Updated: Oct 18, 2011

# WebDT Signage Player 4.0 Media Support

## A. Preface

This document outlines supported media formats and video performance reference on the WebDT Signage Appliance Version 4.0. We strongly recommend you to read related information for the SA model you have purchased before you start to play your media contents.

## B. Video Formats Supported

| File Format | Supported File Extension | Video Encoding | Audio Encoding | Remark |
|---|---|---|---|---|
| MP4 | .mp4 | MPEG4 | AAC, MP3 | |
| | | H.264 | AAC, MP3 | |
| MOV | .mov | MP4 | AAC, AMR Narrowband, IMA 4:1, PCM, QDesign Music2, u-law 2:1 | |
| | | H.264 | AAC, AMR Narrowband, IMA 4:1, PCM, QDesign Music2, u-law 2:1 | |
| | | Sorensom Video | AAC, AMR Narrowband, IMA 4:1, QDesign Music 2 | |
| | | Sorensom Video 3 | AAC, AMR Narrowband, IMA 4:1, PCM, QDesign Music 2, u-law 2:1 | |
| | | Cinepak | AAC, AMR Narrowband, IMA 4:1, QDesign Music2, u-law 2:1 | |
| | | Photo_JPEG | IMA 4:1 | Note: if the OS is Vista or Win7, player can't support Photo_JPEG + IMA 4:1 |
| MPEG1(mpeg-1 system stream) | .mpg, .mpeg | MPEG1 | MP2, MP3 | |
| MPEG2(mpeg-2 program stream) | .mpg, .mpeg | MPEG2 | AC3, MP2, MP3 | |
| TS(mpeg-2 Transport stream) | .mpg, .mpeg | MPEG2 | AC3, MP2, MP3 | |

DT Research

Updated: Oct 18, 2011

| File Format | Supported File Extension | Video Encoding | Audio Encoding | Remark |
|---|---|---|---|---|
| VOB | .vob, .mpg | MPEG2 | AC3, MP2 | |
| M2TS | .m2ts | MPEG2 | MP3 | |
| WMV | .wmv | Windows Media Video 7 (WMV1) | WMA v2(Windows Media Audio 9.2)<br>WMA lossless(Windows Media Audio 9.2 Lossless)<br>WMA pro(Windows Media Audio 10 Professional) | |
| | | Windows Media Video 8 (WMV2) | WMA v2(Windows Media Audio 9.2)<br>WMA lossless(Windows Media Audio 9.2 Lossless)<br>WMA pro(Windows Media Audio 10 Professional) | |
| | | Windows Media Video 9 (WMV3, simple and main profiles) | WMA v2(Windows Media Audio 9.2)<br>WMA lossless(Windows Media Audio 9.2 Lossless)<br>WMA pro(Windows Media Audio 10 Professional) | |
| | | VC-1 (Windows Media Video 9 advanced profile) | WMA v2(Windows Media Audio 9.2)<br>WMA lossless(Windows Media Audio 9.2 Lossless)<br>WMA pro(Windows Media Audio 10 Professional) | Note: in old image, the Windows Media Player's version may be 9 or 10, if so the VC-1 WMV can't be supported.<br>*Windows Media Player 11 or above version supports VC-1. |
| FLV | .flv | FLV4/VP62, | MP3 | |
| | | FLV1 | MP3 | |
| MKV | .mkv | MP4, | AAC, MP3, AC3 | |
| | | H.264 | AAC, MP3, AC3 | |
| MTS | .mts | H.264 | AC3 | |
| AVI | .avi | XVID | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |
| | | DivX5 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |

| File Format | Supported File Extension | Video Encoding | Audio Encoding | Remark |
|---|---|---|---|---|
| | | H.264 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |
| | | MP4 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |
| | | MS MPEG4 V2 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |
| | | MPEG1 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |
| | | FLV1 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA | |
| | | MPEG2 | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA, | |
| | | MJPEG | MP3, PCM(Little/Unsigned 16 bits), ADPCM IMA, | |
| ASF | .asf | Windows Media Video 7 (WMV1) | WMA v1, WMA v2(Windows Media Audio V8) | |
| | | Windows Media Video 8 (WMV2) | WMA v1, WMA v2(Windows Media Audio V8) | |
| MMS | | WMV and ASF supported above | | For streaming URL starts with mms://. |
| RTSP | | WMV and ASF supported above | | For streaming URL starts with rtsp://. |
| RM | .rm, .rmvb, .ram, .ra | RV30 (8) | Real Audio, Real Audio High Response, Real Audio AAC | Only WCM4.0 Patch 6 or later version supports this format |
| | | RV40 (9/10) | Real Audio, Real Audio High Response, Real Audio AAC | |

# C. Video Performance

## i. Video Source Property

1. All videos are progressive
2. Each video file is specified by format, resolution, frame rate, and average/max bitrate.

   For example: **"720x576_30fps_6-9M_MPEG2.mpg",** 720x576 is the resolution in pixel, 30fps is 30 frame per second, 6-9M is average 6 Mb/second and max 9 Mb/second.

- Mpeg2

| 1080P | 720P | DVD size 30fps |
|---|---|---|
| profile: high; level: high | profile: main; level: high | profile: high; level: high |

- WMV
  - The video encode format is "Windows Media Video 9 (WMV3, simple and main profiles)"

- H264

| 1080P 30fps | 1080P 24fps | 720P 30fps | 720P 24fps | DVD size 25fps |
|---|---|---|---|---|
| profile: high; level: 4.0 | profile: main; level: 5.0 | profile: main; level: 4.2 | profile: main; level: 4.0 | profile: main; level: 3.2 |

## ii. Video Render Type

| SA Model | SA1000/DS1500/DS1700/SA2000 | SA1200/1300/3000/3200 |
|---|---|---|
| **Render Type** | **VMR7 + overlay** | **Continuous overlay** |
| **Limitation** | Two continuous video files will not have the same performance. It's required to insert a non-video media file between two video files. | When switching video to another format/frame rate, the screen will flash slightly. For consecutive videos, we strongly suggest you to use the same conform/setting. |

Note: You can choose to change the render type by default settings to other render type. However, the performance may be lower after you change the render type:

1. Open this file: %appdata%\DTRI\WebDT Signage Player\config\DTMP.conf
2. Modify the item <VMR>VMR7</VMR> to <VMR>VMR9</VMR>

## iii. SA1000 (DS1500, DS1700)

- Max Supported Video

| Format | Landscape | Portrait | Remark |
|---|---|---|---|
| MPEG2 | 720x576_30fps_6-9Mbps | Can't reach DVD quality video. | *Can't use continuous overlay, so please insert one image or other media with duration longer than 10 seconds between 2 video files<br>*If playing video continuously, it can't support DVD quality video |
| WMV | | | Not supported as display driver issue may lead to blue screen on this model |
| H.264 | | | DVD quality video not supported |

- Recommended Video Format: MPEG2

## iv. SA2000

- Max Supported Video

| Format | Landscape | Portrait | Remark |
|---|---|---|---|
| MPEG2 | 1920x1080_24fps_30-50M | 1080x1920_30fps_10M | |
| WMV | 1280x720_30fps_10-20M | 720x1280_24fps_40M | |
| H.264 | 1280x720_24fps_10-20M | 576x720_24fps_6-9M | |

- Recommended Format: WMV

## v. SA3000

- Max Supported Video (can play multiple videos continuously with the same performance)

| Format | Landscape | Portrait | Remark |
|---|---|---|---|
| MPEG2 | 1920x1080_30fps_40-60M | 1080x1920_30fps_10M | Tearing in portrait mode |
| WMV | 1920x1080_30fps_10-11M | 1080x1920_30fps_10M | Tearing in portrait mode |
| H.264 | 1920x1080_30fps_20-40M | 1080x1920_30fps_20-40M | Tearing in portrait mode |

- Recommended Format: H.264, WMV and MPEG2
- Known Issues:
  - Tearing issue may happen in portrait mode, but not landscape mode.
  - When playing video, using Ctrl+ Shift+ Space to stop a player may lead to blue screen.
- Note: Driver version: IEGD 10.2.0.1447, not GMA; Disk: SATA.

## vi. SA1200

- Max Supported Video (can play multiple videos continuously with the same performance)

| Format | Landscape | Portrait | Remark |
|---|---|---|---|
| MPEG2 | 1920x1080_30fps_10-18M | 720x1280_30fps_10M | |
| WMV | 1280x720_24fps_8-16M | 576x720_24fps_9-11M | |
| H.264 | Can't reach DVD quality video. | Can't reach DVD quality video. | |

- Recommended Format: WMV (since WMV in HD resolution has better quality than MPEG2 in Full HD resolution)

## vii. SA1300 (WES7)

- Max Supported Video

| Format | Landscape | Portrait | Remark |
|---|---|---|---|
| MPEG2 | 1280x720_30fps_20-30M | 720x1080_30fps_10M | |

| | | | |
|---|---|---|---|
| WMV | 720x576_24fps_9-11M | 576x720_24fps_9-11M | |
| H.264 | 1920x1080_30fps_20-40M | 1080x1920_30fps_20-40M | |

- Recommended Format: H.264
- Known Issue:
  - Landscape/ Portrait ticker will slightly shake for a short period occasionally.
  - Portrait ticker will have ripple issue at right side of the screen; enable Aero Effect will solve this issue but performance will be lower. (Please refer to Open Aero Effect document for enabling this setting).
  - The screen may tearing when playing WMV video file. In landscape mode, users can use H.264 and MPEG2 format instead of WMV to avoid this. In portrait mode, uses can H.264 and MPEG2 format instead of WMV or enable “Aero effect” settings to resolve the tearing problem. (To enable Aero Effect may decrease video rendering performance; before using this setting, user must test it in advance to ensure the result will be acceptable.)
  - On Remote software upgrade for OS/BIOS is not supported for WES7.

## viii. SA3200 (WES7)

- Max Supported Video (can play multiple videos continuously with the same performance)

| Format | Landscape | Portrait | Remark |
|---|---|---|---|
| MPEG2 | 1920x1080_30fps_40-60M | 1080x1920_30fps_10M | |
| WMV | 1280x720_30fps_10-12M | 1080x1920_24fps_5-10M | |
| H.264 | 1920x1080_30fps_20-40M | 1080x1920_30fps_20-40M | |

- Recommended Format: H.264 and MPEG2
- Known Issue:
  - Landscape/ Portrait ticker will slightly shake for a short period occasionally.
  - Portrait ticker will have ripple issue at right side of the screen; enable Aero Effect will solve this issue but performance will be lower. (Please refer to Open Aero Effect document for enabling this setting)
  - Remote software upgrade for OS/BIOS is not supported for WES7.

## D. Other Media Support

### i. PPT

| Player Model | PPT Viewer 97 | PPT Viewer 2007 | Remark |
|---|---|---|---|
| SA1000, DS1500, DS1700 | Portrait mode | Landscape mode | Can't support PPSX, PPTX in portrait mode |
| SA2000, SA3000, DS1300, DS3200 | | Landscape and portrait mode | |

- Note:
  - If the mouse cursor's position is in PowerPoint window, the cursor will always be visible.
  - If the PowerPoint includes embedded video, only WMV video is supported.

### ii. Transition Effects

- Supported media on all devices
  - Only image, video and Flash can apply transition effects (TE).
  - Video, flash and gif can only support Basic TE except for Fade in.
- Transition Effects Categories
  - Transition effects are divided into 2 categories:

| Basic TE | Enhanced TE |
|---|---|
| Fade in, Wipe down, Wipe up, Wipe left, Wipe right, Wipe left-down, Wipe left-up, Wipe right-down, Wipe right-up, Wheel clockwise 1 spoke, Wheel clockwise 2 spoke, Wheel clockwise 4 spoke, Strips Left up, Strips Left down, Strips Right Up, Strips Right down, Block Out, Block In, Box in, Split Vertical Out, Split Horizontal Out, Split Vertical In, Split Horizontal In, Shape Plus Out, Shape Plus In, Shape Circle Out, Shape Circle In, Shape Diamond Out, Shape Diamond In, Dissolve, Comb Horizontal, Comb Vertical, Blinds Horizontal, Blinds Vertical, Checkerboard Across, Checkerboard Down | Wipe Down(Vague), Wipe Up(Vague), Wipe Left(Vague), Wipe Right(Vague), Wipe Left-Up(Vague), Wipe Right-Down(Vague), Wheel clockwise 1 spoke(Vague), Wheel clockwise 5 spoke(Vague), Newsflash, Shape Circle Center(Vague), Shape Diamonds(Vague), Triangle(Vague), Waterfall, Random Bars horizontal, Random Bars Vertical, Random Lines(Vague), Point Dissolve, Point Dissolve(Vague), Comb Horizontal(Vague), Blinds Horizontal(Vague) |

- Player Model support

| Player Model | Supported Transition Effects Category for Image |
|---|---|
| SA1000, DS1500, DS1700 | Can only support basic TE |
| SA1200, SA2000, SA3000, SA1300, SA3200 | Can support all TE |

- Performance for video playback with transition effect:
  - Video performance will drop when using TE
  - To include any TE, video duration is better set to more than 3 seconds (default TE duration is 3 seconds), so the previous video will not pause at the last frame or play from the beginning.

### iii. Flash

If Flash display size is beyond certain value, player will adjust its quality automatically. Below is the adjustment method:

| Height/ Width | Quality |
|---|---|
| <=4096 | High |
| >4096 && <=8192 | Medium |
| >8192 | Low |

### iv. Ticker

The ticker width limitation is different on each model. If the ticker zone width is beyond the limitation below, it may not display normally.

| Player Model | Maximum Ticker Zone Width (by pixel) |
|---|---|
| SA1000, DS1500, DS1700 | 1,920 |
| SA2000 | 2,880 |
| SA3000/ SA1300/ SA3200 | 3,840 |
| MS200 | 3,840 (WCM4.0 patch 5 or later version) |
| MS400/ MS800/ MS1600 | 30,720 (WCM4.0 patch 5 or later version) |

## E. Executable Application Requirements and Limitation:

Application media played on the WebDT Signage Appliances must have the following requirements and limitation:

1) Must have main window and better to have WS_CLIPSIBLINGS and WS_CLIPCHILDREN attributes
    a) Main window should satisfy the following conditions:
        i. Window is visible
        ii. Non-child (meaning the window is overlapped or a popup) and its client region size is not zero
    b) If the application has more than one “main window”, the WebDT SA player can’t verify which will be shown at the top.
    c) The main window is best with WS_CLIPSIBLINGS and WS_CLIPCHILDREN attributes, otherwise the player can’t correctly refresh the content
2) If a single instance, it can’t play continuously or more than in one zone at the same time
3) Can’t have multiple processes in the application

    Note: if the main process creates a child process, and the child process creates the main window, the signage player will not support it.
4) Main window can’t be changed after starting by itself
    a)If not, player can’t verify its final display effect
5) Can’t hide splash window
6) If application start time is too long, player will show black before its creation
7) Can support applications made with Borland C++ or Delphi

# F. Glossary

## i. Tearing

Tearing is a visual effect in video where information from two or more different frames is shown on a display in a single screen draw. The display cards use a video memory buffer to store the data to be shown on a monitor. If the video memory buffer is updated while the monitor is in the middle of being updated, then the result is the video memory buffer has half of an old frame and half of a new one, which can be seen on the monitor. If the difference between the scene of an old frame and a new frame is obvious, then a horizontal line which splits the old and new video frame might be seen on the monitor.

The screen snapshot list below is an example of tearing.