Q. What was Biamp's role in developing HDCP Pro?

A. Member organizations of DCP — including Biamp — have the ability to collaborate and comment on all proposed HDCP specifications. Biamp was not offered special consideration by the DCP during development of the HDCP Pro specification, nor does Biamp benefit financially from it.

Q. Does an installer have to be licensed by DCP? If so, what are the fees?

A. Yes. Integrators must be Licensed Installers to be able to install HDCP Pro devices, and then only in Authorized Locations. According to Section 3.1 of the HDCP Professional Licensed Installer Agreement found on DCP's website, the Licensed Installer must pay an annual fee of $500 USD.

HDCP Pro Licensed Manufacturers such as Biamp cannot sell HDCP Pro devices to integrators if they are not Licensed Installers.

Q. Can I buy consumer HDCP 2.2 devices from HDCP Pro Licensed Manufacturers if I'm not an HDCP Pro Licensed Installer?

A. Yes you can. You just can't purchase HDCP Pro repeaters from that manufacturer.

Q. How many devices and levels will HDCP Pro support?

A. There is no limit on device count or depth. However, there is a locality constraint, hence the prohibition against WAN-based use cases.

Q. Does every device on the network count towards the consumer HDCP device count?

A. No. The only devices that are included in the device count are transmitters, video switchers, consumer repeaters, and displays — essentially only devices in the signal path with video ports (NOTE: sources are not considered HDCP downstream devices). HDCP Pro removes the device count constraint.

Q. How many HDCP Pro repeaters do I need in my system design?

A. You only need one, regardless of the size of your system. You can have more if you like (it won't compromise system performance). In fact, having multiple HDCP Pro repeaters may increase system robustness against malicious DNS types of attacks.

Q. In an HDCP Pro deployment, can I add or remove HDCP devices while a stream is in transit?

A. Yes. Joining or leaving an HDCP Pro session in progress (i.e. adding or removing an HDCP device) does not interrupt the flow of media to other connected devices.

Q. Do I need an HDCP Pro repeater if my system is 32 devices or less, with 4 device levels or fewer?

A. No.

Q. Does the firmware on HDCP Pro repeaters need to be updated at least quarterly?

A. HDCP Pro repeaters typically need to have their SRM rules updated quarterly, otherwise they will revert to consumer HDCP 2.2 devices until their SRM data is updated.

However, DCP allows for a special class of repeater known as Exempt Repeaters, that are updated only when the DCP issues a special notification. More details regarding Exempt Repeaters can be found at DCP's website.

Q. If I miss the quarterly deadline, will screens go dark?

A. Not necessarily. HDCP Pro repeaters will revert to consumer HDCP 2.2 devices, so the topology constraints of 32 devices max and 4 device levels will be applied at that time until the HDCP Pro repeaters are updated.

Q. Can I use HDCP Pro devices for wide area (WAN) video conferencing, or lecture capture?

A. No. HDCP (both consumer and Pro) is a "last connection" content protection technology and not a DRM method. In its current form it will never be applicable to recording or wide area distribution.

Q. Can I upgrade the firmware in my consumer HDCP device to convert it to an HDCP Pro repeater?

A. No. The SRM engine contained in the HDCP Pro repeaters requires additional internal hardware modifications, not just firmware.

Q. How does HDCP Pro handle non-protected content?

A. The HDCP Pro repeater passes unencrypted and unflagged content in a manner similar to all HDCP devices — it only authenticates content with a protection requirement declared.

Q. Can I petition to have new sites added to the Authorized Locations list?

A. Yes, the list of Authorized Locations can be expanded. If you are a Licensed Installer, you may petition DCP to add other locations to the list provided the new location meets the requirements outlined in the HDCP Professional Licensed Installer Agreement. Just send an email to info@digital-cp.com with the relevant details of your petition.
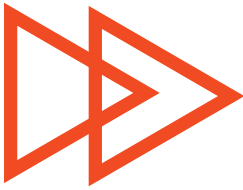
HOW IT WORKS AND ITS IMPACT ON PRO AV

The specification for HDCP 2.2 Pro was first published in May 2016 by the Digital Content Protection (DCP) organization, a wholly-owned subsidiary of Intel® that acts as the licensing agency for HDCP technology. The goal of HDCP 2.2 Pro is to provide the pro AV industry and others with the opportunity to send protected content to more devices than the consumer HDCP 2.2 limit of 32 devices and four levels of connectivity. In fact, HDCP Pro eliminates the topology constraints for device count and depth entirely. HDCP Pro requires a little more work from installers — both in terms of paperwork and managing SRM updates — in exchange for the benefit of unlimited fan-out of high value Type 1 content.

Another significant benefit of HDCP Pro over consumer HDCP 2.2 is the much improved leave/join tolerance. This allows integrators to add or remove HDCP devices, or re-route streams, without impacting the rest of the system (i.e. screens don't go dark or freeze while the HDCP handshake is renegotiated).

Unfortunately there's still a great deal of confusion and misinformation in the market regarding HDCP Pro — for example, how it's implemented, the costs involved, and what to expect should an HDCP Pro repeater revert to a consumer HDCP device. The goal of this guide is to provide clarity on the major pillars of HDCP Pro, the special requirements for integrators, and how the technology works.

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	HDCP 1.X	HDCP 2.2	HDCP 2.2 Pro
NETWORK CAPABLE	No	Yes	Yes
MAX LEVELS	7	4	Unrestricted
MAX DEVICES	128	32	Unrestricted
LEAVE/JOIN TOLERANT	No	Limited	Yes
UHD TYPE 1 SUPPORT	No	Yes	Yes
WHITELIST SITES ONLY	No	No	Yes

HDCP PRO LICENSED INSTALLERS

Integrators must be Licensed Installers to be able to install HDCP Pro devices, and then only in Authorized Locations. Integrators must agree to the terms and sign the HDCP Professional Licensed Installer Agreement found on DCP's website, and pay an annual fee of $500 USD. Integrators are then placed on DCP's public list of Licensed Installers. HDCP Pro Licensed Manufacturers cannot sell HDCP Pro devices to integrators if they are not on this list.

HDCP PRO REPEATERS

HDCP Pro Repeaters are the essence of how HDCP Pro removes the topology limits of prior specifications. Each HDCP Pro repeater contains an internal system renewability message (SRM) engine of its own, which can verify the authorization status of every HDCP device connected below it in the signal path. In practice, that means the HDCP Pro repeater acts as a proxy when reporting up to the media source it's connected to; the HDCP Pro repeater will transmit "I'm a device count of 1, with a level count of 1," regardless of how many devices are in the signal path below it. DCP updates the SRM four times a year, and it's a condition of the HDCP Pro license that the SRMs in HDCP Pro repeaters be updated at least once each quarter.

To clarify any potential misunderstandings regarding SRM updates, if the update does not take place and the system detects an SRM that is more than three months old, the HDCP Pro repeater's functionality changes to that of consumer HDCP 2.2 — reinstating the topology limits of four levels and 32 total devices until a proper up-to-date SRM is provided. If an HDCP Pro repeater has Internet access, the SRM can be updated directly by accessing a URL maintained by DCP.

In addition, consumer HDCP devices cannot be upgraded to HDCP Pro repeaters in the field via firmware updates — HDCP Pro repeaters are a separate device. You only need one HDCP Pro repeater per system design, but it might be advantageous to have a hierarchical arrangement of HDCP Pro repeaters if the system is quite large and you want to isolate a branch from malicious DNS types of attacks.

## AUTHORIZED HDCP PRO LOCATIONS ("WHITELIST")

There are a variety of facility types the DCP has whitelisted as approved sites. Your client base is most likely on this list, which includes education facilities, hospitals, airports, shopping centers, and many more. Licensed Installers may petition DCP to add other locations to the list provided the new location meets the requirements outlined in the HDCP Professional Licensed Installer Agreement.

The full list can be found at https://www.digital-cp.com/HDCP_Pro_Authorized_Locations.

HOW DEVICE COUNT WORKS

According to DCP, an HDCP device is "any device that contains one or more HDCP-protected Interface Ports" (i.e. video ports). Device count only includes HDCP devices, such as transmitters, video switchers, consumer repeaters, and displays (NOTE: sources are not considered HDCP downstream devices). If it doesn't have a video port (i.e. switches, routers, etc.), it doesn't count towards device limit.

HDCP 2.2 only supports up to 32 devices. With HDCP Pro, there is no limit on device count.
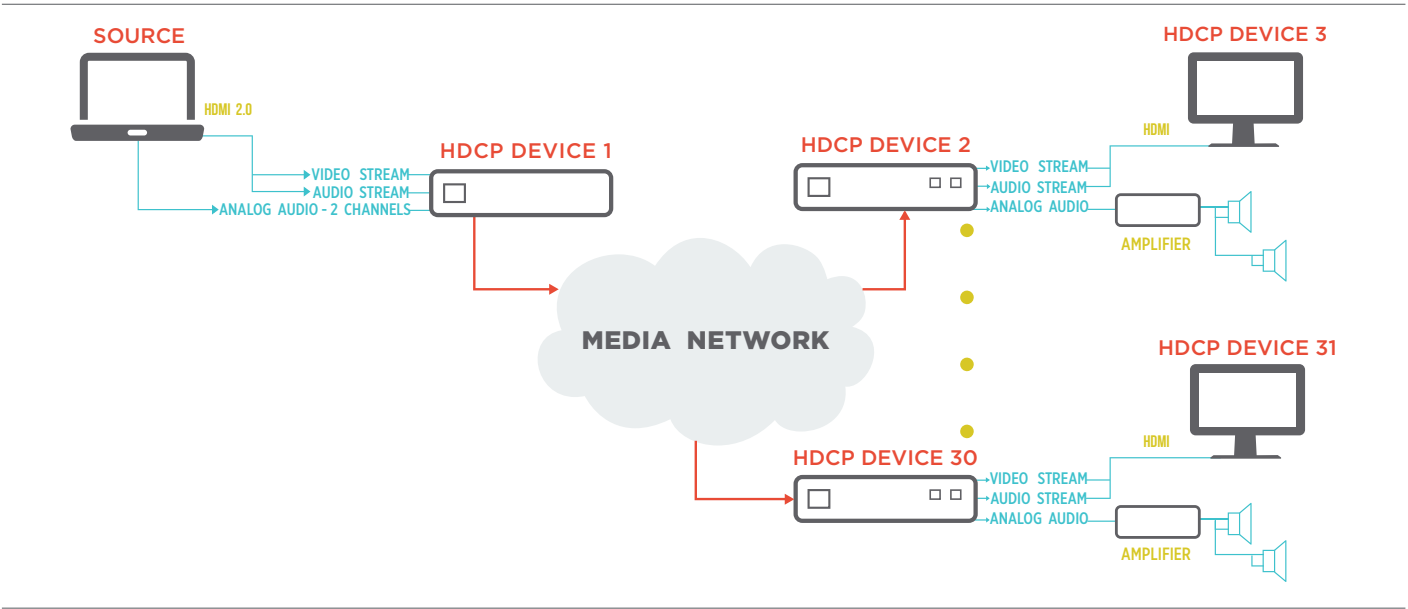
HOW DEVICE DEPTH (LEVELS) WORKS

Device "depth" — the number of levels allowed in a signal chain — is another HDCP constraint. However, only the "hops" between HDCP device levels count towards device depth, so again the switch fabric does not play a role in the calculation.

A typical scenario of "source to encoder to decoder to display" equals a depth of 2 (NOTE: sources are not considered HDCP downstream devices, therefore only count the connections between the encoder, decoder, and display). With HDCP Pro, there is no limit on device depth.

GET MORE INFORMATION

HDCP 2.2 Pro will indeed be a robust way to implement HDCP on commercial AV networks. It has no restrictions on the number of devices. It will support wired and wireless networks, and even better, it eliminates some of the constraining factors associated with other versions of HDCP. However, HDCP Pro has a few specialized requirements. Vendors will need to build separate HDCP Pro repeaters, which are labeled as such. They will only be able to sell them to Licensed Installers (who will have become so by entering into a legal agreement with DCP), and those installers must only install them in projects that fit the criteria of the HDCP Pro Whitelist.

DCP will not publicize or promote the HDCP 2.2 Pro specification on its public website (it's only for pro AV). However, it is available on their site at http://www.digital-cp.com/HDCP_Professional_Information.

For additional questions regarding HDCP Pro, please contact your Biamp Regional Manager.

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