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National Highway Institute Web-based Standards Guide (WBT)



NATIONAL HIGHWAY INSTITUTE

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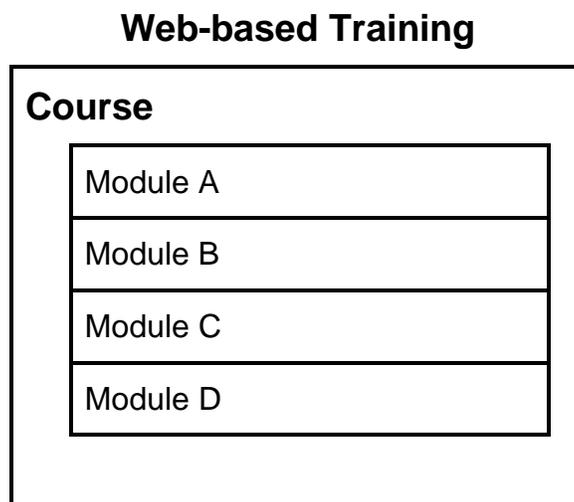
1. Introduction

The National Highway Institute (NHI) Web-based Training (WBT) Standards Guide provides guidance to the developers of WBT courseware.

Refer to your RFP for specific guidance on your specific project. Please refer any deviations from this document to your COTR.

1.1. Taxonomy and Course Structure

NHI WBT courseware is developed using the following structure: **Course, Module.**



All courses will include modules; lessons are optional. For purposes of the Sharable Content Object Reusability Model (SCORM), a sharable content object (SCO) is defined at the module level.

1.2. General WBT Development Information

This section covers general development guidance for NHI Web-based training. For additional resources, templates, and examples, refer to the NHI WBT Developer Toolkit, which can be accessed at <http://www.nhi.fhwa.dot.gov>.

Use the following general standards.

- Provide learners with information in the fewest steps and shortest time possible. The duration is measured by the amount of time it takes an average learner to read through all the presented material, access provided options, and listen to all included audio.
- Convey the content in simple and direct language using simple terms.

- Maintain module consistency.
 - Develop module welcome screens that illustrate the relevance of the content to the learner.
 - End each module with a summary that recaps the content and ties it to the learning outcomes.
- Create a desire to learn by beginning each module with something compelling.
- Include transitions to ensure coherent flow between screens.
- Address one concept, procedure, or item of instruction on each page.
- Correlate information on the screen to the slide title.

1.2.1. Platform Standards

Developers should refer to Adobe's technical guidance for Presenter to determine the minimum platform configurations required to develop courseware. See <http://www.adobe.com/products/presenter/tech-specs.html>.

1.2.2. Hosting

All NHI WBT courseware resides on the FHWA server at <https://connectdot.connectsolutions.com>.

1.3. Development Tools

All WBT developed for NHI **must** use Adobe Presenter 8, a PowerPoint to Flash conversion tool. Developers must purchase a developer's license for Adobe Presenter 8 and the Presenter plug-in.

Be sure that all developed products use the latest version of the NHI WBT template, which is available in the WBT Developer Toolkit on the NHI Web site at <http://www.nhi.fhwa.dot.gov>.

Other non-proprietary development tools, such as those listed below, may be used in conjunction with Adobe Connect.

- Adobe Flash
- JavaScript
- Adobe Photoshop
- Adobe Premiere
- Adobe Captivate
- Adobe Acrobat

Any other development tools require approval from the COTR. The developer should verify that they have the correct version of the NHI template with the NHI TPM prior to beginning courseware development.

1.4. Courseware Testing

The developer must ensure compliance with NHI standards, SCORM, and Section 508. To support compliance and confirm an acceptable product, NHI developed the following testing process. Among other things, the testing process requires:

- Alpha tests on all supported operating systems and browsers.
- LMS integration testing.
- Quality control testing on published versions of alpha, beta (pilot), and final (soft launch) courseware.

The duties assigned to the contracted developer are listed. Developers should refer to the task order for any specific testing requirements or modifications to this process.

Prior to beginning courseware development, the developer should contact the NHI TPM in order to obtain a user name and password on the NHI Adobe Connect server. The NHI TPM will provide the necessary information on how to complete this process.

This folder is to be used for development and testing purposes only.

1.4.1. Developer Duties during Testing Processes

Table 1: Developer Duties during Testing Processes

Stage	Stage 1 Alpha	Stage 2 Pilot (Beta)	Stage 3 Soft Launch
<p>Developer (Contractor) Duties</p>	<ol style="list-style-type: none"> 1. Publish WBT courseware to the NHI server as User Content and conduct quality control. 2. Notify NHI when courseware is ready for review and provide links for accessing courseware. 3. Review courseware comments received from NHI. 4. Revise courseware based on comments. 5. Document resolution of all comments. 6. Submit “Final Resolution of Comments” form to NHI and Technical Panel lead. <p>Additional Steps</p> <ol style="list-style-type: none"> 7. Publish ancillary files to generate URLs; use those URLs to create hyperlinks within the courseware¹ 	<ol style="list-style-type: none"> 1. Publish pilot-ready courseware to NHI server as User Content and test. 2. Notify NHI TPM with a written, signed report that the product complies with NHI’s “pilot-ready” criteria. 3. Resend links for accessing courseware. <p>Following Pilot</p> <ol style="list-style-type: none"> 4. Review comments received from NHI following pilot. 5. Revise courseware based on pilot comments. 6. Document resolution of all pilot comments. 7. Submit “Final Resolution of Pilot Comments” form to NHI and Technical Panel lead. 	<ol style="list-style-type: none"> 1. Publish post-pilot revised courseware to NHI server as User Content and test. 2. Notify NHI TPM & ISD once courseware is ready for internal NHI testing. <p>Following Soft Launch</p> <ol style="list-style-type: none"> 3. Review comments submitted by NHI Systems Support. 4. Revise courseware based on soft launch comments, and republish courseware to NHI server as User Content. 5. Document resolution of soft launch comments. 6. Submit “Final Resolution of Soft Launch Comments” form to NHI TPM, ISD, and Systems Support. 7. Submit source files to NHI TPM & ISD following guidelines provided in the NHI WBT Standards Guide. (Pay particular attention to file naming conventions.)² 8. After receiving final acceptance, remove all draft courseware that was published to vendor folder on the NHI server.

¹ NHI moves ancillary files from vendor folder to course folder at the end of the development when all courseware is final.

²It is possible that following the Stage 3 review by Systems Support that no changes would need to be made by the vendor and that the materials would be accepted as final at that point.

NOTE: A Stage 4 (Public Offering) does exist in the NHI process. However, it does not involve developer (contractor) duties unless NHI otherwise notifies the developer. If Stage 4 duties are identified by the contract, contact the NHI TPM to obtain a copy of this table with Stage 4 incorporated.

2. Standards for Design Plans

Design plans contain the findings and recommendations that are usually the result of a needs analysis. Design plans ensure the course is instructionally sound, which means it is job-relevant, task-based, problem-centered, interactive, engaging, and well organized.

Depending on the project, the design plan may be completed in a series of iterations, beginning with a high-level plan that details basic course content and a course overview, and expanding to a more detailed plan that may include an extensive content outline, explanation of instructional activities, information on graphics and resources to be used, and an overview of the assessment. Refer to the development contract and NHI TPM for additional clarification on what should be included in all plans.

Design plans typically contain the following information.

- Introduction and background
- Statement of business need
- Target audience characteristics
- Course goal(s)
- Course learning outcomes (terminal learning objectives, required; enabling objectives, optional)
- Overarching instructional approach, e.g., theme, metaphor
- Delivery method(s)
- Course structure (diagrams of modules that show chunking and sequence of instruction)
- Use of media (animation, audio, video), if recommended
- Description of instructional strategies
- Estimated course duration, by module
- Content and exercises mapped to each course learning outcome (in bulleted or outline format)
- Description of graphics designated to enhance content
- Proposed use of narration, if applicable
- Identification of prototype content
- Projected timelines for tasks and milestones, if not already provided in a project management plan or other documentation
- Evaluation strategy and traceability document
 - The traceability document supports the end-of-course assessment as a Level 2 evaluation.

- The traceability document will allow NHI to quickly and easily determine validity of the Level 2 instrument, as well as facilitate later updates of content. It will identify, by objective, that the assessment item effectively tests learner mastery of an objective and the location in the courseware of supporting content.

The traceability document is required for SCORM compliance. It may be collected as a separate final document or revised as part of an update to the overall design plan. Confirm with the NHI TPM as to how this document is to be delivered.

3. Standards for Storyboards

A storyboard is a draft version of Web-based courseware created for the purpose of review. A storyboard presents content sequentially, segmented in accordance with the design plan. The storyboard allows reviewers to confirm technically accurate and sufficient content is being presented via text, narration, on-screen graphics, or another medium. It also allows NHI to confirm that the developer is correctly applying 508 guidance and Adobe Presenter Quiz settings to the courseware.

The development of storyboards is project-dependent. The development contract dictates whether storyboards are required as part of courseware development.

The designer or developer creates draft storyboards for each module that can include any or all of the following.

- On-screen text
- Visuals, such as royalty-free photos, diagrams, or descriptions of planned Flash animation
- Narration script
- Video
- Script for new video
- Captivate demonstrations
- Knowledge checks and debrief slides
- Embedded links
- Rough cut (scratch) audio
- End-of-course assessment questions and answers

Storyboards are delivered as unpublished content, typically as a PowerPoint file. The developer should confirm with the NHI TPM that this is the preferred delivery method for this deliverable.

4. Standards for Prototypes

The prototype provides a functional sample of the content designed and developed in accordance with the WBT standards and instructional strategies identified in the design plan. A prototype of a module or content segment allows reviewers an opportunity to verify that the presentation of the content coincides with the design plan. Changes at this stage are considerably less time- and cost-intensive than later in the development process.

Developers designate a specific module as the prototype in the design plan. A prototype usually contains an average of 15-20 screens. Rationale for selection of prototype content may include:

- Content for the section is the most stable or best documented in the material.
- All functionality to be included in the project is included in the section.
- The content is the foundation for other content in the project, and its development facilitates the development of other content.

The prototype must be delivered to NHI as a published file. The purpose of the prototype is to illustrate the presence of the following.

- Creativity
- Level of interactivity
- Opportunities for practice
- Writing style
- Understanding of adult learning principles
- Adherence to standards
- Accuracy of content
- Treatment of content
- Resources, such as:
 - Cited documents
 - A bibliography
 - Relevant web resources
 - Similar items

Depending on the project, a series of prototypes may be appropriate. Examples include courses that contain simulations or the use of virtual world technology.

5. Standards for Using the WBT PowerPoint Template

The NHI template establishes the graphical user interface (GUI) for WBT courseware. Use the NHI template to develop a WBT.

Retrieve the template from the WBT Developer Toolkit at <http://www.nhi.fhwa.dot.gov>. Developers should verify that they are using the preferred template before any development work begins. Any requests for modification to the template must be provided in writing to the NHI point of contact for the course, and must be approved by the COTR.

Using the template provided, save the template as a new file and build the slides and Web-based training product from scratch. This is an important step to maintain the integrity of the source files.

General style and standards guidance on the development of PowerPoint slides exists in the *NHI Style and General Standards Guide*.

Developer Note

For adaptive technology to work correctly, the training content must appear in the proper sequence in the Outline View and be added to the slide using placeholders.

5.1. Screen Layout Standards

Media standards are used to maintain style consistency within the following areas. Screen layout standards are incorporated into the templates. Build slides in the Outline View using the provided layouts. Add graphics where appropriate.

5.1.1. Screen Design

- Establish a specific location for the presentation of instructions, completion times, and prompts.
- Provide recurring information in consistent locations.
- Use white space to separate blocks of text.
- Create the shortest module titles needed to convey meaning.
- Used varied layouts to present text and images in order to add visual interest.

5.1.2. Text Layout

- Present information in a top down, left to right instructional format.
- Layout content so a screen reader will read the text and alt tags in the correct order.
- Select a layout for each slide and insert text or graphical elements into a placeholder on the layout.
- Design text layout in short segments or phrases.
- Break up blocks of text to make it easier for the learner to scan the content.
- Use bullets, numbered lists, tables, and charts to break up lengthy sentences.

5.1.3. Navigation

Use consistent navigation standards to promote learner satisfaction and retention. The following standards apply to all Web-based courseware.

- Add **Back** and **Next** buttons directly to each slide in order to activate hyperlinks.
- Ensure intuitive, learner controlled navigation.
 - Buttons should have text description labels (alt tags) that include the URL or slide number.
 - Navigation buttons must display in the same position on every page.
 - Mouse cursor changes and rollover highlights must be consistent within a course.
 - Other navigational buttons may be added, as appropriate. However, the location of navigational buttons is specified in the template. Make buttons, such as Submit and Clear, consistent within each course.
 - Navigation elements provide one-click access to learners. Examples include Resources, Help, and Glossary.
- Provide clear instructions or cues for all required learner activities.
- Allow modules to be completed in any order unless the instructional design requires sequential accomplishment. If sequential accomplishment is required, provide instructions to the learners.
- Document links to other pages within the course or to external Web pages or other sites.
 - Describe internal links in the narration. For example: “For more information, please navigate to slide 38.”

- Otherwise, place linked slides directly after the slide that references it so that a user navigating with only the keyboard can access the information in a logical way.
- Document external links in the outline and include the link description in the narration.
- Use external links sparingly so learners are not distracted from existing content.

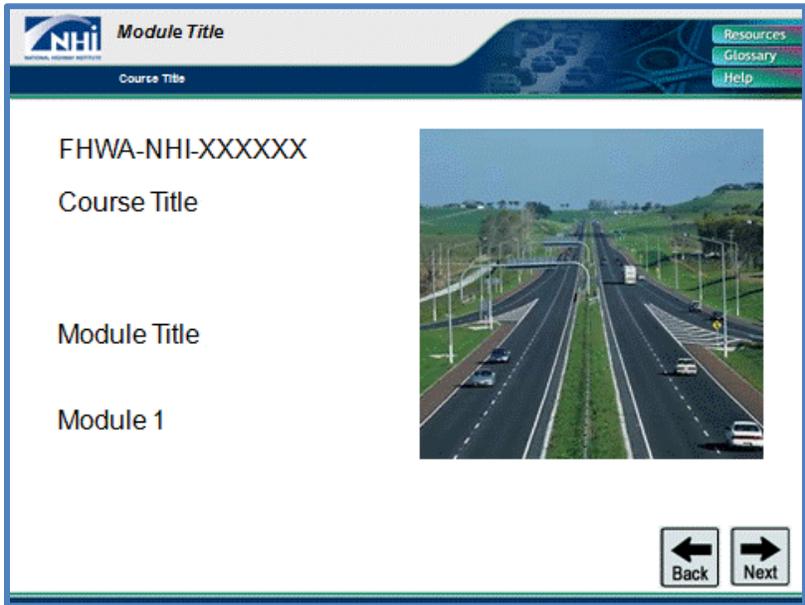
5.1.4. Section 508 Considerations

- Meet all Section 508 requirements.
- Request NHI 508 Checklists from the NHI TPM.
- Access the most current government guidance at <http://www.section508.gov>.

Developer Note
Creating a Section 508-compliant WBT first requires production of a compliant PowerPoint product.

5.1.5. Font

Follow NHI general standards for readability as found in the *NHI Style and General Standards Guide*. The PowerPoint template for WBTs is preset with approved colors and styles. Use of other font type, size, or color must be approved by the NHI TPM.



6. Standards for Media

Media standards provide a consistent look and feel to courses. They also increase the likelihood that the media will function as intended on the training platform.

For each module, utilize the most suitable medium to support and reinforce the subject material or interactive components. Media include computer graphics, photographs, video, animation, and graphs or tables.

6.1. Graphics

Refer to the *NHI Style and General Standards Guide* for general graphics requirements.

- Use custom illustrations and interactions to teach complex concepts.
- Recreate tables and graphs wherever possible instead of inserting as an image. Scanned graphics should be avoided entirely.
- Use the most modern technology generally available to generate visuals, including computer-generated graphics.
 - Be aware that any computer software required for the visual aids must be readily available to any facilitator; do not use proprietary software.
- Alt tags for charts and other complex graphics should reflect their complexity. A sentence or two is not always sufficient.
- Data that is presented in a table must be included in the general narration or provided as a table description.
 - The information or data must make sense when presented in a narrative format. Redundant or repeated information should be presented logically and not simply repeated.

6.2. Audio

- Avoid phrases that are not meaningful on their own or apply only to a select group of users.
- Include a semi-colon after each item in a narrated list, add the word “and” after the penultimate item, and place a period after the last item. This ensures that a screen reader can identify the items as a list.
- Avoid special characters in the narration (notes) section; they do not publish properly in Adobe Presenter.
- Ensure audio volume levels are consistent throughout the course.

- Use one audio talent to narrate all modules within the same course. If role-playing, multiple voice talent may be used, but roles must be consistent.
- Include the following audio edits.
 - Place 1 second of silence at the beginning of every slide.
 - Place 1 second of silence at the end of every slide.

6.3. Video

- Avoid techniques such as zooming, panning, transitional wipes, dissolves, and fast motion subjects.

6.4. Animation

- Allow user to control the animation to include start, stop, and replay.

7. Standards for Interactivity

Exercises, calculations, skill practice, and other experiential work provide an opportunity to test understanding and relate training content to work-related scenarios.

It may be appropriate to design modules within the same course for different levels of interactivity.

Table 2: Level of Interactivity Descriptions

Level of Interactivity	Description
Level I—Passive	<p>The learner acts solely as a receiver of information.</p> <p>The learner progresses linearly through course reading text from the screen, viewing video, or listening to audio.</p>
Level II—Limited Interaction	<p>The learner makes simple responses to instructional cues.</p> <p>The responses may include answering multiple choice or true/false questions.</p> <p>Example: Knowledge Checks</p>
Level III—Complex Interaction	<p>The learner actively engages with the content using technically complex activities that support challenging instructional methods.</p> <p>Example: Building a model or diagram</p>

8. Standards for Assessments

NHI uses formative and summative assessments for Web-based training. The types of assessments are as follows:

- Knowledge check (formative assessment)
 - Knowledge checks provide practice opportunities to reinforce each concept or skill.
 - Practice exercises are evaluated, but the scores are usually not sent to the learning management system.
- Course evaluation (summative assessment)
 - Course evaluation data measure the participants' training experience.
 - The course evaluation is accessible via the NHI My Training page at the end of the training.
- End-of-course assessment or exam (summative assessment)
 - End-of-course assessments evaluate participants' mastery of the content.
 - End-of-course assessments are loaded to the online curriculum.
 - Participants are instructed to complete the exam at the end of the training.
 - Instructions on completion requirements can be provided in the final training module as needed.

8.1. Test Methods

Adobe Presenter supports the following test question formats.

- Multiple choice
- Matching
- True or False
- Completion or “fill in the blank”
- Short answer
- Likert
- Sequence
- Hot spot (user identification)

Other testing types, including performance testing (skill demonstrations) and critical thinking (case studies), can be accommodated using Adobe Presenter in conjunction with other compatible software.

8.2. Adobe Presenter Settings for Knowledge Checks

Create Knowledge Checks using the Adobe Presenter Quiz Manager.

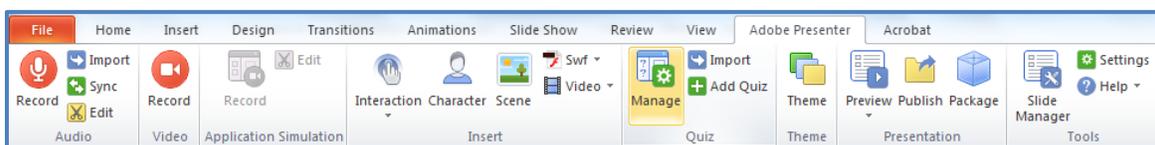
Developer Note

You must set up a quiz *before* you can enter the questions.

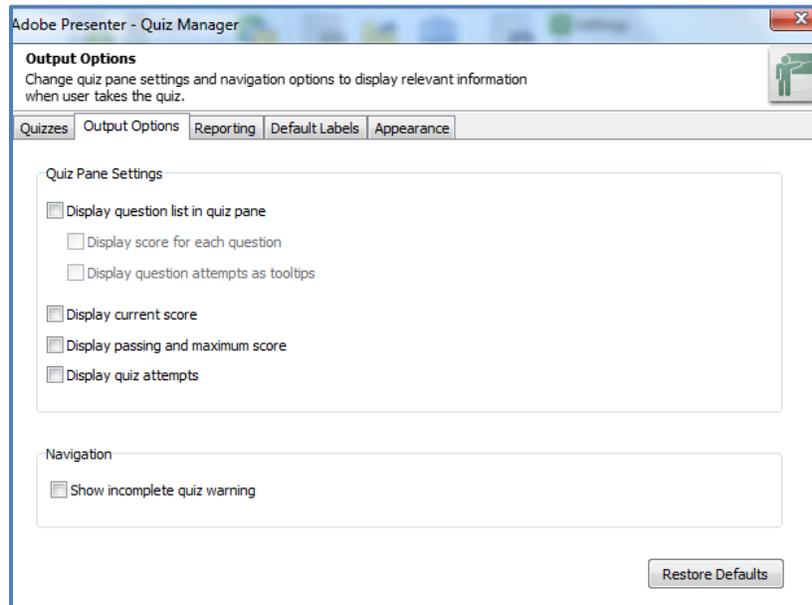
8.2.1. Quiz Manager Settings

Use the following steps to set up a Knowledge Check.

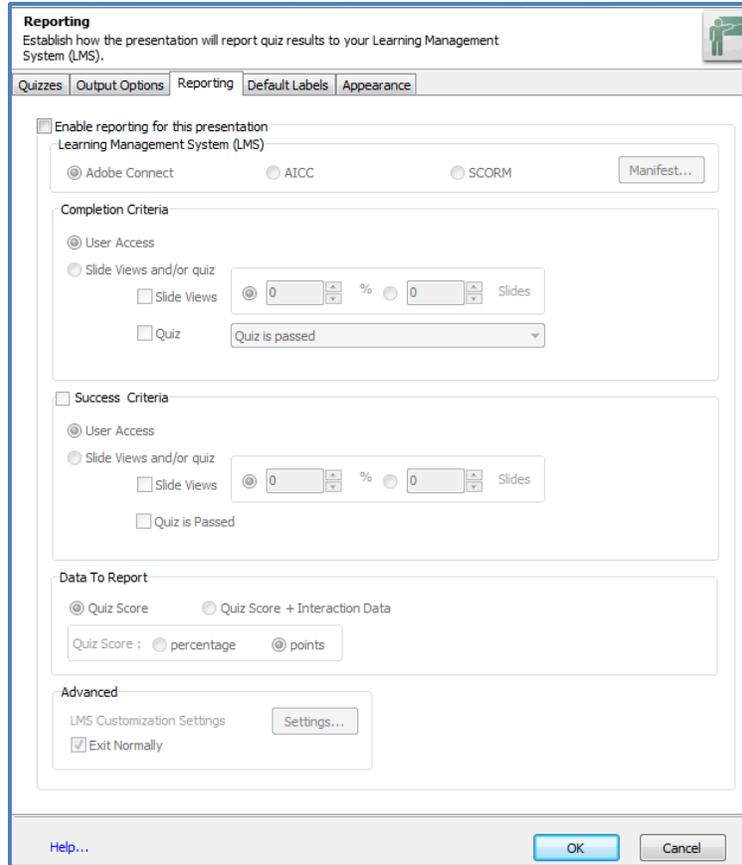
1. Open the **Quiz Manager** window by selecting **Adobe Presenter → Manage**.



2. Select the **Output Options** tab. Deselect all boxes.



3. Select the **Reporting** tab.
4. Deselect **Enable reporting for this presentation**.



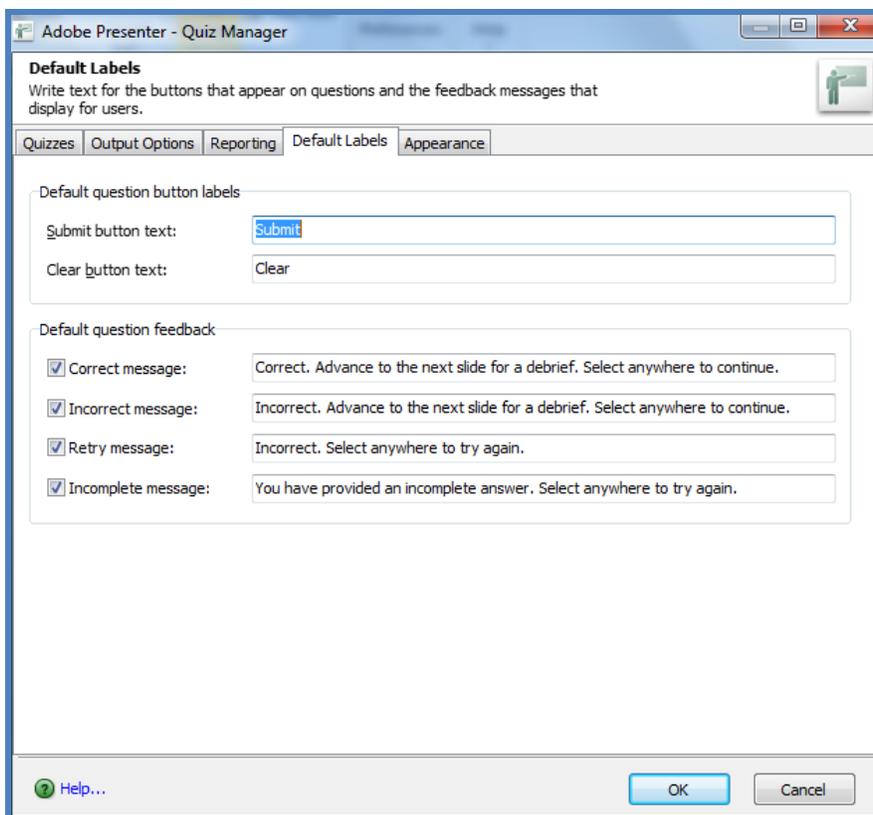
5. Select the **Default Labels** tab.
6. Select all boxes under Default question feedback.
7. Enter question feedback text.

Provide a “hint” if the learner answers incorrectly on the first try.

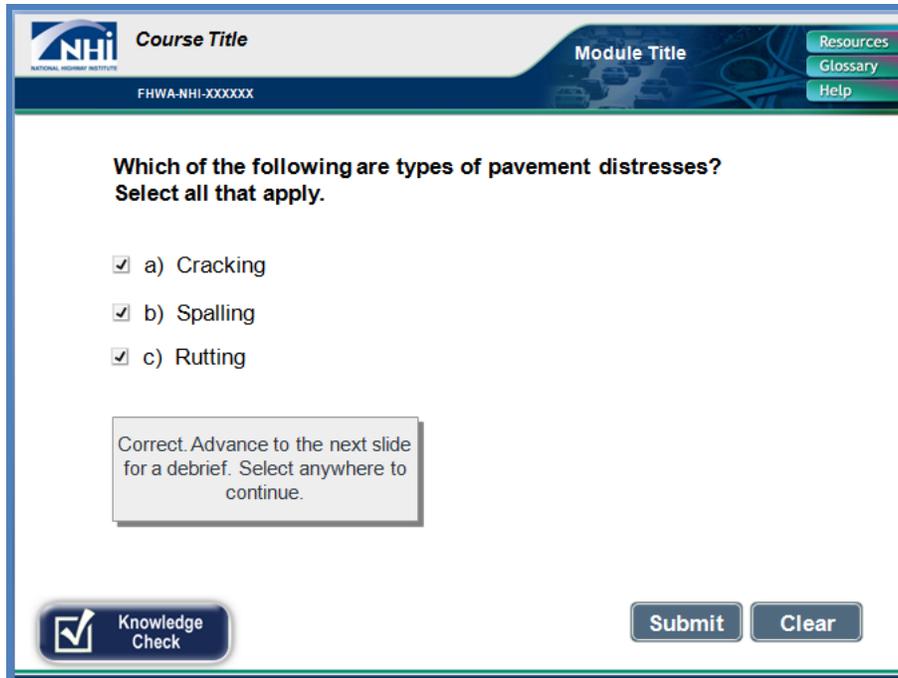
Provide corrective feedback to help enable learning if the learner answers incorrectly the second time.

Include, at minimum, the following text.

- **Correct message** field: “Correct. Advance to the next slide for a debrief. Select anywhere to continue.”
- **Incorrect message** field: “Incorrect. Advance to the next slide for a debrief. Select anywhere to continue.”
- **Retry message** field: “Incorrect. {Add hint feedback on slide} Select anywhere to try again.”
- **Incomplete message** field: “You have provided an incomplete answer. Select anywhere to try again.”



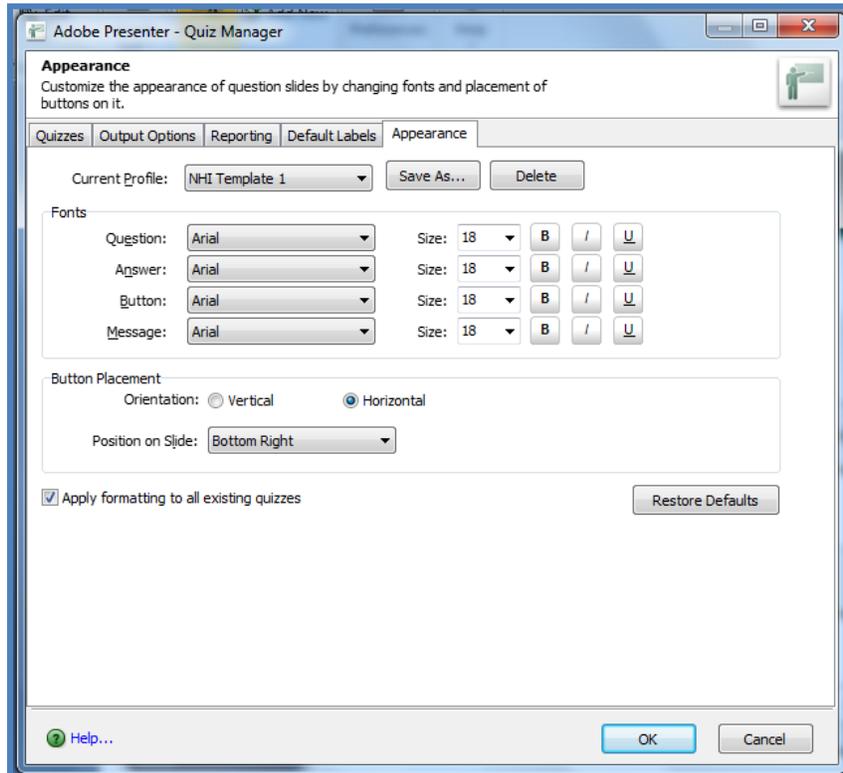
See below for an example of a Knowledge Check with generic feedback.



8. Select the **Appearance** tab.
9. Apply the following settings to **Fonts**.
 - **Question:** Arial 18, bold
 - **Answer:** Arial 18
 - **Button:** Arial 18
 - **Message:** Arial 18

Note: These settings are established on the NHI WBT template. Settings can be adjusted as needed.

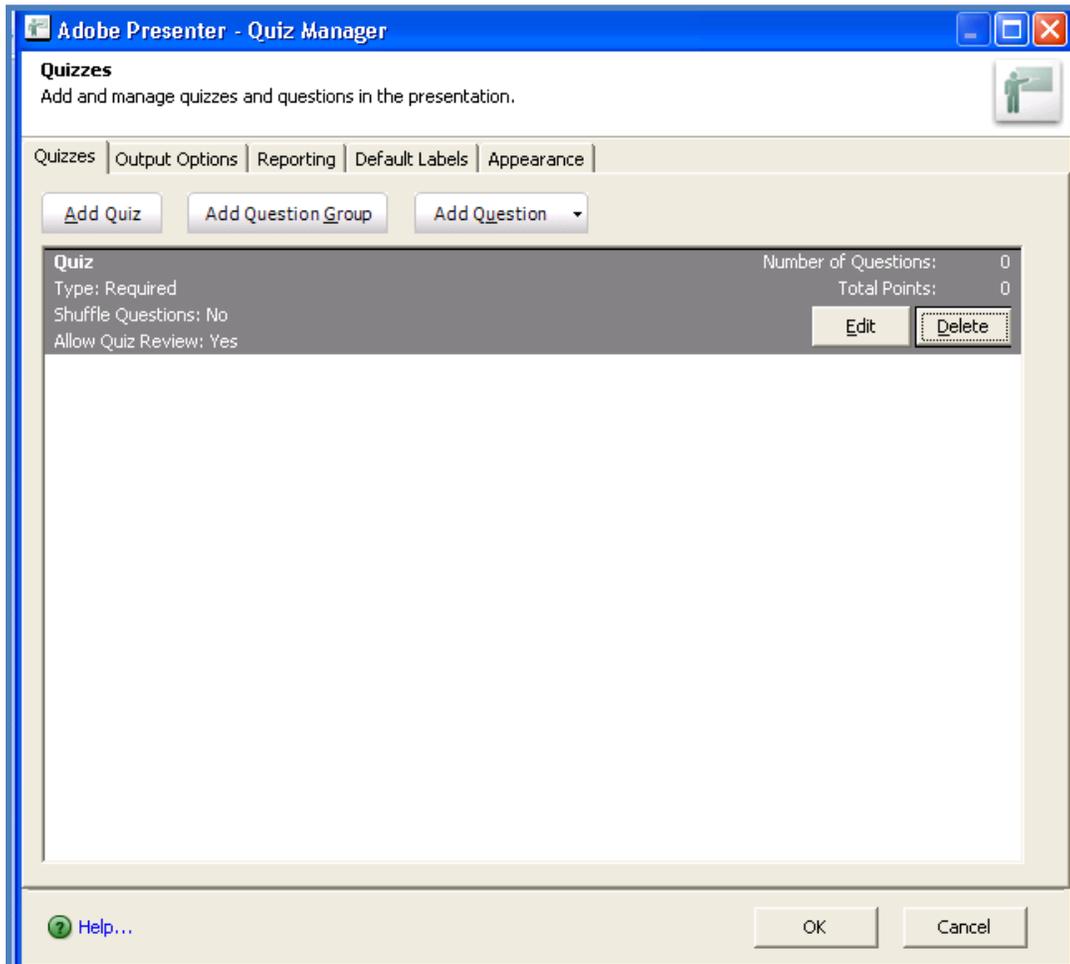
10. Apply the following settings to **Button placement**.
 - Orientation: Horizontal
 - Position on slide: Bottom right

11. Select **Apply** formatting to all existing quizzes.**Developer Note**

Adobe Presenter automatically adds "Submit" and "Clear" buttons to the Knowledge Check slide but uses a default format. Buttons need to be formatted manually.

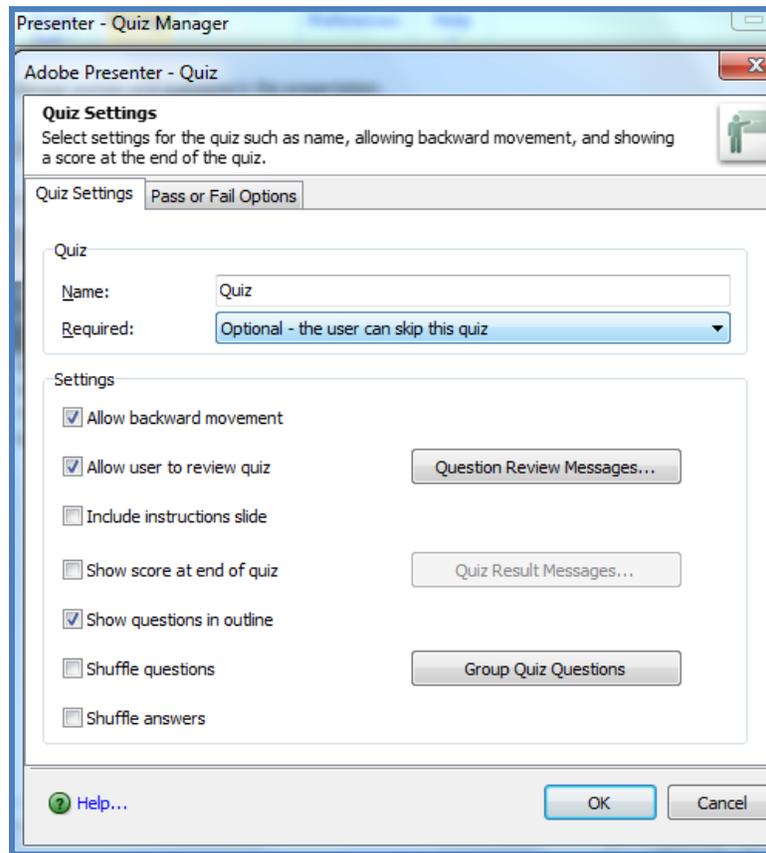
Use the NHI WBT template for formatting guidance.
Apply proper formatting to all Knowledge Check slides.

12. Select the **Quizzes** tab.
13. Select the **Edit** button in the **Quiz** to open the **Quiz** window.



14. Select the **Quiz Settings** tab.
15. Enter a unique name for the quiz in the **Name** field.
16. Select “Optional – the user can skip this quiz” from the **Required** dropdown field.
17. Apply the following to **Settings**.
 - Select **Allow backward movement**
 - Select **Allow user to review quiz**
 - Deselect **Include instructions slide**
 - Deselect **Show score at end of quiz**
 - Select **Show questions in outline**

- Deselect **Shuffle questions**
- Deselect **Shuffle answers**

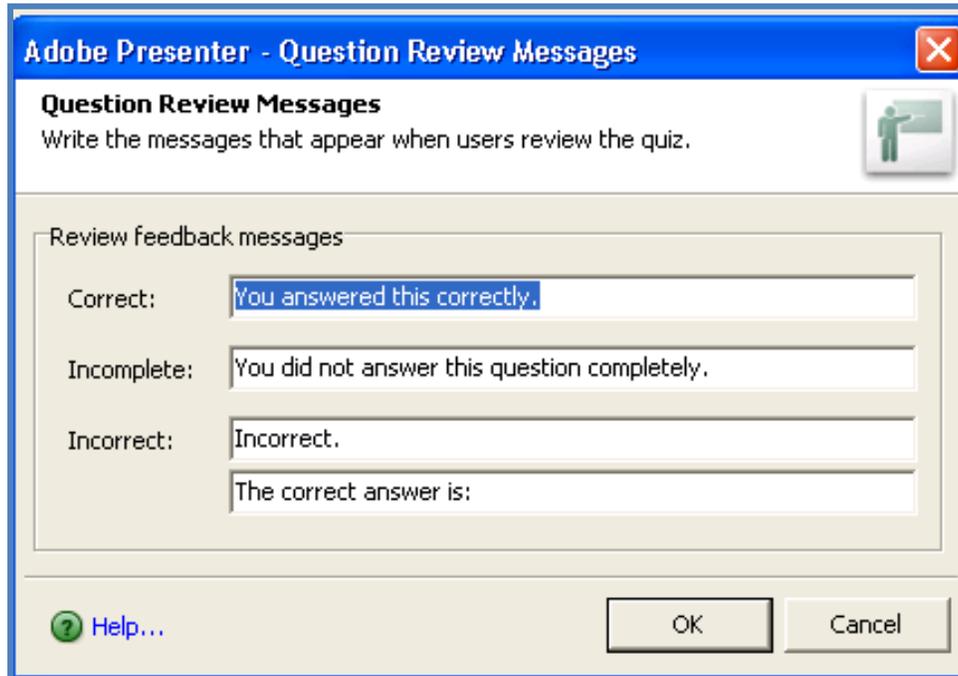


18. Select the ***Question Review Messages...*** button to open the window.
19. Enter the question review message text.

Include, at minimum, the following text.

- **Correct** field “You answered this question correctly.”
- **Incomplete** field “You did not answer this question completely.”
- **Incorrect** field “Incorrect. The correct answer is:...”

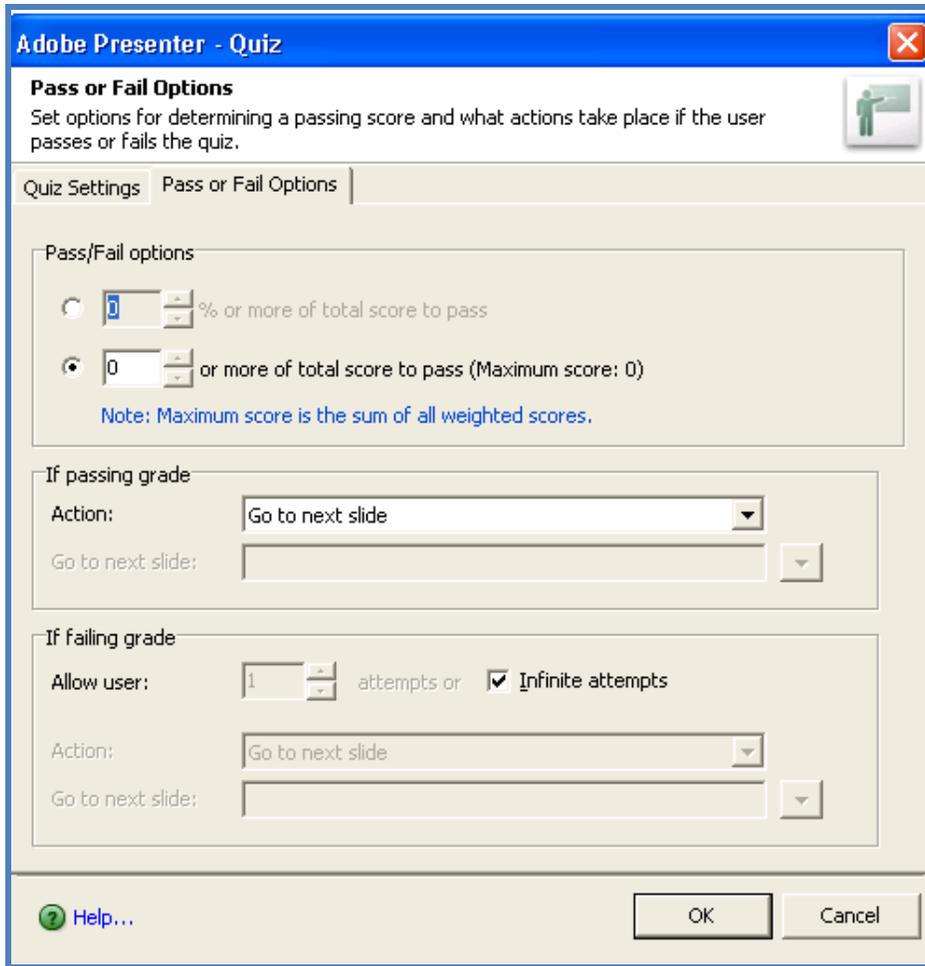
20. Select the **OK** button to close the **Question Review Messages...** window.



21. Select Pass or Fail Options tab.

Unless otherwise directed, use the following settings for this tab.

22. Select 0% or more of total score to pass.
23. Select “Go to next slide” from the **Action** dropdown field under **If passing grade**.
24. Select “Infinite Attempts” under **If failing grade**.
25. Select the **OK** button to close the **Quiz** window and return to the **Quiz Manager** window.



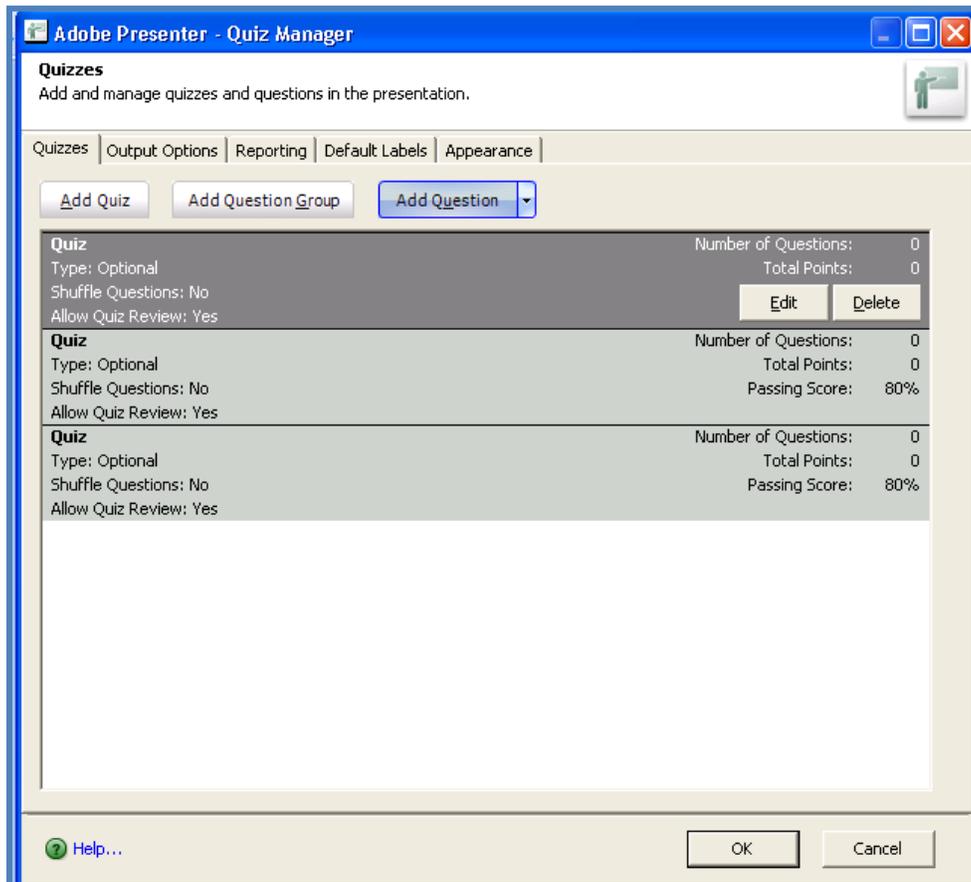
8.2.2. Question Settings

After you have set up the quiz, create the question(s) for the quiz.

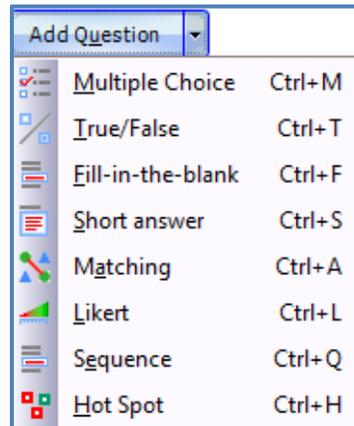
1. Open the **Quiz Manager** window by selecting **Adobe Presenter → Manage**.



2. Select the **Quiz** to which you are adding a question.
3. Select the drop down arrow next to **Add Question**.



- Select the type of question from the dropdown menu.

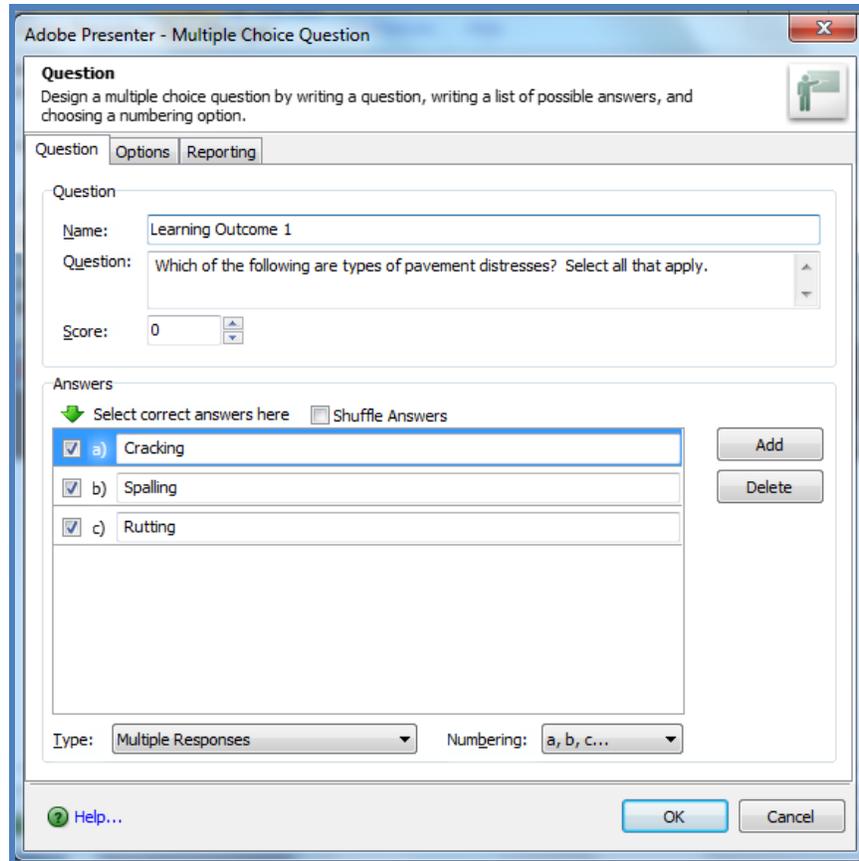


Developer Note

The remaining steps and settings described in this section can be applied universally to all of the question types.

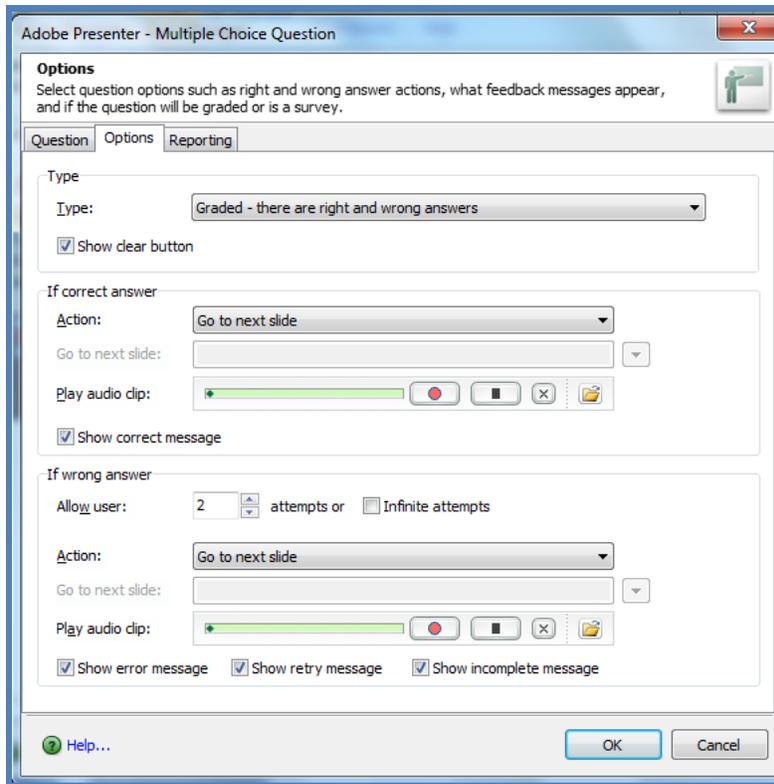
This guide will use the multiple choice question type to illustrate each step.

- Select the **Question** tab.
- Enter the following text in the **Name** field: "Learning Outcome {x}." Indicate which Learning Outcome the question addresses.
- Enter the question text in the **Question** field.
- Enter "0" in the **Score** field.
- Select the **Add** button under **Answers**.
 - Enter, or copy and paste, the text for the answer options.
 - Select the correct answer(s).
- Select "Single response" or "Multiple responses" from **Type** dropdown.
- Select lower case characters (a, b, c, . . .) from the **Numbering** dropdown.

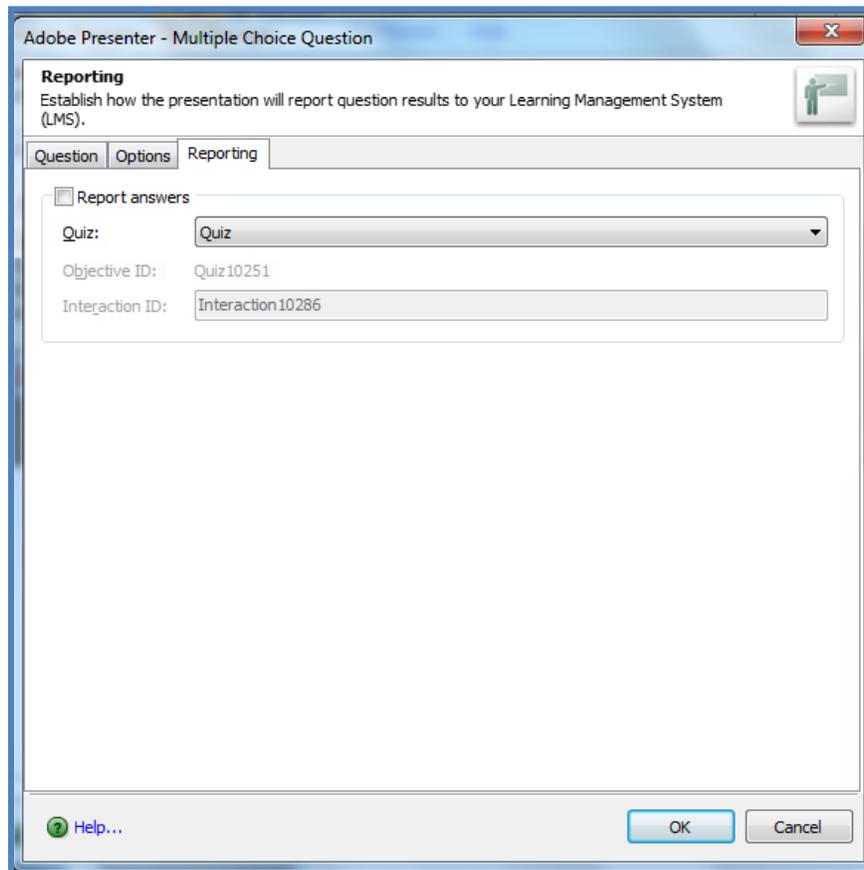


12. Select the **Options** tab.
13. Set the following in the **Type** section.
 - Select “Graded – there are right and wrong answers” from the dropdown.
 - Select **Show clear** button.
14. Set the following in the **If correct answer** section.
 - Select “Go to next slide” from the **Action** dropdown.
 - Select **Show correct** message.
15. Set the following in the **If wrong answer** section.
 - Enter “2” in the **Allow user** field. (Set to “1” for True or False or Yes or No questions.)
 - Select “Go to next slide” from the **Action** dropdown.
 - Select **Show error message**.

- Select **Show retry message**.
- Select **Show incomplete message**.



16. Select the **Reporting** tab and deselect **Report answers**.
17. In the **Question** window, select the **OK** button.
18. Repeat for each Knowledge Check.



8.3. Standards for a Knowledge Check Debrief

Knowledge Check debrief slides are a required element to meet Section 508 compliance.

In addition, the debrief slide provides an opportunity for documenting structured feedback on the correct and incorrect answers.

Apply the following guidance when creating debrief slides.

- Insert a debrief slide after every Knowledge Check.
- Match the debrief slide to the Knowledge Check slide in all content with the exception of:
 - Slide title.
 - Answer option buttons or boxes.
 - Question feedback buttons.
 - Navigation buttons.

Developer Note

Although the debrief slide matches the Knowledge Check (KC) slide in many ways, do not copy and paste from the KC slide to the debrief slide.

- Format answer options so incorrect answers are grayed-out. Suggested color formatting for incorrect answers is **Gray, RGB color 150, 150, 150**.
- Provide feedback on the answer options.
- At minimum, record the correct answer and answer explanation in the narration.

Developer Note

There is a Knowledge Check Debrief layout in the NHI WBT Template.
Apply this layout to all Knowledge Check Debrief slides.

Below is an example of a Knowledge Check Debrief slide.

The screenshot shows a web-based training interface. At the top left is the NHI logo (National Highway Institute) and the text "Module Title". Below that is "Course Title". On the top right, there are three buttons: "Resources", "Glossary", and "Help". The main content area contains a question: "Is scaling a type of distress found on a concrete pavement surface? Choose an answer and select the Submit button." Below the question are two multiple-choice options: "a) Yes" and "b) No". To the right of the question is a button with a checkmark icon and the text "Knowledge Check Debrief". Below the options is a paragraph of text: "The correct answer is a) Yes. According to FHWA's 'Distress Identification Manual for the Long-Term Pavement Performance Program', scaling is a type of distress found in continuously reinforced concrete pavements." At the bottom right of the slide are two buttons: "Back" with a left-pointing arrow and "Next" with a right-pointing arrow.

8.4. Standards for End-of-Course Assessments

Create the end-of-course assessment using the Adobe Presenter Quiz Manager.

An end-of-course assessment is created as a separate courseware item, and is published and added to the curriculum as stand-alone content.

In order for students to qualify for Continuing Education Credits (CEU), the exams must have the following settings:

- Every question is required.
- There is no feedback.
- Each answer is communicated back to the LMS and tallied.
- The final score must be provided to the student, who must score better than 70% to pass.

Developer Note

Given the constraints listed above, the end-of-course assessment (exam) is not Section 508 compliant.

Any qualified learner who cannot complete the exam should contact NHI Training (NHITraining@dot.gov), and an NHI representative will provide a verbal equivalent to the exam.

This version is not Section 508 compliant for several reasons.

- A learner using the keyboard to navigate cannot select the different multiple choice options and the **Submit** button (the mouse must be used.)
- A learner using a screen reader will not know what option has been selected.
- Learners using either a screen reader or the keyboard (or both) to navigate will not be able to obtain a score.

8.5. Adobe Presenter Settings for End-of-Course Assessments

Create the end-of-course assessment as **one quiz with multiple questions** in a **separate PowerPoint file**.

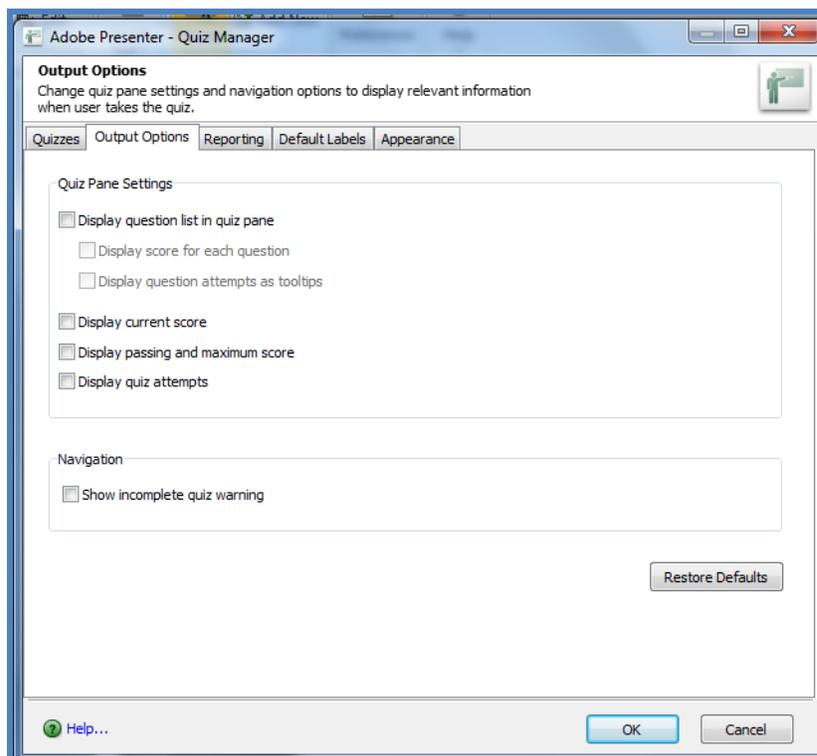
Note that you must set up a quiz before you can enter the questions.

8.5.1. Quiz Manager Settings

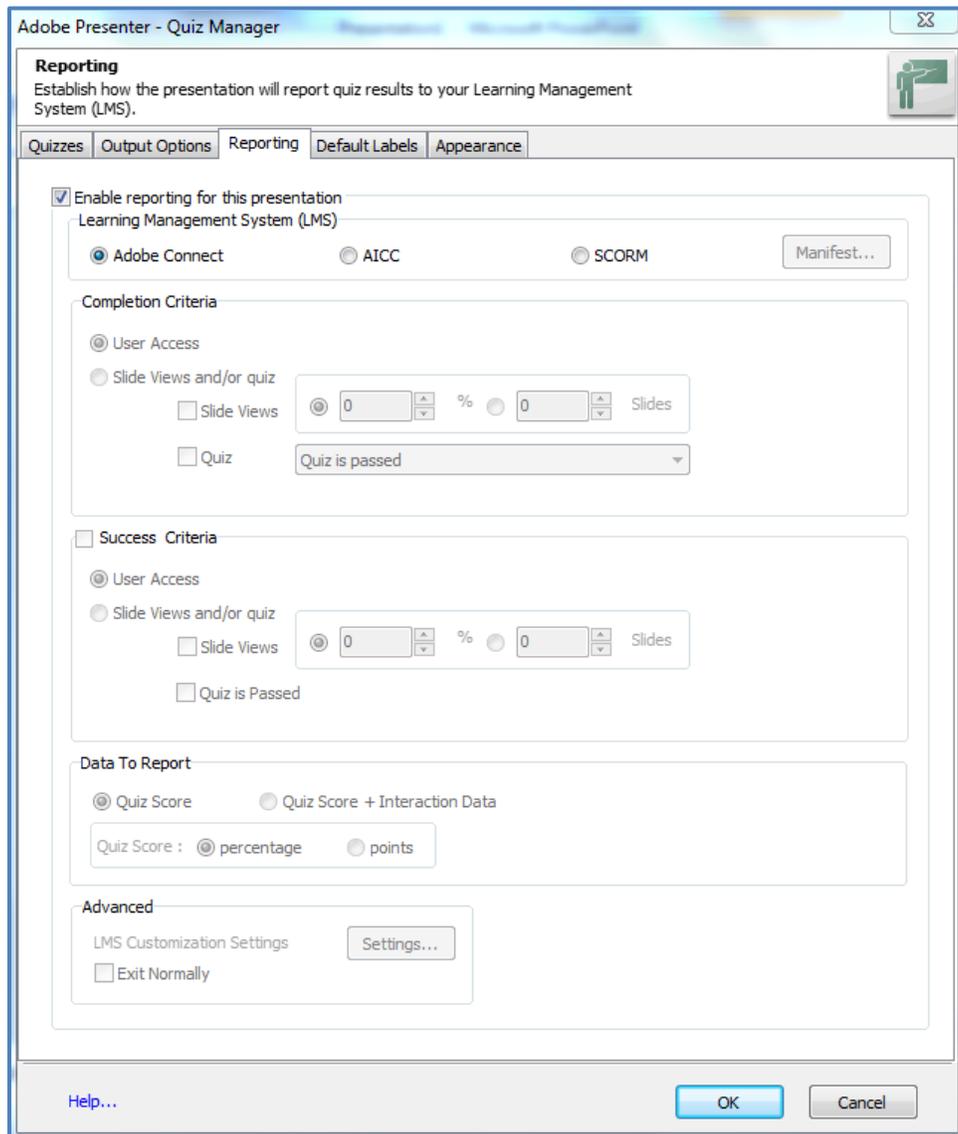
1. Open the **Quiz Manager** window by selecting **Adobe Presenter → Quiz → Manage**.



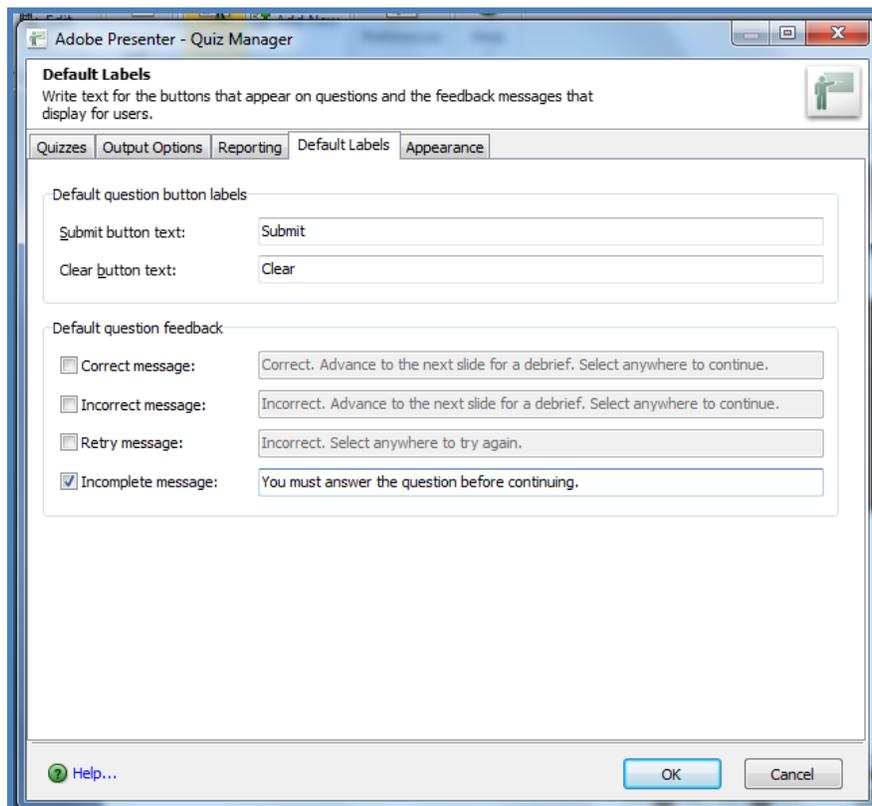
2. In the **Quiz Manager** window, select the **Output Options** tab.
 - Deselect **Display question list in quiz pane**.
 - Deselect **Display current score**.
 - Deselect **Display passing and maximum score**.
 - Deselect **Display quiz attempts**.
 - Deselect **Show incomplete quiz warning**.



3. In the **Quiz Manager** window, select the **Reporting** tab.
4. Select **Enable reporting for this presentation**.
 - Select **Adobe Connect** in the **Learning Management System** field.



5. In the **Quiz Manager** window, select the **Default Labels** tab.
6. In the **Default question button labels** section set:
 - **Submit button** text: “Submit”
 - **Clear button** text: “Clear”
7. In the **Default question feedback** section:
 - Deselect **Correct message**.
 - Deselect **Incorrect message**.
 - Deselect **Retry message**.
 - Select **Incomplete message**, and enter “You must answer the question before continuing.”



8. In the **Quiz Manager** window, select the **Appearance** tab.

9. Apply the following settings to **Fonts**.

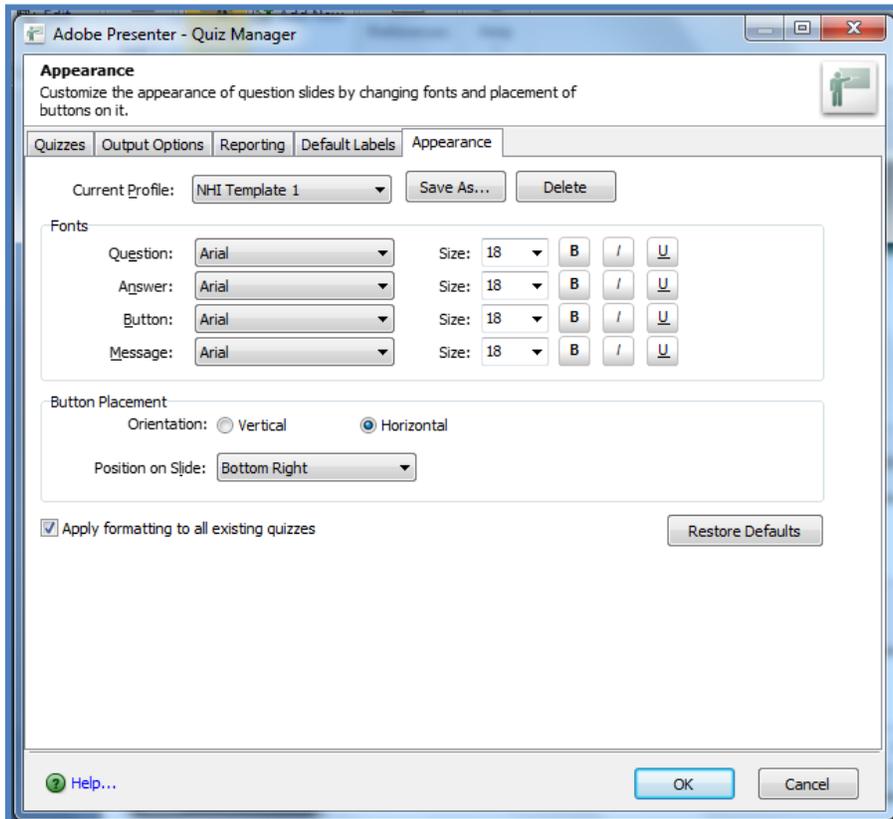
- **Question:** Arial 18
- **Answer:** Arial 18
- **Button:** Arial 18
- **Message:** Arial 18

Note: These settings are established in the NHI WBT template. These settings can be adjusted as needed.

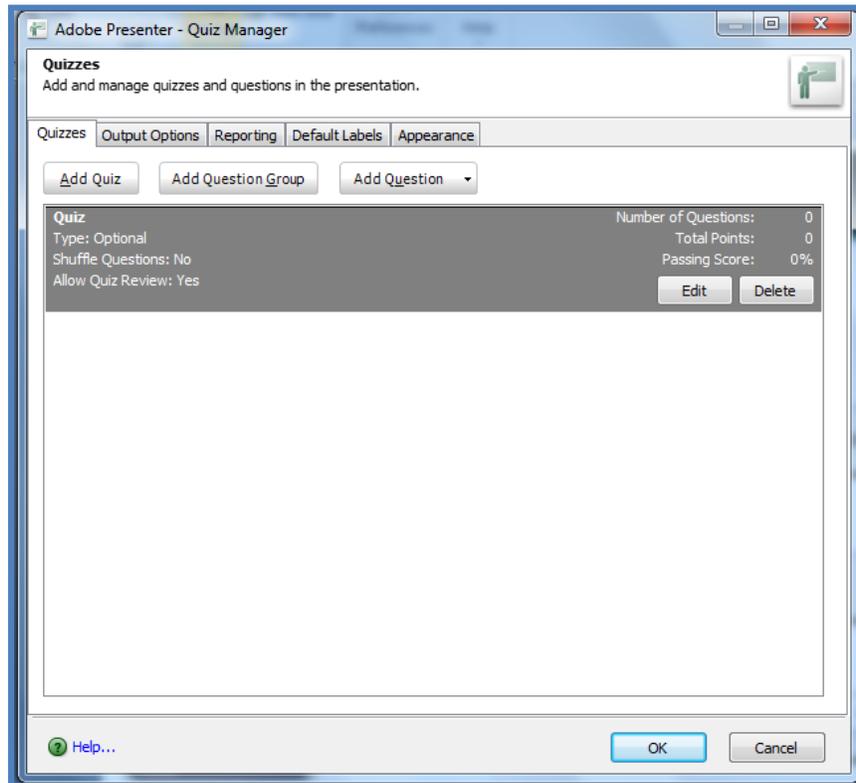
10. Apply the following settings to **Button placement**.

- **Orientation:** Horizontal.
- **Position on slide** dropdown select “Bottom right.”

11. Select **Apply formatting** to all existing quizzes.



12. In the **Quiz Manager** window, select the **Quizzes** tab.
13. Select the **Edit** button to change the existing quiz.

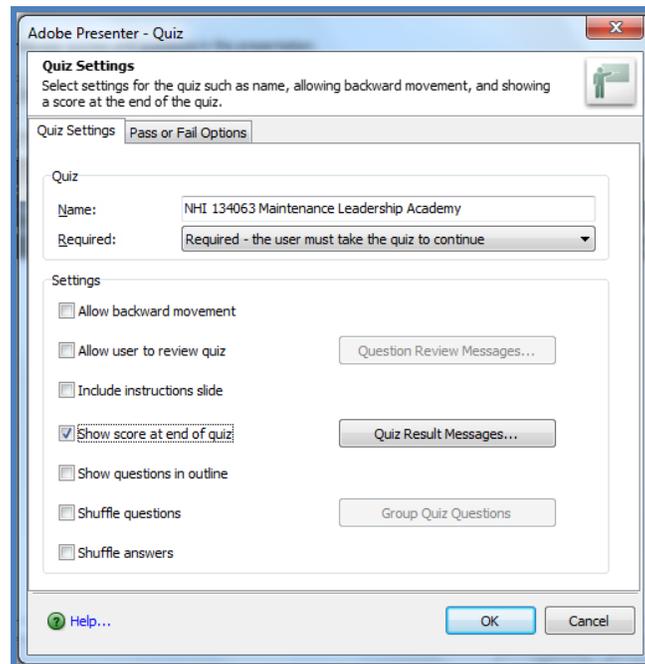


14. Select the **Quiz Settings** tab.
15. Enter “Course Name” in the **Name** field.

Developer Note
Unless otherwise directed, use the following settings for this tab.

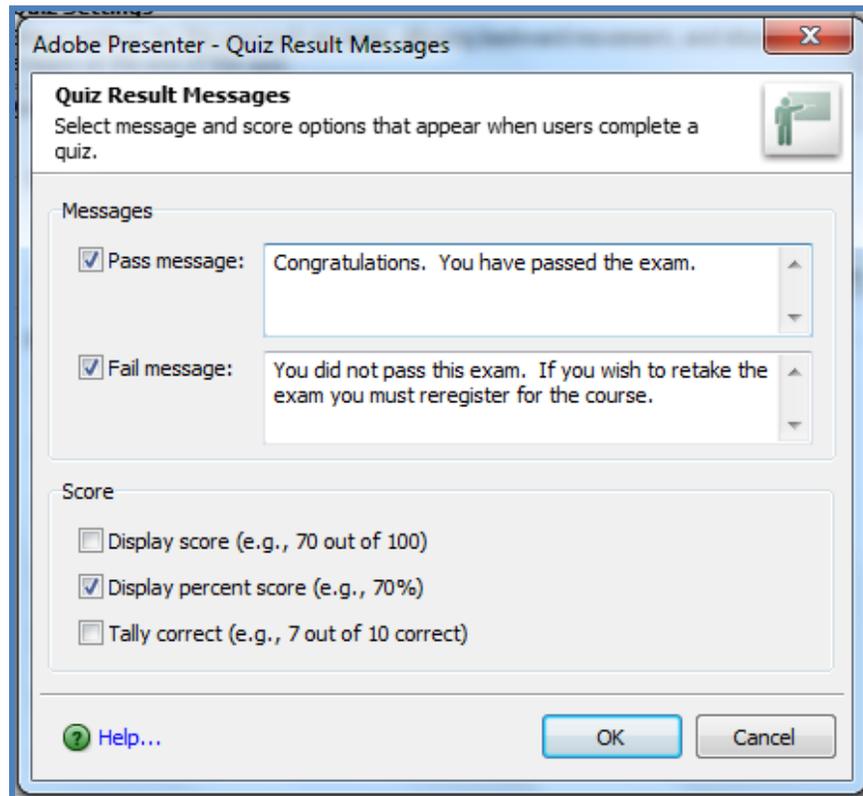
16. Select “Required – the user must take the quiz to continue” from the **Required** dropdown.
17. Apply the following to **Settings**.
 - Deselect **Allow backward movement**.
 - Deselect **Allow user to review quiz**.
 - Deselect **Include instructions slide**.
 - Select **Show score at end of quiz**.
 - Deselect **Show questions in outline**.

- Deselect **Shuffle questions**.
- Deselect **Shuffle answers**.



18. Select **Quiz Result Messages** button in **Settings**.
19. Enter the question results message text. Include, at minimum, the following text.
 - **Pass message** field: "Congratulations. You have passed the exam."
 - **Fail message** field: "You did not pass this exam. If you wish to retake the exam, you must reregister for the course."
20. Select **Display percent score, e.g., 70%**.

21. Select the **OK** button to close the **Question Review Messages...** window.

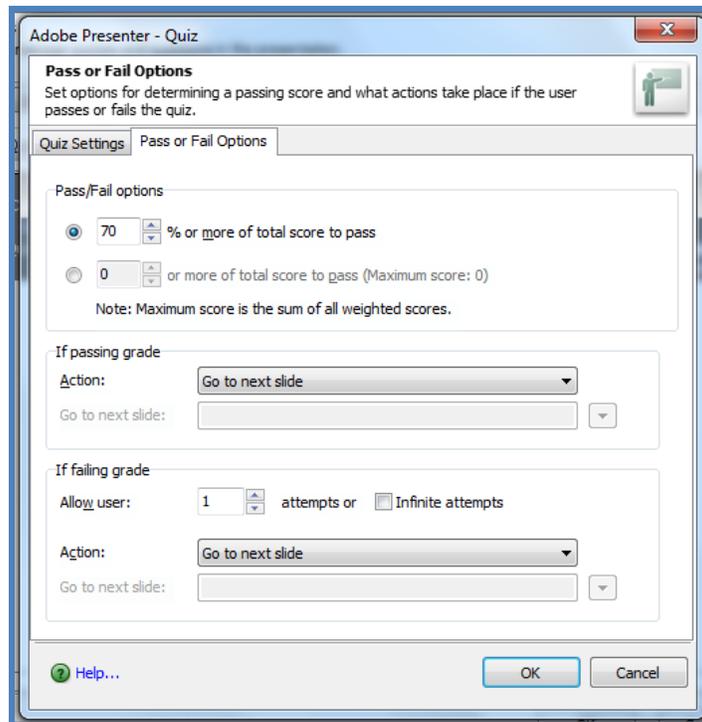


22. Select **Pass or Fail Options** tab.

Developer Note

Unless otherwise directed, use the following settings for this tab.

23. Set “70” % or more of total score to pass under **Pass/Fail Options**.
24. Select “Go to next slide” from the **Action** dropdown field under **If passing grade**.
25. Set Allow user to “1” attempts under **If failing grade**.
26. Select the **OK** button to close the **Quiz** window and return to the **Quiz Manager** window.



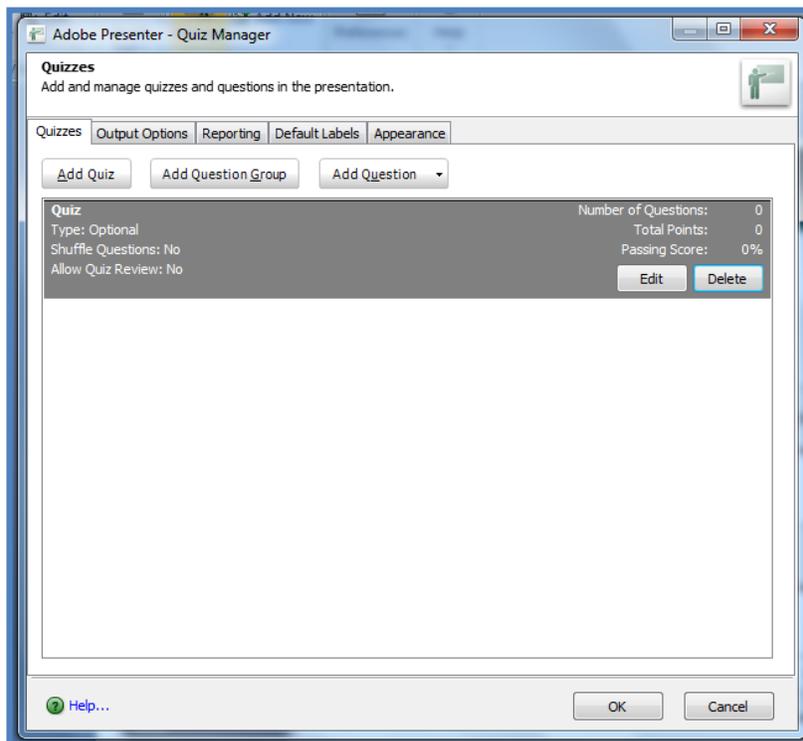
8.5.2. Question Settings

After you have set up the quiz, you can create the questions. For the end-of-course assessment, there is one quiz for the assessment, with multiple questions in the quiz.

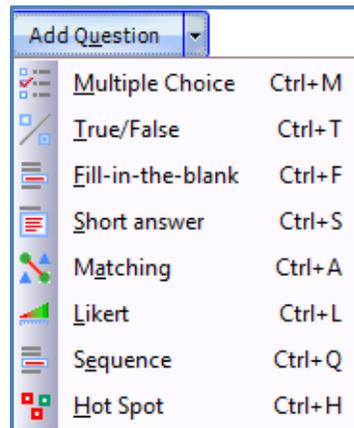
1. Open the **Quiz Manager** window by selecting **Adobe Presenter** → **Manage**.



2. Select the **Quiz** to which you are adding a question.
3. Select the drop down arrow next to the **Add Question** button.



4. Select the type of question from the dropdown menu.

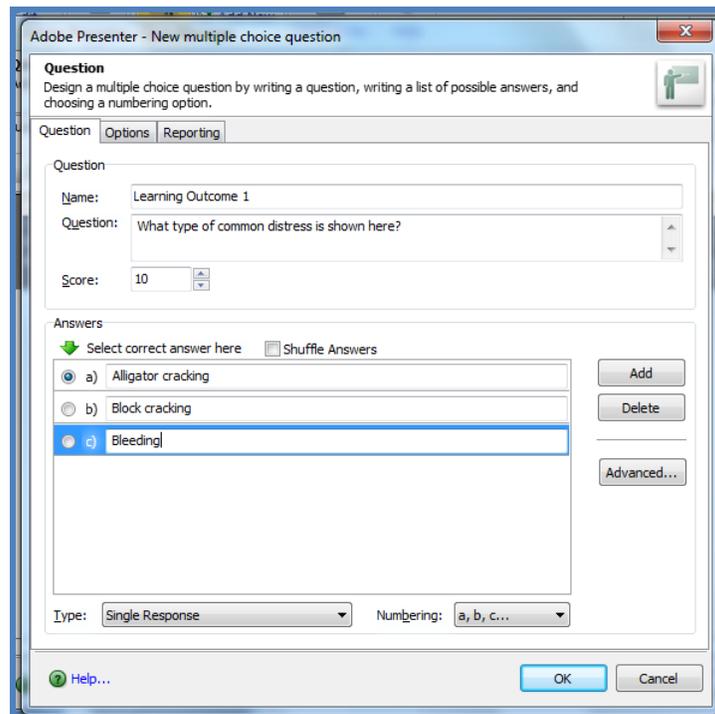


Developer Note

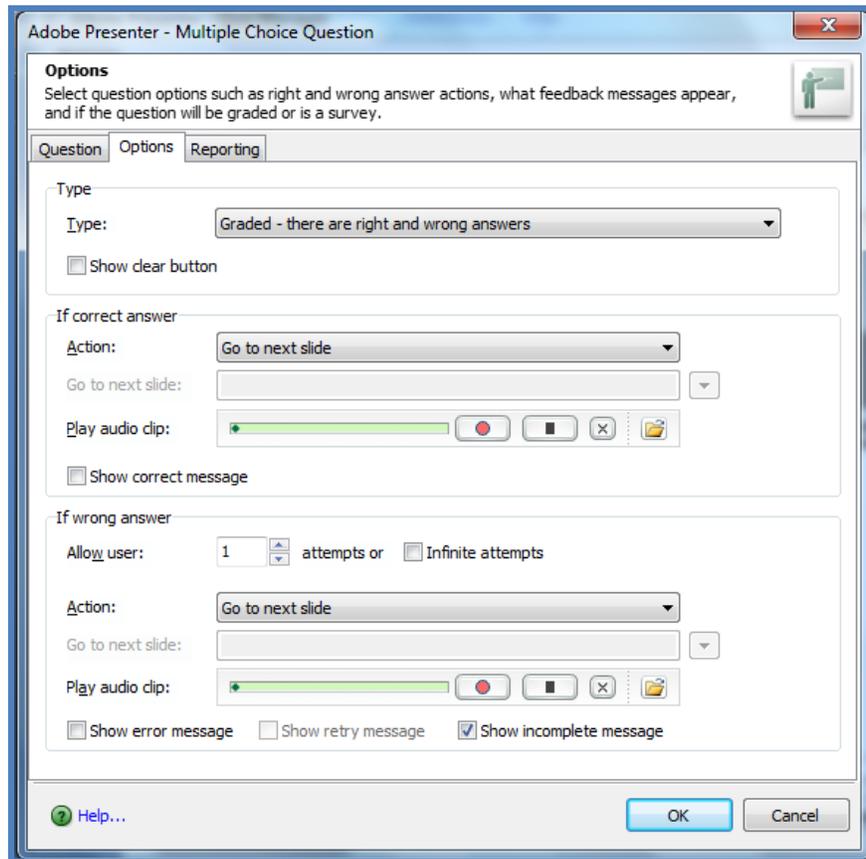
The remaining steps and settings described in this section can be applied universally to all of the question types.

This guide will use the multiple choice question type to illustrate each step.

5. Select the **Question** tab.
6. Enter the following text in the **Name** field: “Learning Outcome {x}.” Indicate which Learning Outcome the question addresses.
7. Enter the question text in the **Question** field.
8. Enter the number of points the question is worth in the **Score** field.
Note: The total number of points for an end-of-course assessment should be 100. Distribute points as evenly as possible throughout the questions.
9. Select the **Add** button under **Answers**.
 - Enter, or copy and paste, the text for the answer options.
 - Select the correct answer(s).
10. Select either “Single response” or “Multiple responses” from **Type** dropdown.
11. Select the lower case characters (a, b, c, . . .) from the **Numbering** dropdown.



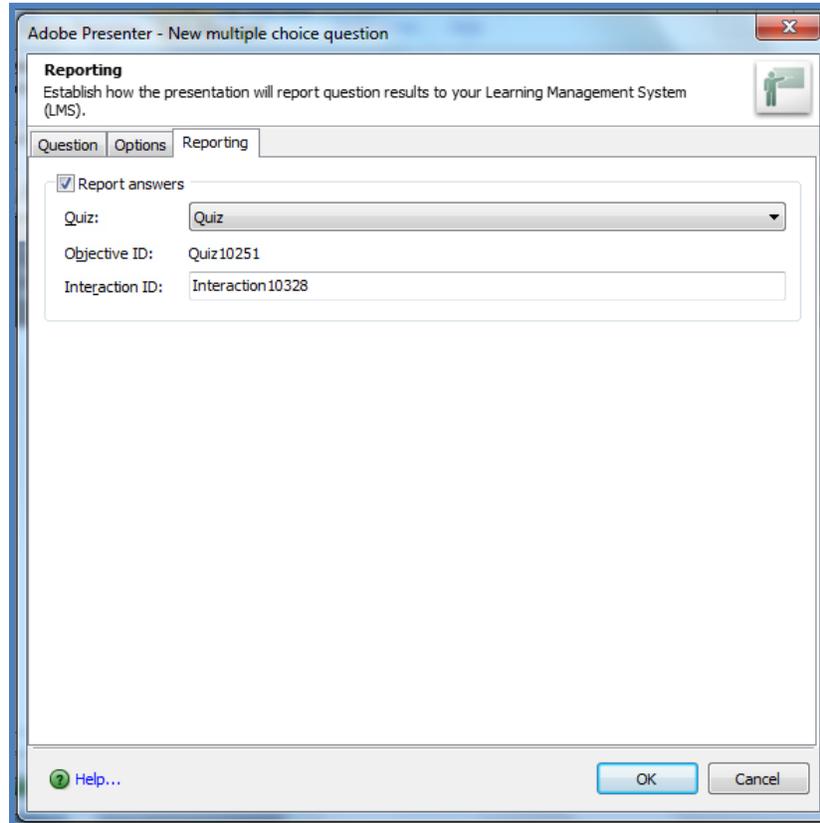
12. Select the **Options** tab.
13. Set the following in the **Type** section.
 - Select “Graded – there are right and wrong answers” from the dropdown.
 - Deselect **Show clear button**.
14. Set the following in the **If correct answer** section.
 - Select “Go to next slide” from the **Action** dropdown.
 - Deselect **Show correct message**.
15. Set the following in the **If wrong answer** section.
 - Enter “1” in the **Allow user** field.
 - Select “Go to next slide” from the **Action** dropdown.
 - Deselect **Show error message**.
 - Select **Show incomplete message**.



Select the **Reporting** tab and select **Report answers**.

16. Select the **Quiz Name** from the **Quiz** dropdown.

- Do not change the Interaction ID.



17. In the **Question** window, select the **OK** button.

18. Repeat for each quiz question.

8.6. Standards for Course Evaluations

NHI assesses the participant’s overall training experience using a standardized, online evaluation.

- The course evaluation is accessible to participants via the NHI My Training page once the training is complete.
 - Direct participants to the course evaluation link on one of the final screens of the training module.

An example of directions to participants for accessing the course evaluation follows.

Conclusion

Congratulations! You have completed NHI-134109K Cultural and Historical Preservation.

Return to the “My Training” page, as shown below, to complete a course evaluation and print a certificate of completion.

	Course Title	Course Number	Type	Start Date	Progress	Launch	Evaluation / Certificate
Show Additional Information	Base and Subbase Stabilization and Repair - WEB-BASED	134109D	WBT	5/3/2011	Completed	Launch	Take Evaluation View Certificate Download Certificate

Select the “X” in the upper right corner of your browser to close this module.

[← Back](#)

Developer Note

NHI manages the collection and analysis of course evaluation data.
 The developer can request copies of this data from NHI.

9. Standards for Publishing

The settings established in this section, in conjunction with the NHI WBT template, establish a consistent graphical user interface (GUI) for the courseware. Use the instructions in Section 9.1 to 9.3 to input required presentation settings. Confirm that this information is correct before publishing WBT courseware.

Use the instructions in Section 9.4 to complete the publication process. See Section 1.4 of this guide for more specific guidance on where to publish content during the WBT development process.

9.1. Presentation and Application Settings

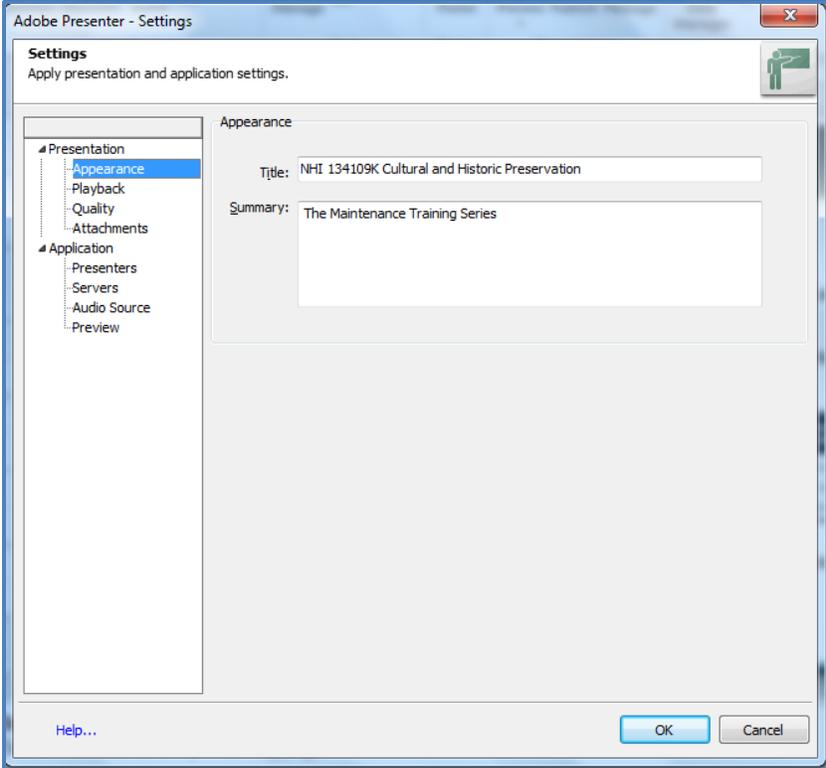
The following guidance does not address all of the functionality available in the Presenter tool bar. Only the areas with required standard settings are addressed so the navigation experience is consistent for users throughout all of NHI's Web-based training products.

9.1.1. Presentation Settings

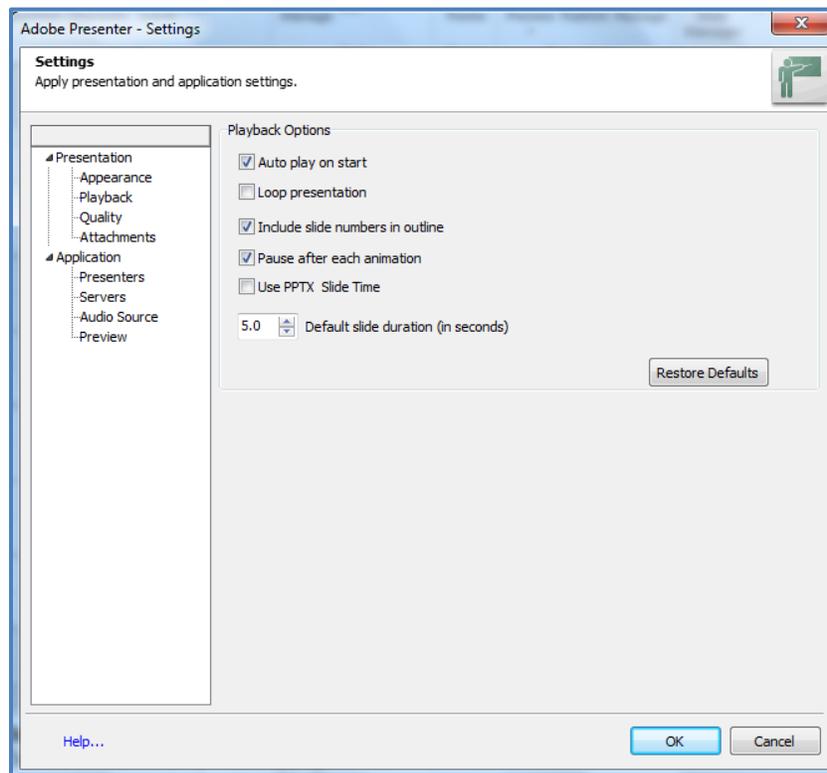
1. Open the **Settings** window by selecting **Adobe Presenter → Settings**.



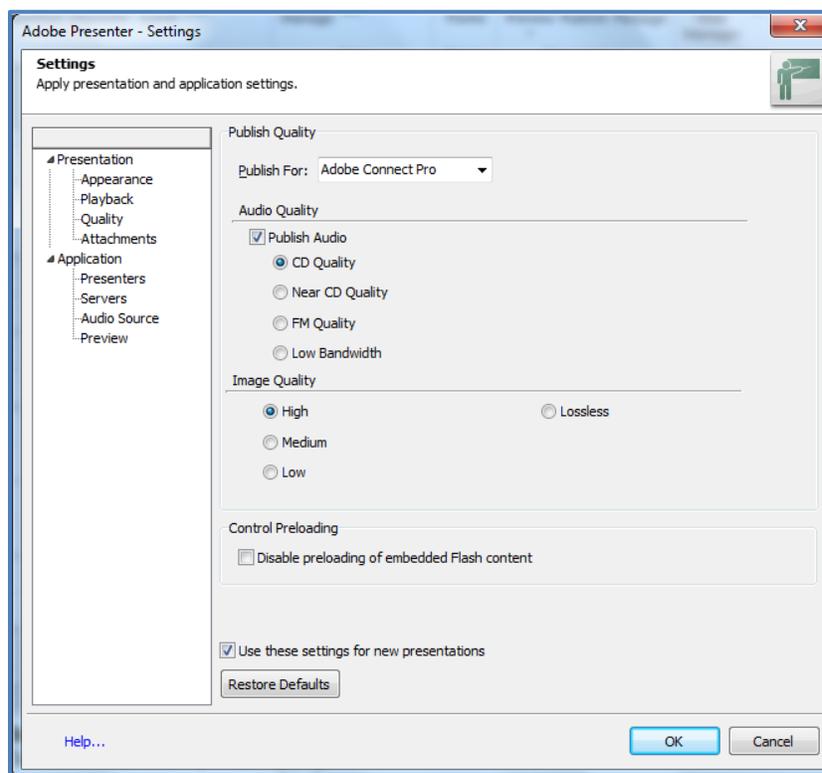
2. Select the **Appearance** subheading under **Presentation** heading.
3. Enter "Module Title" in the **Title** field.



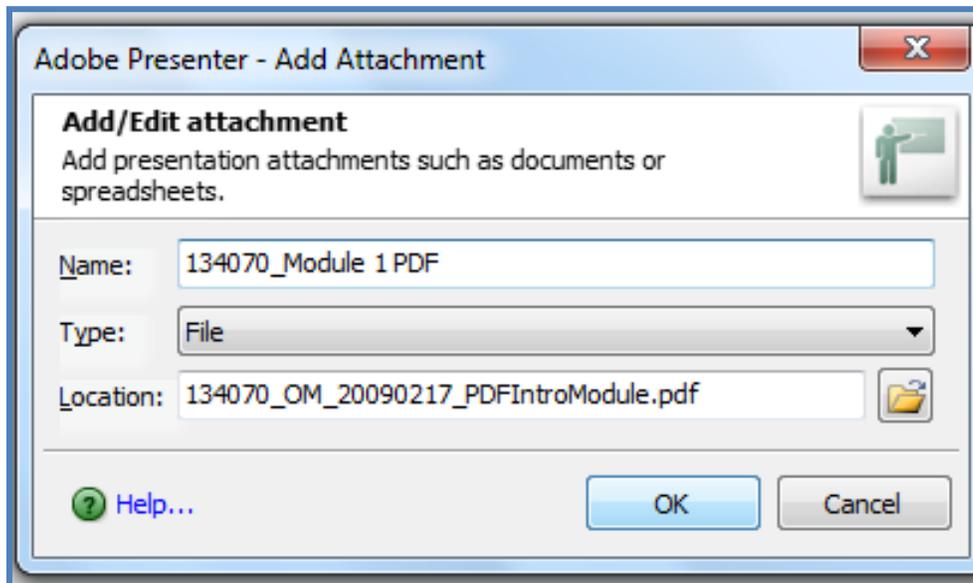
4. Select the **Playback** subheading.
5. Set the following in the **Playback Options** section.
 - Select **Auto play on start**.
 - Deselect **Loop presentation**.
 - Select **Include slide numbers in outline**.
 - Select **Pause after each animation**.
 - Deselect **Use PPTX Slide Time**.
6. Set “5.0” in **Default slide duration (in seconds)**.



7. Select the **Quality** subheading.
8. Set the following in **Publish Quality** section.
 - Select “Adobe Connect Pro” in the **Publish for** dropdown.
 - Under **Audio Quality**
 - Select **Publish Audio**.
 - Select **CD Quality**.
 - Under **Image Quality** select **High**.
 - Under **Control Preloading** deselect **Disable preloading of embedded Flash content**.
 - Select **Use these settings for new presentations**.

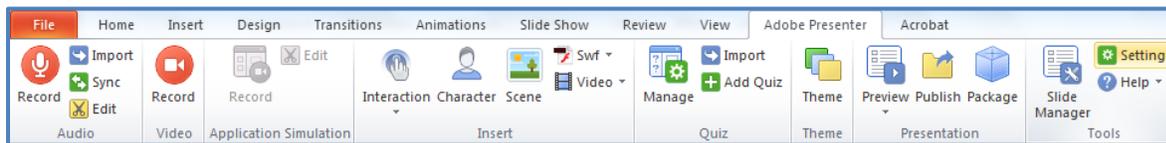


9. Select the **Attachments** subheading. Here you will attach a PDF version of the presentation. If you have not done so already, create a 508-compliant PDF version of the presentation.
10. Select the **Add** button.
11. Enter “Course Number_Module {x} PDF” in the **Name** field.
12. Select “File” in the **Type** field.
13. Select the file folder icon.
 - Navigate to the PDF and select it.
 - Choose the **Open** button to select the PDF.
 - Select the **OK** button to save the attachment in the **Location** field.
14. Select the **OK** button to save your settings and exit the Presentation Settings.



9.1.2. Application Settings

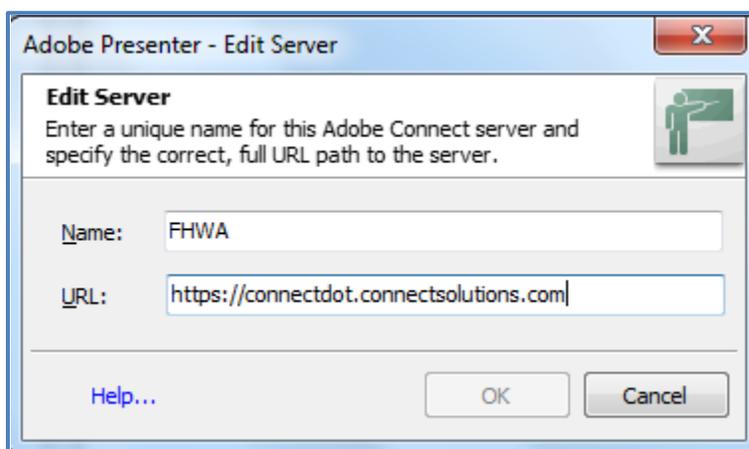
1. Open the **Settings** window by selecting **Adobe Presenter** → **Settings**.



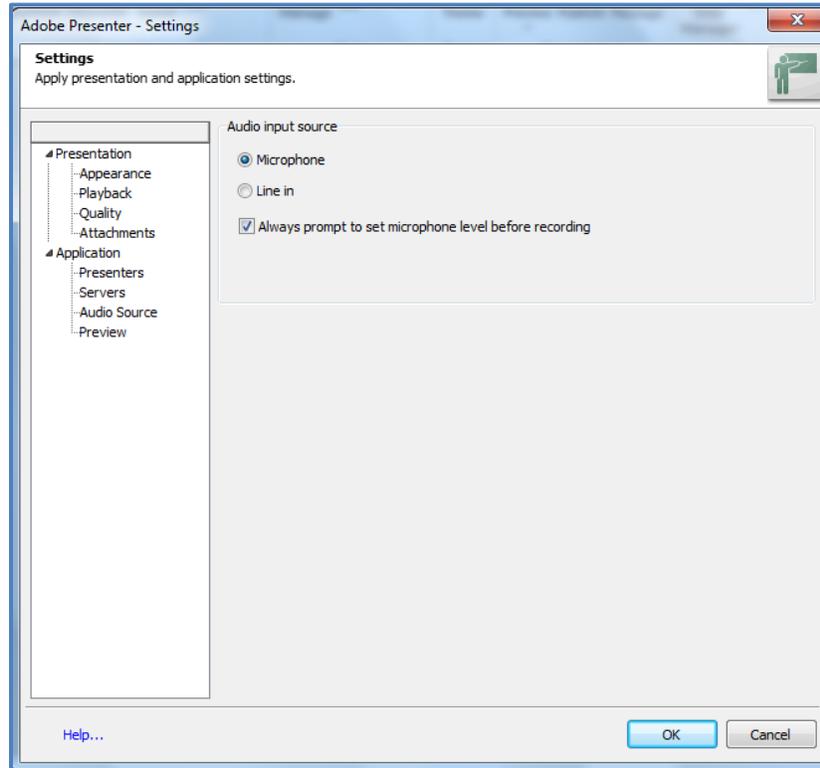
2. Select the **Presenters** subheading under **Application** heading.

At this time NHI is not using this feature of Adobe Presenter. The developer can make recommendations about the use of this field to NHI during courseware design as appropriate.

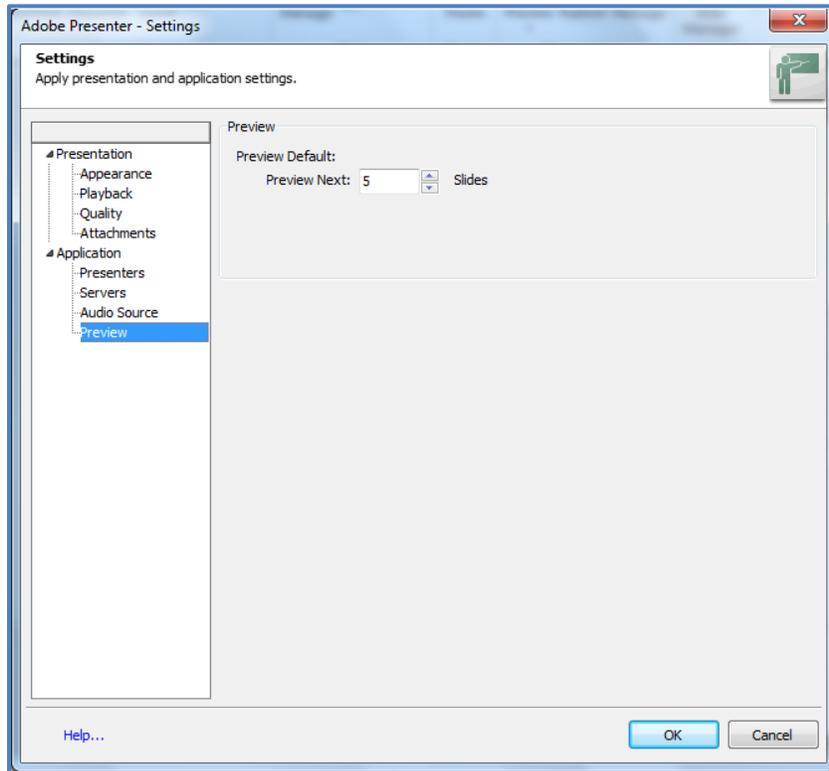
3. Select the **Servers** subheading under **Application** heading.
4. Select the **Add** button.
5. Enter “FHWA” in the **Name** field.
6. Enter “URL” in the **URL** field.



7. Select the **Audio Source** subheading under **Application** heading.
8. Set the following in **Audio Input Source** section.
 - Select **Microphone**.
 - Select **Always prompt to set microphone level before recording**.



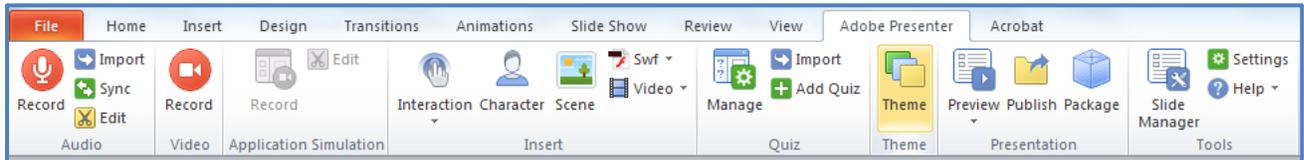
9. Select the **Preview** subheading under **Application** heading.
10. Set “5” for **Preview Next** under **Preview Default**.
11. Select **Okay** button.



9.2. Theme Settings

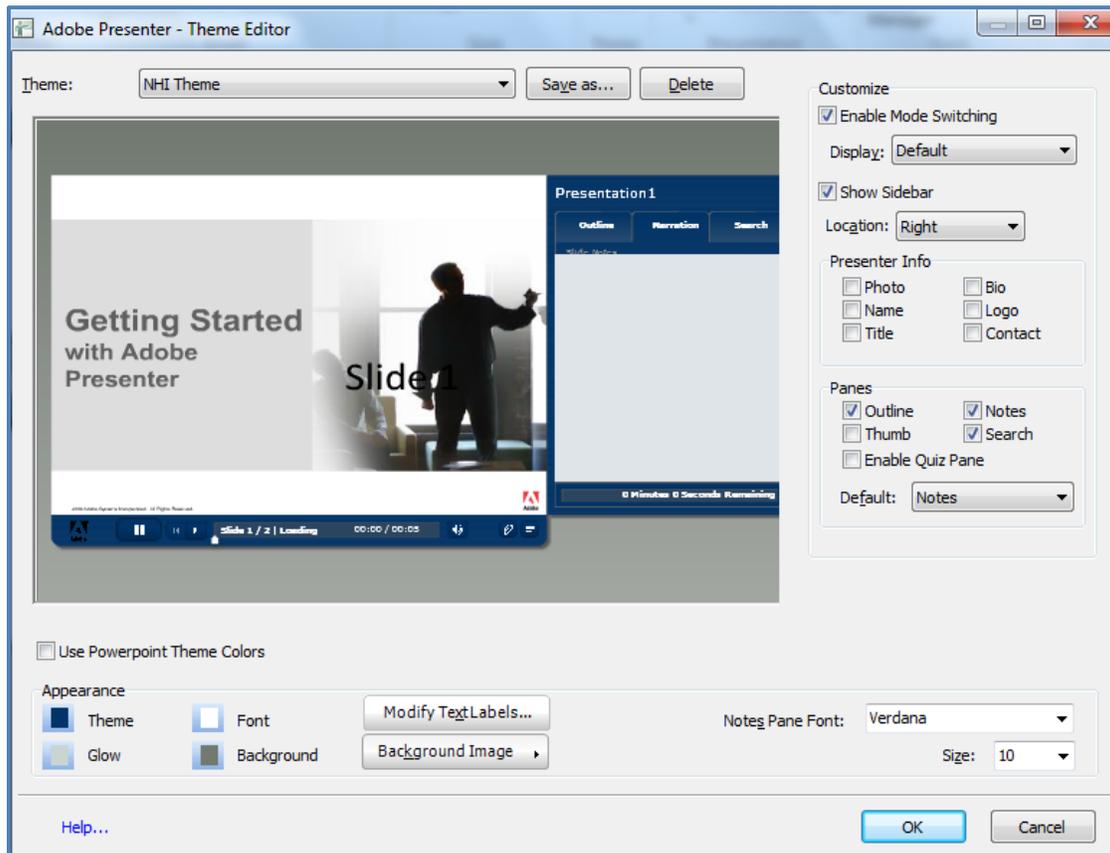
Theme settings should be set prior to publishing courseware. The settings can be saved and reapplied to the same product or new products as needed.

1. Open the **Theme Editor** window by selecting **Adobe Presenter → Theme**.

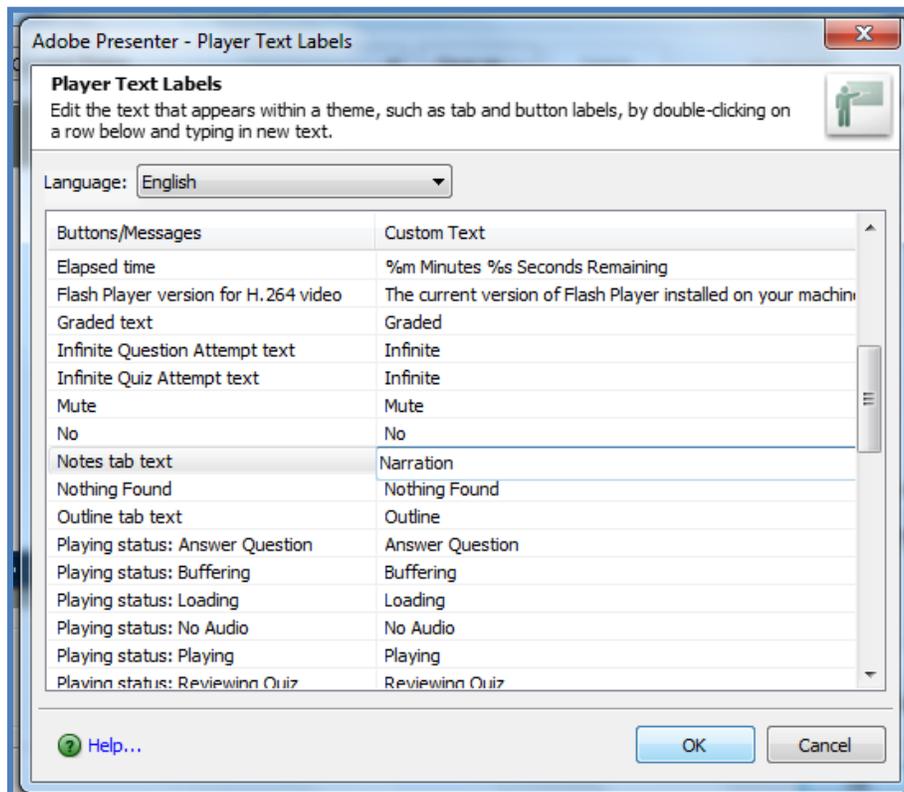


2. Select the **Save as...** button and enter "My Current Theme."
3. Select the **OK** button to overwrite existing settings.
4. Select **Enable Mode Switching** under **Customize**.
 - Select "Default" from the **Display** dropdown.
5. Select Show Sidebar.
 - Select "Right" from the **Location** dropdown.
6. Deselect all boxes under **Presenter Info**.
 - Select the **Outline Pane** checkbox.

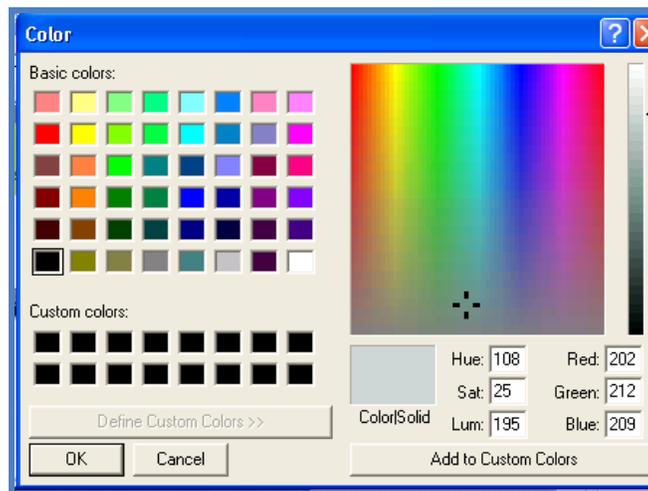
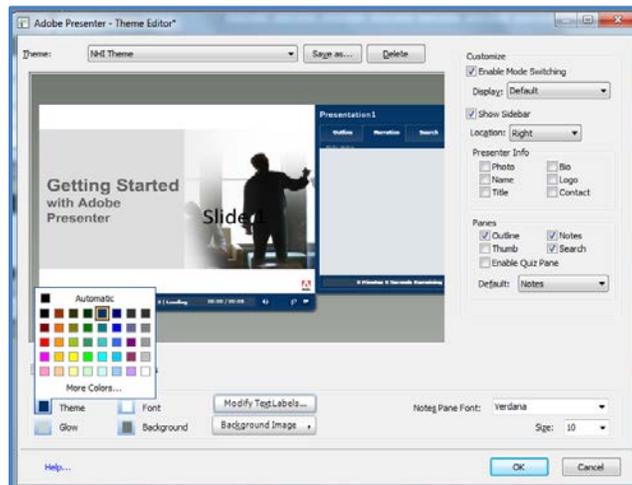
7. Select **Outline, Notes, and Search** under **Panes**.
8. Select “Notes” from the **Default** dropdown.
9. Select “Verdana” from the **Notes Pane Font** dropdown.
10. Select “10” from the **Size** dropdown.



11. Deselect **Use PowerPoint Theme Colors**.
12. Select the **Modify Text Labels** button under **Appearances**.
13. Enter “Narration” in **Notes tab text** in the **Custom Text** column.
14. Select the **OK** button to return to the *Theme Editor* window.



15. Select each colored box under **Appearance**.
16. Enter the following settings under **More Colors** or select the color indicated.
 - **Theme: Hue: “140”, Sat: “240”, Lum: “48”, Red: “0”, Green: “51”, Blue: “102”**
 - **Glow: Hue: “108”, Sat: “25”, Lum: “195”, Red: “202”, Green: “212”, Blue: “209”**
 - **Font: “White”**
 - **Background: Hue: “75”, Sat: “8”, Lum: “110”, Red: “114”, Green: “121”, Blue: “113”**
17. Select the **OK** button to return to the **Theme Editor** window after adjusting each color setting.



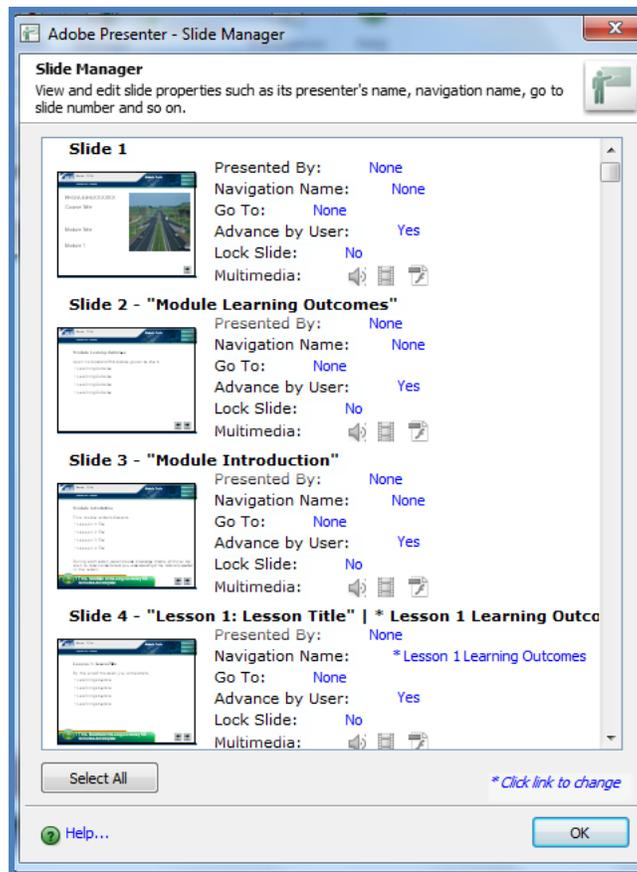
9.3. Slide Manager Settings

Before publishing the PowerPoint file, modify the **Slide Manager** settings as follows.

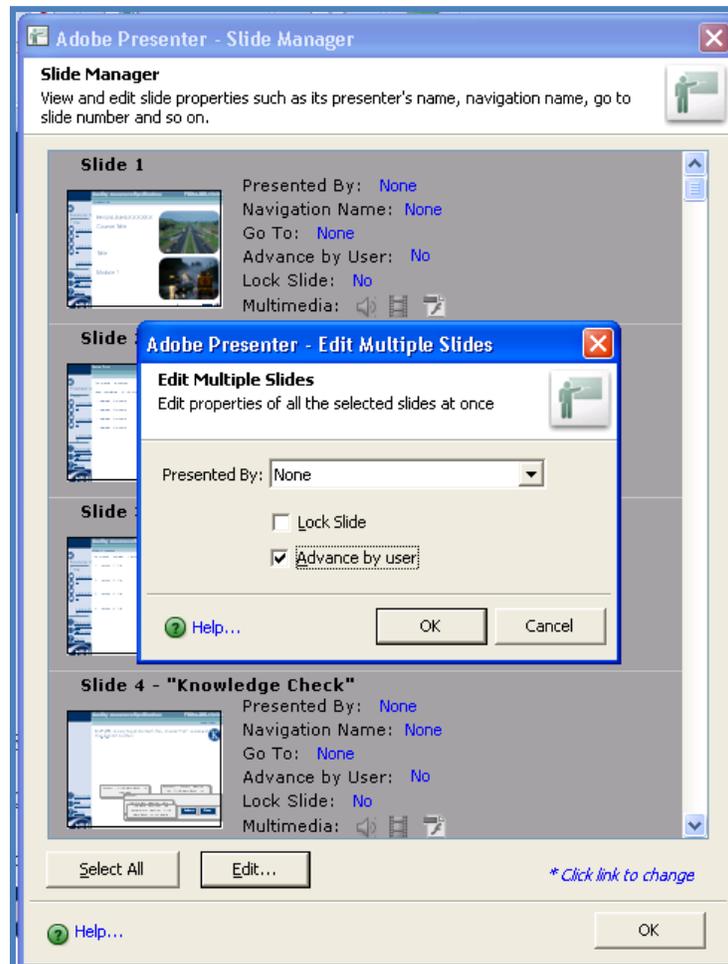
1. Open the **Slide Manager** window by selecting **Adobe Presenter** → **Slide Manager**.



2. Choose the **Select All** button.



3. Select the **Edit** button.
4. Select **Advance by User**.
5. Select the **OK** button.
 - All of the slides should now say “yes” next to **Advance by User**.
6. Select the **OK** button to save the settings and exit **Slide Manager**.



9.4. Publishing Content to the FHWA Adobe Server

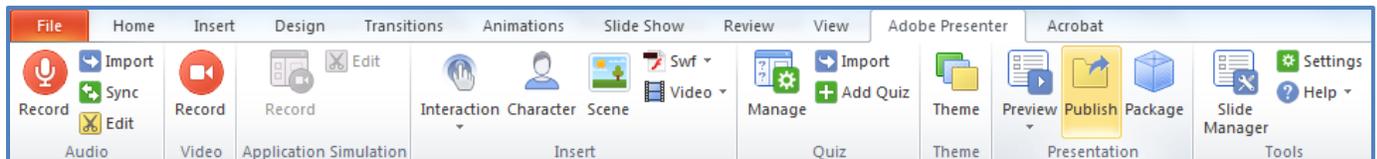
It is possible to publish courseware locally (your desktop) or to an Adobe Connect external server. This guide provides standard protocol for publishing to the NHI Server.

If courseware is published locally, the .zip file produced during local publication can be uploaded to the NHI Server to allow public viewing. Follow the directions provided in Section 9.4.3 to learn more.

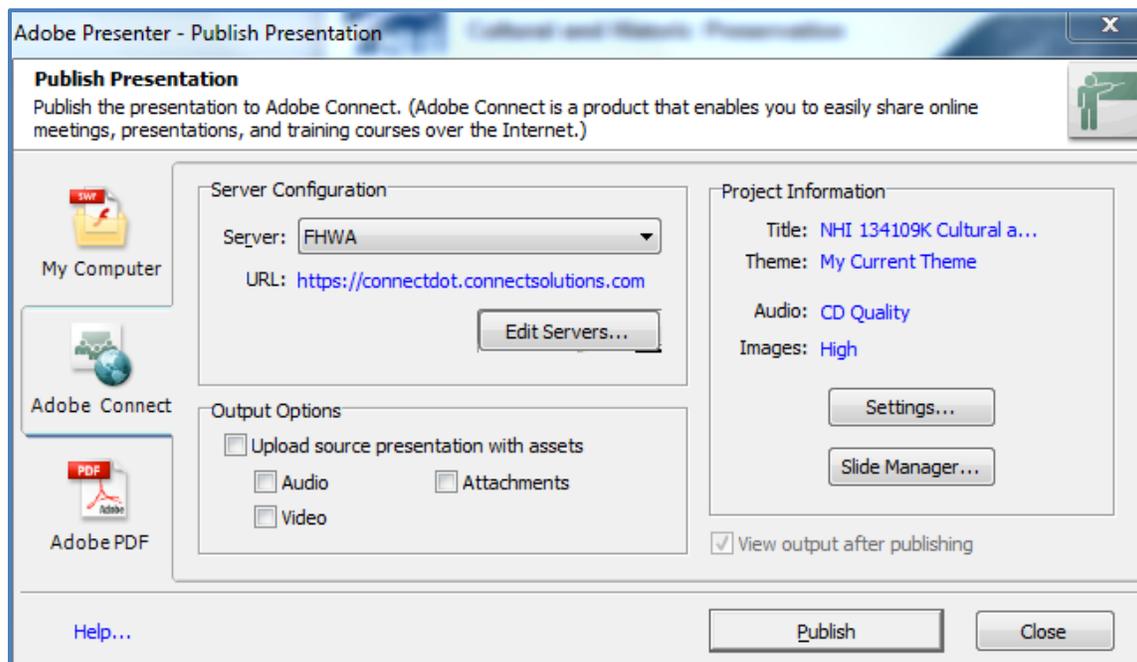
Published courseware is referred to in the Adobe Presenter environment as “Content.”

9.4.1. Publish Content

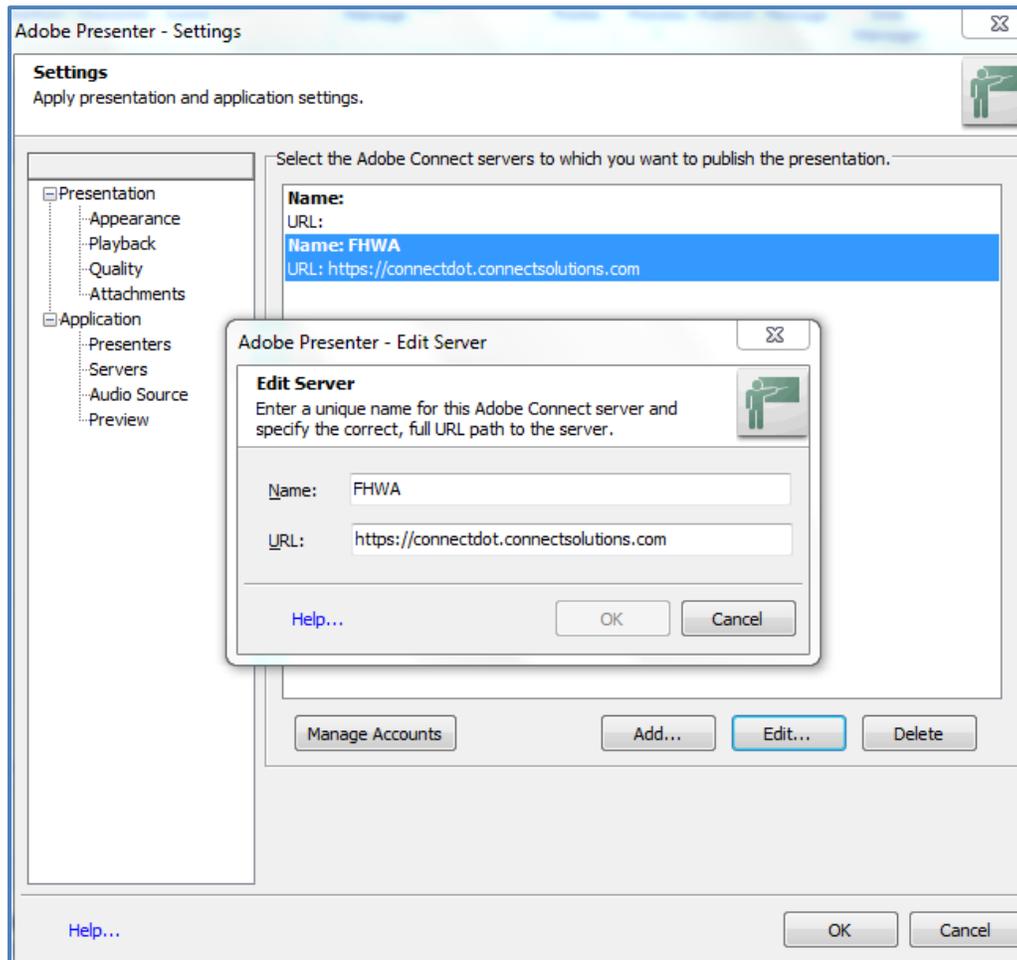
1. Open the **Publish Presentation** window by selecting **Adobe Presenter** → **Publish**.



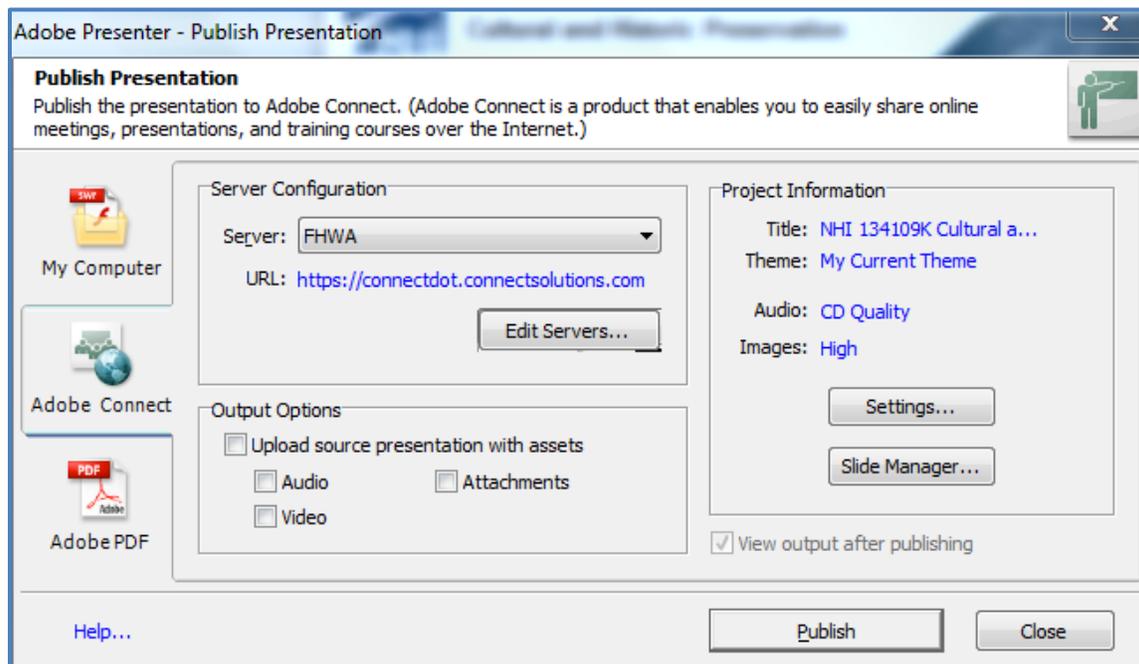
2. Select “Adobe Connect” on the left side of the **Publish Presentation** window.
3. Select "FHWA" from the **Server** drop down menu.
4. If “FHWA” is not shown in the **Server** field, select the **Edit Servers** button to add or change the server.



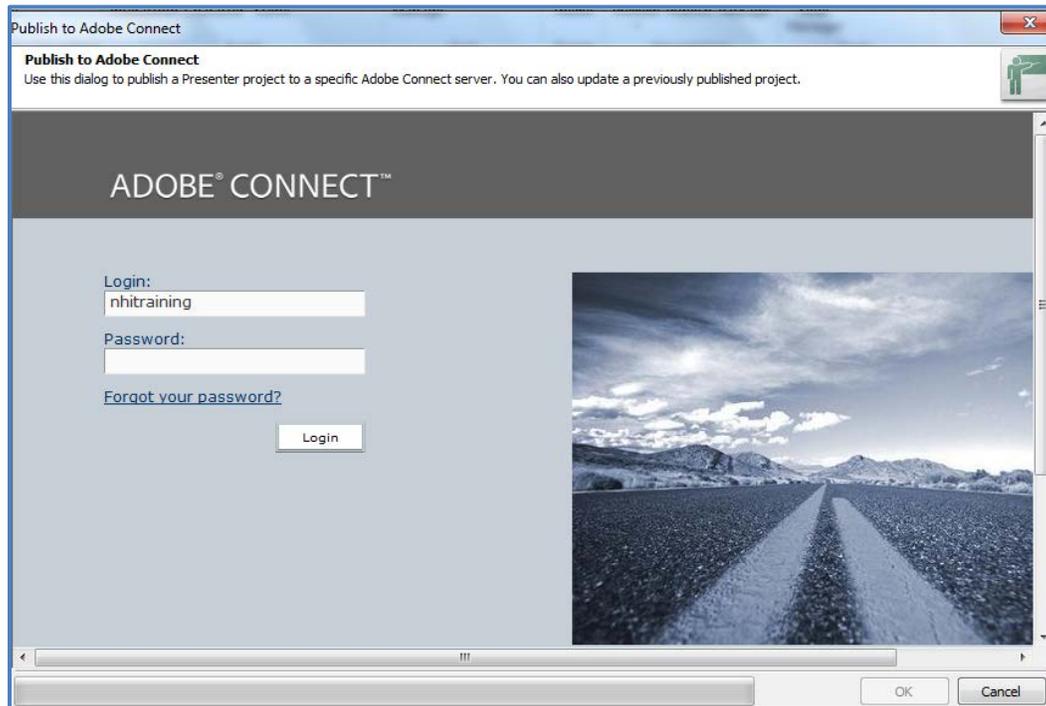
5. Select the **Add** button to open the **Edit Server** window.
6. Enter "FHWA" in the **Name** field.
7. Enter "https://connectdot.connectsolutions.com/" in the **URL** field.
8. Select the **OK** button.



9. Select the **OK** button to close the **Servers** tab and return to the **Publish Presentation** window.
10. Under **Output Options**, deselect "Upload source presentation with assets."
11. Select the **Settings** button to change information as needed under **Project Information**.
 - Set **Theme** setting defaults to "My Current Theme."
12. Default is set to "View output after publishing."
13. Select the **Publish** button.



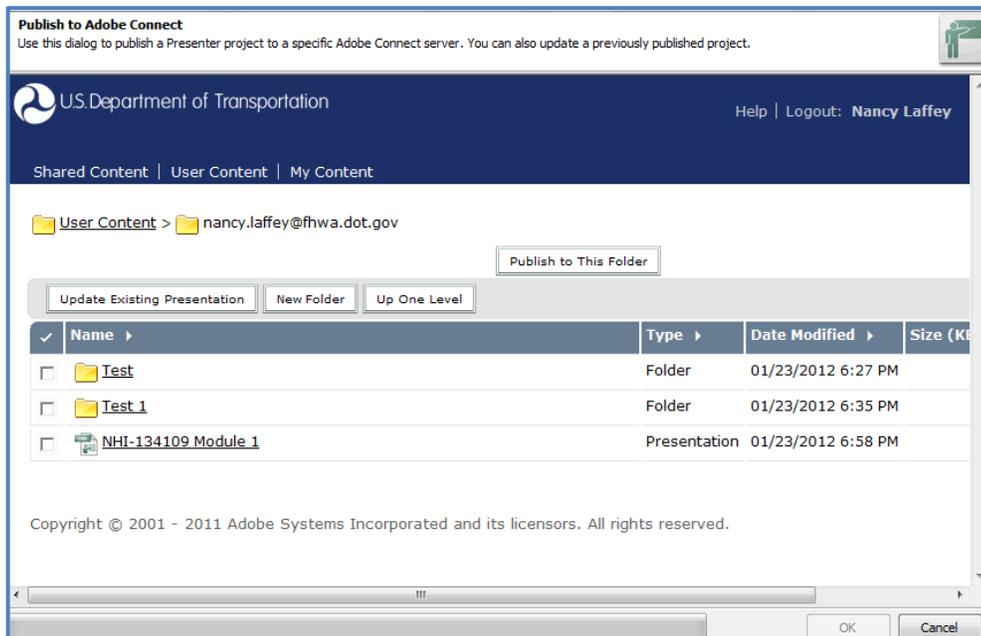
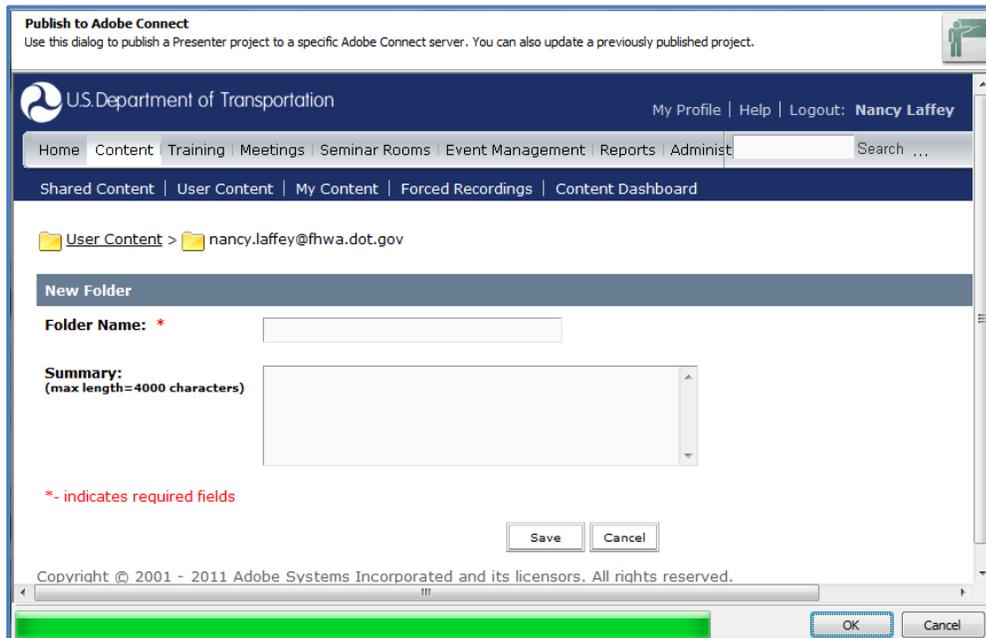
14. Enter your assigned user name and password in the **Publish to Adobe Connect** window to login to the NHI Server.



Developer Note

You are only able to publish content to your assigned folder in "User Content" on the NHI server.

15. Select the **Publish to This Folder** button if publishing to User profile folder.
 - Select the **New Folder** button to create a subfolder within the User profile folder.
 - Input "Course Number-Course Name" in the **Folder Name** field.
 - Select the **Save** button.
 - Select the **Publish to This Folder** button.



- Enter the content title in the **Title** field using the NHI file naming conventions below.

Table 3: NHI Adobe File Naming Conventions

Content Type	Content Title	Custom URL
Content Module	NHI-CCCCCC Module X	nCCCCCCmodx
End of Course Exam	NHI-CCCCCC End of Course Exam	nCCCCCCexam

- Enter a custom URL in the **Custom URL** field using the NHI file naming conventions cited in the previous table.

Publish to Adobe Connect
Use this dialog to publish a Presenter project to a specific Adobe Connect server. You can also update a previously published project.

Content Information

Title: * NHI 134109K Cultural and Historic Preservation

Custom URL: https://connectdot.connectsolutions.com /n134109ktest/

(Leave this field blank for a system-generated URL, or include a unique URL path. Please use only ascii alph or hyphens. For example: "product-demo" will result in https://connectdot.connectsolutions.com/product-dem

Summary: (max length=4000 characters) The Maintenance Training Series

Language: * English

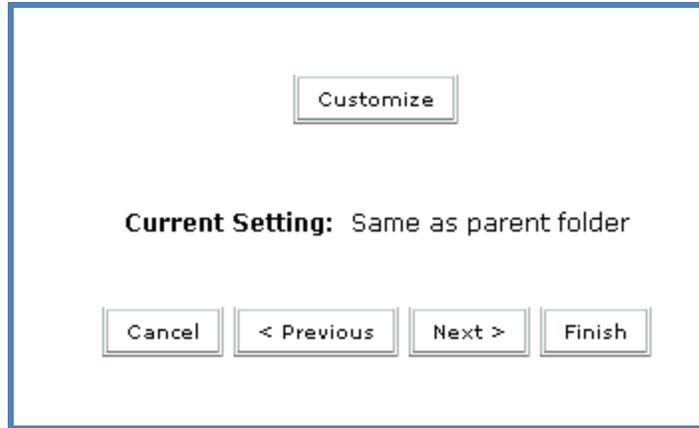
Update information for any items linked to this item.

*- indicates required fields

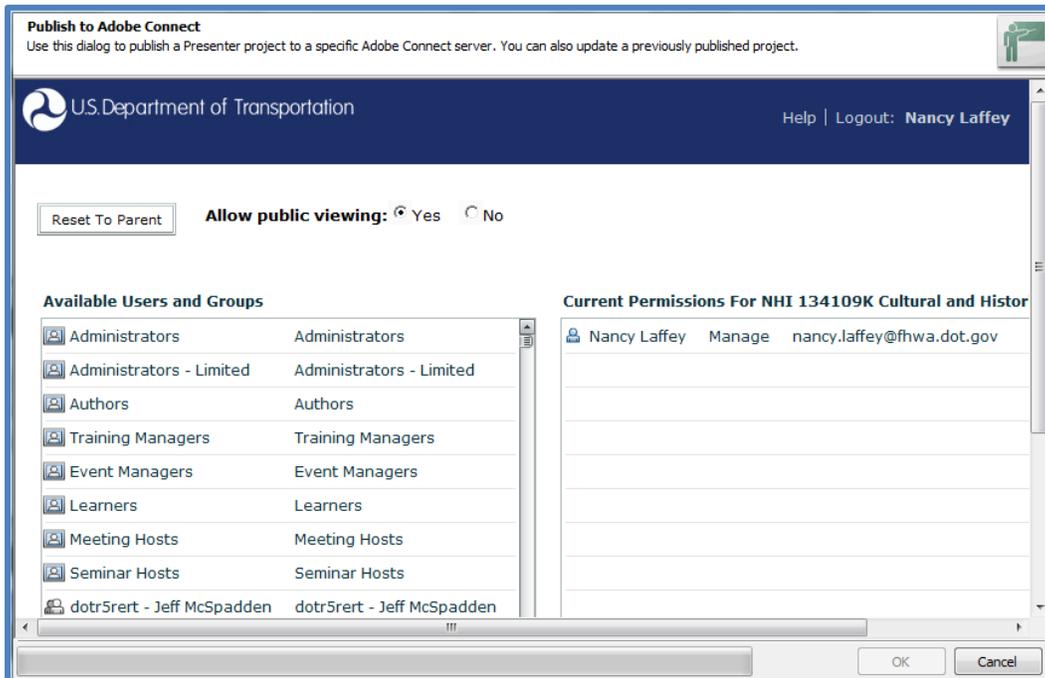
Cancel < Previous Next > Finish

OK Cancel

- Select the **Next** button.
- Select the **Customize** button.



20. Select "Allow public viewing." The setting is saved automatically.

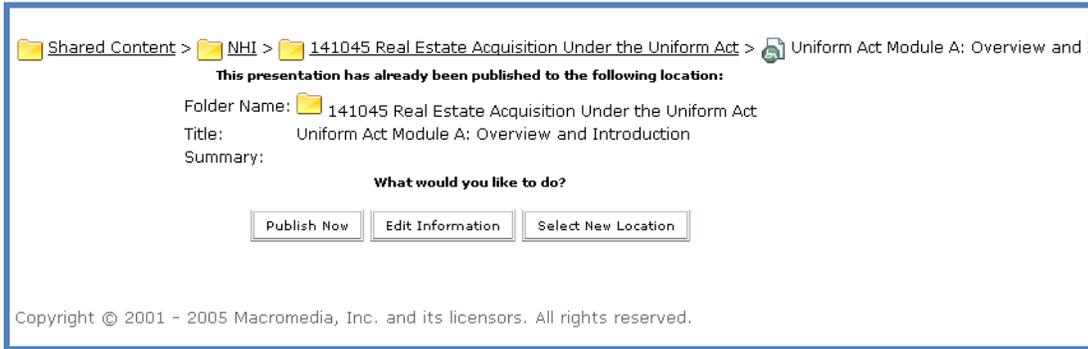


21. Select the **Next** button.

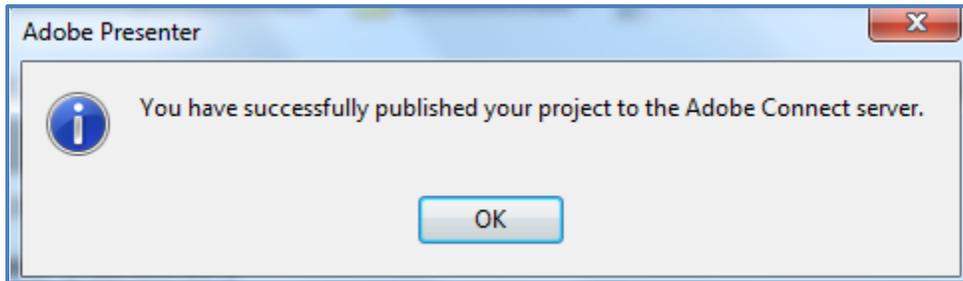
Developer Note

You must select "Allow public viewing."
If public viewing is not selected, participants cannot view the content.

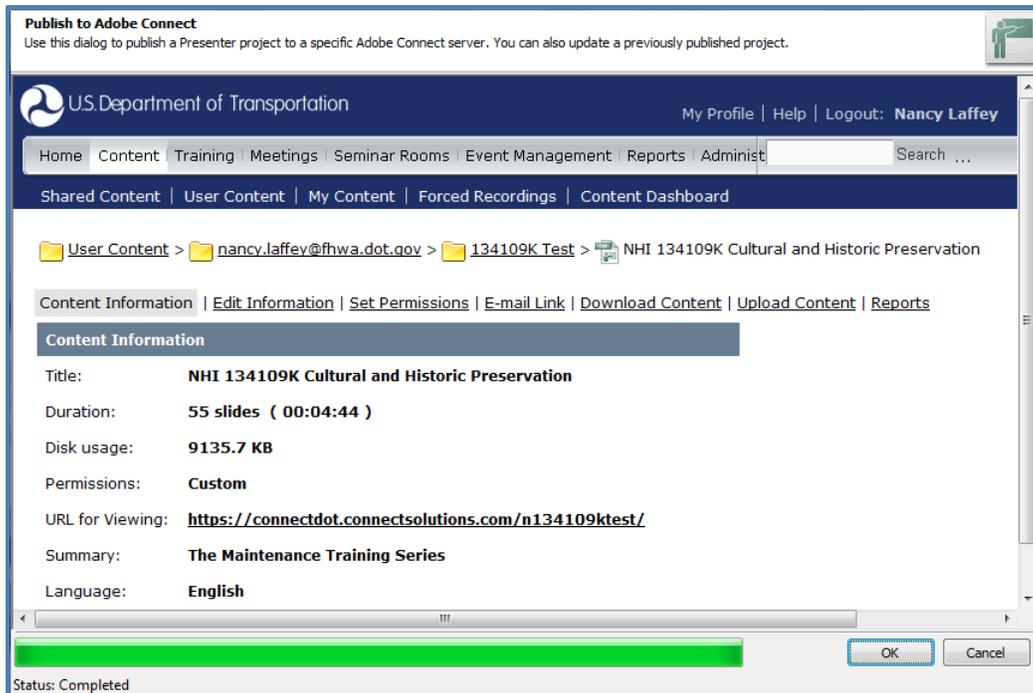
If content has been published previously, this message will display.



22. Select the **Publish Now** button.
23. Select the **OK** button in the pop-up window stating, "You have successfully published your project to the Adobe Connect Pro server."



24. Select the URL next to "URL for Viewing" to view the published presentation.



9.4.2. Delete Content

1. Login to the FHWA Adobe server.
2. Navigate to content.
3. Select the content to delete.
4. Select the **Delete** button.

Developer Note

Deleted content cannot be retrieved or restored!

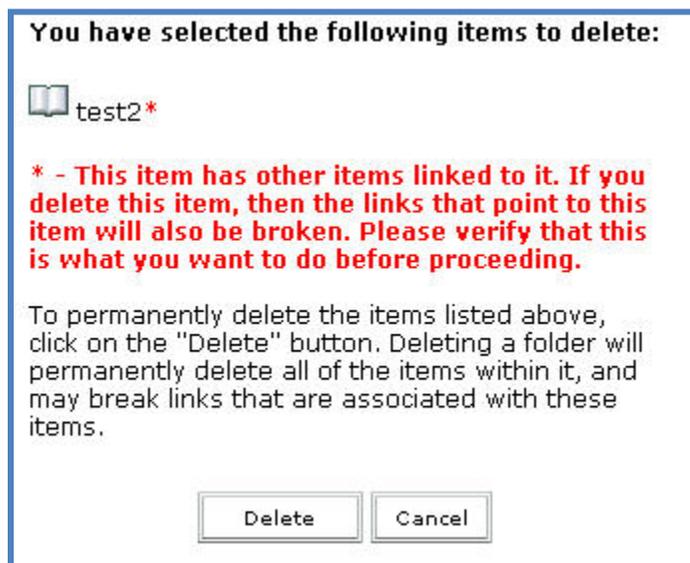
Shared Content > NHI > 141045 Real Estate Acquisition Under the Uniform Act

Content List | [Edit Information](#) | [Set Permissions](#)

New Content New Folder Delete Up One Level Move

<input checked="" type="checkbox"/>	Name	Type	Date Modified
<input type="checkbox"/>	 141045 Uniform Act Module A	Presentation	10/25/2006 3:41 PM
<input type="checkbox"/>	 141045CC Glossary	HTML Content	08/28/2006 3:56 PM
<input checked="" type="checkbox"/>	 142052 Uniform Act Module B	Presentation	10/25/2006 3:54 PM
<input type="checkbox"/>	 Companion Guide	Acrobat PDF	05/12/2006 3:50 PM
<input type="checkbox"/>	 Uniform Act Module B: Valuation	Presentation	09/25/2006 12:08 PM
<input type="checkbox"/>	 Uniform Act Module C: Acquisition	Presentation	09/25/2006 12:07 PM
<input type="checkbox"/>	 Uniform Act Module D: Relocation	Presentation	09/25/2006 12:07 PM
<input type="checkbox"/>	 Uniform Act: Course Welcome	Presentation	09/25/2006 12:09 PM
<input type="checkbox"/>	 Uniform Act: End-of-Course Exam	Presentation	09/22/2006 1:06 PM

A warning box will appear if other content, courses, or curricula are associated with the item.



9.4.3. Add Ancillary Files

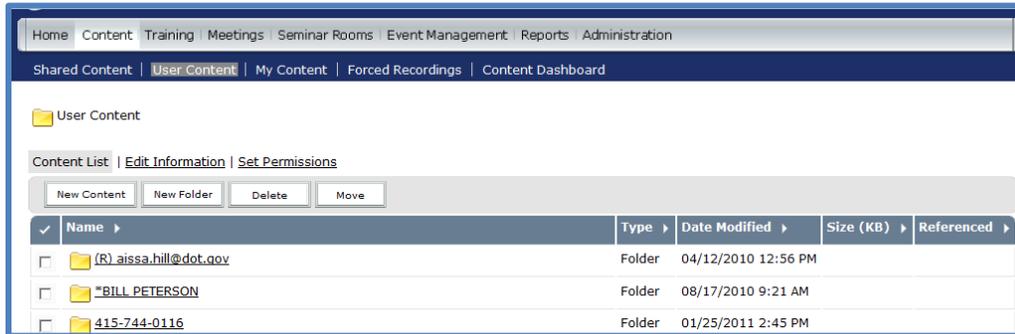
Ancillary files are course content uploaded to the server without publishing. Ancillary files, such as a PDF, are uploaded as content and can be added to the course curriculum. Glossary and resource files are examples of ancillary files. Once added as content to the course folder, each ancillary file receives a unique URL. Ancillary files can be used to create embedded hyperlinks in the courseware or can be added directly to a curriculum.

Add ancillary files using the following guidance.

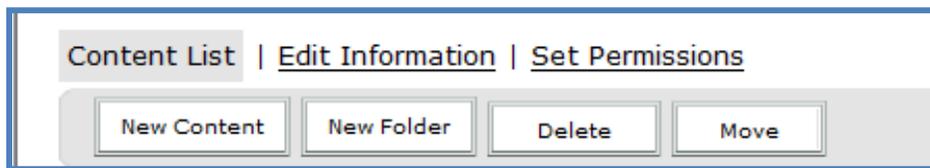
1. Login to the FHWA Adobe server.
2. Select the **Content** tab on the navigation bar.



3. Select the **User Content** tab.
4. Select the **User Content** folder.



5. Navigate to the vendor folder.
6. Select the **New Content** button from **Content List** options.



7. Select the **Browse** button in the **File** field to locate the file.
8. Enter the title in the **Title** field using the NHI file naming conventions below.

Table 4: NHI Adobe Content File Naming Conventions

Content Type	Title	Custom URL
Content Module	NHI-141045 Module A	n141045moduleA
Resources	NHI-141045 Resources	n141045resources
Glossary	NHI-141045 Glossary	n141045glossary
End-of-Course Exam	NHI-141045 Exam	n141045exam

9. Enter a custom URL in the **Custom URL** field using the NHI file naming conventions cited in the previous table.

- Select the **Save** button.

Content List | Edit Information | Set Permissions

Select Content File

File: * Browse...

The file should be one of the following formats: *.ppt, *.pptx, *.flv, *.swf, *.pdf, *.gif, *.jpg, *.png, *.mp3, *.html, *.mp4, *.f4v or *.zip. Please refer to the documentation for valid contents for zip files.

Enter Content Information

Title: *

Custom URL:
(Leave this field blank for a system-generated URL, or include a unique URL path. Please use only ascii alphanumeric characters or hyphens. For example: "product-demo" will result in https://connectdot.connectsolutions.com/product-demo/)

Summary: (max length=1000 characters)

*- indicates required fields

Save Cancel

- Select the desired file in the **Content List** tab.
- Select **Set Permissions** tab.

Content List | Edit Information | Set Permissions

New Content New Folder Delete Up One Level Move

✓	Name ▶	Type ▶	Date Modified ▶	Size (KB) ▶	Referenced ▶
<input checked="" type="checkbox"/>	NHI-131137 Design Example	Acrobat PDF	01/24/2012 4:50 PM	915.5	

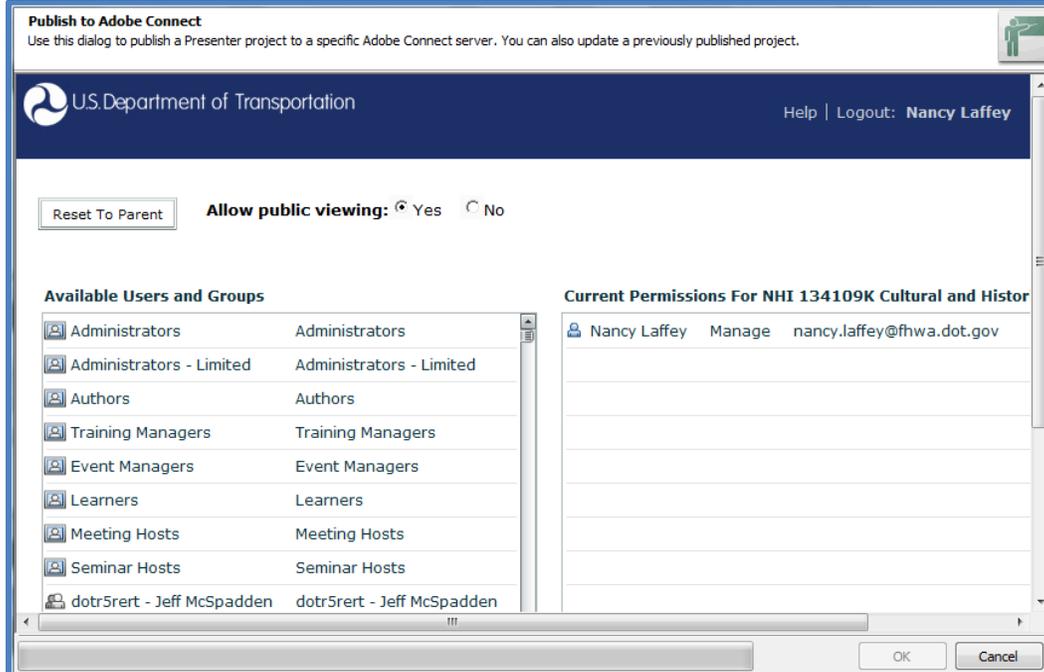
- Select the **Customize** button.

Customize

Current Setting: Same as parent folder

Cancel < Previous Next > Finish

14. Select "Allow public viewing." The setting is saved automatically.



The NHI template includes three buttons: Glossary, Resources, and Help. If these items are developed as part of the courseware, hyperlink each button and add the hyperlinked buttons to each slide. Hyperlinks embedded on the Master slide are not active once the file is published.

The hyperlink for the "Help" button is <https://connectdot.connectsolutions.com/wbthelp>. Add this button to each slide in the presentation.

10. Standards for Deliverables

10.1. Delivery Formats

NHI shall hold ownership of the final courseware (source files), including the PowerPoint files and all final and raw audio, video, Flash (.FLA), and graphic files.

Deliverables for WBT courses are electronic files. Deliver the products required by the contract as final deliverables in the following formats.

- CD-ROM of all source files, including any or all of those listed below
 - Presentation and exam in Microsoft PowerPoint 2010 format (may be segmented by module if files are large)
 - Adobe .PPC files or raw audio files, such as .WAV or MP3
 - Video as compressed digital files in .FLV or .AVI
 - Animation in Flash as .FLA
 - Other resource materials, such as spreadsheets or tables, that are accessed via external links
 - Graphics as compressed, processed files and .PSD with layers preserved
- CD-ROM in .PDF format
 - Presentation materials (provided print-ready as separate files for each module; this file should also be attached to the published file)
 - Reference manual (provided print-ready as one complete document)
 - Other materials required for course delivery
- Published files
 - Adobe .PPTX files (published presentation)
 - Adobe .PPCX files (published audio)
- Copies of all copyright releases and letters granting permission for use from the authors or artist, if applicable
- Any written approvals for modifications

10.2. CD-ROM Labels

- U. S. Department of Transportation-Federal Highway Administration logo
- NHI logo
- Date (month and year)
- NHI course number
- NHI course title
- Type of document, e.g., facilitator guide, participant workbook, reference manual
- IACET logo (if applicable)
- "P" or "W" to distinguish PDF from source file (Word) CD-ROMs
- Publication number (specific to each course deliverable, and provided to the contractor by the NHI TPM or ISD)

10.2.1. Use of Logos and Company References

- Company logos will not be included on any deliverable to NHI.
- References to the company or persons developing, designing, or delivering the course will not be included in any PW, IG, RM, or visual aids. Document exceptions on Technical Report Documentation Page. Obtain a template of this page from the NHI TPM.

10.3. Standards for Electronic File Submissions

The U.S. Department of Transportation (DOT) Standard indicates that all printed materials, including visual aids, must be developed using Microsoft Office 2010 format. This requirement allows NHI to edit all documents delivered by the developer.

- NHI currently accepts Microsoft Office 2010 versions.
- Documents should not be delivered in read-only, presentation-only, or password-protected format.
- Keep the use of macros and other complex formatting to a minimum.

Use the requirements below to create folders for files delivered to NHI.

10.3.1. Source Files Folder

- Presentation materials
- Reference manual
- Test materials
- Supplemental materials

10.3.2. PDF Files Folder

- Presentation materials
- Reference manual
- Supplemental materials

10.3.3. Readme Files

- If a course shares materials with another course, document that need in the readme file.
- Additional information on use of materials or printing requirements is included in this file, as well.

10.3.4. File Naming Convention

Following are file naming conventions for each deliverable. Separate each item in the file name with an underscore (_).

- Course number
- Publication type
 - RM (reference manual)
 - PP (PowerPoint presentation)
 - EX (exam, test, assessment, evaluation instrument, answer key)
 - SM (simulation)
 - VD (video)
 - AU (audio)
 - BK (book)
 - OM (other materials)
- Publication number (if applicable)
 - Obtain from NHI (XX-XXX)
- Revision date formatted in a two-digit month and year
 - 0512
 - 1212
- File description (short description of the file, if necessary)
 - ExamA
 - ExamB
- Application Extension
 - PDF (Adobe Acrobat)
 - DOC (Microsoft Word)
 - PPT (Microsoft PowerPoint)
 - PPC (Auto-generated audio file by Adobe Presenter)
 - WAV or MP3 (Audio file)
 - FLV or AVI (Video file)
 - If use of other software has been approved, use standard application extensions

Following are two examples of file names using the convention *Course Number_Type_Pub #_Date_Desc.*

- 130053_PW_09-116_0512.PDF
- 141031_EX_0712_TestA.DOC (where no publication number is assigned)

11. References

Gagne R, Driscoll M. *Essentials of Learning for Instruction* (2nd ed.). 1998. Boston: Allyn & Bacon.

Kirkpatrick D, Kirkpatrick J. *Evaluating Training Programs: The Four Levels* (3rd ed.). 2006. San Francisco: Berrett-Koehler.

Knowles, M. S., Holton, E. F., & Swanson, R. A. *The Adult Learner* (6th ed.). 2005. Burlington, MA: Elsevier Butterworth-Heinemann. (Original work published 1973.)

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