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realmedia™ HD

Content

1. What is RealMedia™ HD? 4
2. What relevant RealMedia HD products does RealNetworks offer? 4
3. Who will be the key users of RealMedia HD? 4
4. Why is it important for chipsets to embed RealMedia HD technology? 5
5. Why is it important for OEMs to integrate RealMedia HD SDK? 5
6. Why do streaming vendors choose RealMedia HD over others? 5
7. What are the key benefits for end-users? 5
8. What is the key difference of RealMedia HD to RMVB? 6
9. Can I play other Real formats such as RM, RMVB with my RealMedia HD SDK integrated device or player? 6
10. How popular is RMVB these days? 6
11. How does RealMedia HD compare to H.264? 6
12. How does RealMedia HD compare to H.265? 6
13. How does RealMedia HD compare to VP9? 7
14. How easy and cost-effective can RealMedia HD be integrated into chipsets? 7
15. On which devices and platforms will RealMedia HD be supported? 7
16. Do I have to pay royalties for using RealMedia HD? 7
17. Where can I register for a RealMedia HD Evaluation Kit? 8
18. What encoding tool is provided by RealNetworks to enterprise content generator? 8
19. As a non-professional user, can I use RealProducer HD for content generation? 8
20. What is the encoding efficiency of RealProducer HD? 8
21. What operating system can RealProducer HD support? 8
22. What types of video files can you input/output? 9
23. How many videos can be transcoded at a time? 9
24. Will RealProducer HD support adaptive bitrate? 9
25. Does RealProducer HD support live broadcasting? 9
26. Will RealProducer HD support DRM? 9
27. Will RealProducer HD offer editing features? 9

28. The new RealPlayer HD allows playback of UHD videos up to 8K. How exactly will this new Media player influence users' video consumption? 10

29. What are the main features of the new intuitive user interface and its advantages to the consumer? 10

30. How will the auto-upgrade of new features and enhancements of the RealPlayer be delivered to the consumer?..... 10

31. What are the other mainstream video formats that RealPlayer HD supports? 11

General Questions

1. What is RealMedia™ HD?

   RealMedia HD is an innovative technology developed by RealNetworks with the purpose of offering superior user-experience in media consumption in the connected world.

   Videos in RMHD format can deliver exceptional image quality for a high-definition (up to 8k) experience giving viewers high-quality video over the Internet on their choice of devices.

   Currently with RealMedia HD, a high definition quality is achieved at a reduction of 30% bitrate compared to videos coded in H.264/AVC standard. Thus RealMedia HD is easily comparable to the H.265 standard. Being an industry leader, as usual we are not yet satisfied with this result, and push forward to achieve a 45% bitrate reduction compared to H.264 in order to surpass all presently existing codecs.

2. What relevant RealMedia HD products does RealNetworks offer?

   On player side, we offer RealMedia HD SDK for Android/iOS on mobile platform and RealPlayer® HD and PC Player Plug-in on Windows PC for content playback; we launched RealMedia HD solution for embedded devices at 2016 CES. On encoder side, we offer RealProducer™ HD for Windows.

   More products of RealMedia HD e.g. RealProducer HD for Linux will be offered in the coming period.

3. Who will be the key users of RealMedia HD?

   We believe RealMedia HD is addressing well the ongoing changes in the video streaming industry and consumer behavior. We are targeting both downloadable and streaming video opportunities

   Key users of RealMedia HD are including online content providers (streaming video websites, and similar platforms from carriers, cloud providers, and OTT operators), OEMs and chipset manufacturers, and

consumers.

4. Why is it important for chipsets to embed RealMedia HD technology?

   Because RealMedia HD offers
   - Forward compatibility – Integrate once, chipsets can support future upgrades of RealMedia HD
   - Cost savings significant with use of existing hardware
   - Highly scalable technology – RealMedia HD is easily scaled to leverage accelerated hardware evolvement

5. Why is it important for OEMs to integrate RealMedia HD SDK?

   OEMs who integrate RealMedia HD SDK could enjoy
   - Backward compatibility – With RealMedia HD SDK integrated, users could playback huge amount of existing RMVB content on their devices
   - Effortless integration with players/apps
   - Lower CPU usage and battery consumption versus H.265
   - Devices with RealMedia HD SDK integrated can play RMHD videos via software decoding.

6. Why do streaming vendors choose RealMedia HD over others?

   Streaming vendors could enjoy
   - Significant bandwidth cost saving
   - Faster encoding time
   - Effortless integration with players/apps
   - Lower CPU usage and battery consumption versus H.265
   - Devices with RealMedia HD SDK integrated can play RMHD videos via software decoding – helping solve hardware fragmentation issues streaming vendors facing.

7. What are the key benefits for end-users?

   End-users could enjoy
   - Shorter download time with reduced data costs versus H.264
   - Higher image quality with lower storage needs versus H.264
   - Lower battery consumption for longer viewing time versus H.265

8. What is the key difference of RealMedia HD to RMVB?

   Comparing to RMVB, RealMedia HD provides more compression efficiency and supports up to 8K resolution, giving today's consumers what they want; Enjoy high-definition downloadable and streaming videos on multiple screens at a shorter transmission time and lower data cost.

9. Can I play other Real formats such as RM, RMVB with my RealMedia HD SDK integrated device or player?

   RealMedia HD SDK for Windows PC only supports RMHD format.

   RealMedia HD SDK for Android/iOS is backward-compatible. It could support video codecs including RV7 and above and audio codecs including RA6, 8, 9 and 10 (AAC, RealAudio Lossless Format) per request.

10. How popular is RMVB these days?

    RMVB remains one of the most popular formats on online video sharing forums. According to our monitor, around 10 % of new RMVB content is being refreshed on a monthly basis. RMVB market share on online video sharing forums has been steady around 30% over the past 3 years.

11. How does RealMedia HD compare to H.264?

    With RealMedia HD, a high definition image quality is achieved at a reduction of 30 % bitrate compared to the H.264/AVC standard. Being an industry leader, as usual we are not yet satisfied with this result, and push forward to achieve a 45% bitrate reduction compared to H.264

12. How does RealMedia HD compare to H.265?

    In terms of compression efficiency, RealMedia HD encoder currently is comparable with H.265. On top of that, RealMedia HD has lower complexity compared to H.265. Hence decoding RMHD videos consumes less CPU resources and battery. More importantly, RealMedia HD technology enables software decoding solution on devices with low complexity for high resolution and high bitrate videos, which H.265 hardly provides good experience.

13. How does RealMedia HD compare to VP9?

VP9 is a private codec standard developed by Google who is trying to achieve the same performance of H.265. RealMedia HD already achieved the same performance of H.265.

14. How easy and cost-effective can RealMedia HD be integrated into chipsets?

With technology scalability, H.265 compatibility and simple, one-time integration, RealMedia HD enables efficient use of resources for significant time and cost savings.

An integration guide will be provided to chipset vendors as part of the evaluation kit, and a dedicated Beijing support team will provide remote telephone and email support.

15. On which devices and platforms will RealMedia HD be supported?

It can be supported on Android, iOS, and Windows PC.

16. Do I have to pay royalties for using RealMedia HD?

Yes. RealNetworks is the owner and sole licensing authority for the RealMedia HD technology.

RealNetworks will make the RealMedia HD technology available to the Licensee under the terms of either the Binary End User License Agreement, in case for commercial usage or the RealMedia HD Source Code Porting and Sourcing Agreement, in case for research and porting purposes only.

Typical licensee is the OEM/chipset manufacturer, who embeds the codec into the device, or the streaming media vendor, who delivers the videos to the end users.

For further details on fees, calculation of royalties, and licenses we refer you to the sales representative in your region.

17. Where can I register for a RealMedia HD Evaluation Kit?

    RealNetworks will make a RealMedia HD Evaluation Kit available to interested parties for testing and integration. The Evaluation Kit will include sample videos, codec, an integration guide, and a RealMedia HD-enabled player for mobile (RealPlayer HD for Windows PC could be downloaded from www.realplayer.cn) for evaluation purposes. For those who would like to evaluate RealMedia HD, RealNetworks requires to sign a NDA.

    For further details of obtaining a RealMedia HD Evaluation Kit, please refer to the sales representative in your region.

About RealProducer HD

18. What encoding tool is provided by RealNetworks to enterprise content generator?

    We offer RealProducer HD Enterprise to enterprise users. While working on powerful servers with multiple CPU, RealProducer HD Enterprise will trigger the encoding acceleration mode in order to achieve even higher encoding efficiency.

19. As a non-professional user, can I use RealProducer HD for content generation?

    Yes. We provide RealProducer HD Consumer for individuals who feel interested.

20. What is the encoding efficiency of RealProducer HD?

    It could be up to 1:3 depending on hardware capability.

21. What operating system can RealProducer HD support?

    Currently it works on Windows 7 and above. Linux version is under development.

22. What types of video files can you input/output?

    Input files[1]: avi, mp4, 3gp, flv, wmv, TS, etc.

    Output files: RMVB and RMHD

23. How many videos can be transcoded at a time?

    Multiple producer instances can be used to support multiple video transcoding.[2]

24. Will RealProducer HD support adaptive bitrate?

    It's in our plan for this year.

25. Does RealProducer HD support live broadcasting?

    It's under development.

26. Will RealProducer HD support DRM?

    It depends on specific customer requirements. Please refer to sales representatives in your region.

27. Will RealProducer HD offer editing features?

    Currently it supports simple editing features. Advanced editing features could be added according to customer needs.

About RealPlayer HD

[1] It needs correspondent decoder installed

[2] The number of producer instances used in Transcoding depends on hardware capability of host computers

28. The new RealPlayer HD allows playback of UHD videos up to 8K. How exactly will this new Media player influence users' video consumption?

It will influence the video playback experience in many ways. First of all a crisp and clear image quality with more depth and later 3D features are easy to experience on PCs first and later also on portable devices.

According to latest statistics in China up to 70% of video consumption is still with PCs, that is why RealNetworks launched the new RealPlayer first as a Windows version. Today most PCs are fitted with HD Retina screens, which allow UHD video watching at its best.

29. What are the main features of the new intuitive user interface and its advantages to the consumer?

One button positioning in the center of the player allows the users to open video files with just one click. It is simple, easy, and intuitive. The import of video files to the player is also done with one click either directly from the Internet or already downloaded files.

Even for beginners, who have never used another media player, there is no need to learn.

Other tabs have been removed in this new version and keep the "Now playing" interface is shown only.

RealNetworks researched many other media players and aimed at a UI that is nonintrusive, smart and easy to handle with all functions needed in places that are easy to find for PC and mobile device users.

30. How will the auto-upgrade of new features and enhancements of the RealPlayer be delivered to the consumer?

User doesn't need to go to the website to download the new version every time there is a new release.

With the auto-upgrade feature, the new features and enhancements will be delivered to users in the moment of release. As a result, users can always enjoy the latest product/technology RealNetworks released. With a

one-time installation finished, the RealPlayer HD is thereafter always automatically updated to the latest version.

31. What are the other mainstream video formats that RealPlayer HD supports?

    RealPlayer HD supports many formats including the following mainstream formats[3]:

    - RealAudio
    - RealVideo (including RMVB and RMHD, etc.)
    - MPEG
    - MPEG-4
    - AVI
    - MP4
    - MKV
    - FLV

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[3] Some formats may require correspondent decoder plug-in installed on the PC.

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