

dot2 3D

USER MANUAL

of MA Lighting





dot2 3D User Manual

Version 1.3



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1. Install and Uninstall

- [System Requirements](#)
- [Installation](#)
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1.1. System Requirements

If you want to run dot2 3D on your PC, here's what it takes.

	Minimum	Recommended
Operating system	Windows® 7 Windows® 8 Windows® 8.1 Windows® 10 all with admin rights	
Processor	Dual Core 2.4 gigahertz (GHz) CPU or faster with support SSE2	Intel i7
RAM	2 gigabyte (GB)	8 GB
Hard disk	32 GB available space	type SSD
Graphic card	3D with hardware acceleration and 1024 MB Vertex Shader Version 3.0 or greater Pixel Shader Version 3.0 or greater	3GB graphic RAM
Resolution	1024 x 768 or higher	1920 x 1080
Network card	100/1000 TX/T	gigabit-ethernet

IBM® compatible PC or notebook necessary.

Additional requirements to use certain features:

- To use the online help and download the latest version of dot2 3D, internet access.
- To save on a USB stick, a USB 2.0 or 3.0 port.

We recommend that you visit your PC manufacturer's website for info about updated drivers and hardware compatibility.



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1.2. Installation

Download the latest version from <https://www.ma-dot2.com>.

The installation is possible in every root directory or in the standard directory "MA Lighting Technologies\dot2 3D" in the folder "program".

The different versions of the dot2 3D are independent programs. There is no need to install or uninstall older versions.

It is possible to open shows from an older version in the newer version.

Shows saved in a newer version cannot be opened in an older version.



You should have administration rights to install the program.

Installation on your PC:

If you downloaded only the dot2 3D, start the installation file dot2_3D_vx.x.xxx.exe with a double click.

If you downloaded the MA software release package, extract the file into a temporary folder and start the installation file dot2_3D_vx.x.xxx.exe with a double click.

On the screen appears the installation program. You get detailed hints and information regarding the installation.

Watch out for the suggested directory and change it if you want to. The installation directory is not changeable in the program.



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1.3. Uninstall dot2 3D

The following topic describes how to uninstall dot2 3D.

With the uninstall.exe you remove the dot2 3D from your computer.

All created directories and program data in the start menu will be removed.

All files stored by you and which are not part of the installation file, especially the **show files**, we will keep in the folder **program data**. This folder is hidden by default from Windows®.

1. Click the **Start** button, click **All Programs**, click **MA Lighting**, click **dot2 3D v.x.x.x.x**, and click **Uninstall dot2 3D v.x.x.x.x**.

If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

A pop-up asks, if you really want to uninstall dot2 3D.

2. Click **Yes**.

A pop-up confirms that dot2 3D v.x.x.x.x is uninstalled.

3. Click **OK**.

Save older install datas in case you need it one time.

You can open show files stored in an older version always with the latest Version.



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2. First Steps

This chapter describes how you prepare the dot2 3D for the usage.

The installation process creates a desktop link called **dot2 3D v.x.x.x**

To start the dot2 3D, double click on the desktop link.

Additional it creates a folder in the start menu (Start - Programs - MA Lighting).

To start the dot2 3D from the start menu, click on dot2 3D v.x.x.x .

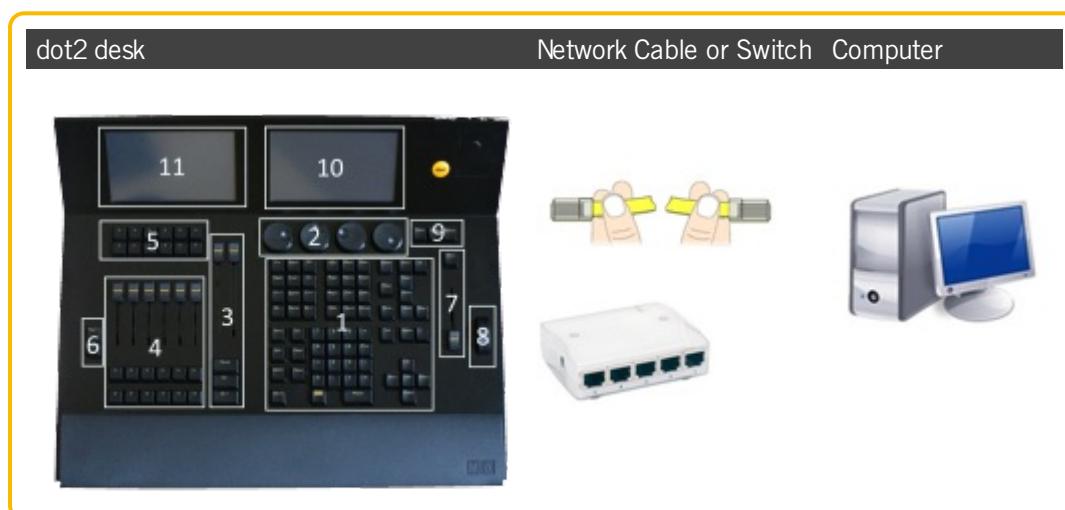
- [Hardware Connection](#)
- [Options in Settings](#)
- [Create a Session and connect to 3D](#)

2.1. Hardware Connection

To establish a session between the dot2 3D and the dot 2 console, you need a hardware connection.

Requirement: Network cable or Switch that can handle IPv6 and multicast.

Connect the console and the computer with a network cable or switch.





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2.2. Create Session and connect 3D

dot2 3D can run on the same computer as dot2 onPC or on different computers connected via Ethernet.

Requirement: Hardware connection between a dot2 console and a computer, or a dot2 onPC and a dot2 3D.



The software version of the dot2 3D and the console/onPC needs to be the same.

dot2 3D **v.x.x.x.x** fits to dot2 console or onPC version.

Important are the first **3 numbers**. If you have different version numbers, there is no connection possible.

Download the latest software version at <https://www.ma-dot2.com>.

1. Start the dot2 console/onPC and the dot2 3D.

The dot2 3D is in no session. You can see that on the broken red heart on the bottom of the window:



2. Open the **Setup** select **Sessions**

3. Select at "Connected Devices": **Consoles** or **onPC**

3. Push the button **Start new or join an existing session**.

4. Push the first button **New Session 1**. A show upload to the 3D should start.

5. If not, push the at the "3D" tab the **Add** button and select the appropriate station "**DeviceName(3D)**".

You have created a session with a dot2 3D and a dot2 console/onPC.



This is indicated via the green heart on the bottom of the 3D window:



If you are in a session with a dot2 console/onPC there is no need to open showfiles via the dot2 3D.
Open the showfile directly in the Backup Menu of the dot2 console/onPC.



Showfiles saved in an older version of dot2 3D can always be opened in a newer version.
Showfiles saved in a newer version of dot2 3D cannot be opened in an older version.



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3. Data Management

This section describes how data is managed by the dot2 console and the dot2 3D visualizer. Both can work independently. If they are connected in a MA network session the dot2 console gets the master and dot2 3D becomes the slave of a session. Data changed within dot2 3D is transferred to the dot2 console and vice versa. dot2 3D and the dot2 console use the same file format for show files (.gz files).

See

- [Master/Slave](#)
- [Coordinate system](#)

3.1. Master/Slave

The dot2 console or onPC is always the master of a session.

The two possible states of the connection are indicated by the heart in the status bar.

The blinking of the heart indicates the communication between the dot2 console and the dot2 3D.



Heart is broken and red: No connection to a session established



Heart is blinking green: dot2 3D has joined a session as slave



With the start of a new session (Create) the session founder overwrites all data of the other members.
I.e. if a new session is founded by the dot2 console or onPC all data in the dot2 3D will be overwritten if the 3D joins the session!



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3.2. Coordinate system

dot2 3D geometric system lets you define and manipulate objects in 3D space. It features a geometric system architecture that defines the X-Y plane as the ground area with the height as Z -axis. All objects can be moved or rotated along the world- or their own object axis (if the object has been rotated) as described in chapter Stage View. You can switch between the world or object axis via a toolbar button or the keyboard as shown in the following list:

Operating Elements	Symbols in 3D View	Description
World axis or Ctrl + W		Objects can be moved along the world axis .
		Objects can be rotated along the world axis .
Object axis or Ctrl + O		Objects can be moved along the object axis .
		Objects can be rotated along the object axis .



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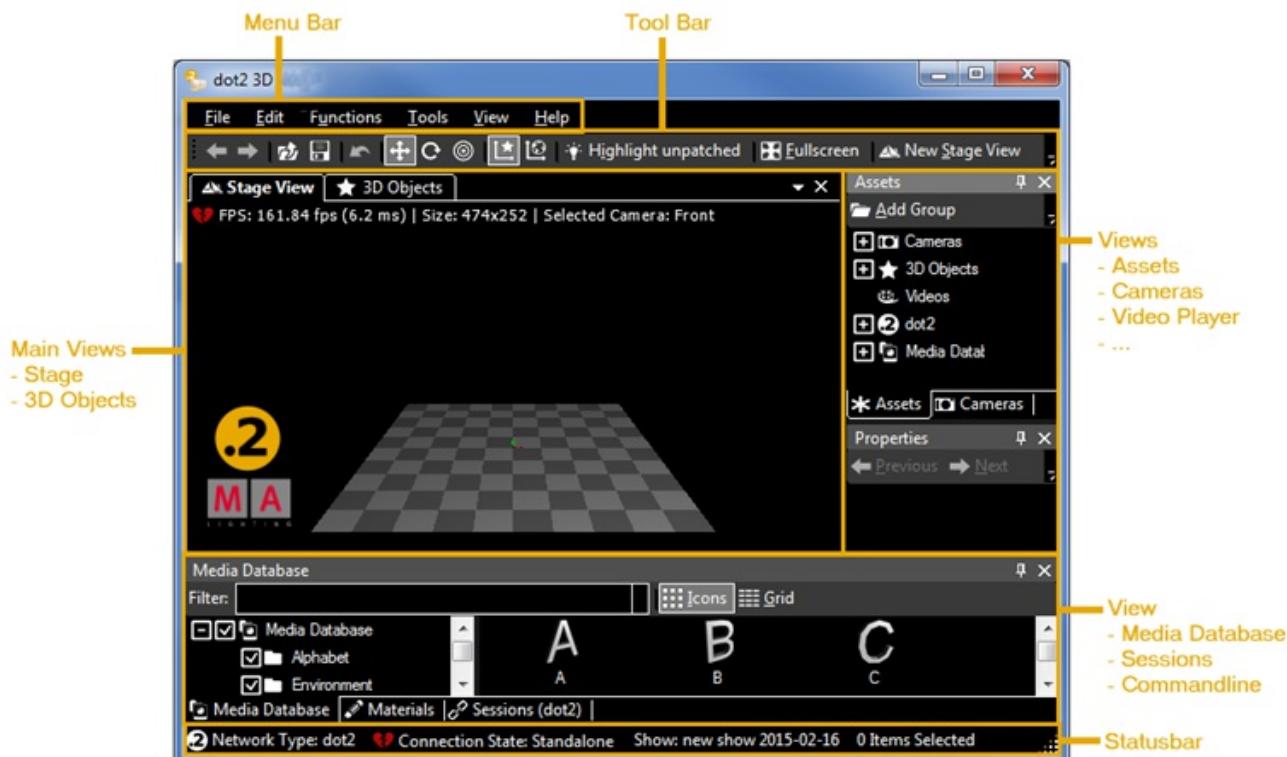
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4. Program Surface

The program surface is structured in five Areas.

- **Menu Bar** with different submenus for the most functions of the program.
- **Tool Bar** below the menu bar.
- **View Area** displays additional views like Assets; Cameras..
- **Status Bar** with the status regarding your network.
- **Main View** visualize your show and displays the 3D Objects Window.





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4.1. Menu Bar

File Edit Functions Tools View Help

With the menu bar, you get access to the most features of the program.

Many features you can also reach with the toolbar, shortcuts or the context menu.

If you press Alt, some letters in the menu bar will be underlined. If you press Alt + the underlined letter, the menu opens.

See:

- [Options in Settings](#)
- [3D Modeling and Import](#)



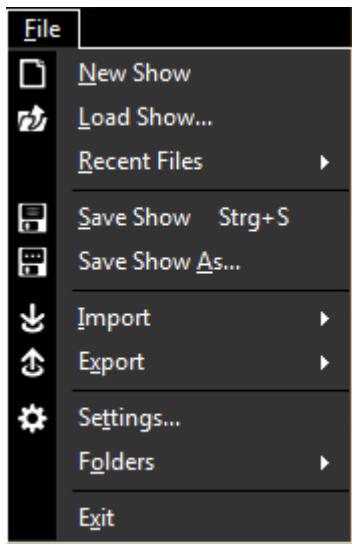
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4.1.1. File Menu

The file menu in detail.



New Show	Creates a new show. (This operation disconnect the 3D)
Load Show...	Opens the Load Show window. (This operation disconnect the 3D)
Recent Files	Displays the recent opened show files.
Save Show	Saves the current show with the given filename on the 3D PC.
Save Show As...	Opens the windows explorer to save the current show with a new filename on the 3D PC. The following options are available:
Import	- Import Environment. Opens the window explorer to import an environment from a show file. - Import 3D Model. Opens the dot2 3D - Import Window. Refer to, 3D Modeling and Import .
Export	Opens the windows explorer to export an environment from a show file.
Settings...	Opens the dot2 3D Settings. Refer to, Options in Settings . The following options are available:
Folders	- Open show folder in explorer - Open gobo folder in explorer
Exit	Quits dot2 3D.



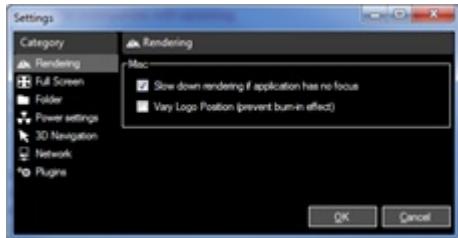
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4.1.1.1. File - Settings

In the menu "File - Settings" you adjust the basic settings for the look and the behavior of the dot2 3D.



The settings are independent from the showfile and they will stay after leaving the program.

After the first installation you should deal with the settings, to get an overview about it

Category	Settings	Program function
Rendering		Slow down rendering if application has no focus Vary Logo Position (prevent burn-in effect)
Full Screen	Screen Alignment	Screen layout is part of a bigger screen layout Identify screens
Folder		Select Media folder
Power Settings	Windows Mode	Disable Screensaver for windows Disable Standby for windows
	Fullscreen Mode	Disable Screensaver only in fullscreen mode Disable Standby only in fullscreen mode
	All Modes	Shutdown all machines via "shutdown" command
3D Navigation	Mouse	Select Reverse Orbit Select Reverse Zoom Choose Mouse Speed
	3D Input Devices	Choose Move Speed Choose Rotate Speed
Network		Select IP Address for a MA Network
Plugins		Enable Plugins



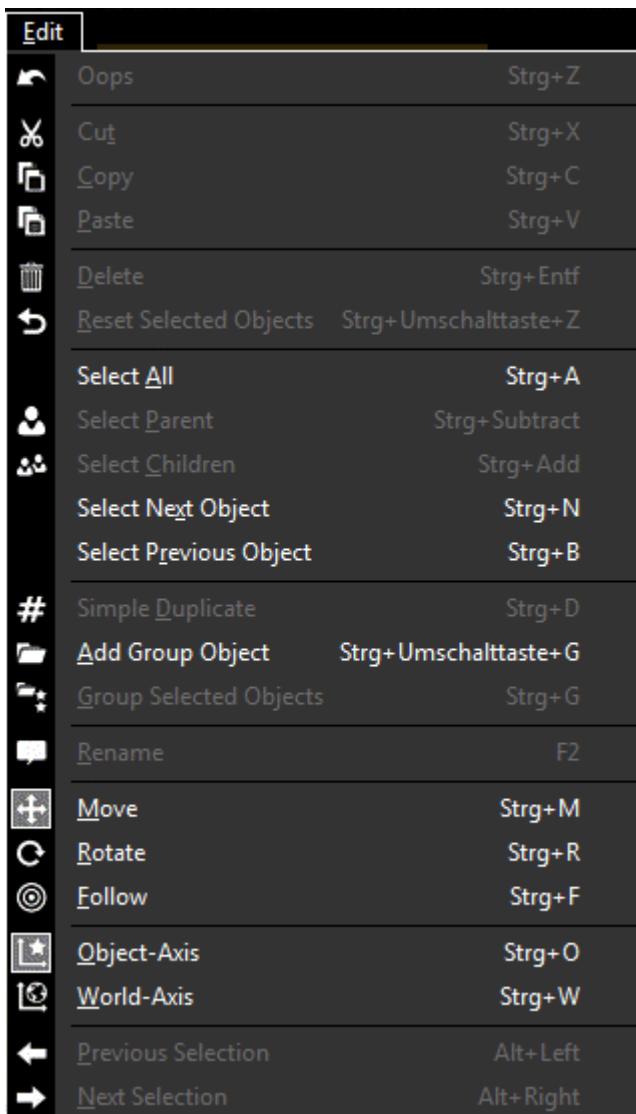
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4.1.2. Edit

The edit menu in detail.



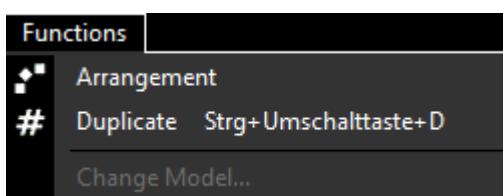
Oops: last action	Undo the last actions.
Cut	Cuts text in the Properties View.
Copy	Copies the selected 3D object in the clipboard. Only 3D Objects view.
Paste	Pastes a 3D object from the clipboard. Only 3D Objects view.
Delete: selected elements	Deletes the selected 3D object.
Reset selected Objects	Sets the selected elements to the origin, 0,0,0.
Select All	Selects all objects.
Select Parent	Selects the parent object of a selected object.
Select Children	Selects the children object of a selected object.



Select Next Object	Selects the next object.
Select Previous Object	Selects the previous object.
Simple Duplicate	Creates a simple duplicate of the selected object. Only for 3D objects without output.
Add Group Object	Creates a group folder.
Group Selected Objects	Creates a group folder for selected objects.
Rename	Rename a 3D object or a camera in the Assets window.
Move	Turns on the move function.
Rotate	Turns on the rotation function.
Follow	Turns on the follow function.
Object Axis	Move or rotate along the axis of the object.
World Axis	Move or rotate along the world axis.
Previous	Selects the previous selected object.
Next	Selects the next object, if previous was clicked before.

4.1.3. Functions

The functions menu in detail.



Arrangement	Opens the Arrangement window. Refer to, Arrangement of Objects.
Duplicate	Opens the Duplicate window. Refer to, Duplicate 3D Objects.
Change Model...	Opens the Media Database. Refer to, Media Database.

Related Links

- [Arrangement of Objects](#)
- [Duplicate 3D Objects](#)
- [Media Database](#)



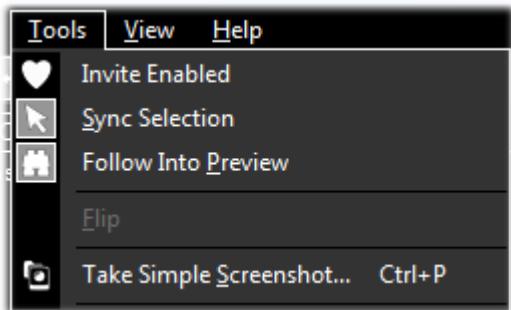
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4.1.4. Tools

The tools menu in detail.



Invite Enabled Toggle between enabled and disabled. If invite is disable, the dot2 3D could not be invited from a dot2 console/onPC.

Sync Selection Synchronize the selected fixtures in dot2 3D and dot2 console/on PC. You have always the same fixtures selected.

Follow Into Preview dot2 3D follows the dot2 console/onPC into preview.

Flip Pans the selected fixture 180 degrees, inverts the tilt-angle, and points the fixture in the same direction.

Take Simple Screenshot... Takes a simple screenshot and opens the windows explorer to save it.



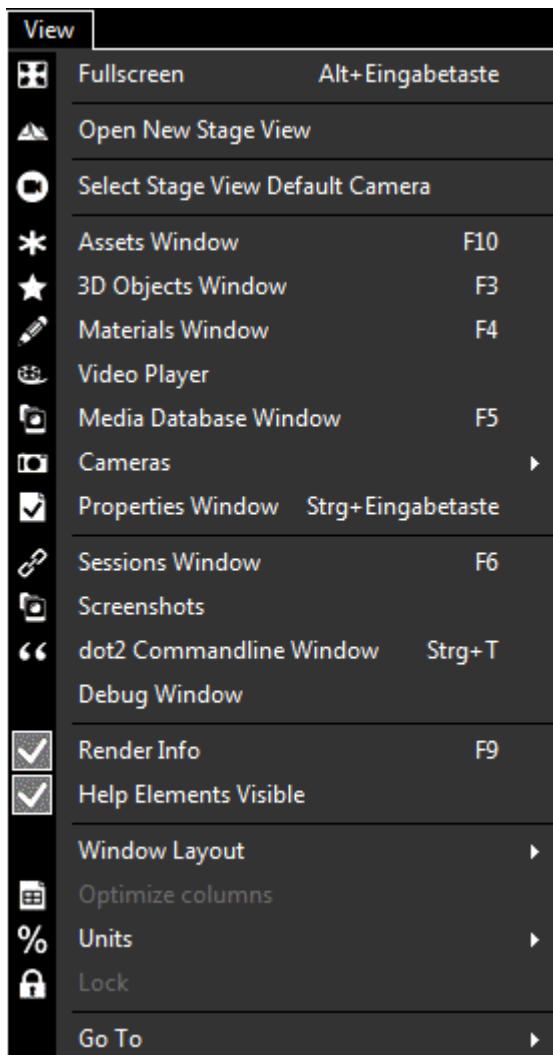
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4.1.5. View

The view menu in detail.



Fullscreen Opens the stage view in full screen.

Open New Stage View Opens a new Stage view. Refer to, [Stage View](#).

Assets Window Opens the Assets window. Refer to, [Assets Window](#).

3D Objects Window Opens the 3D Objects view. Refer to, [3D Objects View](#).

Materials Window Opens the Materials window. Refer to, [Materials Window](#).



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Video Player Opens the Video Player view. You can map video files instead of textures on surfaces and control this files via the [video player window](#).

Media Database Window Opens the Media Database window. Refer to, [Media Database Window](#).

Cameras The following options are available.

The cameras/views are added in the stage view and gives you a view on the stage from the added camera/view position.

- Add Front Camera

- Add Front/Left Camera

- Add Left Camera

- Add Back/Left Camera

- Add Back Camera

- Add Back/Right Camera

- Add Right Camera

- Add Front/Right Camera

- Add Top Camera

- Add Front View (2D)

- Add Side View (2D)

- Add Top View (2D)

- Add at Current Position. Adds a further camera at the current positon. Double check in the [Assets Window](#).

- Use Selected. Uses the selected camera from the [Assets Window](#).

- Cameras Visible. Displays the cameras in the stage view as direction arrows.

- Camera Spanning. Spans the cameras in stage view. This makes sense if you use more than one screen in the fullscreen mode.

- Cameras Window. Opens the Cameras Window.

Properties Window Opens the Properties windows. Refer to, [Properties Window](#).

Sessions Window Opens the Sessions window. Refer to, [Create a Session](#).

Screenshots Opens the Screenshots window.

Commandline Window Opens the Commandline Window.

Debug Window Opens the Debug 3D Window (system monitor).

Render Info Turns the render information in the stage view on or off.



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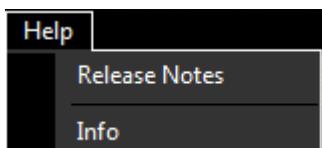
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Help Elements Visible	Turns the X,Y,Z axis in the stage view on or off.
Window Layout	The following options are available: Refer to, Window Layout Arrangement . <ul style="list-style-type: none">- Load Window Layout. Opens the windows explorer to load a saved window layout.- Save Window Layout. Opens the windows explorer to save the current window layout.- Reset Window Layout. Resets the window layout to default.
Optimize Columns	Sets the columns in the 3D Objects grid to optimal size.
Units	The following options are available: This affects the Properties Window. <ul style="list-style-type: none">- Size as Dimension. Sizes are displayed in physical units, e.g. meter and inch.- Size as Scaling Factor. Sizes in the are scaled in % of the original size.
Lock	Locks the Properties Window.
Go To	The following options are available: <ul style="list-style-type: none">- Previous Selection. Selects the previous selection.- Next Selection. Selects the next selection.

4.1.6. Help

The help menu in detail.



Release Notes	Opens the release notes window.
Info	Opens the information window.



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4.2. Tool Bar



The tool bar is located below the menu bar.

Icon	Name	Function	Shortcut
◀	Previous Selection	Selects previous selection.	Alt + Left
▶	Next Selection	Selects next selection.	Alt + Right
Load Show	Load Show	Opens the load show window.	None
Save Show	Save Show	Saves the show with the given filename.	Ctrl + S
Oops	Oops	Undo the previous action.	Ctrl + Z
Move	Move	Turns on the move function.	Ctrl + M
Rotate	Rotate	Turns on the rotate function.	Ctrl + R
Follow	Follow	Turns on the follow function.	Ctrl + F
Object-Axis	Object-Axis	Turns on the object axis function.	Ctrl + O
World-Axis	World-Axis	Turns on the world axis function.	Ctrl + W
Highlight unpatched	Highlight unpatched	Highlights the unpatched fixtures	Ctrl + I
Fullscreen	Fullscreen	Opens the stage view on full screen.	Alt + Enter
New Stage View	New Stage View	Opens a new stage view.	None
Select Default Camera	Select Default Camera	Selects the defined default camera.	Ctrl + M
Cameras Visible	Cameras Visible	Displays the camera in the stage view as direction arrows.	F7
Camera Spanning	Camera Spanning	Spans the cameras in several stage views, in the full screen mode.	F8

Example:



	Rendering	Opens the Rendering drop down.	None
--	-----------	--------------------------------	------



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4.3. Main Windows

Main windows are represented as tabbed windows:



4.3.1. Stage View

The Stage View Window offers a photorealistic view from any camera perspective or a 2D draft view:



FPS: 165.84 fps (6.0 ms) | Size: 945x510 | Selected Camera: Front 1

If the menu entry 'View - Render Info' is selected information about the connection state, the frame rate (in **F**rames **P**er **S**econd), the window size (in pixels) and the selected camera are shown.



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4.3.2. Mouse + Keyboard Actions



Generally:

+



left mouse button actions for **objects**,

right mouse button actions for **camera**



**Left
Mouse
Button:
Moving
and
Rotating
of
Objects**

Objects can be moved or rotated along the world- or their own axis. Hold the **left mouse button** down to **change between Move and Rotate** and vice versa.



- Select the object
- Move or rotate it along the selected axis





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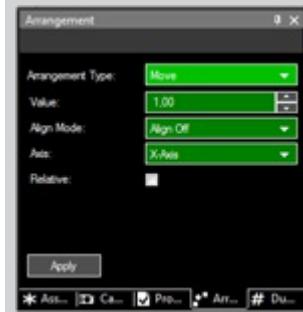
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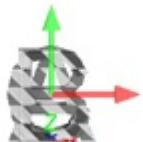
4.3.3. Arrangement of Objects (Align Objects)

dot 2 3D allows automatic arrangement of 3D objects. Therefore select the objects to arrange via 'Ctrl + mouse click' or multiple selections in the assets tree.

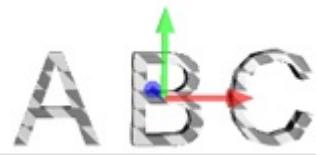
Via the menu entry 'Functions - Arrangement' the Arrangement Window opens:



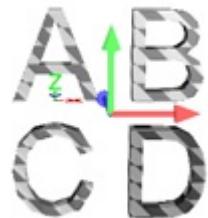
Objects can be arranged in several ways like:- Moved along the X,Y,Z axis- Moved along a circle line in X,Y,Z space- Arrange in a 2D matrix Corresponding to the grandMA2 console alignment function objects can be arranged in relation to the origin object like:- <, >, ><, and >>. If the 'Relative' flag is set every push of the 'Apply' button increments the arrangement by the given value. Note: The origin is 0,0,0 if the 'Relative' flag is off. Otherwise it is the own position.



Example: Several objects inserted into the Stage View at the origin (0,0,0).



Objects aligned via 'Move' and 'Align <' function along the X-axis.



Objects aligned as a matrix via 'Matrix (2D)' function.



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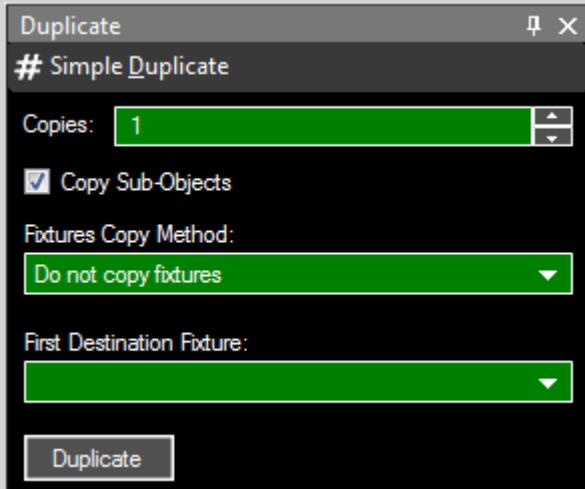
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4.3.4. Duplicate (copy 3D Objects)

You can duplicate objects via a mechanism in a comfortably way. Therefore do a multi selection in any view via left mouse button + 'Ctrl or Shift' and select the menu entry 'Functions - Duplicate'.

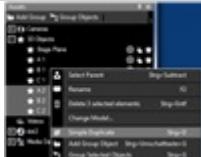
The Duplicate window appears:



If the objects contain sub-objects select if these are copied too.

Note: It is **not possible to create new fixtures within dot2 3D!**

If fixtures are selected to duplicate it is possible to select 'Use other Fixtures'. Select the 'First Destination Fixture' inside the list box. After pressing the 'Duplicate' button the 'First Destination Fixture' will be moved to the X,Y,Z position of the source fixture and so on. This mechanism is useful to create symmetrical stage sets. For example you have to setup the number of all used fixtures inside the set. Do the setup for the left side of trusses and lanterns. After that you can duplicate the left side and mirror it to the right side.



Or select the objects to duplicate and duplicate them via the context menu.



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4.3.5. 3D Objects

3D Objects															
Name	Position [m]			Rotation [°]			Size [m]			Sunshade	Visible	Selectable	Follow Ta	Fixture ID	Ch
★ Stage Plane	0,00	0,00	0,00	0,00	0,00	0,00	10,00	10,00	0,00	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Group 1	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Dim 1	-3,79	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1	
Group 2	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Dim 2	-3,37	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2	
Dim 3	-2,95	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	3	
Dim 4	-2,53	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4	
Dim 5	-2,12	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5	
Dim 6	-1,70	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6	
Dim 7	-1,28	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7	
Dim 8	-0,87	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	8	
Dim 9	-0,45	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9	
Dim 10	-0,03	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10	
Dim 11	0,38	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11	
Dim 12	0,80	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12	
Dim 13	1,22	0,00	6,00	0,00	0,00	8,02	0,25	0,25	0,45	<input checked="" type="checkbox"/>	★	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	13	

This view offers information about all used objects in a grid view. All used 3D objects and fixtures are listed in this grid. Single or multiple objects can be selected for manipulation or duplicating. The objects can be sorted by a left mouse click into the headline of a column.

The symbols inside the grid have the following meanings:

Name	Meaning
★	3D object
💡	Fixture object
📁	Grouping object

The property symbols inside the grid have the following meanings:

Property	Meaning
★ ☆	Object is visible or hidden in Stage View
<input checked="" type="checkbox"/> <input type="checkbox"/>	Sunshade is on or off
◎ ○	Followspot is active or inactive on object surface

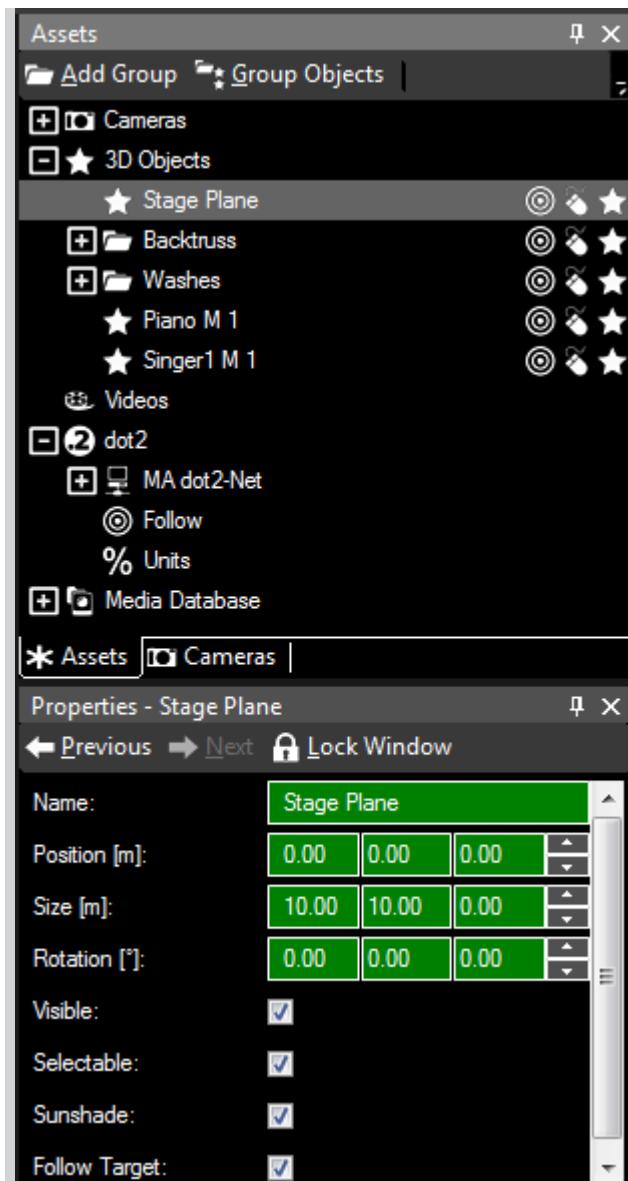
4.4. Assets (Information Window)

To get the Assets Window, click on **View** in the menu bar and click **Assets Window**.



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The default window layout gives you the assets window and the properties window at the right screen border.

It is useful to have them both visible together.

If you click on an element in the assets window, its properties are shown below.

The Assets window lists all used objects and fixtures in a tree. Select an object in the tree and the object will be marked in the Stage View and 3D Object grid too and vice versa.

The assets window is a tree structure view including

- Cameras
- 3D Objects
- Videos
- dot2
- Media Database

In the assets window you can

- select objects
- add groups
- group objects
- select children
- delete objects

Titlebar Icon	Description
	Adds a new group folder in the tree structure of the 3D Objects.
	Creates a new group of the selected 3D Objects.
	Selects the children of a group.
	Deletes selected objects in the tree

The icons next to the cameras or the 3D objects displays the status. Click on the icon to change the status.

Camera Icon	Description
-------------	-------------



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You can step via keyboard (space button) to the next camera. Not selected cameras are ignored

3D Objects:

3D Object Icon Description



Follow function of the 3D object surface is on / off.



3D object is selectable or not in the stage view.



3D object is visible / invisible in the stage view.

Console Properties:

Console Icon

Description



Console properties like MA dot2-Net settings, Follow spot from console, Units (change units from meter to inch etc.)



If you want to change the unit e.g. from meters to feet open the dot2 tree in the assets window, select 'Units' and switch the unit to 'feet'.

4.5. Properties



The Property window informs about the properties of the actual selected object like fixtures or 3D objects. If several objects are selected e.g. via 'Ctrl + mouse' only the fields with equal information are filled, other fields are cross striped. You can change the settings of one or all selected objects here.

Position [m]:

1.00

Numerical values can be increased or decremented via the mouse wheel (+Ctrl or +Shift) if the field is selected. Units can be changed in the Assets tree at 'Ma Net' see above. Also the sizes can be changed absolute or as scaling factor. This can be done via the menu entry 'View - Units'



If you want to change the unit e.g. from meters to feet open the dot 2 tree in the assets window, select 'Units' and switch the unit to 'feet'



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4.6. Media Database

To open the media database, click on **View** in the menu bar and then **Media Database**. Import 3D objects from the media database into the stage view.



The media database provides 3D objects for the stage. There are 12 different folders available.

On the top is a **filter** field. Type the search word in the filter to search a specific object in the media database.

There are two views available. The icon view and the grid view.

The **icon** view displays an icon of the 3D object along with the name.

To import a 3D object from icons view into the stage view, select the object and move it via drag and drop into the stage view or double click on the icon.

The **grid** view displays additional in columns the

- category
- device class
- author of the 3D object
- model key
- size of the object in metric (length, width, height)
- vertices
- size of the 3D object in bytes

To import a 3D object from the grid view into the stage view, double click on the object row.



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4.7. Materials



If an object is selected the Materials window shows all used materials (texture images) of the object.

Name	Owner Name	Diffuse Color	Diffuse Inking	Emissive Color	Emissive Inking	Specular Power	Texture
Mat.3	Lectem M 1					0.58	
Mat.2	Lectem M 1					0.58	
black1	Lectem M 1					0.74	
black	Lectem M 1					0.60	
Mat1	Lectem M 1					0.58	
Mat12	Lectem M 1					0.58	
gray	Lectem M 1					0.60	
white	Lectem M 1					0.74	
Mat	Lectem M 1					0.60	
Mat.1	Lectem M 1					0.58	
black1	Lectem M 1					0.74	
black1	Lectem M 1					0.74	
skincolor	Lectem M 1					0.74	

Select the material in the Material window and you can change its properties (diffuse color, emissive color, specular power, texture) in the property window. The results can be viewed directly in the Stage View window.



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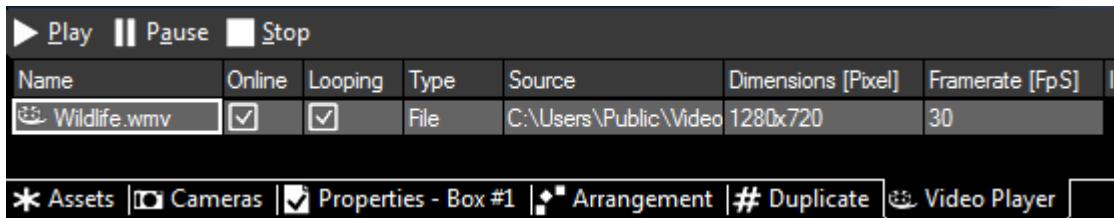
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4.8. Video Player

You can cover surfaces of 3D Objects not only with textures but also with videos.

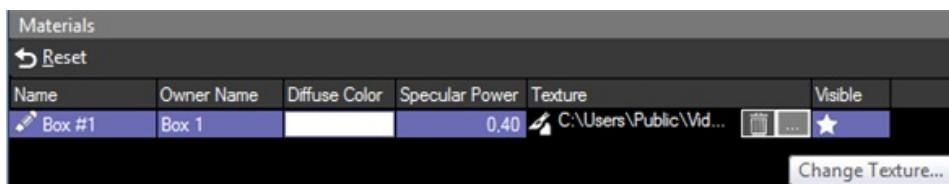
These video files can be controlled by the Video Player:



The video can be looped or run once. The video file is handled by the Material Data base.

If you want to load a new video file open the Materials window and select the texture field...

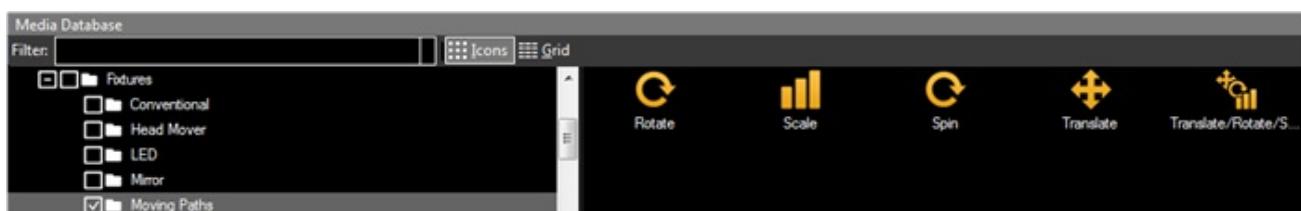
Here you can browse to the video file location.



The following file formats are supported:
Video(*.drc, *.mkv, *.ogg, *.ogv, *.webm, *.wmv)

4.9. Moving Paths

Moving Paths allow the movement of objects like trusses with their attached sub objects like fixtures, trusses etc..



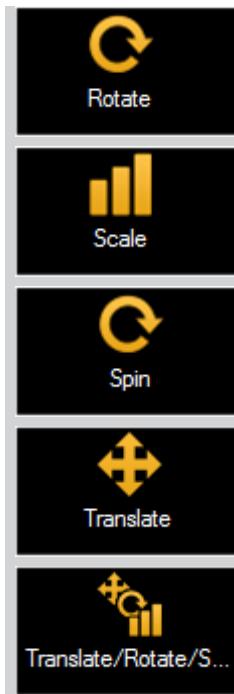


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Moving Paths are managed like fixture types in the desk. To setup a Moving Path, create a new fixture in the desk from the library. Choose the Manufacturer 'MA Lighting' and the type 'Moving Path...'. There are several types of Moving Paths. The type (Rotate, Scale...) specifies the parameters controlled by the desk:



The object rotates once around the axes of the Moving Path.

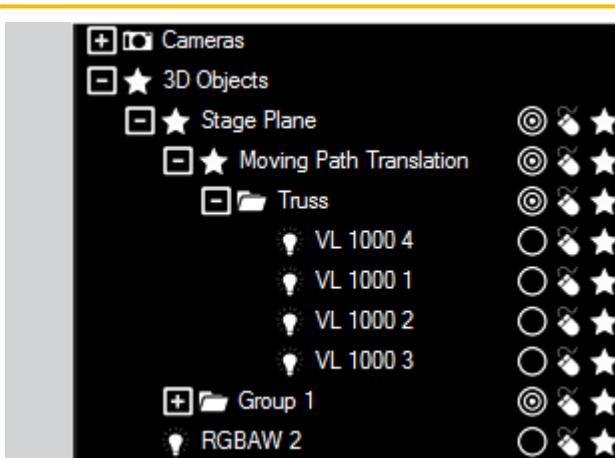
The object is scaled in X,Y and Z dimensions.

The object rotates continuously around the axes of the Moving Path. The rotation speed can be set in rotations per minute at the desk.

The object can be moved in X, Y and Z direction.

Combined Moving Path of Translation, Rotation and Scale. This type is more easy to use instead of concatenating the single types.

Controlling of the position is always done **relative** to the origin coordinates. I.e. if an object with moving paths is moved manually, the tracks of the Moving Paths are always moved parallel to the new object coordinates.

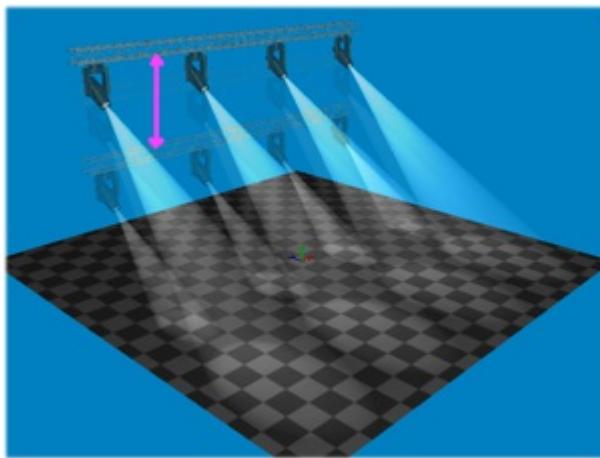


You can attach an object to a Moving Path via dragging the object in the tree. Drop it onto the desired Moving Path. The pictured example shows a truss with 4 moving head fixtures (1000 1...4) mounted on a truss (FS34-400 1...2).



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The example shows a 'Translation' Moving Path controlled in Z-direction. The truss moves up and down controlled by the desk.

4.10. Sessions

Sessions (dot2)		
Heart Invite Enabled Computer Own IP-Address: fe80::79d6:d230:2ffc:70d (OTTOS-CORE-I7)		
Session ID	State in Session	Streaming Version
1	Slave	3.1.0
Media Database	Materials	Sessions (dot2)

The Session window gives an overview about all running sessions in dot 2 net.

The headline informs about the IP-Address and the computer name in (). The session ID and the state of the sessions are displayed.

The streaming version is important for the compatibility between 3D and console.



Note: if you don't want to be invited to the session from the dot2 press the button: Invite Disabled



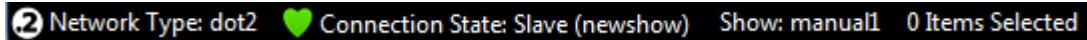
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4.11. Status Bar

The status bar is at the bottom border of the program window.



The status bar includes the following elements:

- **Network Type:** Displays the network type.
- **Connection State:** The connection state displays, which connection the dot 2 3D has, along with the name of the session. To open the [Sessions Window](#), click on the connection state.
-  dot 2 3D has no connection to a session.
-  dot 2 3D has joined a session as a slave.
- **Show:** Displays the name of the show file.
- **Item Selected:** Displays how many items are currently selected.

4.12. Window Layout Arrangement

For a better overview, you can arrange your window layout.



If you have a small screen, it could be better to fade out additional views.

To fade out views, click on the little x. If you want to have the view later, got it in the menu bar.



Another option is to pin views on the screen border. Pined views creates view tabs on the right or bottom screen border. If you move the mouse over the tabs, the view appears.

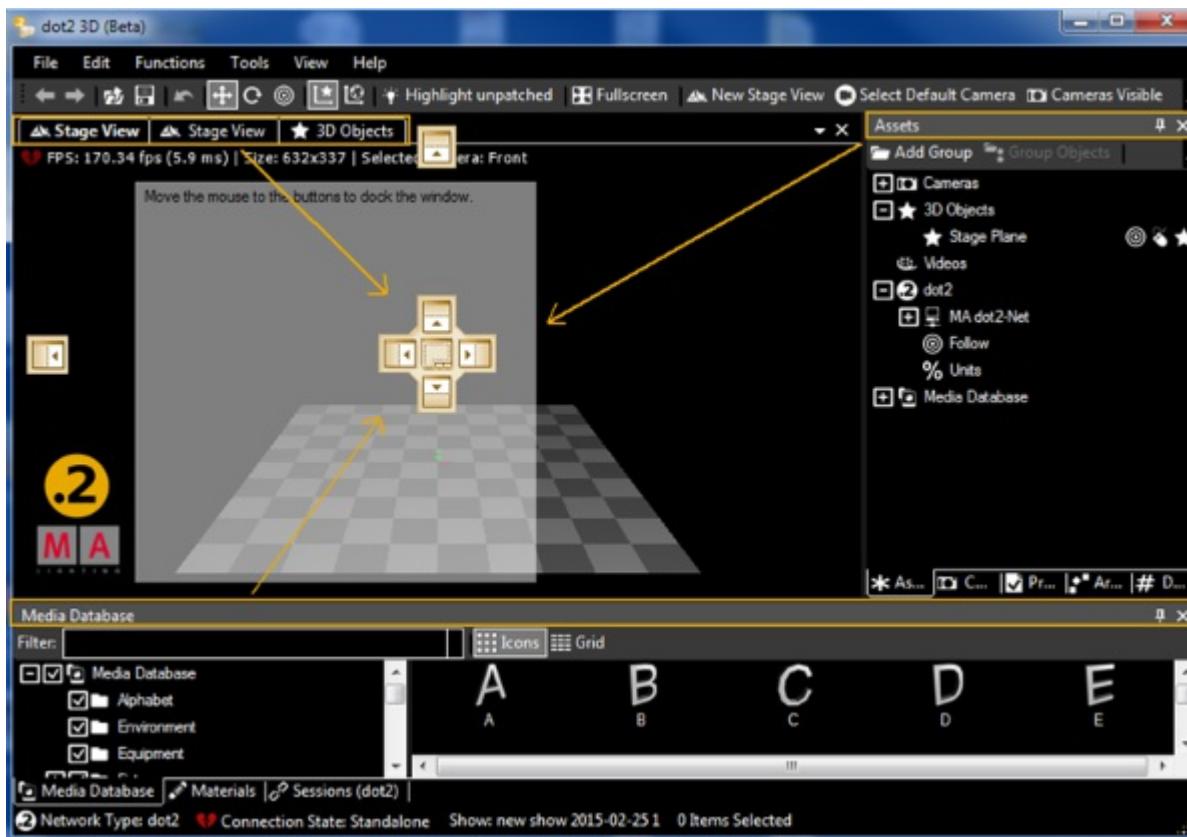


To pin views, click on the pin needle. To deactivate the pin function, click on the pin needle again.



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Another option is to move views on a different area. You can move and dock views on the left-, right-, upper-, and lower screen border.

To move a view, click and hold the title bar of a view, move it to an arrow and release the mouse button.

Another option is to undock views and open them in an own window.

To undock views, click and hold the title bar of a view, and move them out of the main screen. The view opens in an own window.

● Save/Load/Reset/Delete Window Layout

You can save the arranged window layout and load it.

Window Layouts will be saved in "C:\Users\XXX\AppData\Roaming\MA Lighting Technologies\dot2_3d\Version\WindowLayouts".

You will find all actions and commands regarding the window layout in the menu bar "View - Window Layout".

● Save Window Layout

Save a window layout via "View - Window Layout - Save Window Layout".



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● Load Window Layout

To load a previous saved window layout, open "View - Window Layout - Load Window Layout".

Choose the window layout. If there is no window layout available, you did not save one.

If you cannot **find** your window layout, use the search function from the windows explorer and search for the end of the file name ".gma3dwindow".

● Reset Window Layout

Reset the window layout via "View - Window Layout - Reset Window Layout".

You get the default window layout back.

● Delete Window Layout

To delete a window layout there is **no** function in the **menu bar**. Use the windows explorer or go to "View - Window Layout - Load Window Layout", click on the window layout, right mouse button and delete.



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5. Fixture Types

This table gives an overview about the visualization effects in dot2 3D.



Unlike other effects all of these axes must be included in the basing 3d-model. This a prerequisite for fixtures and moving paths. If the model has no axis nothing will move.

Effect in dot2 3D	Description	Preset Type	Feature	Attribute	Subattribute	Unit of Measurement	Example
Axis (axis of fixtures or moving paths)							
Pan	Pan-axis of fixtures	POSITION	POSITION	PAN	PAN	Angle in degrees	-180 thru 180
Tilt	Tilt-axis of fixtures	POSITION	POSITION	TIILT	TIILT	Angle in degrees	-80 thru 80
Roll	Roll-axis of fixtures	POSITION	POSITION	ROLL	ROLL	Angle in degrees	-80 thru 80
Translation X	Translation in x-, y- or z-direction, e.g. for moving paths	POSITION	MP_TR (MP Trans)	MP_TR_X (X), MP_TR_Y (Y), MP_TR_Z (Z)	MP_TR_X (X), MP_TR_Y (Y), MP_TR_Z (Z)	Translation range in meter	-5 thru 5
Scaling X, Scaling Y, Scaling Z	Scaling of objects in x-, y- or z-direction, e.g. for moving paths	POSITION	MP_SC (MP Scale)	MP_SC_X (X), MP_SC_Y (Y), MP_SC_Z (Z)	MP_SC_X (X), MP_SC_Y (Y), MP_SC_Z (Z)	Scaling factor (must be >0!)	-0.1 thru 2
Rotation X, Rotation Y, Rotation Z	Rotation around x-, y- or z-axis, e.g. for moving paths	POSITION	MP_ROT (MP Rot)	MP_ROT_X (X), MP_ROT_Y (Y), MP_ROT_Z (Z)	MP_ROT_X (X), MP_ROT_Y (Y), MP_ROT_Z (Z)	Angle in degrees	-180 thru 180



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Effect in dot2 3D	Description	Preset Type	Feature	Attribute	Subattribute	Unit of Measurement	Example
Spin X, Spin Y, Spin Z	Continuous rotation around x-, y- or z-axis	POSITION (MP Spin)	MP_SPIN	MP_SPIN_X (X), MP_SPIN_Y (Y), MP_SPIN_Z (Z)	MP_SPIN_X (X), MP_SPIN_Y (Y), MP_SPIN_Z (Z)	Rotation speed in rotations per minute (rpm)	-15 thru 15
Clamp	Pitch of the clamp	POSITION	MP_ROT (MP Rot)	CLAMP	CLAMP	Angle in degrees	-90 thru 90
Barndoors 1, Barndoors 2, Barndoors 3, Barndoors 4	Pitch of barndoors in front of the lens	SHAPERS	BARndoors	BARndoors 1 (Bd1), BARndoors 2 (Bd2), BARndoors 3 (Bd3), BARndoors 4 (Bd4)	BARndoors 1 (Bd1), BARndoors 2 (Bd2), BARndoors 3 (Bd3), BARndoors 4 (Bd4)	Angle range in degrees; 0° = barndoors is in same position like in model > 0° = close barndoors	0 thru 90
Light Output							
Shutter		BEAM	SHUTTER	SHUTTER	SHUTTER	0 = shutter closed, 1 = shutter open	
Strobe/ Strobe Frequency	Strobe effects with random and soft opening/closing option	BEAM	SHUTTER	SHUTTER	STROBE, STROBE_PULSE (Pulse), STROBE_PULSE_CLOSE (Pulse Close), STROBE_PULSE_OPEN (Pulse open), STROBE_RANDOM (Rnd), STROBE_RANDOM_ PULSE (Rnd Pulse), STROBE_RANDOM_ PULSE_CLOSE (Rnd Pulse Close), STROBE_RANDOM_ PULSE_OPEN (Rnd Pulse Open)	Strobe frequency in Hz (bigger than 0)	0.5 thru 10



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Effect in dot2 3D	Description	Preset Type	Feature	Attribute	Subattribute	Unit of Measurement	Example
Strobe Ratio		BEAM	SHUTTER	STROBE_RATIO	STROBE_RATIO (Duty Cycle)	Slice of 1.0.5 means that the shutter is open half the strobe interval.	0.2 thru 0.8
Dimmer	Intensity of light source	DIMMER	DIMMER	DIM	DIM, DIM 2, DIM 3	Factor on the fixture type intensity 0.0 = off 1.0 = maximum	0.2 thru 0.8
Light Effects							
Color	Color of beam or led surfaces	COLOR	COLOR 1, COLOR 2, COLOR 3, COLOR 4	COLOR 1, COLOR 2, COLOR 3, COLOR 4	COLOR 1 (Select), COLOR 2 (Select 2), COLOR 3 (Select 3), COLOR 4 (Select 4)	Color	-
Scroller	Color of a beam	COLOR	COLORALL (Color)	SCROLLER	SCROLLERSELECT (Scroller)	Color	-
Zoom		FOCUS	FOCUS	ZOOM	ZOOM	Angle in degrees	
Iris		BEAM	BEAM1	IRIS	IRIS	Factor 0.0 = iris completely closed, 1.0 = iris open	0.2 thru 1.0



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Effect in dot2 3D	Description	Preset Type	Feature	Attribute	Subattribute	Unit of Measurement	Example
Prism		BEAM	BEAM1	PRISMA1 (Prism1)	PRISMA1 (Prism1)	Prism angle in degrees (angle between center of beam without prism and with prism).	30 degrees 3 beams
Prism Position	Rotation of the prism	BEAM	BEAM1	PRISMA1_POS (Pos1)	PRISMA1_POS (Pos)	Angle in degrees	-180 thru 180
Prism Rotation	Continuous rotation of the prism	BEAM	BEAM1	PRISMA1_POS (Pos1)	PRISMA1_ROT (Rot)	Rotation speed in rpm	-15 thru 15
Frost		BEAM	BEAM1	FROST	FROST	0.0 = no frost, 1.0 = maximum	0.0 thru 1.0
Gobo (3 wheels maximum)							
Gobo X (Wheel Position)	Selects gobo from values inside functional block	GOBO	GOBO 1, GOBO 2, GOBO 3	GOBO1 (G1), GOBO2 (G2), GOBO3 (G3)	GOBO 1 (Select), GOBO 2 (Select2), GOBO 3 (Select3), GOBO1_SPIN (Spin), GOBO2_SPIN (Spin2), GOBO3_SPIN (Spin)		
Gobo X - Position	Rotation of current gobo	GOBO	GOBO 1, GOBO 2, GOBO 3	GOBO1_POS (G1 <>), GOBO2_POS (G2 <>), GOBO3_POS (G3 <>)	GOBO1_POS (Index), GOBO2_POS (Index2), GOBO3_POS (Index3)	Angle in degrees	-180 thru 180



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Effect in dot2 3D	Description	Preset Type	Feature	Attribute	Subattribute	Unit of Measurement	Example
Gobo X - Rotation	Continuous rotation of the current gobo	GOBO	GOBO 1, GOBO 2, GOBO 3	GOBO1_POS (G1 ⇔), GOBO2_POS (G2 ⇔), GOBO3_POS (G3 ⇔)	GOBO1_ROT (Rotate), GOBO2_ROT (Rotate2), GOBO3_ROT (Rotate3)	Rotation in rpm	-15 thru 15
Blades (4 blades maximum)							
Blade X - Insertion (A)							
	Insertion of the blade into the beam. This attribute has to be present to visualize any blade.	SHAPERS	SHAPER (Frames)	BLADE1A (1A), BLADE2A (2A), BLADE3A (3A), BLADE4A (4A)	BLADE1A (1A), BLADE2A (2A), BLADE3A (3A), BLADE4A (4A)	0.0 = no insertion, 1.0 = full covering	0.0 thru 0.5
Blade X - Insertion (B)							
	Second insertion range for every blade for rotating. If this option is used, you must not use the "Blade X - Rotation" - option.	SHAPERS	SHAPER (Frames)	BLADE1B (1B), BLADE2B (2B), BLADE3B (3B), BLADE4B (4B)	BLADE1B (1B), BLADE2B (2B), BLADE3B (3B), BLADE4B (4B)	0.0 = no insertion, 1.0 = full covering	0.0 thru 0.5



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Effect in dot2 3D	Description	Preset Type	Feature	Attribute	Subattribute	Unit of Measurement	Example
Blade X - Rotation	Rotation of the blade. If this option is used, you must not use the "Blade X - Insertion (B)" option.	SHAPERS	SHAPER (Frames)	BLADE1ROT (1Rot), BLADE2ROT (2Rot), BLADE3ROT (3Rot), BLADE4ROT (4Rot)	BLADE1ROT (1Rot), BLADE2ROT (2Rot), BLADE3ROT (3Rot), BLADE4ROT (4Rot)	Angle in degrees	-45 thru 45
Rotation of all blades		SHAPERS	SHAPER (Frames)	SHAPER ROT (FrameAssembly)	SHAPER ROT (Index)	Angle in degrees	-180 thru 180



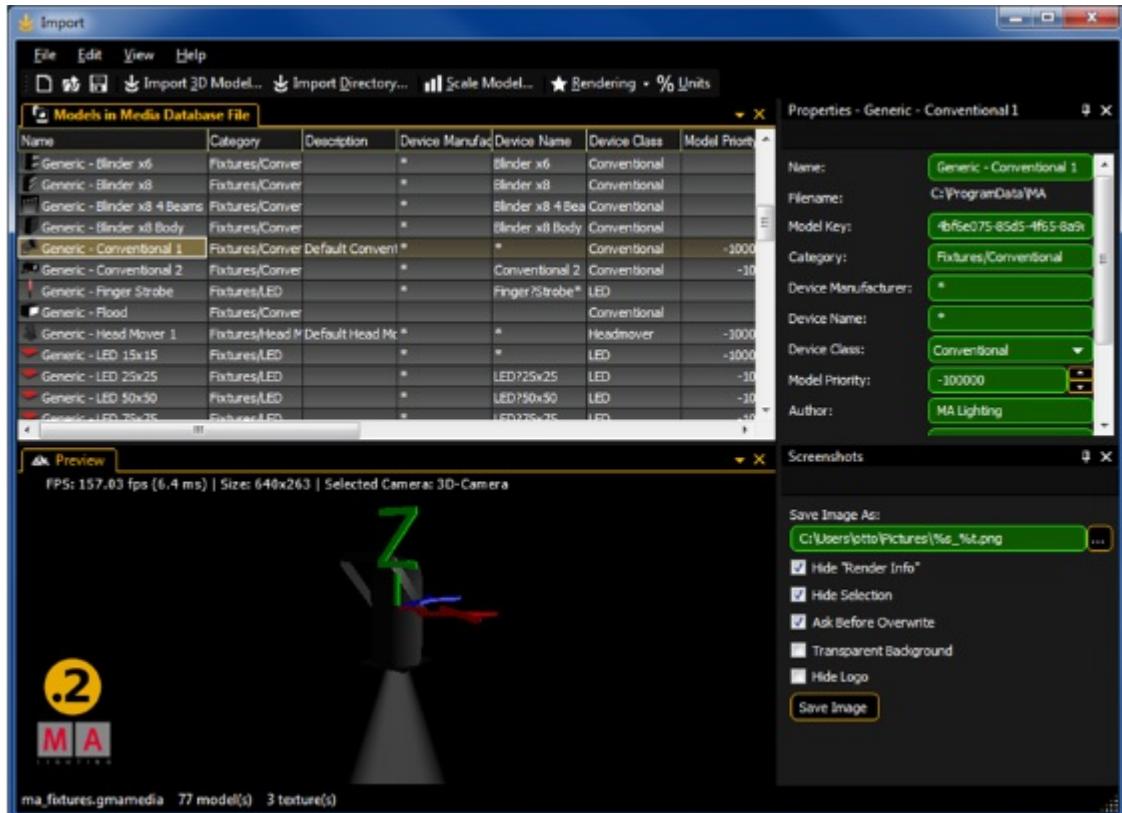
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6. 3D Modeling and Import

3D models created with 3D design programs like 'Cinema 4D' can be imported via the import tool. The import tool can be found via the menu entry: 'File - Import - Import 3D Model...'. Single files as well as complete directories can be imported.



The imported model can be viewed in the 'Model Test Area' window that can be operated similar to the 3D 'Stage View'. Properties like 'Name'; 'Category' etc. can be edited. After that the model can be stored in the media database and is ready to be used in dot 2 3D.



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6.1. 3D Models Principles

The import tool offers no functionality to edit the 3D-Model afterwards. So the imported 3D model must contain all information.

To avoid the determination on a specific modeling tool we choose the '3DS' file format that can be exported by most applications.

All parameters can be referred to by the names of the simple objects.

Important restrictions for 3D objects:

- Names of objects max. 8 characters (incl. parameter)
- No special characters allowed



Names must be unique, each object must have a unique name.

Note that some modeling applications shorten names while exporting to 3ds. The name must stay unique after exporting.

- All objects must consist of triangles
(e.g. Cinema 4D 'Functions - Make Editable' & 'Functions - Triangulate')
- Only one material can be assigned to an object
- Only one texture can be assigned to a material

These limitations must be abided even in future when other file formats are allowed. Furthermore 3D objects should consist of as few triangles as possible. Curves can be pictured realistic with little triangles if the normal simulate this (Cinema 4D: 'Phong Tag').



The max. angle for curves is set to 89.5° in Cinema 4D (in 3ds)

6.2. Parameters

Parameters can be added to the names of objects to set further properties of the object.

Example: The object name ,Test_XAP' is a pan-axis.

A parameter block must start with '_X' followed by the (sub) parameters without separators as shown in the following table:

Parameter	Sub-Parameter	Description
V	-	Available for user. The Object can be manipulated by the user. Per default the top object in the tree structure can always be manipulated by the user, sub objects not.
N	-	Not available for the user. Object cannot be manipulated by the user. (Can only be used for sub objects.)
D	-	Delete Object will not be imported.



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Parameter	Sub-Parameter	Description
A	-	Axis (also see: Axes) Object will be transformed to a movement axis. The parameter is only valid in association with one of the following sub parameters. The sub parameter specifies the type of axis.
	P	Pan axis
	T	Tilt axis
	R	Roll
	X	Shift (X axis)
	Y	Shift (Y axis)
	Z	Shift (Z axis)
	U	Scale (X axis)
	V	Scale (Y axis)
	W	Scale (Z axis)
	J	Rotation (round X axis)
	K	Rotation (round Y axis)
	L	Rotation (round Z axis)
	1	Axis of 1. barndoors
	2	Axis of 2. barndoors
	3	Axis of 3. barndoors
	4	Axis of 4. barndoors
	B	Barndoors Assembly
	G	Continuous rotation round (X axis)
	H	Continuous rotation round (Y axis)
	I	Continuous rotation round (Z axis)
	C	Clamp Rotation axis of the clamp
S		Sunshade type Specifies how the object casts a shadow or how gobos are shown on the object.
	N	None Has no influence on the object. Neither the beam is affected nor gobos are projected on the object. For example the object is a lens of a fixture. The lens does not balk the beam, and no gobos are projected on the lens. The lens is fixed in the case so it doesn't cast a shadow if it is hit by an external beam.
	R	Regular The object casts a shadow and gobos are projected on the object. Default setting if nothing else is parameterized.
	X	Exclude own beam Compared to other fixtures the object behaves like option 'R' and compared to the own source of light like option 'N'. This parameter should be set for example for the body of moving heads and the clamp, meaning the parts that are never lighted by the own beam. This simplifies the rendering and avoids the casting of a shadow by the own beam.
	G	Ghost (Currently not implemented) The object casts a shadow and gobos are projected on the object. The object itself is not visible, only if it is hit by a beam. For example an LED panel consisting of several LEDs with one body. The LEDs can be excluded from the shadow via parameter 'N'. The body for the LEDs has the parameter 'G' for the common shadow. Note that color mixing will only work correctly if the diffuse color of the ghost object and of the covered objects is the same.



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Parameter	Sub-Parameter	Description
B	Beam	Marks the origin of the beam. (See: Beam of Light)
I	Diffuse Inking	* Extension parameter for other materials. The color specifies the ratio of the diffuse color to the fixture color. White means: the diffuse color gets brighter by 100% of the fixture color.
E	Emissive Color	* Extension parameter for other materials. Specifies the color/texture of the object's self shine.
J	Emissive Inking	* Extension parameter for other materials. The color specifies the ratio of the emissive color to the fixture color. White means that the emissive color gets 100% brighter with the fixture color.
C	Children	Sub controls, to be placed in dot 2 3D below the object of a model. Other sub objects in dot 2 3D will be inserted below this item. Used for moving paths to create sub objects below an axis.v
MD	Modify Model / Double Faces	This can be used to make both sides of a plane visible without doubling the faces inside the 3d modeling application. Also it can be used to import a bad model with incorrect normals. (But this will let to performance penalties because there will be created unnecessary faces/vertices. Anymore it can result in visible edges at rounded surfaces if the direction of the normals flips inside.) Example: Plane_XMD - This plane is visible from both sides

* This parameter can be used only for materials. The material with the parameter extends the other material.

For example 'Lens_XJ' describes the emissive inking color for the material (without parameter) with the same name 'Lens'. The extended material must not be assigned to an object. This detour is necessary because the modeling software does support this functionality.

See:

- [Axes](#)
- [Rotation Axes](#)
- [Linear Axes](#)
- [Beam of Light](#)
- [Automated Import](#)
- [Assigning of Models to Fixture Types](#)
- [Checklist for 3D Modeling](#)
- [Creation of a 3D Model](#)



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6.2.1. Axes

Objects can be configured with movement axes. The position of the axis is marked with an auxiliary object.

Objects ordered below the auxiliary object in the tree structure can be moved in the appropriate manner:



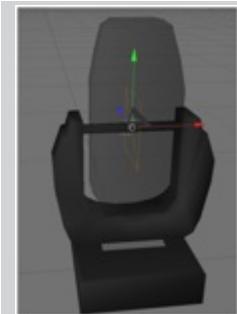
The image shows an object tree of a moving head fixture. The object 'VL1000' is the root of the fixture. '_XAP' is the pan axis of the model. All objects below are rotated around this axis.

6.2.2. Rotation Axes

Rotation axes are marked with a square (consisting of two triangles). The name of this object must contain the appropriate parameter for the desired axis see Parameter. Furthermore all normals of this object should point in the same direction.

When importing the object it is converted into an axis. It is aligned along the direction of the normals (vertical on the square) positioned in the center of the square.

In case of movement the right-hand rule is applicable: Thumb shows into direction of normals, objects will rotate into the direction of the fingers (with positive values).



The image shows the tilt axis of a moving head fixture. The normals of the square show to the left direction. The lens will move away from the viewer if the tilt axis is driven with values bigger than 0°.

6.2.3. Linear Axes

Linear axes are marked in the same manner as rotation axes.

The normal of the square shows the direction of movement.

6.2.4. Beam of Light (cone)



Cone for conventional spots or washes:

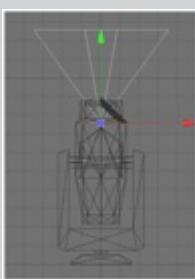


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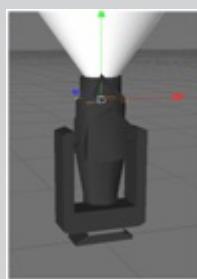
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Similar to the rotation axes the position of the beam (cone) is marked with a square. The center of the square marks the origin of the cone (e.g. _XB). The normals mark the direction. The position inside the fixture body can be determined with an auxiliary cone that is placed temporarily into the body. The radius (r) of the cone can be calculated with the following formula: $r = \tan([\text{max. open radius} / 2]) * [\text{height of the cone}]$ Normally the cone uses the complete lens hole of the fixture. The square is placed at the top of the cone:



Placement of the cone 2D



Placement of the cone in 3D



_XLD

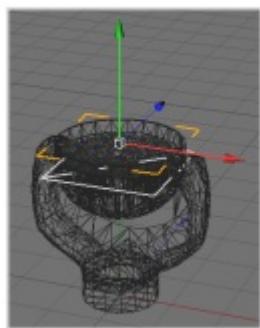
Cone frustum for LED spots or washes:

_XLC



At LED spots with flat housings the light beam is a cone frustum. This needs 2 parameters (squares) for the beam, LD and LC:- LD marks the diameter of the beam output.- LC marks the clipping plane of the beam where the beam is cut. The direction of the beam is marked via the normals.

Placement of the cone frustum in 2D



The upper square shows the _XLD square and the lower square shows the _XLC square where the beam is cut.



6.2.5. Automated Import

Meta data of a 3D model can be left appropriately for the import. Later editing with the import tool is not required.

The placeholder [file] stands for the filename (without extension) that has to be imported. For example if the file 'test.3ds' has to be imported, '[file]' stands for 'test':

File	Description
_global.import.xml	Global import setting valid for the complete directory. Structure like [file].import.xml.
[file].import.xml	XML file with meta data for the model. If this file does not exist, it will be created automatically to store the model key.
[file].import.png	Preview image of the model. Size is 32x32 pixel (32 Bit RGBA). Will be created if not exists.
[file].png [file].tif	If no preview image exists the import tool tries to create it. It searches in the given order on the side. The image should be exempted via alpha channel. Borders are cut automatically when the thumbnails are created.
[file].bmp [file].jpg	

Example for an '* import.xml' file:

```
<?xml version="1.0"?>

<do2_3DImportSettings xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns="http://schemas.ma-lighting.de/GrandMA3D/GrandMA3DImportSettings/1.0">

  <Name>Generic - Head Mover</Name>

  <Category>Fixtures/Head Mover</Category>

  <ModelKey>cc6464b5-c992-4b9e-8a96-31691d9cdd90</ModelKey>

  <DeviceManufacturer>*</DeviceManufacturer>

  <DeviceName>*</DeviceName>

  <DeviceClass>Headmover</DeviceClass>

  <ModelPriority>100000</ModelPriority>

  <ModelManufacturer>MA Lighting</ModelManufacturer>

  <Description>Default Head Mover Model</Description>

  <Scale>0.01</Scale>

  <Move>MoveBottomToZ0</Move>

  <AmbientFlare>0.02</AmbientFlare>

</dot2_3DImportSettings>
```



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Field	Description
Name	Name of the model'/filename' will be replaced with the filename of the import file (without extension)
Category	Category in the 'Media Database'Sub categories can be separated with a '/'.e.g. 'Fixtures/Head Mover'
ModelKey	[see: Assigning of Models to Fixture Types]
DeviceManufacturer	[see: Assigning of Models to Fixture Types]
DeviceName	[see: Assigning of Models to Fixture Types]
DeviceClass	[see: Assigning of Models to Fixture Types] Possible values:None, Mirror, Headmover, Conventional, LED, MovingPath
ModelPriority	[see: Assigning of Models to Fixture Types]
ModelManufacturer	Designer of the model.
Description	Short description.
Scale	Object will be scaled by this factor.
Move	Moves the object after the import. None: No movement MoveBottomToZ0: Model is placed on XY plane Z = 0 MoveCenterToZ0: Center of the object is placed to Z = 0
AmbientFlare	Clarification grade of the fixture environment.



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6.2.6. Assigning of Models to Fixture Types

Field	Description
ModelKey	Unique key of the model. This key is created with the first importing of the model and saved in the XML file (*.ImportSettings.xml). The key identifies exactly the model. If the model is imported again the same key will be used from the XML file.
DeviceManufacturer	Manufacturer of the fixture that is represented by the model.
DeviceName	Name of the fixture that is represented by the model.
DeviceClass	Type of the model if it represents a fixture. E.g. 'Headmover'
ModelPriority	Priority for selecting this model. High numbers are more probable. The standard value '0' should only be used if the meaning is clear, see description below.

At best the fixture type of a device is left in the data base. If the very same type is found by dot 2 3D (ModelKey == Model.ModelKey) it will be used without any validation. In this case a fixture type always will be assigned to the same model.

If no model key is found the application searches for a more suitable model, like same 'DeviceManufacturer' , 'DeviceName' etc..



The fields 'DeviceManufacturer' and 'DeviceName' can be placeholders to find the right model for variant spellings. For example: 'Vari*Lite' is often spelled as 'Vari-Lite', or a 'VL1000 AS' should use the same model as 'VL1000 AI'. In this case both fields should contain a 'Vari?Lite' and 'VL1000*'.

Possible placeholders:

- * 0-n any characters
- + 1-n any characters
- ? 0-1 any characters
- # 1 arbitrary character

Often there are several variants of fixture types in a model range. So the attachment of a '*' is recommended - for example: 'VL1000*'. The spelling is not case sensitive.

If a special 3D object shall be used for a model even though a model with the notation exists the 'ModelPriority' can be increased (in steps of 100). For example a 'VL1000AS' with the priority of 100 would be preferred instead of 'VL1000*' with a standard priority of 0.

dot 2 3D is delivered with standard models for every 'DeviceClass' type. The standard model has the following setting: DeviceManufacturer = '*', DeviceName = '*' and ModelPriority = -100000. These models have a low priority and are used only if no other model with higher priority is found.



6.2.7. Checklist for 3D Modeling

- Sunshade type settings for all objects are correct?
For example shadow calculations for the own source of light of the fixture body, clamp and head are excluded?
- Names of objects don't exceed 8 characters (.3ds files)?
- Names of object are unique?
- Objects exclusively are composed of triangles?
- No information has been lost while exporting? To check this, open the exported file with the modeling tool.

6.2.8. Creation of a 3D Model

3D objects can be created with 3D CAD programs.

The amount of polygons affects the performance because for each polygon the projection has to be calculated.
The lower the number of polygons the better is the frame rate.

dot 2 3D supports the following formats for 3D objects:

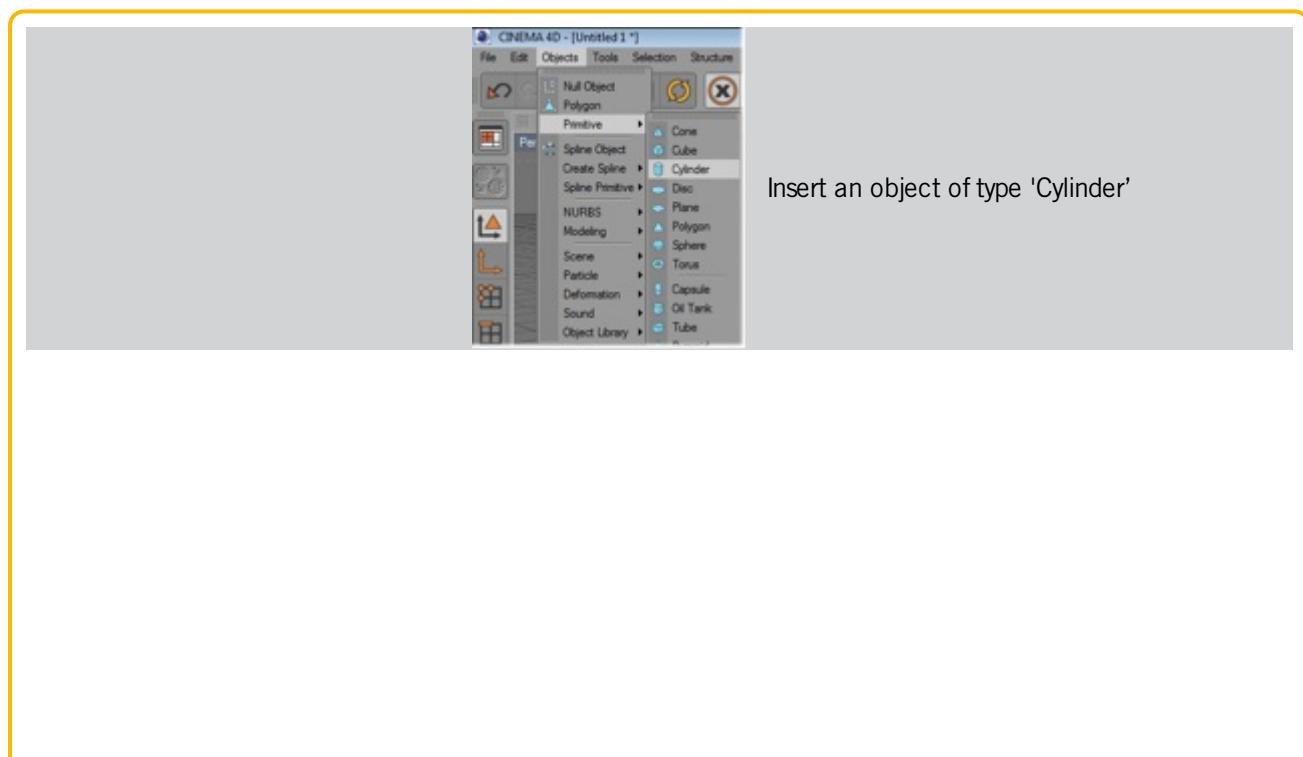
- .3ds - Format for drawing 3 dimensional objects



Note the following regulations:

- The orientation of the object should fit
- Normals have to be organized correctly
- UV coordinates for the textures have to be setup correctly

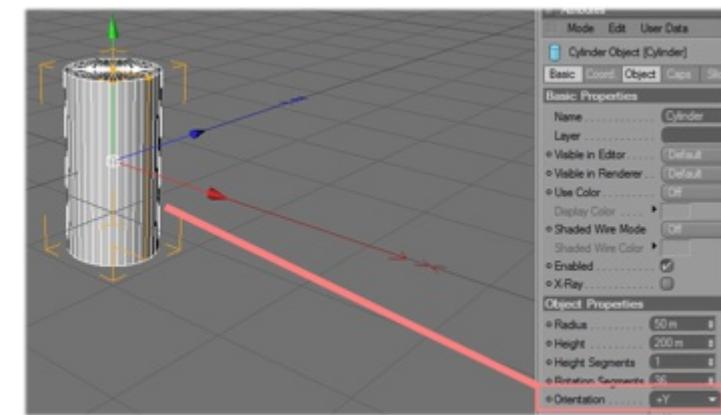
The following example shows the creation of a halved cylinder, created with 'Cinema 4D':



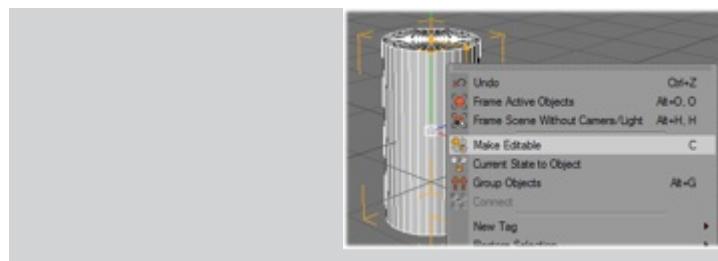


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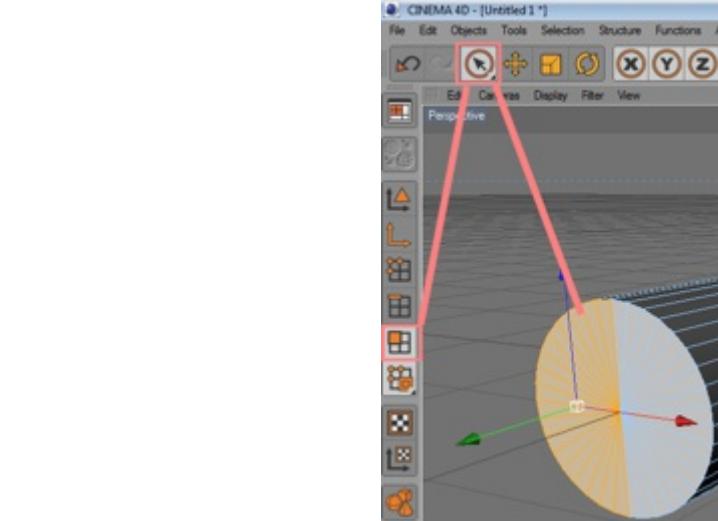
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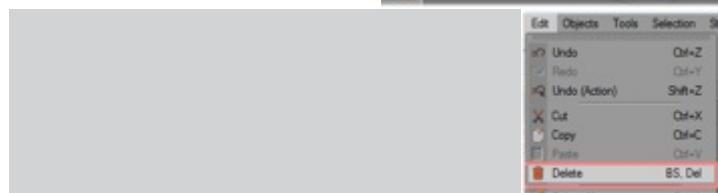
Set the orientation to 'Y+'. For a correct visualization in dot2 3D is the depth, Y the vertical and X the horizontal axis



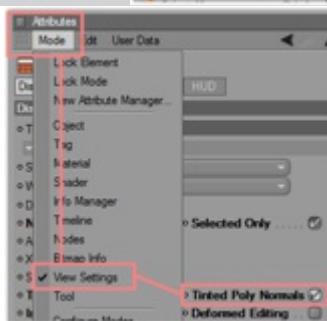
Make the object editable



Select not used polygons...



and delete them.

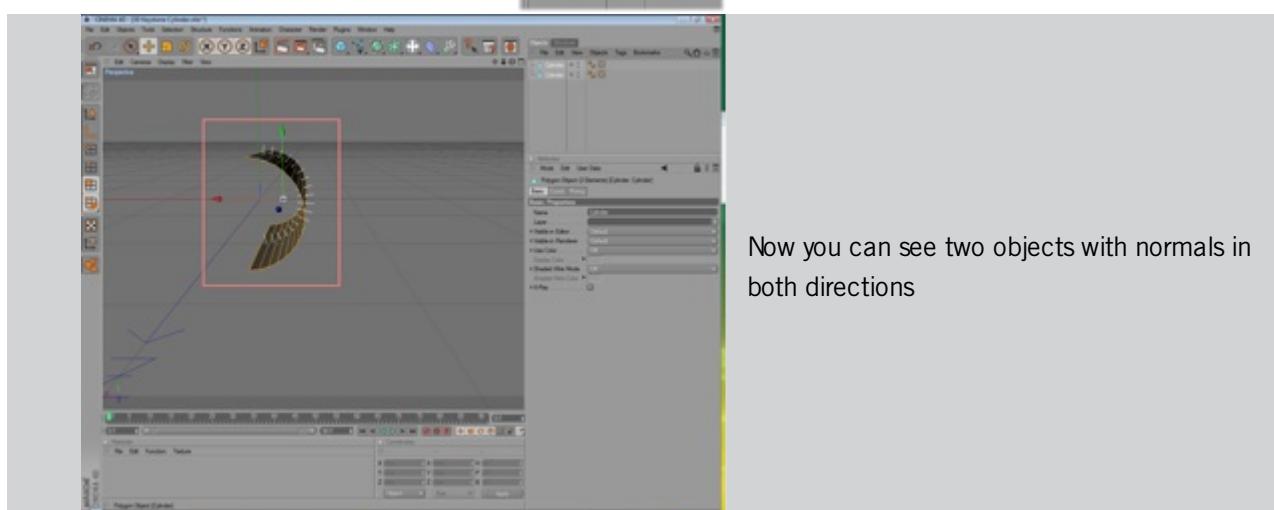
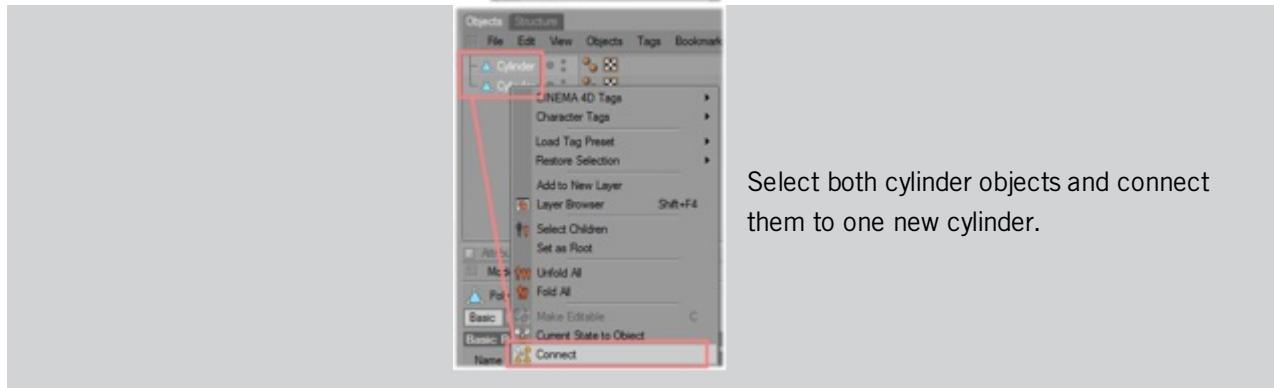
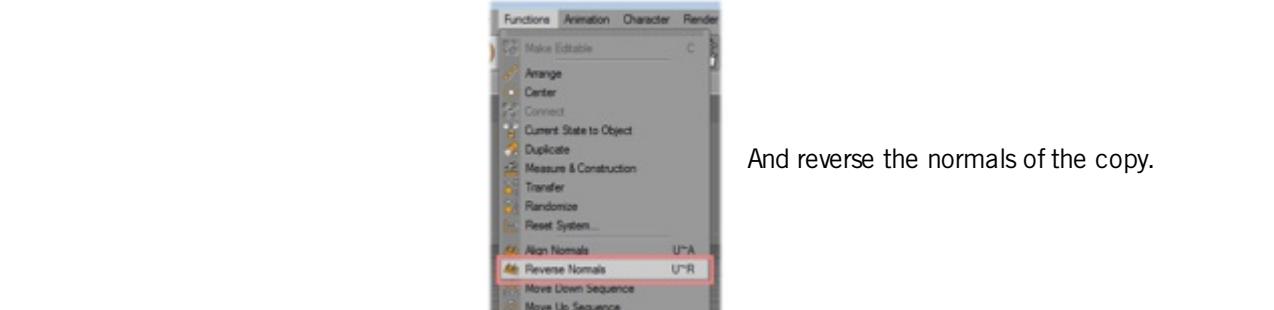
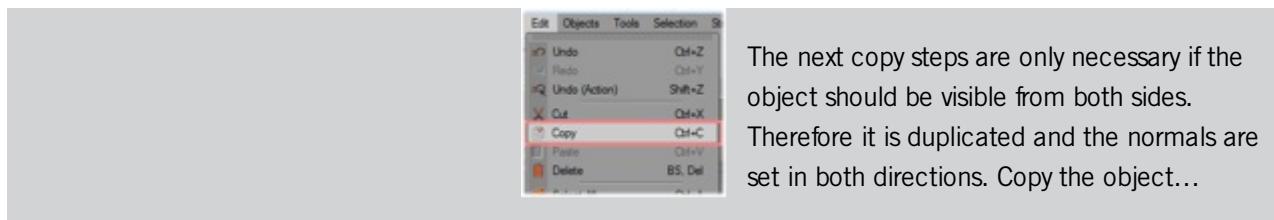


Set the visibility of normal on.



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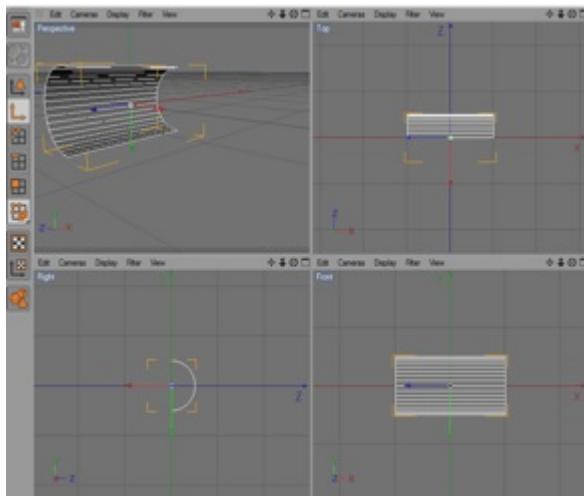
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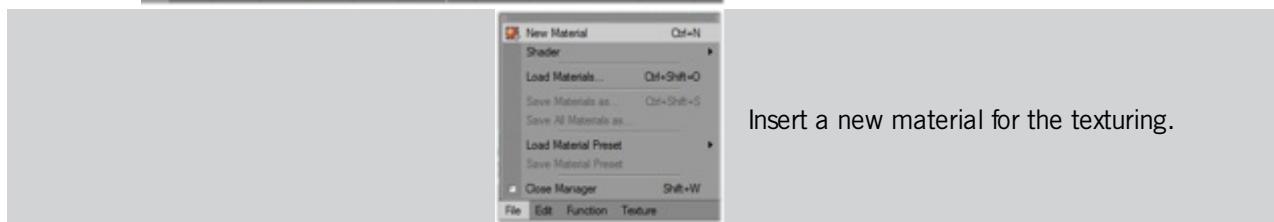


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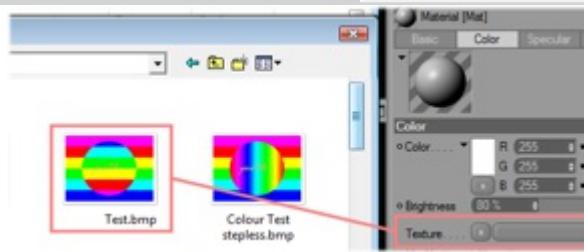
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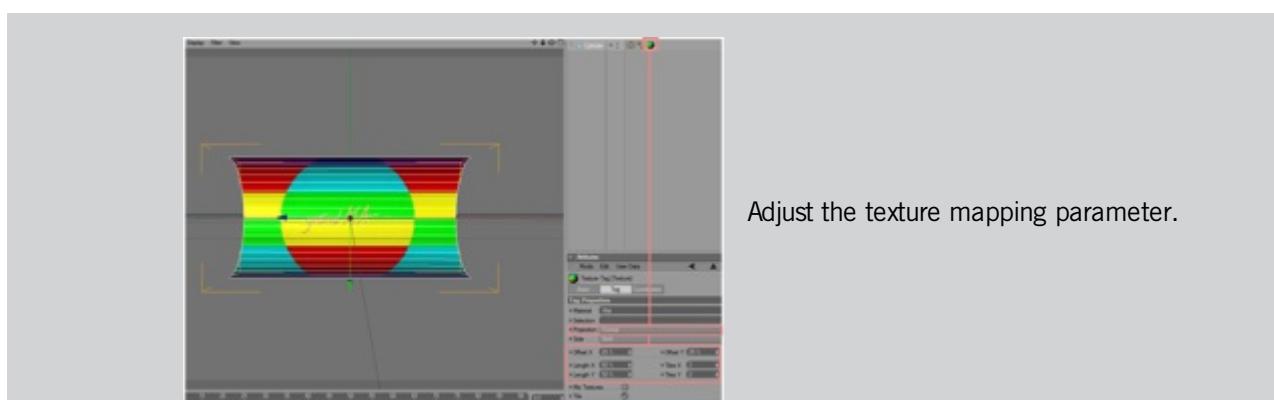
Check the orientation of the resulting object.



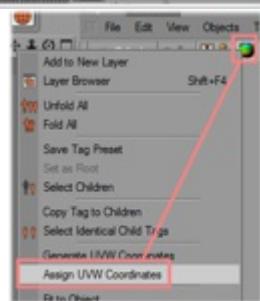
Insert a new material for the texturing.



Assign an image to the texture and the material to the object (Mind the restriction of max. 8 characters + extension for the image name!).



Adjust the texture mapping parameter.

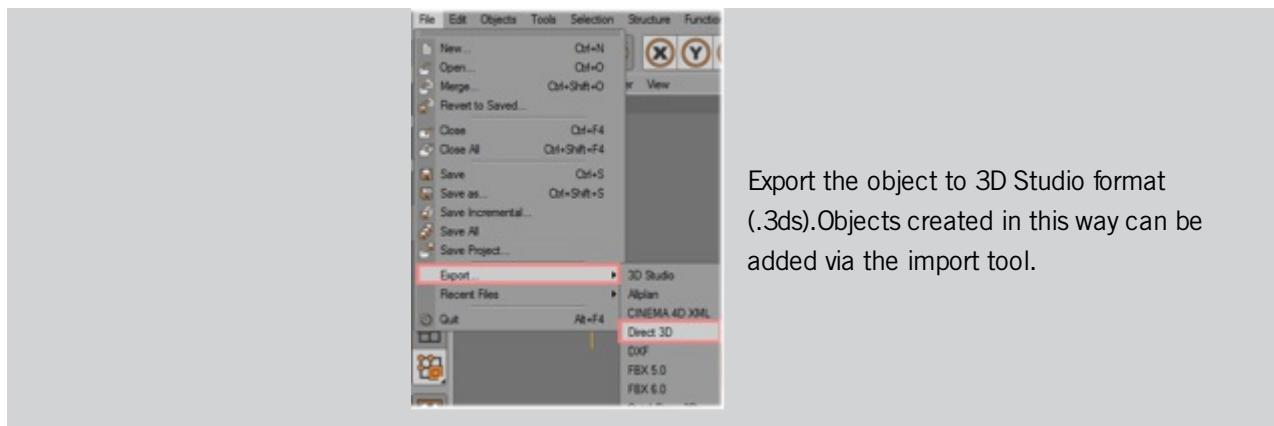


Assign the UV coordinates for the texture mapping.

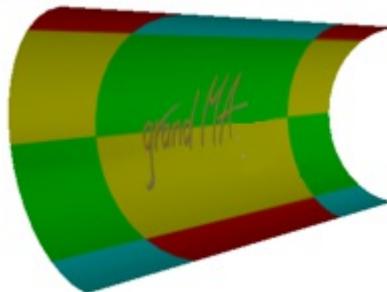


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Export the object to 3D Studio format (.3ds). Objects created in this way can be added via the import tool.



The resulting 3D Object looks like this.



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7. Keyboard Shortcuts

Many functions that can be reached via the menu entry are listed directly in the menu. Underlined characters in the menu mark the shortcuts that can be reached by pressing the 'Alt' + 'underlined character' simultaneously.

Depending on the window the keyboard shortcuts have different effects:

Shortcut	Window	Effect
	Stage	
	View	
Shift + Ctrl + right mouse		Several combinations of camera movements while mouse button is pressed
Ctrl+ left mouse		Move or rotate object with left mouse button
Esc		Deselect objects
Arrows or Page up-down		Move camera or + 'Ctrl' turn camera + 'Shift' faster
Middle mouse button- Mouse wheel		Wheel menu on/off if menu is on: - select entry via mouse wheel - 1...9...0 select menu entry - 'Space' next menu entry- 'Shift + Space' one menu entry back
Ctrl + 1...9...0	All views	Change to camera 1...9...0 If focus is in Stage View no 'Ctrl' necessary
Ctrl + Space		Next camera. If focus is in Stage View no 'Ctrl' necessary
Ctrl + change camera with mouse		No soft camera changing
Shift + camera change		Spanning windows will not change their camera
Ctrl + Return		Switch to fullscreen or leave fullscreen view



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8. dot2 3D FAQ

Here you find frequently asked questions from users regarding the dot2 3D.

Question/Problem	Solution
How can I change the model of a fixture?	Select the model, right click on it, select change model. The Change Model window opens.
Can I open show files saved in an older version of dot2 3D, in a newer version?	Yes, you can always open show files saved in older versions in the latest version.
Can I open show files saved in a newer version of dot2 3D, in an older version?	No, download the latest version on https://www.ma-dot2.com .
How can I disable screens in the full screen mode?	Go to File in the menu bar, select Settings, select the category Full Screen. Right mouse click on the screen you like to disable for the full screen mode. Click on Enabled.
Can I run the dot2 3D and the dot2 onPC on the same computer?	Yes, use the default loopback IP address. Refer to, Create a Session.
How can I use dot2 3D on an Apple MacBook?	Boot your MacBook in windows, using Bootcamp.
Can I import .dxf or .dwg files in dot2 3D?	No, dot2 3D supports only .3ds files. Convert the .dxf or .dwg files in .3ds.
How can I import a .3ds environment into dot2 3D?	Go to File in the menu bar, select Import, select Import 3D Model. The dot2 3D Import window opens. This is used to import .3ds files.
How can I change meters into feet?	Go to View in the menu bar, select the Assets window and the Properties window. Select in the Assets window, dot2 and Units. Change the unit in the Properties window.
Are there any information about updates and news?	Yes, get registered for the newsMAIL and techMAIL on www.malighting.com .



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