

VideoSplitter HDMI 4K60

Ultra-High Definition Video Splitter

Installation and Operation Manual



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LIMITED WARRANTY

Rose Electronics® warrants the VideoSplitter HDMI 4K60 to be in good working order for one year from the date of purchase from Rose Electronics or an authorized dealer. Should this product fail to be in good working order at any time during this one-year warranty period, Rose Electronics will, at its option, repair or replace the Unit as set forth below. Repair parts and replacement units will be either reconditioned or new. All replaced parts become the property of Rose Electronics. This limited warranty does not include service to repair damage to the Unit resulting from accident, disaster, abuse, or unauthorized modification of the Unit, including static discharge and power surges.

Limited Warranty service may be obtained by delivering this unit during the one-year warranty period to Rose Electronics or an authorized repair center providing a proof of purchase date. If this Unit is delivered by mail, you agree to insure the Unit or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or its equivalent. You must call for a return authorization number first. Under no circumstances will a unit be accepted without a return authorization number. Contact an authorized repair center or Rose Electronics for further information.

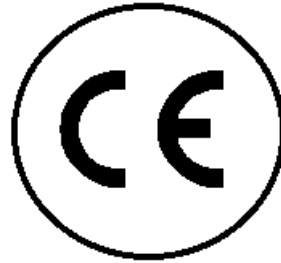
ALL EXPRESS AND IMPLIED WARRANTIES FOR THIS PRODUCT INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE, AND NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

IF THIS PRODUCT IS NOT IN GOOD WORKING ORDER AS WARRANTIED ABOVE, YOUR SOLE REMEDY SHALL BE REPLACEMENT OR REPAIR AS PROVIDED ABOVE. IN NO EVENT WILL ROSE ELECTRONICS BE LIABLE TO YOU FOR ANY DAMAGES INCLUDING ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR THE INABILITY TO USE SUCH PRODUCT, EVEN IF ROSE ELECTRONICS OR AN AUTHORIZED DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY OTHER PARTY.

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DECLARATIONS OF CONFORMITY

This is to certify that, when installed and used according to the instructions in this manual, the units listed and described here are shielded against the generation of radio interferences in accordance with the application of Council Directives 2014/30/EU and 2014/30/EU.



This equipment has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

The manufacturer complies with the EU Directive 2012/19/EU on the prevention of waste electrical and electronic equipment (WEEE). The device labels carry a respective marking.

These devices comply with Directive 2011/65/EU of the European Parliament and of the council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2, RoHS II). The device labels carry a respective marking.

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INTRODUCTION

Disclaimer

While every precaution has been taken in the preparation of this manual, the manufacturer assumes no responsibility for errors or omissions. Neither does the manufacturer assume any liability for damages resulting from the use of the information contained herein. The manufacturer reserves the right to change the specifications, functions, circuitry of the product, and manual content at any time without notice.

The manufacturer cannot accept liability for damages due to misuse of the product or other circumstances outside the manufacturer's control. The manufacturer will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product (See limited warranty).

System Introduction

Thank you for choosing the Rose Electronics VideoSplitter HDMI 4K60. The VideoSplitter HDMI 4K60 provides an invaluable and cost-effective method for distributing an HDMI Ultra-HD video source to multiple HDMI/DVI displays. Supporting HDMI 4K2K video, 3D video formats and 36-bit deep color, the VideoSplitter HDMI 4K60 is the perfect integration product for HDMI broadcasting, digital signage and educational applications

The instructions in this manual assume a general knowledge of computer installation procedures, familiarity with cabling requirements, and some experience with video display applications.

Features

- Connect two, four or eight HDMI LCD displays to a single HDMI video source
- Three models available: 2-outputs, 4-outputs, and 8-outputs
- Video capability includes 4K2K@60 4:4:4 8-bits (594MHz) and HDR 4K2K@60 4:2:0 10-bits (384MHz)
- Video bandwidth up to single-link 600MHz per channel for a combined data rate of 18Gbps
- Ideal for HDTV retail signage, exhibition displays, STB, DVD, boardroom, and projector applications
- HDMI 2.0a compliant
- HDCP 2.2 and 1.4 compliant
- Video supports all 3D modes, xvYCC, x.v.Color, and deep color
- Audio support includes Dolby Digital, DTS-HD Master Audio, and Dolby TrueHD audio, LPCM, SACD, MPCM and DVI-Audio
- Rotary dial to manage EDID with built-in settings or EDID learning from displays
- Mini-USB connector to update firmware
- Cascading feature to increase number of output displays
- Built-in surface or desk mounting bracket

Package Contents

The package contents consist of the following items:

- VideoSplitter HDMI 4K60
- External power supply
- Power cable
- User manual
- Firmware update software

Additional Items that may be required

- HDMI cable CAB-HDMIMM006 6ft (2.0 meter)
 CAB-HDMIMM010 10ft (3.0 meter)

These items may be ordered separately from Rose Electronics

All references to HDMI cables in this document refer to the maximum recommended distances for each cable type. Maximum recommended cable distances should not be exceeded.

INSTALLATION and OPERATION

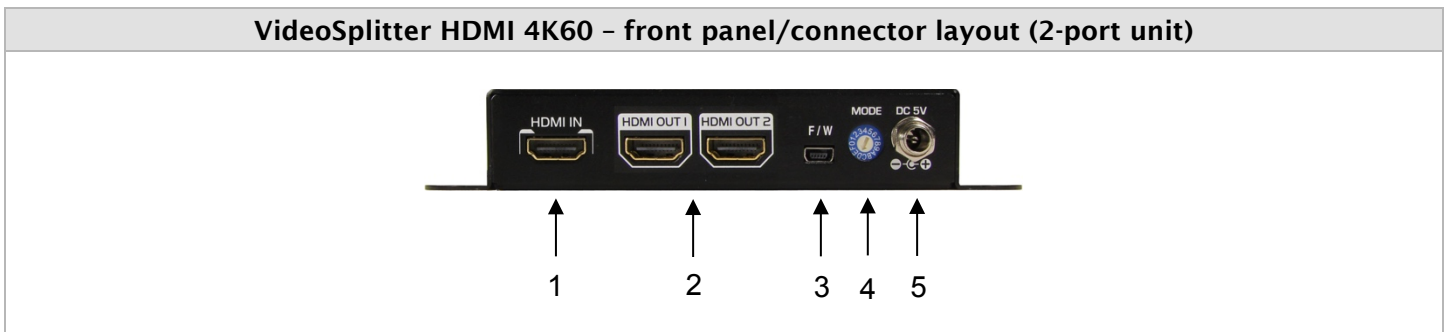
Installing the VideoSplitter HDMI 4K60

Unpack the VideoSplitter HDMI 4K60 and check the contents of the package. Before installing the VideoSplitter in its final mounting position, it is recommended to set up the product on a desktop, connect the video source and monitor and test the product operation.

Once this operation has been confirmed, the VideoSplitter can then be fully installed into the operational mounting. Connect the HDMI input/output cables to the VideoSplitter and power on the product.



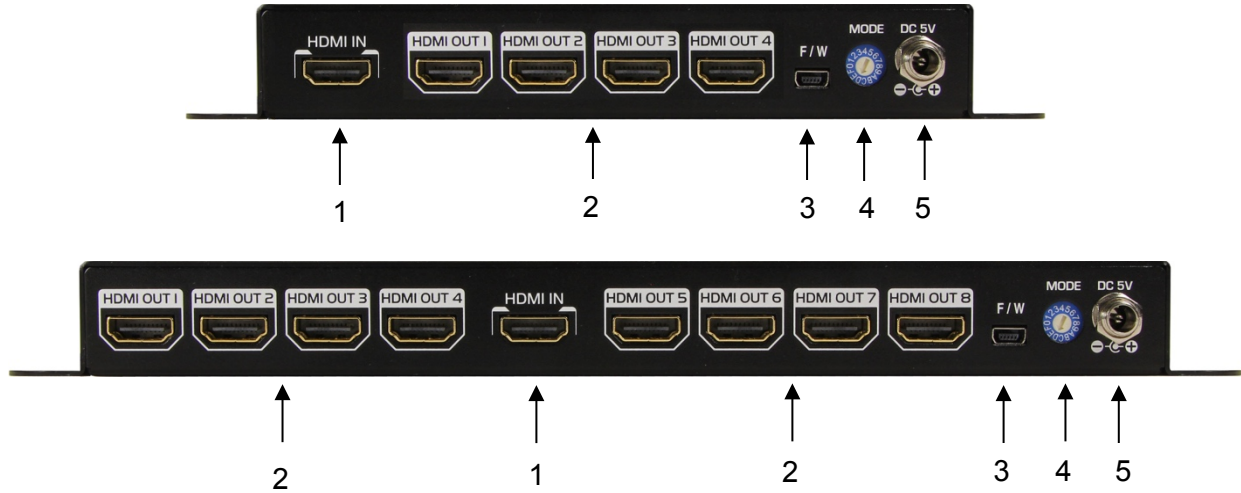
Figure 1. VideoSplitter HDMI 4K60 cabling layout diagram



Item	Type	Description
1	HDMI IN	Connect to an HDMI input source
2	HDMI OUT	HDMI out to HDMI displays. Port 1 = EDID learning default port
3	Mini USB	Reserved for technical support and firmware update
4	Mode dial	Rotary dial for EDID learning settings
5	+5V DC	Connect the external +5VDC power adapter

Figure 2. VideoSplitter front panel connectors and indicators

VideoSplitter HDMI 4K60 - rear panel/connector layout (4 and 8-port units)



Item	Type	Description
1	HDMI IN	Connect to an HDMI input source
2	HDMI OUT	HDMI out to HDMI displays. Port 1 = EDID learning default port
3	Mini USB	Reserved for technical support and firmware update
4	Mode dial	Rotary dial for EDID learning settings
5	+5V DC	Connect the external +5VDC power adapter

Figure 3. VideoSplitter HDMI 4K60 rear panel connectors and indicators

VideoSplitter HDMI 4K60 - front panel LED's (all models)

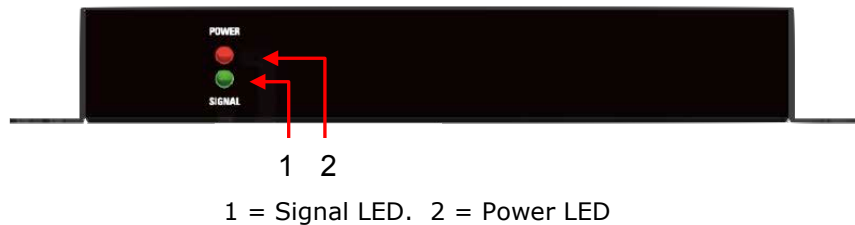


Figure 4. VideoSplitter HDMI 4K60 front panel LED's

Mode Dial Selection

2-Port VideoSplitter: Adjust the mode dial rotary switch to select any of the following operational modes

Dial	Product	Description
0	2-port	F/W update mode
1	2-port	EDID Full-HD(1080p@60) - 24bit 2D video & 7.1ch audio
2	2-port	EDID Full-HD(1080p@60) - 24bit 2D video & 2ch audio
3	2-port	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 7.1ch audio
4	2-port	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 2ch audio
5	2-port	EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & 2ch audio
6	2-port	Auto EDID analysis learning mode
7	2-port	Learn EDID from output1

Table 1. Mode selection for the 2-port VideoSplitter

4-Port VideoSplitter: Adjust the mode dial rotary switch to select any of the following operational modes

Dial	Product	Description
0	4-port	F/W update mode
1	4-port	EDID Ultra-HD(4K2K@60) - 24bit 2D video & 7.1ch audio
2	4-port	EDID Ultra-HD(4K2K@60) - 24bit 2D video & 2ch audio
3	4-port	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 7.1ch audio
4	4-port	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 2ch audio
5	4-port	EDID Full-HD(1080p@60) - 24bit 2D video & 7.1ch audio
6	4-port	EDID Full-HD(1080p@60) - 24bit 2D video & 2ch audio
7	4-port	EDID Full-HD(1080p@60) - 24bit 3D video & 7.1ch audio
8	4-port	EDID Full-HD(1080p@60) - 24bit 3D video & 2ch audio
9	4-port	EDID Full-HD(1080p@60) - 36bit 2D video & 7.1ch audio
A	4-port	EDID Full-HD(1080p@60) - 36bit 2D video & 2ch audio
B	4-port	EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & LPCM7.1ch/Dolby Digital
C	4-port	EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & 2ch audio
D	4-port	Auto EDID analysis learning mode
E	4-port	Learn EDID from output1
F	4-port	Learn EDID from output4

Table 2. Mode selection for the 4-port VideoSplitter

8-Port VideoSplitter: Adjust the mode dial rotary switch to select any of the following operational modes

Dial	Product	Description
0	8-port	F/W update mode
1	8-port	EDID Ultra-HD(4K2K@60) - 24bit 2D video & 7.1ch audio
2	8-port	EDID Ultra-HD(4K2K@60) - 24bit 2D video & 2ch audio
3	8-port	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 7.1ch audio
4	8-port	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 2ch audio
5	8-port	EDID Full-HD(1080p@60) - 24bit 2D video & 7.1ch audio
6	8-port	EDID Full-HD(1080p@60) - 24bit 2D video & 2ch audio
7	8-port	EDID Full-HD(1080p@60) - 24bit 3D video & 7.1ch audio
8	8-port	EDID Full-HD(1080p@60) - 24bit 3D video & 2ch audio
9	8-port	EDID Full-HD(1080p@60) - 36bit 2D video & 7.1ch audio
A	8-port	EDID Full-HD(1080p@60) - 36bit 2D video & 2ch audio
B	8-port	EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & LPCM7.1ch/Dolby Digital
C	8-port	EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & 2ch audio
D	8-port	Auto EDID analysis learning mode
E	8-port	Learn EDID from output1
F	8-port	Learn EDID from output2

Table 3. Mode selection for the 4-port VideoSplitter

Installation Procedure

Follow the procedure below to broadcast an HDMI signal to 2, 4 or 8 displays.

1. Switch off all devices including the video source (PC, Player, STB etc).
2. Connect the VideoSplitter HDMI 4K60 to the displays.
3. Connect an HDMI source (such as a Blu-ray Disc player or PC) to the HDMI In port.
4. Make sure the rotary switch is NOT set to “MODE 0”
5. Plug in the 5V DC power supply.
6. Power on the HDMI displays.
7. Power on the HDMI video source.

EDID Learning

Whenever a new display is connected to the VideoSplitter under modes D (auto EDID) and E or F (EDID learning), the display will blank for a few seconds. This is normal and indicates that the VideoSplitter is doing automatic EDID learning. The EDID from the newly connected display is analyzed to determine if a fresh EDID table needs to be updated in the VideoSplitter.

Firmware Update Procedure

Should the firmware need to be updated, this can be done through the mini USB port.

Firstly, power-off the VideoSplitter and then set the rotary dial to position “0”.

Then connect a mini USB cable between a host PC and the VideoSplitter. Install the firmware update software to the PC and then set the correct com-port and baud rate. 57,600baud is recommended.

Click the “File” button to locate the firmware update file on the PC. This will be a HEX or BIN file.

Power on the VideoSplitter and then press the “Program MCU” symbol to start the firmware update.

Once the firmware update process is complete, power off the VideoSplitter and set the rotary dial back to the selected operational mode (NOT to “0”).

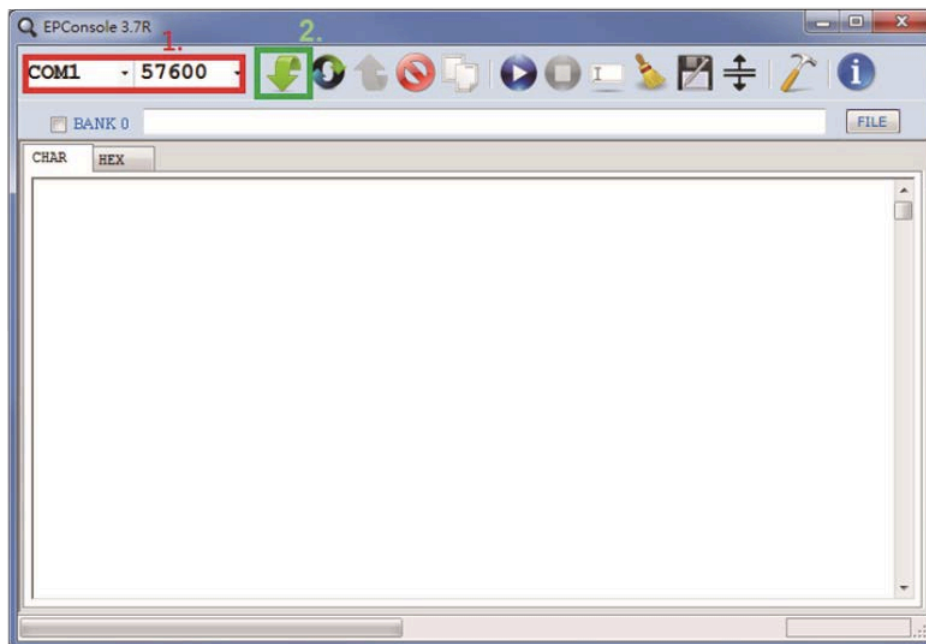


Figure 5. Firmware update software process

Mode Dial Control

The “Mode” rotary control button has settings for Ultra-HD EDID (4K2K@60Hz), Full HD EDID (1080p@60Hz), HD EDID (1080p@30Hz, 1080i@60Hz and 720p@60Hz). This rotary control is also used for selecting the EDID Learning and EDID Automatic settings uploading new monitor information.

The Mini USB port is used for firmware updates.



for

PRODUCT SAFETY

Safety

The VideoSplitter HDMI 4K60, like all electronic equipment, should be used with care. To protect yourself from possible injury and to minimize the risk of damage to the Unit, read and follow these safety instructions.

- Follow all instructions and warnings marked on this Unit.
- Except where explained in this manual, do not attempt to service this Unit yourself.
- Do not use this Unit near water.
- Assure that the placement of this Unit is on a stable surface.
- Provide proper ventilation and air circulation.
- Keep connection cables clear of obstructions that might cause damage to them.
- Use only power cords, power adapter and connection cables designed for this Unit.
- Keep objects that might damage this Unit and liquids that may spill, clear from this Unit. Liquids and foreign objects might come in contact with voltage points that could create a risk of fire or electrical shock.
- Do not use liquid or aerosol cleaners to clean this Unit. Always unplug this Unit from the power source before cleaning.

Remove power from the unit and refer servicing to a qualified service center if any of the following conditions occur:

- The connection cables are damaged or frayed.
- The Unit has been exposed to any liquids.
- The Unit does not operate normally when all operating instructions have been followed.
- The Unit has been dropped or the case has been damaged.
- The Unit exhibits a distinct change in performance, indicating a need for service.

SERVICE AND MAINTENANCE

Maintenance and Repair

This Unit does not contain any internal user-serviceable parts. In the event a Unit needs repair or maintenance, you must first obtain a Return Authorization (RA) number from Rose Electronics or an authorized repair center. This Return Authorization number must appear on the outside of the shipping container.

See Limited Warranty for more information.

When returning a Unit, it should be double-packed in the original container or equivalent, insured and shipped to:

Rose Electronics

Attn: RA _____

10707 Stancliff Road

Houston, Texas 77099 USA

Technical Support

If you are experiencing problems, or need assistance installing your product, consult the appropriate section of this manual. If, however, you require additional information or assistance, please contact the Rose Electronics Technical Support Department at:

Phone: (281) 933-7673

E-mail: TechSupport@rose.com

Web: www.rose.com

Technical Support hours are from: 8:00 am to 6:00 pm CST (USA), Monday through Friday.

Please report any malfunctions in the operation of this Unit or any discrepancies in this manual to the Rose Electronics Technical Support Department.

APPENDICES

Appendix A – Specifications

Part Numbers	Description
VSP-2xHDMI-4K60	2 port VideoSplitter HDMI 4K60
VSP-4xHDMI-4K60	4 port VideoSplitter HDMI 4K60
VSP-8xHDMI-4K60	8 port VideoSplitter HDMI 4K60
CAB-HDMIMM006	HDMI male to male cable, 6ft (2.0m)
CAB-HDMIMM010	HDMI male to male cable, 10ft (3.0m)
ACC-DVIFHDMIM	HDMI(M) to DVID(F) adapter cable
CAB-HDMIMM010	HDMI M/M 10ft (3.0m) cable
Chassis Dimensions (W x D x H) and Weight	
Dimensions	2-port: 4.4 x 2.5 x 1.0" (113 x 62.5 x 25mm) 4-port: 6.1 x 3.3 x 1.0" (154 x 83 x 25mm) 8-port: 9.5 x 3.9 x 1.0" (243 x 98 x 25mm)
Weight	2-port: 1.02 lbs (460g) 4-port: 1.28 lbs (580g) 8-port: 1.9 lbs (880g)
Power Requirements	
Power Source	100-240VAC, AC input, 5V/2A, Max 10 Watts (8-port: 5V/4A, 11 Watts)
Video	
Video resolutions supported	HDR 4K2K@60 (4:2:0 10bits) / 4K2K@60 (4:4:4 8bits) All 3D video formats xvYCC, x.v.color and deep color
Video bandwidth	Single-link 600MHz [18Gbps]
HDMI compliance	HDMI 2.0a
DVI compliance	DVI 1.0
HDCP compliance	HDCP 2.2
EDID Management	
	Automatically detects/learns EDID via front panel rotary control switch
ESD Protection	
	Human Body Model - +/- 19kV (air-gap discharge and +/- 12kV contact discharge), Core Chipset - +/-2kV
Audio	
	DTS-HD Master Audio, Dolby TrueHD Dolby Digital, DTS, DVD-Audio, LPCM, SACD, MPCM
Controls	
Rotary control switch	EDID mode selection
Connectors	
Input / Output	Input: 1 x HDMI Type A Output: 2,4 or 8 x HDMI Type A 1 x DC power jack 1 x mini USB for firmware upgrade
LED's	
Signal	Green
Power	Red
Environmental	
Operating Temp	32°F to 104°F (0°C to 40°C)
Storage Temp	-4°F to 140°F (-20°C to 60°C)
Operating Humidity	20-90% relative, non-condensing
Approvals	
	FCC and CE certified, RoHS compliant, WEEE

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