Active Format Description (AFD)

AFD is a standard set of codes transmitted within an MPEG video data stream or SDI signal, containing information on the image aspect ratio and its correct displaying on different screens. It was created as a more relevant version of WSS code.

AFD is a 4-digit code used to describe possible positions of the active (visible) part of the image within the transmitted frame. When the frame size and the image active part do not match, information on free areas inside the image is sent through the additional 5-byte Bar Data code. The special Aspect Ratio (AR) bit is used to specify screen proportions. It shows whether a picture is 16:9 (1) or 4:3 (0).

AFD is not always transmitted correctly to the final receiver due to rebroadcasting problems or STB settings, so content may be displayed on screen incorrectly.

Receiving AFD

AFD values are transmitted to Skylark from the following sources:

- files that are imported, played, transcoded etc.;
- VANC areas of SDI signals upon capturing;
- IP-stream upon capturing (AFD transmitted within a transport stream, in titles of compressed MPEG2 or H264 frames).

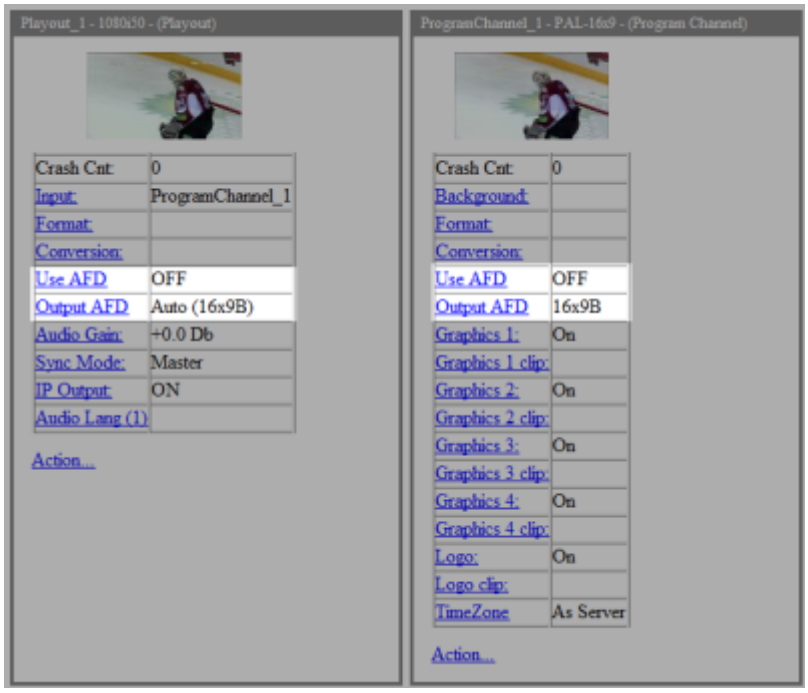
If the original source has no AFD value, the default one is 8 (displaying the entire source frame 4:3 or 16:9).

The AFD value is recalculated every time, when the frame format is changed, depending on the applied conversion type (box, crop, box+crop).

Transmitting AFD

The retrieved AFD value is sent to the SDI or IP-stream during playback or saved to a file upon recoding/recording if the file format supports saving AFD. The above process is permanent, regardless of the settings.

AFD generation options are available for Playout and Program_Channel on the tab: `Administrator Control Panel→Status`.



Option	Description
Use AFD	The option controls using the AFD value of the source video while scaling the output video. This applies both to Background and the played video. For instance, the output format is 16:9, and the played file is 4:3. If “Use AFD” is inactive, scaling will be implemented according to the “Conversion” setting (Box by default). If “Use AFD” is active, scaling will be implemented considering AFD of the source video. This will form a certain AFD value of the output video, which could be redefined by Output AFD. Options: • **ON** – AFD transmission is on; • **OFF** – AFD transmission is off.
Output AFD	The option allows manual setting of the AFD value: • **Auto (current_value)** - the aspect ratio converter will automatically select the best conversion method according to the file AFD and Format and Conversion values for Playout and Program_Channel. The current value is displayed in parentheses and output automatically. • **FF**; • **4x3B**; • **16x9B**; • **4x3SP14x9**; • **16x9SP14x9**; • **16x9SP4x3**; • **NONE**.

Example

Let’s say we have a set of multiformat clips (16×9 HD and 4×3 SD), and we simply put them into the HD 16×9 program channel playlist.

Regular Version

Use box conversion for 4:3 clips in the program channel.

Thus, all HD clips will be fullscreen, and SD clips will be pillarboxed at the program channel output.

Let’s consider options of displaying a picture for the audience that use different receiving equipment:

- On HD TVs, audience will see the same as on the program channel output.
- On 4:3 SD devices (4:3 TVs are less popular nowadays, but any further processing like capturing, recording, logging etc, may be considered as a device), box conversion will be applied again, so the audience will see original 16:9 clips as letterboxed. The problem is that already pillarboxed SD clips now will be also letterboxed.

Using AFD

However, using AFD correctly lets the processing feature to work in the following way:

- All original clips have AFD 8 (Full frame);
- After playout, 16:9 clips will have AFD 8 (Full frame);
- After playout, 4:3 clips will have AFD 9 (4:3 – boxed);
- The SD 4:3 screen will display black bars for AFD 8 content (full 16:9 frames) and cut them for AFD 9 clips (4:3 – boxed), so 4:3 clips will become fullscreen, instead of double-boxed.

Additional Information

- Full List of AFD Codes (Wikipedia)
- Configuring WSS
- Multiformat Playback of Mixed Content