The Practical Guide to Live Multimedia Webcasting with Knovio

Brightcove Live Edition

knovio

Updated March, 2018

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Imagine broadcasting your company meeting, keynote speech, corporate event, or company meeting to tens of thousands of employees, customers, prospects, or investors around the globe -- complete with slides, attachments, reference links, and advanced viewing metrics -- using nothing more than a camera, a laptop computer and an internet connection.

That's what's possible with Knovio Live, the new multimedia webcasting solution from KnowledgeVision.

This guide provides you with step-by-step directions for conducting a successful webcast using Knovio Live, and for taking full advantage of Knovio Live's advanced features. We're constantly adding new features to Knovio Live, so be sure to download the most current version of this guide from www.knovio.com/guides/live. **This version of the guide is designed specifically for Knovio users who want to use webcast with the Brightcove Live Module within a Brightcove VideoCloud account.**

What Knovio Live Does

Knovio Live takes a simple video stream -- typically a video of a speaker or presenter -- and wraps it into an attractive Knovio smart player that presents synchronized slides and other interactive elements, turning it into an engaging multimedia experience, viewable from any desktop, laptop, or mobile web browser, secured and meticulously tracked by KnowledgeVision's cloud technology.

Knovio Live Viewer Experience: Packed with interactive features

One of the most unique features of a Knovio Live webcast is the ability of any viewer to pause in the the middle of the webcast and review any of the previously live-streamed material. It also offers a feature we call NeverLate™: late arrivals to your webcast have the option to join the webcast in progress, or to go back to the start of the webcast. Your viewers will never miss anything!

What You'll Need

In the current version of Knovio Live, you'll need the following to start your live program:
- A Knovio Corporate or Enterprise account, with the Knovio Live option
- A live-enabled Brightcove account:
  - Your own Brightcove account, with the Brightcove Live Module; or
  - A Brightcove video stream purchased through KnowledgeVision
- An RTMP live video source, which can come from:
  - A hardware video switcher with built-in encoder such as a NewTek Tricaster; or
  - A hardware encoder, such as BoxCaster, hooked up to a video source;
  - A software video-switching program such as Wirecast from Telestream; or
  - A software encoder, such as Adobe Media Encoder, hooked up to a video source.
- A PowerPoint or PDF slide deck

Overview: Creating a Live Multimedia Webcast

A Knovio Live Multimedia Webcast consists of two streams:
- a video stream of the speaker, managed and transmitted through Brightcove; and
- a stream of slides and other interactive elements, managed and transmitted through Knovio.

In a typical set-up, a camera operator or audio-visual services team sets up the video stream, and the slide changes can be managed either by the speaker or the audio-visual services team.

These two activities are synchronized through Knovio's proprietary, patent-pending process, and presented to authorized viewers anywhere in the world with nothing more than a mobile or desktop web browser.

The basic steps for creating a live multimedia webcast are:
1. Set up the Live Player
2. Load your Presentation Slides and Visual Aids
3. Set up the Live Video Stream
4. Start and Synchronize the Video Streams
5. Run the Webcast
6. Convert the Live Program for On-Demand Viewing

The remainder of this guide will detail these steps to a successful live multimedia webcast.

This is a typical small studio setup for Knovio Live. The left-hand laptop is running Telestream's Wirecast, a software-only switcher/encoder, which turns the camera's video signal into a stream that can be digested by Brightcove's Live Module and broadcast globally. The right-hand laptop is running Knovio, and controls the synchronization of all the slides and other on-screen materials. Wirecast and Knovio can be run, if desired, on the same computer.

The Knovio Smart Player (center, above) takes the video stream from Wirecast and Brightcove and presents it side-by-side with synchronized slides and images from Knovio. A patent-pending process maintains the synchronization, even if network congestion or other factors cause delays or buffering in the video stream. This live multimedia webcast can be viewed on any desktop, laptop, or mobile browser.

Configuring your Knovio and Brightcove Accounts

There are a couple of one-time actions you'll need to take in order to enable multimedia webcasting using Knovio and Brightcove.

Your Knovio account will need to be pre-configured to integrate with your Brightcove account by KnowledgeVision's support team. This is a one-time operation for each account. We'll need:
- Your Brightcove account ID;
- Your default player ID;
- The client ID from your Brightcove account; and
- The "client secret" code from your Brightcove account.

For more information about managing API authentication credentials in Brightcove, visit: https://support.brightcove.com/managing-api-authentication-credentials

We also recommend that you create a special "ingest profile" in your Brightcove CMS account for Knovio Live. We have prepared a sample 3-rendition ingest profile for you to use with Knovio Live, which you may copy and paste from Appendix A. Please note that Brightcove's standard live ingest profile will not work properly for live Knovio webcasts.

Here are the steps for creating a Knovio Live profile:
- Sign in to Brightcove Studio.
- Choose **Admin** from the Studio menu.
- Choose **Ingest Profiles** from the list.
- Click the **New Profile** button, and add a name ("Knovio Live") and description for your profile.
- Paste the sample ingest profile from Appendix A into the box provided.
- Be sure to replace the BRIGHTCOVE ACCOUNT ID item with your Brightcove account ID.
- Click **Save**, and you will now have a new "Knovio Live" choice available to you when starting a new video stream.

Finally, you must ensure that your Brightcove account has been properly configured to use HTTPS for live streaming with the Live Module. This is not the default configuration for most accounts, but it can be changed by Brightcove Support. We recommend submitting a ticket to Brightcove Support with the following request:

> *"Could you please switch the HLS Entrypoint and Playback URL for this account (Account Name: <Account Name>, Account ID: <Account ID>) to use HTTPS delivery and update the Live Module accordingly? This is necessary because we will be embedding the Brightcove Player on a page that uses HTTPS, and without this change some browsers will block the stream from playing. We understand there may be downtime while these changes are made."*

Once you've taken these steps to set up your Brightcove account, you'll be all set to very quickly set up multimedia webcasts using your Brightcove Live account.

Step 1: Create a New Live Player Link
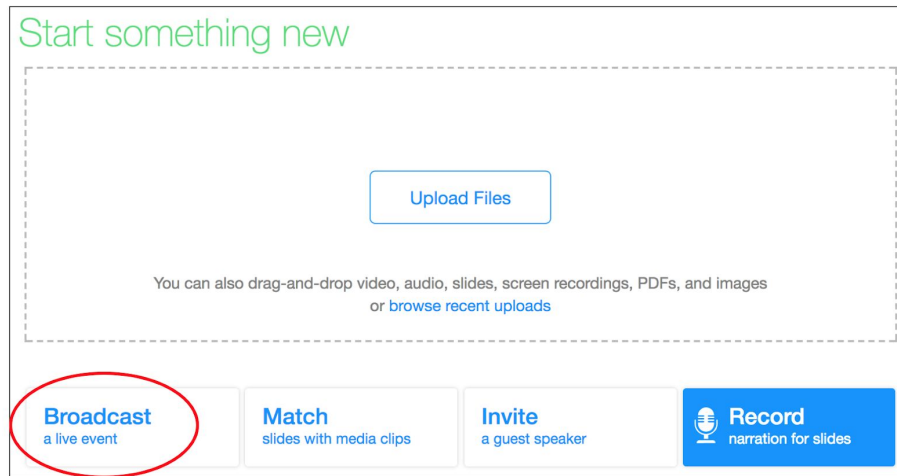
The first thing you'll do in preparing a live webcast is to create a new Knovio player and web address (URL) for your project. This can be done the day of the webcast, but it's more commonly done weeks ahead, so you have a web link to share and publicize in advance.

Here's how you do it:

1. If you have the Knovio Live option enabled for your account, you'll see a **Broadcast a live event** choice when you press the **New +** button on the Knovio menu. Click this choice to start a new live project.

2. You'll then have the opportunity to name your event, give it a description, and give it any tags you might want to help you find it later.

3. You'll also have an opportunity to write a standby message that will be visible to anyone who visits the webcast link before the broadcast begins.

4. Finally, if you want to allow your viewers to use the "DVR-like" pause-and-review and NeverLate features, make sure the box labeled "Enable DVR navigation" is checked (which is the default).

5. When you've entered all the initial information for your live event, press **Publish** to create a new player and link.

6. You'll be asked to upload slides if you have them already. If you don't, no problem -- just click **Continue without slides**, and you can add slides later.

7. You'll be brought to the main Knovio **Presentation Control** screen, which you'll use in later steps to prepare your slides and run your webcast.

8. For now, though, please note two buttons near the top-right corner of the **Presentation Control** screen:

- ○ 💬 - click this to adjust the look and feel of your standby message (including adding a logo image; and

- ○ 🔗 - click this to get the URL or web address for your webcast, so you can let all your attendees know where to find it. (When they arrive, they'll see your standby message.)

9. When you're done, click Save, and you'll see options for additional things you can do. For example, you can add a Guestbook that requires viewers to sign in or enter a password, upload a guest list to restrict the webcast to specific viewers, post the live webcast to a Showcase, customize the player by choosing a different design template, or get embed codes to incorporate your webcast into a webpage..

10. If you don't have slides for your webcast yet, you can just "X" out of this screen, and come back later.

Note that your live webcasts are always available in Knovio's **Manage** screen, under a special tab for Live Knovios. This screen will show you a list of every live webcast that's been created in your Knovio account, along with its status (e.g. "Standby" or "Ended").

To work with one of these webcasts further, click its **Edit** or **Share** button.

Step 2: Load your Presentation Slides and Visual Aids

While you can use Knovio to transmit a plain video stream without visual aids, it really shines when you add synchronized presentation slides to the webcast. The process for adding slides to a Knovio Live webcast is similar to that for creating an on-demand video presentation.

Here's how to load your presentation slides to a live Knovio player you've already set up with Step 1:

1. Find the live Knovio you want to work on in your Library by choosing Manage from the Knovio menu bar, selecting the **Live** tab, and **Edit** for the Knovio of your choice. (This Knovio should have the status "Standby".)
2. You'll be prompted to upload your visuals (with the option once again to continue without slides).
3. Select a PowerPoint presentation file, a PDF presentation file, or a group of image files (JPEG or PNG) from your hard disk, or select a file you've previously uploaded from the list. It will take anywhere from one to several minutes to upload and process your slides, depending on its length and the amount of animation in your slides.
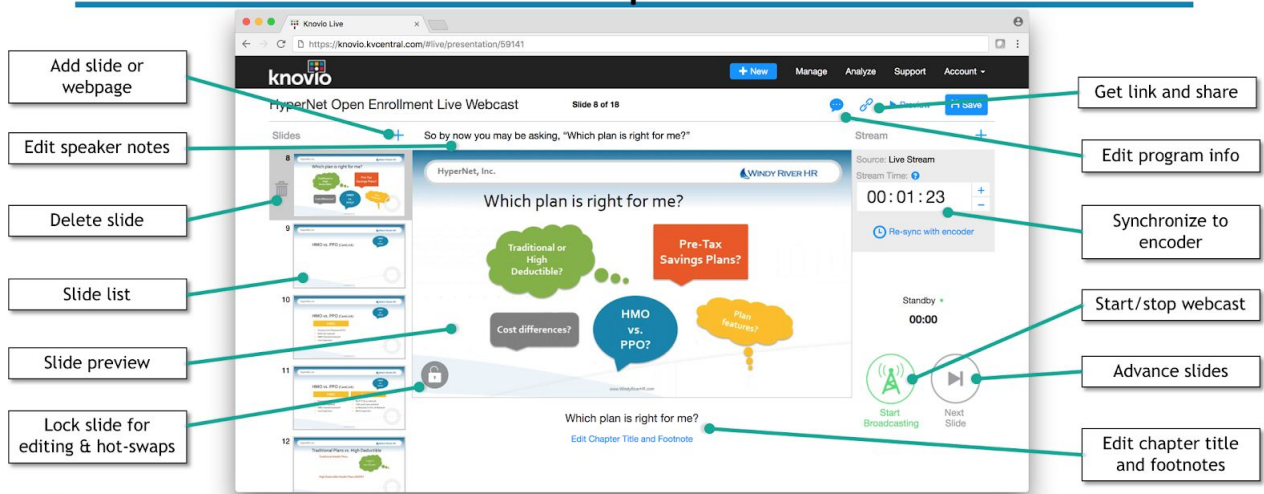
4. You'll see the Knovio **Presentation Control** screen, which should be familiar to you if you've used Knovio's **Record** feature for narrating on-demand presentations. The slides you uploaded should be visible in a Slide List along the left edge of the screen, the first slide should be selected and a large version previewed in the center of the screen. If you have animated slides in your presentation, the animation will have been broken into individual steps, represented by different slides in the slide list.
5. We suggest that you step through your presentation slides by selecting each one in the slide list and viewing it in the center screen. While Knovio faithfully represents presentations with the most common type fonts, more exotic fonts may require that you use a PDF version of your presentation deck with Knovio rather than the original PowerPoint.

6. Here, you can further adjust your presentation by:
   - Adding chapters and footnotes to your presentation that will be displayed in sync with the live stream. Chapter titles are automatically imported from the Title field of most PowerPoint templates, but can be modified by clicking **Edit Chapter Title and Footnotes** and making the desired additions and changes.
   - Changing the order of slides by dragging and dropping them to a new position in the list of slides.
   - Deleting using tools that are displayed after you select a slide to be deleted or swapped.
   - Adding more slides or even a live web page to the presentation by clicking the **+** button at the top of the slide list and making the appropriate selection.
   - Swapping slides by adding one or more slides (using the instructions above) and deleting the duplicate.
   - Adding Speaker Notes to the presentation by clicking Add Speaker Notes and typing in the space above the preview slide.

You can save, revisit, and adjust your presentation as many times as you want until the webcast begins, and even while the broadcast is in progress.

Step 3: Set Up the Live Video Stream

If you have a Brightcove account that's configured to use Knovio Live (see "Configuring Your Knovio and Brightcove Accounts), then here are the steps to set up a live video stream. This can be done well in advance of the webcast event.

1. Log into your Brightcove VideoCloud Studio, and choose **Live: Broadcast Your Live Events** from the main drop-down menu.
2. Click the **Add an Event** button.
3. Complete the "Create your Event" form naming, describing, tagging, and dating your webcast. It is not necessary to select any Advanced Settings.
4. On the next screen, "Select a Player", make sure that the Brightcove Default Player is selected from the drop-down menu.
5. On the next screen, "Your Output Options", choose the "Knovio Live" output preset that you created when you configured your Brightcove account.
6. Once you've completed these setup steps and choose **Save and Close**, you should see a summary of your event which will look like this:

7. To connect your Brightcove stream to your saved Knovio live event, open the Knovio live event that you saved in Step 2 (if it's not already open in a browser tab, you'll find this in your Knovio Library under the **Live** tab).
8. In the upper right corner, you'll see a place to add a video stream. Click the + symbol, and choose "Brightcove Live Event" from the drop-down list.
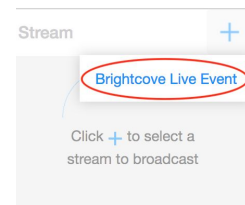
9. The Add Brightcove Live Event screen contains a Browse button that will allow you to select the live event you just created directly from your Brightcove account. Or, you can enter your Brightcove Account ID and the Video ID from your stream directly. Then **Add Stream**.

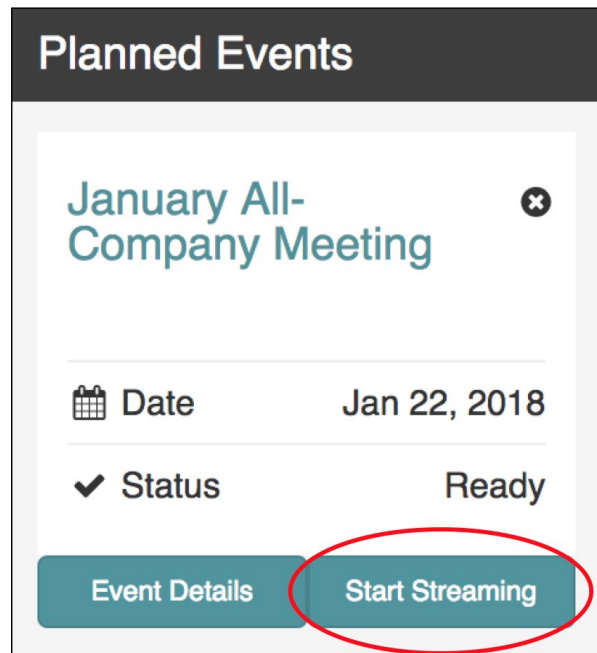10. Assuming you aren't running your event immediately, choose **I'll start streaming later**.

Once you've done that, you can **Save** your event, and you'll see a set of options for what to do next.

## Step 4: Start and Synchronize the Video Stream

The moment has arrived, and it's time to take the final pre-show steps before your webcast begins. Depending on your level of experience with webcasts, this can be as little as a few minutes before your scheduled start time, or as much as 15 minutes or more.

The order of these steps is important. And it's especially critical that you complete all the steps:

1. First, go to the Brightcove Live module, find the live event you set up earlier, and choose **Start Streaming**. Check the screen that's displayed to ensure that you've started the correct stream. Please note that any live streaming charges will start when you click **Start Streaming**.
2. Second, configure the **Stream URL** and **Stream Name** provided by Brightcove Live in your encoding hardware and software.
3. Start the stream from your encoding hardware or software. Ensure that you can see a counter that continuously shows the time since the stream was started. If there is no counter on your encoder, then you should start a stopwatch or timer when you start the stream.
4. Open Knovio, locate your live program in the Library, and click **Edit** to access the Presentation Control screen.
5. Assuming you've previously set up the Brightcove video stream in your Knovio player (see Step 3), you should look for the blue button and click it. This will open the Stream Synchronization widget. The purpose of this widget is to coordinate the timing between the video stream and the slides, so that the slide changes occur at precisely the correct moments in the video stream.

6. Enter the current time displayed on your encoder or on the timer for your video stream into the Knovio Stream Synchronization widget, and press **Start**. Your Knovio counter and your video stream timer should be counting at the same pace (within a second of each other).

7. If the two timers are not quite in sync, you can adjust the Knovio Stream Synchronization timer by using the **+** or **-** buttons.

8. Finally, check your setup by clicking the **Preview** ▶ link. After a few seconds, you should see a preview of your synchronized multimedia program. Previews are visible only via the preview link -- your program will not be visible to your audience until you **Start Broadcasting** in the next step.
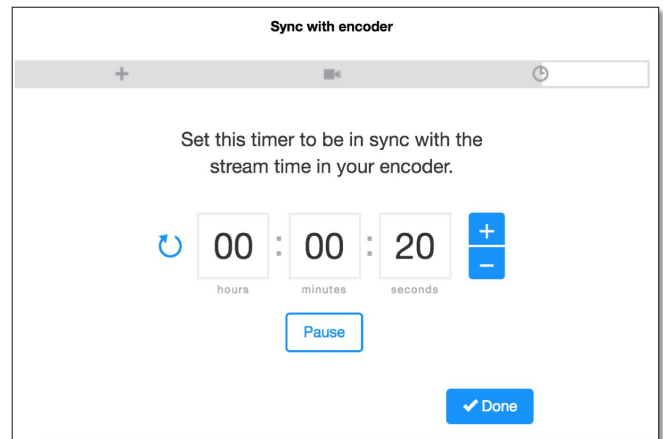
Please note: like any global-scale video streaming network, Brightcove's live video streaming has a built-in delay (or "latency") that can range from a few seconds to several minutes between when a live feed is captured and when it is seen by the viewer. The amount of delay depends on network bandwidth, congestion, and the viewing device. Knovio's proprietary synchronization system compensates for this by delaying the display of each slide by exactly the amount of the latency. As long as you've properly synchronized the video stream timer with the Knovio timer, the slides and video will be properly coordinated.

Step 5: Run the Webcast

With the set-up complete and the stream started, it's time to run the webcast:

1. To start the broadcast, click the **Start Broadcasting** button in the Knovio Presentation Control screen.

2. To advance the slides, you can use one of three methods:
   a. Click the round **Next Slide** button;
   b. Press the **arrow keys** on your keyboard; or
   c. Click the thumbnail of the slide you want to see next (you can show slides out of order using this method).

If you need or want to make a change during the webcast, such as swapping or inserting a new slide or adding or editing a chapter name or footnote, no problem! Here's how to do that:

1. Click the 🔒 icon in the lower right corner of the large slide preview to lock the current slide being broadcast. A small thumbnail of the locked slide will appear behind the icon.

2. You may then work on other slides in the presentation, add more slides, or change the chapters and footnotes.

3. When you are finished making changes, click the 🔒 icon to unlock the slide and return to regular controls for your webcast.

To end the webcast:

1. click the **Stop Broadcasting** button, and confirm that you want to stop the webcast.
2. Only after stopping the broadcast in Knovio, stop the stream in your encoder.
3. Then go to your Brightcove Live module, and stop the streaming there as well.

Step 6: Convert the Live Program for On-Demand Viewing

Once you've completed your webcast, you can quickly convert it for viewing on-demand. Knovio even allows you to trim the beginning and end of the video stream, and even adjust the timings of slides or substitute updated slides for those used in the webcast.

One important thing to know, though, is that Brightcove does not automatically create an on-demand video from your live stream; you must instruct it to do so. Furthermore, Brightcove assigns a video ID to the clip that's different from the video ID for the live stream.

Here's how to create the Brightcove on-demand clip:

1. A few minutes after you've stopped your stream in Brightcove, you'll see an option to **Create Clip**. (This may be greyed out while your live stream is processing, but will eventually become clickable.) Go ahead and click it. Ignore Brightcove's offer to trim the clip; Knovio will automatically do that for you. It will take a few minutes to create an on-demand video clip, and you'll see a confirmation in the Brightcove Live Module.
2. Meanwhile, back in Knovio, click **Save** in the Presentation Control Screen, and then choose **Republish** to initiate the process of converting your live stream to an on-demand video. This will create an entry in your Knovio Library with your presentation in it. However, you still need to tell Knovio where to find the on-demand video clip.
3. To do that, click the **Edit** link for your on-demand presentation.   You'll see an Adjustment Screen that will show you all of the slides and timings for your live presentation.
4. To find your Brightcove on-demand video clip, click the **Browse** button on the right side of this screen. You'll see all of the media available in your account, and all of your Brightcove videos will be listed under the Brightcove tab. Select the Brightcove video with the same name as your live program, and you should have an on-demand program that is precisely in sync with what was shown live. You can check this by choosing Preview and watching your on-demand program.
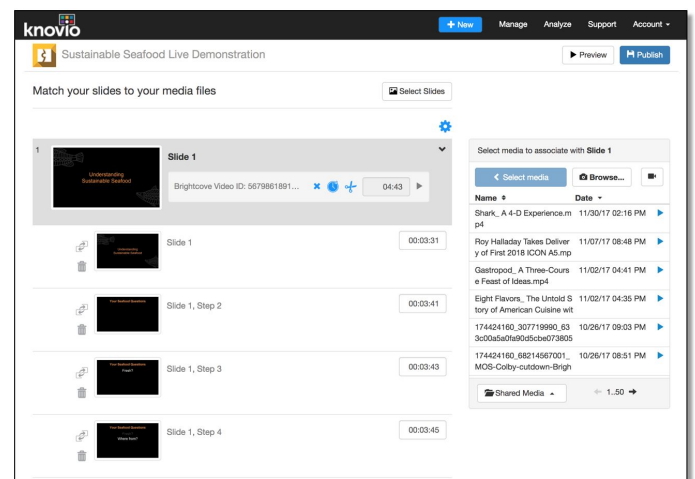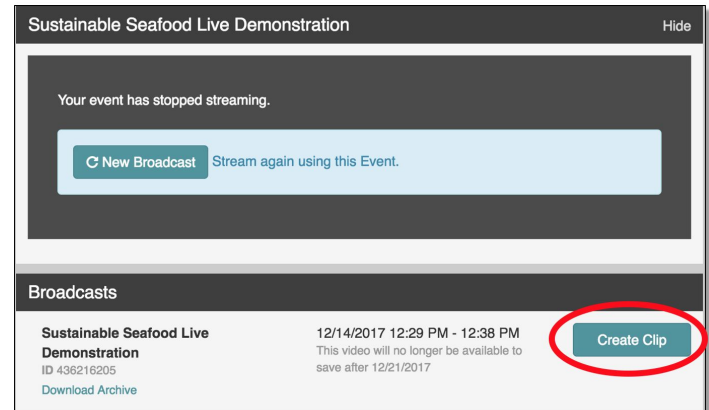
True to its name, the Adjustments Screen will allow you to make a number of adjustments to the on-demand version of your live presentation:

- Click 🕐 to change the timing of all the slides. In other words, if all the slide changes are early or late, you can adjust them all at once by adding or subtracting seconds.
- Click ✂ to trim the beginning or end of your video clip.
- Edit the timing in any [00:03:31] box to change the time at which any individual slide changes.
- Click ⤴ to substitute a different slide into your on-demand program for one that was originally included in your webcast.

Once you've made all these adjustments, you should **Publish** your Knovio to save these changes.

Once this is done, your finished on-demand Knovio can be found right at the top of your Library screen (reach it by clicking **Manage** in the main menu bar). We suggest you:

- **Customize** your Knovio by:
  - Choosing a suitable branded player design template for your on-demand Knovio
  - Adding clickable section titles to the major sections of your on-demand Knovio
  - Adding suitable footnotes and reference links
  - Programming the zoom control to change the relative size of slides and video at different stages of the program.
- **Share** your Knovio using the wide variety of ways we offer to share it by email, website embedding, posting it to social media websites, posting it to our own Present-It.com website, and converting it to self-contained video files for offline viewing.
- **Configure a Guestbook** to capture information about those who view your Knovio, or even to restrict access to it.
- **Post** it to a Showcase, making it part of a collection of on-demand programs.
- **Analyze** your Knovio's performance by viewing the detailed visual dashboard.

Appendix A. Sample Brightcove Live Ingest Profile for Knovio Live

Brightcove Live DVR Ingest Profile (3 SD Renditions)

```
{
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  "display_name": "Live - DVR (3 renditions)",
  "description": "Video Cloud Live Module profile with three SD
renditions (480p, 360p, 240p) for delivery with 4-hour DVR window.",
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      "rendition": "passthrough",
      "distribute": false
  },
  "renditions": [
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      "media_type": "video",
      "format": "ts",
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      "decoder_buffer_size": 1200,
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      "height": 240,
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      "audio_bitrate": 64,
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      "live_stream": true,
      "live_sliding_window_duration": 14400,
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      "decoder_buffer_size": 1920,
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      "forced_keyframe_rate": 0.5,
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      "format": "ts",
      "type": "segmented",
      "audio_codec": "aac",
      "audio_bitrate": 96,
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      "live_stream": true,
      "live_sliding_window_duration": 14400,
      "video_codec": "h264",
      "video_bitrate": 910,
      "decoder_bitrate_cap": 1365,
      "decoder_buffer_size": 3640,
      "max_frame_rate": 30,
      "forced_keyframe_rate": 0.5,
      "width": 854,
      "height": 480,
      "h264_profile": "main"
      }
  ],
  "packages": []
}
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