AVPro edge
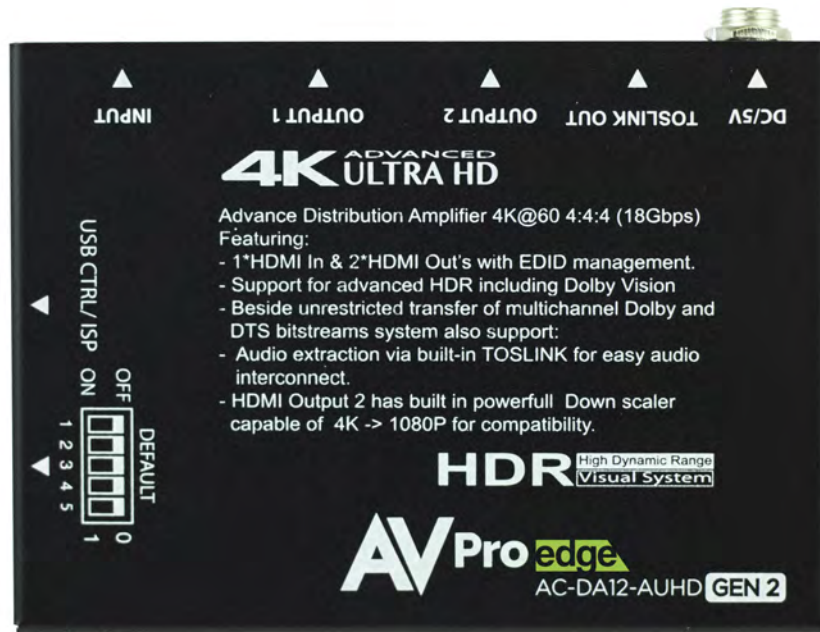
User Manual

AC-DA12-AUHD-GEN2

A full 4K60 4:4:4 (Up to 18GBPS) Distribution Amplifier with advanced EDID management

Introduction

The AC-DA12-AUHD-GEN2 is an 18GBPS, full bandwidth HDMI2.0a (HDR) with HDCP2.2 two-way HDMI splitter. Functionally, distributes the input HDMI signal to four identical HDMI outputs. These four outputs are synchronized.

AC-DA12-AUHD-GEN2 has the ability of pre-emphasis and equalization. Multiple cascaded AC-DA12-AUHD-GEN2 achieves long distance transmission of HDMI signal of more than 15 meters even in 4K (HDR) resolution.

AC-DA12-AUHD-GEN2 offers solutions for usage as a component of digital HDMI distributions and entertainment systems also UHDTV/4K retail and general show sites. Use in conjunction with UHDTV, UHD Projector, STB, UHD-BD, UHD Media Player and in environment where noise, space and security are concerns. Fits perfectly in data center control rooms, information distribution premises, conference and presentation rooms, school educational facilities and corporate training environments.

Contents

Full 4K 60 (4:4:4) HDMI Splitter & Distribution Amplifier
■ **Product Overview** (Model Number: AC-DA12-AUHD-GEN2)

■ Features

- Easy to Use: Install in seconds, no need for setting.
- Distribution: One HDMI input, two identical HDMI outputs.
- Supports up to 18GBPS with resolutions of 4K60(YUV444), 4K30, 1080p, 1080i, 720p and other standard Video formats, PAL and NTSC.
- Customer can configure EDID function to enable the best compatibility.
- Supports HDCP2.2
- 4k-->1080P Downscaler
- EDID Blend (see page 11 for details)
- HDMI 2.0(a) w/ HDR.
- Mounting ears are included for easy fixation on wall, furniture or ceiling.

> ✍ **Notice** AVProEdge reserves the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

Warning

To reduce the risk of fire, electric shock, or product damage:

1. Do not expose this apparatus to rai moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

6. Clean this apparatus on with a dry cloth.

2. Do not expose this apparatus rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

7. Unplug this apparat during lightning storms or when unused for long periods of time.

3. To prevent risk of electric sho or fire hazard due to eoverheating, do not obstruct th unit's ventilation openings with newspapers, toablecloths, curtains, and similar items.

8. Protect the power co from being walked on or pinched particularly at plugs.

4. Do not install near any he sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Only use attachments accessories specified by the manufacturer.

VIDEO:

VIDEO RESOLUTIONS	UP TO 4K 60HZ 4:4:4
VESA RESOLUTIONS	UP TO DCI 4K (4096X2160) 5K (UP TO 5120X3200
HDR FORMATS/RESOLUTIONS	420, 422, 444 (10 AND 12 DEEP COLOR) HDR10, HDR10+, DOLBY VISION, HLG
COLOR SPACE	YUV (COMPONENT), RGB (CSC: REC. 601, REC. 709, BT2020, DCI, P3 D6500)
CHROMA SUBSAMPELING	4:4:4, 4:2:2, 4:2:0 SUPPORTED
DEEP COLOR	UP TO 16 BIT (1080P) UP TO 12 BIT (4K)

AUDIO:

AUDIO FORMATS SUPPORTED HDMI	PCM 2.0 CH, LPCM 5.1 & 7.1, DOLBY DIGTAL, DTS 5.1, DOLBY DIGITAL PLUS, DOLBY TRUEHD, DTS-HD MASTER AUDIO, DTS-X, DOLBY ATMOS

DISTANCE:

DISTANCE 1080P	UP TO 50 FEET (USING BULLET TRAIN HDMI)
DISTANCE 4K & HDR	UP TO 130 FEET (USING BULLET TRAIN AOC)

OTHER:

BANDWIDTH	18 GBPS
HDCP	HDCP 2.2 AND EARLIER

PORTS:

HDMI	TYPE A
AUDIO (EXTRACTED DIGITAL)	TOSLINK

ENVIRONMENTAL:

OPERATING TEMPRATURE	23 TO 125°F (-5 TO 51°C)
STORAGE TEMPERATURE	-4 TO 140°F (-20 TO 60°C)
HUMIDITY RANGE	5-90% RH (NO CONDENSATION)

POWER:

POWER CONSUMPTION (TOTAL)	4 WATTS MAX
POWER SUPPLY	INPUT: AC 100-240V ~ 50/60HZ OUTPUT: DC 5V 2A

DIMENSIONS:

DIMENSIONS (SINGLE UNIT ONLY, TX OR RX ARE SAME) (LENGTH/WIDTH/HEIGHT) (TX OR RX EACH ALONE)	MM: 17.87 X 73.46 X 101.6 INCH: .70 X 2.89 X 4 (WITHOUT WALL DECORA COVER)
WALL SPACE	SINGLE GANG
COMPATIABLE BOX TYPES	MUD RINGS, STUD MOUINT, CLAMP MOUNT, METAL & PLASTIC BOXES, LV BOXES
DIMENSIONS (PACKAGED LENGTH/WIDTH/HEIGHT) (KIT)	MM: 85.725 X 134.62 X 146.05 INCH: 3.375 X 5.3 X 5.75
WEIGHT (UNIT)	0.37LBS (0.17KG)
WEIGHT (PACKAGED)	0.87LBS (0.4KG)

*SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. MASS & DIMENSIONS ARE APPROXIMATE

■ Package Contents

① Main unit. P/N: AC-DA12-AUHD-GEN2

② 5VDC Power Supply.

③ Mounting Ears

■ Connections and Operations

1) Connect the HDMI input source into AC-DA12-AUHD-GEN2

2) Connect the HDMI output equipment (Displays) into AC-DA12-AUHD-GEN2

3) Insert the DC side of 5v power supply into AC-DA12-AUHD-GEN2 and then connect the AC side of the Power supply into the wall outlet.

4) Plugging in the unit automatically powers up the device.
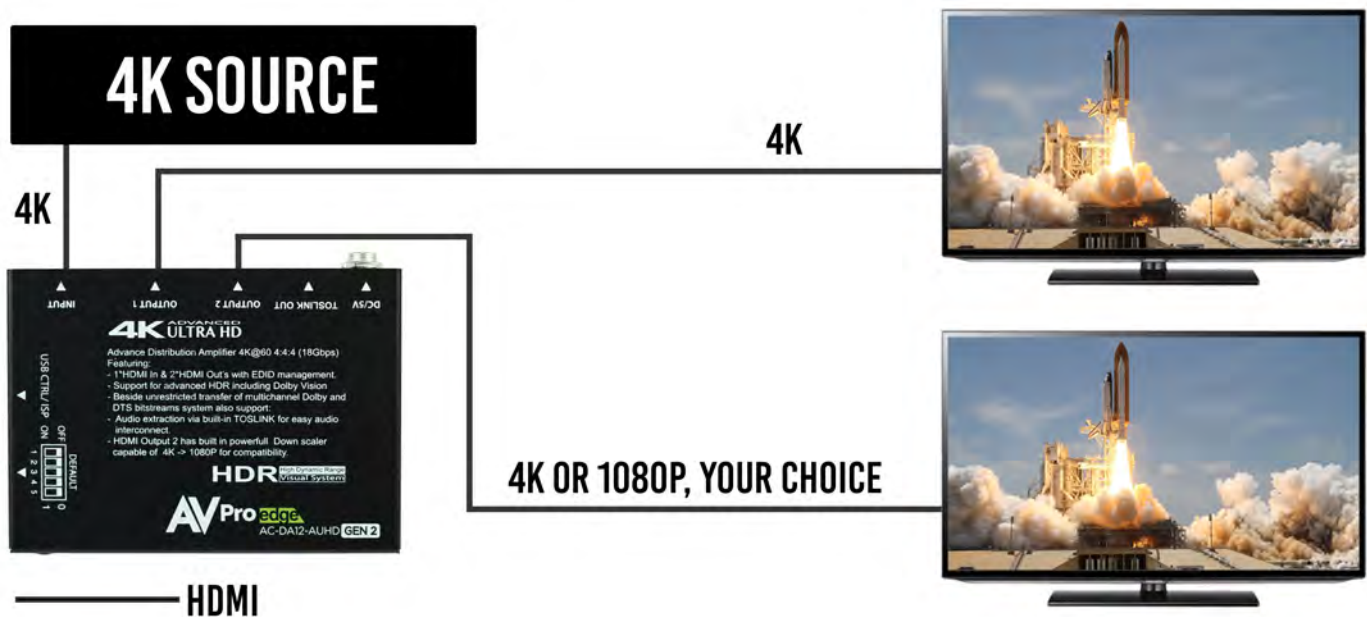
■ Panel Descriptions

Front Panel

Activity Display (Front):

a)   When Power is applied all lights flash RED and the machine begins to function.   If no devices are plugged in, you can verify power by looking inside the Toslink out on the back of the unit.

b)   When the INPUT device is plugged in, the Input light stay solid RED.

c)   When a sink (display) is plugged into an OUTPUT, the corresponding light stays solid RED.

d)   Scaler On/Off. When lit the scaler is on and will convert a 4k signal to 1080p on Output #2.

Back Panel

- Power input.
- HDMI input.
- HDMI outputs (x2)
- Optical Toslink Out

Device Top Cover

Device cover is labeled for Scaler Settings

And for easy HDMI port recognition especially useful when Mounting Ears are used for fixation.

📖 NOTE: DIP Switch EDID setting index on next page.

EDID Settings: The 5 DIP switches are located on the side of the device, and each switch has two settings, 0 & 1 (UP=0, DOWN=1). The default mode is ⎯00000⎯ which is all up, in this mode the device copies the EDID from the sink (display) plugged into OUTPUT 1. Custom EDID setting below.

00000: EDID COPY (See NOTE 1)
00001: 1080P_2CH(PCM)
00010: 1080P_6CH
00011: 1080P_8CH
00100: 1080P_3D_2CH(PCM)
00101: 1080P_3D_6CH
00110: 1080P_3D_8CH
00111: 4K30Hz_3D_2CH(PCM)
01000: 4K30Hz_3D_6CH
01001: 4K30Hz_3D_8CH
01010: 4K60Hz(Y420)_3D_2CH(PCM)
01011: 4K60Hz(Y420)_3D_6CH
01100: 4K60Hz(Y420)_3D_8CH
01101:4K60Hz_3D_2CH(PCM)
01110: 4K60Hz_3D_6CH
01111: 4K60Hz_3D_8CH

10000: Set EDID OUT1 Audio, OUT2 Video MIX
10001: Set EDID OUT2 Audio, OUT1 Video MIX
"EDID BLEND" see page 11 for details
10010: 1080P_8CH_HDR
10011: 1080P_3D_2CH(PCM)_HDR
10100: 1080P_3D_6CH_HDR
10101: 1080P_3D_8CH_HDR
10110:4K30Hz_3D_2CH(PCM)_HDR
10111: 4K30Hz_3D_6CH_HDR
11000: 4K30Hz_3D_8CH_HDR
11001: 4K60Hz(420)_3D_2CH(PCM)_HDR
11010: 4K60Hz(420)_3D_6CH_HDR
11011: 4K60Hz(420)_3D_8CH_HDR
11100: 4K60Hz_3D_2CH(PCM)_HDR
11101: 4K60Hz_3D_6CH_HDR
11110: 4K60Hz_3D_8CH_HDR
11111: Pass-through

EDID Setting Continued:

1. The AC-DA12-AUHD-GEN2 is set this way by default for maximum
〝Plug & Play〞 Compatibility.   If you change sink (Display) plugged into OUTPUT 1, please follow the steps below if you wish to use the new sink's EDID.

1. Start with power off
2. Set DIP to 〝00000〞 (all up).
3. Power on the unit
4. Power on the source device and connect the HDMI input port.
   Note1: EDID Copy mode: EDID will be copied from sink on OUTPUT

2.   The AC-DA12-AUHD-GEN2 has a new feature "EDID Blend" (*Firmware 1.63*) where EDIDs #16 & #17 will combine the Video from one Output with the Audio from the other Output. So for instance if you set the Dip Switch to '10000', this will take the Audio section of the EDID from Output 1 and the Video section of the EDID from Output 2 and blend them together (see example diagram below).

1. Start with power off
2. Set DIP to 〝10000'(Set EDID OUT1 Audio, OUT2 Video Mix) or
3. Set DIP to 〝10001'(Set EDID OUT2 Audio, OUT1 Video Mix)
4. Power on the unit
5. Power on the source device and connect the HDMI input port.

EDID BLEND

SOURCE
OUT1 - AUDIO EDID
AVR
OUT2 - VIDEO EDID
HDMI
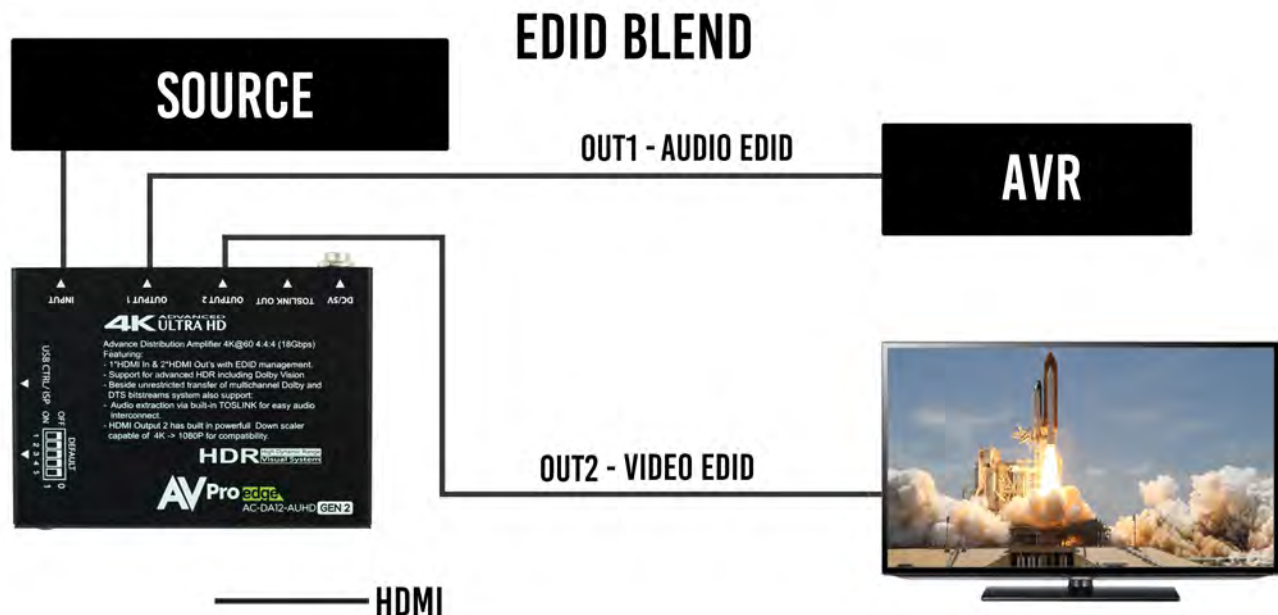
To use Scaler:

1. Press the SCALER Button to toggle on/off
2. Red LED On, then the scaler is on.
3. Scaler On - Downscales 4k to 1080p on output #2
4. Scaler light Off - No Scaling

CTRL/ISP

1. Micro USB Port for firmware and control.
2. Command list on Page 13.
   For CTRL, use a Micro to USB cable and set the serial communications to: 57600,n,8,1 (baud: 57600, no parity, 8 data bits and 1 stop bit) with no handshaking.

```
= --------------------------------------------------------------------------------------------------------------------- =
=                                                System HELP                                                            =
=                                                                                                                       =
=                    Azz  :  All Commands start by Prefix System Address zz, if [01~99]                                 =
= --------------------------------------------------------------------------------------------------------------------- =
= H                                       : Help                                                                        =
= STA                                     : Show Global System Status                                                   =
= SET RST                                 : Reset to Factory Defaults                                                   =
= SET ADDR xx                             : Set System Address to xx {xx=[00-99](00=Single)}                            =
= SET EDID OUTx A OUTy V MIX              :Set EDID OUTx Audio OUTy Video Mix{x=[1~2],y=[1~2](x!=y)}                     =
= GET ADDR                                : Get System Address                                                          =
= GET STA                                 : Get System System Status                                                    =
= GET IN SIG STA                          : Get Input Signal Status                                                     =
= --------------------------------------------------------------------------------------------------------------------- =
= Output Setup Commands:                  : (Note: Output number (x)-HDMI(x),x=1-2)                                      =
= SET OUTx VIDEOy                         : Set Output VIDEO Mode {x=[2], y=[1~2](1=BYPASS,2=4K->2K)}                    =
= SET OUTx EXA EN/DIS                     : Set Ex-Audio Output Enable/Disable                                          =
= SET OUTx STREAM ON/OFF                  : Set Output x Stream ON/OFF{x=[0~2](0=ALL)}                                  =
= GET OUTx VIDEO                          : Get Output x Video Status{x=[2]}                                            =
= GET OUT EXA                             : Get Ex-Audio Output Enable/Disable Status                                   =
= GET OUTx EDID DATA                      : Get Output x EDID DATA{x=[1~2]}                                             =
= GET OUTx STREAM                         : Get Output x Stream ON/OFF Status{x=[0~2](0=ALL)}                           =
= --------------------------------------------------------------------------------------------------------------------- =
= Input Setup Commands:                                                                                                 =
= SET IN EDIDy                            : Set Input EDID{y=[0-32]}                                                     =
=                                                                                                                       =
=   0:Copy Output1 EDID To Input          1:1080P_2CH(PCM)                2:1080P_6CH                                    =
=   3:1080P_8CH                           4:1080P_3D_2CH(PCM)             5:1080P_3D_6CH                                 =
=   6:1080P_3D_8CH                        7:4K30Hz_3D_2CH(PCM)            8:4K30HZ_3D_6CH                                =
=   9:4K30HZ_3D_8CH                       10:4K60Hz(Y420)_3D_2CH(PCM)     11:4K60Hz(Y420)_3D_6CH                         =
=   12:4K60Hz(Y420)_3D_8CH                13:4K60HZ_3D_2CH                14:4K60HZ_3D_6CH                               =
=   15:4K60HZ_3D_8CH                      16:SET EDID OUT1 Audio OUT2 Video MIX   17:SET EDID OUT2 Audio OUT1 Video MIX  =
=   18:1080P_8CH_HDR                      19:1080P_3D_2CH(PCM)_HDR        20:1080P_3D_6CH_HDR                            =
=   21:1080P_3D_8CH_HDR                   22:4K30Hz_3D_2CH(PCM)_HDR       23:4K30Hz_3D_6CH_HDR                           =
=   24:4K30Hz_3D_8CH_HDR                  25:4K60Hz(Y420)_3D_2CH(PCM)_HDR 26:4K60Hz(Y420)_3D_6CH_HDR                     =
=   27:4K60Hz(Y420)_3D_8CH_HDR            28:4K60Hz_3D_2CH(PCM)_HDR       29:4K60Hz_3D_6CH_HDR                           =
=   30:4K60Hz_3D_8CH_HDR                  31:Passthrough Mode                                                           =
= --------------------------------------------------------------------------------------------------------------------- =
= SET IN EDID CY OUTy                     : Copy Output y EDID To Input(USER1 BUF)  {y=[1~2]}                           =
= SET IN EDID Uy DATAz                    : Write EDID To User y Buffer of Input {y=[1~3],z=[EDID Data]                 =
= GET IN EDID                             : Get Input EDID Index                                                        =
= GET IN EDID y DATA                      : Get Input EDID y Data {y=[1~32]}                                            =
= --------------------------------------------------------------------------------------------------------------------- =
```

▪ # Maintenance

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

- Use the power supplies provided. If an alternate supply is required, check voltage, polarity and that it has sufficient power to supply the device it is connected to.
- Do not operate these products outside the specified temperature and humidity range given in the above specifications.
- Ensure there is adequate ventilation to allow this product to operate efficiently.
- Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive components that may be damaged by any mistreatment.
- Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
- Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

▪ # Damage Requiring Service

- The DC power supply cord or AC adaptor has been damaged
- Objects or liquids have gotten into the unit
- The unit has been exposed to rain
- The unit does not operate normally or exhibits a marked change in performance
- The unit has been dropped or the housing damaged

▪ Support

Should you experience any problems while using this product, first, refer to the Troubleshooting section of this manual before contacting Technical Support. When calling, the following information should be provided:

- Product name and model number
- Product serial number
- Details of the issue and any conditions under which the issue is occurring

▪ Warranty

If your product does not work properly because of a defect in materials or workmanship, AVProEdge (referred to as "the warrantor") will, for the length of the period indicated as below, (Parts/Labor (10) Years), which starts with the date of original purchase ("Limited Warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor. During the "Labor" Limited Warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must mail-in your product during the warranty period. This Limited Warranty is extended only to the original purchaser and only covers product purchased as new. A purchase receipt or other proof of original purchase date is required for Limited Warranty service.

This warranty extends to products purchased directly from AVPro or an authorized dealer. AVPro is not liable to honor this warranty if the product has been used in any application other than that for which it was intended, has been subjected to misuse, accidental damage, modification or improper installation procedures, unauthorized repairs or is outside of the warranty period. Please direct any questions or issues you may have to your local dealer before contacting AVPro.

Troubleshooting

- Verify Power - Front Panel Pg.8
    - Try power-cycling the device while all cables are connected
- Verify Connections - Front Panel Pg.8
    - If the lights are not showing a connection, try Hot Plugging the cable (remove and re-insert while powered up)
- Possible EDID issue. Default out of the box is EDID Copy from downstream device. Try one of the Canned EDIDs built in - Pg.10-11

- Lights showing correct connecting but still no picture. Try the last EDID option (all down), this will force what ever signal is going in, out - Pg.10-11

- 1080p signal working but not 4k - Verify all connected devices are 4k capable.

- Still having issues, contact us
    - Support Direct +1-605-977-3477
    - All inquiries   +1-605-274-6055
    - Submit a support request ticket
        - https://support.avproedge.com/hc/en-us/requests/new

Thank you for choosing AVProEdge!

Please contact us with any questions. We are happy to be of service!

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