

Creating a YouTube livestream from multiple Skype sources using OBS Studio

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1. The things you need

1.1 Software

- OBS Studio from <https://obsproject.com/>
- Skype from <https://www.skype.com> (all participants need Skype, too)
- NDI plugin for OBS Studio from <http://github.com/Palakis/obs-ndi>
- If the plugin installer above did not include the NDI runtime, get it from <https://ndi.palakis.fr/runtime/>.
- Discord (optional, but recommended for all participants that might need to see the livestream in real time if you don't have more than one screen; will be explained later)

This tutorial was written using OBS Studio 25.0.4 (64 Bit), NDI runtime 4, OBS-NDI 4.8.0 and Skype 8.60.0.76. Newer versions are already available, so things might be a little different while reading this tutorial.

Instead of OBS Studio, Streamlabs OBS can be used, which is very similar, but its GUI froze several times while I was using it, so I'm using OBS Studio instead, which runs pretty stable for me.

If things explained in this tutorial, like getting the video streams from Skype into OBS Studio with NDI, don't work, try to check if you have the newest version of each software installed.

One logical order for the installation would be:

- 1) OBS Studio (or Skype)
- 2) Skype (or OBS Studio)
- 3) NDI plugin for OBS Studio (and the NDI runtime, if not included in the plugin)
- 4) Discord

1.2 Hardware

There are no specific hardware requirements for livestreaming using this software setup, but a few things are recommended:

- a reliable internet connection with good down- and upload
- a computer (laptop or desktop) that is not too slow (hard to put in numbers)
- a second screen or a widescreen monitor are useful, but optional

Your computer needs to be able to encode the video and audio for the livestream in real time while the data gets streamed to YouTube. This needs either a CPU capable of doing this or a graphics card with hardware encoding for the corresponding codec. More on this topic in the chapter about setting up the stream settings.

2. Preparing the software for the Livestream

The steps in this chapter are not necessarily to be followed in this order (some of them are, though), but if you are new to this topic, it will help you not to miss anything important.

2.1 Setting up YouTube

It is assumed that you already have a YouTube account that you want the livestream to be broadcasted from. The YouTube registration is not covered in this tutorial.

The screenshots for this tutorial were created while using the YouTube account of the AGV München with the language set to German. Since I'm only a guest using the account I didn't want to change any settings, so the text in the screenshots will be in German and might not perfectly fit the text in this tutorial.

- Go to www.youtube.com.
- Sign in to the account you want to use.
- Go to www.youtube.com/livestreaming.
- If you (or someone else) already did a livestream on that channel, it might ask you if you want to create a new livestream with settings from a previous livestream. In this guide, we assume there is no previous livestream. If there is and you're not sure about what you're doing, click "close" ("Schließen") and follow this guide. See image 1.

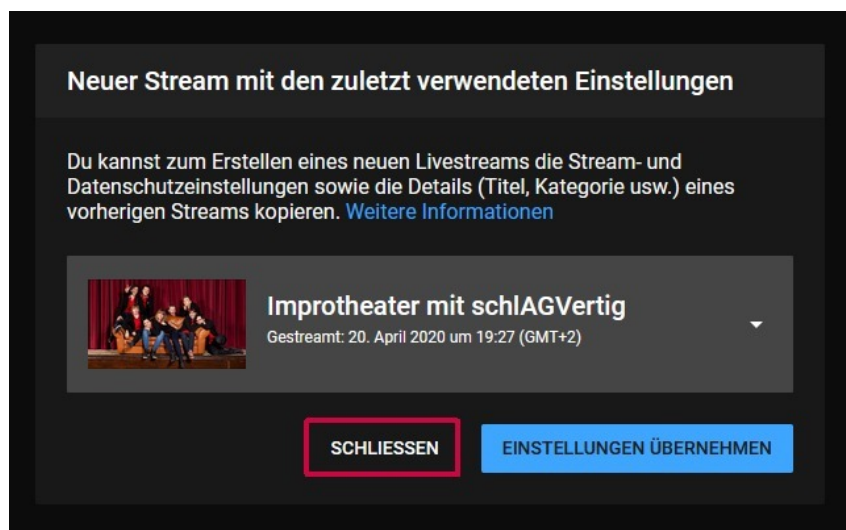


Image 1: No settings from previous livestreams

- A new window for creating a new livestream should appear (see image 2), requiring the following input:
 - Insert a title for the livestream.
 - Choose between "public" ("Öffentlich"; everyone can see the livestream), "not listed" ("Nicht gelistet"; only people with the YouTube URL can see it) and "private" ("Privat"; it can only be seen for people logged into the channel)
 - Insert a short description of the livestream. (optional, nice to have)

- Choose a category for the livestream. (optional, maybe something like “Entertainment”/”Unterhaltung”)
- If you do not want the livestream to start right away, click the small slider to plan it for later: a new line will appear where you can choose the date and time.
- Click the corresponding text, if you want to upload a custom thumbnail for the livestream. (“Benutzerdefiniertes Thumbnail Hochladen” in image 2)
- Click the option saying that the livestream is not specifically for children.
- Check in the advanced age restriction options that the video will also be available for viewers younger than 18 years. (meaning that the livestream can be seen without being logged into a youtube account)
- Create the livestream. (“Stream Erstellen” in image 2)

Neuer Stream

Titel erstellen

Öffentlich

Beschreibung hinzufügen

Unterhaltung

Für später planen

BENUTZERDEFINIERTES THUMBNAIL HOCHLADEN

Zielgruppe

Wurde dieses Video speziell für Kinder erstellt? (erforderlich)

Unabhängig von deinem Standort gelten die Bestimmungen des US-Gesetzes zum Schutz der Privatsphäre von Kindern im Internet (Children's Online Privacy Protection Act, COPPA) und/oder anderer Gesetze. Du musst angeben, ob deine Videos speziell für Kinder erstellt wurden. [Informationen dazu, welche Inhalte als "speziell für Kinder" gelten](#)

Ja, es ist speziell für Kinder

Nein, es ist nicht speziell für Kinder

Altersbeschränkung (erweitert)

STREAM ERSTELLEN

Image 2: Creating a new livestream

- You will now see the livestream in the YouTube Live Control Room. If you want to edit some of the previous options, click "edit" ("Bearbeiten", in the upper right corner of image 3). In the upper right corner of the browser window, next to the button for the YouTube account options, is the button for manually starting and ending the livestream.
- You can now set some additional options (see image 3):
 - Stream latency: choose "normal latency" ("normale latenz") if you don't plan any real time interaction with viewers and want high video quality or "ultra low latency" ("extrem niedrige latenz") if you want real time interaction with viewers (like using comments from the chat as input for the livestream).
 - DVR: Activating DVR means that the livestream will be saved on the YouTube account and can be watched again later.
 - Automatic start: The livestream will start automatically as soon as the YouTube server receives stream data corresponding to the stream key of the livestream. Optional ease-of-use setting when you and the other participants are more accustomed to livestreaming.
 - Automatic end: (haven't tried it, so I have to guess) Will end the livestream as soon as the video upload from the source (your computer) ends. (probably risky if it's just a short connection problem; otherwise you will have to end the livestream in the browser in your YouTube channel; I wouldn't recommend turning this on)
 - Set recording of the livestream to "not listed" at the end of the livestream: self-explanatory.
 - Stream Key (for the encoder): You have to insert this in OBS Studio before starting the livestream (will be explained later, remember where to find it). Every livestream has its own unique stream key. The key is covered (like a password) by default, because everyone knowing this key for this specific livestream is able to stream arbitrary content from your YouTube account.
 - Stream-URL: Usually not needed due to the standard settings of OBS Studio. Remember where to find it, just in case.

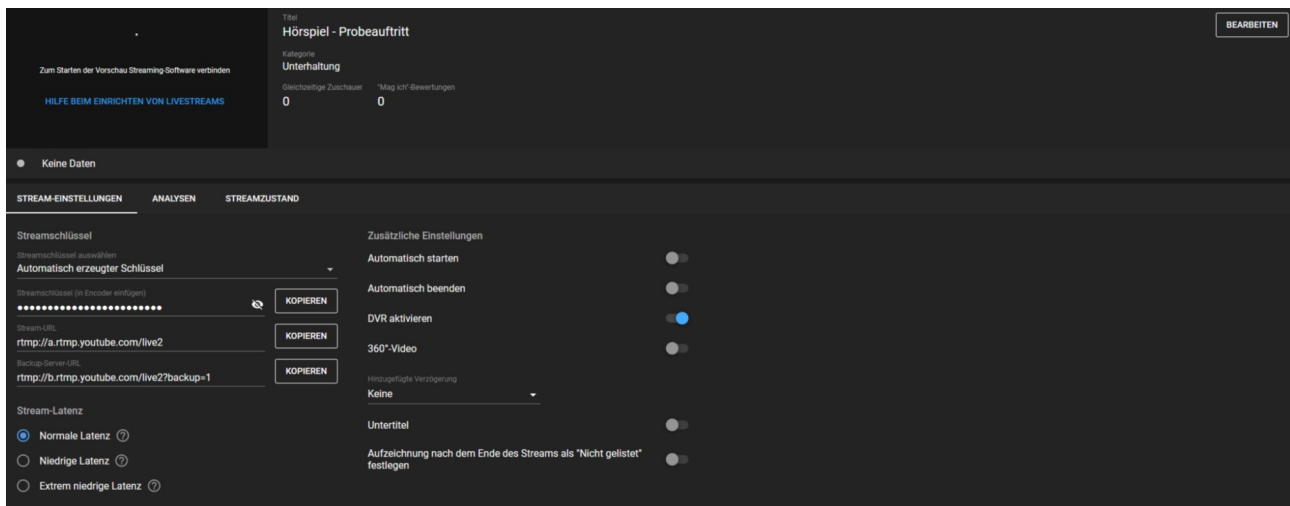


Image 3: Advanced livestream options

This window is important, because it lets you set all the options for your livestream and also manually start and stop it. If you want to access this window later, go to YouTube Studio (studio.youtube.com) (see image 4), click "Videos" (1), then "Livestreams" (2), then move the cursor over your livestream and click the button for the Live Control Room of the stream (3).

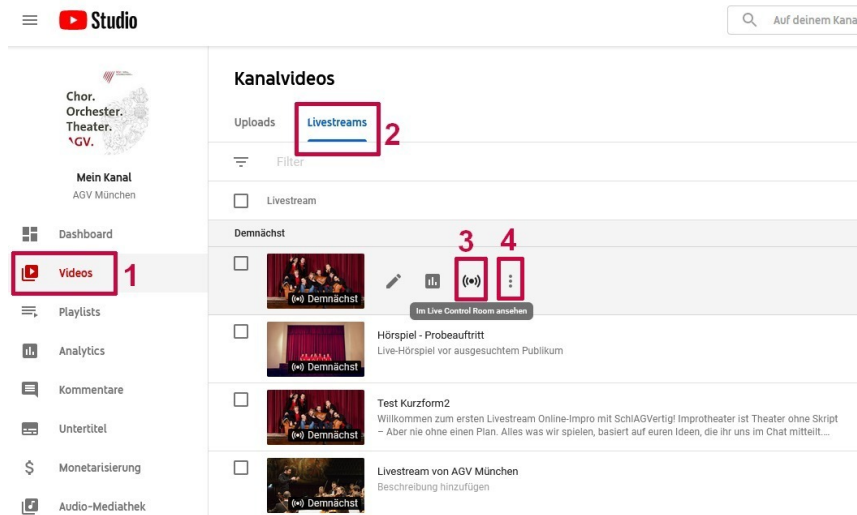


Image 4: Accessing your livestream from YouTube Studio

To get the YouTube URL of your (upcoming) livestream, go to YouTube Studio, then “Videos” and “Livestreams” (see (1) and (2) in image 4), click the three vertical dots (see (4) in image 4) and then select the second option (“Link zum Teilen aufrufen” in German). The URL will then be copied to your clipboard and you can paste it in any text editor. This is the URL you want to share on Social Media and directly with your audience, so everybody knows where to find your livestream when it happens!

2.2 Setting up OBS Studio

If you open up OBS Studio, it will look something like image 5:

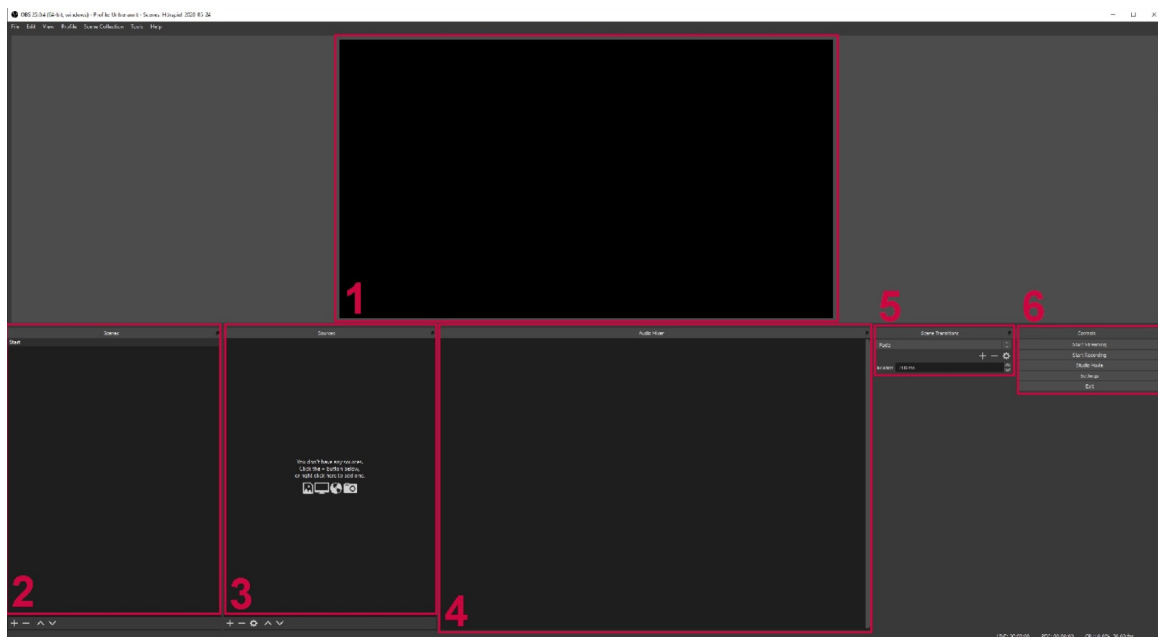


Image 5: OBS Studio main window

There are, in addition to the obligatory main menu at the upper left, 6 important areas in the window:

- 1) The live view window: This shows what you stream looks like in real time and how it will look on YouTube. It's also called the canvas.
- 2) Scene Selection: You can create many different scenes and easily select them here.
- 3) Source Selection: Lists the sources (video, audio, images, etc.) of the currently selected scene and also their order (sources higher in this list visually cover lower ones).
- 4) Audio Mixer: Lets you adjust the volume of different audio sources.
Note: If you add Skype streams as sources using the NDI (Network Device Interface), this will not be that easy because every NDI source from Skype contains all the audio from all participants of the Skype video chat. There are probably ways to adjust the individual volume, but since it worked fine for me with default volume settings (with the audio containing almost solely human speech) I didn't have to bother with it yet.
- 5) Transition Controls: Lets you define how the stream switches from one scene to another.
- 6) Stream Controls: Allows you to start and stop the stream, switch to Studio Mode, change settings or exit the program.

You can adjust the sizes of the areas by hovering your cursor over a border between two areas until the cursor changes into a “←|→” symbol and then drag the border while holding the left mouse button.

We will now set up the main settings of OBS Studio (meaning the ones I found to be important for my case of use, so there might be other priorities for different users). Click “File” and then “Settings” in the main menu at the top or the “Settings” button in the Stream Controls (area 6 in image 5).

Setting your video and audio (not explained in this document; the default settings were fine for me) settings (and expectations) too high might not actually improve the quality of the livestream, because the quality of the Skype streams from your participants to you is probably not that good and YouTube has its limitations when it comes to quality, too.

2.2.1 General Settings

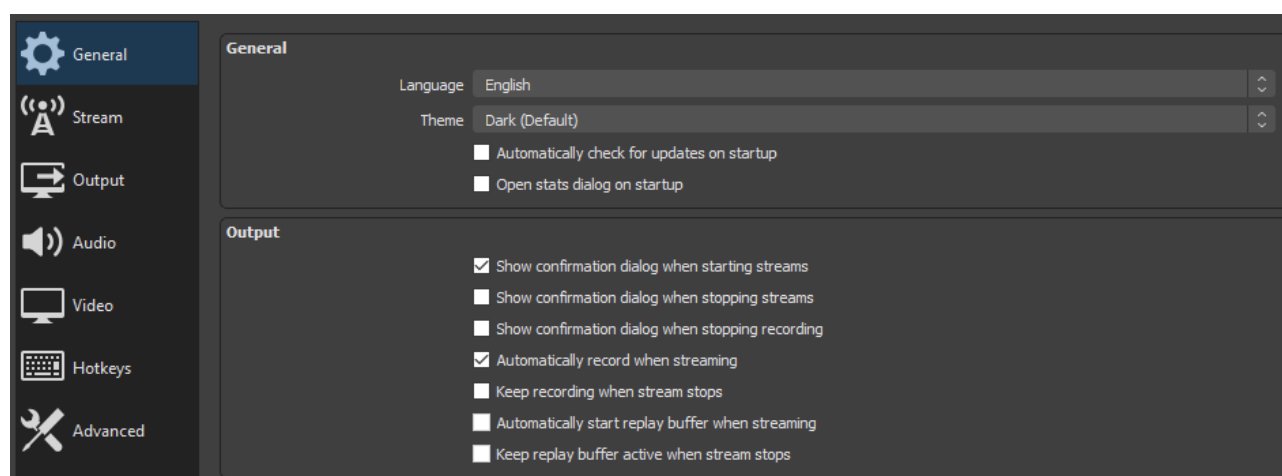


Image 6: General Settings

There are several mostly self-explanatory settings that don't really affect the stream itself. Exceptions are the options related to the replay buffer. I haven't used the replay buffer myself, so I

will guess what it does in a later chapter. My preference is turning on the “Automatically record when streaming” (see 2.2.4 Output Settings – Recording; otherwise you have to click “Start Recording” additionally to “Start Streaming” if you want to record your livestream) option.

2.2.2 Stream Settings

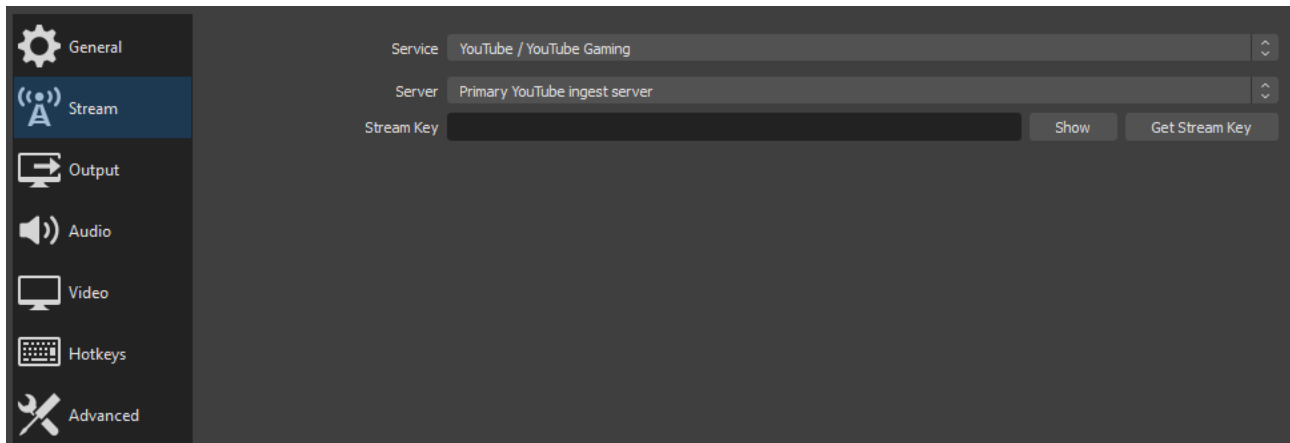


Image 7: Streaming Service Settings

In this settings, we will use “YouTube / YouTube Gaming” as our Service and use the “Primary YouTube ingest server”. We insert the Stream Key from 2.1 Setting up YouTube (see image 3 and the list right above it) by using the “copy” / “Kopieren” next to it and then inserting it with CTRL + V.

If we would use a custom service, we would have to insert the Stream-URL already mentioned (see image 3 and the list right above it)) in the “Server” field.

2.2.3 Output Settings – Streaming

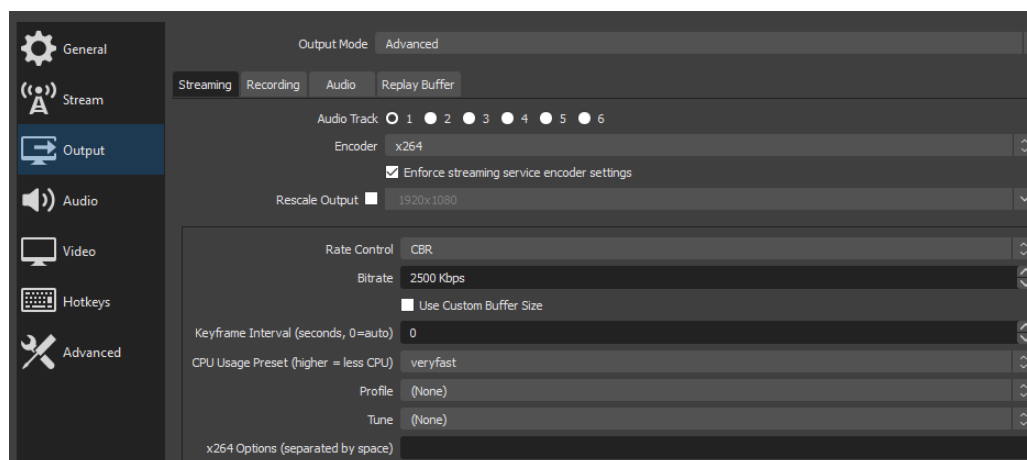


Image 8: Output Settings - Streaming

This section contains settings that affect the visual quality of the stream and the required computing power. Select “Output Mode” “Advanced” at the top of the “Output” tab in the settings window (see Image 7) to access all the available settings. There are some options we want to check:

- **Encoder:** Depending on your hardware, the selection of the encoder might be important. You probably have 2 options: x264 (see image 8) and a version of H264 AVC. Both basically use the same codec, but while x264 uses your CPU to encode the stream, the version of H264 AVC should use a part of your graphics card designed for highly efficient encoding (which is said to have a slightly lower image quality, but that should not be noticeable in the stream). Even if you’re using a laptop without a dedicated graphics card, your integrated graphics should be able to work as an encoder for H264. Note: Make sure the graphics driver you’re using isn’t too old, since this caused my encoding to crash after a few minutes, but you should do a proper test stream anyway. Check “Enforce streaming service encoder settings” to improve compatibility with the encoder settings demanded by YouTube.
- **Rescale Output:** Use this if you want to rescale your stream, meaning that the maximum resolution the viewer can select at your stream is different from the resolution of your canvas (see 2.3 Video Settings). I don’t see any real benefit from this, so I don’t use it.
- **Rate Control:** You can select different methods of how the video quality is measured. If you want to optimize your quality, you might want to read up on them, but don’t expect the differences to be too high due to YouTube’s own encoding settings. I use CBR (“Constant Bit Rate”), because it gives me a good clue of what file size I have to expect (see “Bit Rate” just below)
- **Bit Rate:** This defines the visual quality of your stream. Higher numbers mean higher quality and higher requirements for your hardware and upload speed, since the quality is supposed to be encoded and transferred in real time. 5000 Kbps (“Kilobits per second”) is a good trade-off between speed and quality in my opinion. If you want to record your livestream to your HDD/SSD (remember 2.2.1 General Settings and see 2.2.4 Output Settings – Recording below), then 5000 Kbps means that one hour of the stream will need about 2200 MB on your storage device with x264 or H264. Half the bit rate means half the file size.

2.2.4 Output Settings – Recording

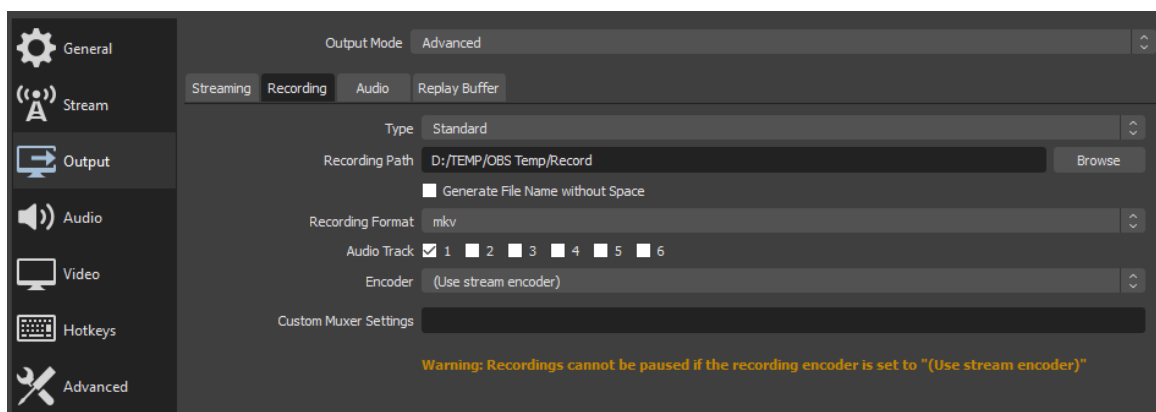


Image 9: Output Settings - Recording

If you want to record your livestream to watch it later without YouTube, this is where you can set things up the way you like.

- Type: I use “Standard”, but you can use another output, if you want to.
- Recording Path: This is where you will find the recorded livestream.
- Recording Format: You can set the file type of the recording here. I use mkv, but depending on what devices you want to watch the recording (TV, Tablet, Smartphone, etc.) on, you might have to use a different format (e. g. mp4) for compatibility.
- Encoder: Here you can set the Encoder for your recording. I use “(Use stream encoder)”, which means that it writes the same data into the video file that it also sends to YouTube, meaning that it doesn’t have to be processed a second time (using up computing power you might need to encode your livestream for YouTube). The resulting quality is fine to me. If your computer is fast enough (better test this with a test stream or two) for two separate encodings, you can use another encoder (and/or higher bit rate) to save the livestream in a better quality on your own HDD/SSD or also in reduced quality to save storage capacities.

2.2.5 Output Settings – Replay Buffer

As far as I can tell (I haven’t used it yet), the replay buffer is a tool that should send a rather smooth data stream to YouTube even if your connection is a little unstable, which otherwise might result in the livestream being ended early. If you want to use it, I recommend checking the corresponding option in 2.2.1 General Settings. See image 10 for the available settings.

- Enable Replay Buffer: Check this to enable it.
- Maximum Replay Time: Sets the time your computer is recording ahead before sending the data to YouTube. The memory usage is proportional to the bit rate you set in 2.2.3 Output Settings – Streaming.

Keep in mind that the replay buffer directly adds to your latency, so if you want to stream in near real time, you don’t want to create any additional delay.

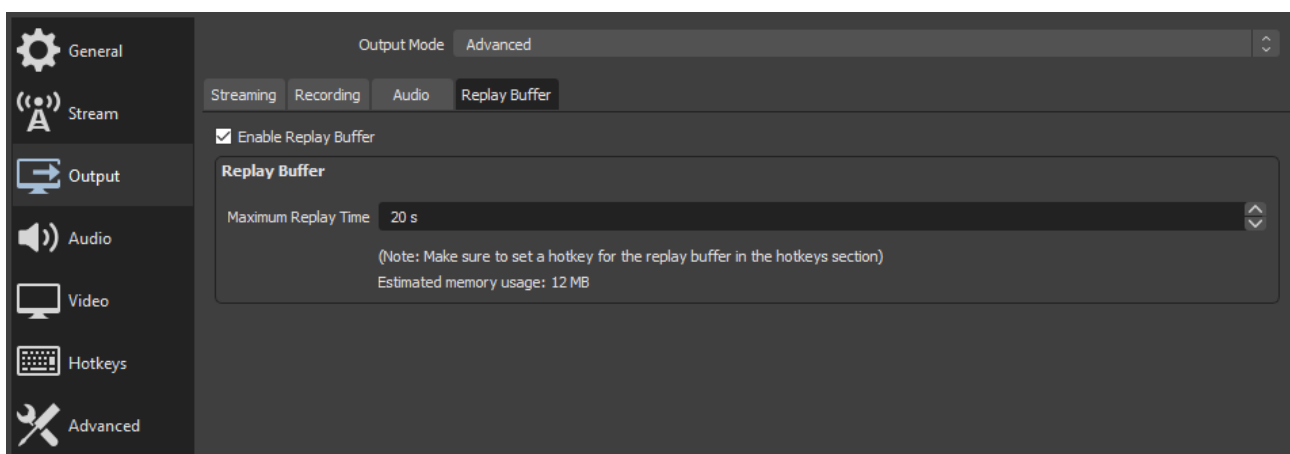


Image 10: Output Settings - Replay Buffer

2.3 Video Settings

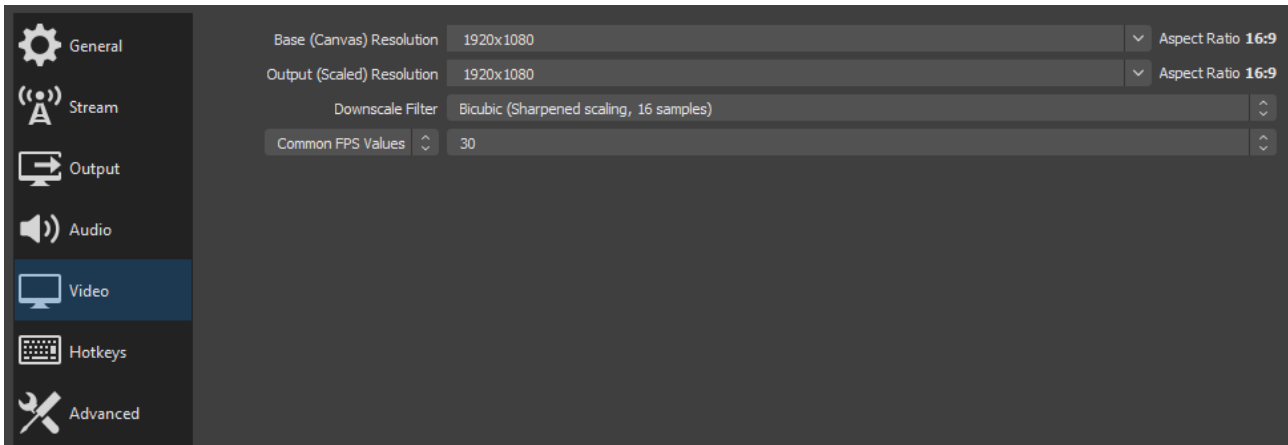


Image 11: Video Settings

The video settings define the internal and external video resolution of your livestream. Common resolutions are 1920x1080 (1080p) and 1280x720 (720p).

- **Base (Canvas) Resolution:** Sets the internal image resolution (what you see in area 1 in image 5; in the OBS window it's scaled down to fit your window size) of your live stream.
- **Output (Scaled) Resolution:** Sets the external image resolution (what will be sent to YouTube) of your live stream.
Setting this to a higher resolution than your internal resolution doesn't have any benefit (that I can see). A lower resolution should increase the image sharpness (and therefore quality), but I wouldn't expect the result to be too noticeable due to YouTube's own encoding settings (that I don't know) and the limited quality of the Skype streams of your participants. This downscaling also uses up some performance of your computer.
I don't see any practical benefit from setting this to a different resolution than your internal resolution. This should work the same way as the "Rescale Output" setting in 2.2.3 Output Settings – Streaming.
- **Common FPS Values:** Defines how many frames per second (FPS) your livestream will have. Higher values result in a smoother video.
This also affects image quality in conjunction with the bit rate from 2.2.3 Output Settings – Streaming: If there are e. g. 5000 Kbps for the stream data and 30 frames per second, there are about 5000/30 bits (audio data is small compared to image data) per single image frame, with more bits available meaning higher quality. The Skype streams from your participants are not likely to have more than 30 frames per second with decent quality, so I find 30 FPS to be a good value.
Note: If you see a YouTube video with a selectable quality of something like "1080p60", then the "60" refers to 60 frames per second. The default value (no number behind the "p") is 30 as far as I know.

3. Creating your Stream Content with OBS Studio

3.1 Scene Collections

As mentioned above, you can create and prepare multiple scenes for your livestream that you can switch between any time by just clicking them in the Scenes Selection (area 2 in image 5). You can also save sets of scenes to use them again later and I highly recommend doing this:

- In the main menu at the top, click “Scene Collection”, then “New”
- Insert a name telling you what the scenes will be used for and maybe the date of the event.
- All scene collections should appear at the bottom of “Scene Collection” in the main menu.
- If you already have a collection of scenes and want to do a livestream that is pretty similar to one you did before, select the suitable collection in the Scene Collection list, then click “Scene Collection” and then “Duplicate” to copy it and give the copy a new name.

3.2 Scenes

To create a new scene (in this collection), either click the “+” on the lower left of the Scenes Selection or right-click on an empty spot in the Scenes Selection, select “Add” and give it a useful name.

I highly recommend creating a scene for each the start and the end of the livestream that contain only static content (like one or more images or text) and no video or audio from participants of the livestream. Starting the livestream with the start scene, the audience will know that the actual livestream is to start soon and ending it with the end scene will let them know that the livestream is really over (and lets you thank your participants, the audience and everyone involved, etc.). It is advisable to create an image with an external program (PowerPoint, Photoshop, etc.) for each the start and the end scene in your internal resolution (see 2.3 Video Settings) or a higher resolution. A scene is built from various sources. A source can be a video source (from a webcam stream or a video file), audio source (from a webcam stream, microphone or audio file), an image, text, colored layers and many other content. The sources of the currently selected scene are listed in the Sources Selection (see area 3 in image 5) and as mentioned before, their order is important to set which source will be visible if multiple sources overlap in an area of the canvas (area 1 in image 5) of your livestream. This order can be changed in two ways: either select a source and move it to its correct location in the order by clicking the up and down arrows at the bottom of the Sources Selection or just select and drag it with the left mouse button to where you want it to be.

To select a source, either click on it in the canvas or in the Sources Selection. A red frame is shown around the selected source on the canvas. I recommend selecting sources in the Sources Selection.

Changing the base properties of a source can be done by double clicking it in the Sources Selection.

On the right of each source there will be an eye and a lock symbol. Clicking the eye symbol switches between the source being visible and invisible and activating the lock prevents a source from being moved or transformed. You can also select multiple sources, right-click on one of them and select “Group Selected Items” to move and transform them together.

The background of an empty scene is usually black. We will now see how to insert various sources (images, text, color layers and Skype streams from your participants). A source can be added by either clicking the “+” below the Sources Selection or by right-clicking an empty space in the Sources Selection and hovering the cursor over “Add”. In both cases, a list with the various available source types should appear.

3.2.1 Adding Images

OBS Studio supports many different file formats for image sources. To add a new image source, choose the source type “Image” and a new window should open (see image 12).

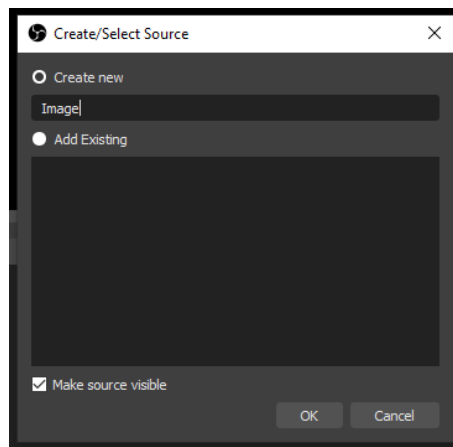


Image 12: New image source

Select “Create new” and give the source a useful name to easily identify it by in the Sources Selection. Click “OK” and in the next window (see image 13) click “Browse” to select an image file from your computer. After selecting an image, its path should show up in the field left of the “Browse” button and you should see the image in the top of the window in image 13.

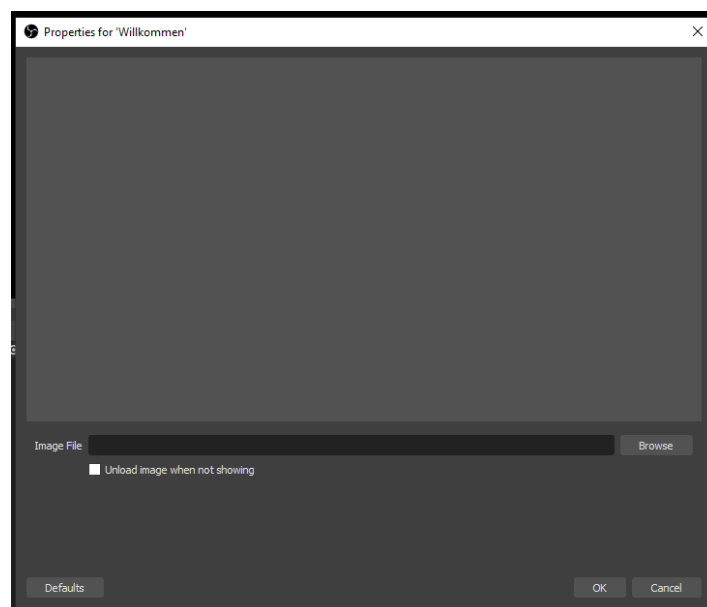


Image 13: Select image file

The image should also appear in the top left of your canvas. Click “OK” in the window in image 13 to close the window. There are some transformations you can use on the image (and other visual sources like the Skype sources later, so keep this chapter in mind) while it is selected:

- To move the image, drag it around with your mouse while holding the left mouse button on it.
- Rescaling the image can be done by dragging the red squares on the edges and corners of its red frame. Using the squares on the corners contains the aspect ratio of the image source.
- To fit the image to the whole canvas, right-click on it (in the canvas or in the Sources Selection), select “Transform” and ...
 - “Fit to screen” to maximize its size within the canvas while containing the aspect ratio of the image
 - “Stretch to screen” to stretch it to the edges of the canvas without containing the aspect ratio of the image
- A more accurate transformation can be done by right-clicking the source, selecting “Transform” and then “Edit Transform...” (see image 14)

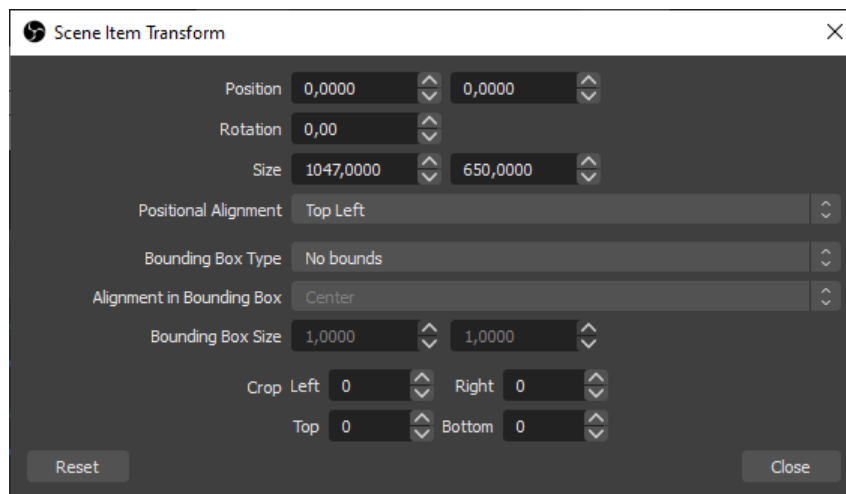


Image 14: Edit Transform

- “Position” defines the position of the image in pixels relative to the upper left corner of the canvas and to the point of the image selected in “Position Alignment”.
- “Rotation” sets the rotation in degrees clockwise.
- “Size” rescales the image to specific pixel dimensions (without containing its aspect ratio)
- I recommend setting “Bounding Box Type” to either “Scale to inner bounds” or “Scale to outer bounds” (try this for yourself and rescale the image by dragging its red corner squares to see the difference), because then you can adjust the image size to a specific pixel size with “Bounding Box Size” while the aspect ratio is contained
- If needed, you can crop the image on its “Left”, “Right”, “Top” and “Bottom” edge by a specific amount of pixels.
- Click the “Reset” button to undo all the transformations you did to the image.
- Using an opacity mask filter allows you to shape the outer appearance of a source, which is especially useful to give a Skype source a specific look that is not just a rectangle. To apply a mask, you first need a suitable image file you can use as a mask. A simple example would be a squared image file with transparent background and a colored, non-transparent circle in the center. Use an external program (PowerPoint, Photoshop, etc.) to create such an image.

In this case, after applying the mask, everything that is fully transparent in the mask image file will be invisible in the image file on the canvas and the colored, non-transparent areas of the mask image file will be visible. Partial transparency is supported, too.

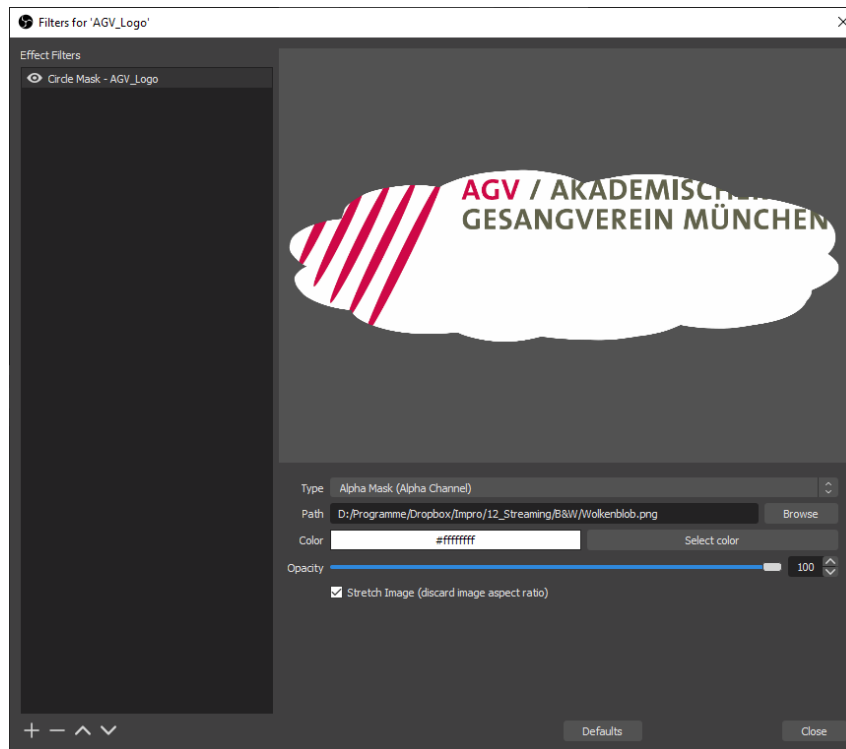


Image 15: Effect Filters

Applying such a mask filter is done like this:

- Right-click the source and click “Filters” to open the “Filters” window (see image 15, doesn’t look like that, yet).
- On the left of the window is the “Effect Filters” list, which should be empty at this point. Right-click in it and select “Add” or click the “+” on the lower left of the list and select “Image Mask/Blend”.
- Enter a name which lets you identify what you do to this source with the filter, e. g. “Circle Mask” and probably add the name of the source, too (e. g. “Circle Mask – Portrait_Peter”, if you want to apply filters of the same kind to different sources. Confirm by clicking “OK”.
- On the right side (see image 15) of the window you can adjust the properties of the filter you have selected in the Effect Filters list. You can see the effect of the filter on the image immediately. In image 15, the mask image file was similar to the example, but with a cloud instead of a circle.
- Select “Alpha Mask (Alpha Channel)” as “Type”.
- Click “Browse” to select the mask image file.
- The “Color” has no effect on this “Type”.
- Moving the “Opacity” slider changes the transparency of the image.
- Check “Stretch Image (discard image aspect ratio)” to change the aspect ratio of the mask image to the aspect ratio of the actual image.

- If you want to apply the same filters to multiple sources, right-click the source with the active filter, select “Copy filters”, then right-click the source without the filters and select “Paste filters”

3.2.2 Adding Text

To add text to your livestream that can be changed in real time (which could not be done in an image), add a source similar to adding an image source, but instead of “Image” select “Text (GDI+)” as the source type. Similar to image 12, you will be asked for a name for the text source (e. g. “Title”) and if you confirm the name, a new window with the text properties will open (see image 16).

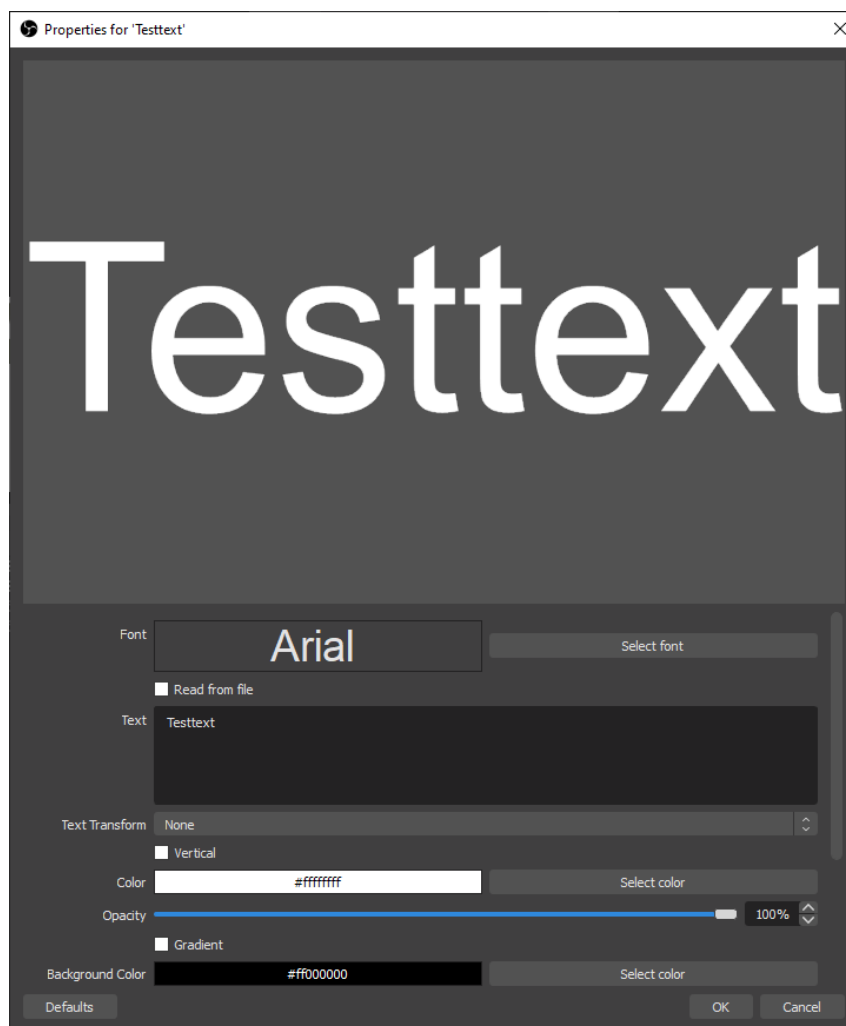


Image 16: Text Source

There are a lot of properties for the text that you can adjust and this tutorial will not cover them. Click “Select font” to change the font and base size and style and enter your text in the “Text” field. You can change the color and opacity of the text, enable a colored background, outline the text and many other things.

Similar to the transformations in 3.2.1 Adding Images I recommend right-clicking the text source, selecting “Transform” and then clicking “Edit Transform...” to open the Transform window (see

image 14) and set “Bounding Box Type” to either “Scale to inner bounds” or “Scale to outer bounds” to change the size of the text source without messing up the aspect ratio of the text.

3.2.3 Adding a Color Layer

Add a new source called “Color Source” and a new window will open where you can define the color of the layer and its size, which by default is the size of your canvas. I find it useful to create a black color layer as a second background to hide things behind it (moving them below the color layer in the Sources Selection), because some sources also seem to be muted if you just switch them invisible in the Sources Selection when you still want the audio, but not the video of the source.

3.2.4 Adding a Skype Stream

To be able to add a Skype stream, all the software from 1.1 Software (except the optional Discord we will mention soon) needs to be installed correctly. If the following steps don’t work correctly, try to reinstall the NDI runtime first.

Start Skype and get into a (video) call with the other participants. It doesn’t matter who invites who to the call. Your participants should see a message on the top of their Skype streams telling them that you are using a software that allows you to record the call. This is a good sign for the NDI runtime working correctly. Now that you can hear or see the other participants on Skype, switch to OBS Studio.

- Create a new source called “NDI Source”.
- Choose a useful name just like in image 12, e. g. the name of the participant you want to add.

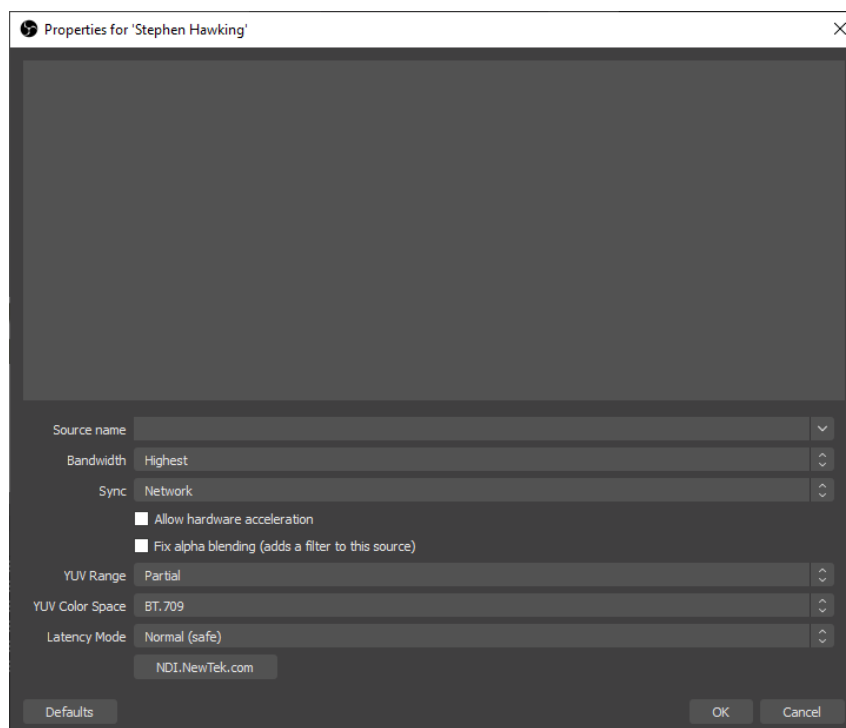


Image 17: NDI Source

- In the “Source name” list, select the correct NDI source. Its name should contain the Skype user name of the participant you want to add to the stream. You should see the Skype stream in the top of the NDI source properties window (see image 17)
- Setting “Bandwidth” to “Highest” (which should be the default setting) should result in the highest quality of the stream.
- If you experience the video and audio of a Skype source being out of sync, try setting “Sync” to “Source Timing” (might be the default setting on your computer).
- Checking “Allow hardware acceleration” should increase the performance by using the graphics card instead of the CPU to visually render the source on the canvas.
- Set the “Latency Mode” to “Low” if you want the delay between the Skype stream and the YouTube livestream to be as low as possible. If you experience any problems with the stream, try setting it back to “Normal”. I recommend setting the “Latency Mode” to the same setting for all Skype sources to prevent different sources from having different delays in your livestream.
- Click “OK” after you set up everything. The Skype stream should already have appeared in the top left of your canvas.
- All the transformations from 3.2.1 Adding Images work on Skype streams, too, including masking filters. It is highly recommended to set the “Bounding Box Type” to either “Scale to inner bounds” or “Scale to outer bounds”, because, depending on the bandwidth of the internet connection of your participants, their Skype might reduce the resolution of their video stream, which would also reduce the size of their source on your canvas if it is set to “No bounds”. This means that its size could change back and forth in the middle of the livestream, which looks awful, so prevent this with the correct “Bounding Box Type”.
- Add a NDI source for every participant and name it accordingly to easily identify them in the Sources Selection.
- Every Skype stream contains the audio of the whole Skype video call, so you can mute all but one of the NDI sources containing Skype streams in the Audio Mixer (area 4 in image 5) to easily adjust the volume of all participants at once.
At this point I had no need to mute selected participants from the Skype call, so I can not explain how to do this in this tutorial.
- If you plan on using different scenes with different stream participants being visible, I recommend creating one scene with all participants in it and then duplicating it by right-clicking it in the Scenes Selection and selecting “Duplicate”. The participants that are not supposed to be seen in the current scene can be hidden behind a black color layer. Regarding the audio, the hidden participants can either mute themselves on Skype or just be quiet next to their microphones.

If you’re not just hosting the livestream, but also participating in it, you can add your own microphone input by adding an “Audio Input Capture” source and your own webcam data by adding a “Video Capture Device” source. In both cases you have to set the correct “Device” in the properties of the sources and if you’re not keen on trying to optimize settings, the default settings on the other properties might work fine. The volume of your microphone input can then be set in the Audio Mixer independently of the Skype sources and you can transform your own webcam data just like the images and Skype streams explained above.

4. Streaming

Before you blast away the audience and get trillions of likes and subscribes, there are a few last steps to be walked.

4.1 Sharing the Livestream with your Participants

This is an optional, but very useful and highly recommended step. Especially if your participants are supposed to interact with each other or should be aware of what everyone else is doing on the screen (meaning the canvas you set up in 3. Creating your Stream Content with OBS Studio), you want to let your participants know what's currently going on on the canvas. There are usually at least a few seconds delay of your livestream to YouTube (even with the lowest latency settings selected), so if your participants would just watch the livestream on YouTube in a browser on the side, they couldn't really react quickly to anything that's going on in the stream.

- If you have a second screen, you can right-click on your canvas, select “Fullscreen Projector (Preview)” and click on the name of your second screen to show the canvas on it. You can then share this second screen in Skype and everyone in the Skype call should be able to see it.
- Since you can (at least at this point) only share whole screens on Skype, with a single screen you won't want to set the whole screen to be the projector, because then you wouldn't be able to control your livestream while it is running. In this case you can select “Windowed Projector (Preview)” instead to get a movable and resizable window displaying your canvas in real time.

A program that allows you to share only a window with your participants is Discord. I'm sure there are a few more programs to do this and it won't be explained in detail how to do it, but we have used Discord for this task, so I'm mentioning it. You and your participants have to be in a voice chat on a server and there you'll have the option to share only a single window from your desktop with your participants. This window would be the Windowed Projector.

Audio communication between all participants should be done in the Skype call, which can just run in the background.

4.2 Starting the Livestream

Now that you have

- set up YouTube and OBS Studio (especially the correct Stream Key, see 2.2.2 Stream Settings)
- prepared the content of your livestream in chapter 3
- shared the YouTube URL to the livestream (see the last paragraph of 2.1 Setting up YouTube) with everyone you can think of
- selected the scene you want to start with in the Scenes Selection

you can start it in two ways already mentioned earlier:

- Click “Start Streaming” in your Stream Controls (see area 6 in image 5) in OBS Studio. If you set the settings of the livestream in YouTube to start automatically (see image 3), it will now go live and will be viewable on YouTube a few seconds later.
- Go to the Live Control Room of this livestream (see images 3 and 4 and the explanation between them) on YouTube and click the button to start the livestream in the upper right of the browser. Now click “Start Streaming” in your Stream Controls in OBS Studio.

Depending on your settings in 2.2.1 General Settings, it might also start to record the livestream. Otherwise you can start the recording independently of the streaming.

4.3 Controlling the Livestream (Studio Mode)

While the livestream is running, you can still make changes to your canvas in OBS Studio. A nice feature to control the changes you want to make and how and when the audience will see them is the Studio Mode. It can be activated by the corresponding button in your Stream Controls. When you activate it, you will have two canvases next to each other instead of a single one like before: a “Preview” canvas (on the left) and a “Program” canvas (on the right) and transition controls in the middle of them (similar to area 5 in image 5, which is still there). The “Program” canvas shows the content that is sent to YouTube and the “Preview” canvas is your relatively safe sandbox to change things:

- You can switch to other scenes without them going live immediately.
- If you make some changes, like moving or transforming sources on the canvas or changing their order, it will only happen in the “Preview” canvas and not be seen on YouTube if you don’t want it to.
- Some changes, like adding or removing sources or changing the text of text sources, will usually go live (meaning they will happen in the “Program” canvas) immediately. This can probably be prevented by clicking the cog wheel button right next to the “Transition” button between your two canvases and checking “Duplicate Sources”, but I haven’t tested it yet.
- When you’ve done all the changes you wanted to do (even if it’s just switching to another scene) in the “Preview” canvas and want them to go live, click the “Transition” button between the canvases to use the transition that is selected in the Transition Controls (area 5 in image 5) or just click one of the Quick Transitions below it. You can also do a manual transition by moving the slider between the canvases from the very left to the very right as fast as you like.
Play around with the transitions while creating your stream content. I personally find the simple 300 ms Fade to be nice to look at.

If you share your canvas with your participants using a Windowed Projector, make sure you right-click on the “Program” canvas and select “Windowed Projector (Program)”.

4.4 Ending the Livestream

Since your audience is now totally exhausted from watching that fantastic performance from you and your participants, it is time to end the livestream. As I recommended earlier in 3.2 Scenes, you can switch to an end scene containing only static sources and no live audio or video from anyone.

After showing this scene for some moments to let the audience realize that the livestream is over, you can stop the livestream:

- In the YouTube Live Control Room of your livestream, click the button to end the livestream in the upper right of the browser. Now click “Stop Streaming” in you Stream Controls in OBS Studio.
- Depending on your settings in the YouTube Live Control Room (see image 3), it might also be enough to only click “Stop Streaming” in OBS Studio.

If you also record your livestream in OBS Studio, you can stop the recording before stopping the livestream by clicking “Stop Recording” in OBS Studio.

A few minutes after the livestream ended, it can also be watched again on YouTube using the same YouTube URL you shared earlier if you had the DVR enabled (see image 3).