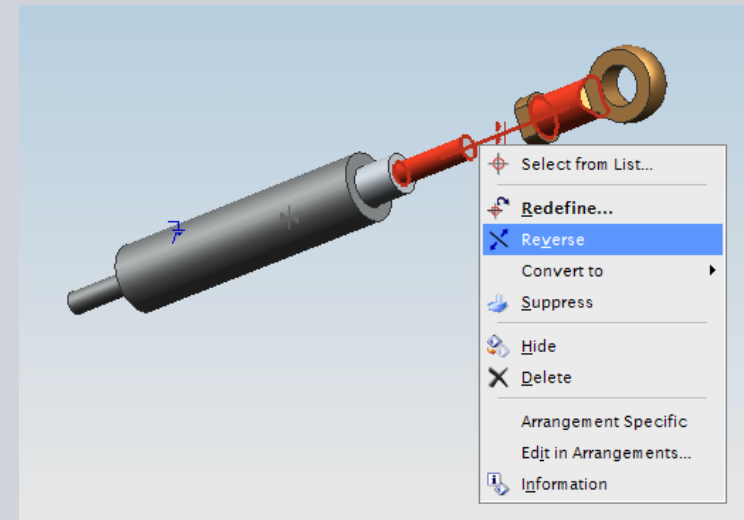
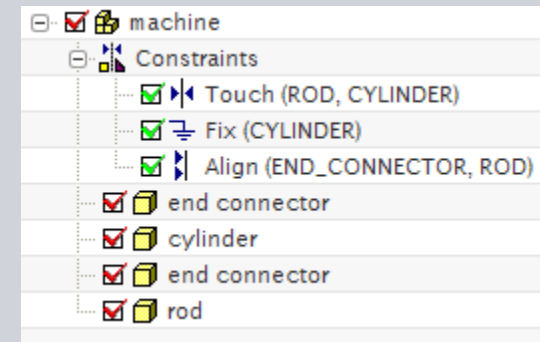
Assembly Constraints

New implementation of constraint-based component positioning

Replaces NX 4 “mating conditions”

- Easier to use
- More efficient
- More consistent with sketcher

First available in NX 5



Transitioning Mating Conditions → Assembly Constraints

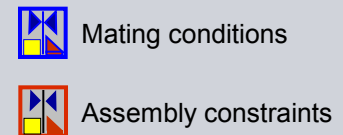
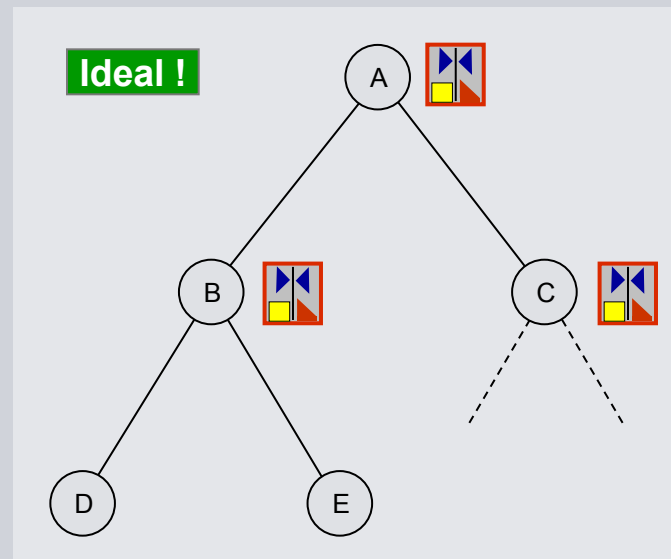
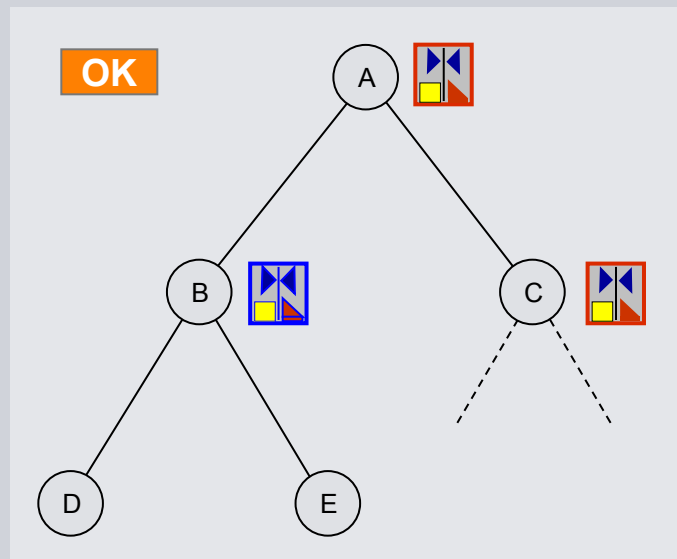
	NX 5	NX 6	NX 7
Methods available (mating/constraints)	Both (user preference)	Both (user preference)	Assembly Constraints only
Constraint conversion tools	Interactive UI in NX	Interactive UI in NX Batch conversion through refile_part	Interactive UI in NX Batch conversion through refile_part
Recommendation for customers with existing mating conditions	Use mating conditions	Use assembly constraints	Use assembly constraints

Constraint conversion

Benefits of converting constraints

NX 6 provides good support for working in assemblies with mixed constraint types

However, improved user experience if only assembly constraints exist



Constraint conversion

Benefits of converting constraints

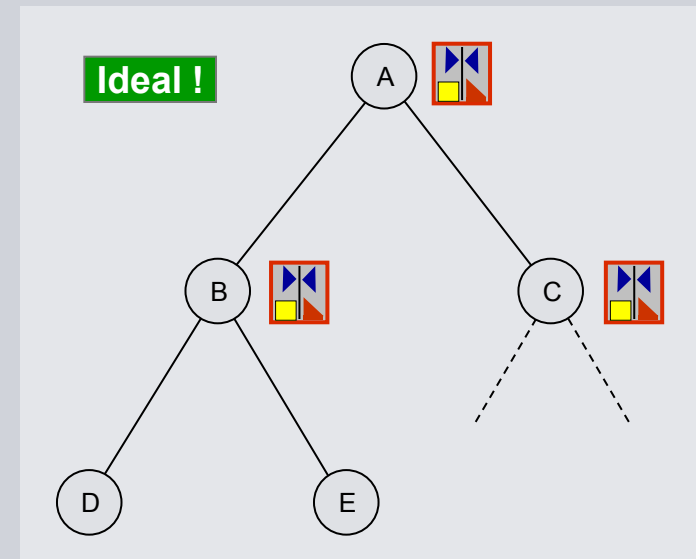
User sees benefits of assembly constraints with every assembly

User only has to understand one constraints system and UI

Dynamic dragging available in all assemblies

- No need to switch UI for older assemblies

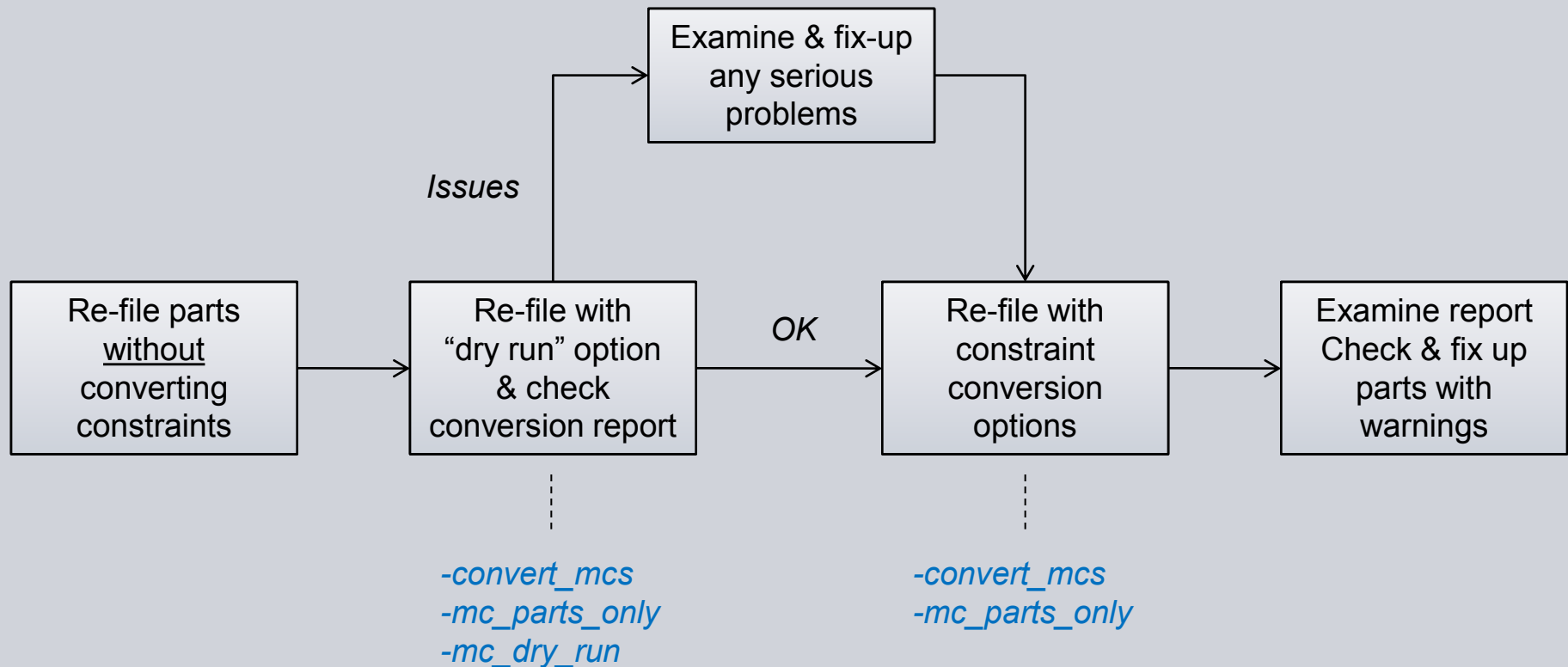
Assembly sequencing only recognises one constraint type at a time



Using refile_part for bulk constraint conversion

Option	Capability
-convert_mcs	Enables constraint conversion during refile & generates conversion report
<i>Additional options (NX 6.0.1):</i>	
-mc_parts_only	Only refile parts that contain constraints
-mc_dry_run	Convert constraints & generate report <i>without saving any parts</i>
-mc_dont_load_referenced geometry	Do not force load parts containing referenced geometry (conversion not checked)

Recommended refile process



Conversion checking process

Steps taken by NX during interactive conversion and refile_part:

1. Solve using *mating conditions* & remember component positions
2. Convert constraints
3. Solve using *assembly constraints*
4. Compare new and old component positions
5. For components that would be moved:
 - a. do not apply reposition
 - b. suppress constraints causing movement

Constraint Conversion Validation

☐ Use Custom Limits

Maximum acceptable component movement: mm Metric ?

Report component movements greater than: mm Metric ?

Suppress constraints that cause movement greater than this

Report constraints that cause movement greater than this

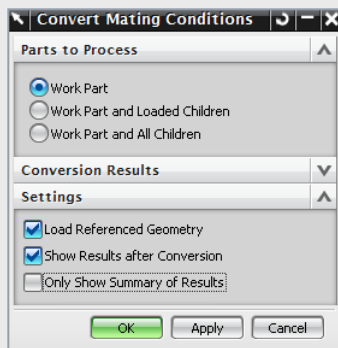
Customer defaults to specify allowable movement

How to investigate a conversion warning or failure

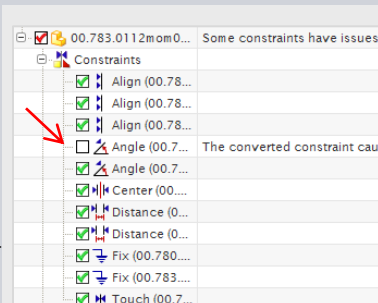
Search conversion report for warnings and errors

For each assembly containing problem constraints:

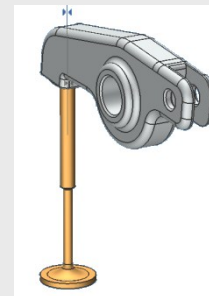
Load assembly
(no components)



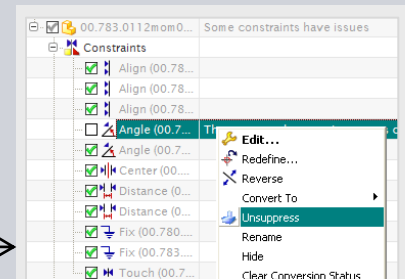
Convert constraints
interactively



Look for messages in
Alerts column to find
problem constraints



Isolate problem
constraints using
Show/Hide Constraints



Investigate & fix
problem
(e.g. unsuppress to
understand problem)