

MIDAS

CIVIL NX 2026 (v2.2)

Enhancements and Bug Fixes

Insanely Fast.
Boundlessly Capable.
Beyond Your Engineering Struggles.

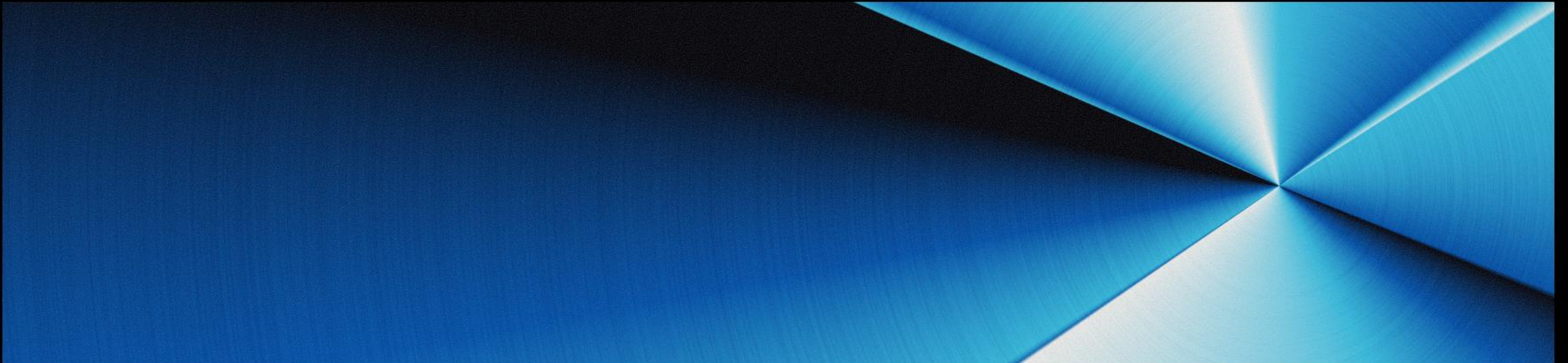


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01

Performance Enhancements

This document summarizes the enhancements implemented since the release of MIDAS CIVIL NX HYPER-S 2026 (v2.1).



Batch Mode for Moving Load Analysis

Addition of Batch Mode Moving Load Analysis with Performance Improvement



What Improved

The Moving Load Batch Analysis has been added along with Selective analysis. The time increase with growing case counts has been resolved, delivering stable and fast performance even with many cases. Output file size is also reduced to approximately 1/6, benefiting storage management for large models.



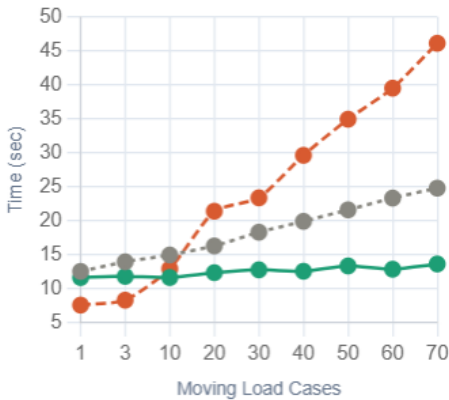
Which Models Benefit

- All models with a large number of Moving Load cases (10 or more moving load cases)

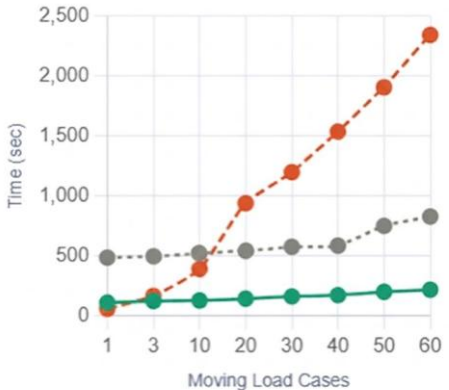
Perform Analysis				
Analysis & Load Cases				
Select	Analysis & Load Cases	Type	Restart from Stage	Status
Static Analysis				
☒	Static Load	Static		Completed
Influence Line/Surface Analysis				
☒	Influence	Moving		Completed
Moving Load Analysis				
Analysis Control Mode		☐ Batch	☒ Selective	
☒	MV-LM1	Moving		Completed
☒	MV-LM2	Moving		Completed
☒	MV-LM3	Moving		Completed
☒	LM4	Moving		Completed
☒	LM4_without	Moving		Completed

Moving Load Analysis Mode

Total Runtime — Small Model



Total Runtime — Mid. Model



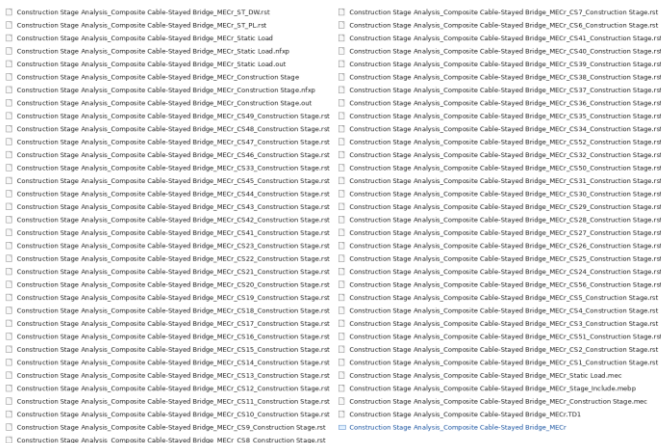
— HYPER-S Batch - - - HYPER-S Selective . . . CIVIL NX 2025 (v2.1)



Improved CS file management reduces disk usage and enhances stability



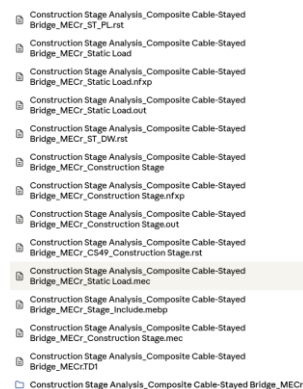
The write/read method and storage structure for intermediate files generated during Construction Stage analysis have been improved. Unnecessary temporary file creation has been reduced, and file I/O efficiency for each stage result has been enhanced.



Model with 65 output files
CIVIL NX HYPER-S 2026 (v2.1)



- Models with many construction stages (e.g., bridge construction simulations with 50+ stages)
- PSC bridges, cable-stayed bridges, and suspension bridges with complex stage-by-stage prestress introduction
- Large models where disk I/O was a bottleneck during CS analysis



Model with 14 output files
CIVIL NX HYPER-S 2026 (v2.2)

Faster Analysis for Large Numbers of Thermal Loads

Analysis Time for Temperature-Heavy Models has been reduced.

What Improved

The search logic for matching Thermal loads to elements has been optimized. Models with large numbers of temperature loads now see significantly reduced lookup time.

Which Models Benefit

- Models with a large number of temperature load definitions
- PSC bridge and steel-composite girder models with varying temperature conditions per construction stage
- Large-scale models with complex temperature load combinations

Evidence

3 min 10 sec

Before

1 min 27 sec

After (~2.2× faster)

The improved temperature load matching logic streamlines repeated lookup operations in CS analyses — particularly for PSC box girders and steel-composite bridges — directly contributing to overall analysis time reduction.

Pre-processing Model Generation Speed Improvement

Performance on Data Generation for Output during Pre-processing Stage has been improved.

What Improved

The computation logic for the preprocessing stage (model data conversion, matrix assembly preparation) executed before HYPER-S analysis has been improved. Unnecessary repeated computations have been eliminated, dramatically reducing preprocessing time — especially for large models.

Which Models Benefit

- Large-scale models with many elements and nodes
- Models with many construction stages where preprocessing repeats at each stage
- Models with complex boundary conditions and material properties

Evidence

vs. Previous

Before

1/5 level / 80% reduction

After

Preprocessing speed gains matter on their own, but deliver compounded time savings for analysis types — such as moving load and construction stage — where preprocessing is performed repeatedly.

Post-processing for Complex Load Combinations

Improved performance by eliminating recalculations when the same load case is used multiple times within a single load combination.

What Improved

A caching mechanism was added to the Plate Force output logic to avoid redundant recalculation for repeated load combinations. Models with many load cases and repeated combinations benefit most.

Which Models Benefit

- Models containing a large number of plate elements
- Models with many defined load cases and load combinations
- Models where the same load combinations are repeatedly referenced across multiple result types

Evidence

~80 sec

Before

13 sec / 6.2×

After

84%

Time Reduction

Large bridge models and box girder models that frequently query Plate Force results will see dramatically reduced post-processing wait times, improving workflow efficiency.

Analysis Speed of Linear Time History Analysis

Enhanced linear time history analysis performance for models with large output files and lengthy analysis times.

What Improved

The numerical integration pipeline for Linear Time History analysis has been optimized. The solver now reuses matrix factorization results across time steps, yielding significant speed-ups — especially for models with many integration steps.

Which Models Benefit

- All models that include Linear Time History analysis
- Bridge and structural models requiring earthquake response history analysis
- Models with many integration steps or long-duration seismic input records

Evidence

1 hr 4 min

Before

23 min / 2.8×

After

Plate Force/Stress Table Output Speed Improvement

Improved post-processing table performance, with greater gains for higher repetition counts.

What Improved

The bulk data processing method for Plate Force and Plate Stress table output has been completely overhauled. Previously, all results were loaded into memory before sequential processing; now, a streaming approach processes data incrementally, reducing both memory usage and processing time.

Which Models Benefit

- Large models containing tens of thousands of plate elements
- Operations that output Plate Force/Stress results as tables across all elements
- Models with many load combinations generating very large output datasets

Evidence

~7 hours

Before

14 sec / 1,800×

After

02

Bug Fixes

This document summarizes the issues resolved since the release of MIDAS CIVIL NX HYPER-S 2026 (v2.1).



Bug Fixes in Moving Load Analysis

- [Common] Fixed an issue where moving load analysis did not run when the **Consider Warping Effect (7th DOF)** option was enabled.
- [Common] Corrected load position display logic for maximum moment envelopes in the **Transverse Moving Load Tracer**.
- [Common] Fixed an issue where vehicle load positions were not displayed for **Truss Force** results in the Moving Load Tracer.
- [Common] Improved **memory efficiency** for large moving load analyses by changing memory allocation from stack to heap, preventing unexpected termination.
- [Eurocode] Corrected displacement results in the Moving Load Tracer when using **Eurocode LM71** train loads by fixing the dynamic factor application.
- [BS] Fixed an issue where Moving Load Tracer results were not displayed for **BS All Model2** vehicles by updating influence line data and vehicle display logic.
- [Brazil] Corrected input processing errors in **Moving Load Batch Conversion** for **Brazilian** vehicle loads.



Bug Fixes in Construction Stage Analysis

- Fixed restart file detection failures in Construction Stage Analysis caused by **commas or special characters** in the model file paths.
- Corrected errors occurring when an **intermediate construction stage** was defined **as the final** stage.
- Fixed result inconsistencies caused by load case reordering by correcting load combination processing and construction stage element compatibility.
- Corrected result file export errors in the **P-Delta Analysis** for models containing deactivated structure groups.
- Fixed an issue in **construction stage buckling analysis** where erection loads were incorrectly applied outside their assigned stages.
- Improved stability of **construction stage buckling analysis** by preventing geometric stiffness deficiencies due to missing variable loads and resolving temporary load ID conflicts through separate file generation.
- Resolved the "Improper Argument" error that occurred when reviewing **support reaction** results due to **tendon force** with nonlinear construction stage analysis.



Bug Fixes in Stability Issues

- Fixed analysis crash caused by **material names containing the "%" character**.
- Improved validation and processing logic for **Value Type Beam End Releases** in **construction stage** analysis.
- Corrected data processing for models with **increasing nodal degrees of freedom** during staged analysis.
- Fixed solver errors caused by **duplicate release definitions** for the same element across multiple groups.
- Resolved an issue where enabling the **Von Mises Stress option** caused **moving load analysis** to terminate unexpectedly.



Bug Fixes in Result Consistency

- Improved result consistency by correcting **residual force handling after boundary condition modifications**.
- Restored the **Projection option for pressure loads** in HYPER-S version.
- Improved **buckling analysis consistency** for models with Beam End Releases by excluding local buckling modes from result evaluation.



Bug Fixes in Model Generation Issues

- **[RSI Wizard]** Corrected data loading and auto-report generation issues when opening legacy **Rail Track Wizard** files.
- **[RSI Wizard]** Fixed abnormal elastic link force results by standardizing output based on two-node link behavior.
- **[RSI Wizard]** Resolved **display** issues related to **tapered sections** by removing unnecessary internal validation checks.
- Fixed an issue where **local coordinate system changes** were not applied when using the element parameter modification function.
- Restored missing result items in **dynamic reports** by updating table ID mappings.