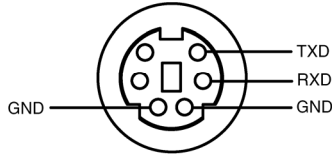


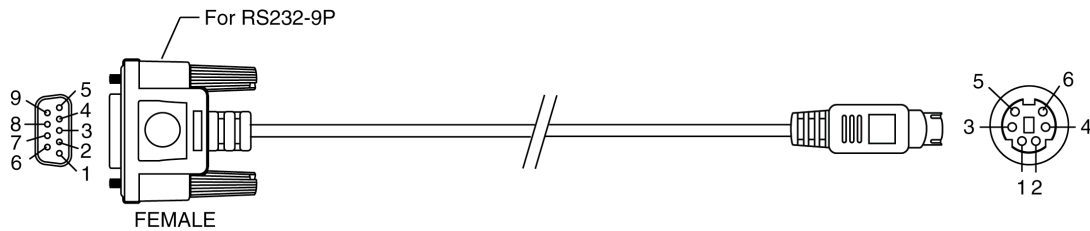


# Dell™ 4210X RS232 Protocol Document

- RS232 Projector Pin Assignment (Facing Projector)




- RS232 Serial Communication Cable Pin Assignment (Facing Cable)



## ◆ Pin Assignments

| RS232 | PIN DESCRIPTION | MINI DIN-6 |
|-------|-----------------|------------|
| 1     |                 |            |
| 2     | TXD             | 5          |
| 3     | RXD             | 3          |
| 4     |                 |            |
| 5     | GROUND          | 1, 2       |
| 6     |                 |            |
| 7     | Not Used        | 6          |
| 8     | Not Used        | 4          |
| 9     |                 |            |

 **Note 1:** The RS232 cable is not provided by Dell.

- RS232 Protocol  
Communication Settings

| Connection Settings | Value     |
|---------------------|-----------|
| Baud Rate           | 19200 bps |
| Data Bits           | 8 bits    |
| Parity              | None      |
| Stop Bits           | 1 bit     |
| Flow control        | None      |

## Command Types

To display the OSD menu and adjust the settings.

## Control Command Syntax (From PC to Projector)

[H][AC][SoP][CRC][ID][SoM][COMMAND]

[H][AC][SoP][CRC][ID][SoM][COMMAND][Value]

### Example: Power On Command (Send Low Byte Firstly)

Enter the following code:

0xbe, 0xef, 0x10, 0x05, 0x00, 0xc6, 0xff, 0x11, 0x11, 0x01, 0x00, 0x01

Header [H] ==> Fixed, "be (Low Byte), ef (High Byte)"

Address Code [AC] ==> Fixed, "10"

Size of Payload [SoP] ==> Byte size from MsgID to Command Code, "05 (Low Byte), 00 (High Byte)" or Byte size from MsgID to Value, "06 (Low Byte), 00 (High Byte)".

CRC16 [CRC] ==> CRC value, "c6 (Low Byte), ff (High Byte)"

MsgID [ID] ==> Fixed, "11 11"

MsgSize [SoM] ==> Byte size of Command Code, "01 (Low Byte), 00 (High Byte)" or Byte size of Command Code and Value, "02 (Low Byte), 00 (High Byte)"

Command Code [COMMAND] ==> "Power On" Command, "01"

## Projector Response Message Table

Byte0 value:

0x00: Success

0x01: Invalid Command (on the control command list but no valid)

0x02: Error Command (includes CRC error and unknown commands)

## Projector Response System Status

Byte0, Byte1, Byte2

Byte0: 0x00 (Success)

Byte1: 0xff (the Command Code of System Status)

Byte2: Return status

Ex: When the projector is in standby mode, the return status will be 0x01.

## Projector Response Lamp Hour

Byte0, Byte1, Byte2, Byte3

Byte0: 0x00 (Success)

Byte1: 0x2f (the Command Code of Lamp Hour)

Byte2: LSB (Hex)

Byte3: MSB (Hex)

Ex: 800 ( $3 \times 256 + 2 \times 16 = 800$ ) hours --> 0x00, 0x2f, 0x20, 0x03

## Firmware Version Response

Byte0, Byte1, Byte2, Byte3...Byte7

Byte0: 0x00 (Success)

Byte1: 0x30 (the Command Code of Firmware Version)

Byte2...Byte7

Firmware version: 6 Bytes ASCII Code: "M0RXXX"

XXX: 000-999

Ex: Version M0R001 → "M0R001" → 0x4d, 0x30, 0x52, 0x30, 0x30, 0x31 (Success, the Command Code of FW Version, 6 Bytes ASCII Code: "M0RXXX")

## Control Commands List

| Command Description              | Header (WORD) | Address Code (BYTE) | Size Of The Payload (WORD) | CRC16 For The Entire Packet (WORD) | MsG ID (WORD) | MsG Size (WORD) | Command Code (BYTE) | Value (BYTE) | Comment  |
|----------------------------------|---------------|---------------------|----------------------------|------------------------------------|---------------|-----------------|---------------------|--------------|--|
| Power On                         | 0xefbe        | 0x10                | 0x0005                     | 0xffc6                             | 0x1111        | 0x0001          | 0x01                |              | See Note 2   |
| Menu                             | 0xefbe        | 0x10                | 0x0005                     | 0xbf7c                             | 0x1111        | 0x0001          | 0x02                |              |  |
| Up                               | 0xefbe        | 0x10                | 0x0005                     | 0x7e07                             | 0x1111        | 0x0001          | 0x03                |              |  |
| Down                             | 0xefbe        | 0x10                | 0x0005                     | 0x3fc5                             | 0x1111        | 0x0001          | 0x04                |              |  |
| Left                             | 0xefbe        | 0x10                | 0x0005                     | 0xfe05                             | 0x1111        | 0x0001          | 0x05                |              |  |
| Right                            | 0xefbe        | 0x10                | 0x0005                     | 0xbe04                             | 0x1111        | 0x0001          | 0x06                |              |  |
| R-sync                           | 0xefbe        | 0x10                | 0x0005                     | 0x7fc4                             | 0x1111        | 0x0001          | 0x07                |              |  |
| Source                           | 0xefbe        | 0x10                | 0x0005                     | 0x3fc0                             | 0x1111        | 0x0001          | 0x08                |              |  |
| Volume +                         | 0xefbe        | 0x10                | 0x0005                     | 0xfe00                             | 0x1111        | 0x0001          | 0x09                |              |  |
| Volume -                         | 0xefbe        | 0x10                | 0x0005                     | 0xbe01                             | 0x1111        | 0x0001          | 0x0a                |              |  |
| Zoom In                          | 0xefbe        | 0x10                | 0x0005                     | 0x7fc1                             | 0x1111        | 0x0001          | 0x0b                |              |  |
| Zoom Out                         | 0xefbe        | 0x10                | 0x0005                     | 0x3e03                             | 0x1111        | 0x0001          | 0x0c                |              |  |
| Mute On                          | 0xefbe        | 0x10                | 0x0005                     | 0xffc3                             | 0x1111        | 0x0001          | 0x0d                |              |  |
| Hide                             | 0xefbe        | 0x10                | 0x0005                     | 0x7e02                             | 0x1111        | 0x0001          | 0x0f                |              |  |
| Video Mode                       | 0xefbe        | 0x10                | 0x0005                     | 0x3fca                             | 0x1111        | 0x0001          | 0x10                |              | Toggle   |
| V. Keystone Up                   | 0xefbe        | 0x10                | 0x0005                     | 0x7fcb                             | 0x1111        | 0x0001          | 0x13                |              |  |
| V. Keystone Down                 | 0xefbe        | 0x10                | 0x0005                     | 0x3e09                             | 0x1111        | 0x0001          | 0x14                |              |  |
| Aspect Ratio (Original/4:3/Wide) | 0xefbe        | 0x10                | 0x0005                     | 0x7e08                             | 0x1111        | 0x0001          | 0x17                |              | Toggle   |
| Power Off                        | 0xefbe        | 0x10                | 0x0005                     | 0x3e0c                             | 0x1111        | 0x0001          | 0x18                |              |  |
| Source-VGA Analog-A              | 0xefbe        | 0x10                | 0x0005                     | 0xffcc                             | 0x1111        | 0x0001          | 0x19                |              |  |
| Source-S-Video                   | 0xefbe        | 0x10                | 0x0005                     | 0xbe1f                             | 0x1111        | 0x0001          | 0x22                |              |  |
| Source-Composite                 | 0xefbe        | 0x10                | 0x0005                     | 0x7fdf                             | 0x1111        | 0x0001          | 0x23                |              |  |
| Key Pad Lock On                  | 0xefbe        | 0x10                | 0x0005                     | 0x3e1d                             | 0x1111        | 0x0001          | 0x24                |              |  |
| Key Pad Lock Off                 | 0xefbe        | 0x10                | 0x0005                     | 0xffdd                             | 0x1111        | 0x0001          | 0x25                |              |  |
| Current Source                   | 0xefbe        | 0x10                | 0x0005                     | 0xbfde                             | 0x1111        | 0x0001          | 0x26                |              | 0x00: No Source<br>0x01: VGA-A<br>0x02: VGA-B<br>0x03: HDMI<br>0x04: S-video<br>0x05: Composite  |
| V. Keystone Read                 | 0xefbe        | 0x10                | 0x0005                     | 0x3e18                             | 0x1111        | 0x0001          | 0x28                |              |  |
| Auto Keystone Write              | 0xefbe        | 0x10                | 0x0006                     | 0x1b28                             | 0x1111        | 0x0002          | 0x29                | 0x00~0x01    | 0x00: Yes. On<br>0x01: No. Off   |
| Lamp-Mode-ECO                    | 0xefbe        | 0x10                | 0x0005                     | 0xbfd9                             | 0x1111        | 0x0001          | 0x2a                |              |  |
| Lamp-Mode-Normal                 | 0xefbe        | 0x10                | 0x0005                     | 0x7e19                             | 0x1111        | 0x0001          | 0x2b                |              |  |
| Auto Source On                   | 0xefbe        | 0x10                | 0x0005                     | 0x3fdb                             | 0x1111        | 0x0001          | 0x2c                |              |  |
| Auto Source Off                  | 0xefbe        | 0x10                | 0x0005                     | 0xfe1b                             | 0x1111        | 0x0001          | 0x2d                |              |  |
| Factory Reset                    | 0xefbe        | 0x10                | 0x0005                     | 0xbe1a                             | 0x1111        | 0x0001          | 0x2e                |              |  |
| Lamp-Hours                       | 0xefbe        | 0x10                | 0x0005                     | 0x7fda                             | 0x1111        | 0x0001          | 0x2f                |              |  |
| Firmware Version                 | 0xefbe        | 0x10                | 0x0005                     | 0x3e12                             | 0x1111        | 0x0001          | 0x30                |              |  |
| Auto Keystone Read               | 0xefbe        | 0x10                | 0x0005                     | 0xffd2                             | 0x1111        | 0x0001          | 0x31                |              | 0x00: Yes. On<br>0x01: No. Off   |
| Aspect Ratio Read                | 0xefbe        | 0x10                | 0x0005                     | 0xbfd3                             | 0x1111        | 0x0001          | 0x32                |              | Feedback:<br>0x00: Original (1:1)<br>0x01: 4:3<br>0x02: Wide (16:9)<br>0x03: Front<br>0x04: Rear |
| Projector Mode Write             | 0xefbe        | 0x10                | 0x0006                     | 0x9ae3                             | 0x1111        | 0x0002          | 0x33                | 0x01~0x04    | 0x01: Front, Ceiling<br>0x02: Rear<br>0x03: Rear, Ceiling<br>0x04: Front                         |
| Projector Mode Read              | 0xefbe        | 0x10                | 0x0005                     | 0x3fd1                             | 0x1111        | 0x0001          | 0x34                |              | 0x01: Front, Ceiling<br>0x02: Rear<br>0x03: Rear, Ceiling<br>0x04: Front                         |
| Brightness Write                 | 0xefbe        | 0x10                | 0x0006                     | 0x1ae1                             | 0x1111        | 0x0002          | 0x35                | 0x00~0x64    | Range (0x00~0x64)  |
| Brightness Read                  | 0xefbe        | 0x10                | 0x0005                     | 0xbe10                             | 0x1111        | 0x0001          | 0x36                |              | Range (0x00~0x64)  |
| Contrast Write                   | 0xefbe        | 0x10                | 0x0006                     | 0x9b20                             | 0x1111        | 0x0002          | 0x37                | 0x00~0x64    | Range (0x00~0x64)  |
| Contrast Read                    | 0xefbe        | 0x10                | 0x0005                     | 0x3fd4                             | 0x1111        | 0x0001          | 0x38                |              | Range (0x00~0x64)  |
| Color Temperature Write          | 0xefbe        | 0x10                | 0x0006                     | 0x1ae4                             | 0x1111        | 0x0002          | 0x39                | 0x01~0x03    | 0x01: Low<br>0x02: Mid<br>0x03: High<br>0x04: Custom   |
| Color Temperature Read           | 0xefbe        | 0x10                | 0x0005                     | 0xbe15                             | 0x1111        | 0x0001          | 0x3a                |              | 0x01: Low<br>0x02: Mid<br>0x03: High<br>0x04: Custom   |
| Saturation Write                 | 0xefbe        | 0x10                | 0x0006                     | 0x9b25                             | 0x1111        | 0x0002          | 0x3b                | 0x00~0x64    | Range (0x00~0x64)  |
| Saturation Read                  | 0xefbe        | 0x10                | 0x0005                     | 0x3e17                             | 0x1111        | 0x0001          | 0x3c                |              | Range (0x00~0x64)  |

|                        |        |      |        |        |        |        |      |           |  |
|------------------------|--------|------|--------|--------|--------|--------|------|-----------|--|
| Sharpness Write        | 0xefbe | 0x10 | 0x0006 | 0x1b27 | 0x1111 | 0x0002 | 0x3d | 0x00~0x1f | Range (0x00~0x1f)  |
| Sharpness Read         | 0xefbe | 0x10 | 0x0005 | 0xbfd6 | 0x1111 | 0x0001 | 0x3e |           | Range (0x00~0x1f)  |
| Tint Write             | 0xefbe | 0x10 | 0x0006 | 0x9ae6 | 0x1111 | 0x0002 | 0x3f | 0x00~0x64 | Range (0x00~0x64)  |
| Enter                  | 0xefbe | 0x10 | 0x0005 | 0x3ff6 | 0x1111 | 0x0001 | 0x40 |           |  |
| Tint Read              | 0xefbe | 0x10 | 0x0005 | 0xfe36 | 0x1111 | 0x0001 | 0x41 |           | Return INVALID Else Video  |
| Video Mode Read        | 0xefbe | 0x10 | 0x0005 | 0xbe37 | 0x1111 | 0x0001 | 0x42 |           | 0x00: Presentation Mode<br>0x01: Bright Mode<br>0x02: Movie Mode<br>0x03: sRGB Mode<br>0x04: Custom Mode   |
| Color Space Write      | 0xefbe | 0x10 | 0x0006 | 0x9b07 | 0x1111 | 0x0002 | 0x43 | 0x01~0x03 | 0x01: RGB<br>0x02: YCbCr<br>0x03: YPbPr  |
| Color Space Read       | 0xefbe | 0x10 | 0x0005 | 0x3e35 | 0x1111 | 0x0001 | 0x44 |           | 0x01: RGB<br>0x02: YCbCr<br>0x03: YPbPr  |
| White Intensity Write  | 0xefbe | 0x10 | 0x0006 | 0x1b05 | 0x1111 | 0x0002 | 0x45 | 0x00~0x0a | Range (0x00~0x0a)  |
| White Intensity Read   | 0xefbe | 0x10 | 0x0005 | 0xbff4 | 0x1111 | 0x0001 | 0x46 |           | Range (0x00~0x0a)  |
| H. Position Write      | 0xefbe | 0x10 | 0x0006 | 0x1b00 | 0x1111 | 0x0002 | 0x49 | 0x00~0x64 | Range(0x00~0x64)<br>See Note 3   |
| H. Position Read       | 0xefbe | 0x10 | 0x0005 | 0xbff1 | 0x1111 | 0x0001 | 0x4a |           | Range (0x00~0x64)<br>See Note 3  |
| V. Position Write      | 0xefbe | 0x10 | 0x0006 | 0x9ac1 | 0x1111 | 0x0002 | 0x4b | 0xfb~0x05 | Range(0xfb~0x05)<br>See Note 3   |
| V. Position Read       | 0xefbe | 0x10 | 0x0005 | 0x3ff3 | 0x1111 | 0x0001 | 0x4c |           | Range (0xfb~0x05)<br>See Note 3  |
| Current Language Write | 0xefbe | 0x10 | 0x0006 | 0x1ac3 | 0x1111 | 0x0002 | 0x4d | 0x01~0x0f | 0x01: English<br>0x02: German<br>0x03: French<br>0x04: Italian<br>0x05: Spanish<br>0x06: Polish<br>0x07: Swedish<br>0x08: Dutch<br>0x09: Iberian Portuguese<br>0x0a: Japanese<br>0x0b: T_Chinese<br>0x0c: S_Chinese<br>0x0d: Korean<br>0x0e: Russian<br>0x0f: Arabic |
| Current Language Read  | 0xefbe | 0x10 | 0x0005 | 0xbe32 | 0x1111 | 0x0001 | 0x4e |           | 0x01: English<br>0x02: German<br>0x03: French<br>0x04: Italian<br>0x05: Spanish<br>0x06: Polish<br>0x07: Swedish<br>0x08: Dutch<br>0x09: Iberian Portuguese<br>0x0a: Japanese<br>0x0b: T_Chinese<br>0x0c: S_Chinese<br>0x0d: Korean<br>0x0e: Russian<br>0x0f: Arabic |
| Volume Read            | 0xefbe | 0x10 | 0x0005 | 0x7ff2 | 0x1111 | 0x0001 | 0x4f |           | Range (0x00~0x14)  |
| Source-HDMI            | 0xefbe | 0x10 | 0x0005 | 0x3e3a | 0x1111 | 0x0001 | 0x50 |           |  |
| Audio Source Write     | 0xefbe | 0x10 | 0x0006 | 0xdb09 | 0x1111 | 0x0002 | 0x54 | 0x01~0x05 | 0x01: Audio-A<br>0x02: Audio-B<br>0x03: Audio-C<br>0x04: HDMI  |
| Audio Source Read      | 0xefbe | 0x10 | 0x0005 | 0xfe39 | 0x1111 | 0x0001 | 0x55 |           | 0x01: Audio-A<br>0x02: Audio-B<br>0x03: Audio-C<br>0x04: HDMI  |
| Password               | 0xefbe | 0x10 | 0x0009 | 0xaaf9 | 0x1111 | 0x0005 | 0x56 |           | 4byte: Original Password   |
| Change Password        | 0xefbe | 0x10 | 0x000d | 0x99fa | 0x1111 | 0x0009 | 0x57 |           | 4byte: Original Password<br>4byte: New Password  |
| H. Frequency           | 0xefbe | 0x10 | 0x0005 | 0xfe3c | 0x1111 | 0x0001 | 0x59 |           | (KHz)  |
| V. Frequency           | 0xefbe | 0x10 | 0x0005 | 0xbe3d | 0x1111 | 0x0001 | 0x5a |           | (Hz)   |
| H. Sync Polarity       | 0xefbe | 0x10 | 0x0005 | 0x7ffd | 0x1111 | 0x0001 | 0x5b |           | 0x01: Negative<br>0x02: Postivite  |

|                         |        |      |        |        |        |        |      |           |   |
|-------------------------|--------|------|--------|--------|--------|--------|------|-----------|---|
| V. Sync Polarity        | 0xefbe | 0x10 | 0x0005 | 0x3e3f | 0x1111 | 0x0001 | 0x5c |           | 0x01: Negative<br>0x02: Postivite   |
| Key Pad Lock State      | 0xefbe | 0x10 | 0x0005 | 0xffff | 0x1111 | 0x0001 | 0x5d |           | 0x01: Key Pad Lock On<br>0x02: Key Pad Lock Off   |
| Mute Off                | 0xefbe | 0x10 | 0x0005 | 0x983c | 0x1111 | 0x0001 | 0x5f |           |   |
| Get Mute State          | 0xefbe | 0x10 | 0x0005 | 0xffee | 0x1111 | 0x0001 | 0x61 |           | 0x00 : Mute Off<br>0x01 : Mute On   |
| Unhide                  | 0xefbe | 0x10 | 0x0005 | 0x3fed | 0x1111 | 0x0001 | 0x64 |           |   |
| Get Hide State          | 0xefbe | 0x10 | 0x0005 | 0xfe2d | 0x1111 | 0x0001 | 0x65 |           | 0x00: Unhide<br>0x01: Hide  |
| OSD Transparancy Write  | 0xefbe | 0x10 | 0x0006 | 0x5adc | 0x1111 | 0x0002 | 0x66 | 0x00~0x64 | Range (0x00~0x0f)   |
| OSD Transparancy Read   | 0xefbe | 0x10 | 0x0005 | 0x7fec | 0x1111 | 0x0001 | 0x67 |           | Range (0x00~0x0f)   |
| Volume Write            | 0xefbe | 0x10 | 0x0006 | 0xdb18 | 0x1111 | 0x0002 | 0x68 | 0x00~0x14 | Range (0x00~0x14)   |
| Source-VGA Analog-B     | 0xefbe | 0x10 | 0x0005 | 0xfe28 | 0x1111 | 0x0001 | 0x69 |           |   |
| Temp Alert              | 0xefbe | 0x10 | 0x0005 | 0xbe29 | 0x1111 | 0x0001 | 0x6a |           | 0x00: Normal<br>0x01: Abnormal  |
| Exit Lockup             | 0xefbe | 0x10 | 0x0005 | 0xffeb | 0x1111 | 0x0001 | 0x6d |           |   |
| Alert Volume            | 0xefbe | 0x10 | 0x0006 | 0xbfea | 0x1111 | 0x0002 | 0x6e | 0x00~0x03 | 0x00: Off<br>0x01: Low<br>0x02: Mid<br>0x03: High   |
| Closed Captions         | 0xefbe | 0x10 | 0x0006 | 0x7e2a | 0x1111 | 0x0002 | 0x6f | 0x00~0x04 | 0x00: Off<br>0x01: CC1<br>0x02: CC2<br>0x03: CC3<br>0x04: CC4                                     |
| Power Saving            | 0xefbe | 0x10 | 0x0006 | 0xfe66 | 0x1111 | 0x0002 | 0x81 |           | 0x00 : Off<br>0x1e : 30 min<br>0x3c : 60 min<br>0x5a : 90 min<br>0x78 : 120min                    |
| Quick Shutdown          | 0xefbe | 0x10 | 0x0006 | 0xbe67 | 0x1111 | 0x0002 | 0x82 | 0x00~0x01 | 0x00: No<br>0x01: Yes   |
| Lamp-Mode               | 0xefbe | 0x10 | 0x0005 | 0x7fa7 | 0x1111 | 0x0001 | 0x83 |           | 0x00: Eco<br>0x01: Normal   |
| Operating Hours         | 0xefbe | 0x10 | 0x0005 | 0x3e65 | 0x1111 | 0x0001 | 0x84 |           | Hours (2 byte)  |
| Password Off            | 0xefbe | 0x10 | 0x0005 | 0xffa5 | 0x1111 | 0x0002 | 0x85 |           |   |
| Password Delete         | 0xefbe | 0x10 | 0x0005 | 0xbfa4 | 0x1111 | 0x0002 | 0x86 |           |   |
| Speaker                 | 0xefbe | 0x10 | 0x0005 | 0x7e64 | 0x1111 | 0x0002 | 0x87 | 0x00~0x01 | 0x00: Off<br>0x01: On   |
| Speaker Status          | 0xefbe | 0x10 | 0x0005 | 0x3e60 | 0x1111 | 0x0001 | 0x88 |           | 0x00: Off<br>0x01: On   |
| Zoom Status             | 0xefbe | 0x10 | 0x0005 | 0xffa0 | 0x1111 | 0x0001 | 0x89 | 0x00~0x0a | Range 0x00~0x0a<br>0x00 : Off<br>0x1e : 30 min<br>0x3c : 60 min<br>0x5a : 90 min<br>0x78 : 120min |
| Get Power Saving Status | 0xefbe | 0x10 | 0x0006 | 0xbfa1 | 0x1111 | 0x0002 | 0x8a |           | 0x01: Standby<br>0x02: Warm Up<br>0x03: Power On<br>0x04: Cooling<br>0x05: Power Saving           |
| System Status           | 0xefbe | 0x10 | 0x0005 | 0x7e46 | 0x1111 | 0x0001 | 0xff |           |   |



**Note 2:** After power on the projector, wait for 5 seconds before sending next command.

**Note 3:** The range will depend on VGA input resolution.

**Note 4:** If sending multiple commands, check that a response has been received from the projector before sending next command.

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