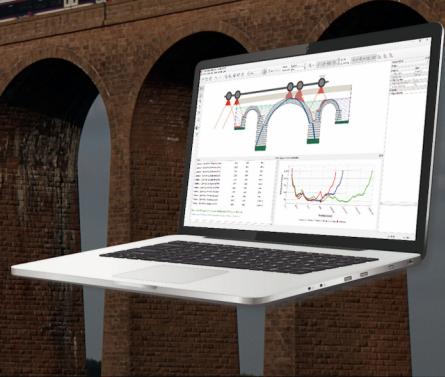




# limitstate:RING

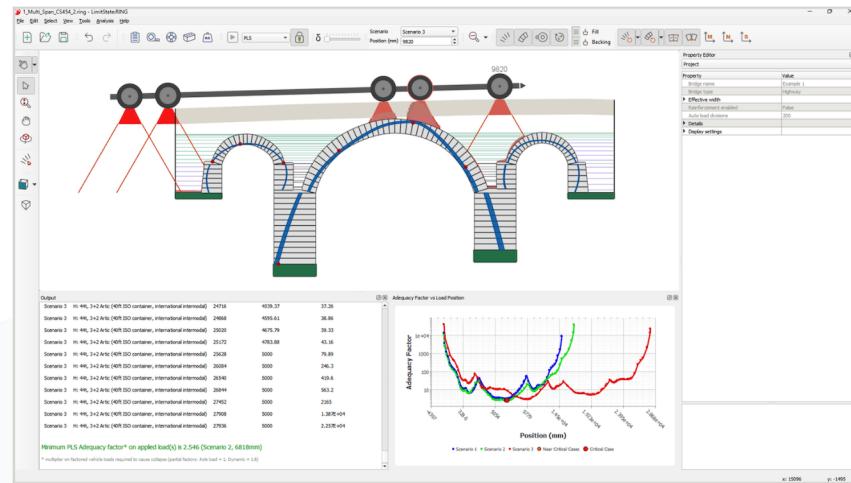
RAPID MASONRY ARCH BRIDGE ANALYSIS



## WHAT'S NEW IN VERSION 4?

LimitState:RING is the industry leading interactive software tool for the analysis of masonry arch bridges, capable of modelling a wide range of potential failure modes in both single and multi-span structures.

Version 4 combines the familiar LimitState:RING features and ease of use with a range of powerful new functionalities and enhancements.



### IMPROVED MODEL INSIGHTS

Gain additional insights into your bridges through an array of enhanced querying capabilities.

Benefit from adequacy factor plotting, pre-analysis diagnostics, and numerous other functionalities designed to enhance user understanding.

### COMPLEX BRIDGE GEOMETRIES

Capture more of the potentially important features that affect bridge behaviour and capacity.

Import CAD derived geometries or use the new wizard modelling features such as earth-retaining abutments, improved user-defined span shapes and more.

### STREAMLINED LOAD MODELLING

Use the new Scenario Manager to define multiple loading configurations, all within the same bridge model.

Choose from an extensive library of loading vehicles, including standard highway and railway vehicles, or define your own.

### BRIDGE MODEL TEMPLATES

Reuse material properties, partial safety factors, and other key parameters in new bridge models.

Quickly set up model templates for specific codes of practice, such as National Highways CS454.

### SERVICE LOAD BEHAVIOUR

With the optional Permissible Limit State analysis mode, you can identify potential risks beyond the Ultimate Limit State.

Explore service load behaviour and let LimitState:RING help inform your bridge stock management strategy.

### CONSOLE MODE FUNCTIONALITY

The new console mode functionality allows you to edit and analyse files from the command line or a batch file.

Bypass the performance overheads associated with GUI operations to swiftly modify and evaluate bridges.



[www.limitstate.com/ring](http://www.limitstate.com/ring)



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## KEY FEATURES

	BASIC LIMIT ANALYSIS SOFTWARE	LIMITSTATE:RING VERSION 3	LIMITSTATE:RING VERSION 4
Model arches of arbitrary shape	✓	✓	✓
Identify critical vehicle load position	✓	✓	✓ +
Compute margin of safety	*	✓	✓
Automatic analysis of multi-spans	✗	✓	✓
Model sliding failures	✗	✓	✓ +
Model multi-ring arches	✗	✓	✓
Local modification of properties	✗	✓	✓
Model arbitrary support movements	✗	✓	✓
Visual display of mode of response	✗	✓	✓
Optional 'Permissible Limit State' mode	✗	✗	✓
CAD import functionality	✗	✗	✓
Bridge template functionality	✗	✗	✓
Command-line interface	✗	✗	✓

\* Some software only displays a line of thrust

+ Functionality enhanced in version 4

## ABOUT LIMITSTATE



We specialize in the development of powerful, yet easy-to-use software tools for the civil and structural engineers.



Our expert support team are on hand for swift assistance with technical and licensing queries.



From independent firms to multinational corporations, engineers in over 30 countries around the world rely on our software.

## OUR PRODUCTS

Discover unique software solutions that set themselves apart by taking full advantage of state-of-the-art optimization algorithms to rapidly and accurately analyse the critical mode of response.

We strive to ensure our software output is as useful for the user as possible. Query forces and failure mechanisms, gain a deeper insight into your engineering problems and address crucial 'what if?' questions.

