USER GUIDE

ULTRA-X ViS 8K

Version 2.1

HD UTRASOFT LLC 113 Barksdale Professional Center, Newark, DE 19711

CONTENTS

ULTRA-X ViS 8K

ULTRA-X ViS is a video processing server software for broadcasting in SD, HD, 4K, 8K standards from video files of different formats and codecs:

Supported file format: mxf, mov, mp4, mpg, avi, ts, flv, prores

Supported audio codec: raw pcm, mp2, mp3, aac

Supported video codec: mpeg2, h264, h265, vp8, vp9.

(AV1 codec requires Nvidia ampere family)

Output resolutions:

SD Video Standards: 525i59.94 NTSC, 625i50 PAL

HD Video Standards:720p50, 720p59.94, 720p60
1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p47.95, 1080p48, 1080p50, 1080p59.94, 1080p60, 1080p95.90, 1080p96, 1080p100, 1080p119.88, 1080p120,1080i50

2K Video Standards: 2Kp23.98 DCI, 2Kp24 DCI, 2Kp25 DCI, 2Kp29.97 DCI, 2Kp30 DCI, 2Kp47.95 DCI, 2Kp48 DCI, 2Kp50 DCI, 2Kp59.94 DCI, 2Kp60 DCI, 2Kp95.90 DCI, 2Kp96 DCI, 2Kp100 DCI, 2Kp119.88 DCI, 2Kp120 DCI

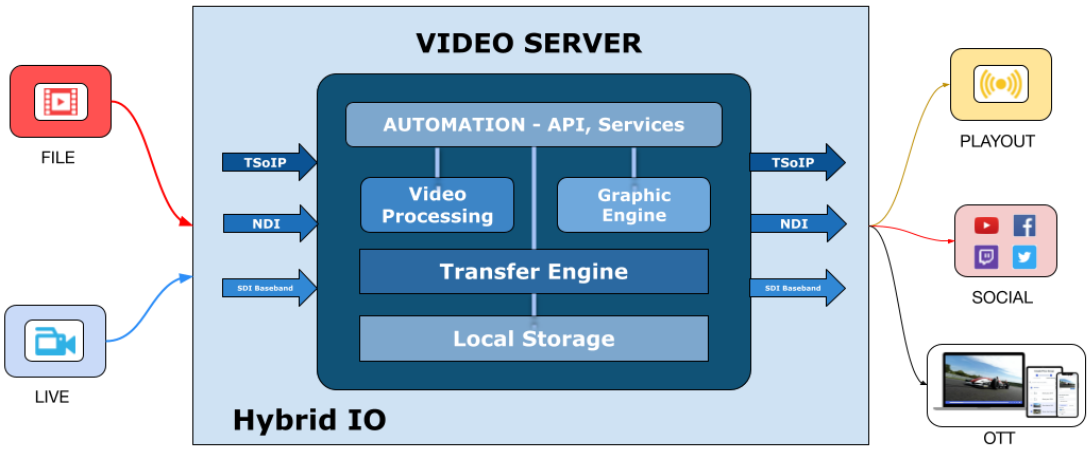
Ultra HD Video Standards: 2160p23.98, 2160p24, 2160p25, 2160p29.97, 2160p30, 2160p47.95, 2160p48, 2160p50, 2160p59.94, 2160p60, 2160p95.90, 2160p96, 2160p100, 2160p119.88, 2160p120

4K Video Standards: 4Kp23.98 DCI, 4Kp24 DCI, 4Kp25 DCI, 4Kp29.97 DCI, 4Kp30 DCI, 4Kp47.95 DCI, 4Kp48 DCI, 4Kp50 DCI, 4Kp59.94 DCI, 4Kp60 DCI, 4Kp95.90 DCI, 4Kp96 DCI, 4Kp100 DCI, 4Kp119.88 DCI, 4Kp120 DCI

8K Video Standards: 4320p23.98, 4320p24, 4320p25, 4320p29.97, 4320p30, 4320p47.95, 4320p48, 4320p50, 4320p59.94, 4320p60

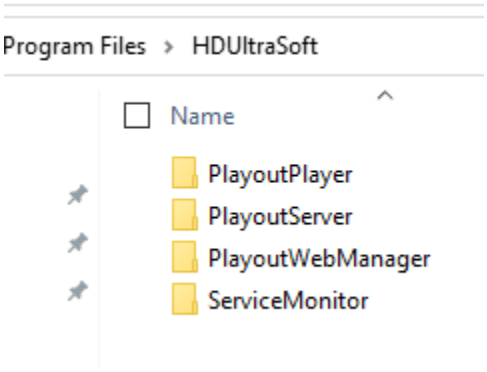
8K DCI Video Standards: 8Kp23.98 DCI, 8Kp24 DCI, 8Kp25 DCI, 8Kp29.97 DCI, 8Kp30 DCI, 8Kp47.95 DCI, 8Kp48 DCI, 8Kp50 DCI, 8Kp59.94 DCI, 8Kp60 DCI

Attention: Color space 4.2.0 or 4.4.4 recommended to support the GPU acceleration!



The pre-installed basic software suite includes the software:

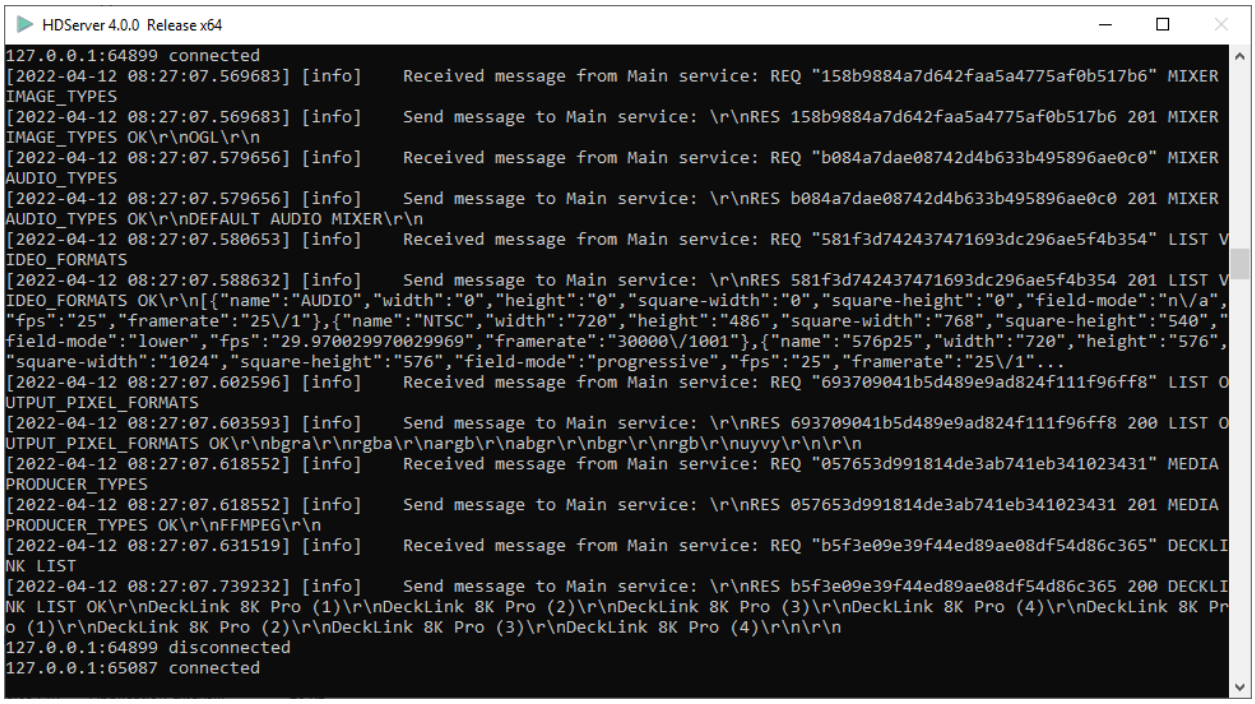
- PlayoutServer: Is the core software for processing and playing video files.
- PlayoutWebManager: Is software that provides web API for monitoring and configuring PlayoutServer.
- ServiceMonitor: A web interface that connects to the PlayoutServer through the PlayoutWebManager, providing a web interface for monitoring and configuring the PlayoutServer.
- PlayoutPlayer: A simple web interface that allows scheduling and controlling file playback of PlayoutServer.



I. PLAYOUT SERVER

Playout Server is the core software to process and play video files in the desired format.

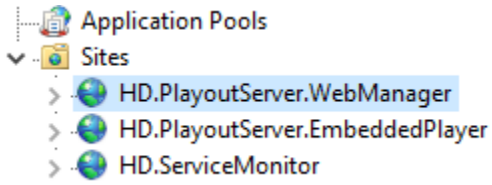
The software runs in the form of a console, configured through the web interface



II. PLAYOUT WEB MANAGER

Playout Web Manager is a web API software, providing API to configure Playout Server through Service Monitor.

The software can be run standalone through the console, or hosted on IIS.

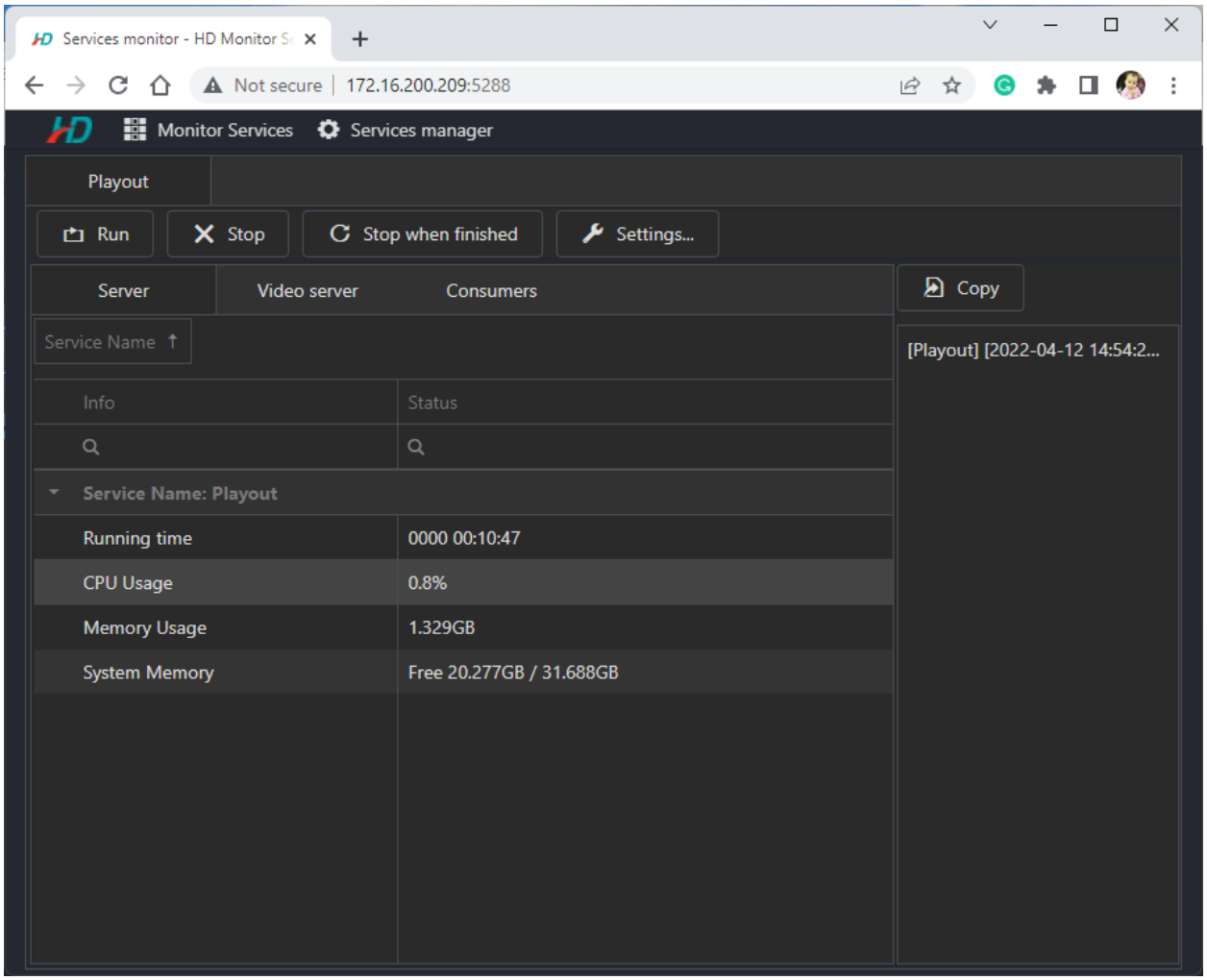


III. SERVICE MONITOR

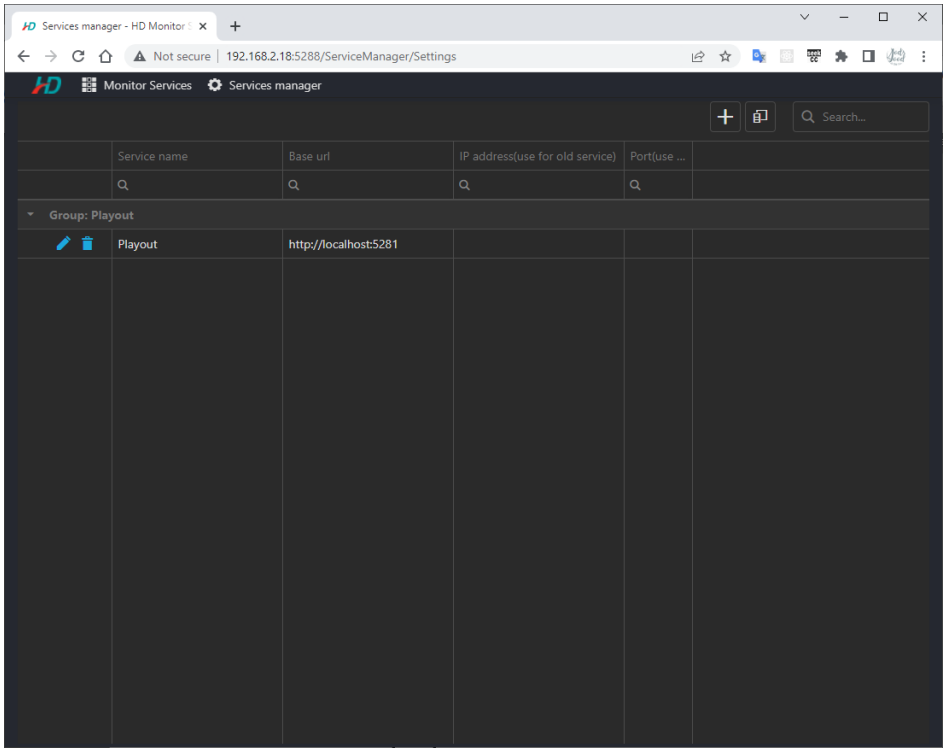
Service Monitor is a software that provides a web interface to monitor and configure services developed by HDUltraSoft.

The software can be run standalone through the console, or hosted on IIS.

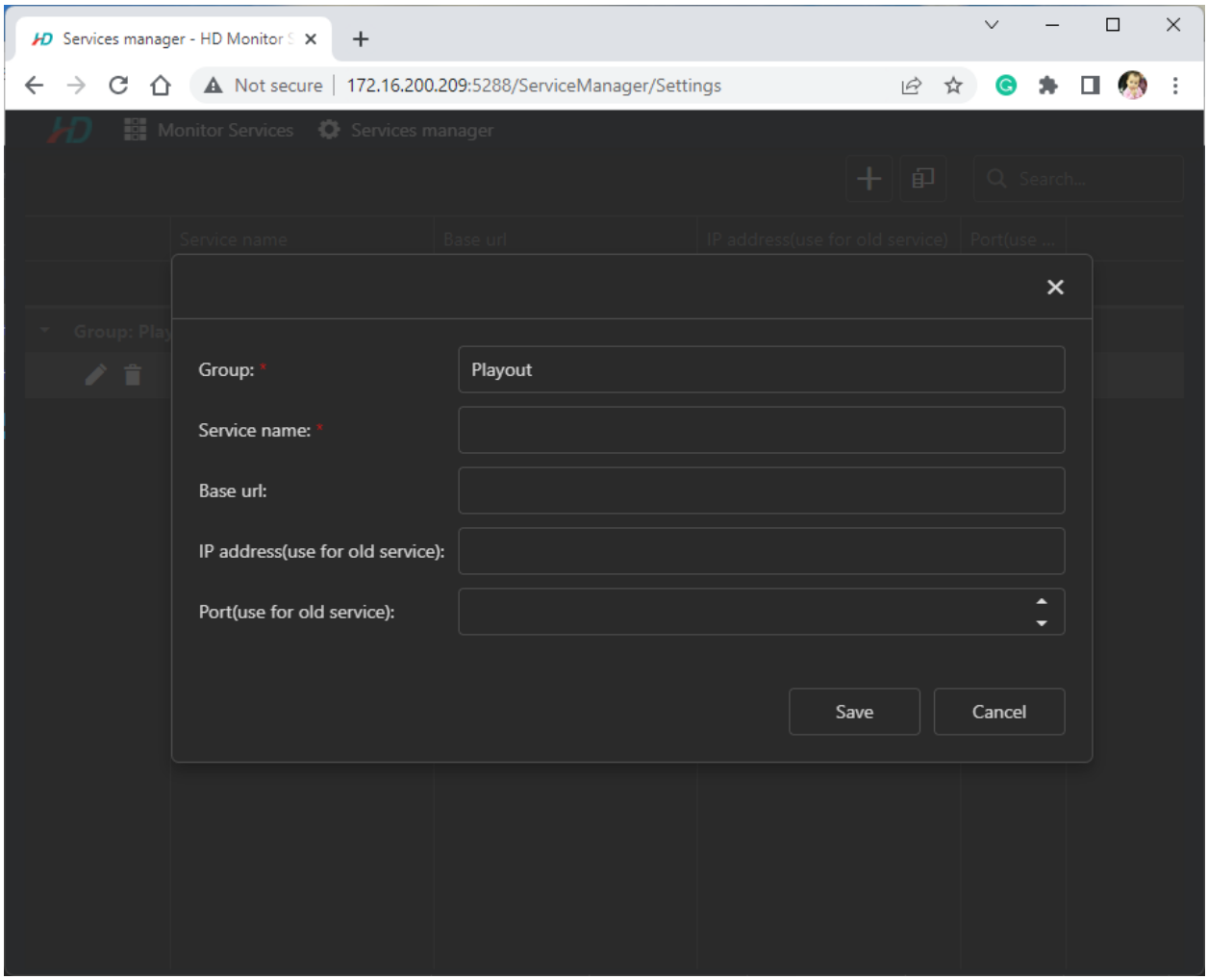
Use the software by accessing the software's web address through a browser:



1. Add service to track - Service manager

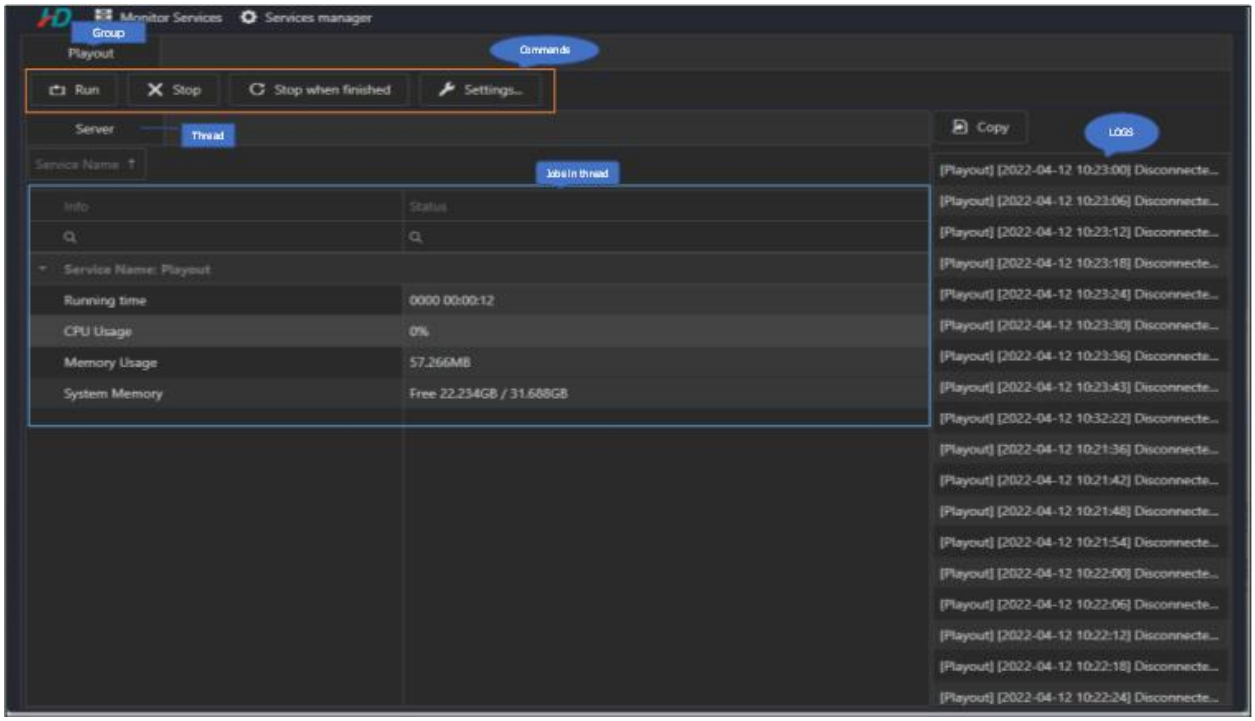


- To add 1 service to monitor, click the Add (+) button on the service manager

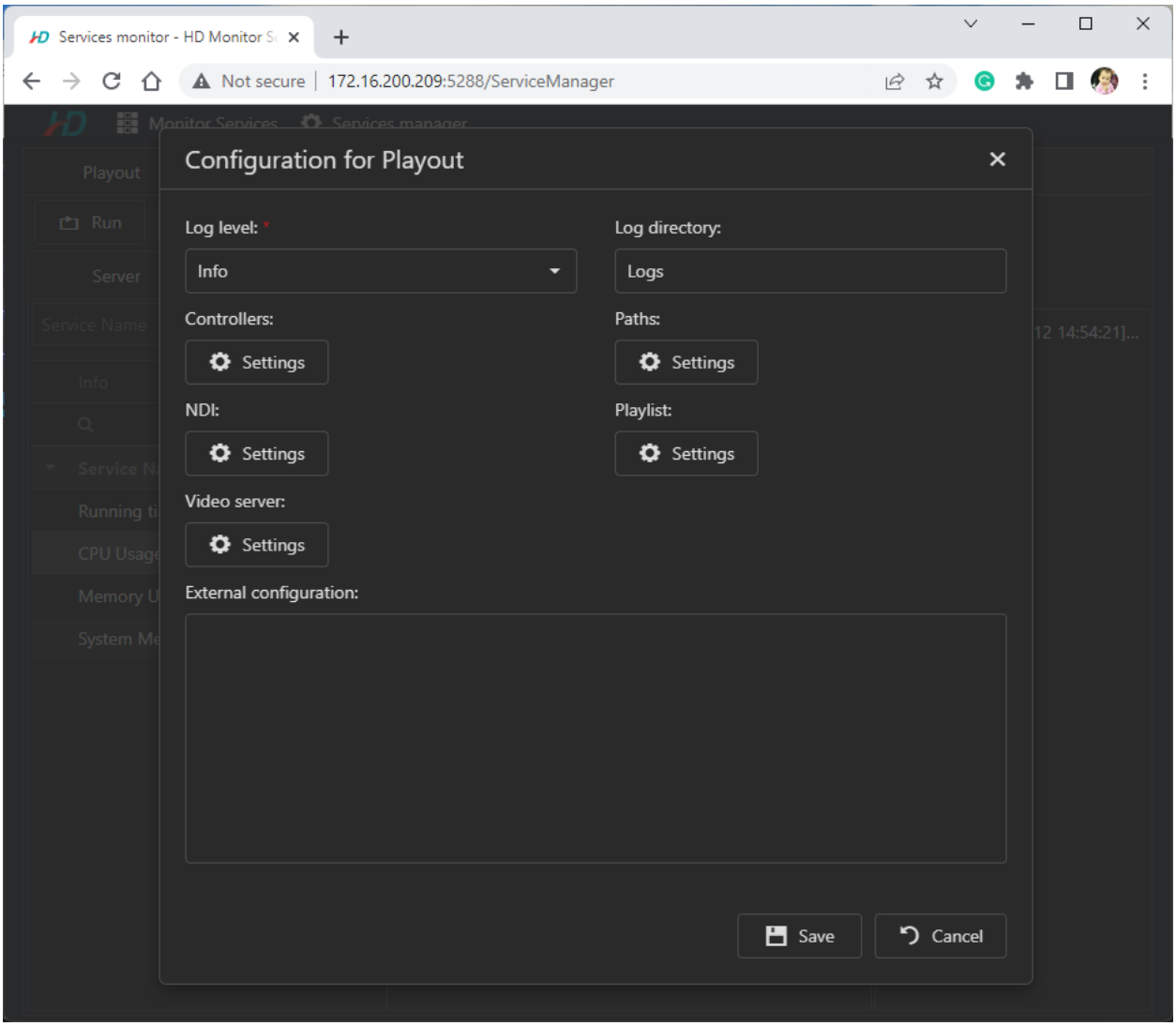


Fill in the information to connect to the service:
+ Group: Name of the service group. Services with the same functionality running on multiple machines can be grouped together to monitor together, or configured once and applied to all services in the group.
+ Service name: Service name
+ Base url: Is the API address of the service
After entering the information, click Save to add the service and start monitoring.

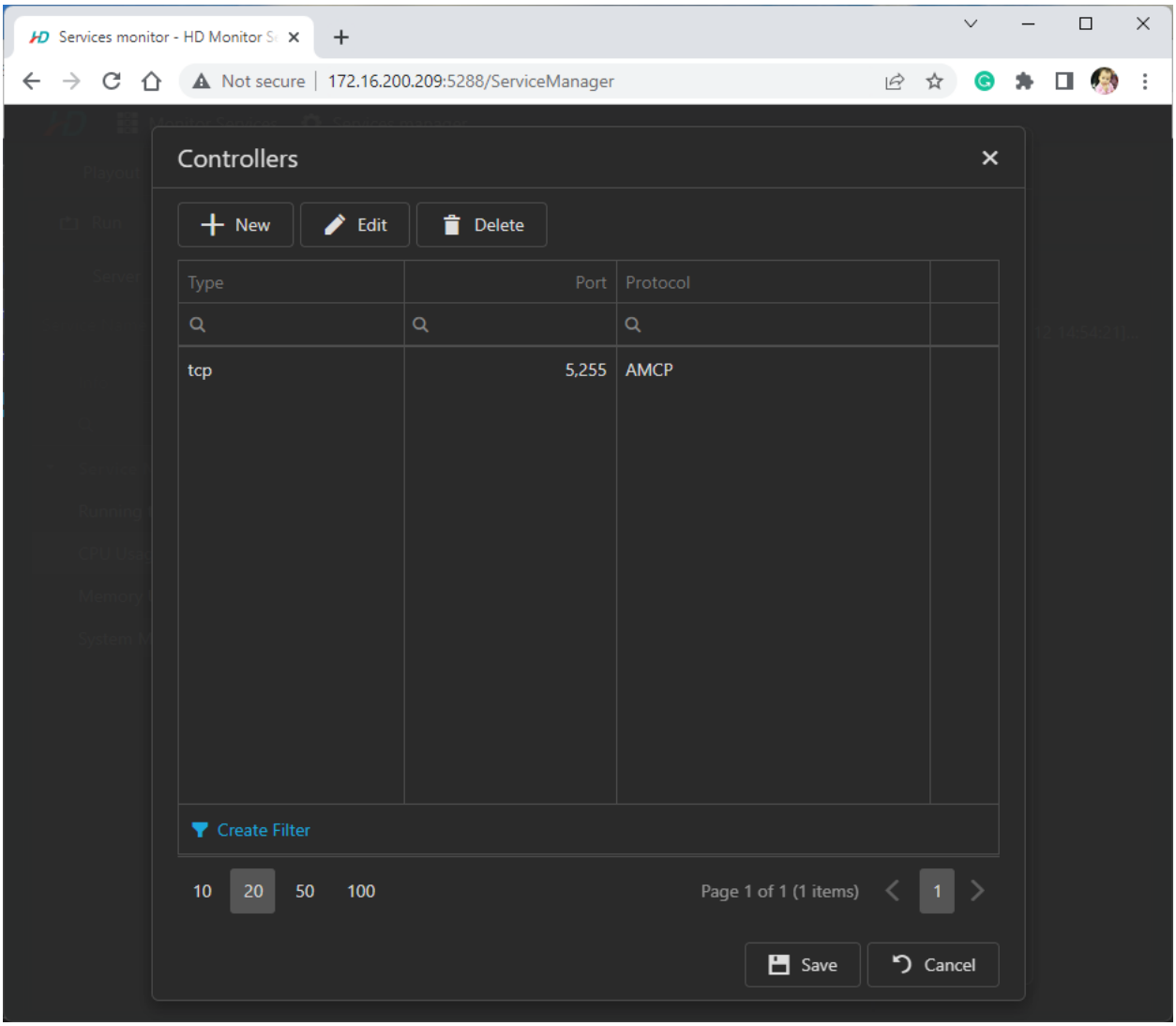
2. Service tracking - Monitor services



- **Run command:** To run the service after stopping
- **Stop command:** To stop the service
- **Stop when finished:** To stop the service after completing the work being done
- **Settings…:** To configure the service



+ Log level: Log level
+ Log directory: Logs storage directory
+ Controllers: Configure TCP port to allow other software to control server over TCP connection

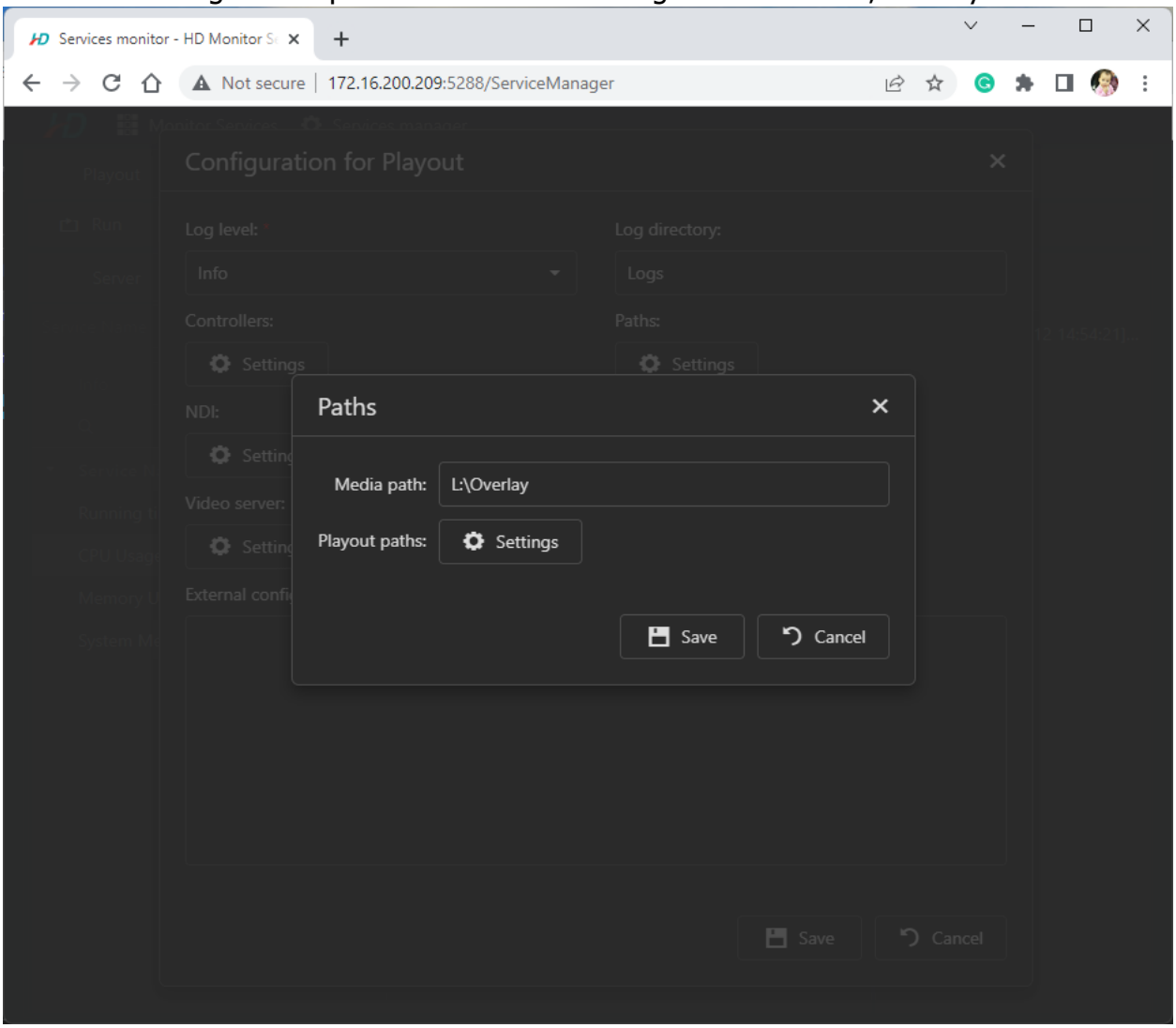


✓ To add a connection port, press the New (+) button

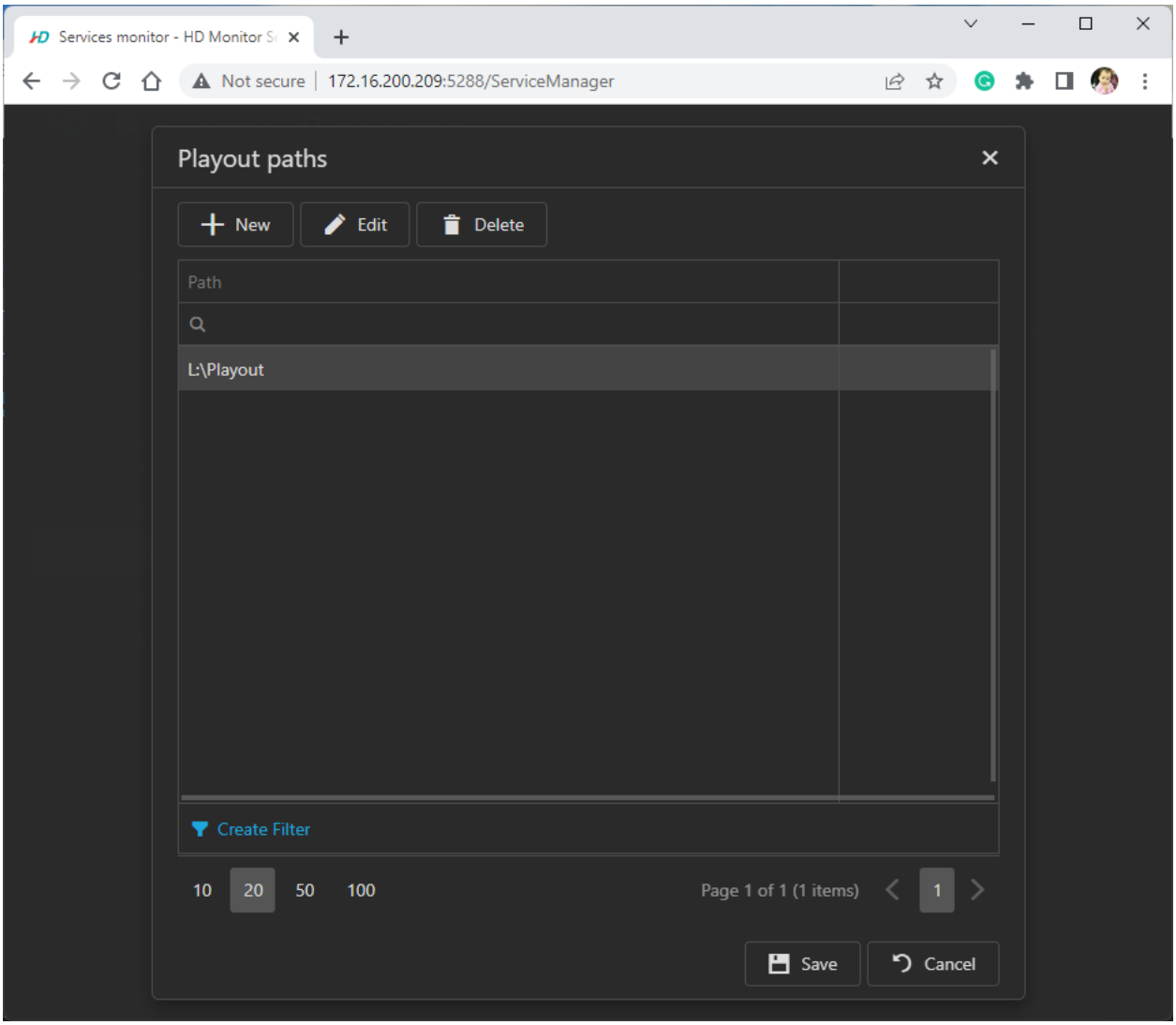
Select the connection type as TCP, desired connection port, AMCP protocol and then press "Save"

Note: This port is used for other software that controls the server to play files (eg HDServerPlayer), so this configuration cannot be changed unnecessarily.

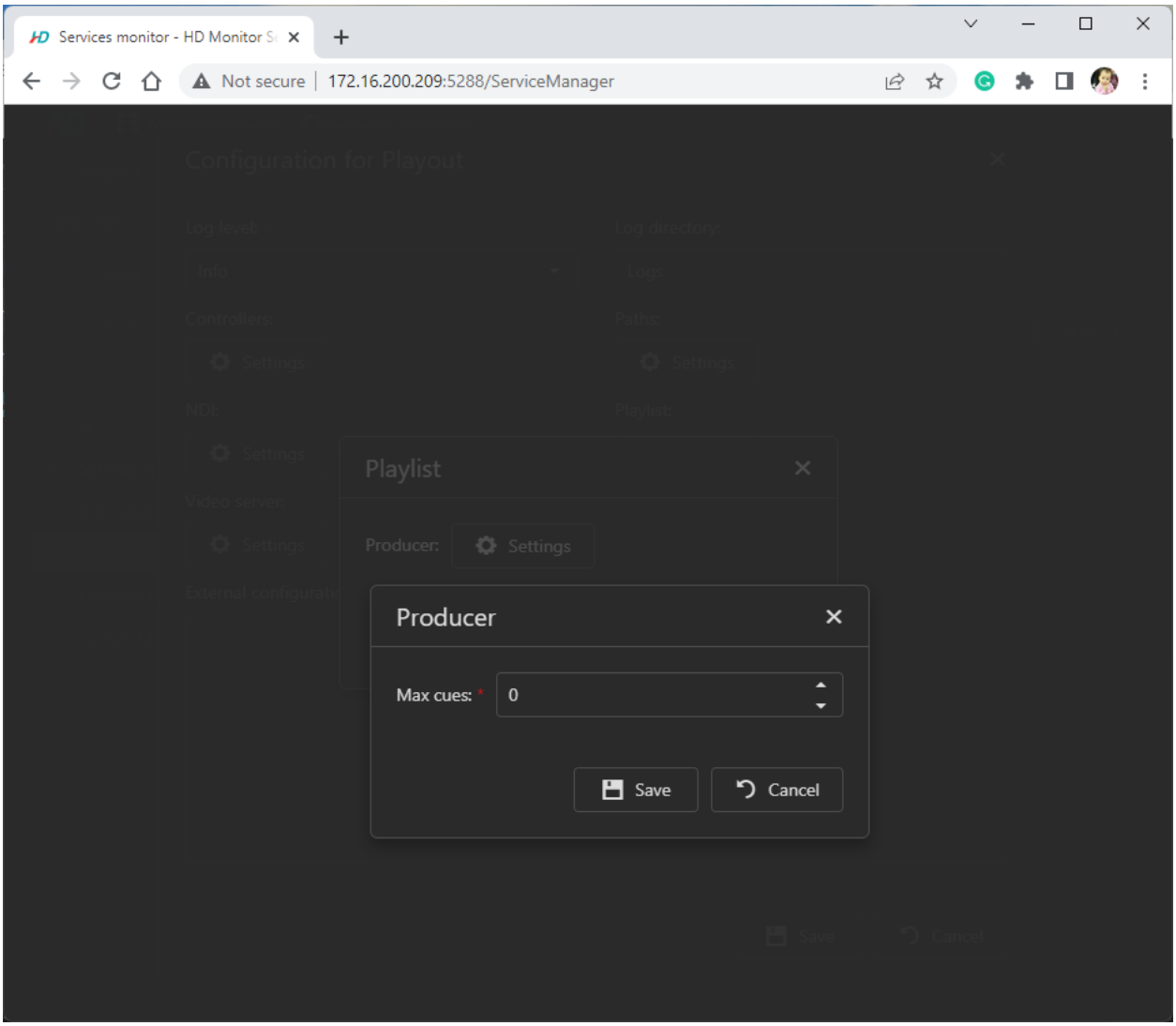
+ Paths: Configure the path to folders containing broadcast files, overlay files



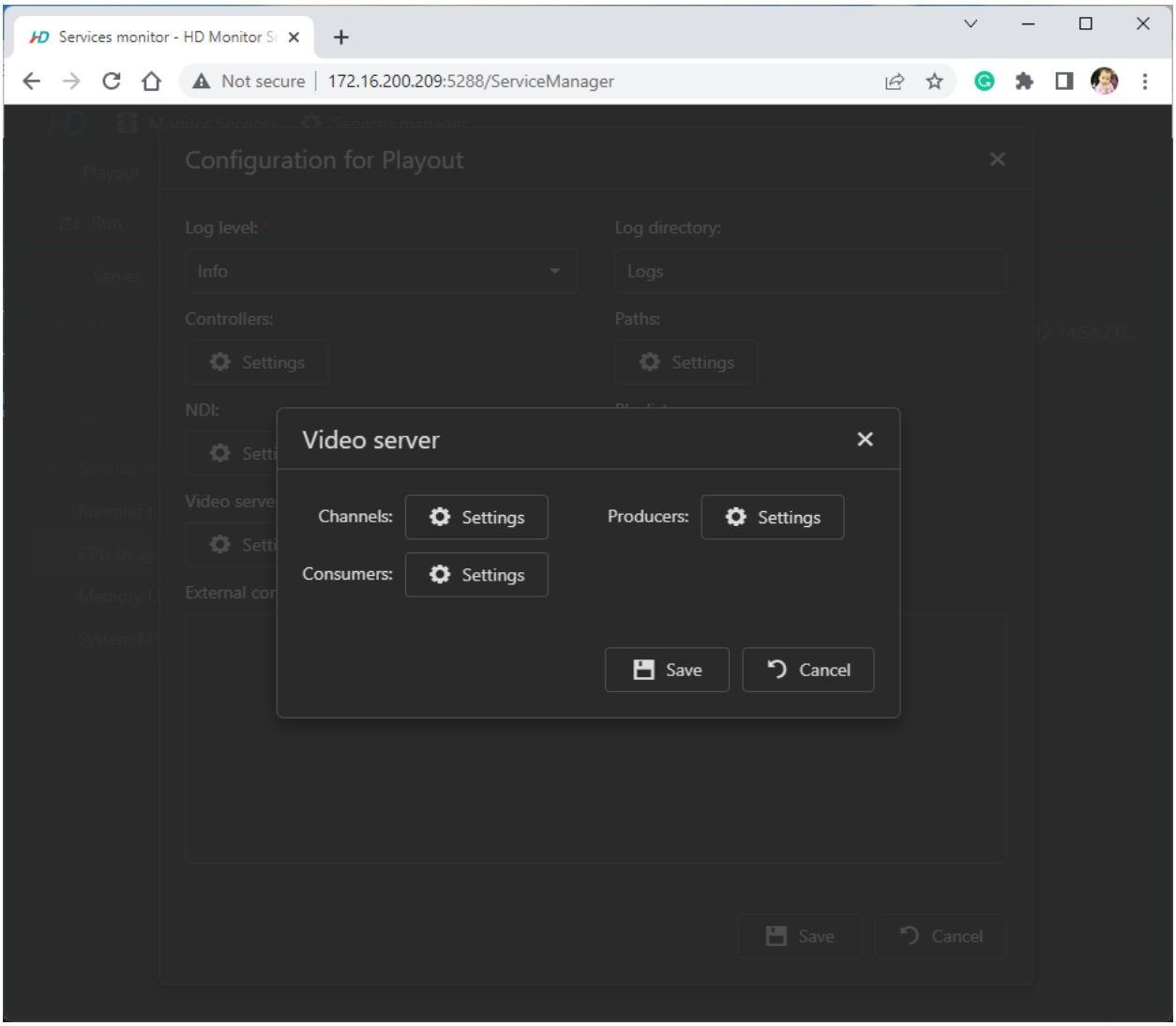
- ✓ Media path: Folder containing image/video files to overlay
- ✓ Playout paths: Folders containing video files for broadcasting



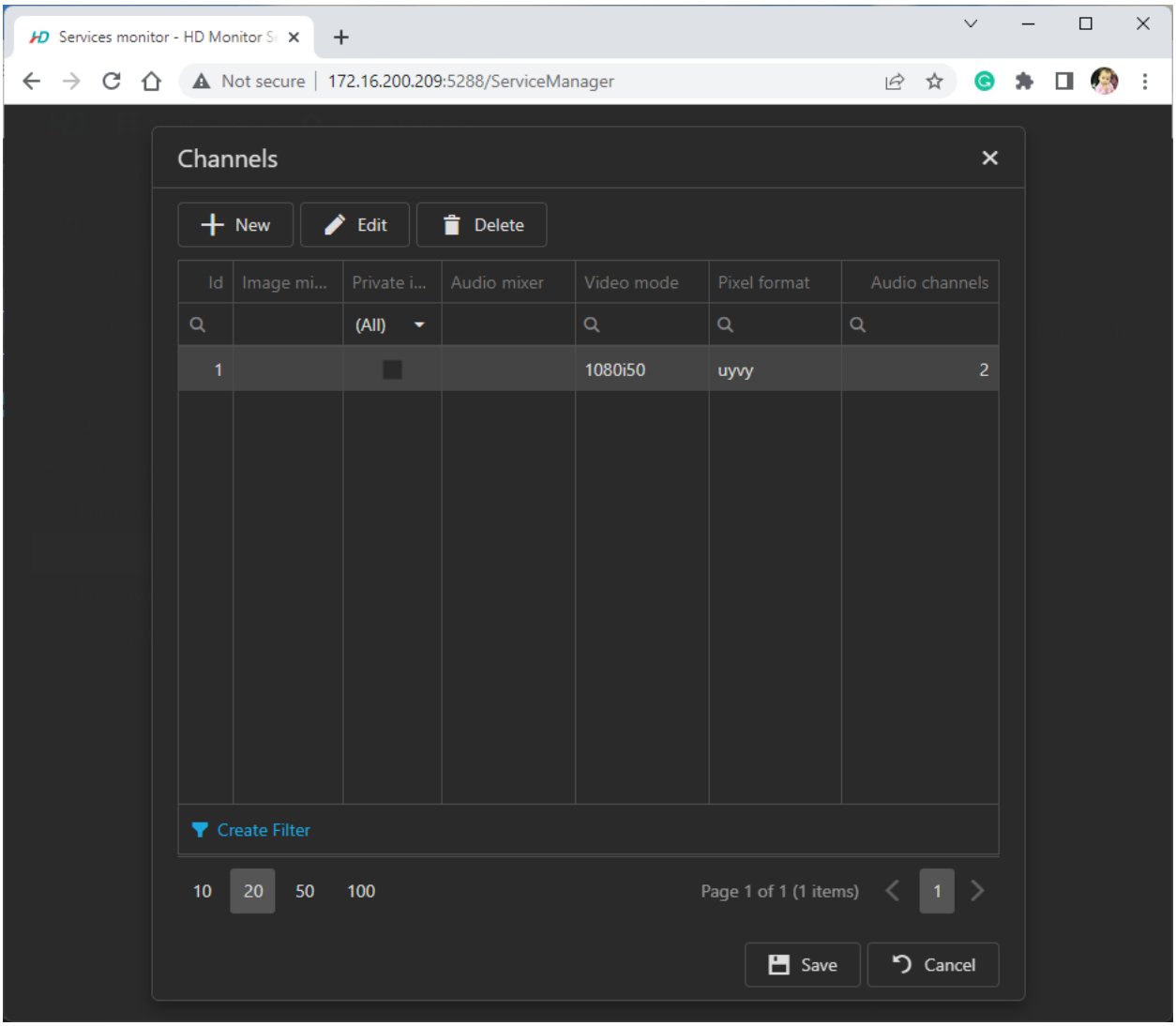
+ Playlist: Configure default options for playlist



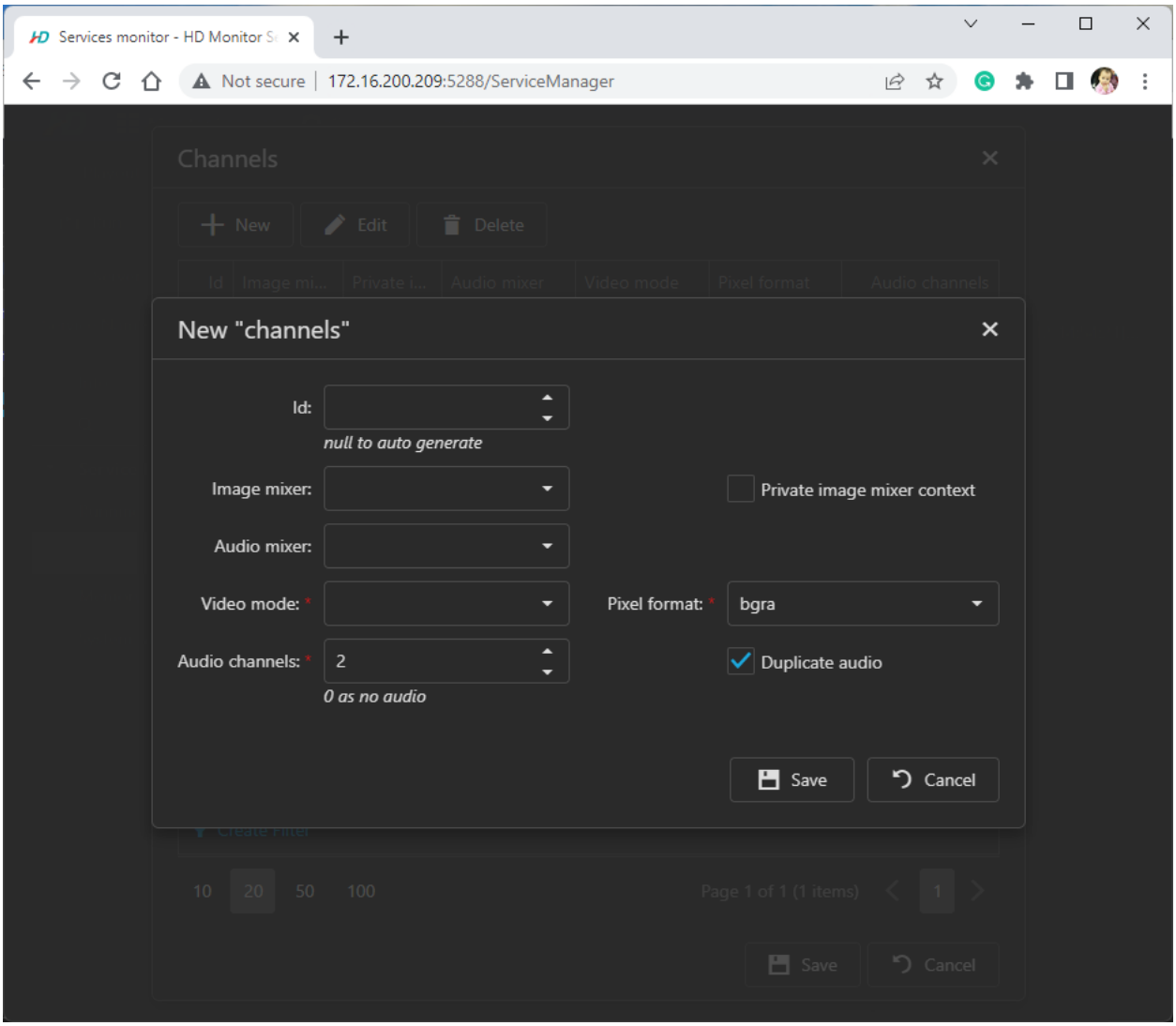
- ✓ Max cues: Number of concurrently processed video files on schedule to be ready to broadcast, default is 2
- ✓ **+ Video server:** Configure video server



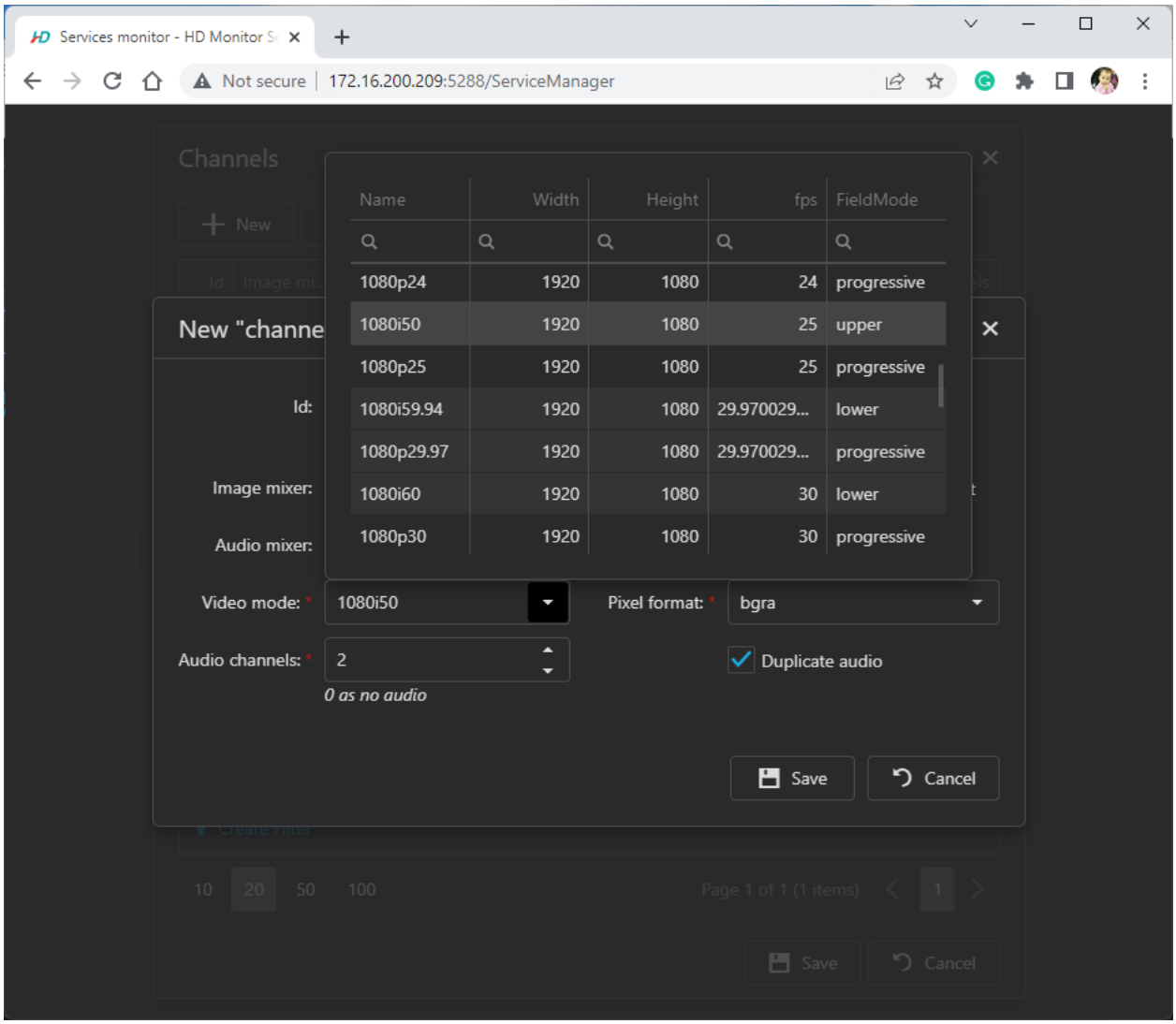
✓ Channels: Configure video channels



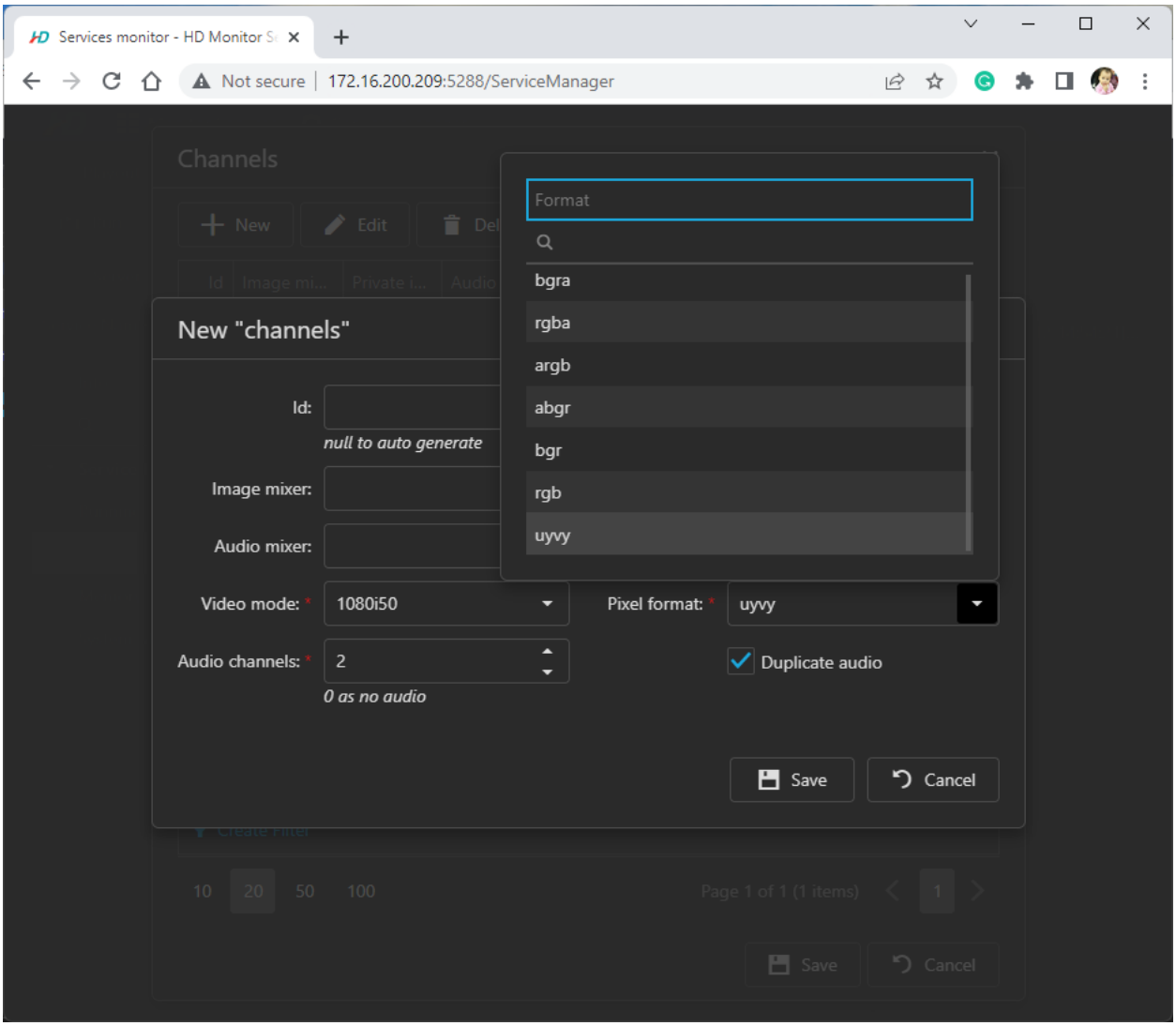
- To add a new video channel, press the New button:



- Id: Id of video channel, this Id will be used by other software to control
- Image mixer: Process of mixing and processing images
- Audio mixer: Process of mixing and processing audio
- Video mode: Video channel output resolution

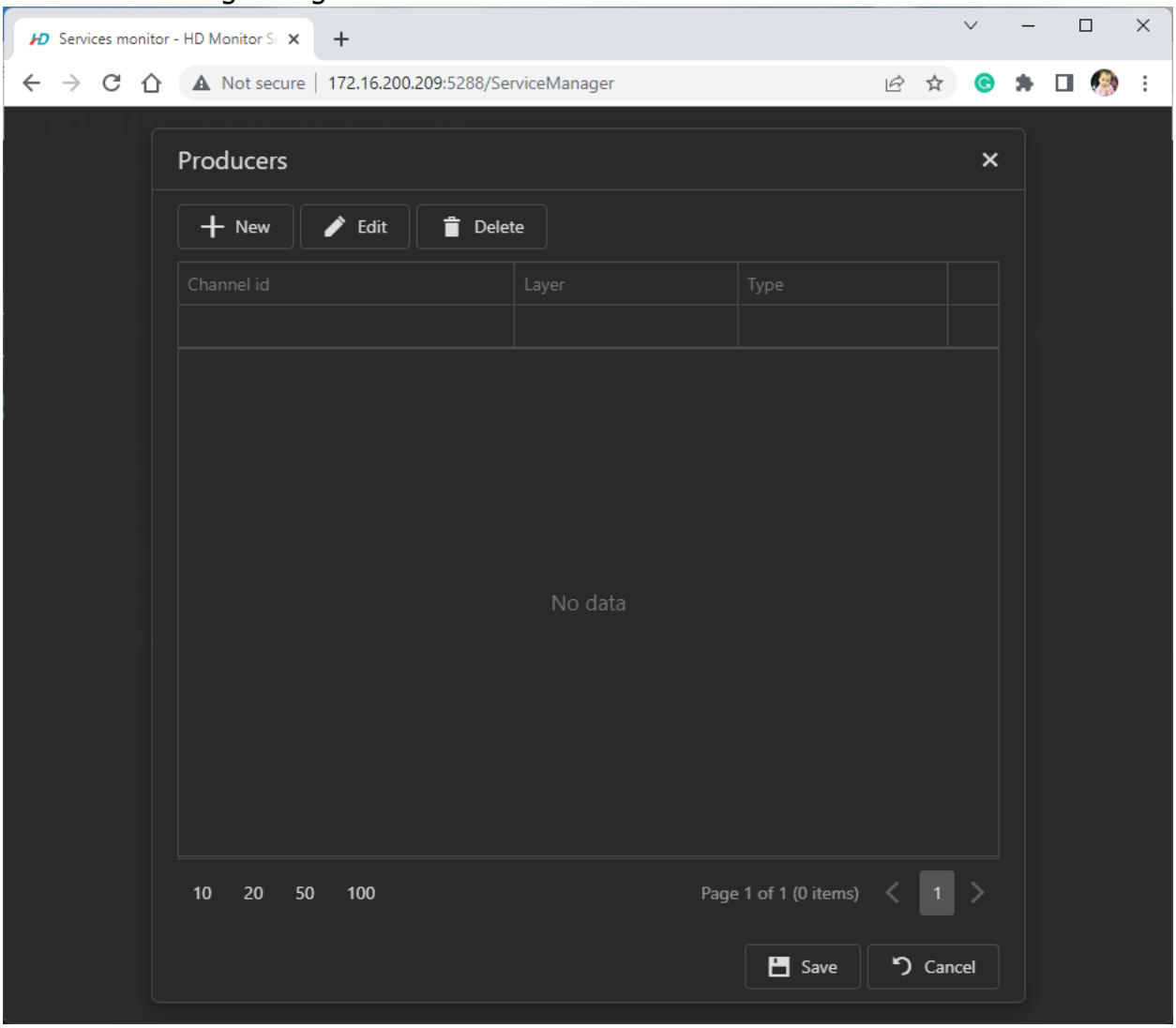


- Pixel format: Output video format of the mixer, it is recommended to choose Uyvy to reduce the bandwidth required – especially when running 4K or 8K

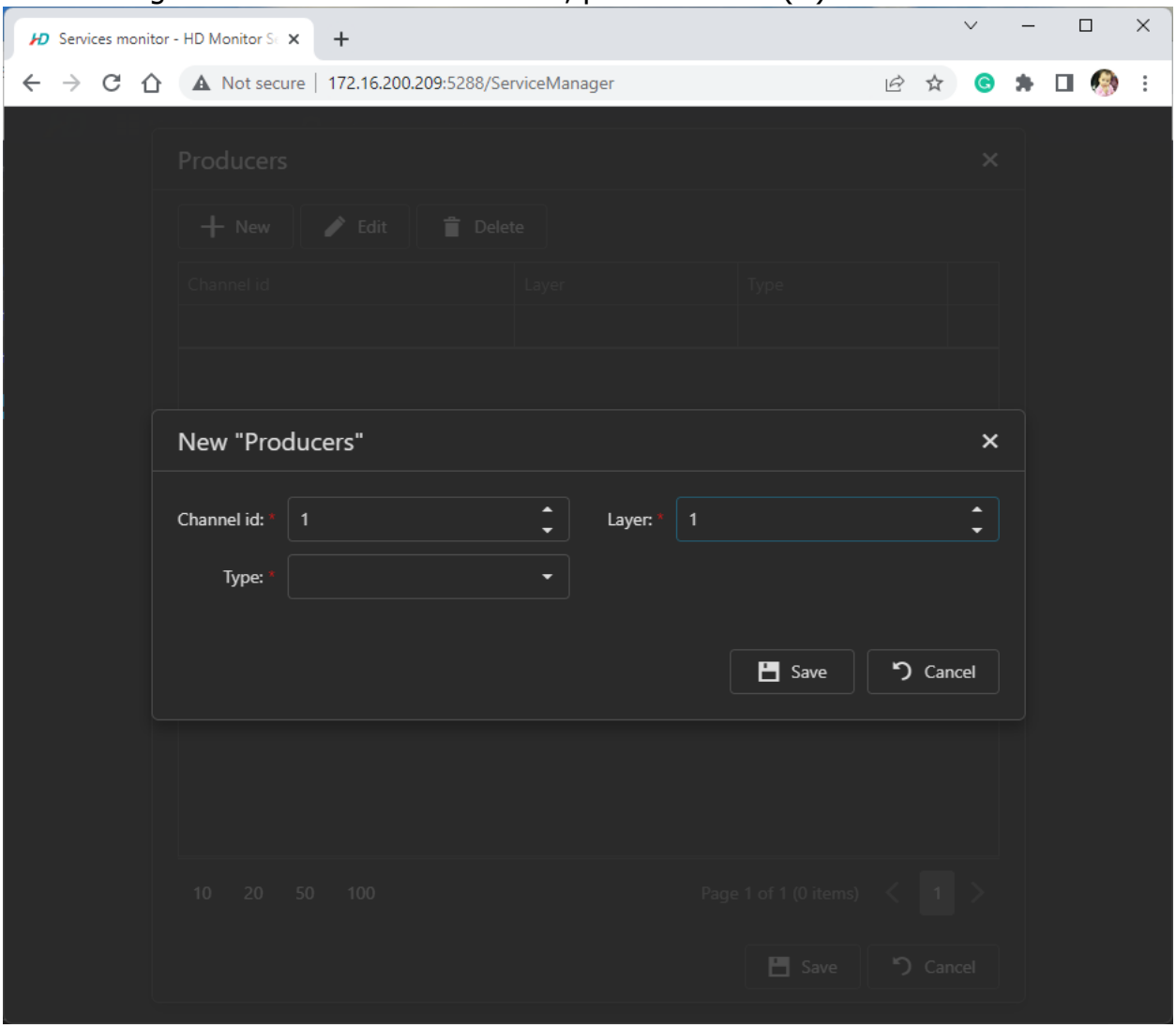


- Audio channels: Number of audio channels
- Duplicate audio: Allows multiplying audio channels when the number of audio channels of the source file is less than the number of audio channels to be output

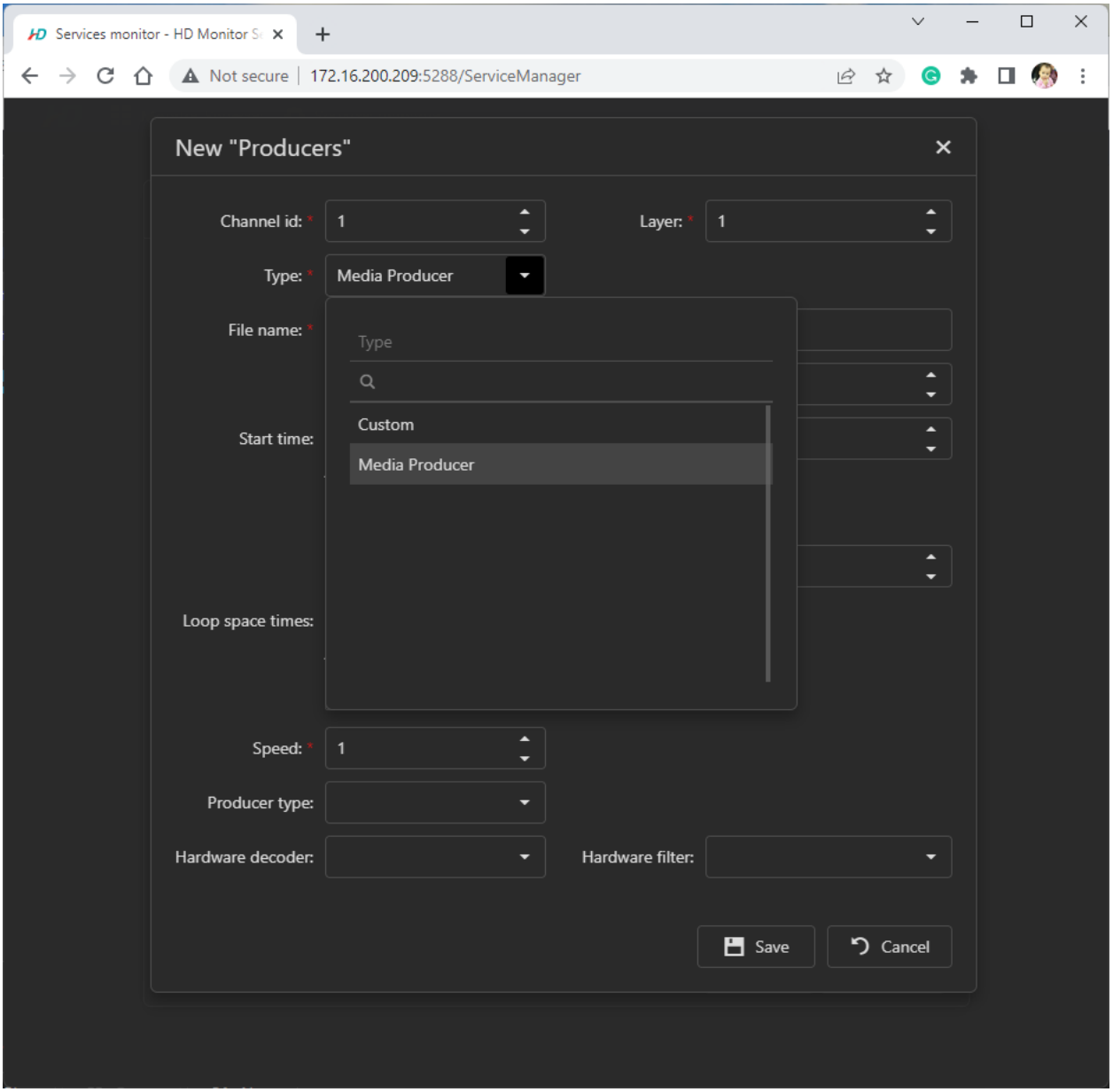
✓ Producers: Configure signal sources for video channels



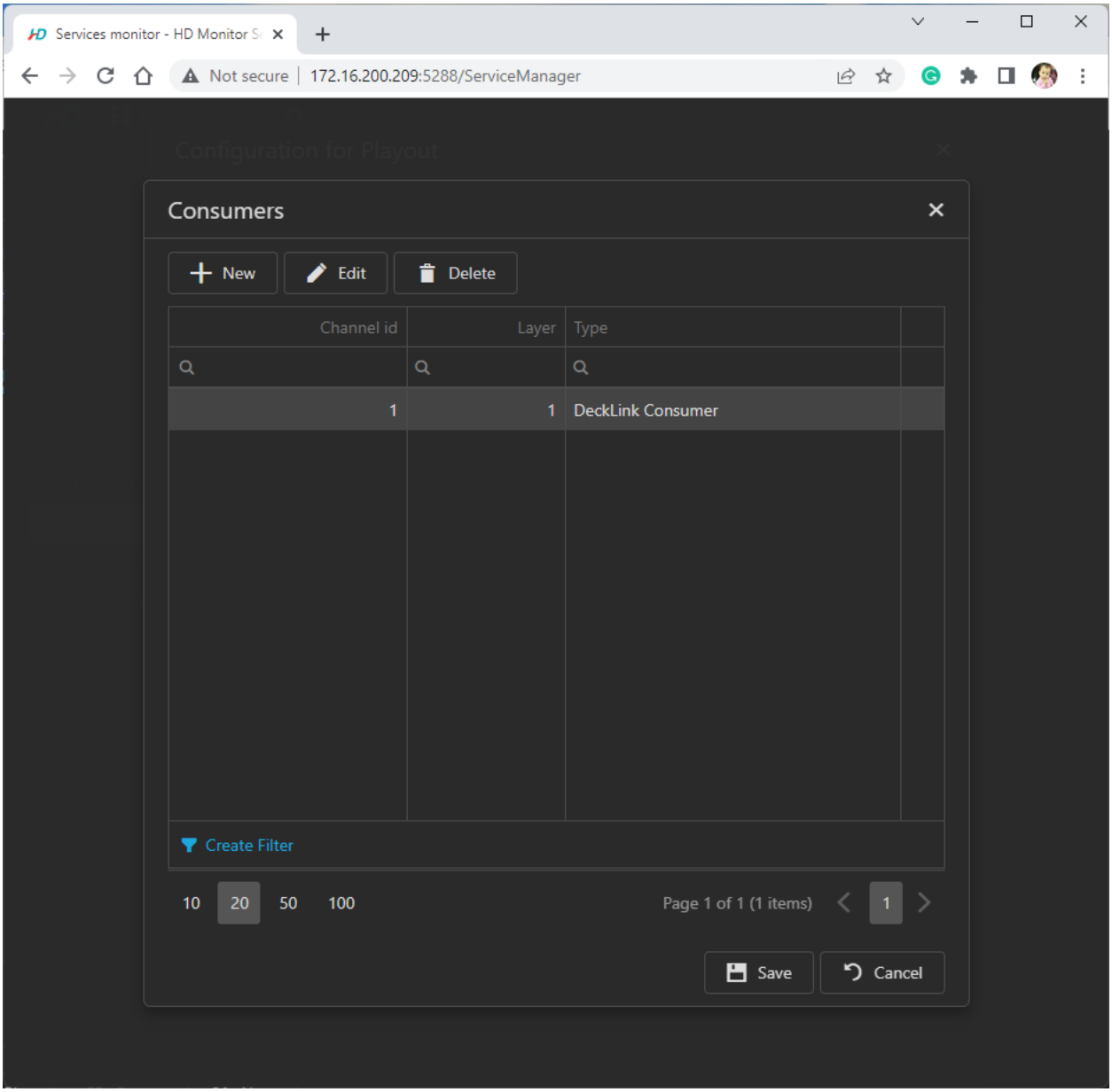
To add a signal source for a video channel, press the New (+):



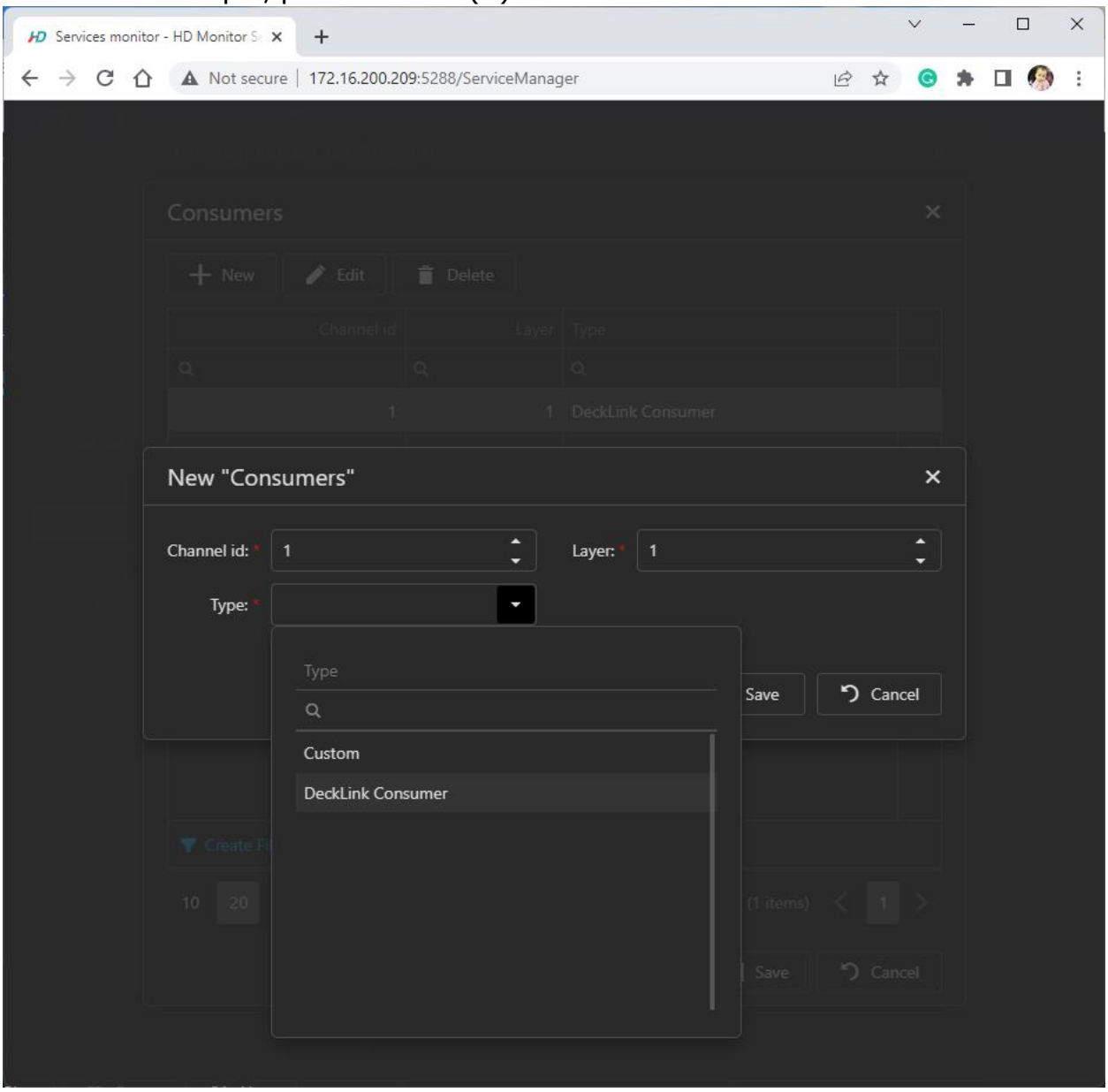
- Channel id: Id of the video channel set up above
- Layer: 1 video channel can consist of many different signal layers, choose the desired signal layer this source is placed on.
- Type: Type of signal source. Depending on the license there will be plugins for different types of signal sources. Select the type of signal to be transmitted and then set it up according to the type of signal



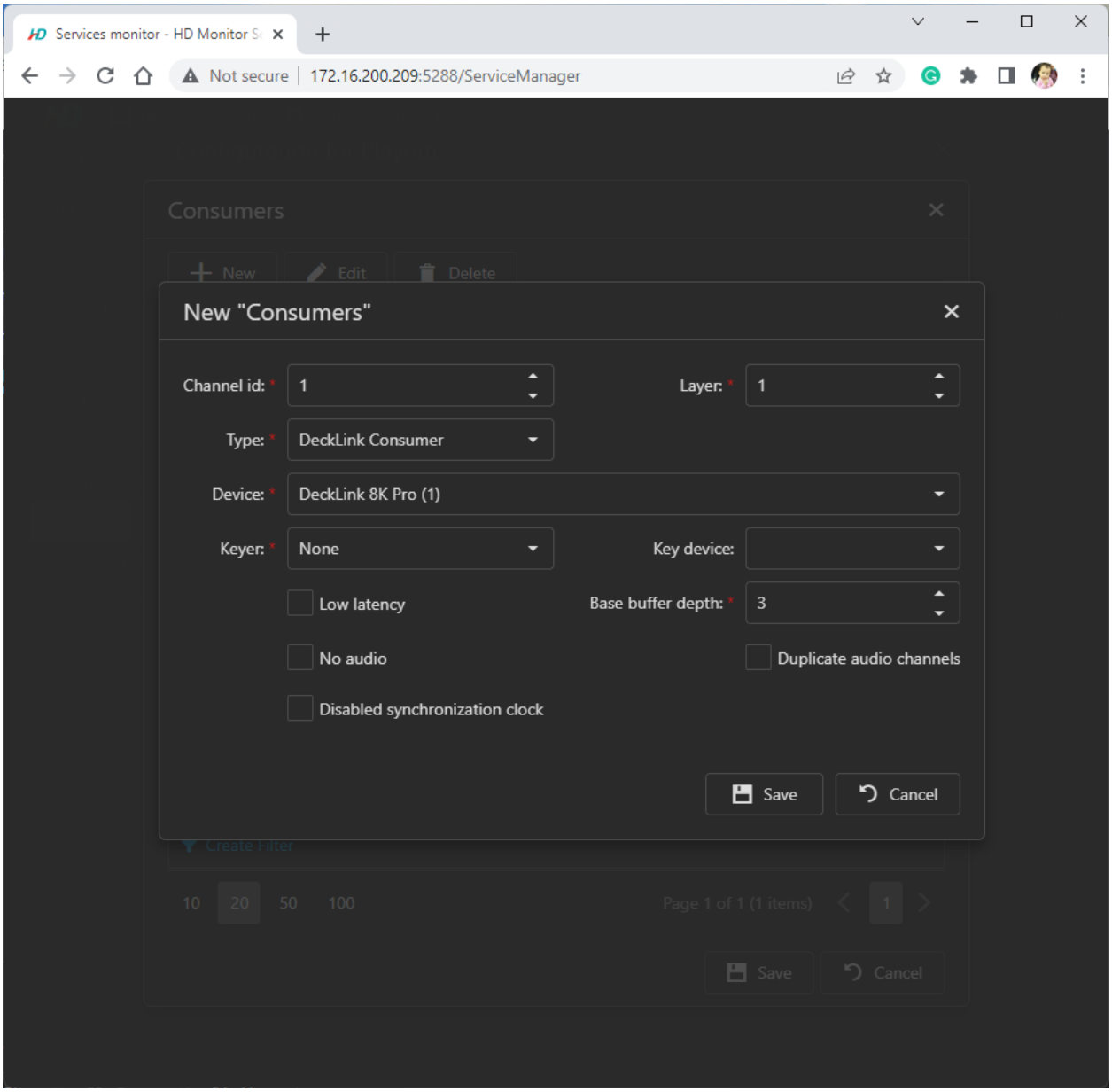
✓ Consumers: Configuring the outputs of video channels
There are several output options defined by layer


Services monitor - HD Monitor
Not secure | 172.16.200.209:5288/ServiceManager
Consumers
New
Edit
Delete
Channel id
Layer
Type
1
1
DeckLink Consumer
Create Filter
10
20
50
100
Page 1 of 1 (1 items)
1
Save
Cancel

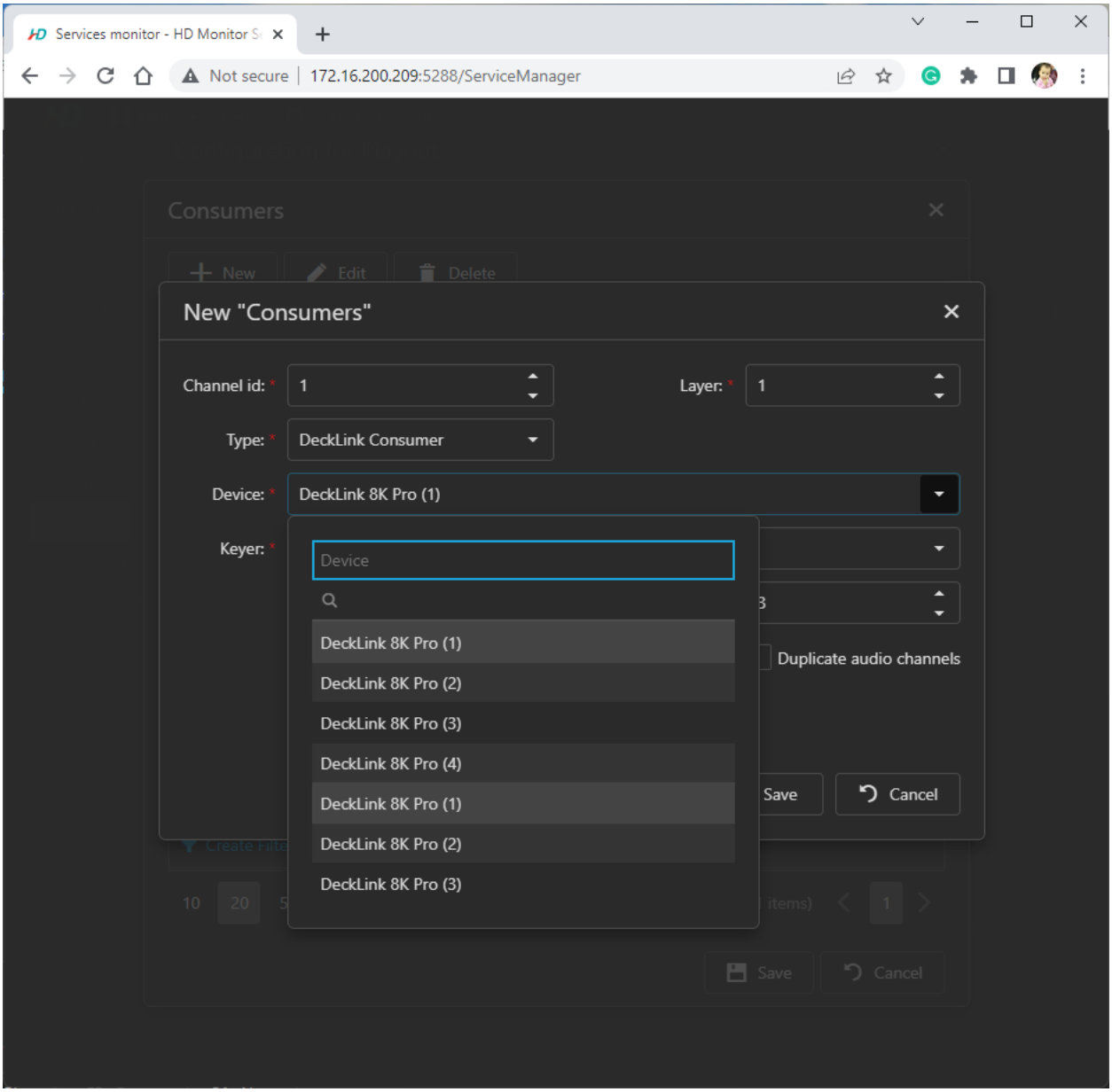
To add a new output, press the New (+) .



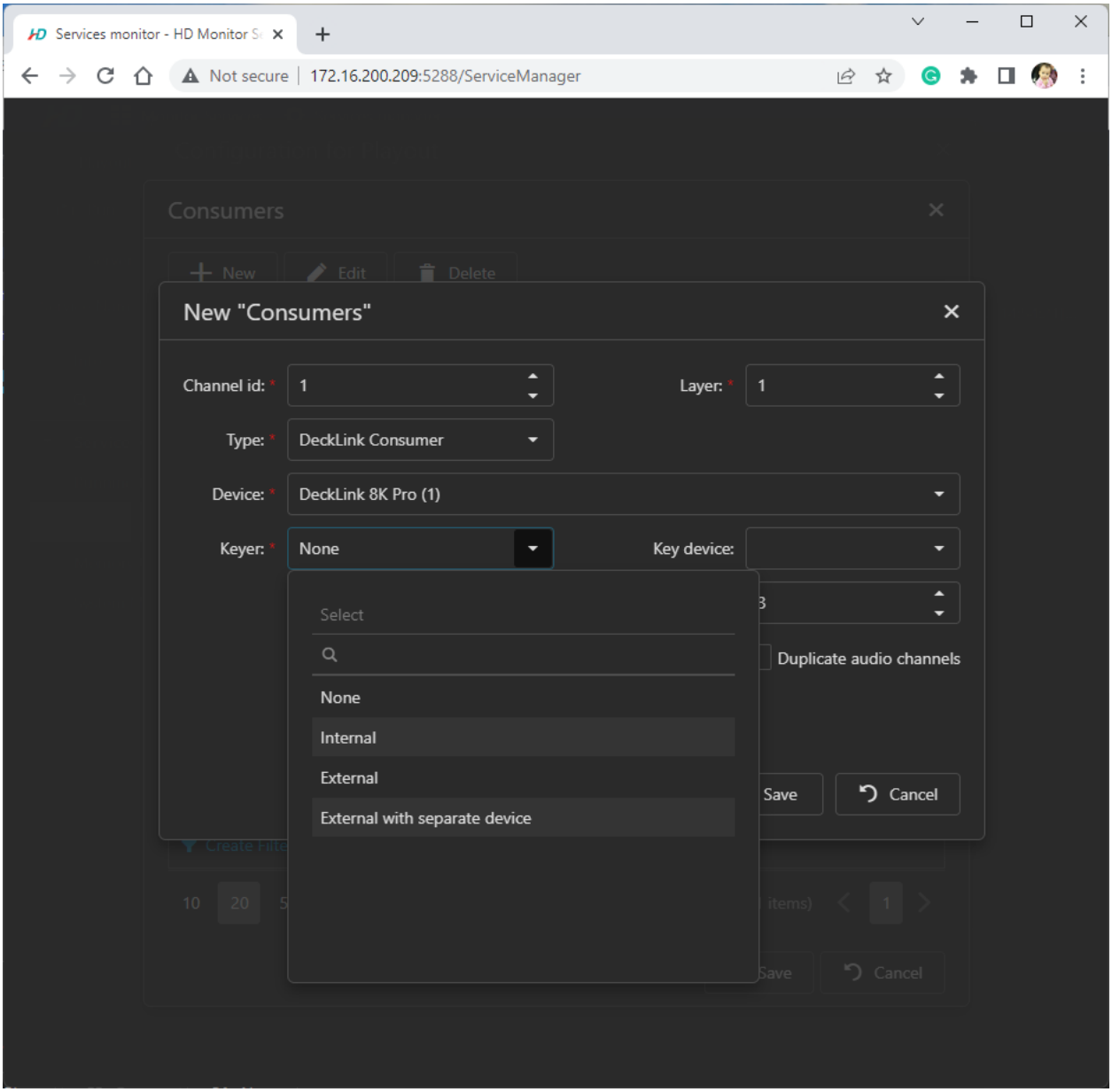
- Channel id: Id of the video channel set up above
- Layer: 1 video channel can include many different outputs, choose what you want this output to be placed in
- Type: Output type, depending on the license there will be output types to choose from
- DeckLink output configuration



- Device: select the DeckLink card on the playout



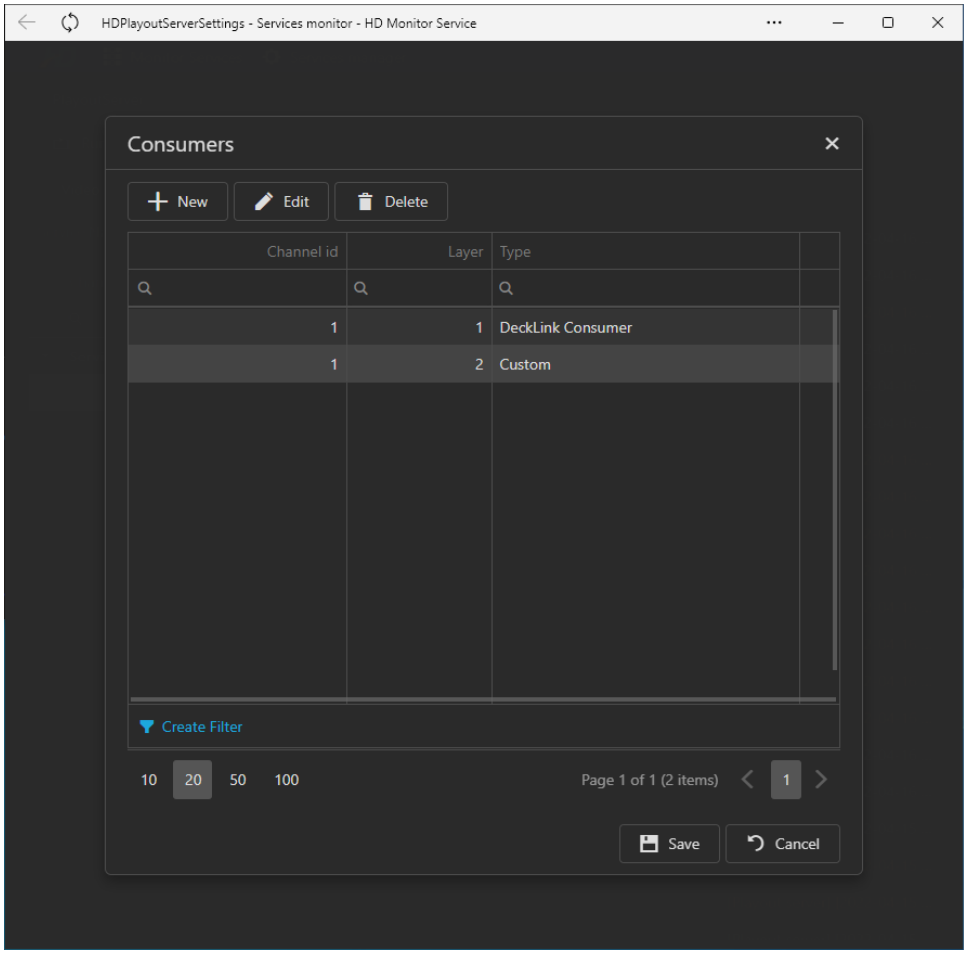
- Keyer: Image key mode on DeckLink card



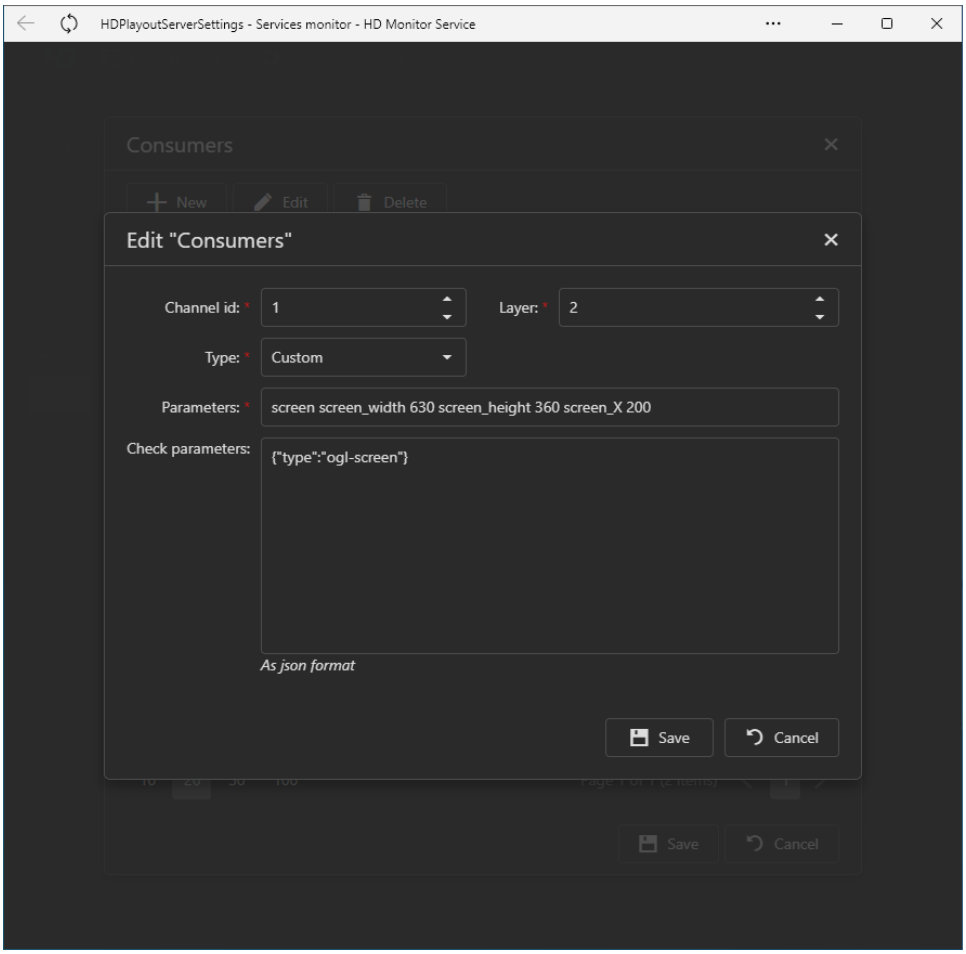
- None: no key
- Internal: The video signal is mixed into the input signal of the DeckLink card
- External: Output decklink card with Key and Fill
- External with separate device: Output decklink card with Key and Fill signal on 2 separate cards (Used when the current DeckLink card does not support External Key)
    - Key device: Card decklink to output the Key signal in mode
    - External with separate device
    - Low latency: Low latency mode
    - Base buffer depth: Home frame buffer on card
    - No audio: Output only image, no sound

- Duplicate audio channels: Enables automatic acquisition of audio channels when the audio output of the video channel has fewer audio channels than the output of the decklink card
- Disable synchronization clock: By default, when there is a decklink output, the server will use this device to synchronize the clock with other devices in the system. If there is another pulse output on the server, this feature can be turned off

To add second output as Desktop preview (Attention: This option may cause some frame drop if server is playing back 8K video, because the OGL-preview windows take a lot of resource.)

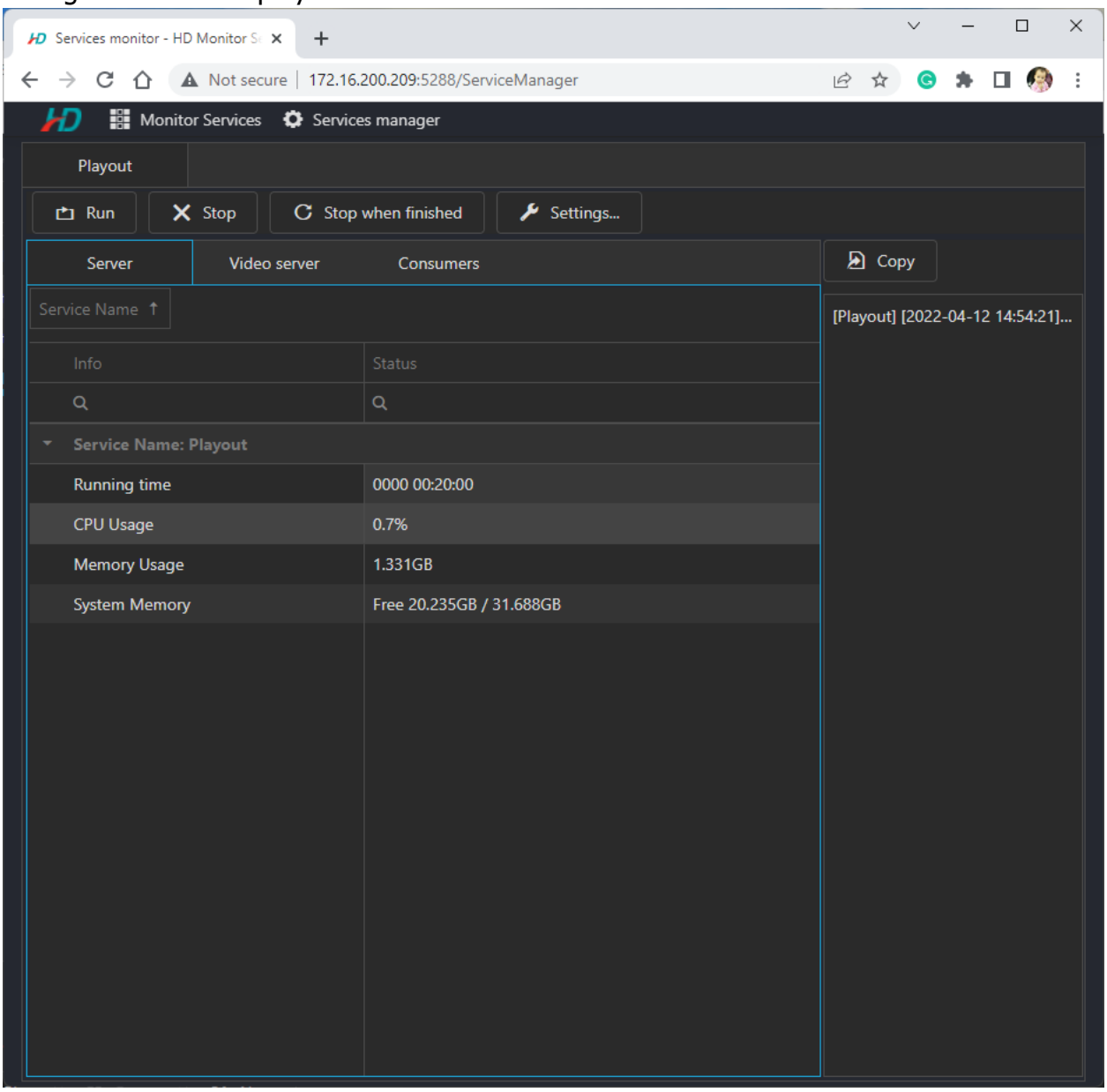


- Choose "Custom" and press Edit
- Enter Layer = 2



- Parameter: enter: Screen_width_height…
- Check parameters: Screen Name: optional
- Press Save to close the 2nd layer

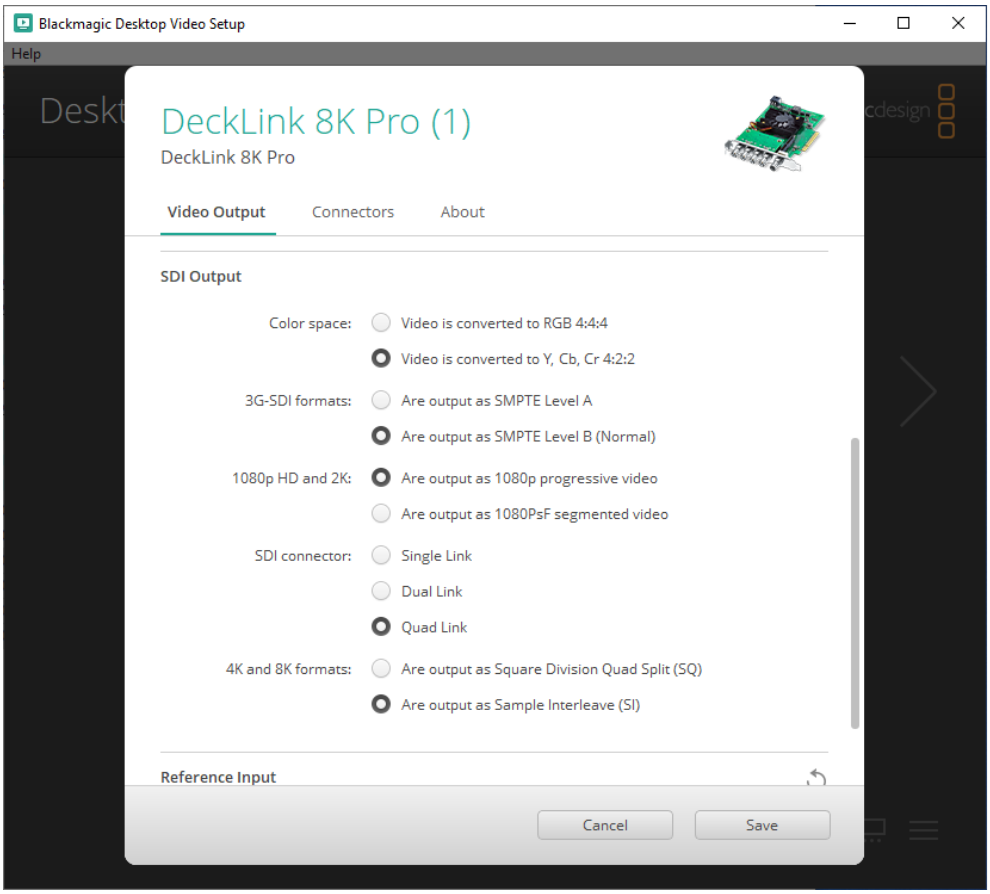
- After the configuration is complete, click "Save" to apply the configuration to the playout server



Decklink output configuration

The SDI-Output from the Decklink or AJA-Card can be set in Single, Dual or Quad-Link depending on the resolution and monitoring mode

4K and 8K Video can be output either in SQD mode (Square Division Quad Splitt) or in 2SI (2 Samples Interleave)

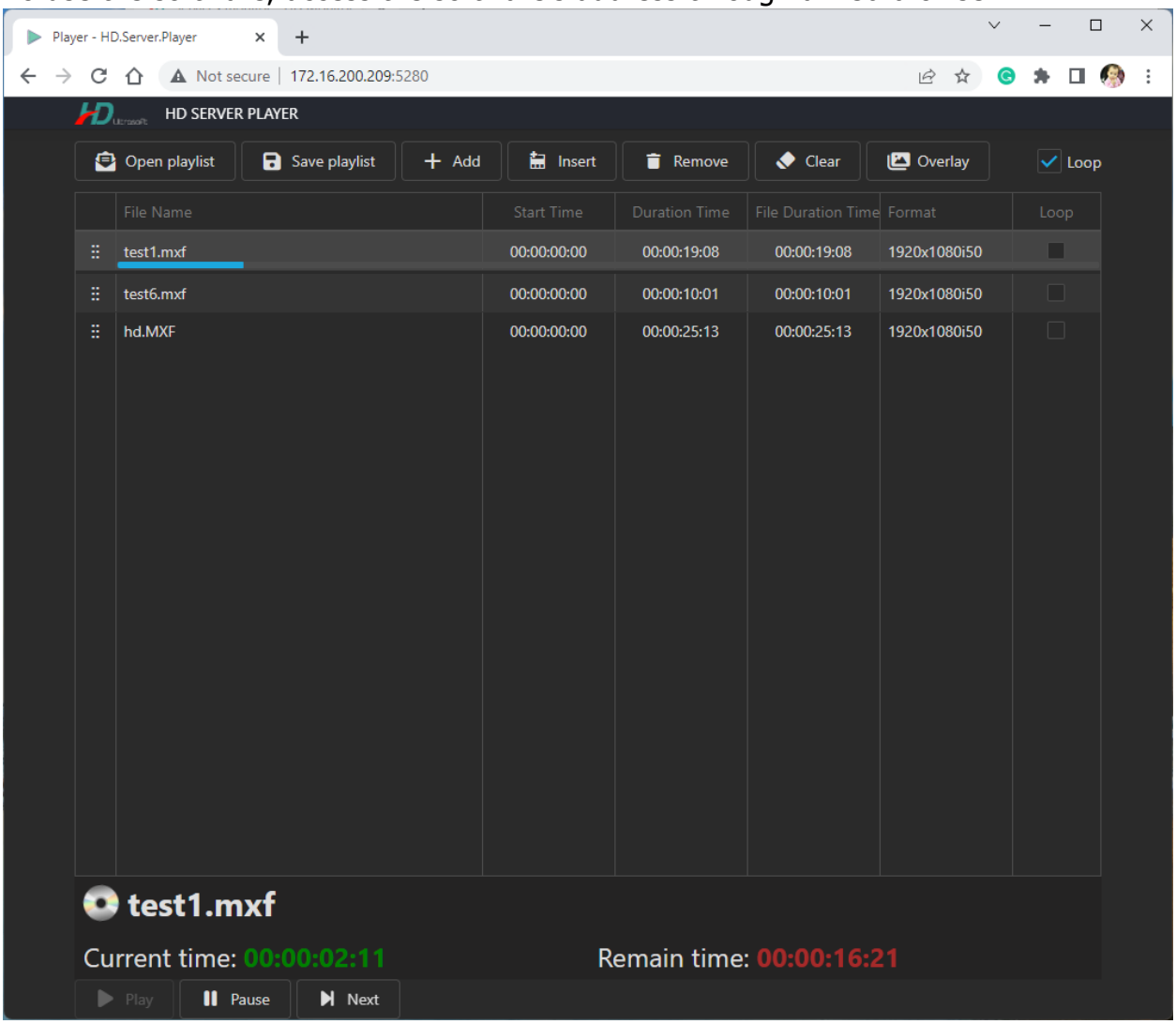


IV.PLAYOUT PLAYER SETTING

Playout Player is software that provides a web interface to schedule, control file playback and insert images/videos on the playout server.

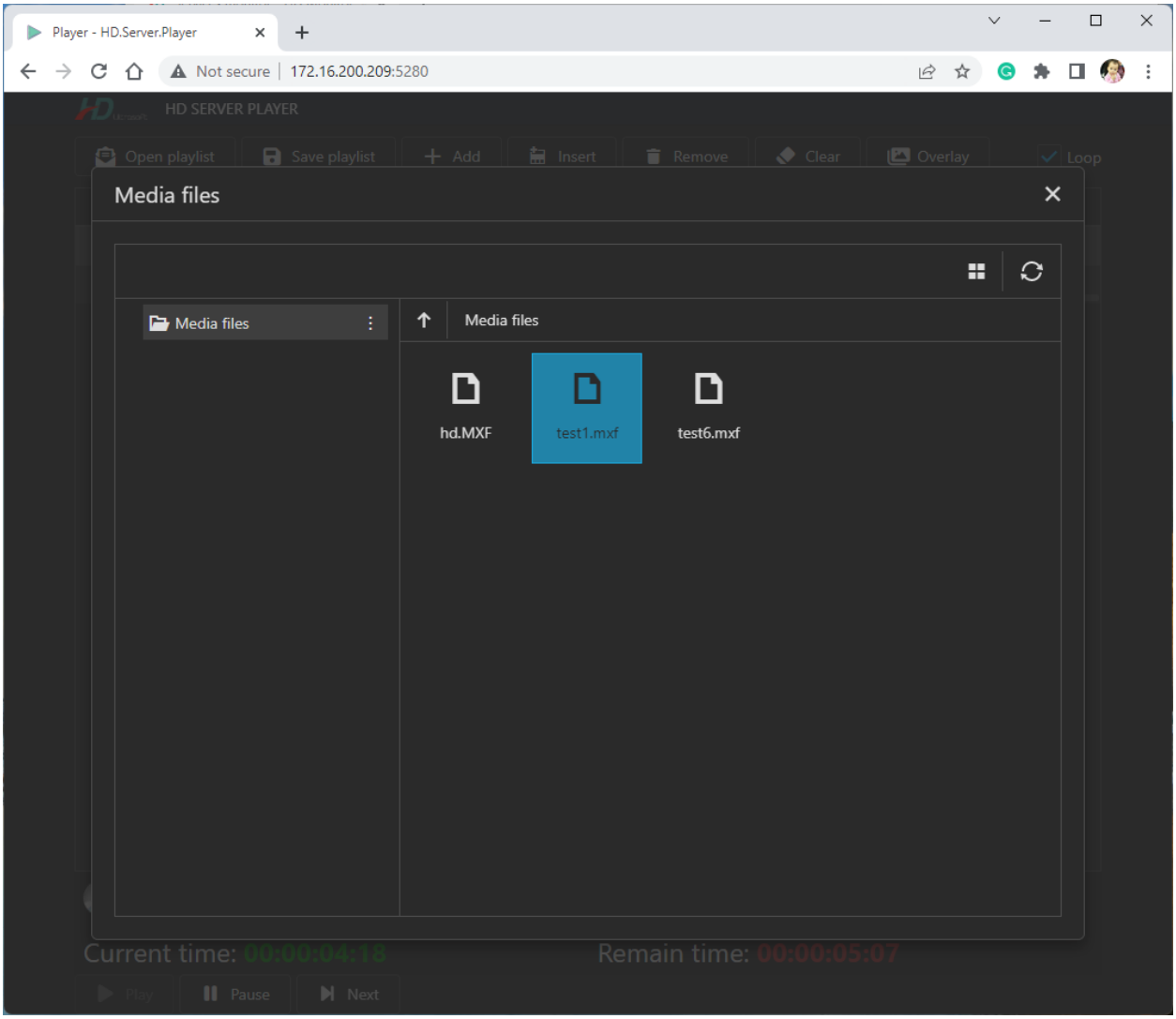
The software can be run as a standalone console or hosted on IIS

To use the software, access the software's address through a web browser

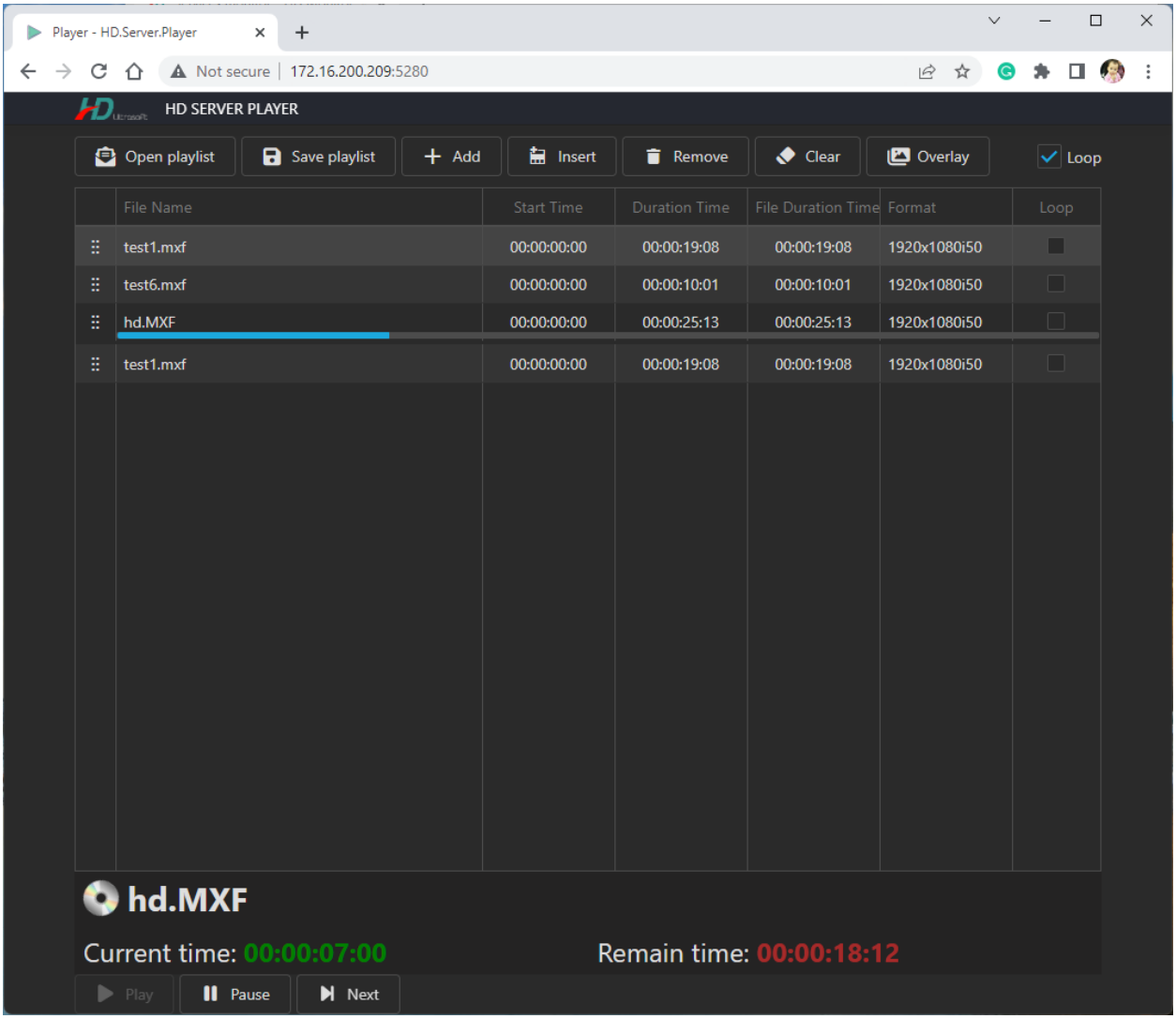


1. Add video files to the playlist

To add a video file to the playlist, click the Add button (+), the Media files window appears allowing you to select the file to add to the playlist.

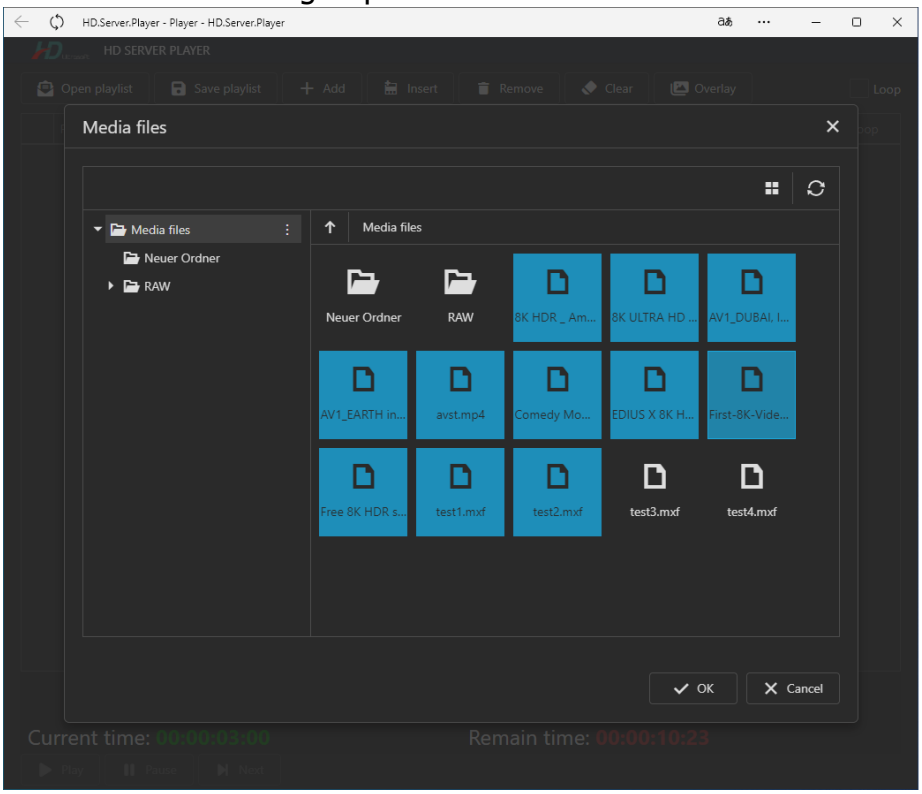


Double click on the file to add, the file will be added to the last position of the playlist.

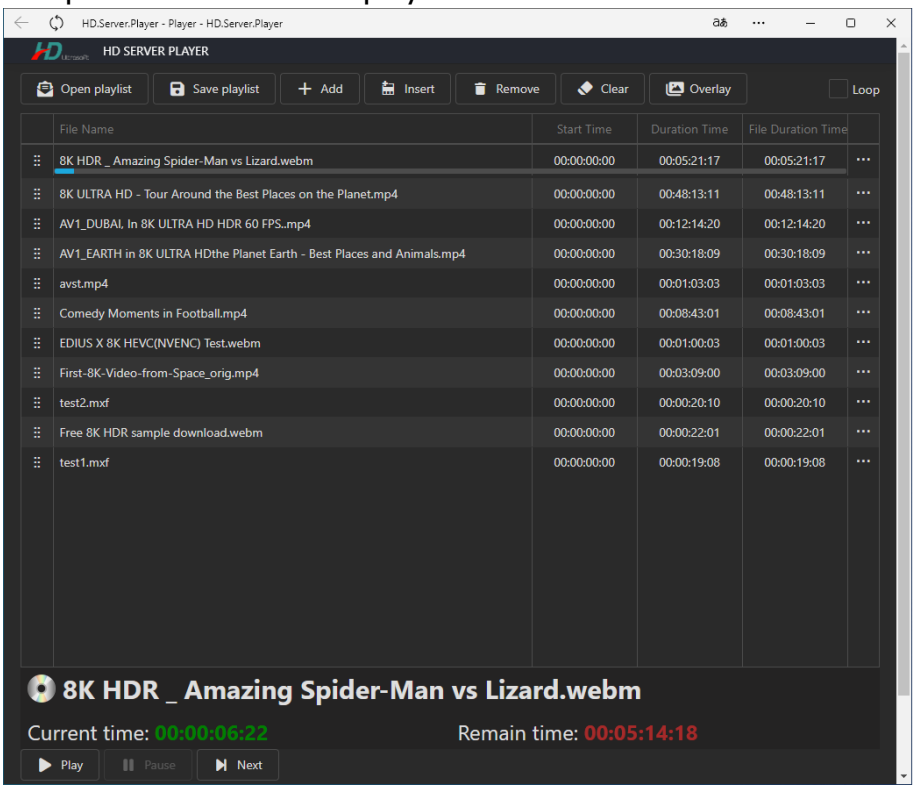


Do the same to add other files to the playlist

Or choose and mark group of files

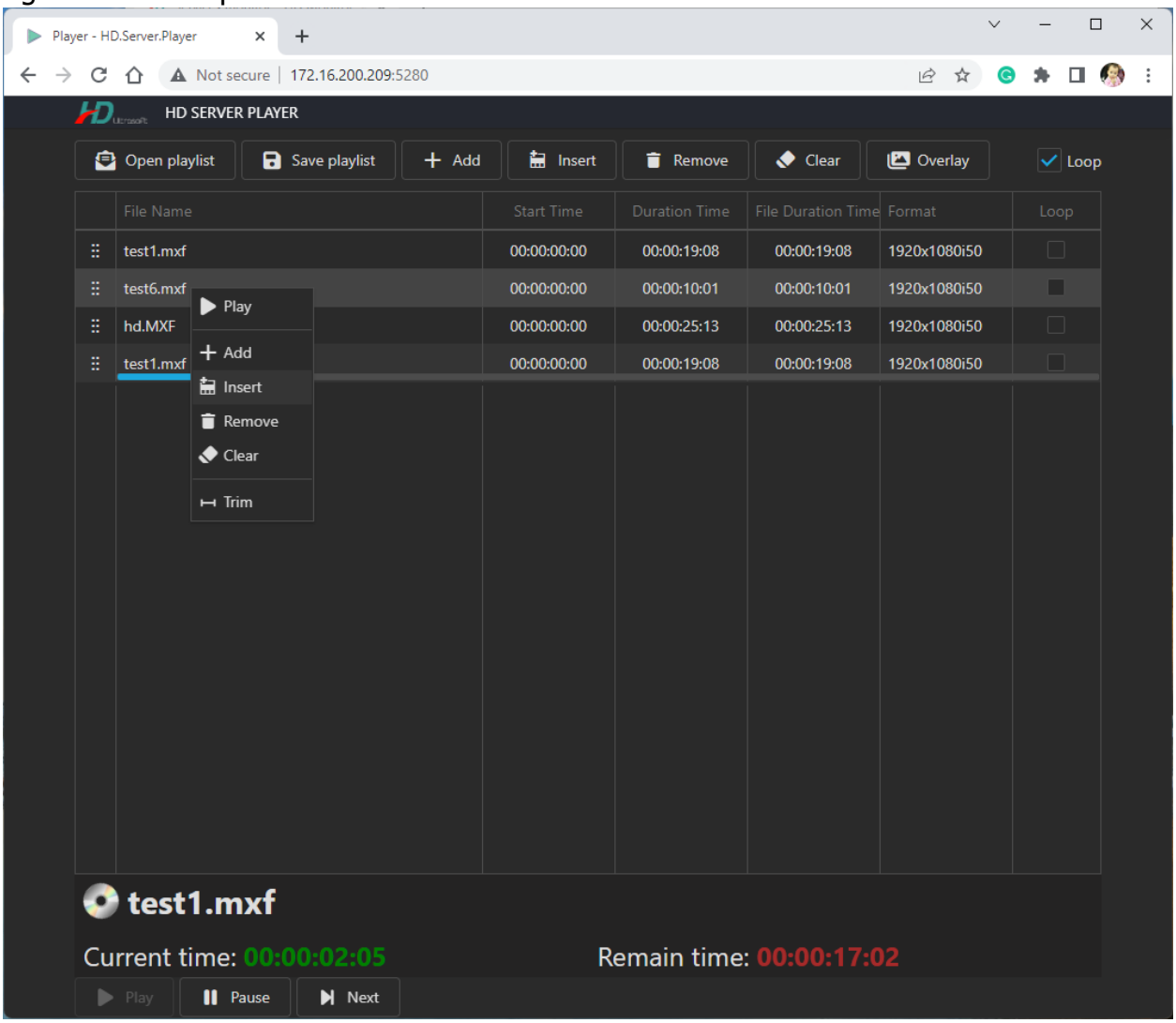


and press OK to create a playlist

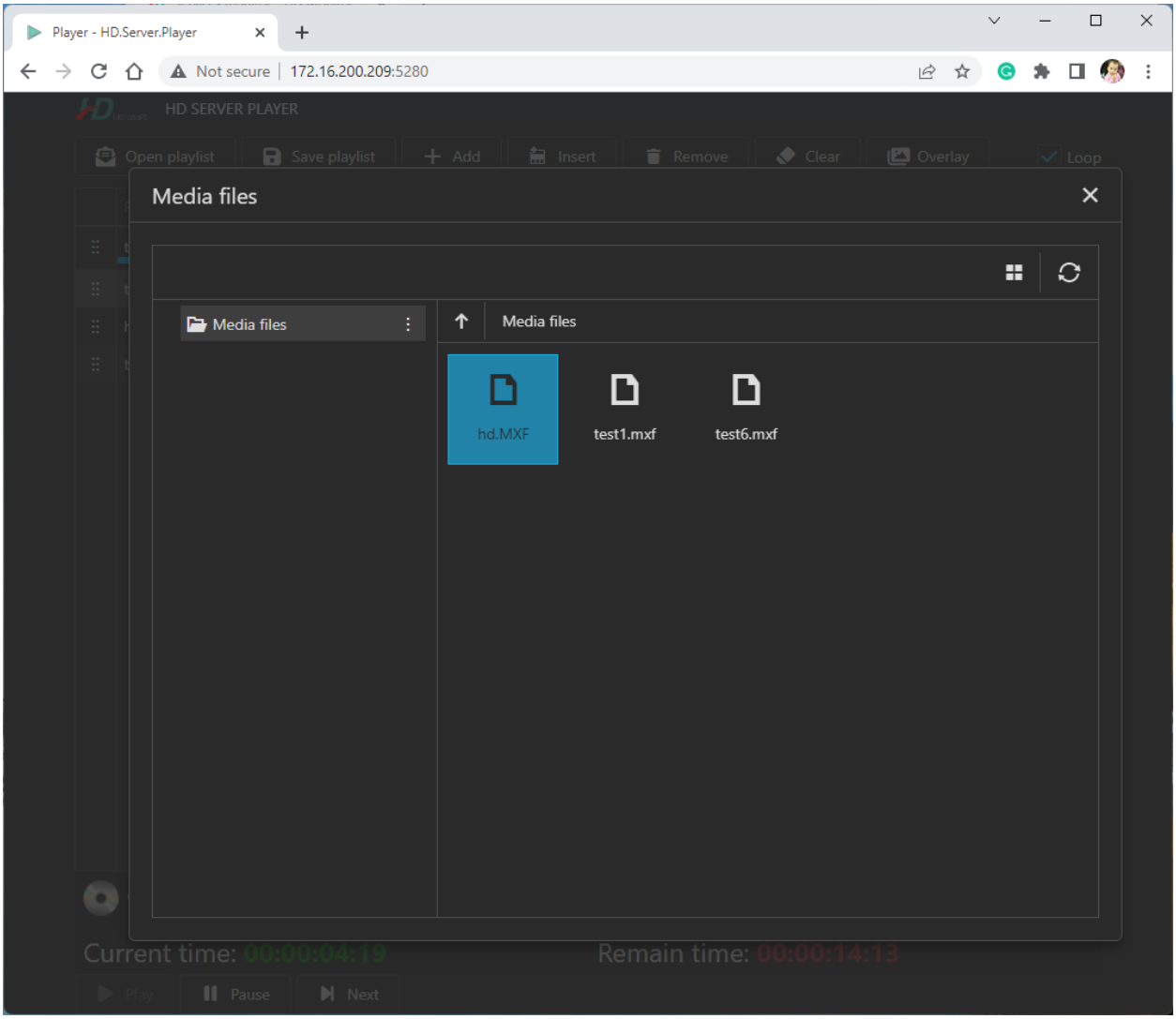


1. Insert video files into the playlist

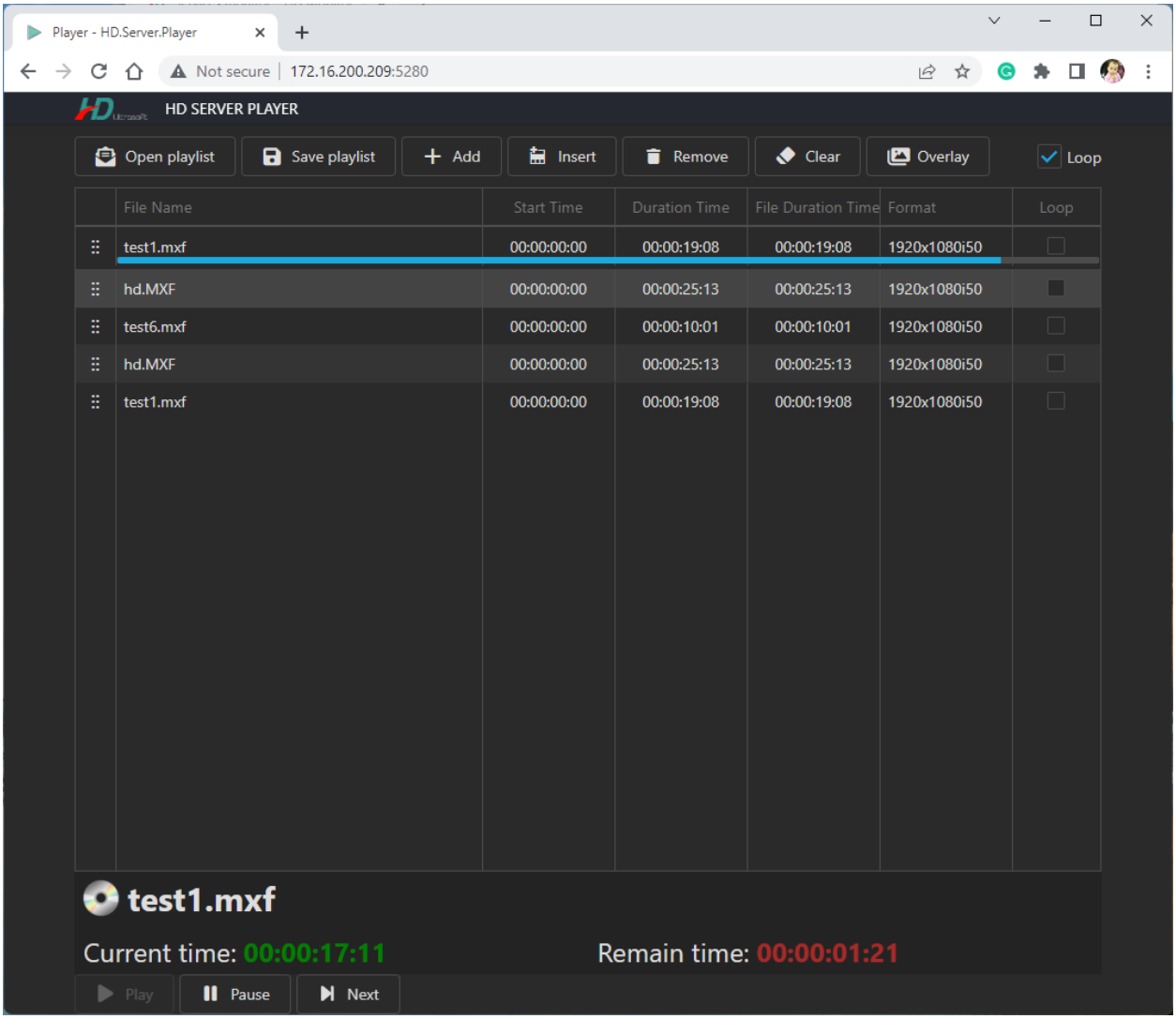
Select the position to insert and then click the "Insert" button on the toolbar, or right-click the clip to insert and select "Insert"



Similar to when adding a new file, the Media files window will appear and allow you to select the file you want to insert. Double-click the file to insert it to insert it into the playlist at the selected location.

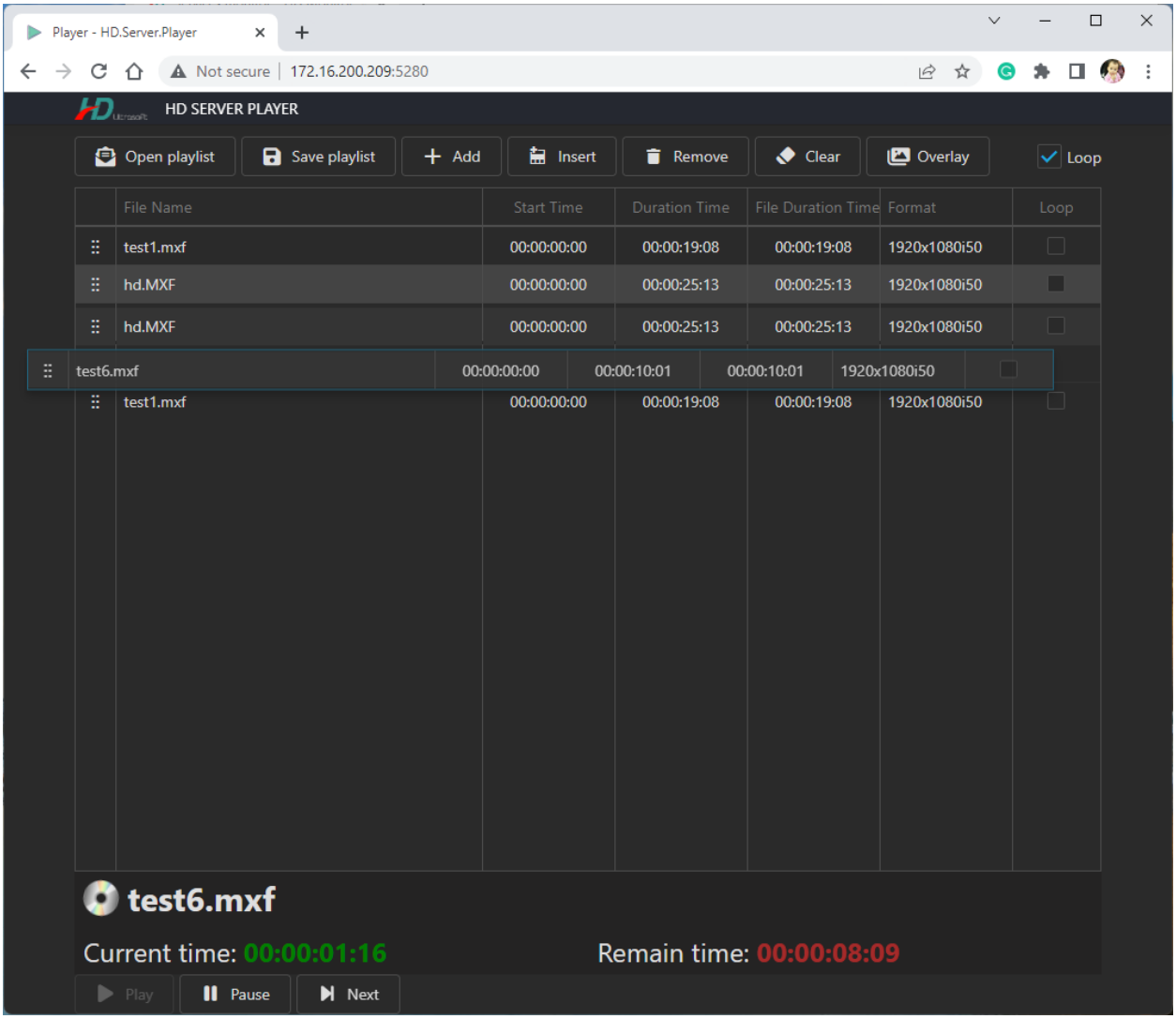


As a result, the selected file will be inserted at the selected location on the playlist.



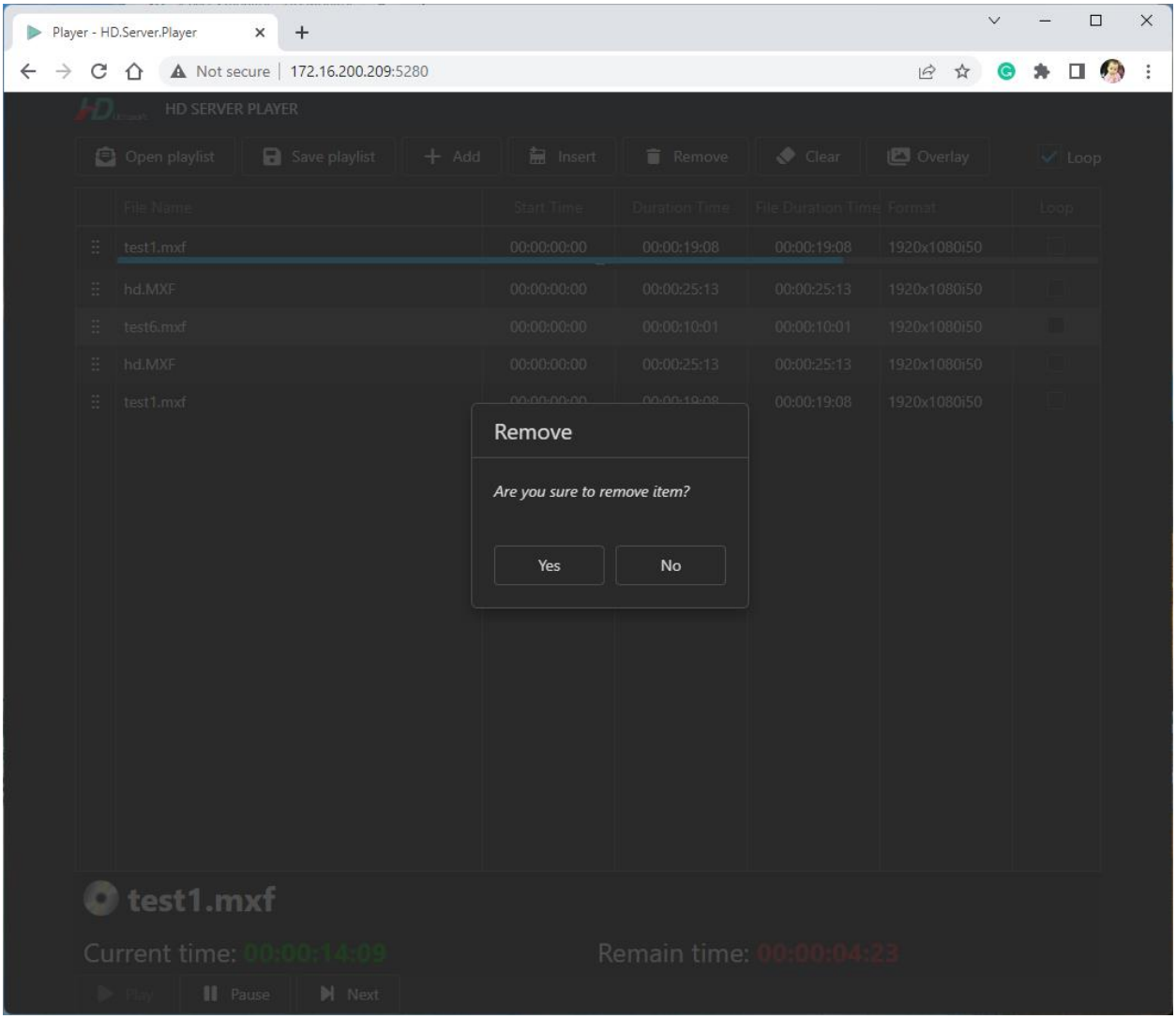
2. Organize playlist

To move a file on the playlist, click and hold the mouse in the first box of the clip, drag it to the desired position, and then release the mouse button.

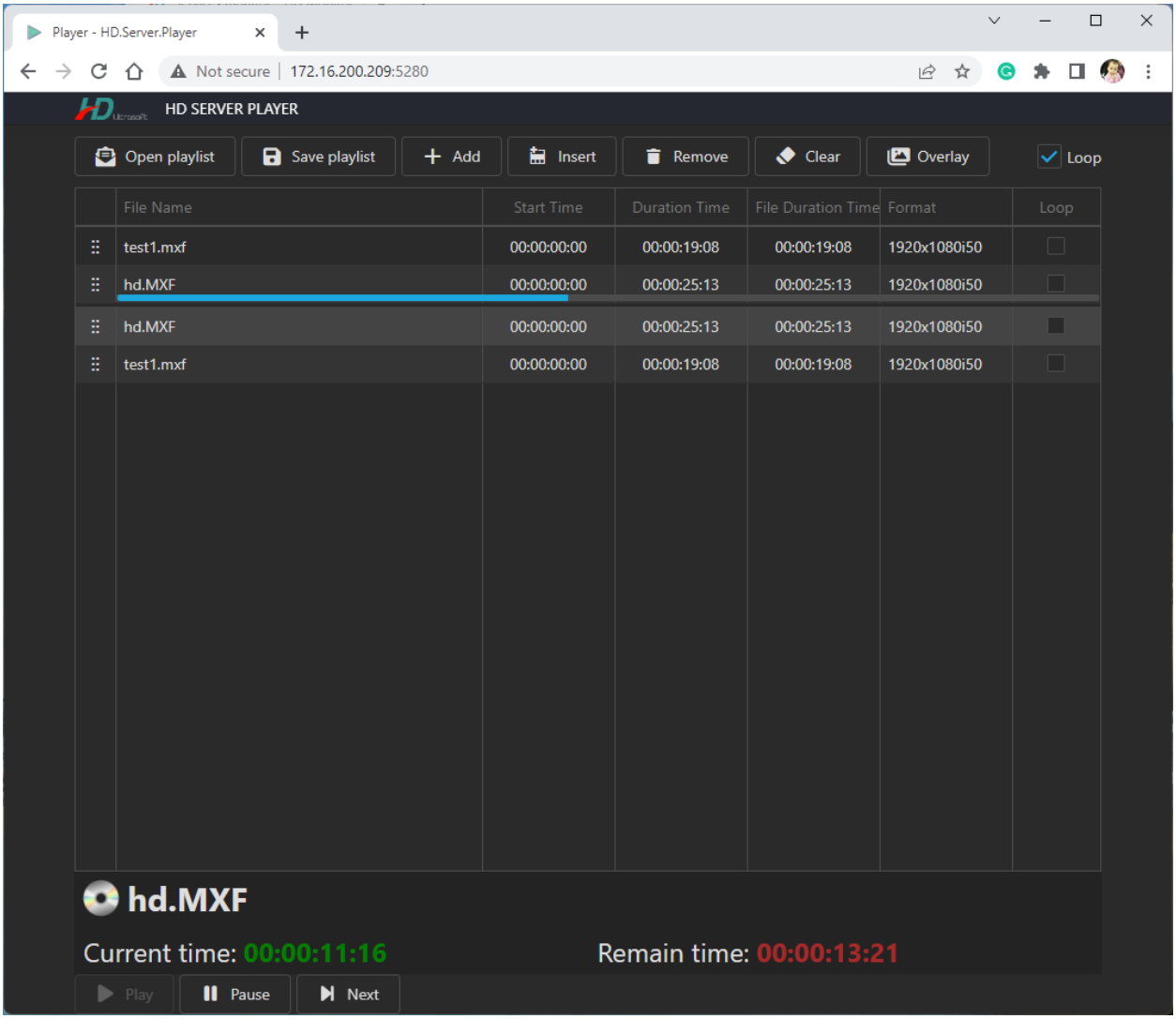


3. Delete video files from playlist

To delete a file from the playlist, select the file on the playlist and then click the "Remove" button on the toolbar, or right-click it and select "Remove".

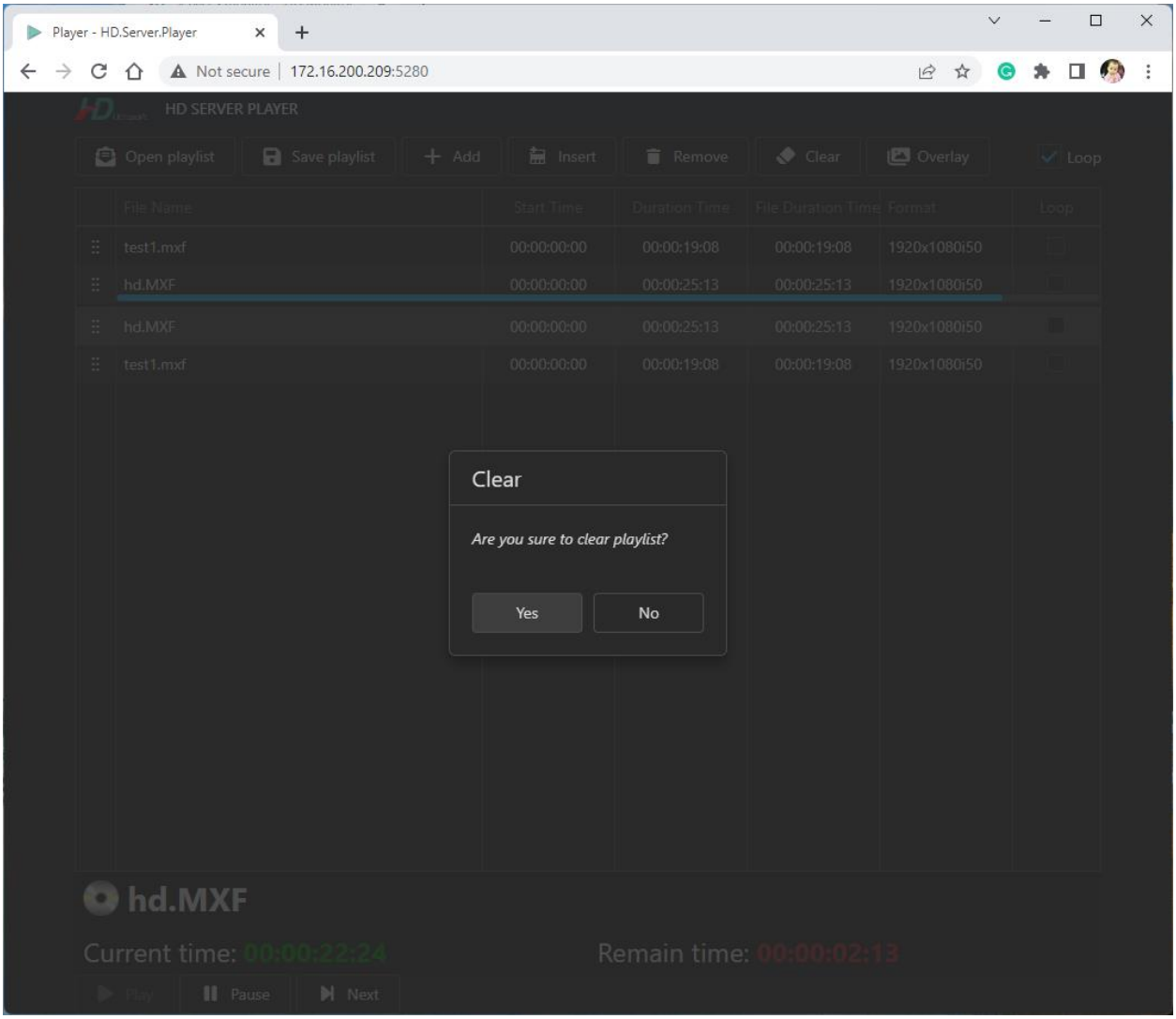


Confirm the removing, the file will be deleted from the playlist

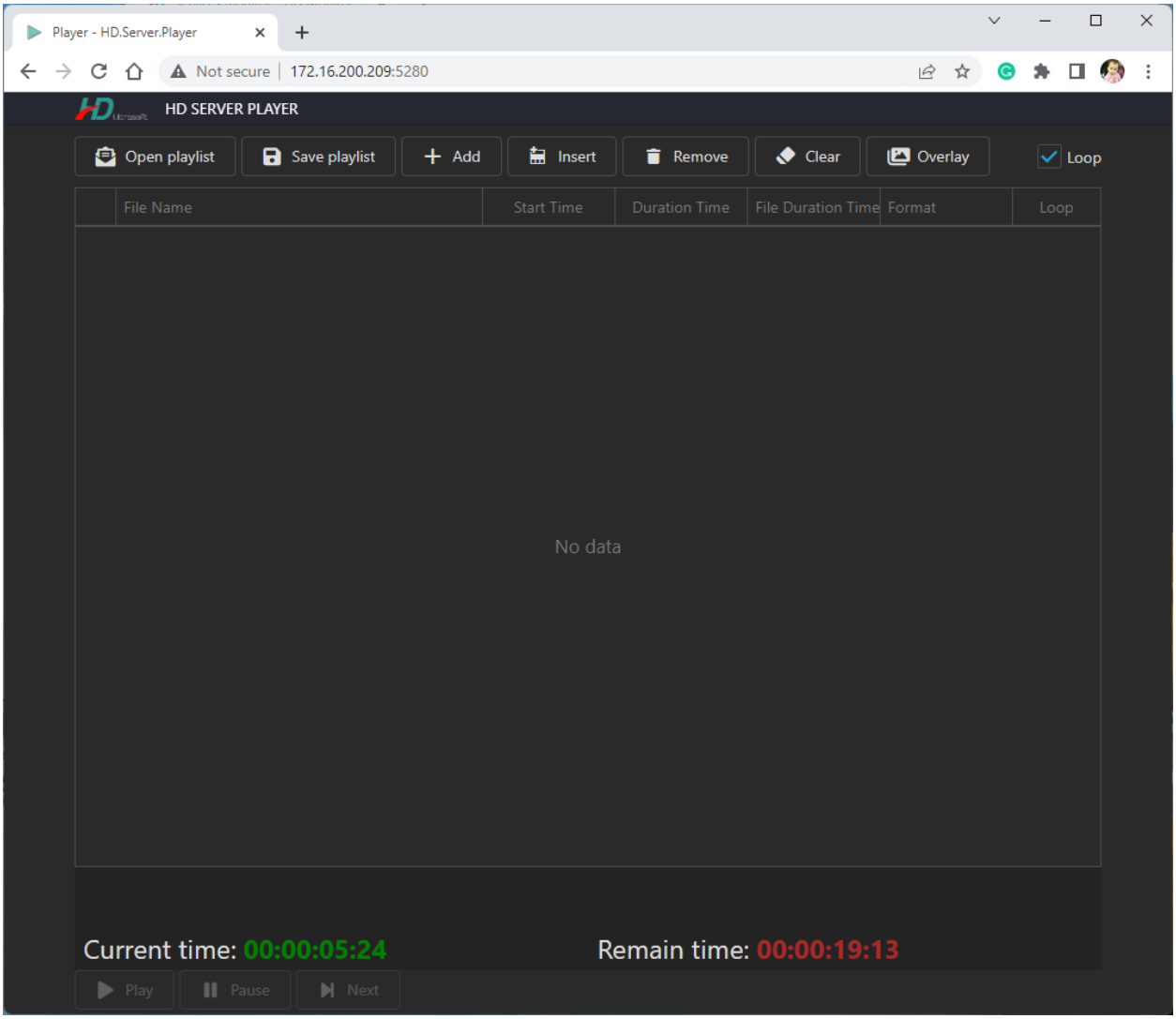


4. Delete the entire playlist

The entire playlist can be quickly deleted by clicking the "Clear" button on the toolbar



Confirm the deletion, the playlist will be emptied



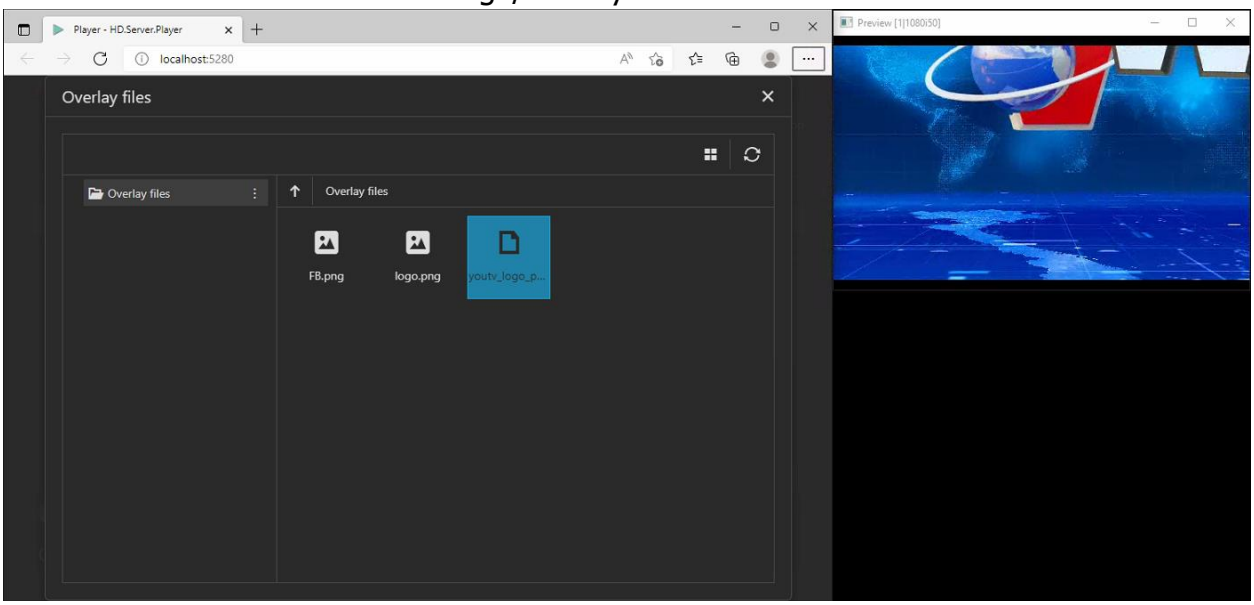
5. Insert images/videos on air

During broadcasting, the output signal can be inserted with images/videos.

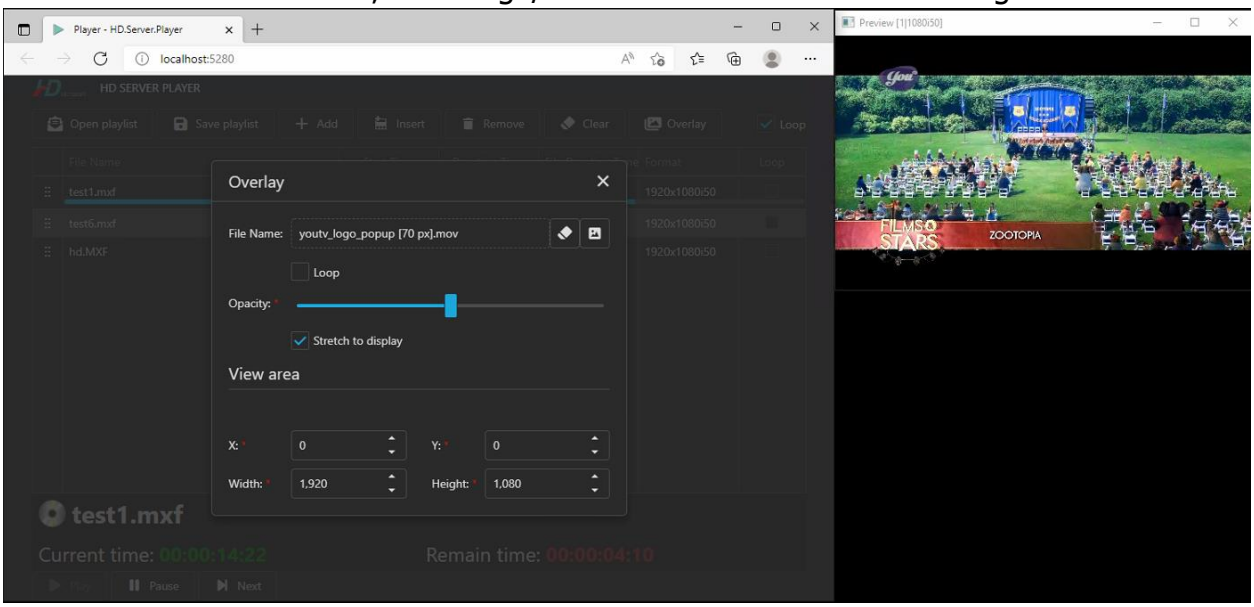
To do this, select the "Overlay" function on the toolbar

An overlay manager will appear allowing you to control the overlay over the signal

- ✓ File name: image/video files need to be inserted into the output signal. Click the "Browse" button to select the image/video you want to insert

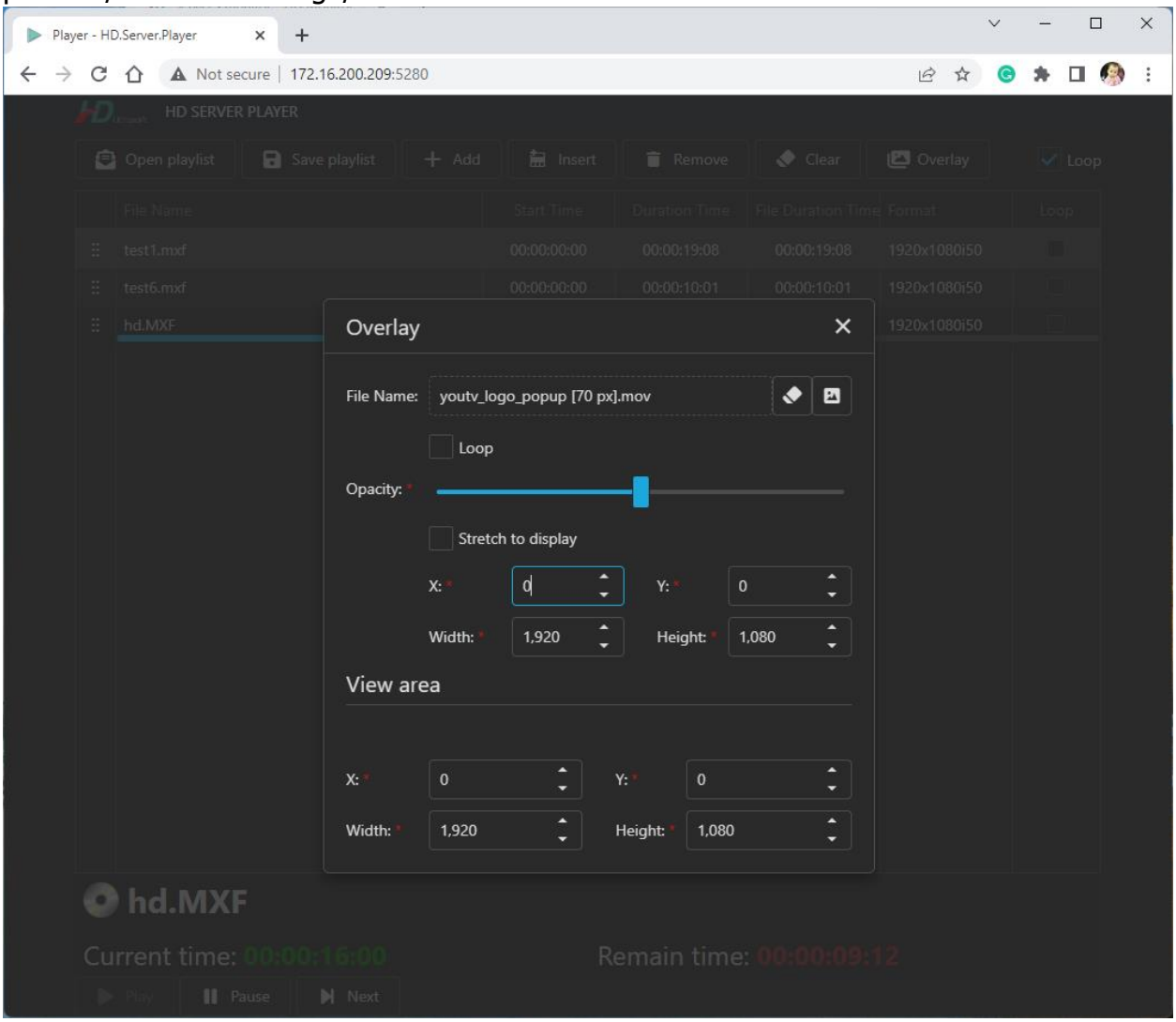


After the selection is done, the image/video will be inserted into the signal



- ✓ Loop: Looping video playback
- ✓ Opacity: Adjust the degree of opening the image/video to be inserted
- ✓ Stretch to display: If the image/video needs to be inserted export in the same format as the output signal. If not, need to remove this mode to adjust the

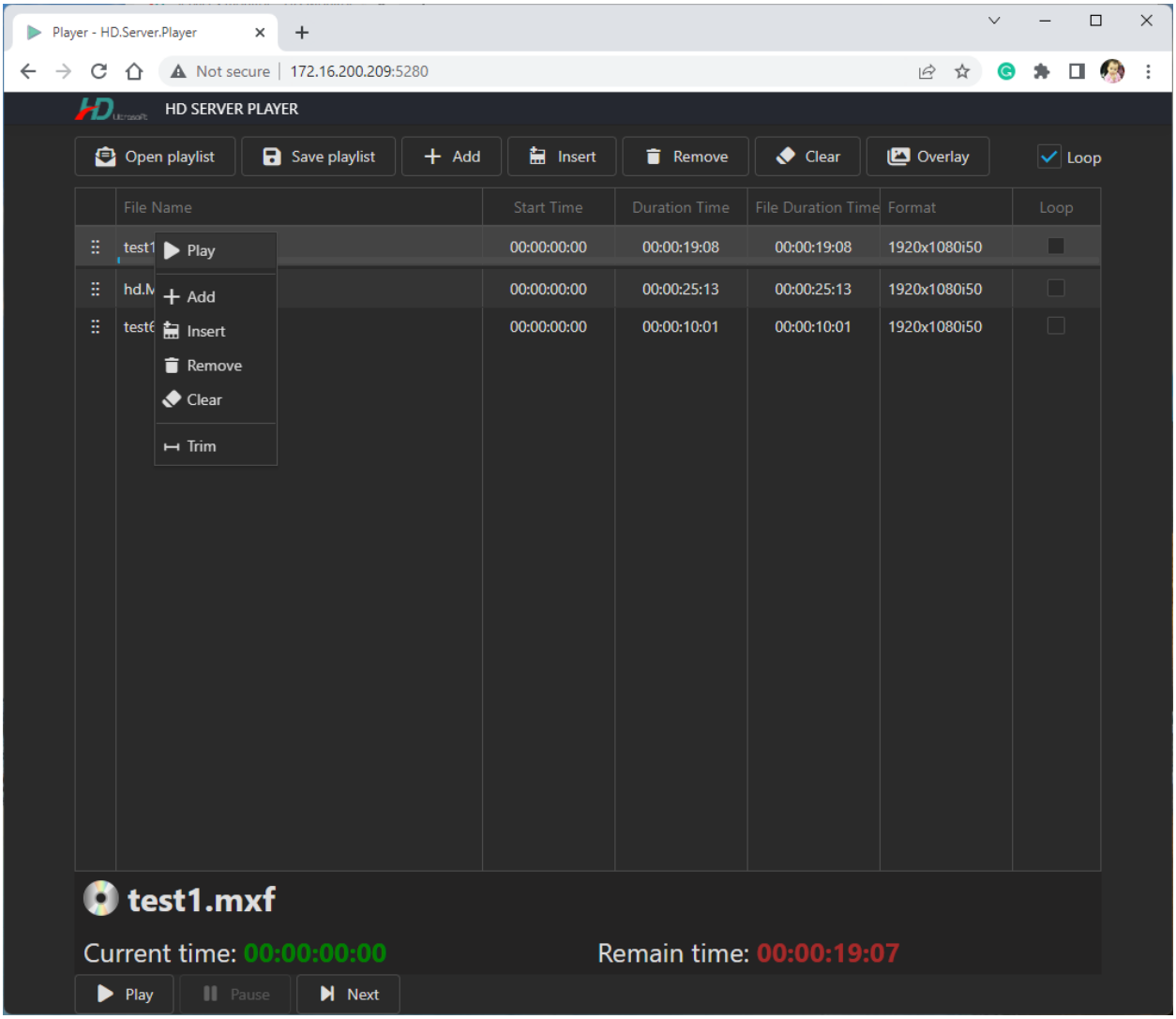
position/size of the image/video to be inserted

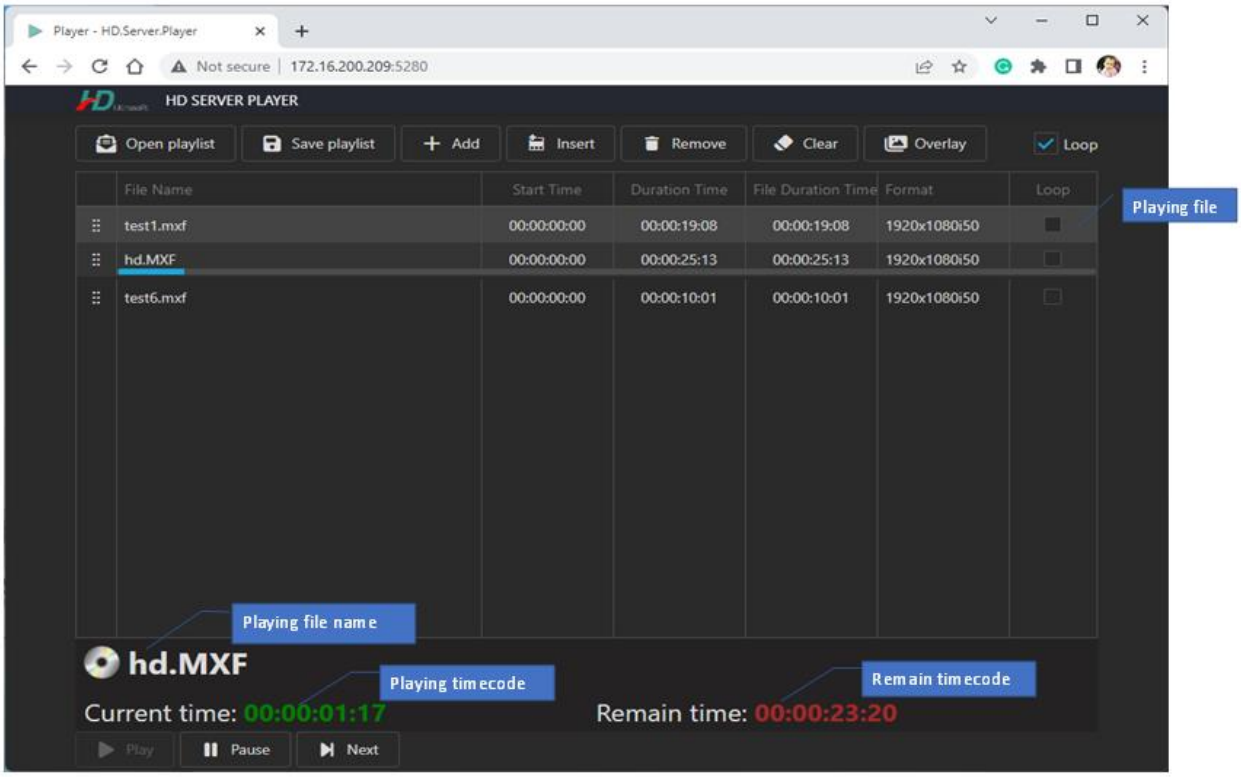


✓ View area: Set the area where the image/video to be inserted is allowed to be displayed

6. Play 1 file on the playlist

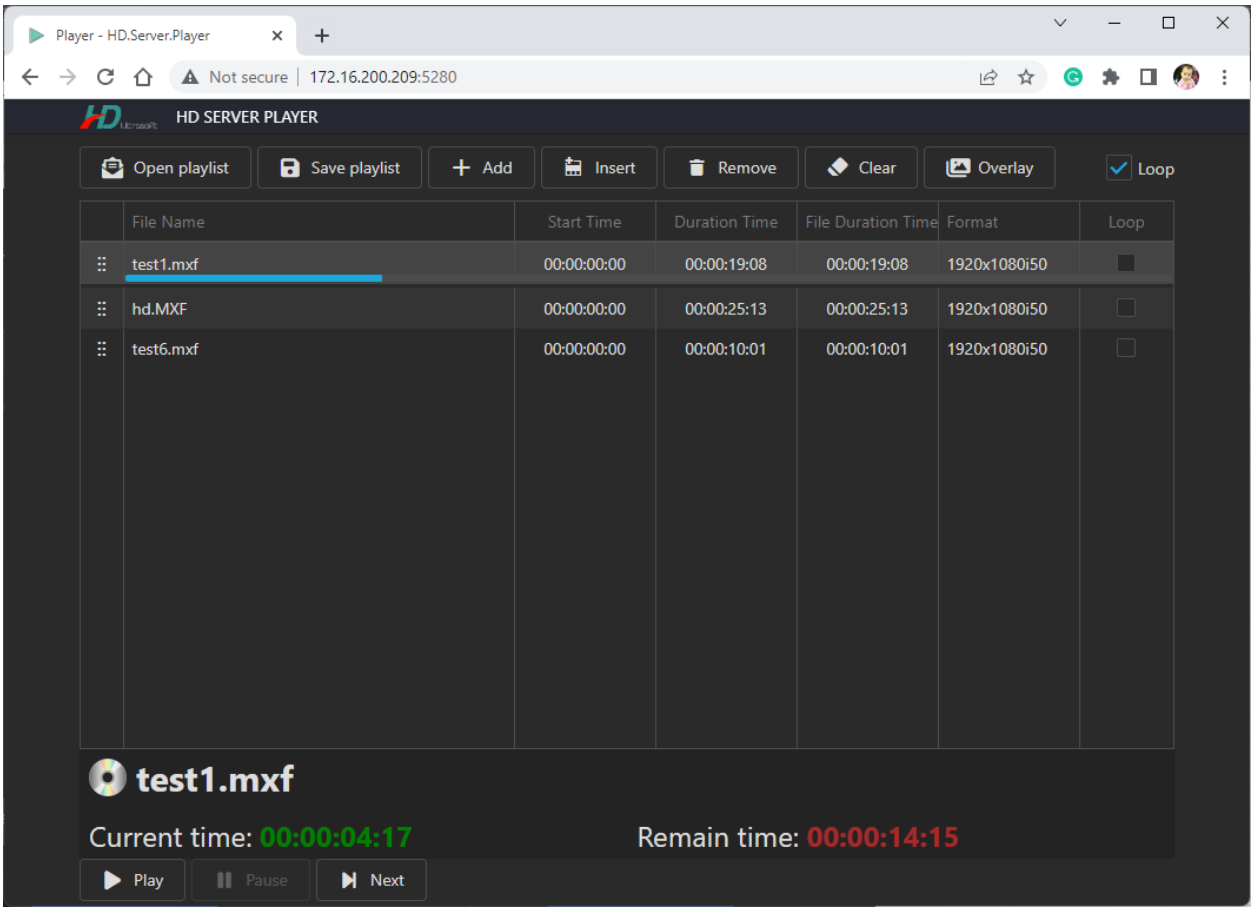
To play a file on the playlist, right-click the file and select "Play"


Player - HD.Server.Player
Not secure | 172.16.200.209:5280
HD SERVER PLAYER
Open playlist
Save playlist
Add
Insert
Remove
Clear
Overlay
Loop
File Name
Start Time
Duration Time
File Duration Time
Format
Loop
test1
00:00:00:00
00:00:19:08
00:00:19:08
1920x1080i50
Play
Add
Insert
Remove
Clear
Trim
00:00:00:00
00:00:25:13
00:00:25:13
1920x1080i50
00:00:00:00
00:00:10:01
00:00:10:01
1920x1080i50
test1.mxf
Current time: 00:00:00:00
Remain time: 00:00:19:07
Play
Pause
Next



7. Pause

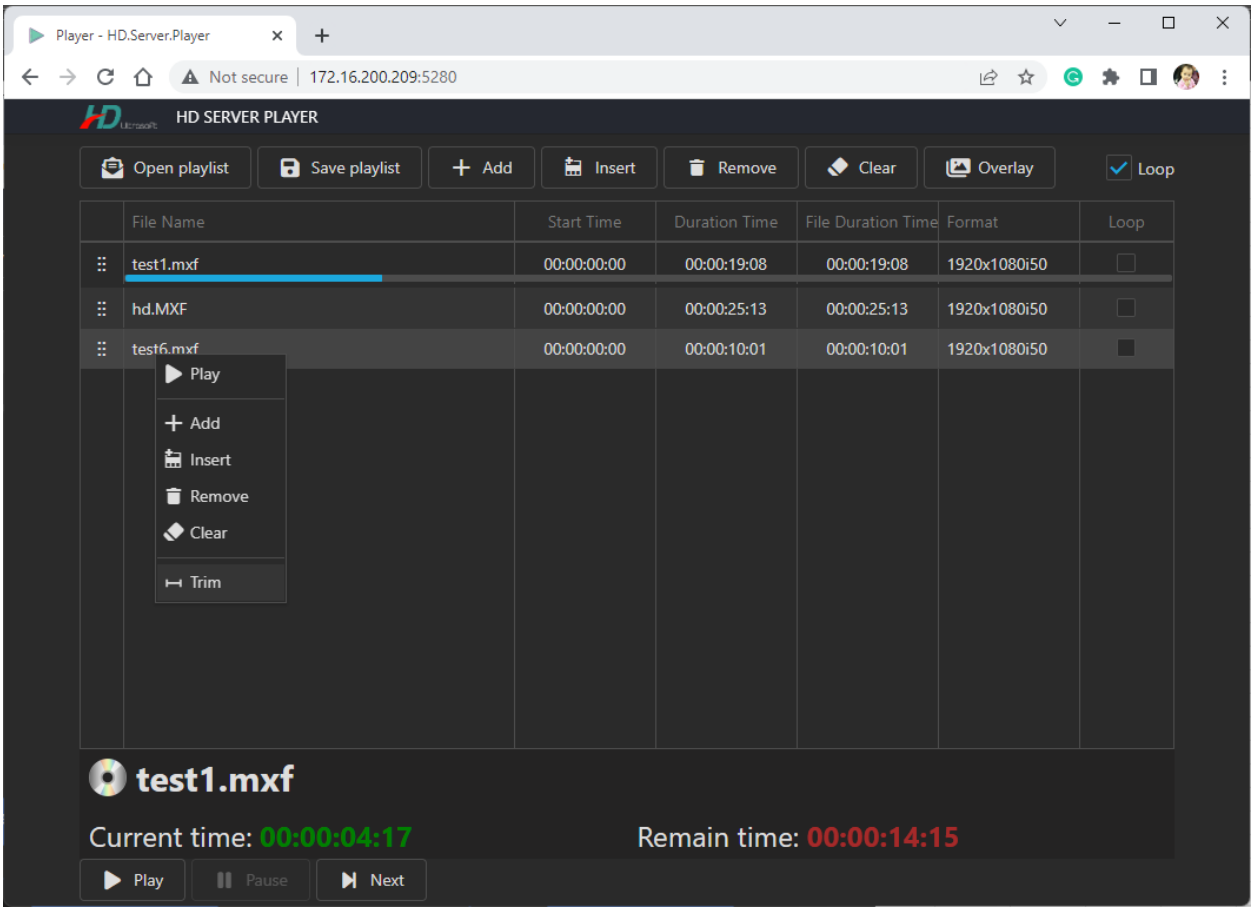
While broadcasting, to pause press the "Pause"

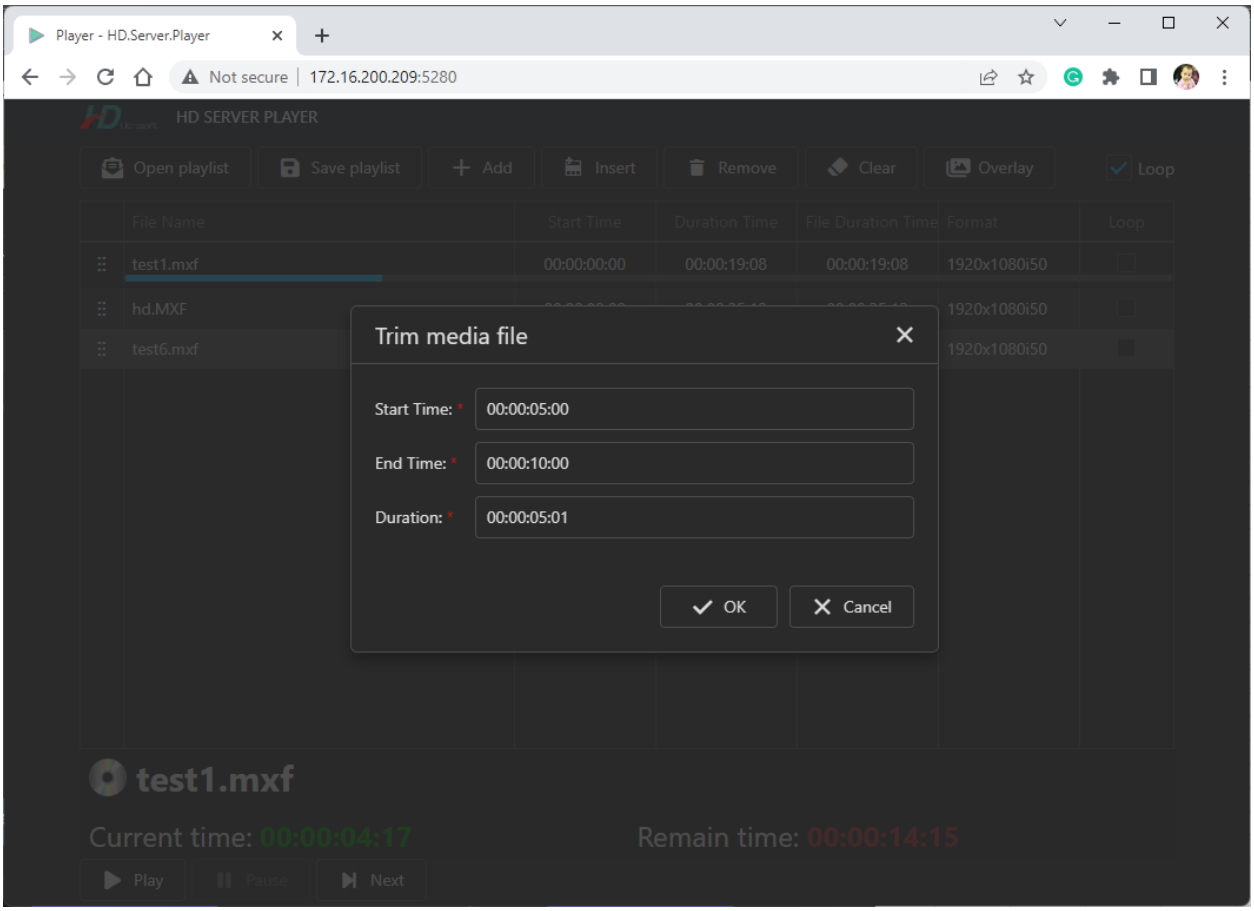


To resume playback at the stop position, press the "Play".

8. Cut/Trim 1 segment on 1 file to play

For cutting a segment on the file to broadcast by right-clicking on the file on the playlist, choosing "Trim"

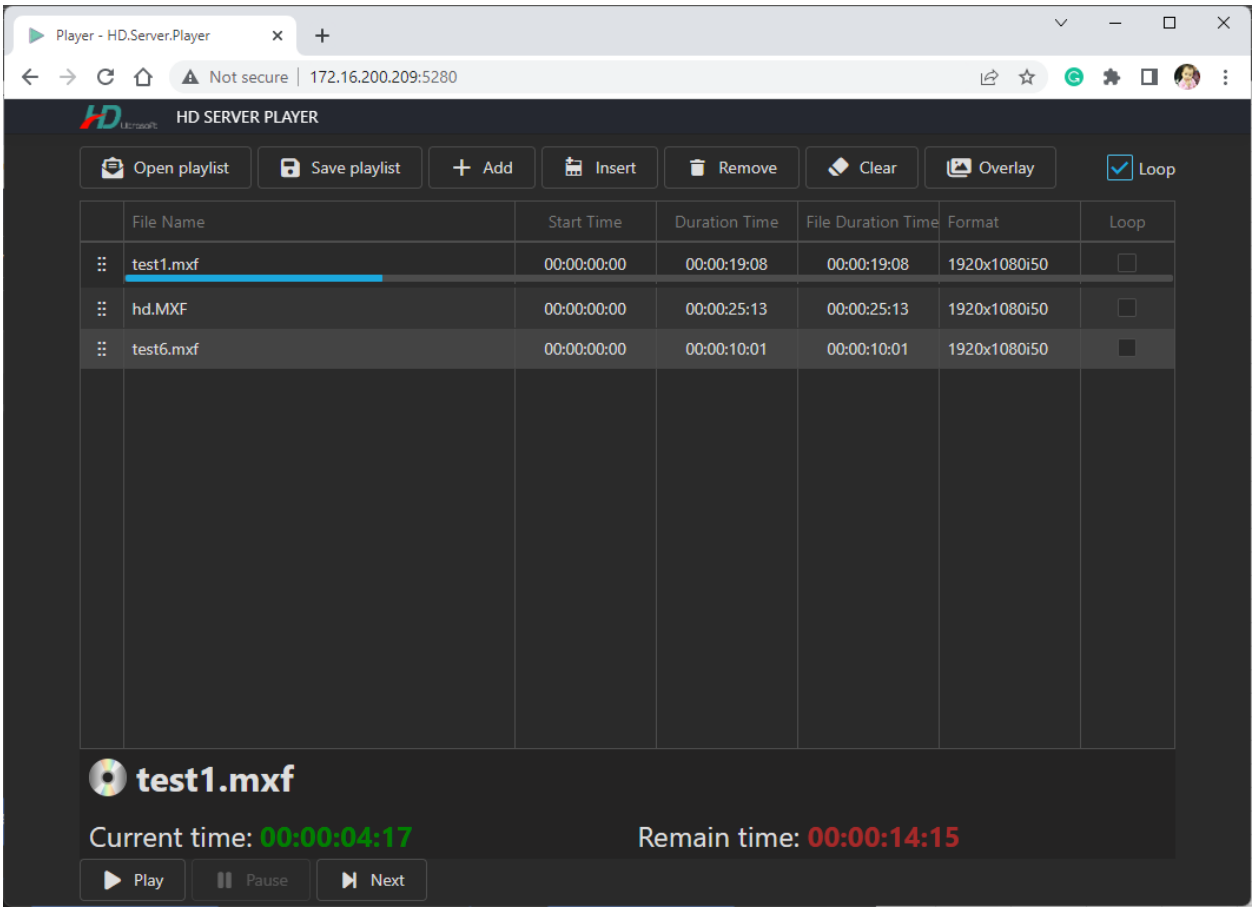

Player - HD.Server.Player
Not secure | 172.16.200.209:5280
HD SERVER PLAYER
Open playlist
Save playlist
Add
Insert
Remove
Clear
Overlay
Loop
File Name
Start Time
Duration Time
File Duration Time
Format
Loop
test1.mxf
00:00:00:00
00:00:19:08
00:00:19:08
1920x1080i50
hd.MXF
00:00:00:00
00:00:25:13
00:00:25:13
1920x1080i50
test6.mxf
00:00:00:00
00:00:10:01
00:00:10:01
1920x1080i50
Play
Add
Insert
Remove
Clear
Trim
test1.mxf
Current time: 00:00:04:17
Remain time: 00:00:14:15
Play
Pause
Next



- ✓ Start time: Timecode broadcast starts
- ✓ End time: Timecode end of broadcast
- ✓ Duration: The length of the episode is broadcast

9. Playback schedule

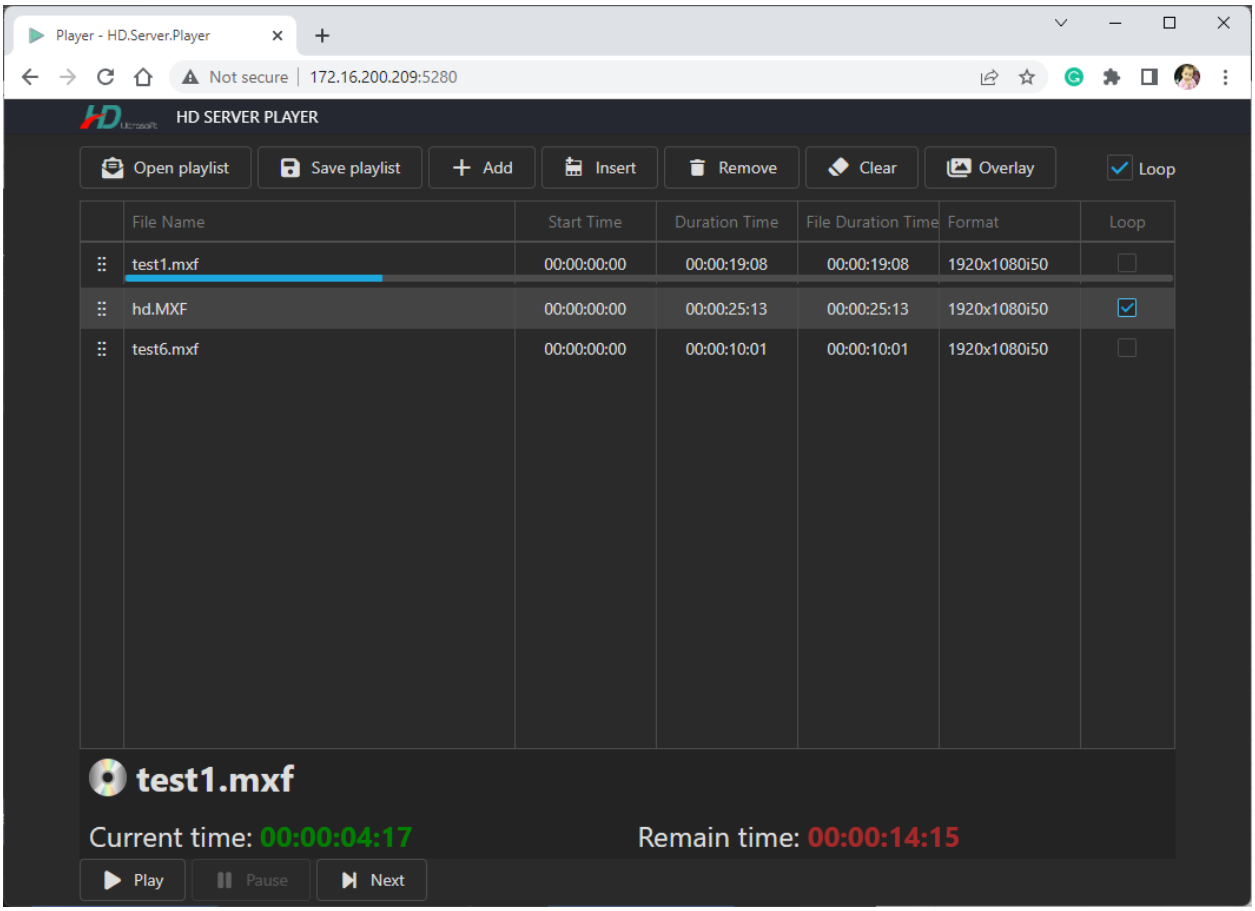
You can set the replay schedule by ticking "Loop" on the toolbar



At this time, when the last file is played, the server will jump to play again from the beginning of the schedule

10. Loop playback of video files

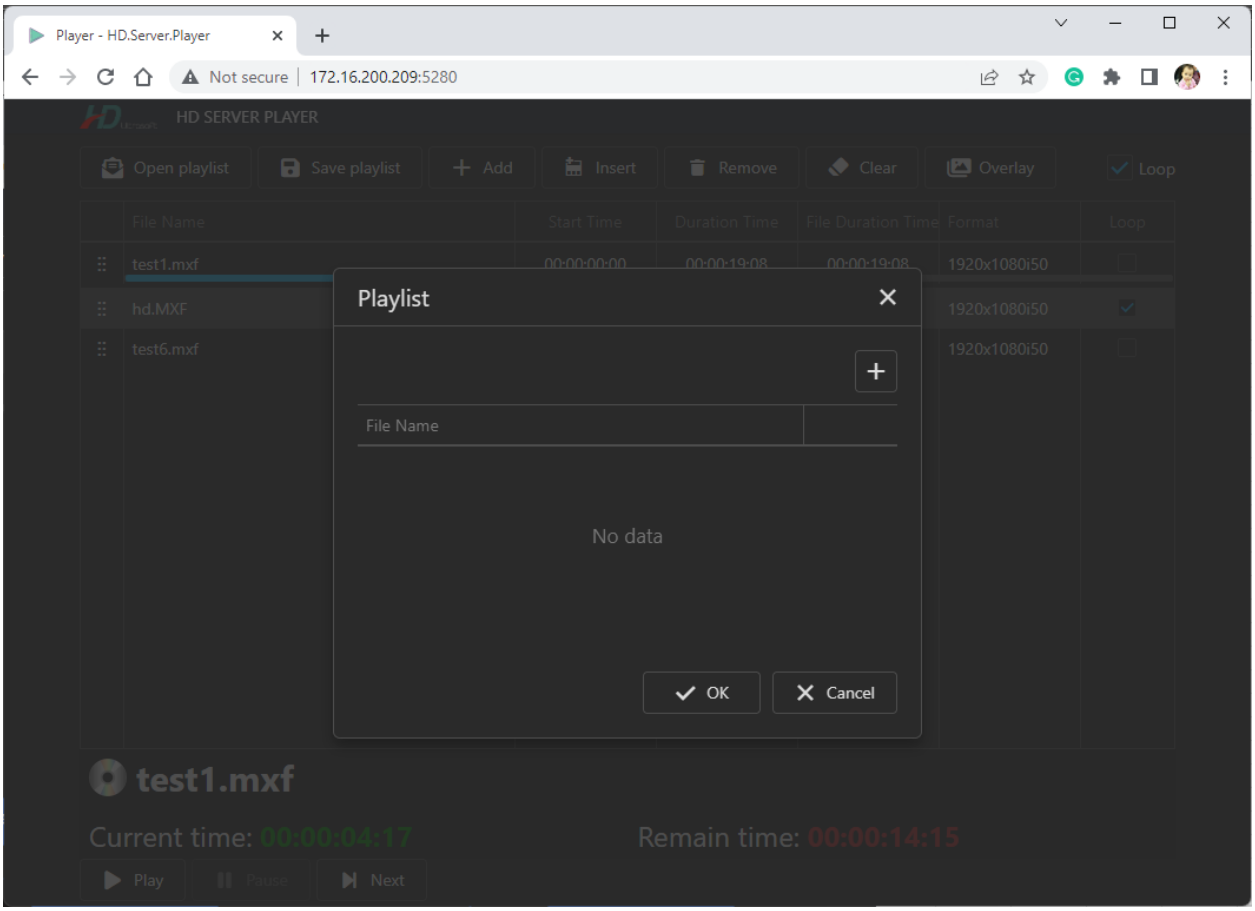
In addition to looping the entire playlist, you can loop each file on the playlist by ticking the "Loop" box on the file to repeat.



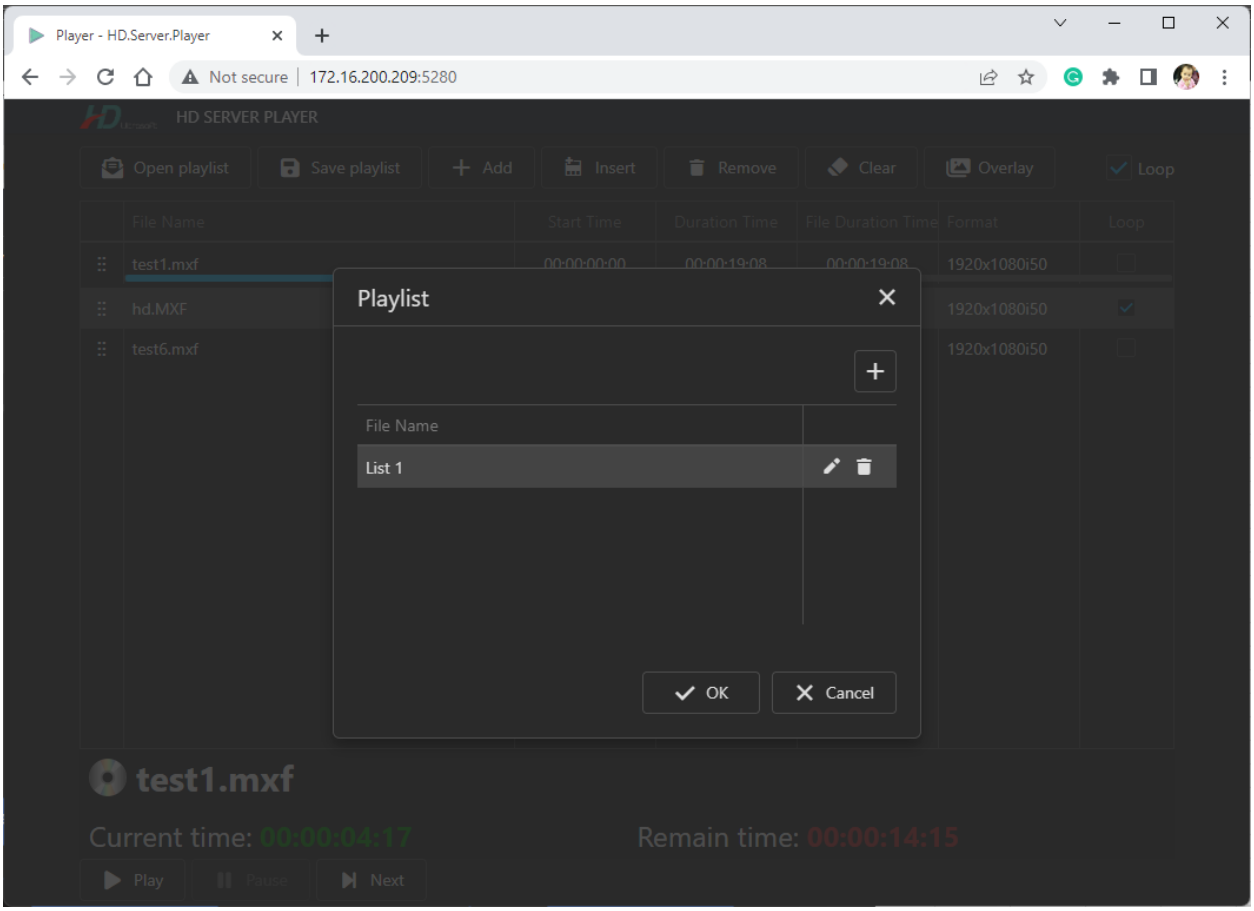
At this time, the file will be played repeatedly until the user jumps to play another file

11. Save playlist

After you have completed the schedule, you can save the schedule for later use by clicking the "Save playlist" button on the toolbar.

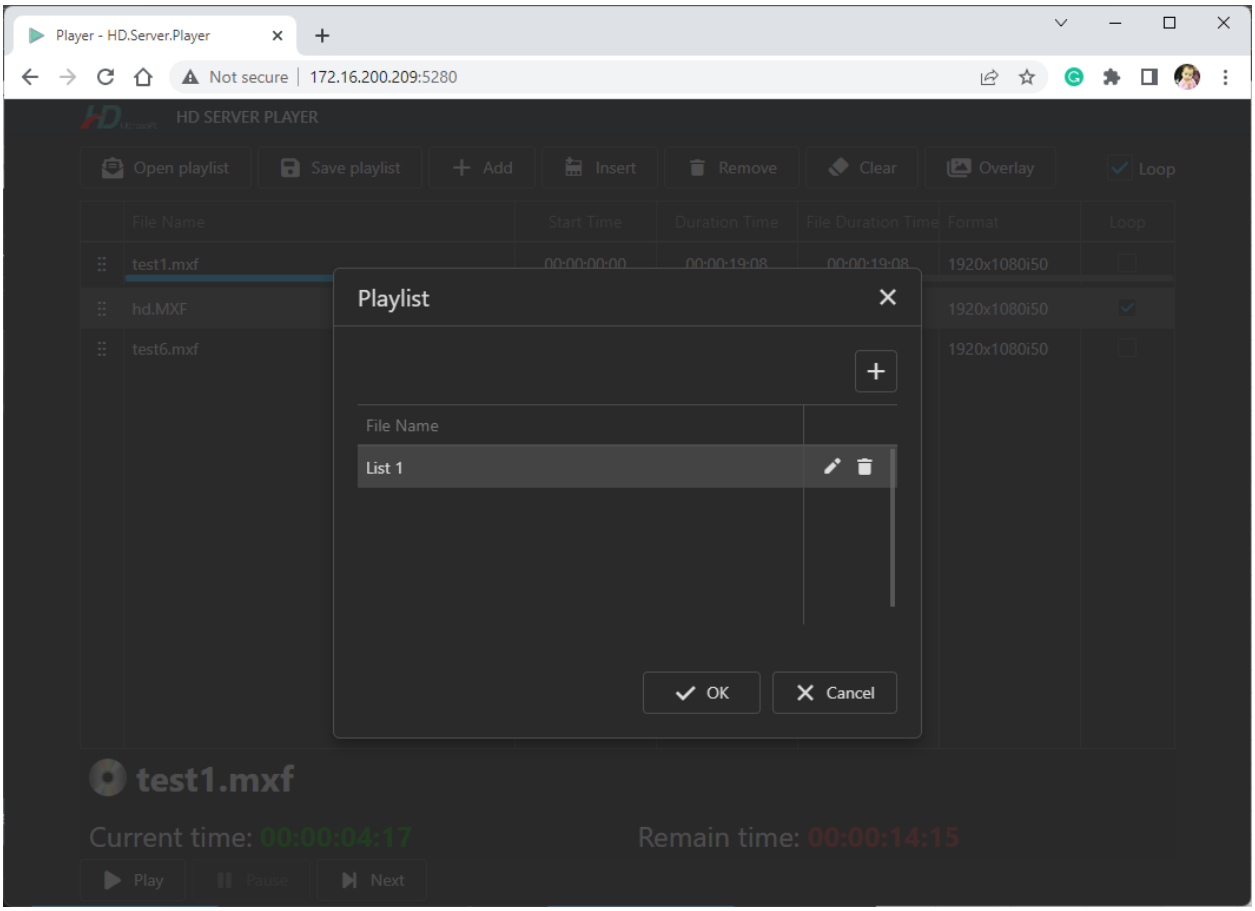


Create a new playlist or select the previous one to overwrite and then press OK



12. Open a saved calendar

To open a previously saved playlist, click the "Open playlist" button



Select the playlist to open, press the "OK" button. The playlist will be reloaded to the server