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BRIDGE! 2

THE CONSTRUCTION GAME

Manual

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Bridge! 2

The Construction

Game

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Manual

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BRIDGE! 2

THE CONSTRUCTION GAME

Introduction

For over 11,000 years, men have been building bridges. What began as simple wood and stone construction has evolved into imposing structures stretching over several kilometers. However, the purpose has remained the same: crossing a river with dry feet or avoiding a long mountain path with arduous ascents and descents.

Bridge building advanced despite setbacks in history. During the Roman Empire, great strides were made with the development of the arch bridge, enabling longer spans and lifting capacity. In the Dark Ages, after the fall of the Roman Empire, lost knowledge limited engineers to constructing simple wooden structures.

It was not until the beginning of the 12th century in Europe that engineers began once again to build stone bridges. A few reached record spans of up to 70m. This span length was not surpassed until the 18th century and the advent of modern metal construction.

The use of prestressed concrete in the 20th century meant even longer spans could be achieved. The engineers of the Wanxian Bridge in China used this construction to achieve an impressive length of 420m.

Bridge2 lets you build bridges up to 300m long using metal sections and prestressed concrete arches. It includes folding bridges, hanging bridges, vertical lift bridges and the bascule bridge (commonly referred to as a drawbridge) with added features such as a balance beam.

We wish you much fun and success in your engineering!



Operation



Controls

Bridge2 is almost entirely controlled by using the mouse. A left-click confirms an action, a right-click cancels it. One exception is the construction of prestressed concrete arches and suspension cables. Arches are controlled by moving the mouse up and down. Once the arch is formed to your satisfaction, left-click the mouse to confirm the action to build. The camera can be moved with the W, S, A, and D keys. The camera can be zoomed in and out by turning the mouse wheel. The ESC key can be used to bring up the game menu.

Overview of the Commands:

W	Point the camera up
S	Point the camera down
A	Point the camera left
D	Point the camera right

ESC	Bring up the game menu
Mouse wheel scrolls up	Zoom in
Mouse wheel scrolls down	Zoom out
Left-click	Confirm/select action
Right-click	End action
Move the mouse	Use to define the arch length and height

Language Selection

Bridge2 automatically starts in English. To change the language and make other adjustments, go to the Options menu.

Main menu





Profiles



Bridge2 supports any number of different profiles on a Steam account. To play, you must load a profile via the Profiles menu. In this menu, you can load, delete and create a new profile.

New Game

Each profile can save games. If a game has been saved, a warning appears stating that the existing game progress will be overwritten if a new game is started. If no game has been saved, a new game can be started with the tutorial mission. You can begin a new mission with the successful completion of the previous one.

- Tutorial: Explains the basics of the game
- Easy: Initial training mission
- Medium: More sophisticated missions with longer bridge spans
- Difficult: Complex structures and features using many types of components
- Custom: Self-defined missions as well as those created by other users

Continue Game



If a game has been saved, you can continue the play by clicking this command. If no game has been saved, this button is unavailable.

Editor

All of the custom missions are stored in the Editor. Scenarios, construction components and tests are unlocked and made available for you to use by successfully completing missions. The Editor will be described in more depth in the „Editor“ section.



Options



You can change the game settings using the Options menu. The menu is divided into two sections, graphic settings (left) and sound settings (right). Use the arrow keys to switch between the different settings. The volume for the sound settings can be controlled via the controller.

Graphic settings:

Language	Change to another language
Resolution	Switch between available graphics resolutions. Usually, the monitor's normal resolution should be chosen.
Full screen	Switch between full screen and window mode.
Water	Change the display quality of the water. If Bridge2 does not run smoothly, the performance can often be significantly improved by lowering the water display resolution.

Vegetation	Change the display quality of the vegetation. If Bridge2 does not run smoothly, the performance can often be significantly improved by lowering the vegetation display resolution.
Quality	Change the overall visual quality of the game. If Bridge2 does not run smoothly, performance can often be significantly improved with lower image quality.
Visual Effects	Enable or disable all visual effects. On systems with weaker graphics cards like onboard chips on notebooks, performance can often be improved dramatically by disabling the visual effects.

Sound settings:

Music	Adjusts the volume of the background music
Environment	Adjusts the volume of the ambient noise (traffic, birdsong etc.)
UI (User Interface)	Adjusts the volume of the menu tones
Effects	Adjusts the volume of the effects (construction, hydraulics, bridge collapse etc.)

Note: All changes to the options must be confirmed by clicking on the Save button.

Credits

View a list of all the people who contributed to and made Bridge 2 possible.

Quit

Quit Bridge2



How to play

At the start of a mission, a brief description tells you about the bridge and the area. Once you confirm the mission, a number of available components for building your bridge appear in the menu.

To begin the mission and select the components, left-click.

A button on the left deletes the bridge, and sets the mission back to start. Below that is a list of tests that the bridge must pass successfully.

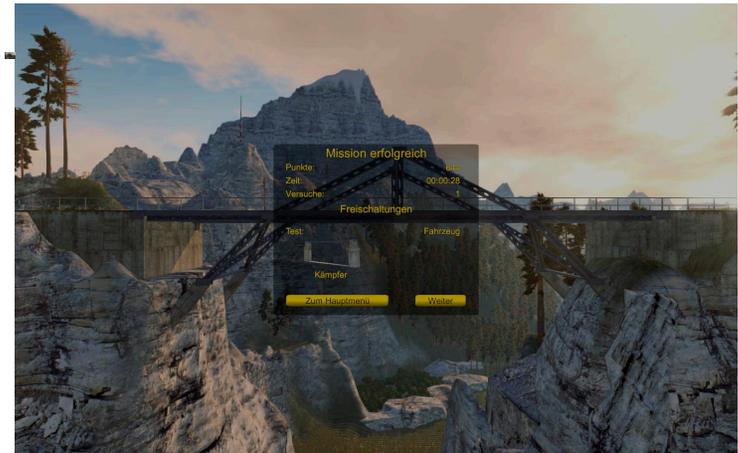
Begin by connecting the building components. Parts that have been built already can be deleted by right-clicking. When the construction is completed, a simulation can be started. Start the simulation by left-clicking on the button.

Once simulation mode is started, no more components can be selected. Instead, the current test and the remaining budget are displayed. On the right is the button for starting and stopping the simulation. Click on the load button to activate the load indicator. This identifies vulnerabilities by showing how strong the bridge is at specific locations. It displays colors from bright green (no load) to red (overload). You can stop the test with the simulation button. The simulation will be canceled and switch back to the building mode. Switching from simulation mode to build mode is regarded as an additional test.

Following the successful completion of the mission, an evaluation window appears:

Points	Displays the score you earned, equivalent to the remaining budget.
Time	Displays the time required for the successful completion of the mission.
Attempts	Indicates the number of times you returned to the construction mode from the simulation mode.

Unlocked Elements:	
Scenario	If a scenario (for example, the alpine railway) was unlocked, it is listed here. Most likely the mission has been successfully completed.
Test	If a test was unlocked, it is listed here. A maximum of one test per mission can be unlocked.
Component	If components were unlocked, they will be listed here. A maximum of two components per mission can be unlocked.
Note: Not every mission has something that can be unlocked!	



Help feature

Some missions can turn out to be complicated indeed. In order to reduce frustration and „being stuck“, a Help button appears in the lower left corner of the screen after every fifth failed attempt, displaying a possible solution for the current mission.



Characteristics

Bridge2 has a number of changes compared to its predecessor.

1. There are no longer separately adjustable connections. Instead, an entire series of components can be built using different connection types. Support beams can be fixed or rotating. Separation joints may be used for roadways. Roadways with this connection type have 3 rather than 2 points of connection. The separation joint at the end of the component should only be connected with other separation joints to avoid a collapse.
2. Prestressed concrete arches are new additions to the game. They are built just like the suspension cables by clicking on the starting point and the end point, then expanding the arches by moving the mouse up and down. Like suspension cables, the prestressed concrete arches can be built as either a convex or a concave arch. Prestressed concrete arches are more stable than suspension cables, but can lose their form under stress and can crack and collapse if overloaded.
3. A second new feature is the addition of counterweights on bascule bridges. These relieve the strain on the integral hydraulics of the structure. The correct balance of the weights requires a little practice and provides a further challenge.

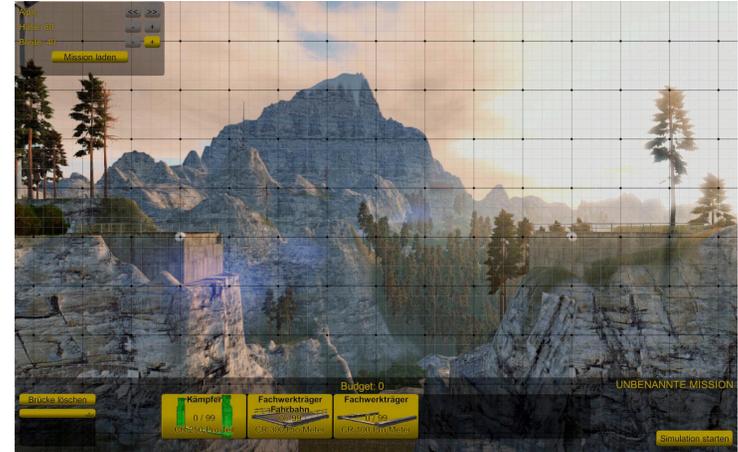
Editor

The Editor allows you to create your own missions for Bridge2. All the developer settings are available. Before you begin, please make sure you read and understand the chapter „How to Play“.

The Editor is not unlocked from the start since the elements you need to design your mission are not immediately available. When a regular mission is successfully completed, scenarios, components and testing elements are unlocked. These can then be used to create your own missions.

Creating your own mission is very similar to completing a mission. The differences are discussed below.

Before Construction



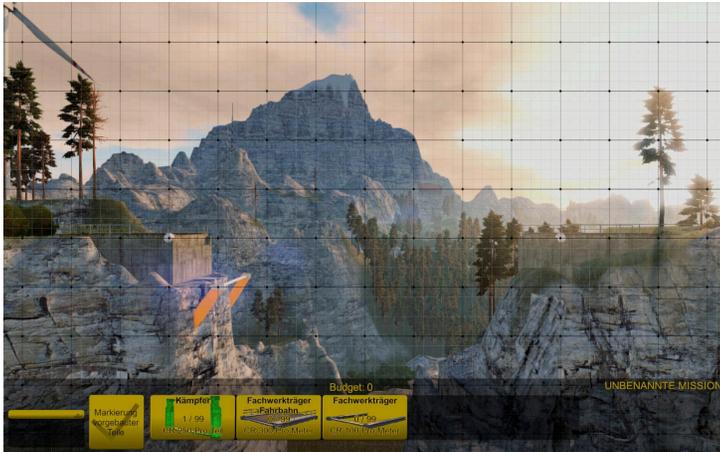
In the upper left of the screen there is a separate interface window.

Scenario Name	Scroll through the unlocked scenarios
Height	Sets the height of the scenario (not available in all scenarios)
Width	Sets the width of the scenario
Load the Mission	Loads a previously saved mission you created

The construction is now just like a mission. However, there are significantly more components available per bridge type. Be sure not to make the mission too complex. Each component must be physically calculated. Increased complexity increases the demands on the computing power and can make smooth game play impossible under certain circumstances!



Marking foundation components



After setting the first component, a new button labeled „marking foundation components“ will appear. By pressing this button, components that are already set at the start of the mission can be marked.

This is particularly useful for piers, pylons and transoms, as these are solid anchor points and are not subject to gravity calculation.

Tests

On the left is an empty list where you can add the tests for your bridge. You can add a test by clicking on the plus sign. The test you select is added using the arrow button. A second click on the plus adds another test to the list. Tests should be performed in a logical order. For example: Hydraulics On – Ship – Hydraulics Off – Traffic. The following tests are available:

Dummy	Use to save the game. For the dummy test, the only requirement is that no connections may break.
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Hydraulics On	Changes the status of the hydraulics. When pushed out, the bridge retracts. For successful completion of this test, you must have at least one hydraulic and no connection may break.
Hydraulics Off	Returns the bridge to the starting position. For successful completion of this test, you must have at least one hydraulic and no connection may break.
Ship	A ship crossing under the bridge. The ship must not hit anything. This test is not available in all scenarios.
Traffic	Roads or rail vehicles cross the bridge. None of the vehicles may leave the road/rail and no connections may break.

Troubleshooting

Hydraulic Test Fails 1	At least one hydraulic must be installed.
Hydraulic Test Fails 2	In most cases it is a question of the counterweights. Simple bridges often manage the hydraulics without counterweights. Heavier constructions require counterweights.
Message “There was no bridge built”	Every bridge requires at least one lane.
Message “There were no tests defined”	The dummy test may be used to test.



Saving the mission

There are three steps to saving a mission.

1. The bridge must pass all tests successfully. In place of a success window, a button appears in the top left of the screen.



2. Building components and financial budget



Budget	Displays the required budget for the solution. The budget can be increased or decreased with the plus and minus buttons. However, the budget can never be reduced more than the budget you have actually used so far.
Component List	Lists the types and number of components needed. It is only possible to adjust the component types used. The number can be changed, but never set lower than what is actually needed.
Right Arrow	Changes to the file name and description window.



3. File Name and Description



Name of the Mission	Specifies the name that appears on the menu.
Description of the Mission	Specifies the description that is displayed after the start of the mission.
List of previously created missions	Lists the missions already created. Clicking on this takes the description and name, and allows the file name to be overwritten.
File Name	Sets the name with which the mission is stored on the hard disk.
Left Arrow	Switches to the building components and financial budget window

4. After saving

Saved missions can be played by either pressing continue game or the category "user-defined". The appending files are saved in the main directory of Bridge2 in the folder "missions". To share them with other players they only need the specific savegame. The easiest way to find the saved missions is to use the steam client. Right click on Bridge2 in your steam library and then click on "properties". Then open the menu "local files" and click on the button "browse local files" that opens a browser window with the folder Bridge2. In the folder "Missions" you find all missions you made.

Note: The names of the missions are a combination of predefined filename and a personal ID that is generated of the user data and the profile name. Reasoning for that is to make sure that self-made missions can only be edited by its owner.

Credits

Producers

Dennis Engelmann

Martin Beyer

Programming

Thomas Bang

Thomas Kronfeld

Modelling

Martin Beyer

Sascha Nonn

Level Design

Kati Hennig

Martin Beyer

Audio and Music

Sven Gerlach

Mission Design

Dennis Engelmann

Marco Köhler

Martin Beyer

Unity Add-ons used

Filmic Tonemapping Deluxe

SpeedTree Vegetation

SSAO Pro

Time of Day

UltimateBloom

UV-Free Triplanar Shader Pack

AmplifyColor



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