

# HC-250 Controller Installation Guide



## Supported Model

• C4-HC250-BL - HC-250 Controller, Black

#### Introduction

The Control4® HC-250 Controller (HC-250) provides ways to control lights, home theaters, distributed audio and video systems, and other devices controlled by Infrared (IR), IP, Serial, Contact, or Relay connections. The Controller has a fast processor, built-in WiFi, HDMI for audio and video, improved ZigBee radio, and is perfect for smaller systems!

The HC-250 also provides extensive media management for audio and video content: CDs, DVDs, and Blu-ray Discs, or digital media stored on connected devices. Use an external storage device with USB or NAS connectivity to store music and photos. The HC-250 fits easily behind a TV, stacked with AV devices, or mounted on a rack using the Rack Mount Kit (sold separately).

After you install and configure the HC-250 (using the Composer Pro software) along with other system components, your customers can control their system using the On-Screen Navigator, MyHome apps, System Remote Controls, Touch Screens, or any other Control4-supported interface devices (sold separately).

#### **Box Contents**

The following items are included in the HC-250 box:

- HC-250 Controller
- AC power cord
- IR emitters (4)
- Universal Television Mounting Plate
- Screws (4)
- Contact/Relay Terminal Block
- Ferrite clamps (4)

## Accessories Available for Purchase

- Rack Mount Kit (C4-1URMK1B-B or C4-1URMK2B-B)
- Serial Cable Kit (C4-CBL3.5MM-DB9B)

## Warnings



WARNING! To reduce the risk of electrical shock, do not expose this apparatus to rain or moisture.

AVERTISSEMENT! Pour réduire le risque de choc électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.



CAUTION: In an over-current condition on USB or contact output the software disables the output and then blinks the power LED for 10 seconds. When a USB overcurrent fault is detected, you will see the power light blink the LED five (5) times per second. When a contact overcurrent fault is detected, you will see the power light blink the LED 12 times a second. After the 10-second blinking period is over the over-current circuit will be re-enabled. If the over-current condition remains, then the same sequence will repeat itself.

ATTENTION: Dans une condition de surintensité sur USB ou sortie de contact le logiciel désactive sortie, puis le DEL Power clignote pendant 10 secondes. Quand une erreur de condition de surintensité sur USB est détectée, vous verrez le DEL Power clignoté le DEL (5) fois par seconde et puis quand un défaut de condition de surintensité sur contact est détecté, vous verrez le DEL clignoté 12 fois par seconde. Après la période



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de 10 secondes de clignotement, le circuit de sur-courant sera réactivé. Si la condition de surintensité reste donc la même, la séquence se répète.

For more information, refer to the Products or Documentation pages at www.control4.com.

## Requirements and Specifications



#### NOTES:

- (1) We recommend using Ethernet rather than WiFi for the best network connectivity.
- **(2)** The Ethernet or WiFi network should be installed prior to starting the HC-250 installation.
- (3) The HC-250 is only compatible with PoE injectors that have DC ground isolated from AC ground. The easiest way to determine if this is the case is to use PoE injectors that only have a two-prong AC power cord. You can find additional PoE information on the Control4 Knowledgebase.
- **(4) Ferrite clamp installation**. When installing a Control4® HC-250 Controller, also install the enclosed ferrite clamps as described in this document.

**Ethernet cable**. Install two (2) ferrite clamps on the Ethernet cable no farther than 6 inches from the HC-250 Ethernet jack.

**Video cable**. Install two (2) ferrite clamps on each end of the HDMI or Component video cable no farther than 6 inches from the HC-250 and the TV.

The software required to configure this device is Composer Pro. See the *Composer Pro User Guide* for details.

#### **HC-250 Specifications**

Model Number	C4-HC250-BL
Network	Ethernet—required WiFi (only supported when the unit is used in a single-Controller system or as a Secondary Controller)
Media Recognition	Online CD/DVD/Blu-ray recognition and media information service
Video	HDMI 1.4 output; Component Video output
Audio Playback Formats	MP3: 32kbps to 320kbps, CBR, VBR, AAC, and FLAC
Display	LED indicators
Power Requirements	100-240 VAC, 60/50 Hz, 0.25 A MAX. Power limits: 30W maximum, 10W minimum. PoE requirement: 13W. IR: <100 mW or 20mA of current.
Contact (1)	DC - 36V maximum operation (low voltage) Maximum output current for 12V rail: 125mA
Relay (1)	AC - 36V, 2A DC - 24V maximum operation (low voltage)
Dimensions (H x W x D)	1.23" (31.19 mm) x 8.59" (218.13 mm) x 4.92" (125.01 mm)
Weight	1.3 lbs/0.589 kg
Shipping Weight	2.7 lbs/1.224 kg

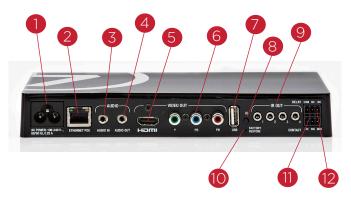
#### Additional Resources

The following resources are available for more support.

- Control4 Knowledgebase and Forums
- Control4 Technical Support
- Control4 website: http://www.control4.com
- Composer documentation in online help or PDF format available on the Dealer portal

#### Front View

Figure 1. Front View



- 1 WiFi LED. This LED blinks first Red, then Orange, and finally Blue during the boot process. When the operating system is running, the WiFi driver changes the LED color depending on the signal strength of its connection to its associated access point. Color/signal strength indicators: Orange=Fair to Good, Blue=Excellent, and No Light=No connection.
- **2** Data LED. The Blue LED indicates that the Controller is streaming audio.
- 3 Link LED. The Blue LED indicates that the Controller has been identified in a Control4 Composer project and is communicating with Director.
- **4** Power LED. The Blue LED indicates that AC or PoE power is present. The Controller turns on immediately after power is applied to it.
- **5** IR Window/IR Blaster. For capturing third-party IR codes from hand-held devices (for example, remote controls) or blasting IR codes.

#### **Back View**



NOTE: Audio cables are not provided with this product.

Figure 2. Back View



- 1 Power Plug Port. AC power receptacle for an IEC 320 power cord.
- **2** Ethernet/PoE. RJ-45 jack for a 10/100 BaseT Ethernet connection. Supports PoE (802.3af).
- **3** Audio In (1). 3.5 mm jack for stereo channel input (line level) for one (1) stereo analog source.
- **4** Audio Out (1). 3.5 mm jack for stereo channel line output (line level) for amplifiers or audio switches.
- 5 Video Out. An HDMI port to display navigation menus on a monitor or TV. Also an Audio Out over HDMI.
- 6 Video Out. Component port.



NOTE: Use only an HDMI or Component cable in one of these ports, not both.

- 7 USB. One (1) port for an external storage device or a USB drive (e.g., FAT32-formatted devices). See "Using External Storage Devices" in this document for more information.
- **8** Identification Button. Easily-pressed button to identify the device in Composer Pro.
- 9 IR and Serial Outs (4). 3.5 mm jacks for up to four (4) IR emiiters or for a combination of IR emitters and serial devices. Ports 1 and 2 can be configured independently for serial control, e.g., receivers or disc changers, or for IR control. See "Set Up IR Emitters or IR Blaster" in this document for more information.
- 10 Factory Restore Button. Restores the Controller to its factory defaults. This also reboots the Controller.
- 11 Contact (1). Pluggable terminal block connector for one (1) dry contact closure, logic input connection, e.g., door contact sensor, or motion sensor. Provides power for small devices (12V), signal input (SIG), and return path (GND).
- 12 Relay. Pluggable terminal block connector for one (1) Normally Closed or Normally Opened switchable connection, e.g., a blind, a fireplace, or a projector screen. The set contains a connection for Normally Opened (NO), Normally Closed (NC), and Common (COM).

## Installation Instructions

To install the Controller:

1 Ensure that the home network is in place before starting system setup. The HC-250 requires a

network connection (Ethernet - preferred or WiFi) to use all of the features as designed. When connected, the Controller can access web-based media databases, communicate with other IP devices in the home, and access Control4 system updates.

- 2 Mount options. The HC-250 can be mounted or placed behind a TV, mounted on a wall, placed in a rack, or stacked on a shelf. See "Wall Mount Options" below if mounting the HC-250 on a wall.
- **3** Connect the HC-250 to the network.
- Ethernet. To connect using an Ethernet connection, plug the data cable from the home network connection into the Controller's RJ-45 port (labeled "Ethernet") and the network port on the wall or at the network switch.
- WiFi. To connect using WiFi, first connect the unit to Ethernet, and then use Composer Pro's System Manager to reconfigure the unit for WiFi. You can find sample instructions in the Composer Pro User Guide, "Configuring Speaker Point for WiFi."
- 4 Power up the Controller. Plug the power cord into the Controller's power plug port and then into an electrical outlet. If you are powering the Controller using PoE, you can skip this step.
- **5** Connect system devices. Attach the devices as described in "Connect the Devices."
- 6 Set up any external storage devices as described in "Setting Up External Storage Devices" in this document.

## Wall Mount Options

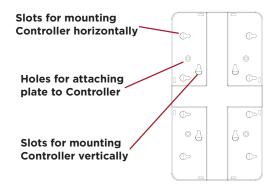
- Mount the HC-250 horizontally using one (1) standard single-gang back box (sold separately).
   The wall mounting plate has four (4) horizontal sets of slots. Install a single-gang back box allowing the screws to protrude .08" from the
- Mount the HC-250 horizontally or vertically using one (1) standard double-gang back box (sold separately). Install a standard double-gang back box allowing the screws to protrude .08" from the wall.
- Mount the HC-250 horizontally or vertically (see Figure 3) using four (4) screws (not provided) placed directly into a wall stud or studs. Using the mounting plate as a template, screw the four

(4) screws into a stud to align with the four (4) center slots for vertical positioning or into two (2) studs to align with the four (4) corner slots for horizontal positioning and allowing the screws to protrude .08" from the wall.



NOTE: To check the fit of the screws, place the wall mounting plate over the screws before attaching it to the bottom of the Controller.

Figure 3. Screw Location



#### Mount the HC-250

- 1 Use the four (4) screws (provided) to attach the mounting plate to the bottom of the Controller. Ensure that the narrow end of the slots is on top when the device is installed.
- **2** Arrange the wires to fit in the wire channels on the mounting plate.
- **3** Line up the slots on the mounting plate with the screws.
- **4** Press the device onto the screws and slide it down until the screws are in the narrow end of the slots.
- **5** Connect all applicable devices to the HC-250 using the connection options described next.

## Connect the IR Ports/Serial Ports (Optional)

The HC-250 provides four (4) IR ports; Ports 1 and 2 can be reconfigured independently for serial communication. If not used for serial, they can be used for IR. Connect a device to the HC-250, for example, a receiver or disc changer, using the special serial cable (optional). Serial ports support many different baud rates (acceptable range: 1200 to 115200 baud for odd and even parity).

The following table shows the serial communication values.

	Hardware Flow Control	Odd Parity	Even Parity	No Parity	Other
Serial Port 1		X	X	X	
Serial Port 2		X	X	X	

To configure a port for serial or IR, make the appropriate connections in your project using Composer Pro. See the *Composer Pro User Guide* for details.

## Set Up IR Emitters or IR Blaster

Your system may contain third-party products that are controlled through IR commands (usually using remote controls). To provide a way for the Controller to control a device that only recognizes IR commands, complete one of the following setups:

- IR Emitters
- IR Blaster

#### **IR Emitters**

- 1 Plug the 3.5 mm connector end of one of the four (4) IR stick-on emitters provided into an IR Out port on the HC-250.
- Place the stick-on emitter end over the IR receiver on the Media Player, TV, or other target device to drive IR signals from the HC-250 to the target.

#### IR Blaster

The HC-250 is also equipped with an IR blaster which is located just left of the front LEDs. To use the blaster rather than an IR emitter:

- In Composer, connect the IR Blaster of the Controller to the IR In for the device you want to control.
- 2 Test and verify that the HC-250 is positioned in such a way that the blaster can reach the device you want to control.

## Setting Up External Storage Devices

You can store and access media from an external storage device, for example, a network hard drive

or USB memory device, by plugging the USB drive into the USB port and configure or scan the media in Composer Pro.



#### NOTES:

(1) We support only USB drives that are externally powered or USB sticks (solid state). Self-powered USB drives are not supported.

**(2)** When using USB storage devices on an HC-250, you can only use one (1) partition with a 2TB maximum size. This limitation applies to the USB storage on all other Controllers also.

## Composer Pro Driver Information

Select the **Home Controller HC-250** driver in Composer Pro and add it to your Composer project. See the *Composer Pro User Guide* for details.

## Troubleshooting

#### **Factory Restore Button**



CAUTION! This action deletes the Composer project.

To restore the HC-250 for system recovery to the factory default image, perform the following steps:

- 1 Disconnect power to the HC-250.
- 2 Insert one end of a paper clip into the small hole on the back of the HC-250 that is labeled 'Factory Restore.'
- **3** While pressing and holding the Factory Restore button, power on the HC-250.
- 4 Hold the button until the WiFi Status LED blinks Orange. This should take 5 to 7 seconds. The Status LED will blink Orange while the restore process is running.

## Identification Button (Network Reset)

To reset the HC-250 network settings to the default, perform the following steps:

- 1 Disconnect power to the HC-250.
- **2** While pressing and holding the ID button on the back of the HC-250, power on the HC-250.
- **3** Hold the ID button until the Data, Link and Power LEDs are solid Blue, then immediately release the

button.

4 If during the boot sequence the Status LED stays Orange, press and hold the Identification button until the LED blinks Blue, and then release it.

## Regulatory/Safety Information

To review regulatory information for your particular Control4 products, see the information located on the Control4 website at: http://www.control4.com/regulatory/.

## Warranty

Go to http://www.control4.com/warranty for details.

## **About This Document**

Part number: 200-00240, Rev. C 05/03/2012

control4.com | Control



#### Regulatory Compliance & Safety Information for Contol4 Model C4-HC250-BL.

### **Electrical Safety Advisory**

#### **Important Safety Information**

Read the safety instructions before using this product.

- 1. Read these instructions.
- 2. Keep these instructions.
- 3. Heed all warnings.
- 4. Follow all instructions.
- 5. Do not use this apparatus near water.
- 6. Clean only with dry cloth.
- 7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11. Only use attachments/accessories specified by the manufacturer.
- 12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13. Unplug this apparatus during lightning storms or when unused for long periods of time. This equipment uses AC power which can be subjected to electrical surges, typically lightning transients which are very destructive to customer terminal equipment connected to AC power sources. The warranty for this equipment does not cover damage caused by electrical surge or lightning transients. To reduce the risk of this equipment becoming damaged it is suggested that the customer consider installing a surge arrestor.
- 14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 15. Use the mains plug to disconnect the apparatus from the AC mains. The mains plug shall remain readily operable.
- 16. To completely disconnect unit power from the AC mains, disconnect the unit's power cord from the mains socket. To reconnect power, plug the unit's power cord into the mains socket following all safety instructions and guidelines.
- 17. CAUTION: As with all batteries, there is a risk of explosion or personal injury if the battery is replaced by an incorrect type. Dispose of used battery according to the instructions of the battery manufacturer and applicable environmental guidelines. Do not open, puncture or incinerate the battery, or expose it to conducting materials, moisture, liquid, fire or heat above 54° C or 130° F.



- 18. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in fire or electric shock.
- 19. This product can interfere with electrical equipment such as tape recorders, TV sets, radios, computers and microwave ovens if placed in close proximity.



The lightning flash and arrow head within the triangle is a warning sign alerting you of dangerous voltage inside the product



Caution: To reduce the risk of electric shock, do not remove cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.



The exclamation point within the triangle is a warning sign alerting you of important instructions accompanying the product.

## See marking on bottom / back of product



**Warning!:** To reduce the risk of electrical shock, do not expose this apparatus to rain or moisture

**AVERTISSEMENT!** Pour réduire le risque de choc électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.

**WARNUNG!** Um das Risiko des elektrischen Schlages zu verringern, setzen Sie diesen Apparat nicht Regen oder Feuchtigkeit aus.

Save these instructions

Compliance of this equipment is confirmed by the following label that is placed on the equipment:



#### **USA & Canada Compliance**

#### FCC Part 15, Subpart B / ICES-003Unintentional Emissions Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules and Industry Canada ICES-003. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:



- · Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC rules and Industry Canada ICES-003. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IMPORTANT! Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT! Tous les changements ou modifications pas expressément approuvés par la partie responsable de la conformité ont pu vider l'autorité de l'utilisateur pour actionner cet équipement.

Ferrite clamp installation. When installing a Control4® HC-250 Controller, also install the four (4) enclosed ferrite clamps as described in this document.

Ethernet cable. Install two (2) ferrite clamps on the Ethernet cable no farther than 6 inches from the HC-250 Ethernet jack.

Video cable. Install two (2) ferrite clamps on each end of the HDMI or Component video cable no farther than 6 inches from the HC- 250 and the TV.

Compliance of this equipment is confirmed by the following label that is placed on the equipment:



#### FCC Part 15, Subpart C / RSS-210 Intentional Emissions Interference Statement

Compliance of this equipment is confirmed by the following certification numbers that are placed on the equipment:

**Notice:** The term "FCC ID:" and "IC" before the certification number signifies that FCC and Industry Canada technical specifications were met.

FCC ID: R33C4HC250 IC: 7848A-C4HC250

This equipment must be installed by qualified professionals or contractors in accordance with FCC Part 15.203 & IC RSS-210, Antenna Requirements. Do not use any antenna other than the one provided with the unit.



#### **RF Radiation Exposure Statement**

This equipment complies with the FCC/IC radiation exposure limits set fourth for portable transmitting devices operation in an uncontrolled environment. End users must follow the specific operating instructions to satisfy RF exposure compliance.

- The equipment should only be used or installed at locations where there is normally at least a 20cm separation between the antenna and all persons.
- This transmitter must not be co-located or operation in conjunction with any other antenna or transmitter.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

#### **European Compliance**

Conformity of the equipment with the guidelines below is attested by the application of the CE mark.



#### **CE Declaration of Conformity**

Manufacturer's Name: CONTROL4 CORPORATION

Manufacturer's Address: 11734 S. ELECTION ROAD SUITE 200

SALT LAKE CITY UT 84020 USA

EU Representative Name: CONTROL4 EMEA LIMITED

EU Representative Address: UNIT3, GREEN PARK BUSINESS CENTRE

SULTON-ON-THE FOREST

YORK YO61 IET, UNITED KINGDOM

Product Name(s): Home Controller

Brand: Contol4
Model(s): C4-HC250-BL

Product Standard(s) to which Conformity of the Council Directive(s) is declared:

EMC - 2004/108/EC "Electromagnetic Compatibility (EMC) Directive":

(Emissions) EN 55022:2006, (Immunity) EN 55024:1998, EN 301 489-1:2008, EN 301 489-1:2009, EN 61000-3-2:2004 & EN 61000-3-3:2002

Safety - 206/95/EC "Low Voltage Directive (LVD)":

EN 60950-1:2006 (2<sup>nd</sup> Edition) .

Telecom & Radio - 1999/5/EC Radio equipment and Telecommunications Terminal Equipment (R&TTE) Directive:

EN 300 328 V1.7.1 (2006-10)

RoHS - 2002/95/EC Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment (EEE) & WEEE - 2002/96/EC Waste of Electrical and Electronic Equipment (EEE).



We, the undersigned, hereby declare that the equipment specified above conforms to the above directives and standards. Date of Issue: May 9, 2012

Legal Representative

Signature

Roger Midgley

Sr. Regulatory Compliance Engineer



#### **National Restrictions**

This product may be used in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Ce produit peut être utilisé dans tous les pays de l'UE (et dans tous les pays ayant transposés la directive 1999/5/CE) sans aucune limitation, excepté pour les pays mentionnés ci-dessous:

Questo prodotto è utilizzabile in tutte i paesi EU (ed in tutti gli altri paesi che seguono le direttive EU 1999/5/EC) senza nessuna limitazione, eccetto per i paesii menzionati di seguito:

Das Produkt kann in allen EU Staaten ohne Einschränkungen eingesetzt werden (sowie in anderen Staaten die der EU Direktive 1999/5/CE folgen) mit Außnahme der folgenden aufgeführten Staaten:

#### France

In case the product is used outdoors, the output power is restricted in some parts of the band. See Table 1 below or check http://www.arcep.fr/ for more details.

Dans la cas d'une utilisation en extérieur, la puissance de sortie est limitée pour certaines parties de la bande. Voir la table ci-dessous ou visitez <a href="http://www.arcep.fr/">http://www.arcep.fr/</a> pour de plus amples details

Table 1 Applicable Power Levels in France					
Location	Frequency Range (MHz)	Power (EIRP)			
Indoor (No restrictions)	2400-2483.5	100 mW (20 dBm)			
Outdoor	2400-2454 2454-2483.5	100 mW (20 dBm) 10 mW (10 dBm)			

#### Recycling

Control4 understands that a commitment to the environment is essential for a health life and sustainable growth for future generations. We are committed to supporting the environmental standards, laws, and directives that have been put in place by various communities and countries



that deal with concerns for the environment. This commitment is represented by combining technological innovation with sound environmental business decisions.

### **WEEE Compliance**

Control4 is committed to meeting all requirements of the Waste Electrical and Electronic Equipment (WEEE) directive (2002/96/EC). The WEEE directive requires the manufacturers of electrical and electronic equipment who sell in EU countries: (1) label their equipment to notify customers that it needs to be recycled, and (2) provide a way for their products to be appropriately disposed of or recycled at the end of their product lifespan. For collection or recycling of Control4 products, please contact your local Control4 representative or dealer.



## **Australia / New Zealand Compliance**

Compliance of this equipment is confirmed by the following label that is placed on the equipment:



#### **About this Document**

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