

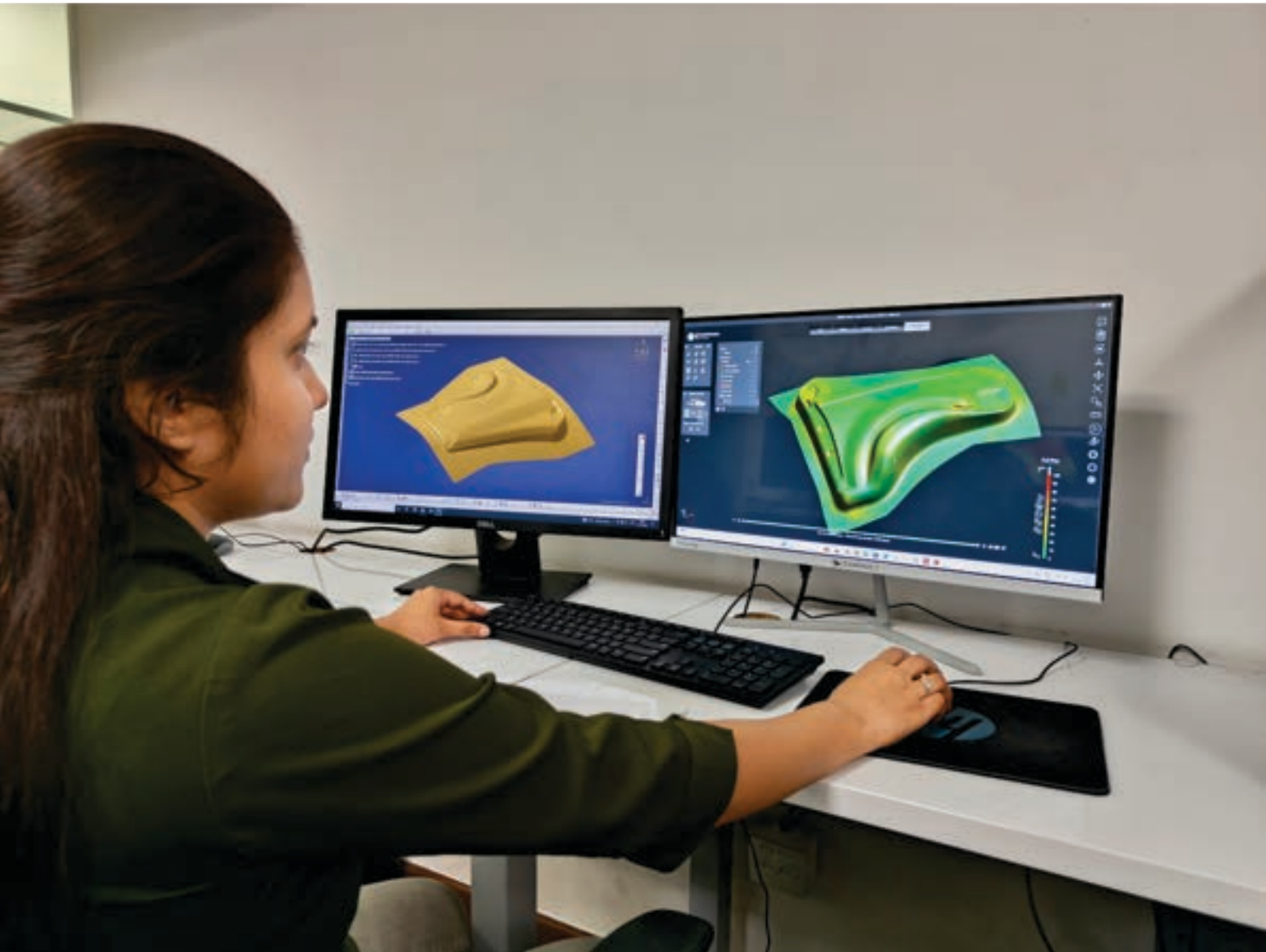


STAMPACK Xpress

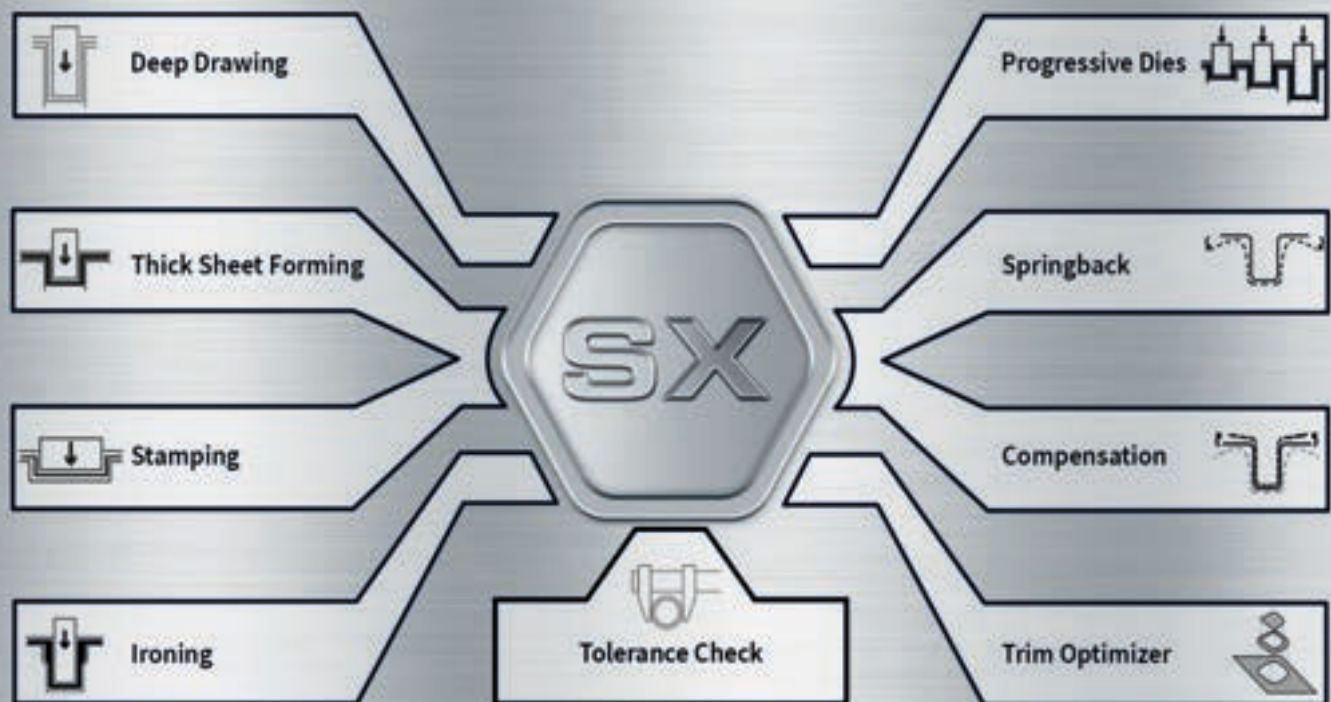
"Simulation For Tool Designers"

This Means:

- Stampack Xpress uses the language of tool designers
- Stampack Xpress provides fast computation and reliable results
- Stampack Xpress is affordable for every tool shop and every engineering office



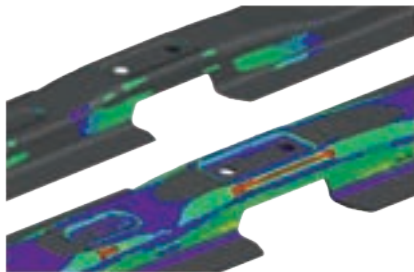
What Kind of Processes Are Supported ?



Interaction of Our Technology

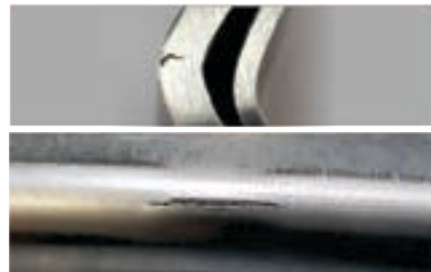
Shell Technology

- Calculations performed only in the sheet's middle plane.
- Assumes behavior through thickness; ideal for thin sheets.
- Fast and efficient—great for initial assessments and quick calculations.



Solid Technology

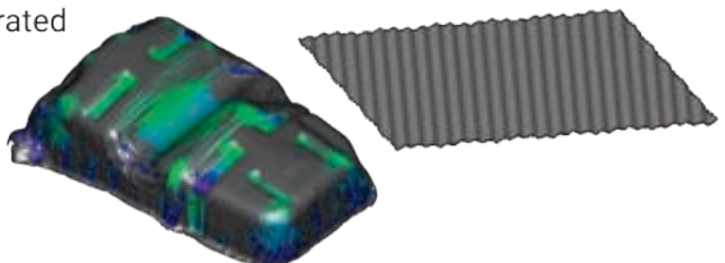
- Uses 3–5 elements through thickness for high accuracy.
- Captures stress and strain in all directions for realistic results.
- Offers precise thickness resolution, though with longer calculation time than shell models.



V/S

Embossed Sheet

- Thin basic materials (0.1–0.8 mm) with integrated nub geometries.
- High wrinkle tendency, mainly aluminum or stainless steel.
- Commonly used for heat shields, deflector plates, and sound insulation.

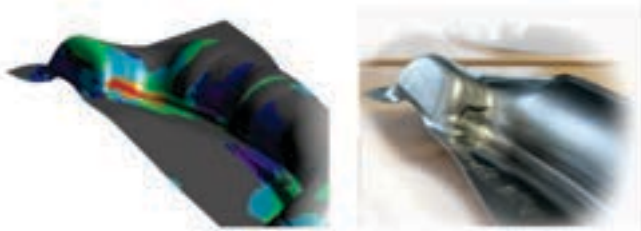


Virtual Feasibility Study

Stampack Xpress

Software developed by die designers, for die designers.

- Simulates forming for progressive and line dies – fast and easy.
- Helps identify issues early and validate manufacturability.
- Reduces costly trial-and-error and streamlines die design.
- User-friendly interface – no FEA experience needed.



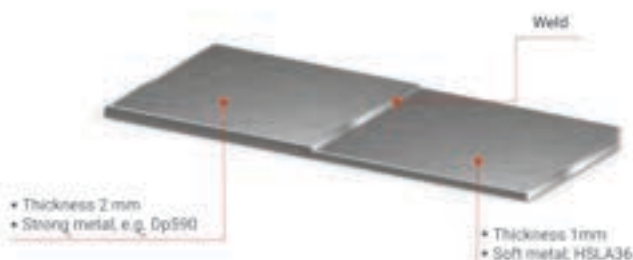
Surface Marking:

- Simulates tool contact to predict scratches and surface defects.
- Helps improve tool design and lubrication for better surface quality.
- Provides clear visual maps for early detection and correction.



Milled / Tailor Welded Blank

- Accurate material flow for non-flat or welded blanks.
- Predicts forming behavior and supports realistic tool design.

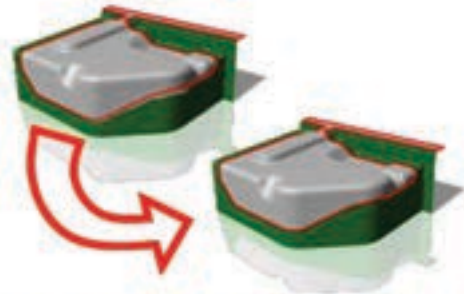


Measure & Optimize

Simulating the forming process is an important first step, but equally important is virtually measuring whether the resulting part is within tolerance and adjusting the trimming and forming tools as needed to create the exact desired part.

Trim Optimizer

- The Trim Optimizer in Stampack Xpress is an indispensable tool for designing the initial blank with optimal trim lines.
- Trim lines are determined to achieve a user-defined target contour at the end of the forming process.



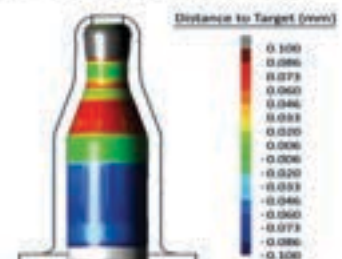
Springback Compensation

- Automatically generates virtual form tooling to apply over-bend, ensuring the desired part shape is achieved.
- Provides the updated tooling shape to the user for further use.
- Springback Compensation in Stampack allows users to constrain the draw-in area effectively. Automatically prevents undercuts in vertical walls for improved part accuracy.



Tolerance Check

- Compares formed part to an imported target geometry.
- Includes best-fit alignment and tolerance evaluation.
- Quickly shows if the result meets design specifications.



Comprehensive Part Analysis With Stampack



Part material : DC04

Part size : 880 x 800 x 220

Thickness : 0.7 mm

Feasibility Study:

- Simulates complete forming process to detect risks like thinning, wrinkling, and cracking.
- Uses FLD tools to predict failures and guide early design improvements.
- Reduces cost and time with accurate, visual, and virtual validation.

Thinning & Thickening:

- Detects thinning (risk of cracks) and thickening during sheet forming.
- Color-coded maps highlight critical areas for quick evaluation.
- Supports tool and process optimization to ensure part quality.

Max. Failure (FLD coefficient):

- Shows max strain level vs. Forming Limit Curve to assess failure risk.
- Values above 100 indicate potential cracking or rupture.
- Helps refine tool design and prevent material failure.

Springback:

- Predicts springback and dimensional changes after forming.
- Aids in tool adjustments to improve accuracy and reduce rework.
- Visual deformation maps guide effective compensation.

“Better safe than sorry”



Wrinkling :

- Detects early wrinkling caused by excess material flow or compression.
- Highlights risk zones with color maps for quick correction.
- Supports tool adjustments to prevent defects and rework.



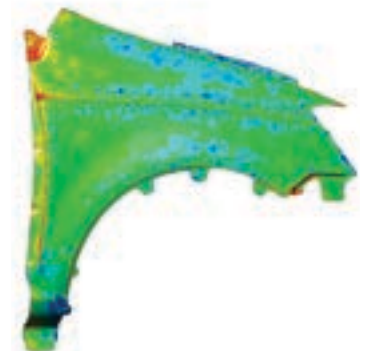
Blank Marking:

- Simulates tool contact to predict surface marks and scratches.
- Aids in optimizing surface finish and lubrication.
- Uses color maps to improve final part appearance early in design.



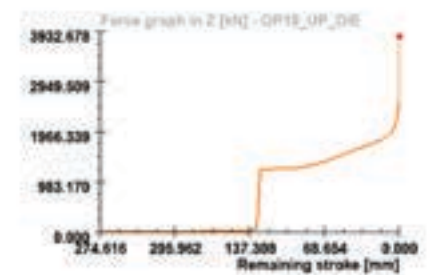
Equivalent Stress & Strain

- Shows overall stress and deformation during forming.
- Identifies high-risk zones like yielding or cracking via color maps.
- Helps optimize tool design and improve part quality.



Forces

- Simulates punch, die, and blank holder forces during stamping.
- Helps prevent defects and ensures tool/machine load efficiency.
- Supports accurate tool design and process control.
- Stampack enables realistic simulation with force limits and pad bottoming to control press behavior and material flow.



Many more aspects can be analyzed for deeper insight.

Maximize Process Stability With Stampack:

Advanced Robustness & Sensitivity Analysis

Optimize Results with These Advanced Capabilities

- **Robustness Analysis:** Simulates real-world variation to detect risks like springback and wrinkling early.
- **Sensitivity Analysis :** Assesses how small changes impact quality, identifying key factors like friction and blank holder force.
- **Virtual Testing :** Simulates variations in material and alignment to deliver accurate, data-driven outcome predictions.
- **Springback Compensation:** Automatically adjusts tooling to counteract springback, ensuring parts meet design specifications.
- **Process Optimization:** Suggests optimal parameters to boost stability, cut defects, and reduce scrap.
- **Blank Support:** Simulates multi-material and variable-thickness blanks, ensuring precision with advanced materials.

Robustness Analysis

Key Benefits of Stampack:

- **Reliable Process Stability:** Predict and prevent potential failures, ensuring consistent performance.
- **Cost & Time Efficiency:** Minimize trials and get early insights, speeding up development.
- **Consistent Quality:** Reduce variability and guarantee parts meet exact specifications.
- **Faster Time-to-Market:** Validate designs early and accelerate product launches.

The screenshot displays the 'Input parameters' window in the Stampack software. A dropdown menu at the top is set to 'Thinning'. Below it, several parameters are listed with their current values and units:

Parameter	Value	Unit
Friction	0.1	
Young's modulus (GPa)	200.202	
Blanking force (J/blank-Radius)	0.021	
m	1.079	
Thickness (mm)	1.000	
Blank displacement in X (mm)	-1.245	
Blank displacement in Y (mm)	1.0	
Force of Line_Pad (kN)	14.801	

Problem: Which parameter can I use to improve the process?

Example: It's great to know that:

- Drawbead height changes feasibility 66%
- Friction changes feasibility 18%
- Spacing changes feasibility 12%
- Blank holder force changes feasibility 4%

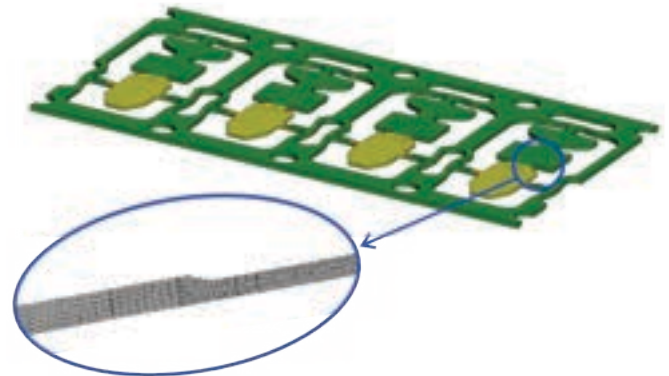


Additional Features:

Coining Simulation:

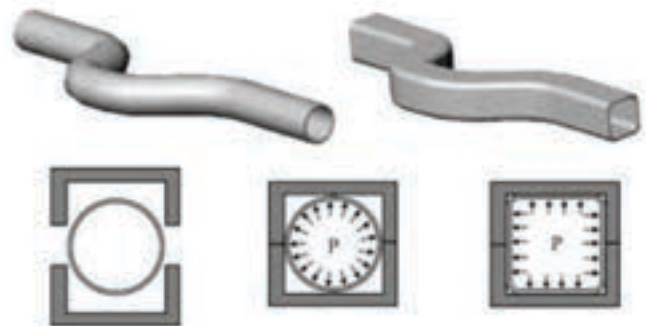
- Simulates high-pressure forming to shape and imprint fine details.
- Accurately predicts material flow and stress during coining.
- Helps optimize tool design to avoid defects and ensure precise features.

Coining Process:



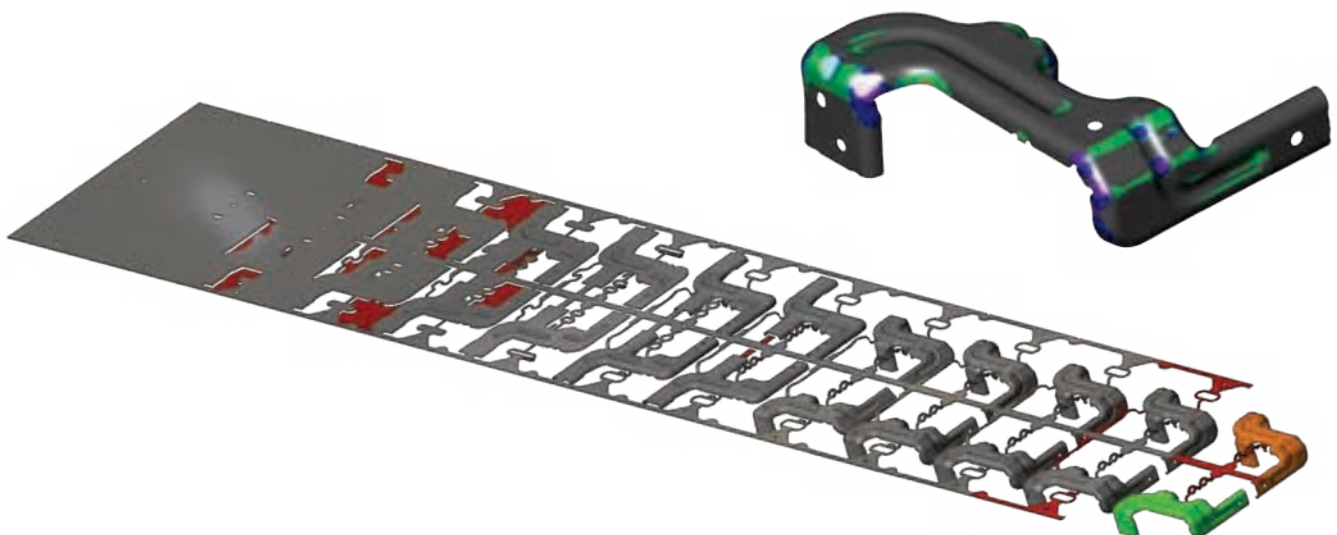
Pipe & Tube Forming :

- Simulates tool contact to predict scratches and surface defects.
- Helps improve tool design and lubrication for better surface quality.
- Provides clear visual maps for early detection and correction.



Progressive Strip Simulation

- Simulates each stage of progressive die forming accurately.
- Detects issues like misalignment, thinning, and cracking early.
- Optimizes strip layout, tool design, and forming sequence.
- Stampack supports full strip simulation for accurate process planning.



STAMPACK XPRESS

Powerful, User-friendly Sheet Metal Simulation Software

Stampack GmbH, headquartered in Bietigheim/Baden, Germany, develops efficient simulation software for all sheet metal forming processes.

Stampack is an intuitive simulation software that is equally suitable for tool designers and estimators due to its ease of use and depth of information provided. Knowledge and experience in the field of Finite Element Analysis is not required.

Stampack includes Shell and Solid simulation solvers, offering the ability to simulate everything from large automotive line dies to tiny electrical and medical progressive and transfer dies. Additionally, it can simulate coining, ironing, deep-drawing, and other cold forming operations that competing software cannot recognize on the part.

The use of Stampack eliminates the need for creating physical prototypes and thus reduces time and costs in the product manufacturing process.

STAMPACK XPRESS TECHNICAL SUPPORT TEAM, INDIA



- ✓ Affordable
- ✓ Short learning curve
- ✓ Simple and logical user interface
- ✓ Timely error detection and its avoidance
- ✓ Increased process reliability
- ✓ Unlimited solver usage
- ✓ Additional viewer licenses available
- ✓ Supports tailor-welded and milled blanks
- ✓ Improved results with embossed blanks
- ✓ Realistic cam actuation simulation
- ✓ Includes reverse press simulation
- ✓ 24/7 technical support.



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