

# Resolving Imprinting and Merging Problems in CUBIT

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## **Imprinting**

Produces identical and coincident topology between volumes that abut.

## **Merging**

Compresses identical and coincident topology into a single representation that is shared.

## **Causes of Imprinting and Merging Problems**

- CAD Translation – translating from one format to another introduces problems.
- Tolerance Mis-match – going from CAD package with loose tolerance to CUBIT's fine tolerance can cause ambiguities.
- User Modeling Errors – user didn't create parts correctly, parts don't line up.

## **Approach**

1. Imprint & Merge
2. Find Overlapping Surfaces (*find overlap volume <id\_range>*)
3. Turn on labels for curves (*label curve on*)
4. Turn on vertex visibility (*vertex visibility on|off*)
5. Diagnose problem

## **Solutions**

- Tweaking -- moving, offsetting or replacing surfaces or curves, while extending the adjoining surfaces to fill the resulting gaps. This is useful for eliminating gaps between volumes.  
*Tweak {Curve|Surface} <id\_list> Target Surface <id\_list>*
- Tolerant Imprinting – imprinting that uses a tolerance (merge tolerance)  
*Imprint Tolerant {Body|Volume} <range>*  
*Imprint Tolerant Surface <id> [with] Curve <range>*  
*Imprint Tolerant Surface <id> <id> [with] Curve <id\_range>*
- Force Merging – geometry must have like topology (same number curves and vertices)  
*Merge {Surface|Curve|Vertex} <id> with {Surface|Curve|Vertex} Force*
- Adjusting Merge Tolerance  
*Merge Tolerance <val=5.0e-4>*
- Local Imprinting  
*Imprint {Volume|Body} <range> [with] Curve <range> [keep]*  
*Imprint {Volume|Body} <range> [with] Vertex <range> [keep]*  
*Imprint {Volume|Body} <range> [with] Position <coords> [Position <coords> ...] [keep]*  
*Imprint Surface <range> [with] Curve <range> [keep]*