



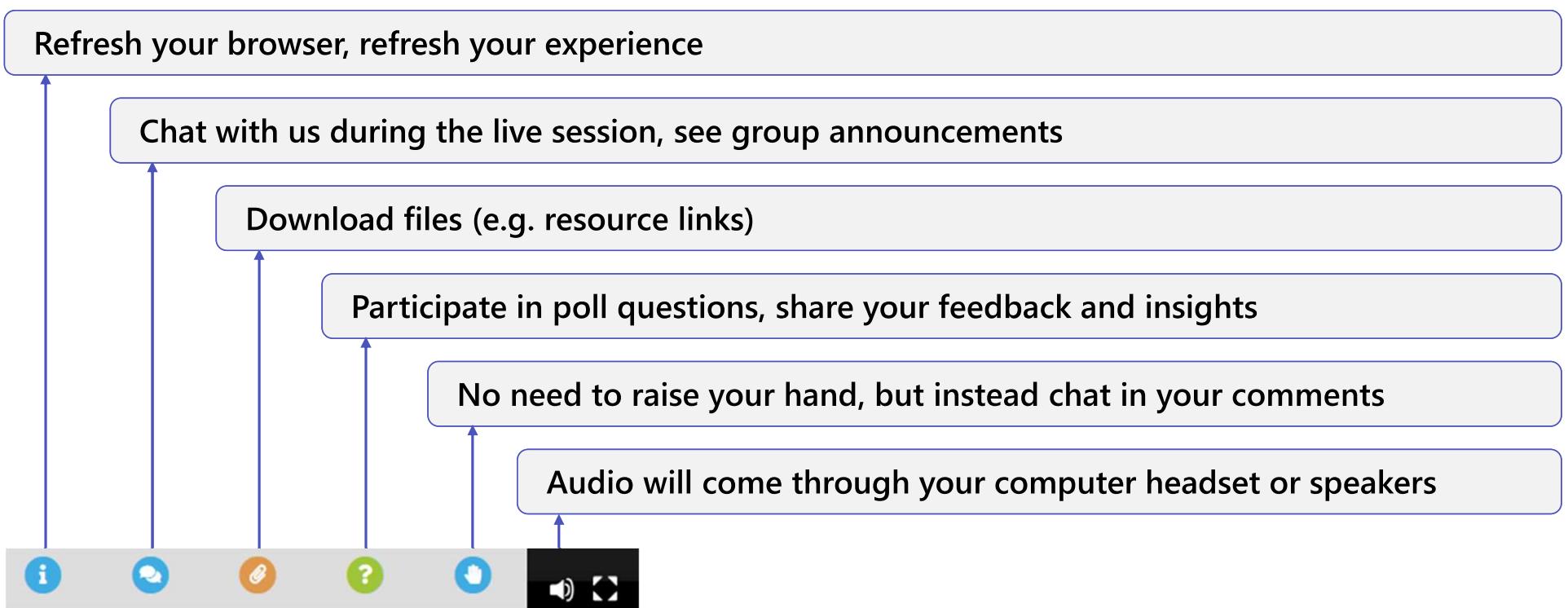
Energize your Live Events with Microsoft Teams



*Kristin M. Lawson
Aaron Steele
Bryan Nyce
Pragathi Raj
Ryan Juvet*

**Thank you for joining us!
We will begin shortly...**

Optimize your learning experience for today's live streaming event





Designed for anyone wishing to organize, produce or speak at a large, virtual event using Microsoft Teams

During this session, you will:

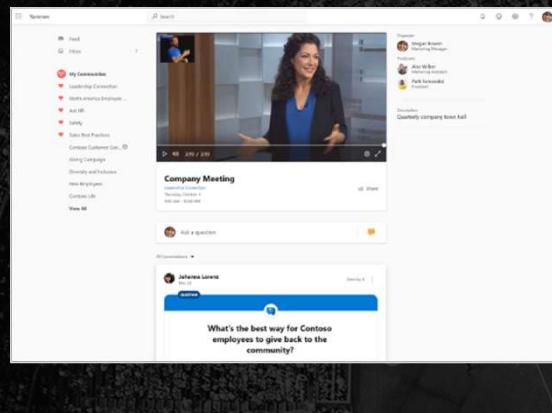
- Understand best practices to ensure your large, online virtual event is successful using Microsoft Teams or Teams Live Events.
- Gain practical, technical production knowledge to ensure your event is engaging.
- Understand the Attendee, Presenter, Producer roles
- Learn before-during-after tactics to build & continue your large, online event momentum with Webinar features.
- Leverage and understand step by step virtual event resources as found at aka.ms/virtualeventplaybook

Virtual Events powered by Microsoft Teams

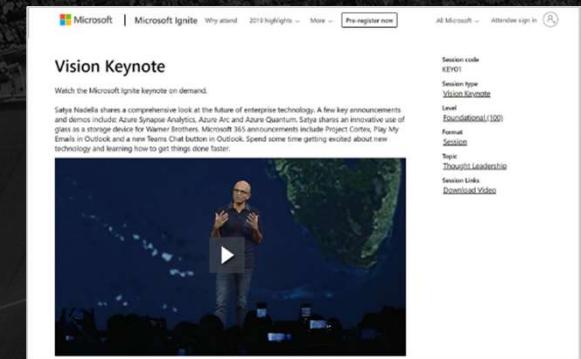
Deliver training to your employees, managers, partners



Update all employees with company meetings



Host conferences online; generate leads



Microsoft Teams Live Events

Broadcast your event with video, Q&A and attendee conversation

Up to 100,000 people can view the live broadcast
Invite people internally or externally
Engage your audience with Q&A and conversation
Production options from simple to customized

Host events in Teams, Yammer or a custom event site

Reach the public through consumer streaming channels
Event recording with automatic transcription & search

[Aka.ms/virtualeventplaybook](https://aka.ms/virtualeventplaybook)

Advanced virtual event scenarios



Virtual conferences

- Single or multi-day experience.
- Multi-track and varying content types.
- Funnel to online communities for ongoing engagement
- Moderated Q&A

Leadership townhall

- 1 to Many with managed Q&A
- Often moderated destination events
- Sometimes crafted in a regular rhythm of business or on-demand

Public broadcasts

- 1 to Many destination broadcast
- Optional custom streaming configurations.
- May stream to additional platforms

Multi-guest panels

- Multiple guests and/or hosts
- Remote interviews
- Professional switching
- May stream to additional platforms

Your next idea

- Use powerful capabilities to reach customers, partners and your employees
- Create interactive content
- Reach influencers and create brand ambassadors
- Improve remote communications and citizen engagement
- General leads

Tip: Scale and complexity matter

Production events can be self-produced. For advanced scenarios, a broader event team is recommended. Please review our production roles content from our [core event playbook](#).

NFL



SFF x SWITCH



NBA



CES



Prada & Miu Miu



Examples of Teams Live Events



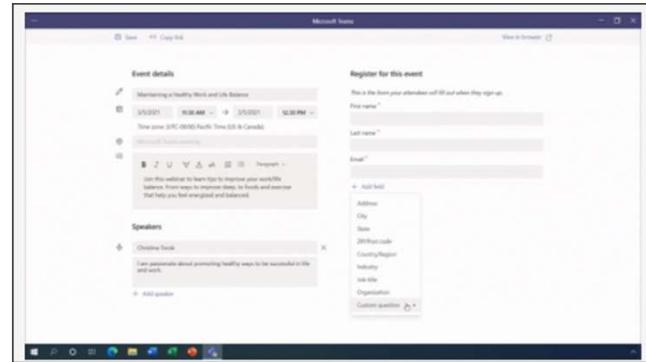
Virtual Events 101

Teams Meetings

Webinars

Teams Live Events

Microsoft Teams – Where we can meet & engage



Meetings

- Chat
- Video conferencing
- Audio conferencing
- Document collaboration
- Apps
- 1 to 300 and even 1,000 attendees

Webinars

- Track registration & attendance
- Create custom fields to gather information
- Data stored in Lists for further automation
- Content automatically recorded

Live Events

- Virtual or hybrid events broadcast to large scale audiences up to 20,000 attendees
- Moderated Q&A
- Professional broadcast capabilities with features for video stream ingestion & streaming





But first ...

What about your audience?

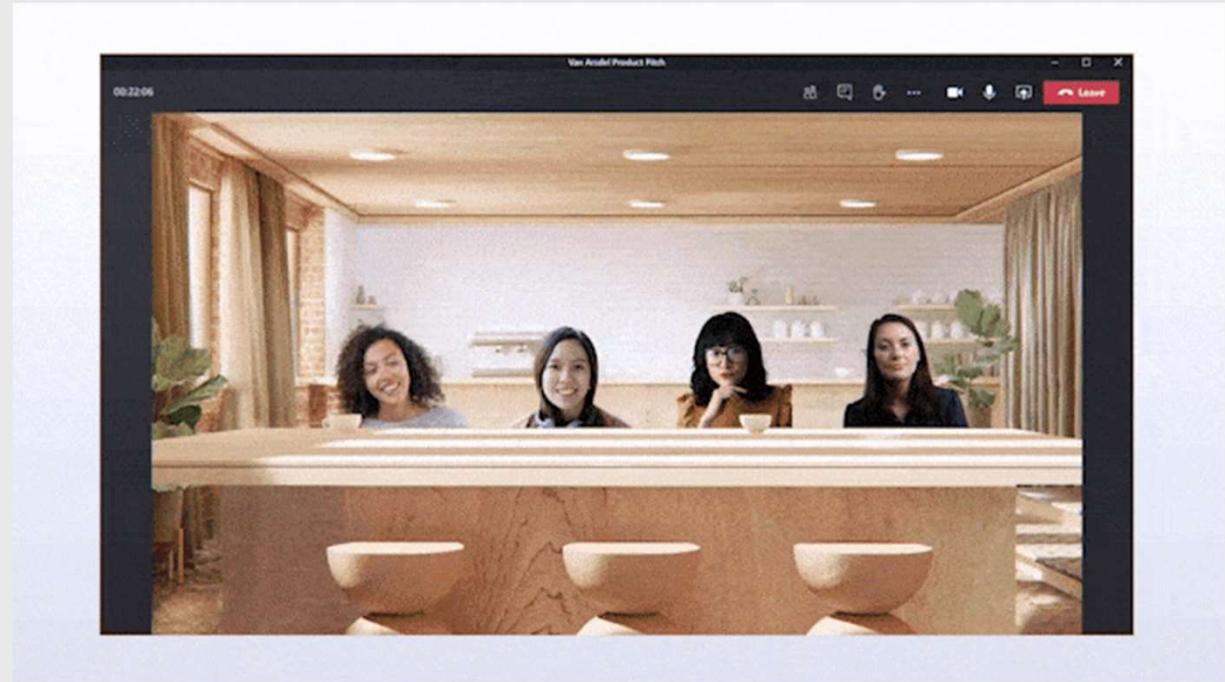
Teams Meetings

Many to many collaboration where everyone has equal participation.

- Chat
- Video conferencing
- Audio conferencing
- Document collaboration
- Apps
- 1 to 300 and even 1,000 attendees
- Together mode
- Breakout rooms



Together Mode Scenes

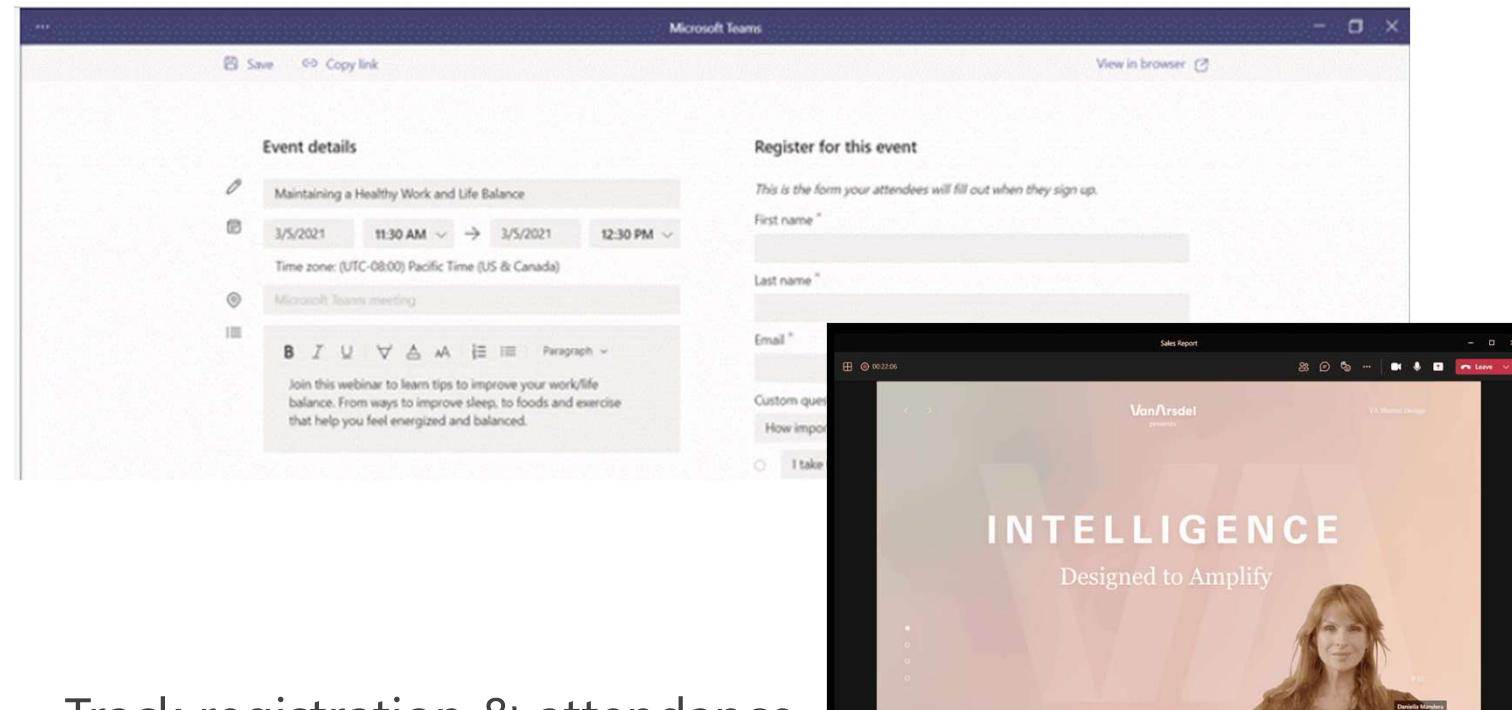


Breakout Rooms



Webinars

A type of Teams Meeting that helps you gather internal or external participant information in advance so you can learn more about your audience follow up with attendees after the event.



The screenshot shows the Microsoft Teams interface for creating a webinar. On the left, under 'Event details', it lists the title 'Maintaining a Healthy Work and Life Balance', date '3/5/2021', time '11:30 AM → 12:30 PM', and location 'Microsoft Teams meeting'. Below this is a rich text editor with a paragraph about the webinar's purpose. On the right, under 'Register for this event', there is a form with fields for 'First name', 'Last name', and 'Email'. A preview window shows a slide titled 'INTELLIGENCE' with the subtitle 'Designed to Amplify' and a photo of a woman.

- Track registration & attendance
- Create custom questions to gather information
- Disable chat & video in advance to avoid disruptions
- Link with Microsoft Dynamics
- 1,000 people – 20,000 view-only
- Internal or external participants

Admin to enable



Webinars

Maintaining a Healthy Work and... Chat Details Files Registration Attendance Polls

Download attendance report Follow up with participants

Raise hand

Name	Status	Duration	Join time	Leave time
Daniela Mandera daniela.mandera@contoso.com	Attended	1h 32m	11:30 am	12:32 am
Reta Taylor reta.taylor@contoso.com	Attended	1h 32m	11:30 am	12:32 am
Ray Tanaka ray.tanaka@contoso.com	Attended from lobby	0h 28m	11:30 am	11:58 am
Edmee Plant edmee.plant@contoso.com	Attended from nudge	1h 18m	11:30 am	12:18 am
Carianne Gentry carianne.gentry@contoso.com	Did not attend			
Hanno Simon hanno.simon@contoso.com	Attended	1h 20m	11:30 am	12:20 am

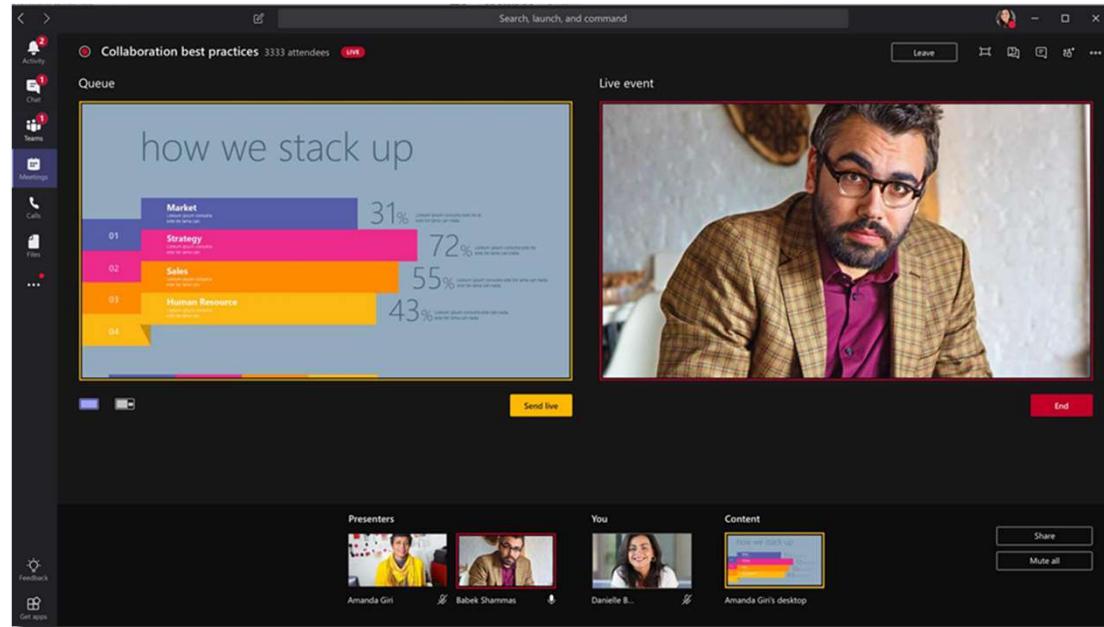
- Structured Attendee engagement – polls, raise hand, Q&A, live reactions
- Attendees cannot unmute or share unexpectedly
- Polls & Presenter modes make it interesting to watch
- Reporting dashboard + Dynamics 365 = momentum

Admin to enable



Teams Live Events

An extension of Teams Meetings that enables online broadcast of video and meeting content to large, online audiences wherever they reside.



- Virtual or hybrid events broadcast
- For large scale audiences up to 20,000 attendees*
- Moderated Q&A
- Professional broadcast capabilities
- Features for video stream ingestion & streaming
- Support for external hardware/software encoders

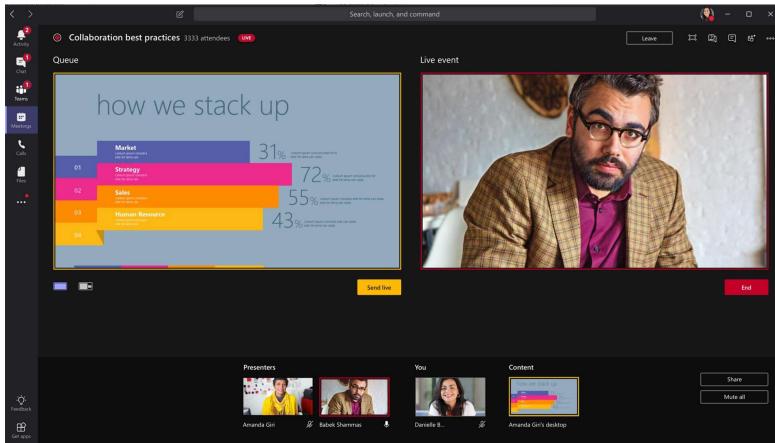
Admin to enable

[Aka.ms/virtualeventplaybook](https://aka.ms/virtualeventplaybook)

*June 30th



Teams Live Event Types



1. Teams Produced

- Plug in your laptop and go
- Produce the event using Microsoft Teams (Meeting or Live Event)

2. External App or Device Produced

- Professional camera and sound set up
- Produce the event using an external hardware or software encoder (example; OBS with NDI)
- Use this option if you already have a production set up such as media mixers that supports streaming to an RTMP service
- This method is used for auditorium-style events broadcast 1-to-many in the audience

[Aka.ms/virtualeventplaybook](http://aka.ms/virtualeventplaybook)

Who can watch Live Events?

Attendee visibility	Teams production	External app or device production
Public (anonymous users)	Yes	No
Guest users	Yes ¹	No
Everyone in external access (federation) company	Yes ¹	No
Everyone in company	Yes	Yes
Specific groups / people	Yes	Yes

¹ Can only be invited through People & Group

Teams Live Events - Licensing

I want to:	Office 365 and Microsoft 365 licenses					
	F1	F3	E1	E3	E5	Audio Conferencing add-on
Join a Teams meeting	No license required. Any email address can participate in a Teams meeting.					
Attend a Teams meeting with a dial-in phone number	No license required. Any phone number can dial into a Teams meeting. ¹					
Attend a Teams live event	No license required.					
Create a Teams meeting for up to 250 attendees		One of these licensing plans				
Create a Teams meeting for up to 250 attendees with a dial-in phone number		One of these licensing plans + Audio Conferencing ¹				
Create a Teams live event for up to 10,000 attendees			One of these licensing plans			
Dial out from a Teams meeting to add someone at their Call me at number		One of these licensing plans + Audio Conferencing ²				

Teams Live Events – Step 1: Prepare your network

1. Internet access & good bandwidth at all locations-?

- Open UDP ports 3478 through 3481
- IP addresses 13.107.64.0/18, 52.112.0.0/14 and 52.120.0.0/14

2. Do you have a verified domain for Microsoft 365-?
(Example: Contoso.com)

3. Have you deployed Exchange Online and SharePoint Online-?



Teams Live Events – Step 2: Get and assign licenses

Who **CREATES** Live Events?

- A Microsoft or Office 365 E1, E3, E5, A3 or A5
- Teams Admin - admin.teams.microsoft.com
- You have been given permission to create live events in Microsoft Teams
- You have been given permission to create live events in Microsoft Stream (for events produced using an external broadcasting app or device)
- You have full membership as an employee in your organization (cannot be a guest from another organization)

Who **ATTENDS** Live Events?

- Public – anyone who has the URL to join can attend without logging in
- Private – if restricted to your organization, or specific people/groups, attendees will need to log in to join (need to be added as a member to your tenant)

[Aka.ms/virtualeventplaybook](https://aka.ms/virtualeventplaybook)

Teams Live Events – Organize, Produce or Present

To ORGANIZE Live Events?

- A Microsoft or Office 365 E1, E3, E5, **[or]** Education A3 or A5 license

To PRODUCE or PRESENT Live Events?

- A Microsoft or Office 365 Enterprise E1, E3 or E5 license, **[or]** a Microsoft or Office 365 Education A1, A3 or A5 license.
- The exception to this requirement is guest users can present without a license if the other criteria for [guest users](#) is met.

[Aka.ms/virtualeventplaybook](https://aka.ms/virtualeventplaybook)

Best practices for a Guest to Present

Recommended To Dos

1. Add the user as a Guest to a Team
2. Have the user accept the Guest invitation and join the team
3. Schedule the Live Event and add the Guest to your event group

Best practices

- Create a channel for Producers & Presenters of the live event so they can share information before the event
- Guests who don't have Microsoft 365 credentials won't see the calendar in Teams
- Producers can post the event link for Presenters to the Channel
- Presenters can then open Teams, go to the Channel and then select the link to join their event

[Aka.ms/virtualeventplaybook](https://aka.ms/virtualeventplaybook)

Teams Live Events – Step 3: Set up Live Events policies

The screenshot shows the Microsoft Teams Admin Center interface. On the left, there is a vertical navigation bar with icons for Home, Meetings, Conference bridges, Meeting policies, Meeting settings, Live events policies (which is highlighted with a green box), and Live events settings. Below the navigation bar is a search bar labeled "Search by display name". The main content area is titled "Dashboard \ Live events policies \ New policy". It contains fields for "Title" and "Description", both of which are currently empty. Under "Allow scheduling", there is a toggle switch set to "Off". Under "Allow transcription for attendees", there is another toggle switch set to "Off". A dropdown menu for "Who can join scheduled live events" is open, showing the option "Everyone in the organization". A dropdown menu for "Recording setting" is also open, showing the option "Always record". At the bottom of the form are two buttons: "Save" and "Cancel".

Admin.Teams.Microsoft.com

Teams Live Events – Step 4: Set up video distribution solution

Live events settings

Teams live events setting let you control settings for live events that are held in your organization. You can set a support URL and set up a third-party video distribution provider for all live events that are organized. Learn more.

Support URL

Customize the support URL if a user needs to contact support during a live event

Third-party video distribution providers

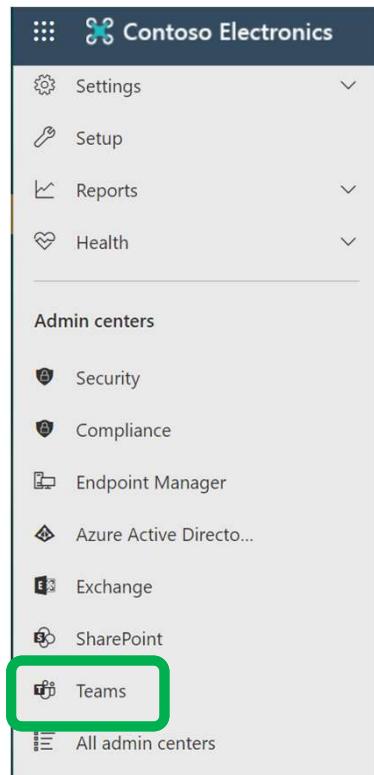
Use a third-party distribution provider On

SDN provider name

Provider license key XXXX-XXXX-XXXX-XXXX

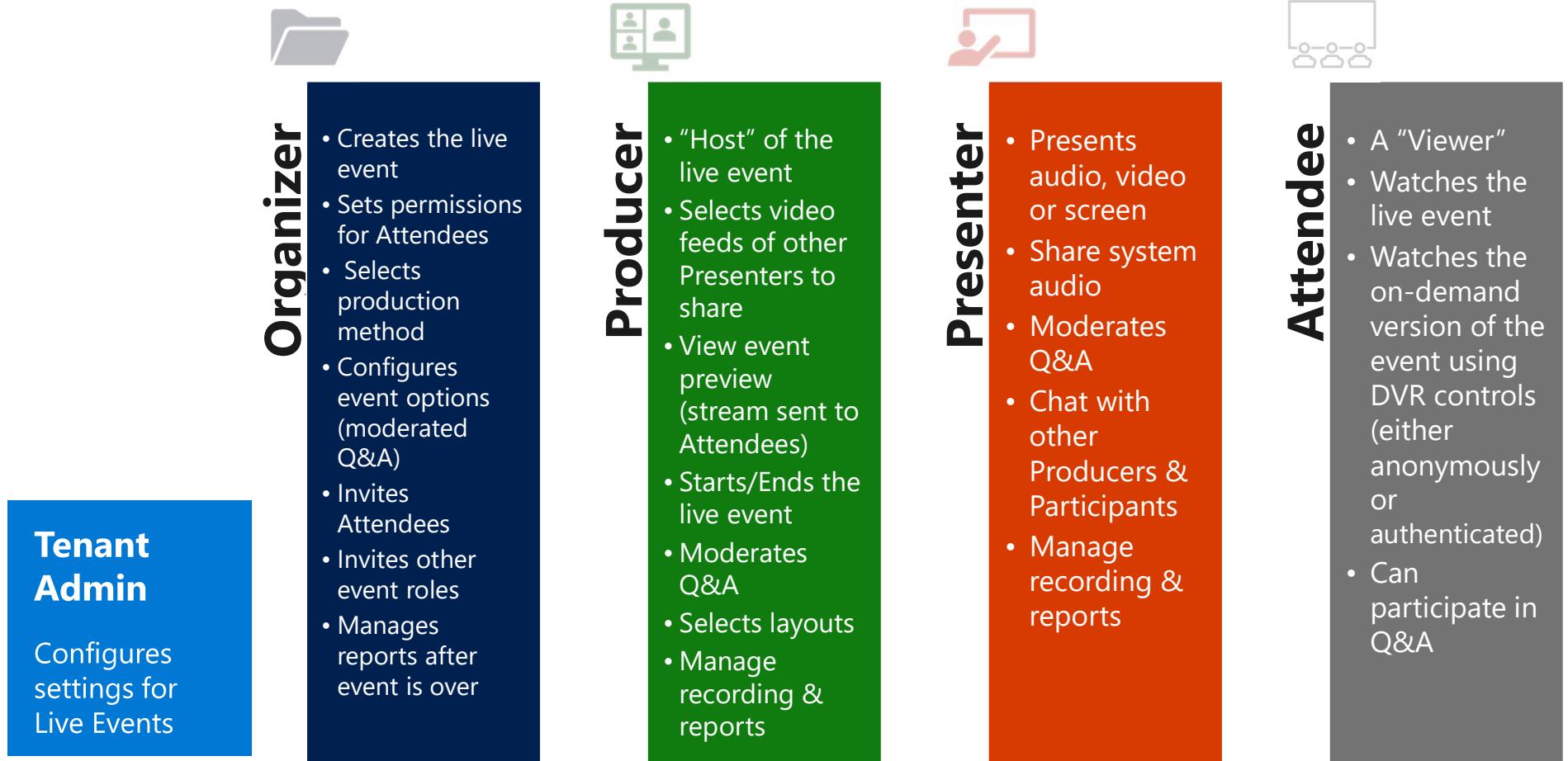
SDN API template URL

Save **Discard**



The screenshot shows the Microsoft Teams Admin Center interface. On the left, there's a navigation sidebar with various admin centers like Security, Compliance, and Endpoint Manager. The 'Teams' option is highlighted with a green rectangular box. The main content area is titled 'Live events settings' and contains sections for 'Support URL' and 'Third-party video distribution providers'. Under 'Third-party video distribution providers', the 'Use a third-party distribution provider' toggle is turned 'On'. There are fields for 'SDN provider name' (which is currently empty), 'Provider license key' (containing the placeholder 'XXXX-XXXX-XXXX-XXXX'), and 'SDN API template URL' (also empty). At the bottom, there are 'Save' and 'Discard' buttons.

Live Event Roles



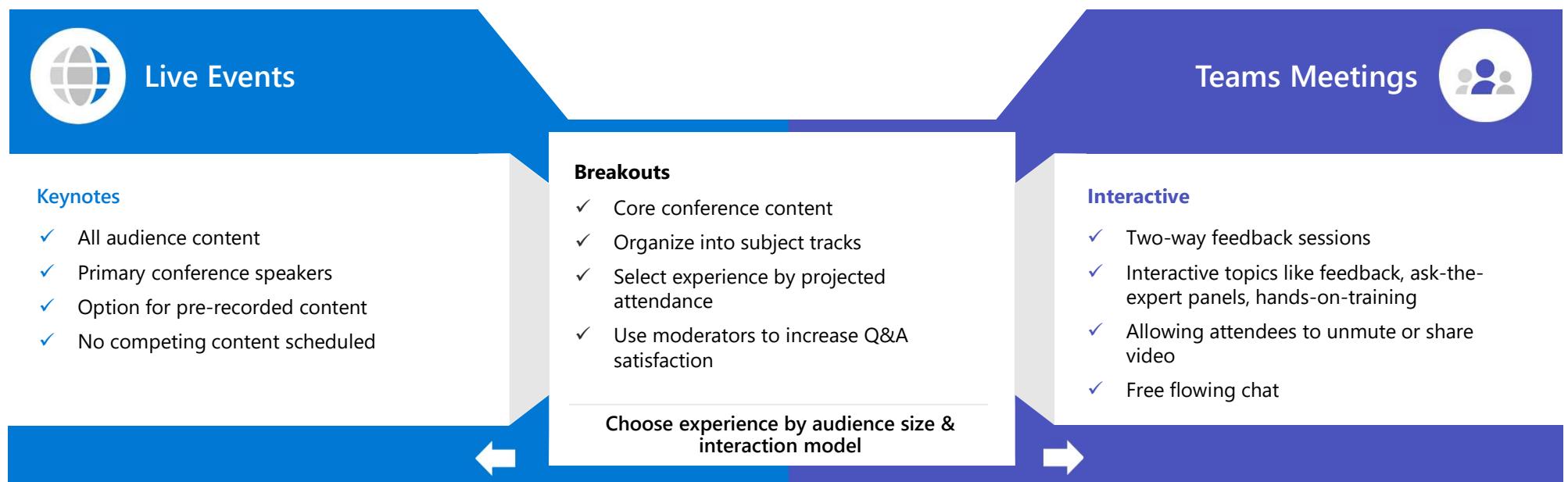


Selecting your Event Experience

Teams Meetings vs. Teams Live Events

Advanced event scenarios

Large scale, multi-day events may be a combination of Teams meetings and Live Event experiences. Match the interaction and broadcast method to the audience need.



Tips for a successful event:

- Provide navigation and awareness sign-posts on your primary attendee website or digital brochure.
- Make content available for attendees as soon as possible after event. Use Stream for Microsoft 365, Microsoft Teams, or other popular online video portal technologies to ensure a content lifecycle.

Selecting your event experience



I What type of event?	II What type of attendee experience?	III How many people will watch the event live?*	IV What level of video production?
Single event	Open 2-way discussion	Up to 300	Simple webcam and screen share
Event series	Managed Q&A	Up to 20,000	Multiple presenters
Part of an engagement community	No attendee discussion or Q&A	Up to 100,000	Custom production

Event examples:

Single event: Product launch, organizational changes, town hall

Event series: Training, office hours, employee development

Engagement community: Customer community, company partners, product support

*Are your attendees' members or guests of your Microsoft 365 tenant? Microsoft Stream does not support guest access at this time.

Selecting your event experience: Teams meeting



I What type of event?	II What type of attendee experience?	III How many people will watch the event live?	IV What level of video production?
Single event	Open 2-way discussion	Up to 300	Simple webcam and screen share
Event series	Managed Q&A	Up to 20,000	Multiple presenters
Part of an engagement community	No attendee discussion or Q&A	Up to 100,000	Custom production

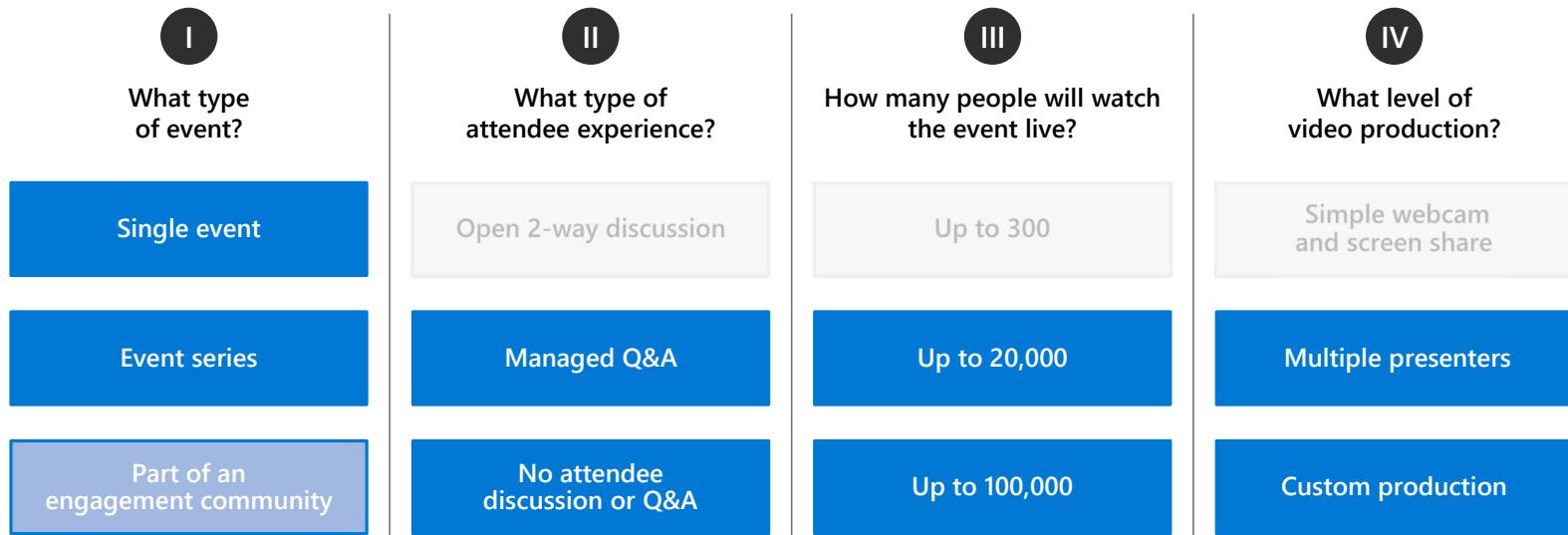


Recommended:
Teams meeting

Build community and authentic connection

- Provides open discussion features via audio and video for attendees
- Provide meetings as a part of a team to provide continuing engagement
- Support interactive chat during & multiple presenters in the meeting
- Familiar content and video sharing controls
- Use Yammer for your Teams-produced meeting as a part of a community experience or series with continuing conversation

Selecting your event experience: Live Events



Recommended:
Live Events

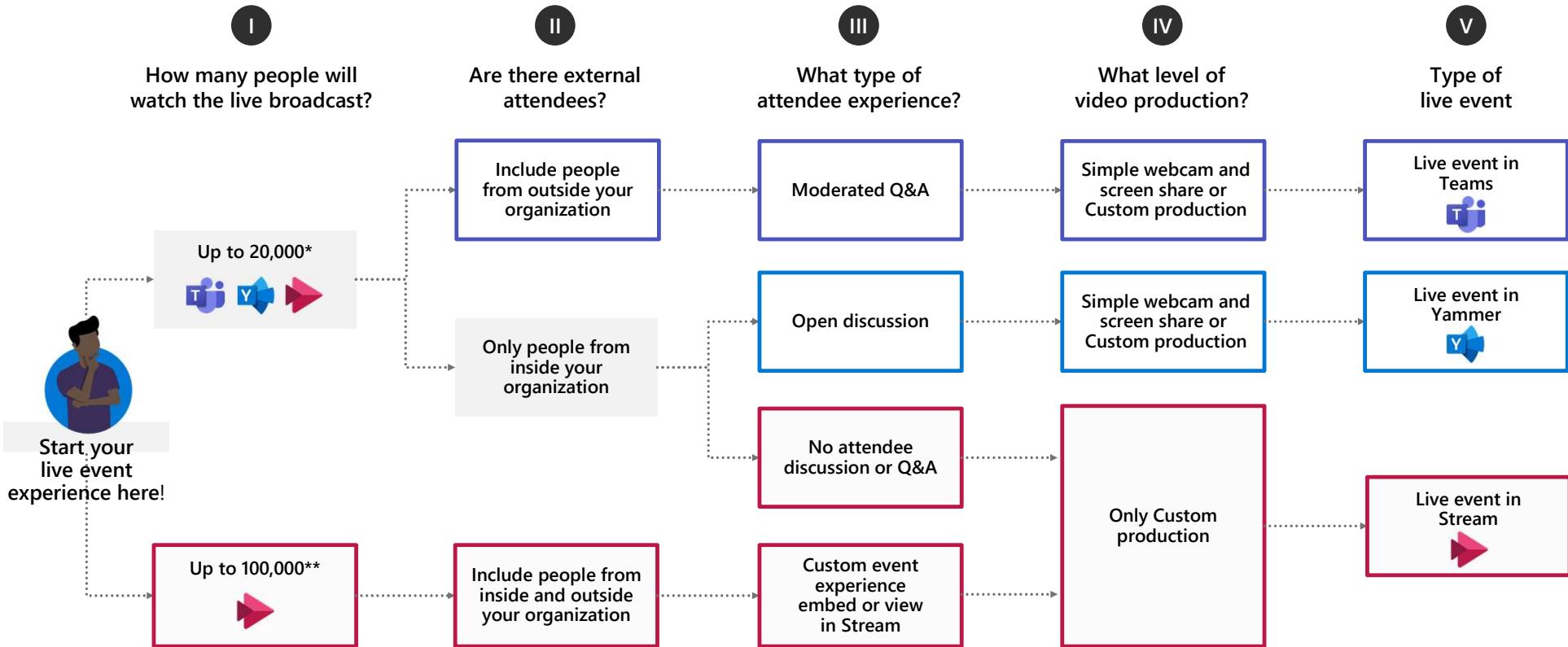
Manage the attendee experience

- Multiple Live Event options for maximum flexibility
- Broad scale and highly managed content experience
- Supports self-produced to custom production scenarios
- Live Events can be publicized as a part of an engagement community

Next Step: Follow Live Event selection decision tree ➔

[Aka.ms/virtualeventplaybook](https://aka.ms/virtualeventplaybook)

Which Live Event experience is right for me?





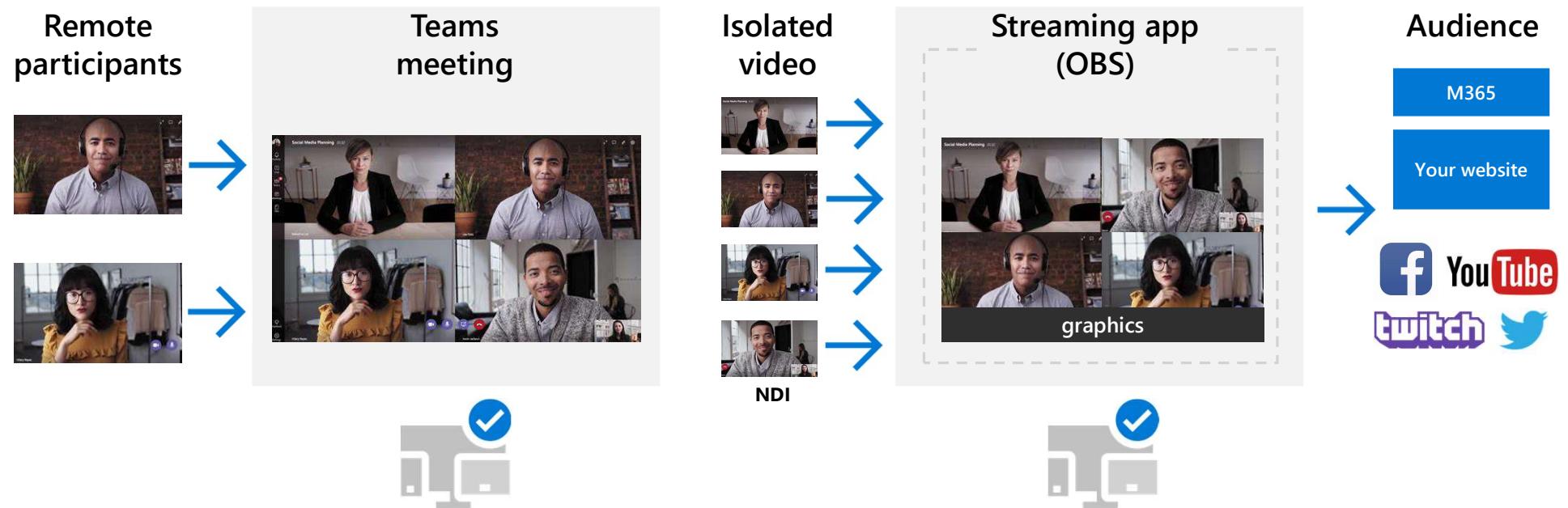
Production Concepts

High level process flow

Producing with an external app or encoder requires multiple components:

1. Skilled production staff. Advanced productions often require technical producers along side communication & on-air talent staff.
 2. The scheduled Live Event for production and Attendees.
 3. The external app/encoder (such as OBS Studio, Streamlabs OBS, Wirecast, vMix).
 4. An active source of content ingested into the external app/encoder.
- The content being presented can be sourced from a variety of locations; for example we will use a Teams meeting as the source of content provided to the external app/encoder (OBS Studio).
 - This configuration allows you to bring in guests from multiple locations into a single digital experience.

Produce your broadcast from a secure, virtual stage



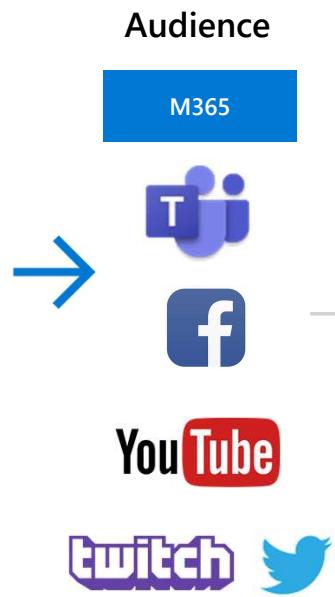
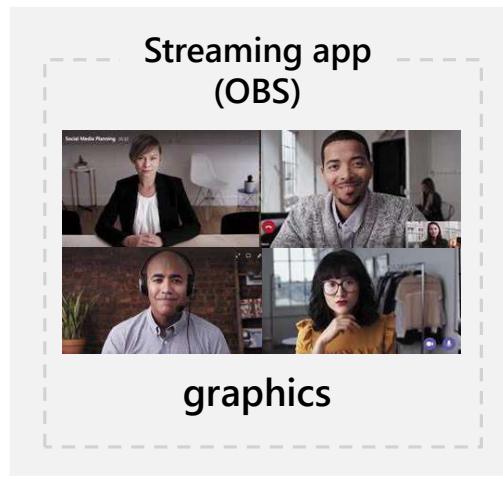
This system joins the Teams meeting and uses NDI to extract the isolated video feeds and mixed audio feed.

This system runs the production software (OBS, Wirecast, vMix) to produce the desired layouts. From this system, you can send the feed to your external audience.

Microsoft Teams – your secure, virtual stage

Customized broadcast

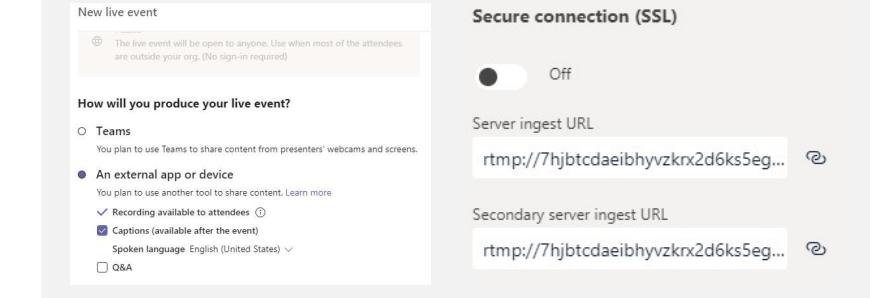
Production Machine – Streaming to the Audience



Production software can output to various audience locations

Scheduling in Teams

Live Event scheduling -> select an external app or device



Producer obtains the ingest URLs when they join

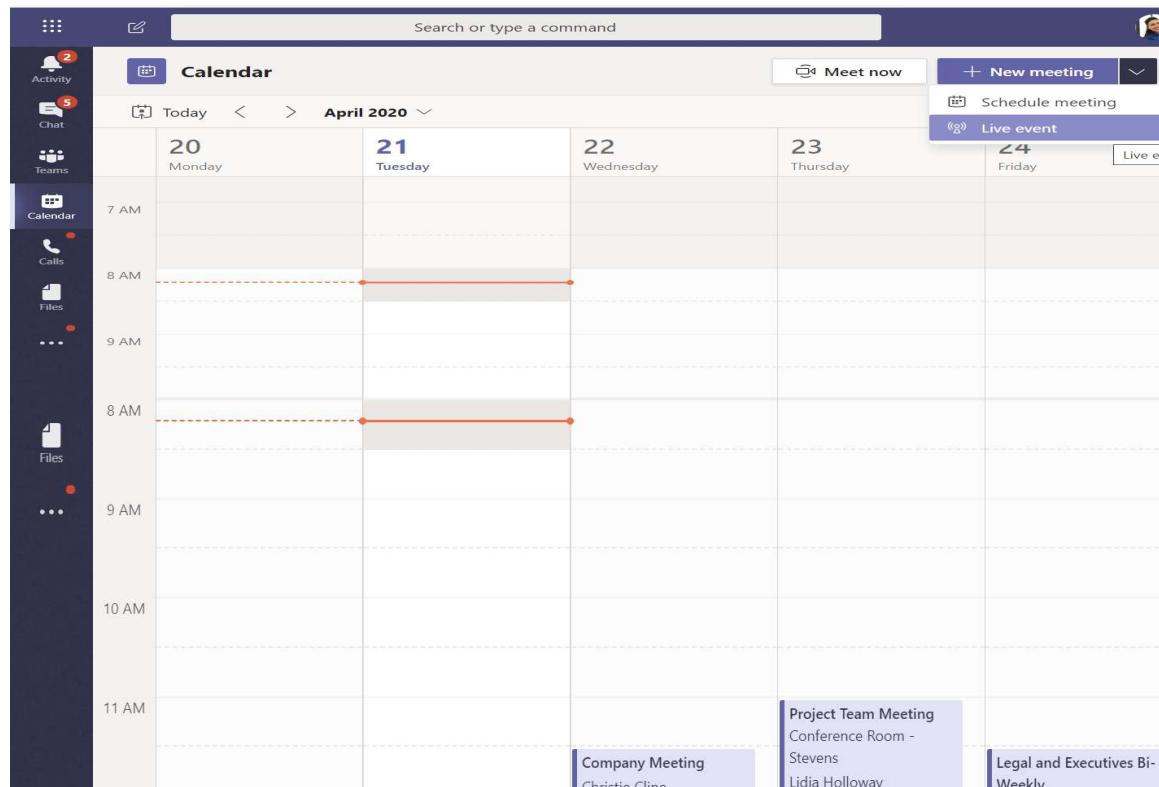
Use [NewTek NDI Tools](#) (NDI Virtual Input -> NDI Virtual Camera/Virtual Audio) to bring the OBS feed (NDI Out) back into the Teams Live Event

Stream to third party platforms (Facebook, YouTube, etc.)
Platform will provide the Server/Stream Key information

Scheduling a Live Event

Schedule a Live Event from Teams

Organize a Live Event and determine which roles your team should play in the production and moderation of the event.



Schedule a Live Event
From your **Calendar** in Teams, click the drop down next to **New meeting** and select **Live event**

Setting up a Live Event

The **New live event** screen is where you define the following details about your event:

- **Title** of your Live Event
- **Date** and **Start** and **End** times of your event
- Who you will invite as **Producers** and **Presenters** for the event

In the **Invite people to your event group** area is where you define the roles for your event team members. The following roles are available:

- **Producer:** As a host, makes sure attendees have a great viewing experience by controlling the live event stream. There is usually one producer, but you can have multiple for backup of the primary.
 - Configures the encoder connection
 - Starts and stops the live event
 - Moderates Q&A panel
- **Presenter:** Presents audio, video, or a screen to the live event, or moderates Q&A. There are usually multiple presenters, and some may only have the role of moderating the Q&A as an example. **When using the external encoder option, presenters invited here are only used for moderating Q&A (if enabled).**

Once you have completed all the fields, click **Next** to continue.

Important note – We have not defined who will be viewing the Live Event as an attendee; We have simply defined who will be producing and presenting in your Live Event.

New live event

You are setting up a live event

To invite attendees, copy the link once you schedule the live event, and publish it or send it in a calendar invite. Learn more

Title *

Company Townhall

Location

Start

Apr 27, 2020

End

Apr 27, 2020

Details

B I U S | ↵ A AA Paragraph ↴ ↵ ...

Please join 15 minutes prior to the event for final preparation.

Invite people to your event group

Invite presenters

Organizer

Aaron Porzondek Producer

Event group

Tim Hadley Presenter

J.C. Layton III Presenter

Greg Yavello Presenter

Close

Next

Live Event permissions

Next you will choose who can attend your event based on the following permission types:

- **People and groups** – The event can only be watched by people, security groups or Microsoft 365 groups you name.
 - This permission type is ideal for confidential Live Events that should only be viewed by the specific people or groups defined here.
- **Org-wide** – Everyone in your org can watch the Live Event, including guests.
 - This permission type is best for all other Live Events where the content is not confidential.
- **Public** – Anyone can join – both people in your org and those outside of it.
 - This permission type would apply to a scenario where you intend for the general public to attend a Live Event, such as your customers or shareholders.
 - Note – this option is currently unavailable when producing the event using “An external app or device”.

Before clicking **Schedule**, scroll down to reveal options that pertain to **How will you produce your live event**. These will be covered on the next slide.

The screenshot shows the 'New live event' wizard. Under 'Live event permissions', the 'Org-wide' option is selected, indicated by a blue border around its box. The 'Org-wide' box contains the text: 'Everyone in your org can watch the live event. (Sign-in required)'. Below this, the 'Public' option is shown with the note: 'The live event will be open to anyone. Use when most of the attendees are outside your org. (No sign-in required)'. At the bottom right of the wizard are three buttons: 'Close', 'Back', and a blue 'Schedule' button.

TIP: If your public event is supporting anonymous Attendees, and you select “Recording available to attendees”, the attendees will be able to view (but not download) the recording on-demand using the original join link.

How will you produce your Live Event?

Finally, you will select several available options for how your Live Event will be produced.

- **Teams or An external app or device**

- To produce the event in Teams, keep the default option of **Teams**. The other option **An external app or device** is only if you desire to have your event produced by a formal audio and visual department or outside AV company.

- **Recording available to attendees**

- Attendees can watch the event on demand using DVR options for 180 days.

- **Captions (available after the event)**

- Captions are available to event participants after the event concludes.

- **Q&A**

- Attendees can interact with producers and presenters in a moderated Q&A.

Now that you have selected all of the options you desire, you can click **Schedule** to continue.

New live event
are outside your org. (No sign-in required)

How will you produce your live event?

Teams
You plan to use Teams to share content from presenters' webcams and screens.

An external app or device
You plan to use another tool to share content. Learn more

Recording available to attendees ⓘ
 Captions (available after the event)
Spoken language English (United States) ↗
 Q&A

Some of these options have not been enabled by your IT admin

Schedule

TIP: If using an external device your video stream cannot be viewed by guests of the tenant.

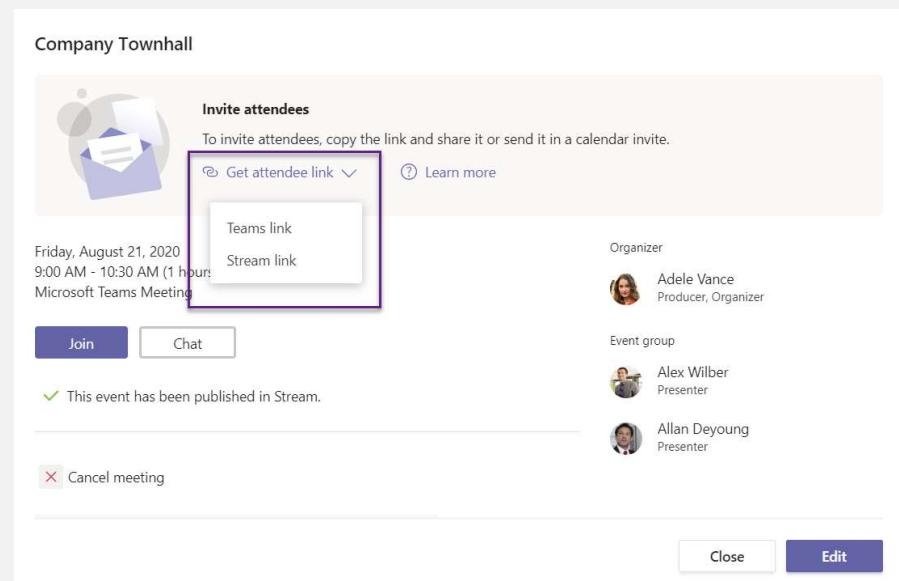
Get the link for Attendees

The next step in finalizing the setup of your Live Event is to copy the attendee link for your event. The attendee link is how your event attendees will attend the event.

Click the **Get attendee link** dropdown and select the desired viewing experience to copy the link to the clipboard. You can now publish that link however you desire. Common ways of publishing it include:

- Sending an Outlook invite to your intended attendees and pasting the attendee link into that Outlook appointment
- Publishing via a company newsletter
- Publishing to an internal Intranet site

Once you have copied the attendee link, you can now click Close to schedule the event. Producers and Presenters will receive an invitation in their emails with a link only valid for the Producers and Presenters of the event.



TIP: Forwarding invitations does not allow someone to become a producer or presenter. You must edit the event and add them through the Teams experience. Once an event has started you cannot add producers or presenters.

Scheduling your Teams Meeting (content source)

Teams meeting

The following slides are to provide guidance on how to create a Teams meeting for the purpose of using an external application/encoder (OBS Studio).

Note that some of the features may not be exactly what an end user will experience due to:



Teams policies set at
the admin portal.



How the end user
accesses Teams (e.g.,
web client vs desktop).

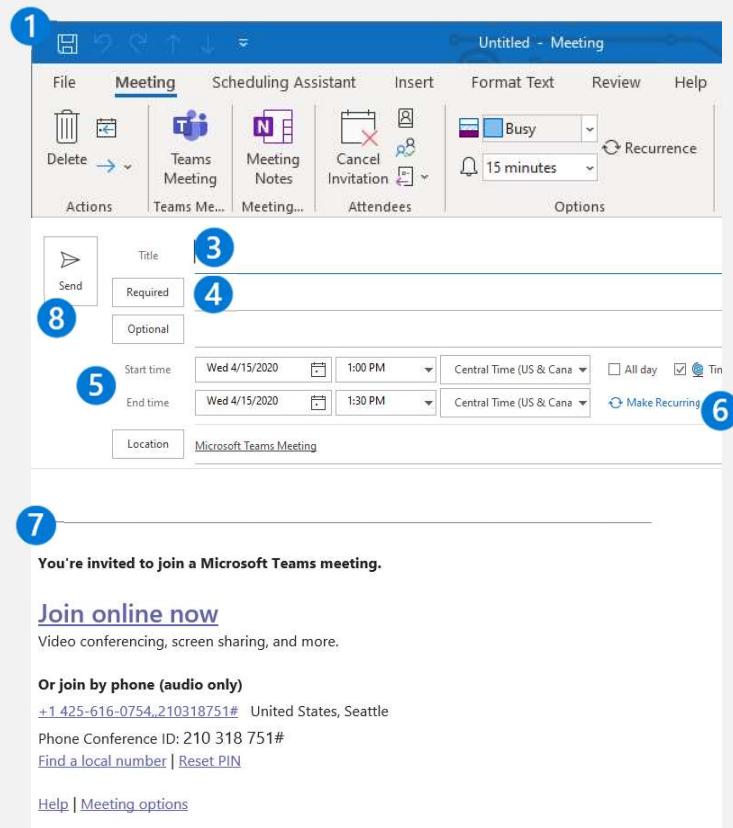


Where the company is at with
new features being rolled out
from the tenant level.

Ahead of scheduling your virtual event, ensure you are coordinating with your IT administrator to be aware of any limitations placed on your meeting by tenant policies.

Creating a meeting invite in Outlook

- 1 Open your **Outlook Calendar***, click the **Home** tab, and then click the **Teams Meeting** icon (screenshot on the right).
- 2 Select the **Teams** icon. When you do so, a **Join a Microsoft Teams Meeting** link is created in the body of the invite. If you have an auto conferencing license, a phone number and conference ID will be included.
- 3 Create a **Title** for your meeting invite.
- 4 In the **Required** box, enter the email addresses for the people you want to invite to the meeting.
- 5 Select a **start and end time** for the meeting.
- 6 If you need the meeting to be recurring, please select the **Make Recurring** icon.
- 7 Add content to the body of the invite to inform participants of the purpose of the meeting.
- 8 Double check your information and then click the **Send** button.



*Your calendar in Teams is connected to your Exchange calendar. In other words, when you schedule a meeting in Outlook, it will show up in your Teams calendar, and vice versa.

Creating a meeting invite in Teams

- 1 Open the Teams client, select the **Calendar** icon located on the left side of the navigational side bar.
- 2 Select the **New Meeting** button located in the top right corner of the screen.
- 3 Create a **Title** for your meeting invite.
- 4 In the **Required Attendees** box, enter the email addresses for the people you want to invite to the meeting.
- 5 Select a **start and end time** for the meeting.
- 6 If you need the meeting to be recurring, select the **Does Not Repeat** drop down box and a recurring selection(s) drop down box will appear.
- 7 For internal attendee(s), select the **Scheduling Assistant** tab (top left) to see if the attendee(s) are available at the time you are proposing.
- 8 Add content to the body of the invite to inform participants on the purpose of the meeting.
- 9 Double check your information and then click the **Save*** button.

*When you select the **Save** icon, the Microsoft Teams meeting link info is automatically created and sent out in the invite. If you have an audio conferencing license, a phone number and conference ID will be included.

The screenshot shows the Microsoft Teams 'New meeting' creation interface. At the top, there's a navigation bar with 'Meet now' and a purple 'New meeting' button. A blue circle with the number '2' is over the 'New meeting' button. Below the navigation bar, the 'New meeting' tab is selected, indicated by a blue circle with '7'. The main form has several fields: 'Add title' (step 3), 'Add required attendees' (step 4), date and time set to Jun 17, 2020, from 3:30 PM to 4:00 PM (step 5), a 'Does not repeat' dropdown (step 6), 'Add channel' and 'Add location' fields, a rich text editor toolbar (step 8), and a text area for meeting details (step 9). A blue circle with '3' is over the 'Add title' field, '4' over the attendees field, '5' over the date/time, '6' over the repeat dropdown, and '8' over the toolbar.

Edit meeting options

- 1 Once your meeting is scheduled you can edit the meeting options.
Return to your Calendar and edit the meeting you just scheduled.
- 2 Your options will appear in a new browser window.
- 3 Select which meeting roles can bypass the lobby.
- 4 Toggle if audio caller can always bypass the lobby.
- 5 Toggle join/leave announcements.
- 6 Select which meeting roles can present in this meeting.
- 7 Select **Save** to save your options. Options can be changed until the meeting begins.

2 Meeting options

Who can bypass the lobby?

4 Always let callers bypass the lobby

5 Announce when callers join or leave

People in my organization

No

Yes

Who can present?

Everyone

7

Save

3

People in my organization

Everyone

People in my organization and trusted organizations

People in my organization

Only me

6

Everyone

Everyone

People in my organization

Specific people

Only me

Producing with an external application

External applications for production (encoders)

Definition

Compresses audio and video from various inputs and sends that output to a streaming service

Hardware, software, mobile apps

Settings

RTMP(s) – single bitrate

Video:

- Codec: H.264, High
- Fragment size: 2 sec
- Bitrate: up to 5 Mbps, CBR, 30 fps

Audio:

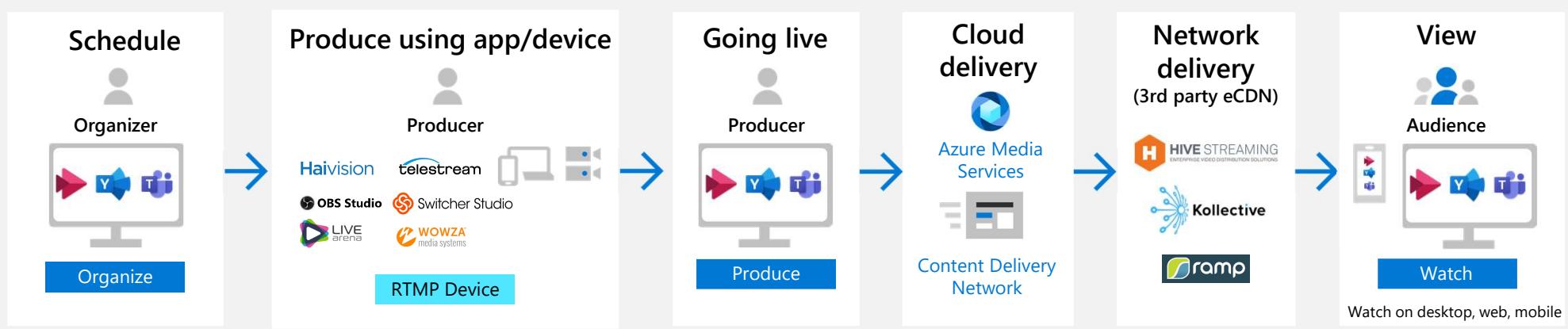
- Codec: AAC-LC
- Bitrate: 192 kbps
- Sample rate: 48Khz

Note: both audio and video must be present

Compatible encoders

The Haivision logo consists of the word "Haivision" in a blue sans-serif font.The Telestream logo features the word "telestream" in a black sans-serif font, with a blue swoosh graphic above the letter "t".The LIVE arena logo includes a stylized play button icon composed of overlapping colored triangles (blue, green, red) next to the text "LIVE arena".The Switcher Studio logo features a red circular icon with three curved lines inside, followed by the text "Switcher Studio".The WOWZA media systems logo consists of a stylized orange "W" icon followed by the text "WOWZA™ media systems".The XSplit Broadcaster logo features a blue speech bubble icon with a white video camera outline inside, followed by the text "XSplit Broadcaster".The OBS Studio logo includes a black circular icon with three curved lines inside, followed by the text "OBS Studio".

Introduction to advanced production workflow with an external application



These steps represent the production workflow for broadcast streaming. At each step, you are deciding the specific technology to use.

Nothing can replace a dress rehearsal. This allows you to test all configurations and content switching to streamline the audience experience.



Joining as a Producer – from Teams or Outlook

The screenshot shows two calendar interfaces side-by-side. The top interface is the Microsoft Teams Calendar for April 2020, and the bottom interface is the Microsoft Outlook Calendar for the same period. Both calendars list various meetings and events. A blue callout box with a black border is positioned over the Teams calendar, containing the text: "Join the Live Event as a **Producer** or **Presenter** from your Teams calendar or from your Outlook Calendar." Two blue arrows point from the bottom of this callout box to specific meeting entries in both the Teams and Outlook calendars. The first arrow points to a meeting entry in the Teams calendar for April 17th, and the second arrow points to a meeting entry in the Outlook calendar for April 10th.

Join the Live Event as a **Producer** or **Presenter** from your Teams calendar or from your Outlook Calendar.

17 Friday

10 AM Live Event Training Prep for PPD

11 AM IT Town Hall Microsoft Teams Meeting

12 PM ECIF MW Consumption program - Office Hours Microsoft Teams Meeting

1 PM [EXTERNAL] Teams Live training session

7 9 10

10 AM Live Event Training Prep for PPD

11 AM IT Town Hall Microsoft Teams Meeting

12 PM ECIF MW Consumption program - Office Hours Microsoft Teams Meeting

1 PM [EXTERNAL] Teams Live training session

Joining as a Producer



The screenshot shows the Microsoft Teams interface for a live event titled "Company Townhall". The event is scheduled for today at 9:00 AM PDT and is currently OFFLINE. A tooltip box highlights the "Start setup" button, which is described as "Select 'Start setup' Once Stream is done setting up, you will be able to connect your encoder." To the right, the "Source settings" pane is open, showing options for "Set up your encoder" (with steps 1-3 for connecting an encoder), "Secure connection (SSL)" (set to Off), and server ingest URLs.

The Producer will first need to click Start setup to provision the event.

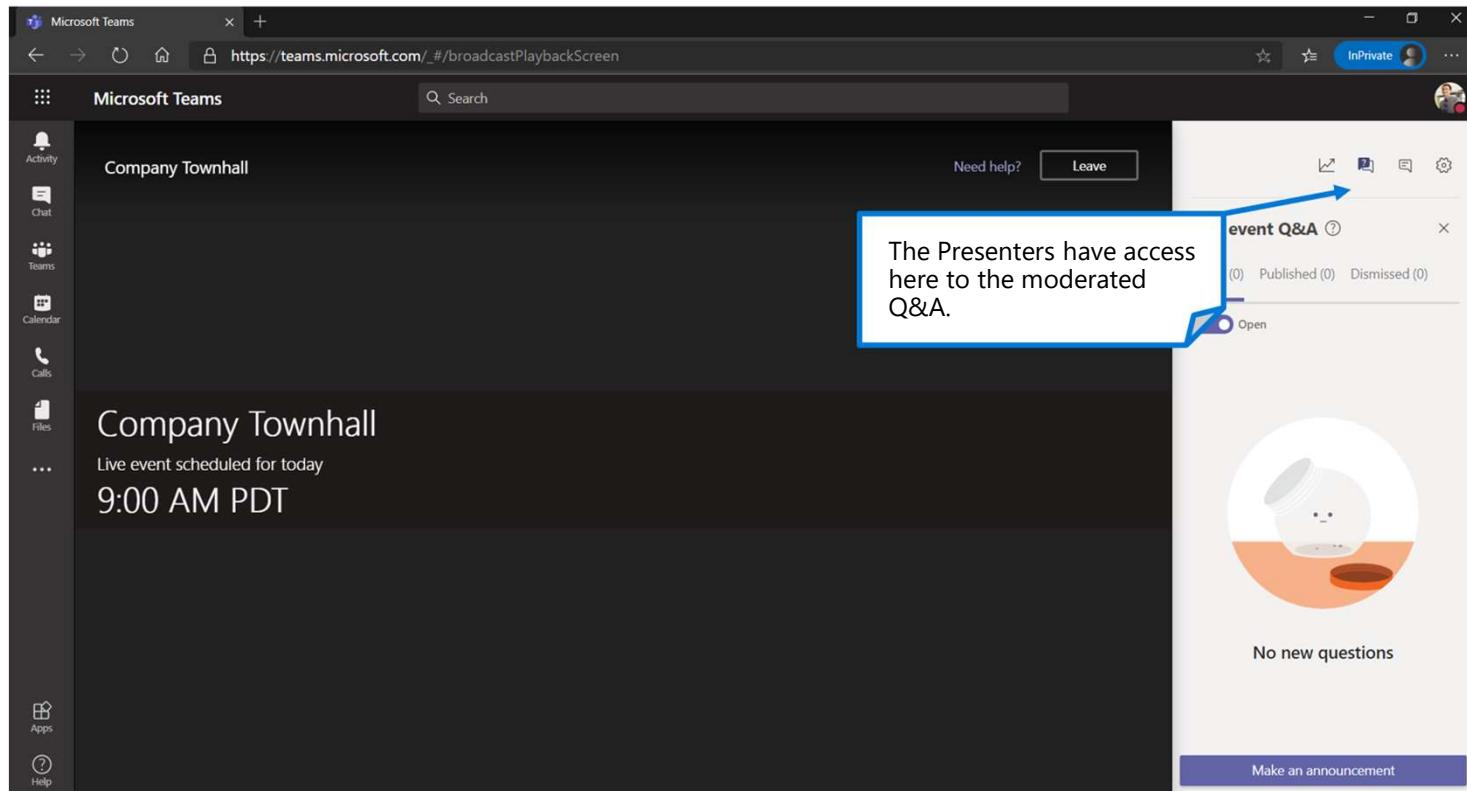


Producer

Joining as a Producer

The screenshot shows the Microsoft Teams interface for a live event titled "Company Townhall". On the left, the Teams sidebar is visible with options like Activity, Chat, Teams, Calendar, Calls, Files, and Apps. The main area displays an "Encoder preview" window with the text "Ready to connect" and "Connect your encoder now to start sending data". Below this, it says "Live event scheduled for 9:00 AM PDT". A yellow "PRE-LIVE" button is at the bottom left, and "Disconnect", "Start event", and settings icons are at the bottom right. A callout bubble with a blue border and arrow points from the text in the preview window to the "Start event" button. To the right of the preview is a "Source settings" panel with sections for "Set up your encoder" (instructions for connecting an encoder), "Secure connection (SSL)" (with "Off" selected), and two URL fields: "Server ingest URL" (rtmp://kgoeuhfozow6e6gpnyljw2wt...) and "Secondary server ingest URL" (rtmp://kgoeuhfozow6e6gpnyljw2wt...).

Joining as a Presenter (Moderated Q&A)



When a Live Event scheduled in Teams is produced using an external app or encoder, Presenters for this event will not have any type of audio/video capabilities. They will be able to moderate the Q&A panel (if enabled), chat with the producer(s) and view the live stream within the client.



Connecting your encoder (OBS example)

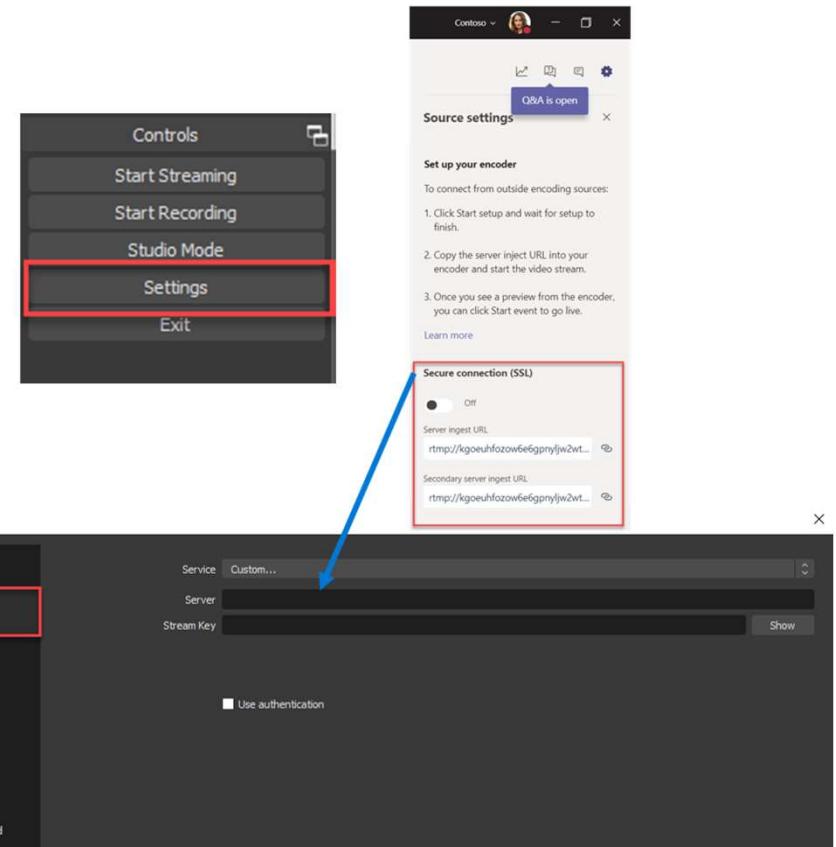
In your encoding software, provide the RTMP ingest URL(s) to connect the output of the encoder to the Live Event.

In OBS Studio, go to the Controls dock, and click **Settings**.

- In the **Service** dropdown, select **Custom...**
- In the **Server** textbox, paste in the value from the **Server Ingest URL**
- In the **Stream Key** box, enter any value (such as **12345**).

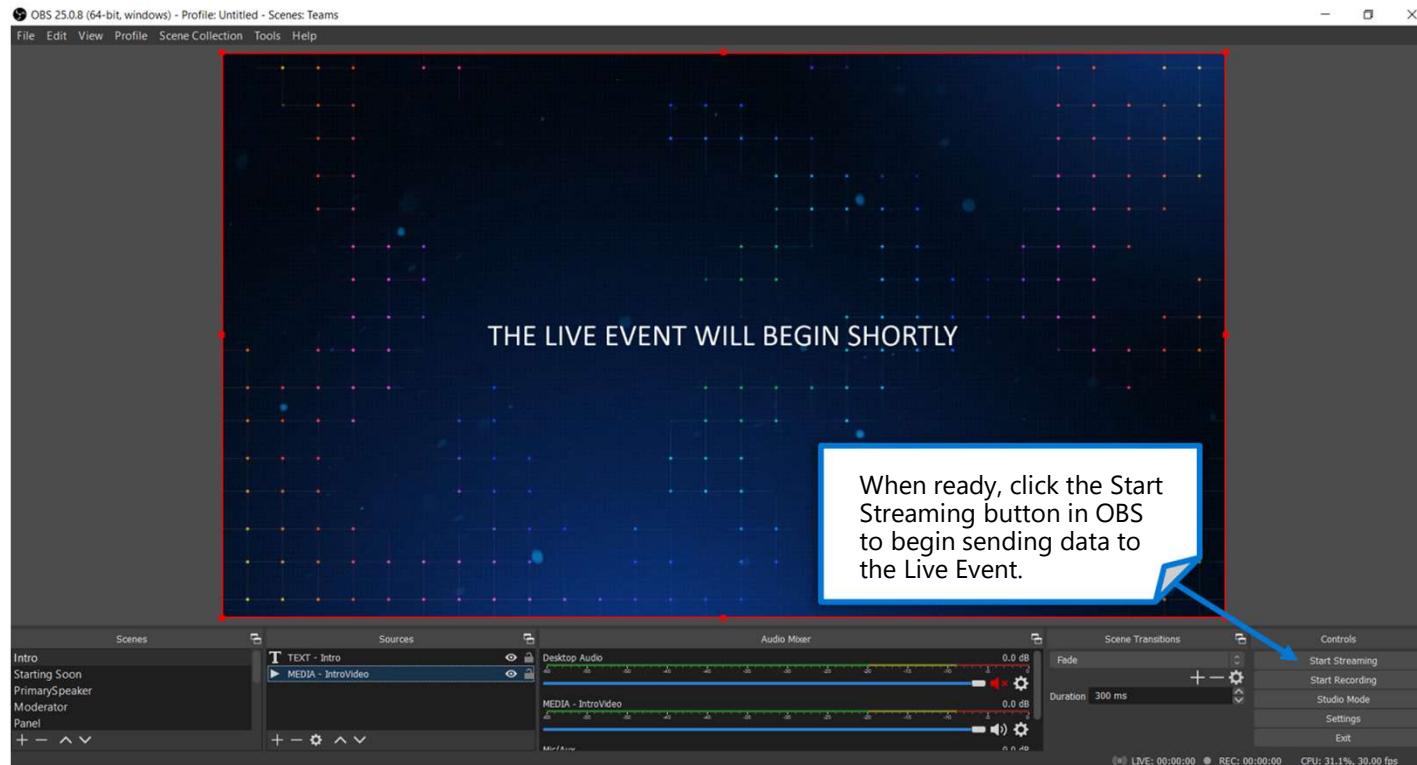
Note: Teams Live Events with Stream do not utilize a Stream Key; however, the OBS Studio software requires that a value be entered into this field.

The Secondary server ingest URL (also called the Redundant server ingest URL) is not intended as a backup. The encoder pushes content to both the primary and redundant ingest URLs with the same timestamp and data, which improves the content's durability and resiliency.





Connecting your encoder



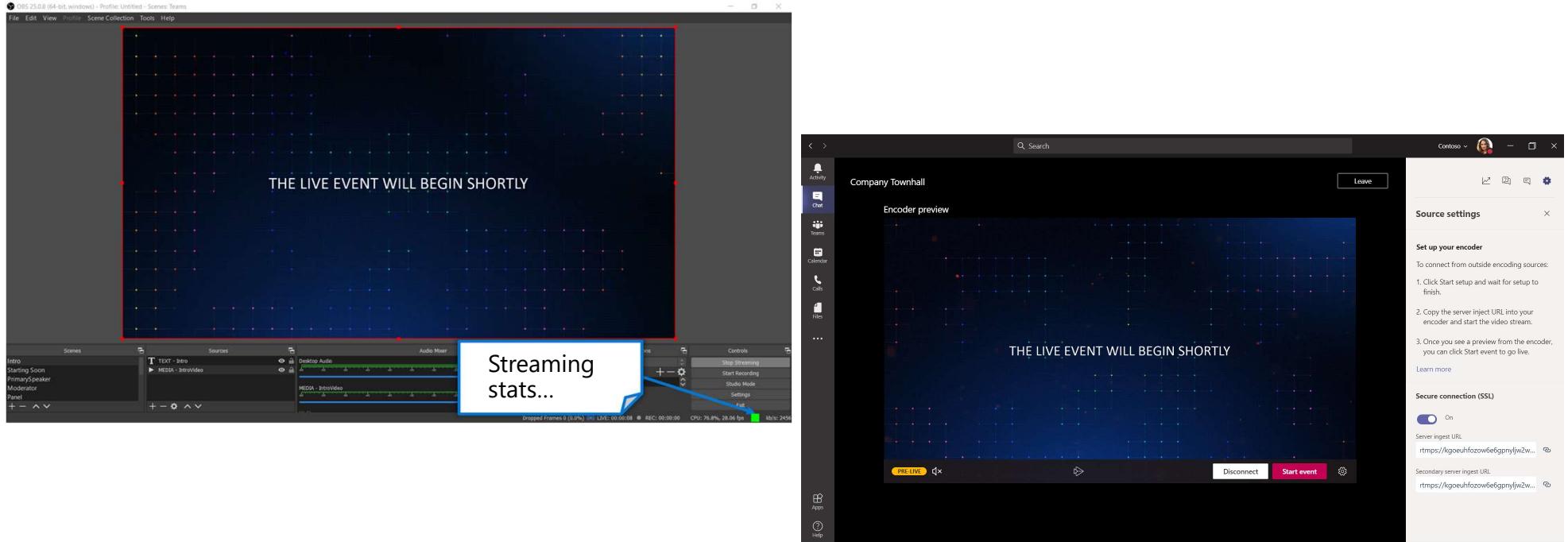
Note that when **Start Streaming** is clicked here, this will begin sending the output from the app/encoder to the Live Event.

This does NOT make the event live for the attendees to view.

That must be done within the Teams Producer experience.



Connecting your encoder



Verify that the streaming process is working.
The producer will see a preview in the Teams client (delayed by roughly 30 seconds).
When ready, click the **Start event** button to **GO LIVE!**

REMINDER: once the event is started, it can only be stopped (not paused or restarted).



Leveraging OBS Studio



OBS settings for Live Events

Launch OBS, go to **File -> Settings**.

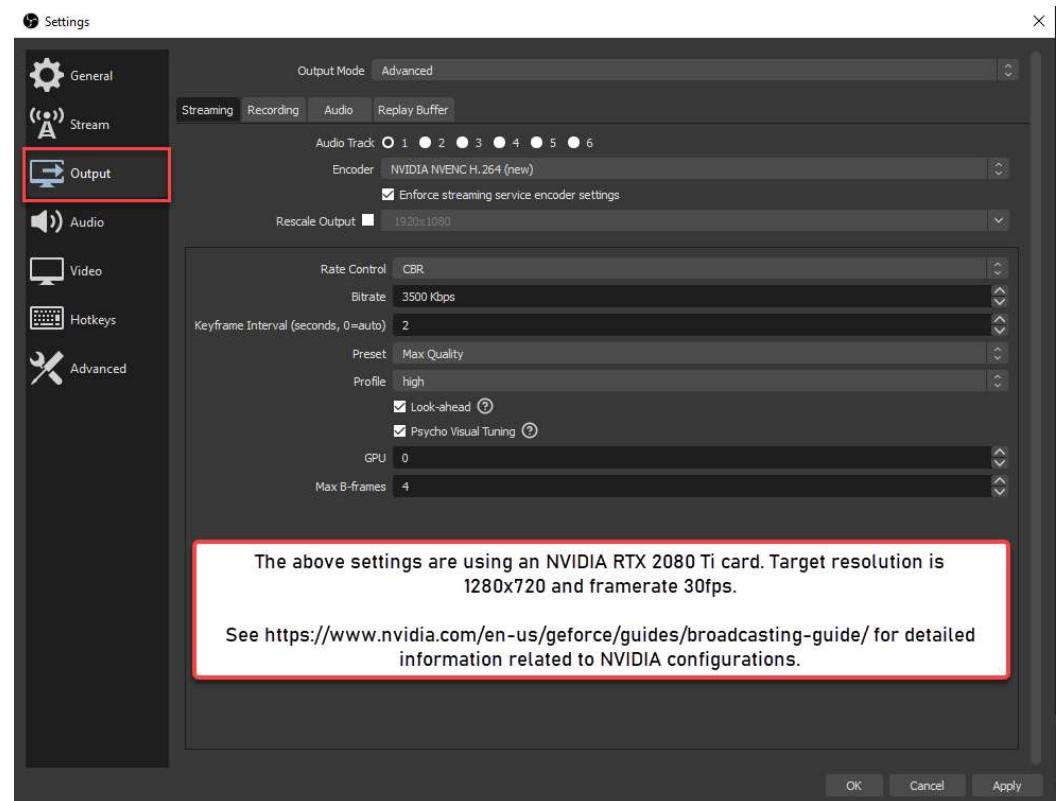
Click **Output**, then choose **Advanced** output mode and configure following settings:

- ✓ **Encoder:** If your PC supports hardware encoding pick the one that's not x264 (ex QuickSync H.264, NVENC, etc.). If hardware encoding isn't an option leave it as x264.
- ✓ **Rate Control:** Make sure CBR is selected.
- ✓ **Bitrate:** Enter a value in kbps, 2000 to 4000 is what is normally used.
- ✓ **Keyframe Interval:** 2.

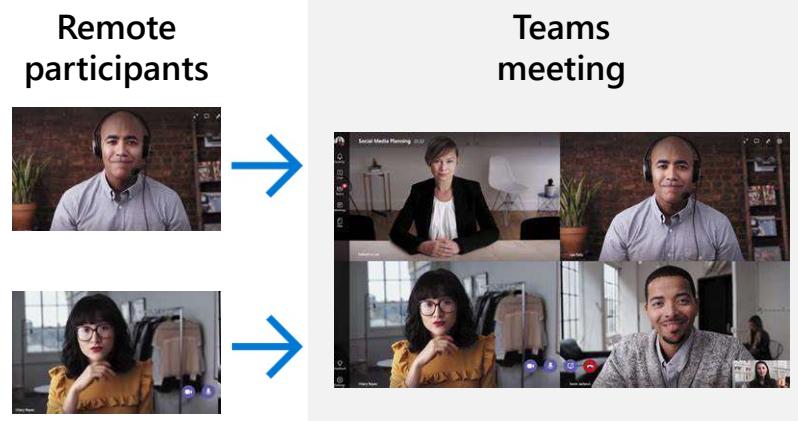
Click **Audio** -> Configure **Track 1 -> Audio Bitrate:** 128, 160, or 192 for audio encoding.

Click **Video** and Configure the following settings:

- ✓ **Base (Canvas) Resolution:** This is your normal desktop resolution (usually 1920 x 1080).
- ✓ **Output (Scaled) Resolution:** 1280 x 720 (Encoder Profiles are maxed at 720p in Stream for Live Events).
- ✓ **Common FPS Values:** 30 is normally used for frames per second.

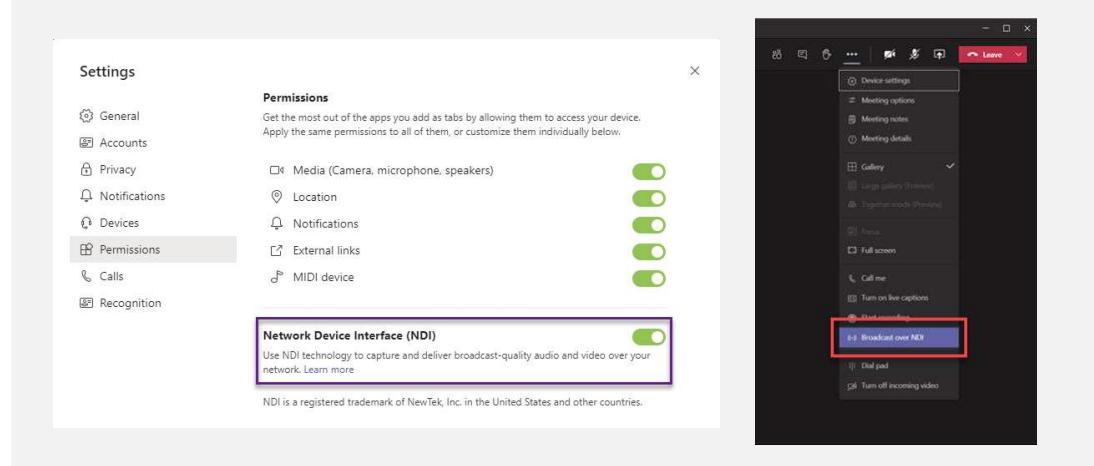


Extracting content from a Teams meeting (source)



Source
This system joins the Teams meeting and uses NDI to extract the isolated video feeds and mixed audio feed.

Enable NDI in the Teams client



Ensure video feeds are active in the Teams client

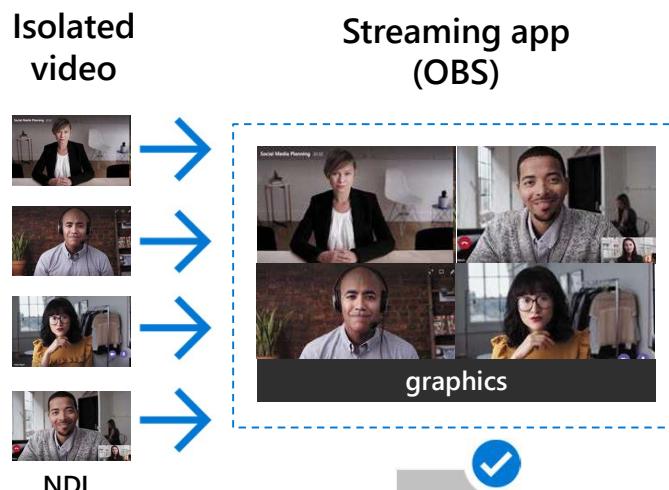
- Pin select videos as desired (max of 9 video feeds)
- Invoke the Large Gallery (Preview)
- Invoke the Together Mode (Preview)

Enable Broadcast over NDI in the Teams meeting

NDI feeds contain mixed audio of all participants, **except** the user on the Source machine



Production System – Bringing in sources (OBS example)

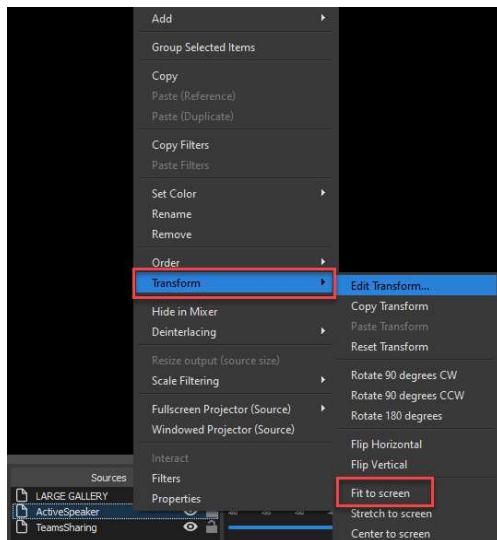


This system runs the production software (OBS, Wirecast, vMix) to produce the desired layouts. From this machine/application, you can send the feed to your external audience.

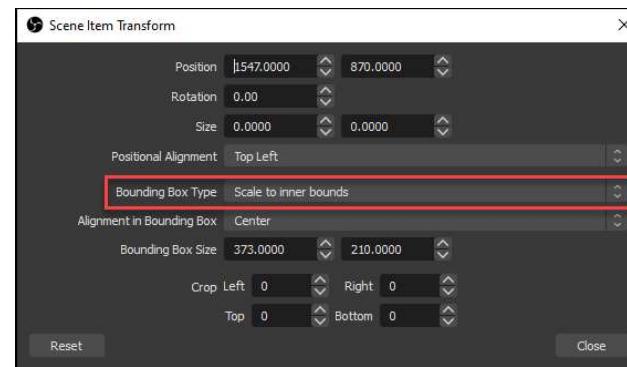
Install [OBS](#) and the [OBS NDI Plugin](#) (requires restart)
In OBS, create a new Scene, and add a new NDI source

The screenshot shows the OBS interface with two panels: 'Scenes' and 'Sources'. The 'Sources' panel has a message: 'You don't have any sources. Click the + button below, or right click here to add one.' A red box highlights the '+' button. To the right, a context menu is open with 'NDI™ Source' selected, also highlighted with a red box. Below the menu, a 'Source name' dropdown lists various NDI feeds, with a red box highlighting the entry 'BNYCE (MS Teams - (Local))'. A tooltip for this entry reads: 'Listing of available NDI feeds on the local network. Feed shows source machine name, application, and descriptor.'

A few additional notes about OBS Production



Use the Transform action to make the feed full-screen.



To ensure your video doesn't automatically resize in your scene, change the Bounding Box Type to "Scale to inner bounds." (found through the Transform -> Edit Transform option).

Excellent video walkthrough: <https://www.youtube.com/watch?v=ngLfEVU46x0>



Add additional items, such as Lower Thirds, to the video streams in your production.

Audio considerations



Ground Loop Isolators: used to eliminate the buzzing sound made by a ground loop, which occurs when multiple pieces of sound equipment are connected to each other.



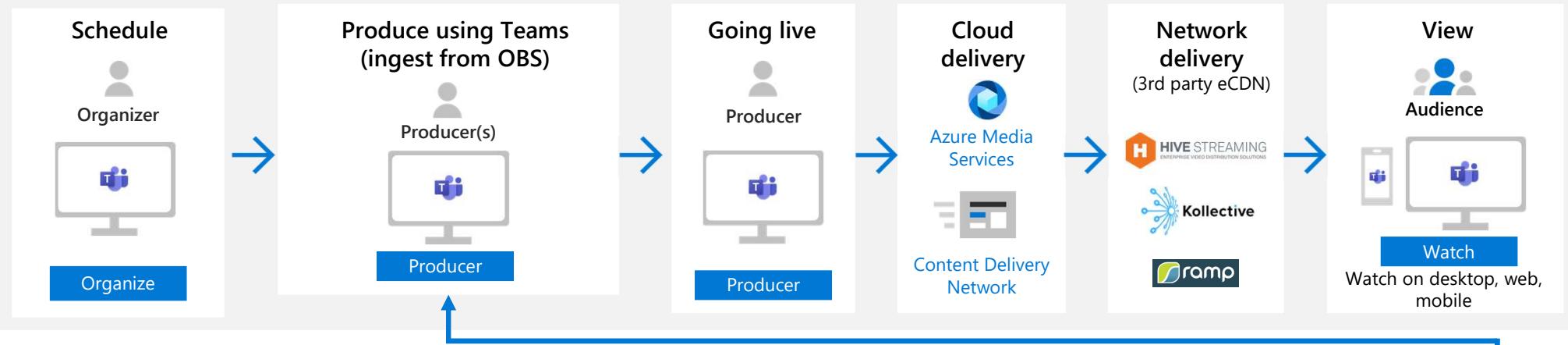
Audio Mixers: used to bring together multiple audio sources, such as microphones, USB-connected devices, AUX connections, Bluetooth



Quality microphones and audio interfaces.

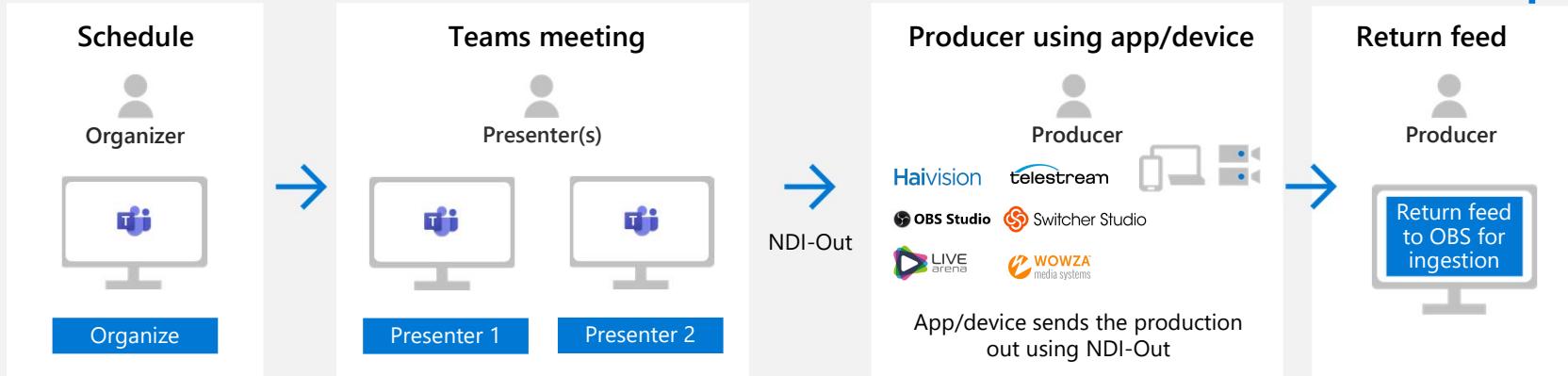
Live events produced using Teams and external app (OBS)

Producer Workflow



Presenters Workflow

This workflow uses a standard Teams meeting for all the presenters, including desktop sharing.





Sending OBS productions to Teams (one machine)

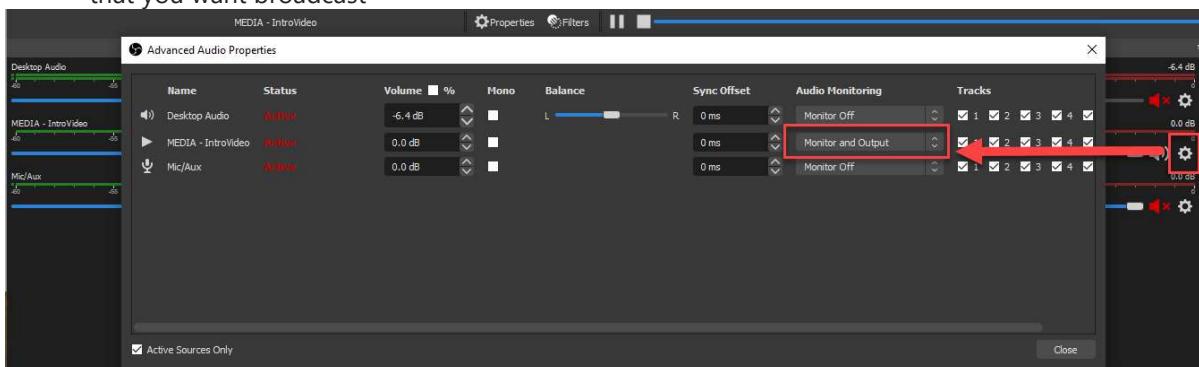
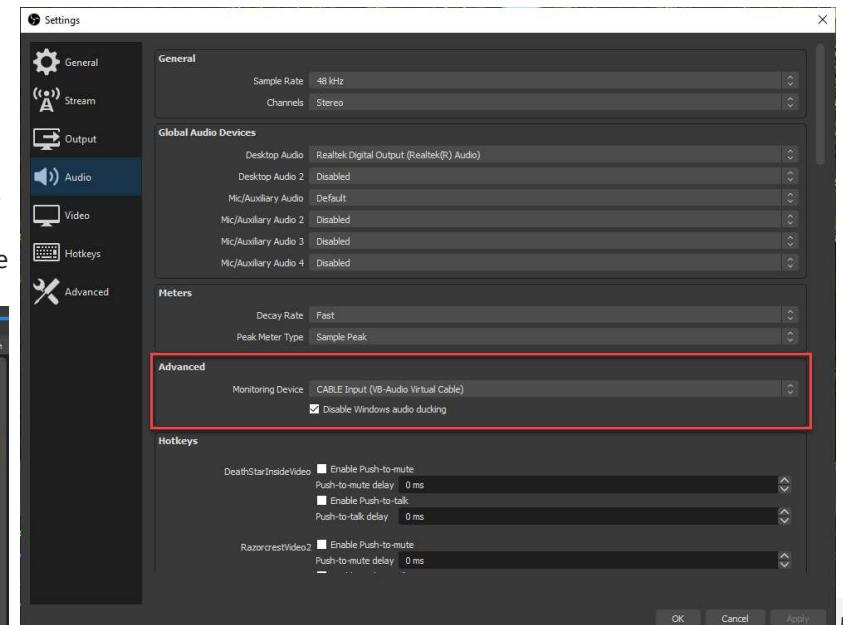
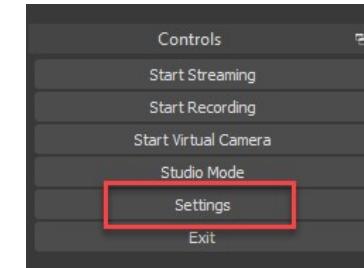
With a single machine, you will need to use the following:

- Audio: acquire a 3rd party Virtual Audio cable, such as VB-AUDIO from [VB-Audio Virtual Apps \(vb-audio.com\)](http://VB-Audio Virtual Apps (vb-audio.com))
- Video: use the built in Virtual Camera from OBS

On the **producer machine** (in the Producer Workflow) running OBS Studio:

Audio Configuration:

- In OBS, under **Controls**, click the **Settings** button.
- In the **Settings** window, click on the **Audio** icon on the left.
- Under **Advanced | Monitoring Device**, select the **Virtual Audio Cable (Input)** as shown.
- Next, navigate to a desired **Scene** in OBS.
- In the **Audio Mixer**, find the audio track(s) that need to be sent to Teams, and click the **Gear** icon and select **Advanced Audio Properties**.
- In the **Advanced Audio Properties** window, in the row that identifies the audio stream(s), change the **Audio Monitoring** dropdown box to **Monitor and Output**.
- Repeat the last three steps for each Scene that has audio and for every audio source on that Scene that you want broadcast





Sending OBS productions to Teams (one machine)

With a single machine, you will need to use the following:

- Audio: acquire a 3rd party Virtual Audio cable, such as VB-AUDIO from [VB-Audio Virtual Apps \(vb-audio.com\)](http://VB-Audio Virtual Apps (vb-audio.com))
- Video: use the built in Virtual Camera from OBS

On the **producer machine** (in the Producer Workflow) running OBS Studio:

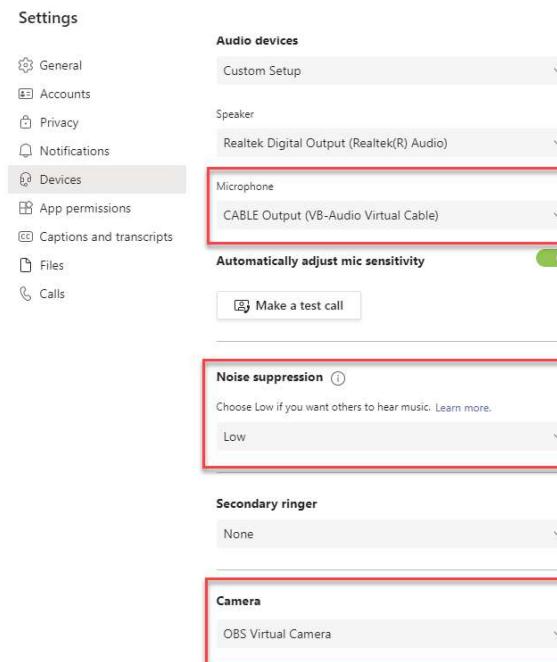
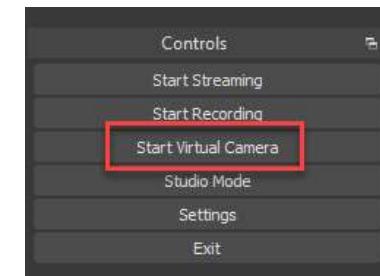
OBS Video configuration:

- In OBS, under **Controls**, click the **Start Virtual Camera** button.

Teams client configuration:

On the **producer machine** (in the Producer Workflow) running Teams:

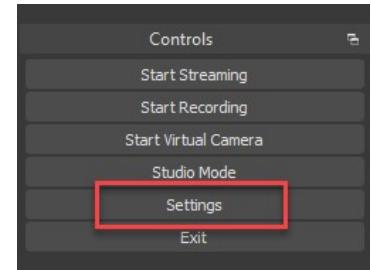
- Navigate to **Settings** and select **Devices**
- Set the **Microphone** device to the **Virtual Audio Cable (Output)**
- Set the **Noise Suppression** to **Low or Off**.
- Set the **Camera** device to **OBS Virtual Camera**



Sending OBS productions to Teams (two machines)



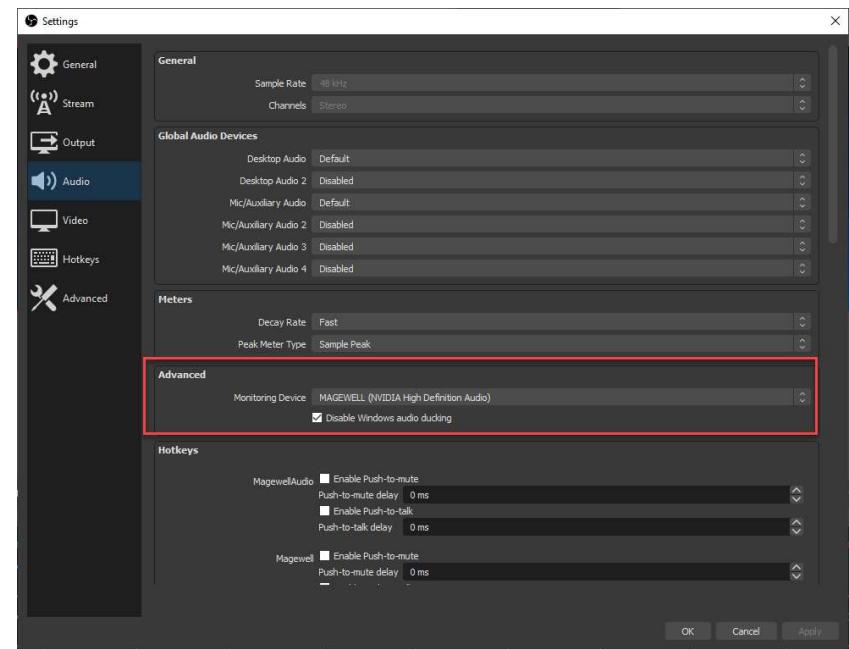
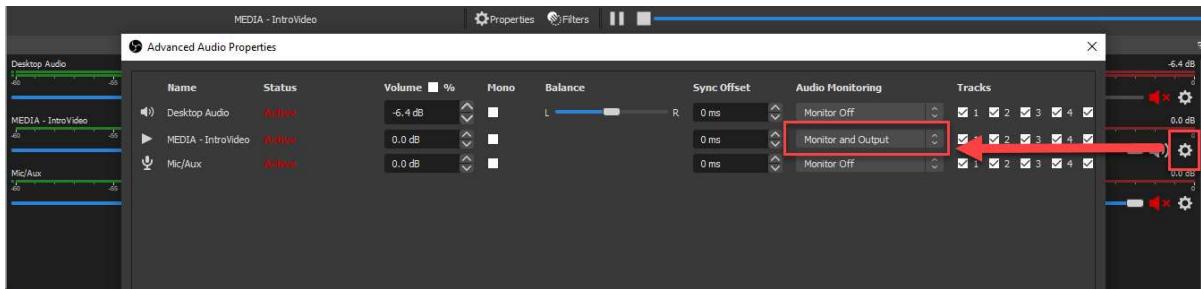
With two separate machines (one running OBS, and a second running Teams), you will need a capture card such as a Magewell. <https://www.magewell.com/products/usb-capture-hdmi-4k-plus>



On the **first machine** (in the Producer Workflow) running **OBS Studio**:

Audio Configuration:

- In OBS, under **Controls**, click the **Settings** button.
- In the **Settings** window, click on the **Audio** icon on the left.
- Under **Advanced | Monitoring Device**, select the **capture card (Magewell)** as shown.
- Next, navigate to a desired **Scene** in OBS.
- In the **Audio Mixer**, find the audio track(s) that need to be sent to Teams, and click the **Gear** icon and select **Advanced Audio Properties**.
- In the **Advanced Audio Properties** window, in the row that identifies the audio stream(s), change the **Audio Monitoring** dropdown box to **Monitor and Output**.
- Repeat the last three steps for each Scene that has audio and for every audio source on that Scene that you want broadcast





Sending OBS productions to Teams (two machines)

With two separate machines (one running OBS, and a second running Teams), you will need a capture card such as a Magewell.

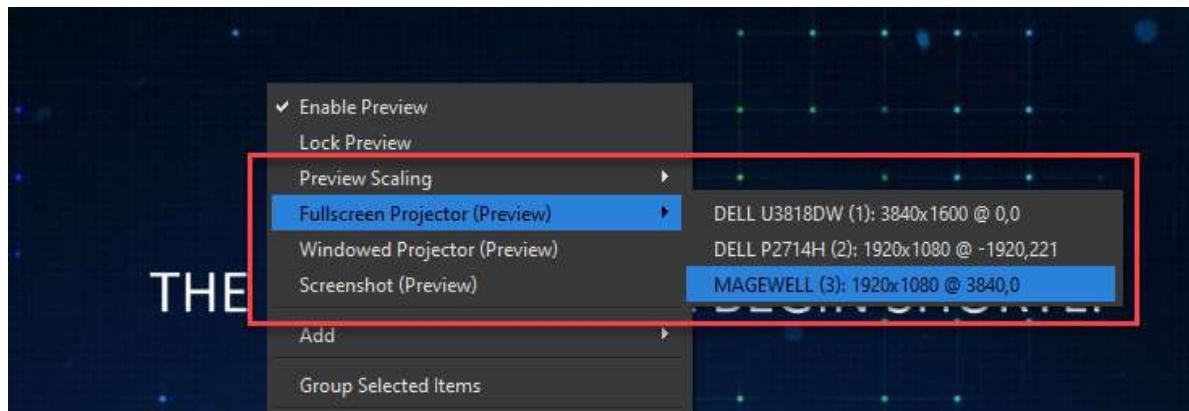
<https://www.magewell.com/products/usb-capture-hdmi-4k-plus>



On the **first machine** (in the Producer Workflow) running **OBS Studio**:

Video Configuration:

- In OBS, right click anywhere in the Preview window, and select **Fullscreen Projector (Preview) -> Capture Card (MAGEWELL in this example)**.
- This will send any content from this preview window to the capture card device.
- If you are using **Studio Mode**, see the next slide for details.

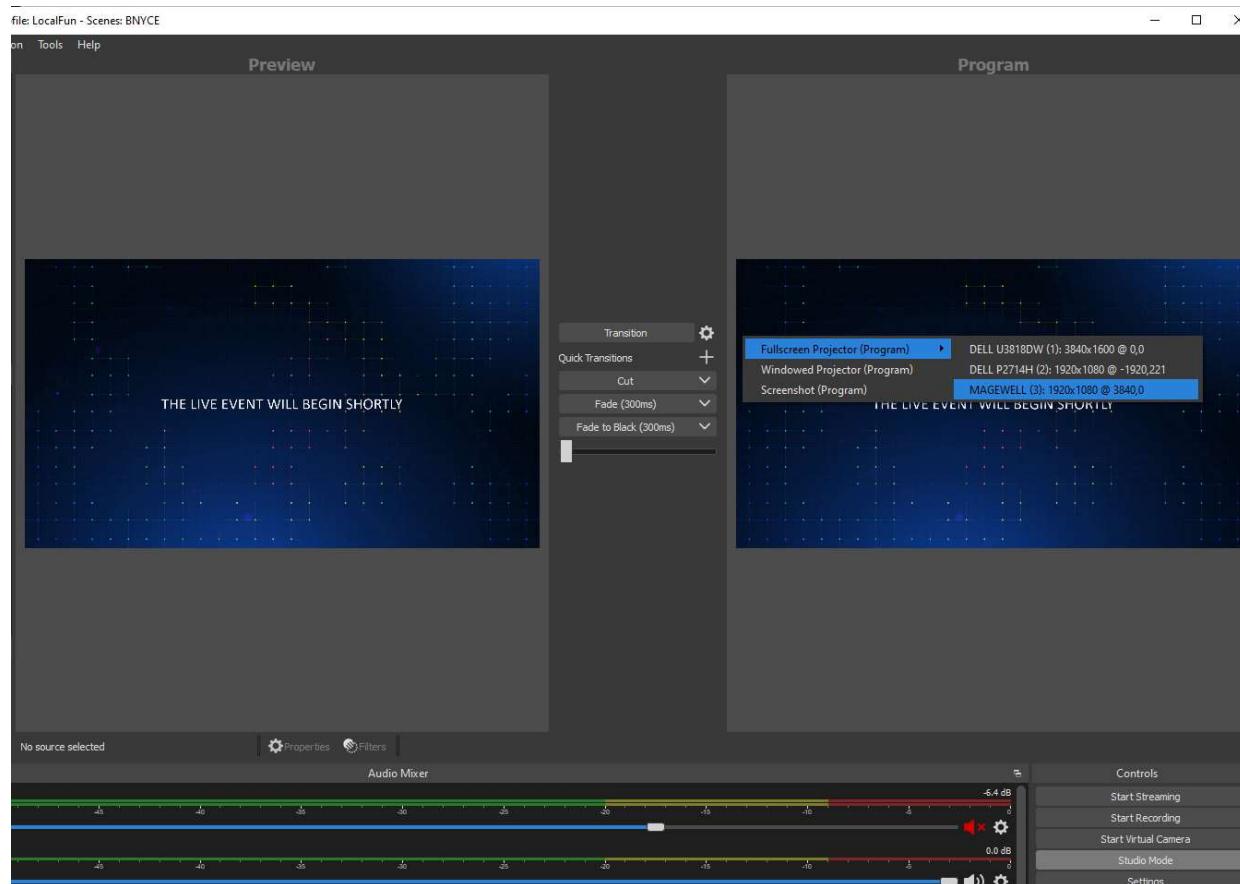




Sending OBS productions to Teams (two machines)

If you are using **Studio Mode** in OBS – you can also select the Capture Card (Magewell in this example) from the Program feed.

- Right click anywhere in the program feed area and select **Fullscreen Projector (Program)** -> **Capture Card (Magewell in this example)**.
- This will send any content from the program window to the capture card device.





Sending OBS productions to Teams (two machines)

With two separate machines (one running OBS, and a second running Teams), you will need a capture card such as a Magewell.

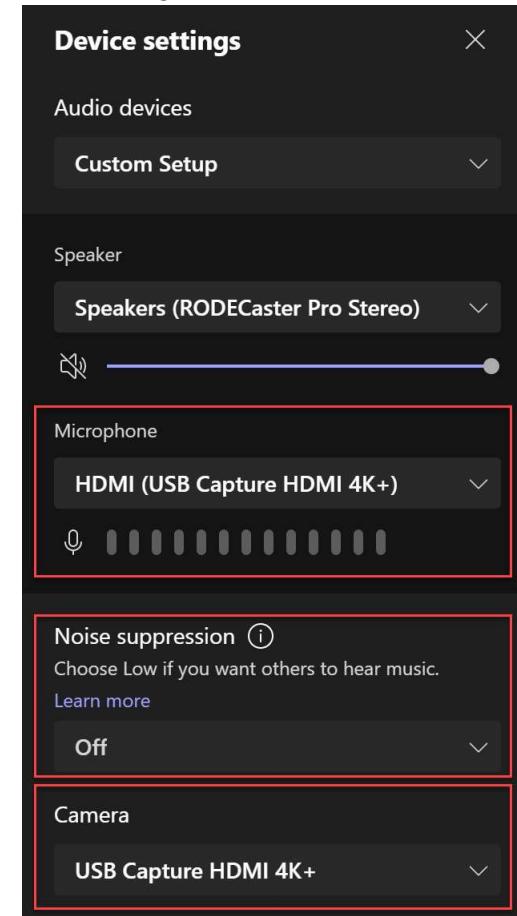
<https://www.magewell.com/products/usb-capture-hdmi-4k-plus>



On the **second machine** (in the Producer Workflow) running **Teams**:

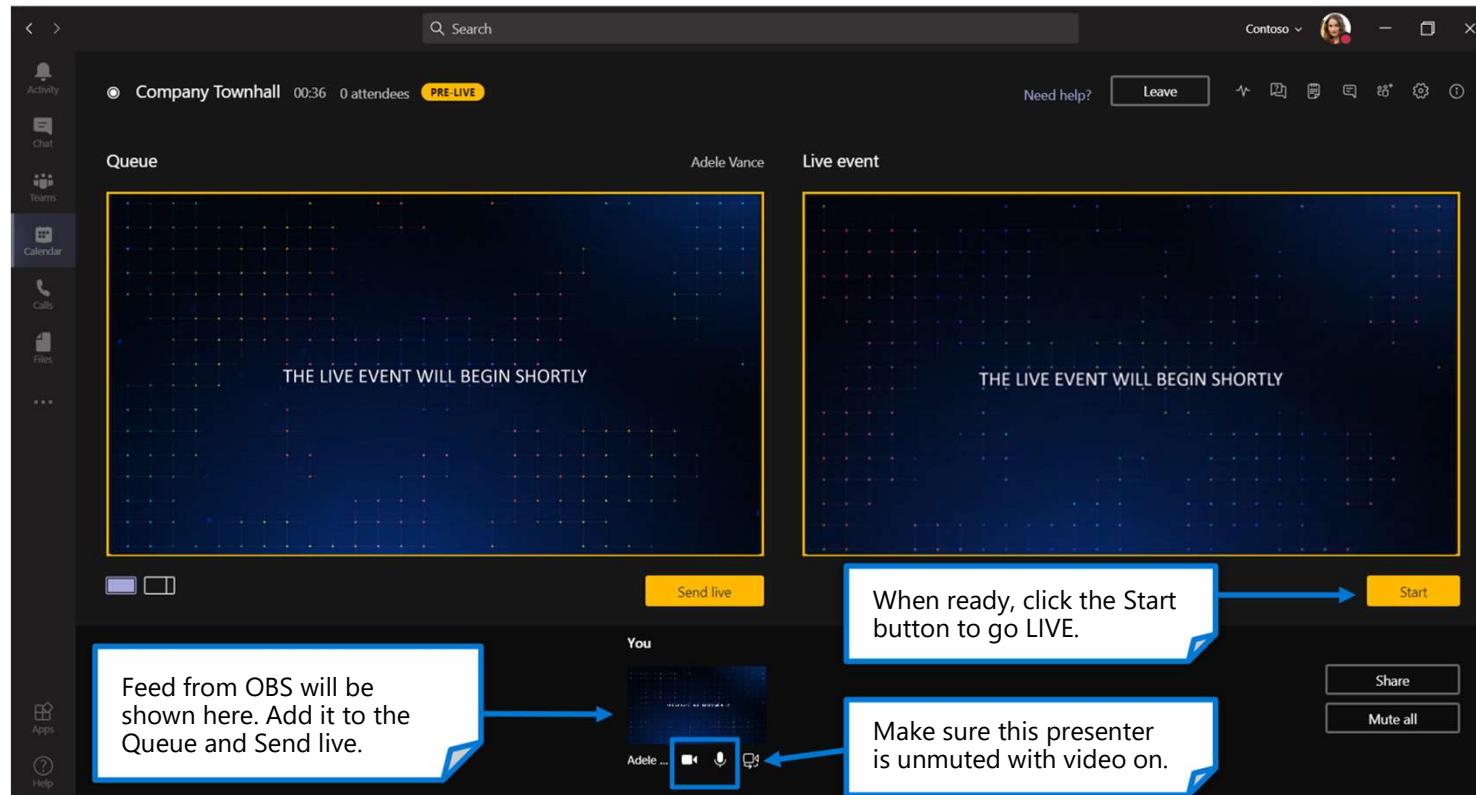
Teams client configuration:

- Navigate to **Settings** and select **Devices**
- Set the **Microphone** device to the **capture card (HDMI USB Capture 4K+)**
- Set the **Noise Suppression** to **Low or Off**.
- Set the **Camera** device to the **capture card (USB Capture HDMI 4K+)**





Starting your Teams-produced Live Event



REMINDER: once the event is started, it can only be stopped (not paused or restarted).

Post-event actions

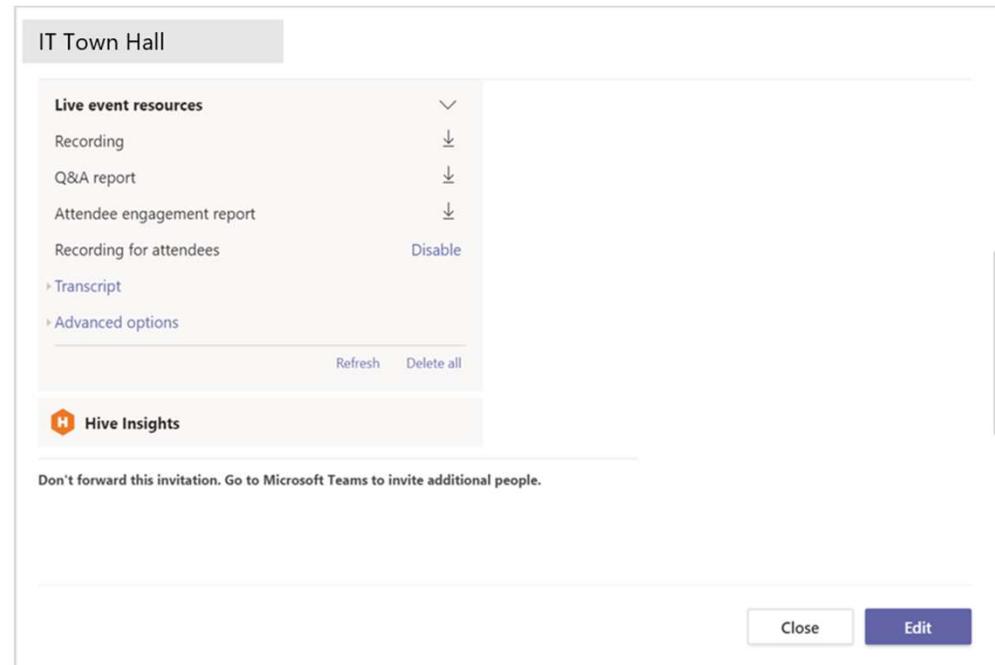
Manage Live Event resources after the event

At the end of the Live Event, a Producer or Presenter can access the following event resources by going back to the event invitation in your Teams Calendar:

- Event recording
- Q&A report
- Attendee engagement report
- Recording for the Attendees (ability to disable)
- Etc.

If you want to access this option later, open the event invitation from Teams and access this window.

This view is not available to Guests.



Content lifecycle



Your attendees will want to review content after your scheduled live event. Plan for the lifecycle of your content by sharing recordings and presentations in a location you manage. Permissions, extended sharing and rebroadcast decisions should be handled during pre-production.

Content on-demand

Will you publish content internally (Microsoft 365 via Stream) or externally (YouTube or other platform)?

Will you publish video only or presentation assets as well?

Ongoing conversation

Do you have a community forum where your attendees can continue to ask questions and engage?

Consider providing access to ongoing resources and experts.

Accessibility

Strive to have an accessible event and content.

Utilize features like closed captions in broadcasts, alt-text for images and the Accessibility Checker for PowerPoint.

Consider releasing content in Sway or PDF format using the Export to PDF function within PowerPoint to ensure consistency and availability.

Learn more at

<https://aka.ms/PowerPointAccessibility>

Live Events Assistance Program

<https://aka.ms/LiveEventAssist>



Before an event



Rehearsal for an event

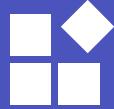


During an event



After an event

Kristin.Lawson@Microsoft.com



Explore these Microsoft Teams virtual event resources

-  Teams Virtual Event Playbooks – Standard & Advanced Production: <https://aka.ms/virtualeventplaybook>
-  Need help with your event? <https://aka.ms/liveeventassist>
-  Virtual Event Forum: <https://aka.ms/VirtualEventForum>
-  Virtual Event Community: <https://aka.ms/VirtualHub>
-  Tech Community: <https://techcommunity.microsoft.com>
-  Teams Organizer checklist: <https://aka.ms/OrganizerChecklist>
-  365 Adoption Tools: <https://aka.ms/adoption.microsoft.com>
-  ?Help in the lower left of the Teams app > Training > Live events
-  Drop me a line! Kristin.Lawson@microsoft.com

Thank you for attending!



© Copyright Microsoft Corporation. All rights reserved.