



SumTotal Learn

Online Course Development - Best Practices

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107 Northeastern Blvd., Nashua, NH 03062 USA

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Publish an Online Course for SumTotal Learn

Course authoring programs like Articulate Storyline, Adobe Captivate, Trivantis Lectora, and others make it easy to publish e-Learning courses for SumTotal Learn. With just a few clicks, you can:

- Enter your course title and description.
- Choose your publish location.
- Choose your publishing standard.
- Choose your publishing format(s).
- Configure the course player/skin.
- Customize the audio, video, and image quality of your course.
- Choose what you're going to track and report on.

In this document, we offer some best practices, tips, and tricks to take the heartburn and headache out of publishing online courses for Learn. We begin with the course title and description.

Course Title and Description

To avoid problems with your published output, avoid using special characters in your course title. The characters in your course titles should be limited to the following:

- Letters of the English alphabet (A-Z)
- Numbers
- Hyphen (-)
- Underscore (_)



During the publishing process, SCORM output replaces special characters with question marks (?) or underscores (_) in the ismanifest.xml file. Some course authoring programs encourage users to open the ismanifest.xml file and replace the question marks or underscores with the intended special characters. However, we do not recommend this.

Provide a description of your course to let your end-user know what you have created for them. Simple is best. Create a powerful, direct description that can be read at a glance.

Learn extracts the title and description information during the file upload process and includes it in the **Activity Name** and **Activity Description** fields in the activity properties.



Administrators can select which fields the system searches when users look for learning activities via Enterprise Search. The fields administrators can choose from include the Activity Name and Activity Description fields.



Some course authoring tools provide additional information fields (e.g. image, duration, published date, keywords, version). However, this additional information may not, and most likely will not, auto-fill the corresponding learning activity properties when you upload the course in Learn. These additional fields are commonly restricted to the program's own mobile player.



SumTotal web servers are Windows based. As a result, SCORM courses packaged on a Mac OS may need to be modified to run properly in Learn. Specifically, some folders (such as "C:") are renamed during extraction (to "C_"). However, the course itself continues to reference the original folder name. The course need to be corrected to refer to the correct folder (such as "C_").

Publish Location

Always publish course content to your local machine (such as your desktop). Publishing to a network drive or a USB drive can cause unexpected behavior with your courses in Learn.

Publishing Standards

Learn allows you to upload many course output types, including the following output types commonly found in course authoring programs:

- SCORM 1.2
- SCORM 2004
- AICC

Learn does not currently support Tin Can (xAPI or Experience API). However, we expect to offer support for this standard in a future release.

Publishing Formats

HTML5 & Adobe Flash

By default, most course authoring programs publish for Flash. We recommend that you publish your courses for HTML5 as well. This is in addition to, but not in place of, Flash. If your course authoring software allows it, publish your course to use HTML5 first, with Flash as a fallback in older browsers. (See Figure A.)

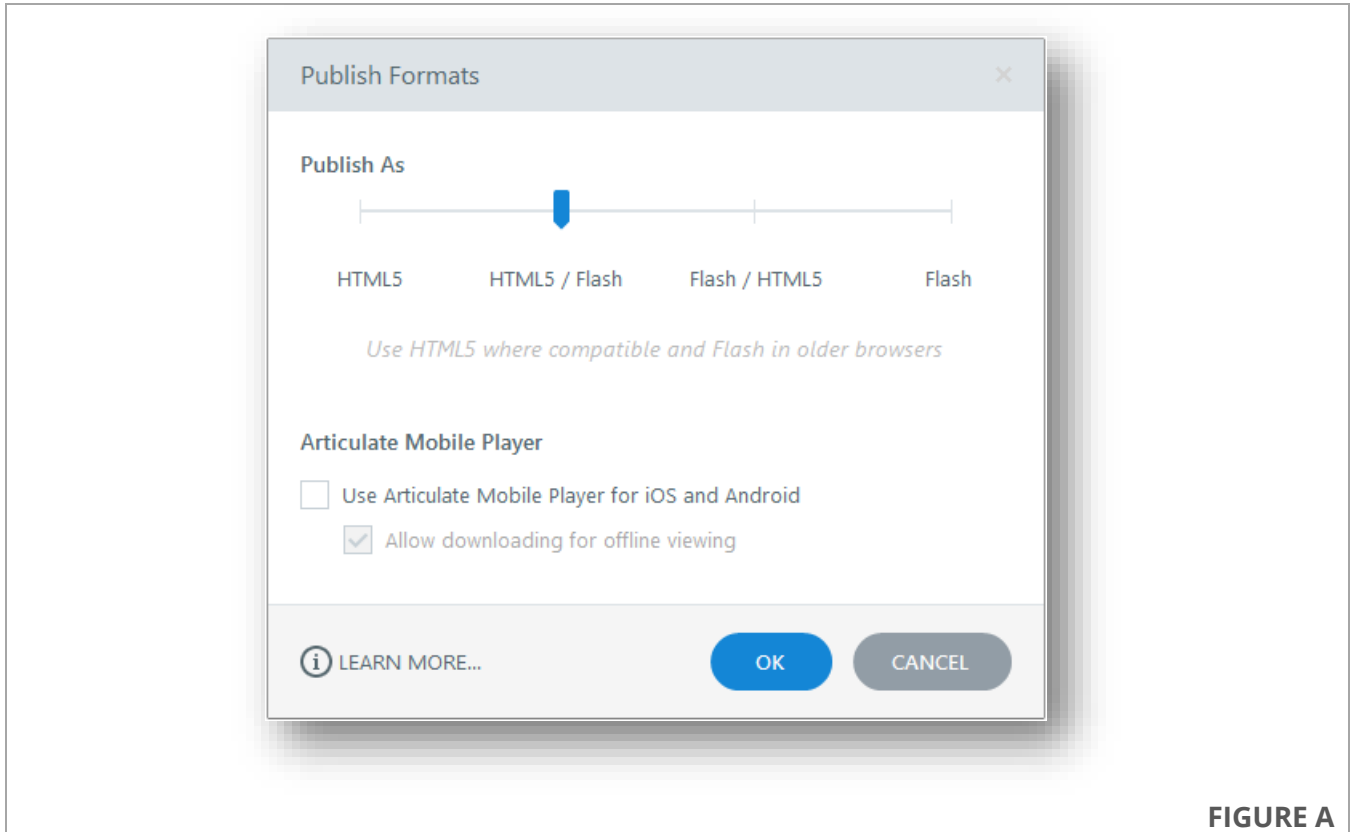


FIGURE A



Not all web browsers handle HTML5 content equally. For this reason, we recommend that you test your courses in all supported browsers. Currently, Learn supports Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari.



*If you choose to publish for HTML5 only, you must enable the activity property **Open Content in Native Mode** (under **Web Based Training > General**) to ensure that learners can view and complete the course in Internet Explorer.*

Mobile Player

If your course authoring software provides the option to use their mobile player, do not select it. These mobile players are not compatible with Learn (and many other learning management systems)¹.

To make your course available on mobile, select the **Available on Mobile** check box during step 3 of the file upload process in Learn. **(See Figure B.)** Activities with this setting enabled are available in the full SumTotal Talent Expansion suite site and the SumTotal Mobile app.

¹ Reporting and tracking learning content in these mobile players is not supported in learning management systems, like Learn, that do not support Tin Can API.

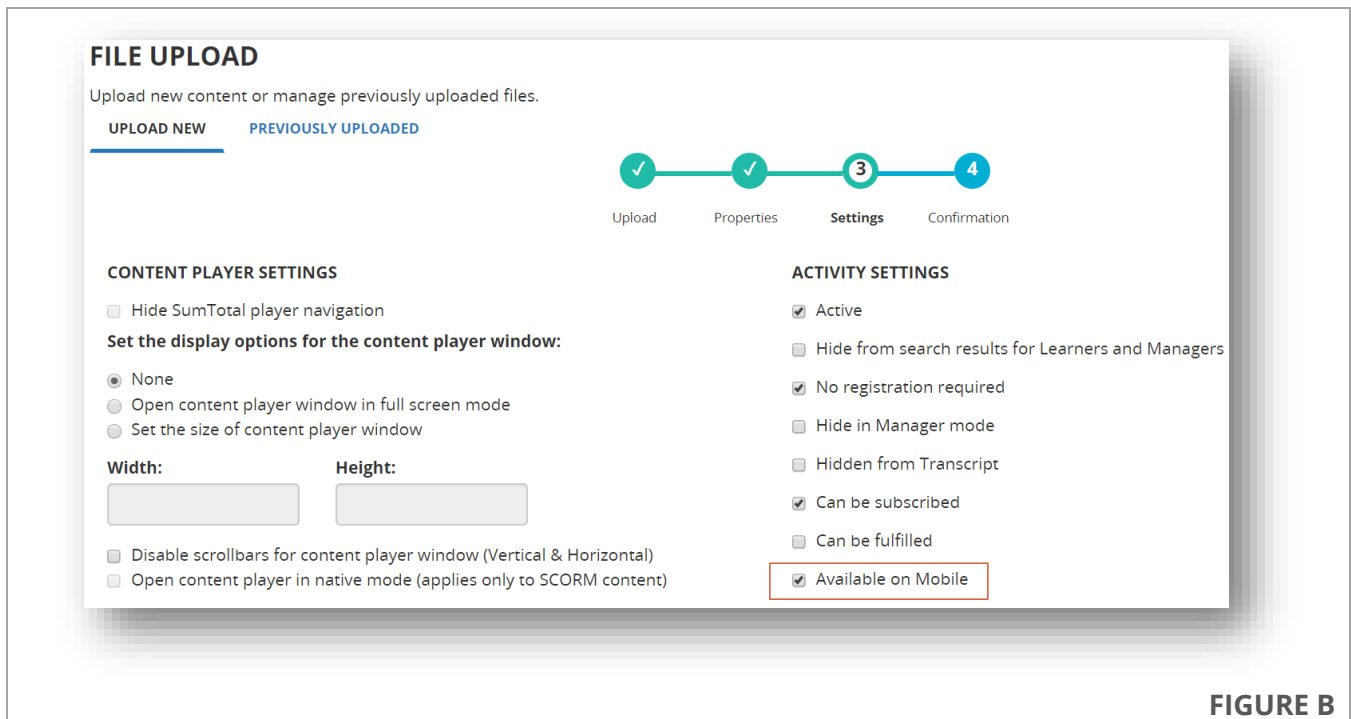


FIGURE B

Course Player (Skin)

The course player (skin) refers to the frame around your course. Depending on your course authoring program, the player includes:

- Playback controls
- Border
- Logo
- Table of contents
- Resources
- And more.

(See Figure C.)

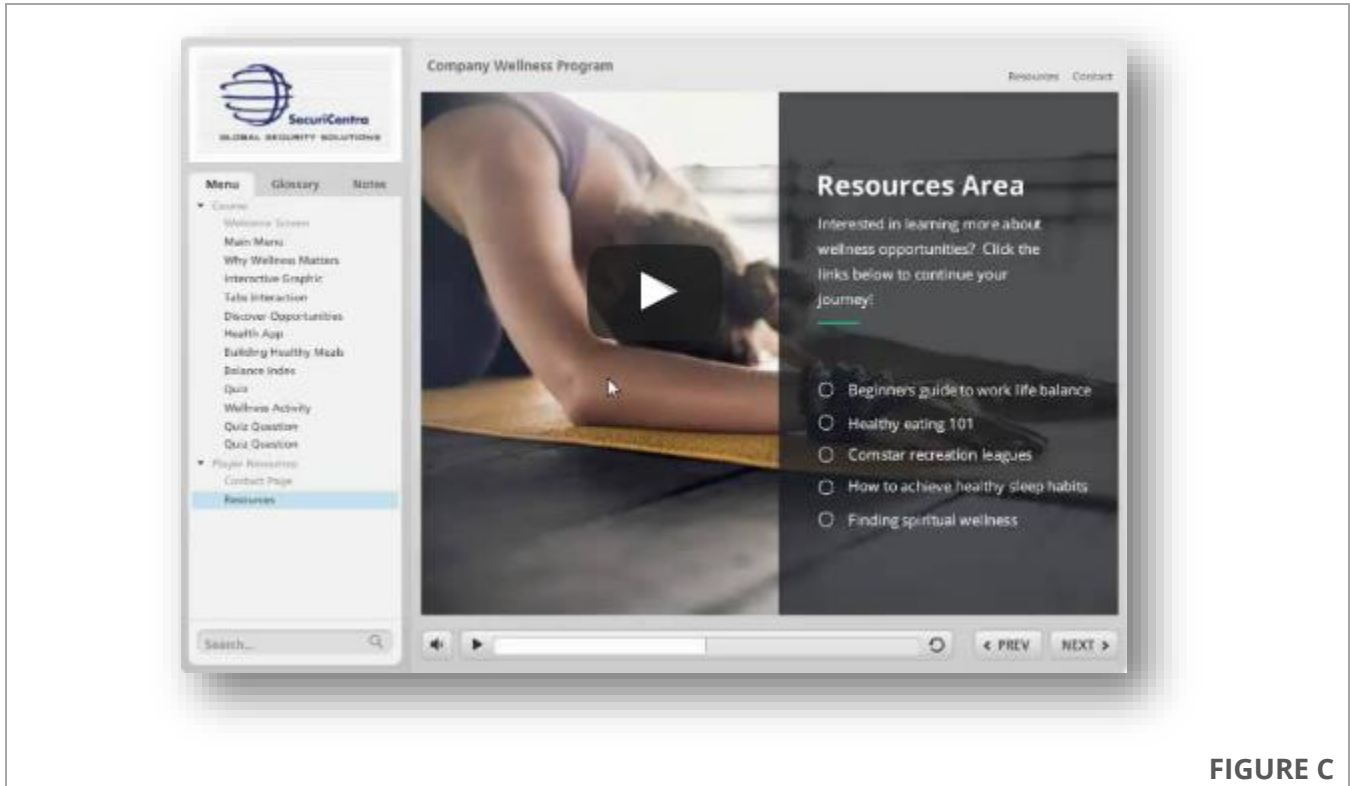


FIGURE C

Within most course authoring programs, the player is highly configurable. Regardless of the configurations you choose, bear in mind that **changes to the player may add to the overall dimensions of your published course**. For example, adding a Table of Contents could add as many as 240 px to the width of your course.

Determine the number of pixels your player adds to the height and width of your course. If necessary, be sure to account for this in the **Content Player Settings** for your course². (See Figure D.)



If you don't have audio in your course or on a specific slide, remove the audio control button from the player for those slides. Otherwise, users may assume that there is audio and there is an issue with audio in your course.

Similarly, remove any links or tabs that do not have content associated with them. For example, if you don't have any resources attached to your course, remove the Resources tab from the player. Otherwise, users might assume that the link is broken.

² Content Player Settings are configurable in step 3 of the file upload process. They are also available through the **Web Based Training > General** properties in the activity Staging Editor.

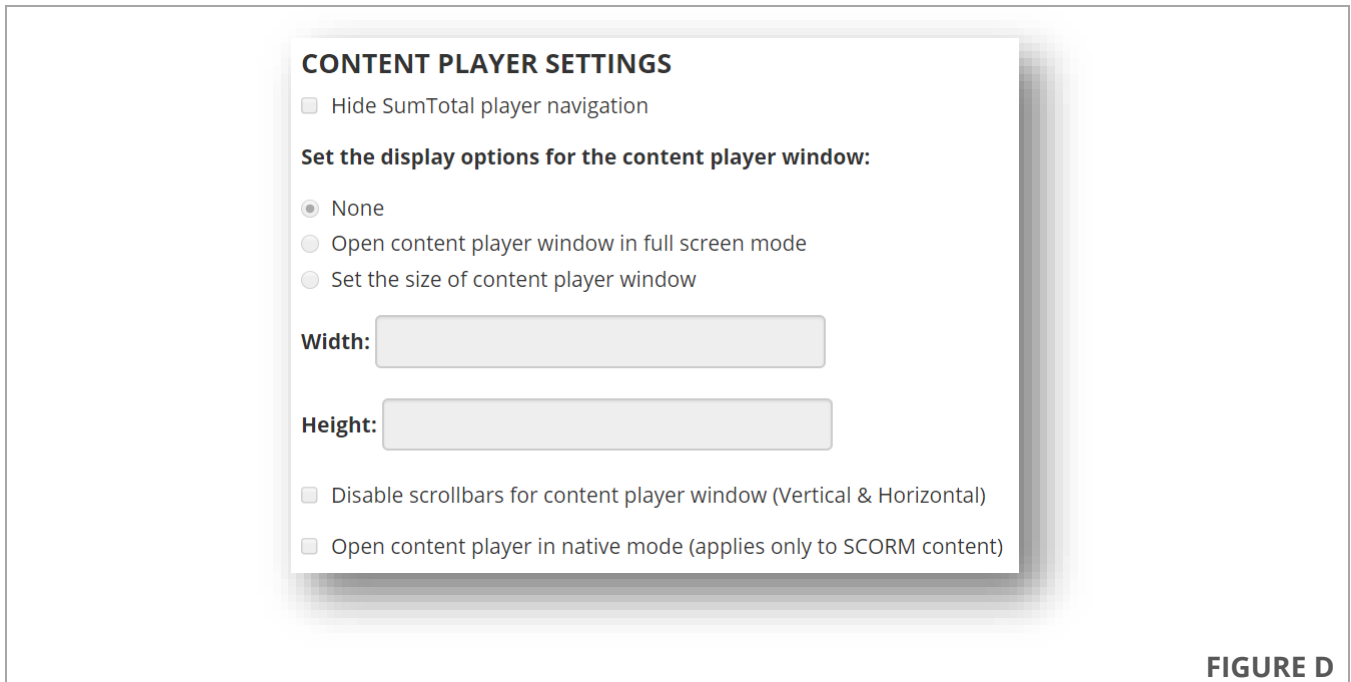


FIGURE D

Audio, Video, and Image Quality

Course authoring programs allow you to manage the video, audio, and image quality in your courses. (See Figure E.) Using higher values increases the quality of your courses, but it also increases file sizes. This, in turn, leads to longer download times for these courses.

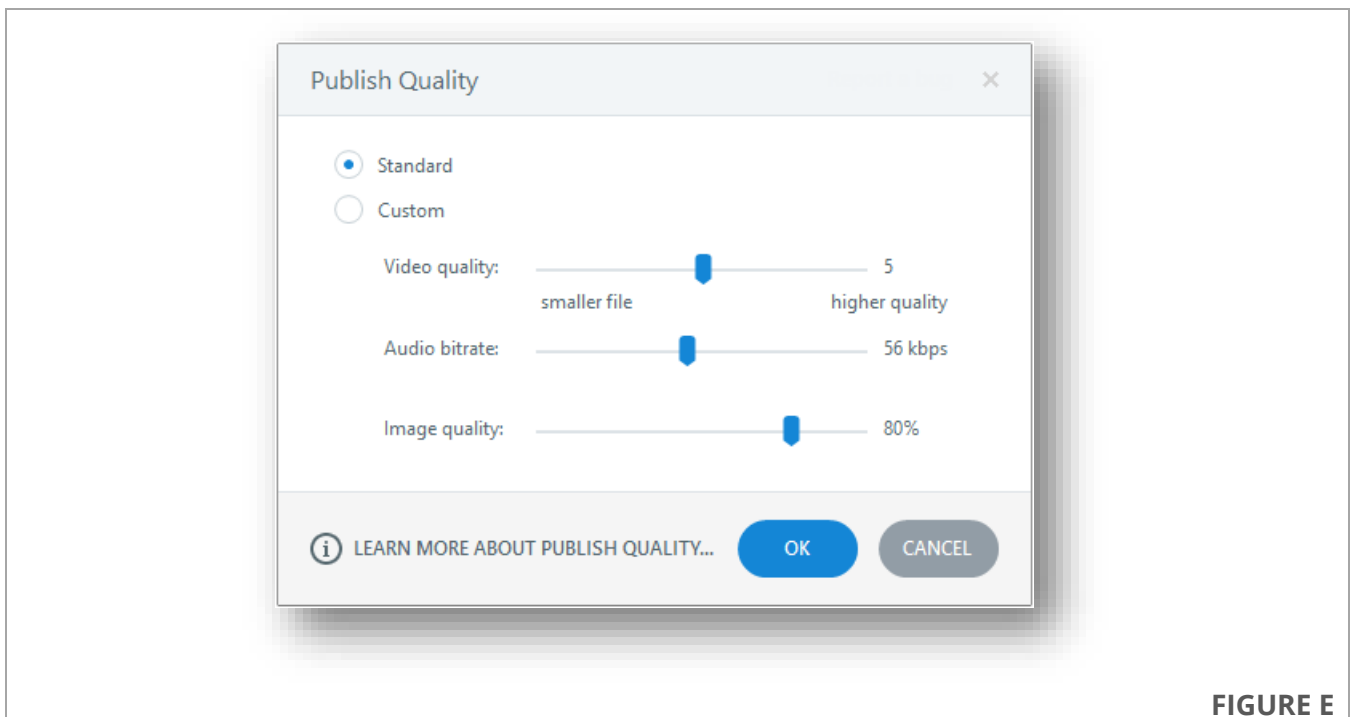


FIGURE E

Some course authoring programs provide an option to optimize the audio volume throughout a course. This feature levels out the audio output across an entire course. This is especially useful for courses with audio recorded in different environments or on different days/times³.

Reporting and Tracking

Most course authoring programs allow you to track course progress and completion in two ways:

- Number of slides viewed - Specify the number of slides users must view in order to be marked complete for the course.
- Quiz result - Track users based on their quiz results.

Depending on your course authoring program, you can choose one option or both.

Regardless of how you track progress and completion, course authoring programs allow you to choose how to report course progress and completion. The reporting options below reflect the options available in Articulate Storyline. Options in other course authoring programs may differ. It is important that you understand those differences and choose the appropriate option for your course.

Report Status	Description	Possible Outcomes
Completed/Incomplete	Used for unscored content where completion is based on slide views. If the minimum number of slides are viewed, then the user is marked complete. If not, the user's status is in progress.	<ul style="list-style-type: none"> • Completed, No Score • Incomplete, No Score
Completed/Failed Passed/Incomplete	Do not use this reporting and tracking option for courses in Learn. Used for scored content when you want the user to be left in progress if they do not achieve the minimum passing score. If users achieve the minimum passing score, they are marked as completed/passed with a score. If not, users remain in progress and no score is passed to Learn, allowing them to try again.	<ul style="list-style-type: none"> • Completed, Passed with Score • In Progress
Passed/Failed	If users achieve the minimum passing score, they are marked as completed/passed with a score. If not, they are marked completed/failed with a score. This is especially useful if you want to limit number of attempts through a learning activity for the purpose of assigning remedial training, etc., in the event of someone failing. Most commonly used for compliance or certification activities where you want to record a failed status.	<ul style="list-style-type: none"> • Completed, Passed with Score • Completed, Failed with Score



*If you choose the Passed/Failed option, remember that learners are marked complete whether they achieve a minimum passing score or not. **If you want the course to remain on learners' Timeline / To Do list until they pass the course, use the Passed/Incomplete option.***

³ This option does increase publishing time, so it is not recommended for courses with audio that was recorded in a consistent recording space.

Course Development Best Practices and Troubleshooting

Menu (Table of Contents)

- If you add a menu (table of contents) to your course, provide descriptive names for each slide in your course. Slide names appear in your menu.
- Most course authoring programs allow you to add or remove slides from the menu. Similarly, these course authoring programs allow you to modify the order of slides in the menu. Leverage this functionality to ensure that your menu mirrors the order of slides with your course.
- Each time you add new slides to your course, you must refresh the menu.
- Depending on your course authoring program, a menu may be required before you can add a Search bar to the course player.

Slide Properties

You can customize the properties for any slide in your course, including what happens when learners revisit it and which player controls are visible.

When Revisiting

How should the slides behave when the user revisits them later? For most content slides this isn't really an issue. But for slides with media or interactive elements, this can be a source of confusion and second-guessing.

Some course authoring programs, like Articulate Storyline, provide you with the ability to choose the behavior from a simple drop-down menu. **(See Figure F.)** Others, like Adobe Captivate, require more deliberate action, primarily through the use of slide triggers. Consult your programs online help and product documentation to learn more and improve the quality of the user experience with your courses.

Determining How Slides Behave When Revisited

Storyline lets you decide how objects behave when learners revisit the same slide later. Choose from the following:

- **Resume saved state:** Use this option if you want the slide to always remember its previous state. In other words, this option lets learners pick up where they left off when they leave the slide and come back to it later.
- **Reset to initial state:** Use this option if you want the slide to always reset to its initial state when learners return to it. It'll restart from the beginning of its timeline, and interactive objects will return to their initial states.
- **Automatically decide:** This is the default option. It means Storyline will decide whether to resume or reset the slide based on the objects it contains. Here's the logic: If the slide has only simple objects and/or audio but no interactivity, Storyline resets the slide to the beginning of its timeline. However, if the slide contains interactive elements, such as buttons or other objects that have a visited/selected state, Storyline resumes the slide where it left off previously.

FIGURE F

Player Controls

Individual slide controls allow you to choose the buttons you want to show on selected slides. For example, individual slide controls allow you to remove the **Previous** or **Back** button from the first slide in your course.

You may also be able to control the player features on individual slides.



Remove the **Previous** or **Back** button from the first slide in your course. Remove the **Next** or **Forward** button from the last slide in your course.

Quiz Properties

If your course uses a quiz result to track progress and completion, remember to:

- Set the minimum passing score required to be marked complete for the course.
- Indicate the time limit, if applicable.
- Indicate which slides should be included in the quiz calculation, and which slides should not.

- If you have multiple quizzes, specify the result slide to report on.
- Choose whether to allow users to review and/or retry the quiz.



Some course authoring programs allow you to design courses so that learners can retake a quiz after they have reviewed it. Other programs do not allow this, at least not without a workaround. If your program does not allow it, but you want to extend this option to your learners, reach out to your program vendor and inquire about a possible workaround.

Course Exit

In some course authoring programs, you are required to have an **Exit** button in your course. Whether it is required or not, we strongly recommend that you include an **Exit** button in all of your courses.

Creating an **Exit** button is relatively easy. Simply create a button, label it accordingly, and give it a trigger to exit the course when users click on it.

We also recommend adding a link to exit the course somewhere on the course player, if your course authoring program allows for it.



Provide exit instructions in your courses. You may be familiar with the course, but your learners are not. Let them know that the course is complete and how they should exit. Usually a sentence or two is sufficient, so long as you're clear.



Create an exit slide. Place it after your final quiz results slide or the course summary. Many course designers use this slide to:

- *Thank learners for taking the course.*
- *Provide additional resources (e.g. Job aids, links, key contacts.)*
- *Provide follow-up information learners might need, such as a certificate that is now available for them.*

Video Content

As a best practice, limit the media formats for videos to .mp4 or .flv.

If videos don't play in your published courses, review the following reasons and solutions.

- Update Adobe Flash Player
 - You may need to update Adobe Flash Player on your computer to a version that supports FLV and MP4 movies.
- File Naming Conventions
 - Don't use special characters, accents, or spaces in your video file names.
- Add FLV and MP4 MIME Types to Your Server

- If FLV or MP4 videos still won't play after uploading your published content to a server, it's likely that you need to add these MIME types to the server.



Learn does not stream video content. If your video content is hosted elsewhere on the web (such as YouTube), provide a link to the video content within your course.

If possible, we recommend that you enable the option to pre-load media assets (including video files) before running your course. Depending on your course authoring program, this may be the default behavior. For other programs, you must enable this setting during the publishing process. Consult your course authoring program vendor's online help and product documentation to determine.

Mobile Courses

SumTotal Mobile supports courses that leverage interactive design elements, including data entry fields, drag and drop, sorting, matching, and the like. However, courses that rely too heavily on these objects can overwhelm the application and cause issues with the end-user experience.

Bear in mind also that, while some course authoring tools leverage a built-in, responsive design feature, others do not. If your course authoring program does not leverage this feature, be sure to account for this in your course design. Most specifically, be sure to account for the screen resolution/aspect ratio of the devices your learners use most.

Unsupported File Types

File Upload Security settings, located under **Global Settings** in Learn, control the types of files users are permitted to upload in the system. Learn rejects any file type not listed there, whether it is uploaded as an individual file or included in a .zip file.

During the file upload process in Learn, you may encounter the following message: ***You are trying to upload a .zip file that contains the following unsupported file types: __. Please upload a different file or contact your system administrator.*** To resolve the issue, the specified file type must be added to the allowable file types in the File Upload Security settings.

Compliance Courses

If your compliance course is not behaving as expected, ensure that the lesson status as well as scores and Interaction details are being passed by the course to the Learn system.

We also recommend that you design your compliance courses so that learners must view every slide to be marked complete⁴.

Replace Uploaded Content

SCORM content contains multiple files, including a manifest file (imsmanifest) that's created during the publication process. This manifest file can affect the replacement process.

If you enable content replacement when the manifest file is modified for an activity, you can replace SCORM content even if there are manifest changes. If there's a change in the manifest file, a pop-up displays asking about the structure. You can either:

- **Keep the structure.**
- **Replace the structure.**

Replacing the structure can affect the learning activity's properties, particularly its Content Player Settings. If you have content that doesn't have a "shownavbar" attribute and you initially selected the **Hide SumTotal player navigation** checkbox, then if you choose to replace the structure, this checkbox gets cleared and the new content will not hide navigation.



For more information about replacing uploaded content, refer to the Modify or Replace Uploaded Content section of the SumTotal Learn Training Administrator Guide, available on SumTotal Connect.

File Size and Bandwidth

It is difficult to specify customer bandwidth because of the nature of the Internet and individual corporate usage. Network latency, peering issues, bandwidth at upstream providers, users using their Internet connections for other use besides 'sumtotal.host', etc. all affect the perceived performance of the connection and the amount of bandwidth required to keep performance adequate. SumTotal recommends engaging a networking professional to help measure, allocate, and monitor appropriate bandwidth and networking resources.

Here are a few key best practices for optimized response times:

- For video files that are usually the common bottleneck, we recommend using HTML5 based streaming capabilities or media streaming servers instead of including one large video file as part of the content

⁴ Some course authoring programs allow you to track course completions by number of slides viewed or results on a quiz slide, but not both. If you want your compliance course to track course completions by quiz result, consider designing the course so that the quiz is locked unless / until learners view all of the main content slides in your course. This can be done with the use of triggers in your course design.

- Make sure that types of data files that are usually large in size and are part of the content are being cached by CDN. If not, we will have to get those file extensions added to CDN configuration.
- Run single user tests and concurrency tests using one of the real time courses to measure the actual response time performance that accounts for the all the variables involved.



When Learn launches a customer uploaded course, our content player redirects the user to the first page of the course, and the load times are 100% in control of the course content and completely independent of the Learn application.

Courses Not Developed With A Commonly Available Course Authoring Program

Best Practices

- Courses should have an **Exit** button that will call Commit and Terminate functions (SCORM course) when clicked.
- Ensure the course files specify how Learn should report and track courses when the learner clicks the browser's **Close** button.
- Intermediary SCORM/AICC posts should be made from the course:
 - At a particular interval of time (such as. 10 minutes)
 - At the end of each topic/chapter
- Use the standard findAPI call as mentioned in the SCORM standards document (see below).
- Avoid multiple post calls at the same time.
- Set the course completion status to Incomplete as soon as the course is launched.
- Leverage compliance testing software, like ADL's Test Suite (see below), to test and debug your courses.

QA Testing

We strongly encourage you to put your courses through a complete QA process before making them available to your learners. Establish different groups of testers for different types of testing. Begin by having one or more subject matter experts test your course content for accuracy. From there, have a group of testers review the course navigation and overall user experience, and confirm that the tracking and reporting behavior of your courses works as expected.

Appendix

ADL Test Suite

- SCORM Version 1.2 Conformance Test Suite Version 1.2.7: <https://www.adlnet.gov/adl-research/scorm/scorm-1-2/>
- SCORM 2004 3rd Edition Conformance Test Suite along with sample course: <https://www.adlnet.gov/adl-research/scorm/scorm-2004-3rd-edition/>

Required SCORM Post Calls

Requirement SCORM Post Calls are part of the Runtime Environment provided in the location below:

- SCORM 1.2 ADL RTE Document: <https://www.adlnet.gov/adl-research/scorm/scorm-1-2/>
- SCORM 2004 3rd Edition ADL RTE Document: <https://www.adlnet.gov/adl-research/scorm/scorm-2004-3rd-edition/>

Resources

"Special Characters Should Not Be Used In Content Titles" *Articulate*. Articulate Global, Inc. 1 Dec 2015. Web. 10 May 2017.

Cannon, Adam. "5 Tips to Prepare Your Storyline Course for Your LMS" eLearning Brothers. eLearning Brothers, LLC. 22 Aug 2016. Web. 10 May 2017.

"How Player Features Affect Published Story Size" *Articulate*. Articulate Global, Inc. 7 Dec 2015. Web. 10 May 2017.

VHOT Training Inc. "Adobe Captivate 7 Working with the Skin Editor" *YouTube*, author Russell Youngblood. 28 Aug 2013. <https://www.youtube.com/watch?v=kRTbiCnIHwU>.

eLearning Brothers. "Modifying the Player Skin in Adobe Captivate" *Youtube*. <https://www.youtube.com/watch?v=4WSe7bHuboQ>.

"Using Skins in Adobe Captivate" *Adobe Support*. Adobe Systems Incorporated. 17 Oct 2016. Web. 11 May 2017.

"Storyline 2: Customizing the Course Player" *E-Learning Heroes*. Articulate Global, Inc. Web. 12 May 2017.

"Storyline 2: Publishing a Course for LMS" *E-Learning Heroes*. Articulate Global, Inc. Web. 8 May 2017.

Paul Wilson Adobe Captivate Tutorials. "Adobe Captivate - Publish Your eLearning on an LMS" *Youtube*, author Paul Wilson. 16 Nov 2014. https://www.youtube.com/watch?v=62L_3yXU-Lc.

LectoraElearning. "How to Publish a SCORM Compliant Lectora Course to an LMS" *Youtube*, hosted by Jaime Cummings. 12 June 2013. <https://www.youtube.com/watch?v=yaw26RVDGu8>.

Allen, Brian. "LMS Reporting" Online posting. 2 Dec 2013. E-Learning Heroes. 8 May 2017. <https://community.articulate.com/discussions/articulate-storyline/lms-reporting-476433ad-8825-4bd3-8c76-bf4c589d273e>.

"Videos Don't Play in Published Content" *Articulate*. Articulate Global Inc. 5 April 2017. Web. 9 May 2017.

Ward, Rod. "Retake Quiz After Reviewing It - Captivate 9" Online posting. 2 Sept 2015. Adobe Forums. 30 Mar 2017. <https://forums.adobe.com/thread/1942044>.

"Storyline 2: Adjusting Slide Properties" E-Learning Heroes. Articulate Global, Inc. Web. 9 May 2017.

Martin, Tim. "The Top 5 Things Every Piece of SCORM Content Should Do At Runtime" *Rustici Software*. Learning Technologies Group PLC. 7 Oct 2009. Web. 15 May 2017.

Wroten, Christie. "How to Publish and Test e-Learning Courses for Use in and LMS" *Lectora e-Learning Blog*. Trivantis. 20 Jun 2013. Web. 10 May 2017.