White Paper

HDCP Management

Guideline:
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2- Usual Problems and workarounds
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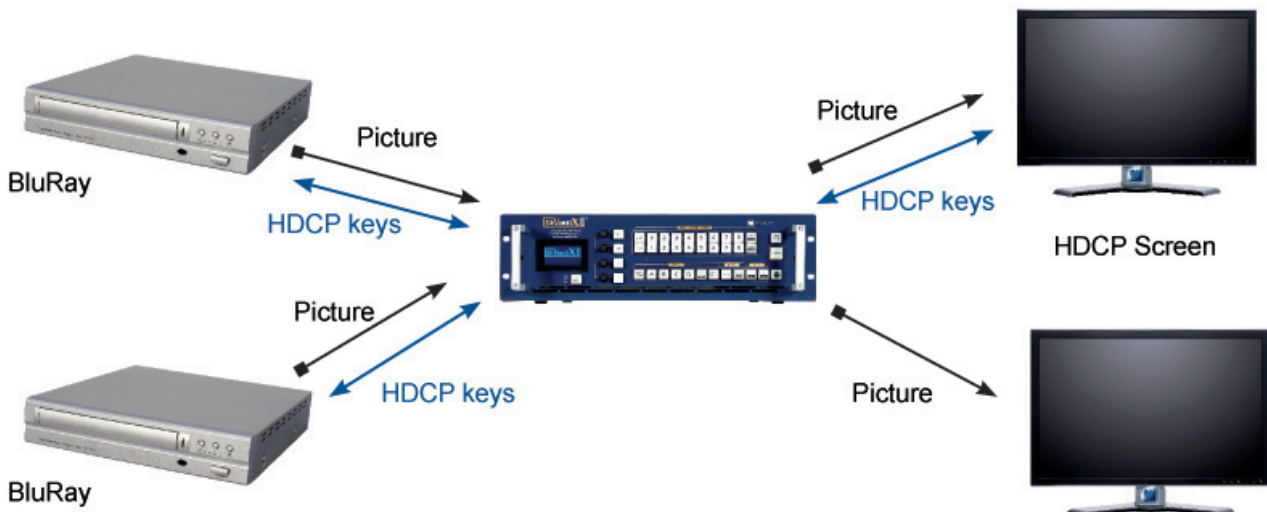
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HDCP Management

1- BASICS

The HDCP aim is to protect against unauthorized copy of movies. This is accomplished by encrypting pictures from the source up to the display device. As Seamless Switcher is inserted between the source and the display device, it manages both HDCP protected content (inputs) and HDCP compliant display devices (outputs).

It is mandatory to decrypt and display an HDCP protected input only when a valid HDCP screen has been detected on the output.

A HDCP input needs to continuously exchange information (keys) with the source in order to decrypt the input pictures. The HDCP outputs have the same needs with the screens. You may notice that it's a key exchange, so the communication in the DVI cable needs to be **bidirectional** (**from the source to the Seamless Switcher input and from the Seamless Switcher input to the source**).

2- USUAL PROBLEMS AND WORKAROUNDS

• Display screen on analog output:
As mentioned previously, it is forbidden to decrypt and display protected content on Non HDCP screens. Only DVI outputs have the bidirectional communication capability requested for HDCP. So it is not possible to display HDCP sources on analog outputs (RGBHV, YUV...).

• Display screen on SDI digital output:
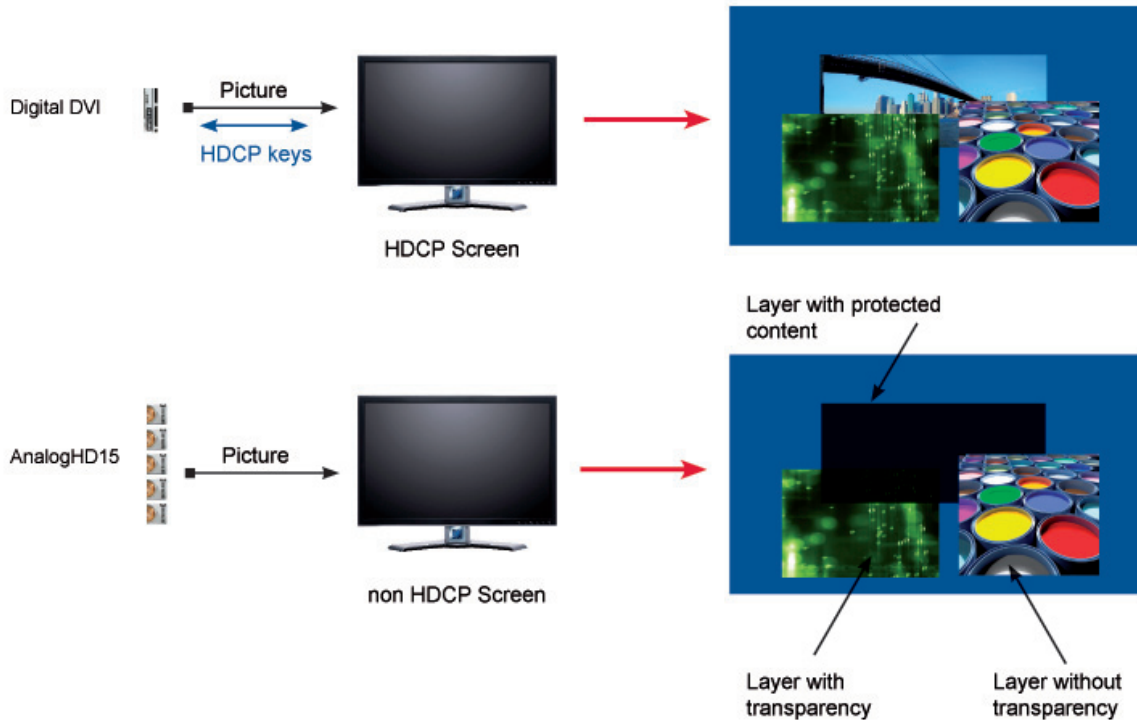As SDI output is not bidirectional, it is not possible to display HDCP sources on it.

• Non HDCP DVI display:
It is not possible to display HDCP sources on a non HDCP DVI display.

• Simultaneous HDCP and non HDCP displays on the same outputs:

In Seamless Switcher, layers containing HDCP inputs are put to black only on non HDCP outputs like analog or SDI. At the same time these layers are displayed on DVI HDCP outputs. Some exceptions exist where more pixels are put to black (eg: pixels of protected content covered by another transparent layer are also put to black).

• «MacBook Pro» on inputs:

Some sources like the «MacBook Pro» will always try to detect an HDCP screen even without any protected picture content, like the computer desktop. When connected on a Seamless Switcher HDCP input, in this case, input pictures are viewed by the Seamless Switcher as «protected content», and cannot be displayed on a non HDCP output, even if it's just the computer desktop.

On the other hand, when it is connected on a non HDCP screen, as long as the picture is not a «protected content», the «MacBook Pro» still displays the picture.

A solution in this case is to connect such a source on a non HDCP input if possible.

Another solution is to use an EDID dongle inserted between the source and the Seamless Switcher input.

Another solution is to use the input menu named «HDCP enable» or control command. All Analog Way's Seamless Switchers allow this solution since 2010.

• Cables on HDCP DVI output:

Cables must be able to carry the bidirectional signals needed for HDCP

3- TIPS

• Front panel Analog Way status:

«Due to HDCP content, non-HDCP screens cannot display protected sources»

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This message is displayed on the menu when an input content (HDCP sources) is detected and when not all of the DVI output screens are HDCP.

For example, a DVI output not connected to a screen, this is considered as a non HDCP screen.

• How to have a non HDCP Seamless Switcher:
When it is known that non protected content will be displayed, the user can disable the output HDCP detection with the front panel menu or control command (Depending on model or firmware version)

• To avoid HDCP cabling problems, when quality allows it, prefer an analog YUV input signal.

• DVI plugs must be used to have a good electrical contact.
WARNING: DVI cables are fragile and must not be bent or folded.

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